

**Fishery Management Report No. 05-65**

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**Prince William Sound Management Area  
2004 Annual Finfish Management Report**

by

**Dan Ashe,**

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and

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November 2005

Alaska Department of Fish and Game

Divisions of Sport Fish and Commercial Fisheries



## Symbols and Abbreviations

The following symbols and abbreviations, and others approved for the *Système International d'Unités* (SI), are used without definition in the following reports by the Divisions of Sport Fish and of Commercial Fisheries: Fishery Manuscripts, Fishery Data Series Reports, Fishery Management Reports, and Special Publications. All others, including deviations from definitions listed below, are noted in the text at first mention, as well as in the titles or footnotes of tables, and in figure or figure captions.

<b>Weights and measures (metric)</b>		<b>General</b>		<b>Measures (fisheries)</b>	
centimeter	cm	Alaska Administrative		fork length	FL
deciliter	dL	Code	AAC	mid-eye-to-fork	MEF
gram	g	all commonly accepted		mid-eye-to-tail-fork	METF
hectare	ha	abbreviations	e.g., Mr., Mrs., AM, PM, etc.	standard length	SL
kilogram	kg			total length	TL
kilometer	km	all commonly accepted			
liter	L	professional titles	e.g., Dr., Ph.D., R.N., etc.		
meter	m	at	@	<b>Mathematics, statistics</b>	
milliliter	mL	compass directions:		<i>all standard mathematical</i>	
millimeter	mm	east	E	<i>signs, symbols and</i>	
		north	N	<i>abbreviations</i>	
		south	S	alternate hypothesis	H <sub>A</sub>
		west	W	base of natural logarithm	<i>e</i>
		copyright	©	catch per unit effort	CPUE
		corporate suffixes:		coefficient of variation	CV
		Company	Co.	common test statistics	(F, t, $\chi^2$ , etc.)
		Corporation	Corp.	confidence interval	CI
		Incorporated	Inc.	correlation coefficient	
		Limited	Ltd.	(multiple)	R
		District of Columbia	D.C.	correlation coefficient	
		et alii (and others)	et al.	(simple)	r
		et cetera (and so forth)	etc.	covariance	cov
		exempli gratia		degree (angular)	°
		(for example)	e.g.	degrees of freedom	df
		Federal Information		expected value	<i>E</i>
		Code	FIC	greater than	>
		id est (that is)	i.e.	greater than or equal to	≥
		latitude or longitude	lat. or long.	harvest per unit effort	HPUE
		monetary symbols		less than	<
		(U.S.)	\$, ¢	less than or equal to	≤
		months (tables and		logarithm (natural)	ln
		figures): first three		logarithm (base 10)	log
		letters	Jan, ..., Dec	logarithm (specify base)	log <sub>2</sub> , etc.
		registered trademark	®	minute (angular)	'
		trademark	™	not significant	NS
		United States		null hypothesis	H <sub>0</sub>
		(adjective)	U.S.	percent	%
		United States of		probability	P
		America (noun)	USA	probability of a type I error	
		U.S.C.	United States	(rejection of the null	
			Code	hypothesis when true)	α
			use two-letter	probability of a type II error	
			abbreviations	(acceptance of the null	
			(e.g., AK, WA)	hypothesis when false)	β
				second (angular)	"
				standard deviation	SD
				standard error	SE
				variance	
				population	Var
				sample	var

### Weights and measures (English)

cubic feet per second	ft <sup>3</sup> /s
foot	ft
gallon	gal
inch	in
mile	mi
nautical mile	nmi
ounce	oz
pound	lb
quart	qt
yard	yd

### Time and temperature

day	d
degrees Celsius	°C
degrees Fahrenheit	°F
degrees kelvin	K
hour	h
minute	min
second	s

### Physics and chemistry

all atomic symbols	
alternating current	AC
ampere	A
calorie	cal
direct current	DC
hertz	Hz
horsepower	hp
hydrogen ion activity	pH
(negative log of)	
parts per million	ppm
parts per thousand	ppt, ‰
volts	V
watts	W

***FISHERY MANAGEMENT REPORT NO. 05-65***

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2004 ANNUAL FINFISH MANAGEMENT REPORT**

By

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## ABSTRACT

The 2004 Prince William Sound Area commercial salmon harvest of 28,084,952 fish is the fourteenth largest harvest since 1971. Harvest was comprised of 23.53 million pink *Oncorhynchus gorbuscha*, 1.89 million sockeye *O. nerka*, 2.00 million chum *O. keta*, 619,884 coho *O. kisutch*, and 39,142 Chinook salmon *O. tshawytscha*. Slightly more than half of the harvest, 15.4 million fish, was common property harvest while 12.65 million were sold for hatchery cost recovery (exclusive of roe/meal sales).

Preliminary estimated value of the combined commercial salmon harvest is \$35.74 million, including hatchery sales. During the 2004 season, 522 drift gillnet permit holders fished. Drift gillnet harvest is valued at an estimated \$22.04 million, setting average earnings at \$42,219. Set gillnet harvest is valued at an estimated \$481,232 setting average earnings of the 27 participating permits at \$17,823. The seine fishery harvest was worth an estimated \$5.69 million for an average exvessel value of \$54,210 for the 105 permit holders that participated this year. Revenue generated for hatchery operations (exclusive of roe/meal sales) was approximately \$7.53 million.

Key words: Prince William Sound, pink salmon *Oncorhynchus gorbuscha*, sockeye salmon *O. nerka*, chum salmon *O. keta*, coho salmon *O. kisutch*, Chinook salmon *O. tshawytscha*, hatchery operations, harvest, drift gillnet, set gillnet, purse seine, common property fishery, hatchery cost recovery, Pacific herring *Clupea pallasii*.

## INTRODUCTION

### MANAGEMENT AREA DESCRIPTION

Prince William Sound (PWS) management area encompasses all coastal waters and inland drainages entering the north central Gulf of Alaska between Cape Suckling and Cape Fairfield (Figure 1). This area includes the Bering River, Copper River and all of Prince William Sound with a total adjacent land area of approximately 38,000 square miles.

The salmon management area is divided into 11 districts that correspond to local geography and distribution of the 5 species of salmon (pink *Oncorhynchus gorbuscha*, sockeye *O. nerka*, chum *O. keta*, coho *O. kisutch*, and Chinook salmon *O. tshawytscha*) harvested by the commercial fishery. The management objective for all districts is to achieve escapement goals for the major stocks while allowing for the orderly harvest of all fish surplus to spawning requirements. In addition, the ADF&G follows regulatory plans to manage fisheries and to allow private non-profit (PNP) hatcheries to achieve cost recovery and broodstock objectives.

Six hatcheries contribute to the area's fisheries. Prince William Sound Aquaculture Corporation (PWSAC) operates 5 of the hatcheries. Gulkana Hatchery in Paxson augments production of sockeye salmon in the Copper River. Cannery Creek Hatchery located on the north shore of PWS, and Armin F. Koernig (AFK) Hatchery in southwestern PWS produce pink salmon, Wally Noerenberg Hatchery (WNH) in northwestern PWS produces pink, chum, and coho salmon and Main Bay Hatchery in western PWS produces sockeye salmon. Valdez Fisheries Development Association (VFDA) operates Solomon Gulch Hatchery in Port Valdez and produces pink and coho salmon.

Gear for the salmon fishery includes purse seine, drift and set gillnet. Drift gillnet permits are most numerous and are allowed in Bering River, Copper River, Coghill, Unakwik, and Eshamy Districts. Set gillnet gear is allowed only in Eshamy District. Purse seine gear is allowed in Eastern, Northern, Unakwik, Coghill, Northwestern, Southwestern, Montague and Southeastern Districts.

As an avenue for the commercial fishing industry to formally provide management recommendations to ADF&G, representatives from PWS area processors, gear groups, and

aquaculture associations sit on an advisory body known as the PWS Salmon Harvest Task Force (SHTF).

Five Pacific herring *Clupea pallasii* fisheries occur during the year, when spawning biomass allows. Gillnet sac roe, purse seine sac roe, spawn-on-kelp not in pounds, and spawn-on-kelp in pounds fisheries occur in the spring. A herring food/bait fishery occurs in the fall. All of the herring fisheries are managed for a guideline harvest level established by the Prince William Sound Herring Management Plan, 5 AAC 27.365. The management objective for herring is to target fisheries for high quality segment of the biomass while maintaining a minimum spawning biomass.

## **PRINCE WILLIAM SOUND AND COPPER RIVER COMMERCIAL SALMON FISHERIES**

### **OVERVIEW OF AREA WIDE SALMON FISHERIES**

The 2004 Prince William Sound Area commercial salmon harvest of 28,084,952 fish (Table 1) is the fourteenth largest harvest since 1971 (Table 2; Figure 2). Harvest was comprised of 23.53 million pink, 1.89 million sockeye, 2.00 million chum, 619,884 coho, and 39,142 Chinook salmon. Slightly more than half of the harvest, 15.4 million fish, was common property harvest while 12.65 million were sold for hatchery cost recovery (exclusive of roe/meal sales). Table 7 provides a list of the processors that registered to buy salmon for the 2004 fishing season.

The 2004 preliminary estimated value of the combined commercial salmon harvest is \$35.74 million, including hatchery sales (Table 3; Figure 3). During the 2004 season, 522 drift gillnet permit holders fished (Table 5). The drift gillnet harvest is valued at an estimated \$22.04 million, setting average earnings at \$42,219. Set gillnet harvest is valued at an estimated \$481,232 setting average earnings of the 27 participating permits at \$17,823. Seine fishery harvest was worth an estimated \$5.69 million for an average exvessel value of \$54,210 for the 105 permit holders that participated this year. Revenue generated for hatchery operations (exclusive of roe/meal sales) was approximately \$7.53 million.

Due to a spawning biomass of less than 22,000 metric tons (mt) of herring, no commercial fisheries for herring occurred in 2004.

## **SALMON SEASON SUMMARY BY DISTRICT**

### **COPPER RIVER DISTRICT**

ADF&G, with direction from the Alaska Board of Fisheries (BOF), has consistently endeavored to manage salmon runs to the Copper River District to assure sustained yield and to meet all user group allocations, as outlined in 5AAC 24.360 Copper River District Salmon Management Plan. To these ends, the past decade can be measured more by its successes than shortfalls. At the December 1999 meeting in Valdez, the Board of Fisheries amended 5 AAC 24.361 Copper River Chinook Salmon Fishery Management Plan to provide ADF&G both the tools and the discretion to manage the early season as necessary to maintain the spawning escapement within the range of 28,000 to 55,000 Chinook salmon. In 2003 the BOF modified the spawning escapement goal

to 24,000 or greater Chinook salmon. During the 2004 season, ADF&G actively enacted provisions in the plan with positive results.

Management tools currently available to ADF&G have allowed staff to consistently respond to indices of abundance inseason and to regulate the commercial salmon harvest accordingly. In 2000, ADF&G began reassessing the feasibility of using dipnets and small mesh gillnets to assess run strength in the lower river early inseason for sockeye salmon. Accurately monitoring inriver movement of salmon above the commercial fishing district and below the Miles Lake sonar project has long been recognized as a useful tool that could add precision to early season management actions. ADF&G has been pursuing lower Copper River assessment projects since the 1992 season.

Working in the lower Copper River in May has proven to be challenging. Initial fish monitoring results may be used to confirm that inriver migration has begun, while the long term goal is to establish an early mechanism to evaluate inriver escapement in response to commercial fishing effort before reliable Miles Lake sonar escapement trends are available. The Native Village of Eyak (NVE) has also initiated a lower river assessment project that has the potential to further help characterize run entry below the Miles Lake sonar counters. Preliminary work to assess the feasibility of their project began in 2002. Due to budget concerns in 2004, ADF&G opted to utilize the NVE sonar monitoring project as the principle mechanism to evaluate early salmon migration.

In managing commercial harvest to provide for upriver escapement and allocations, ADF&G's primary measure of inseason success is the escapement index provided by the Bendix sonar counters at Miles Lake. Upriver subsistence harvests have averaged 188,000 salmon from 2000–2002. An increasing trend in subsistence harvests is reflected annually through additions to the inriver goal. Additionally, aerial escapement indices, marked otolith data, and weir data have provided supporting information as to the relative success ADF&G has had in meeting provisions of the Copper River District Salmon Management Plan. Achieving biological escapement goals and satisfying other management plan provisions have remained ADF&G's primary management objectives.

The Copper River District commercial fishing season has historically opened in mid-May. Fishing periods are now established inseason by emergency order following many years of “book openings” that formerly ran from Monday mornings to Friday evenings. In general, fishing time has steadily been reduced over the years in response to changing patterns in the fishery, increased efficiency of the fleet, and reallocations by the BOF. 2 commercial fishing periods per week has been the recent pattern with the duration of a given fishing period dependant upon trends in escapement, harvest, and environmental conditions.

The current upriver biological escapement goal for wild stock sockeye salmon is 300,000 to 500,000 fish. Adopted in 1972 and placed into regulation in 1980 (Fried 1994) the sockeye salmon escapement goal was 300,000 fish until 2003 when the Board of Fisheries adopted the escapement goal of 300,000 to 500,000 fish. The Copper River District Salmon Management Plan outlines the biological and allocation categories that comprise the inriver goal for Miles Lake sonar. Spawning escapement, subsistence harvest, personal use harvest, sport fishery harvest, hatchery brood, “other salmon”, and hatchery surplus are the categories included in the management plan's inriver goal.

Of the 7 categories contained within the inriver goal, the most significant increases over time have been in the hatchery surplus, subsistence, and personal use categories. In the early 1980s, the inriver goal stood at 516,000 salmon. Since that time, the Miles Lake sonar goal has been set as high as 725,000, primarily in response to large forecasted returns of enhanced sockeye salmon and increasing subsistence and personal use harvest.

The category of subsistence and personal use salmon within the inriver goal is expressed as a range. The number of fish added to the inriver goal for subsistence and personal use is set annually based on harvest in recent years. In 2004, the 3-year average harvest from both the Glennallen Subdistrict and Chitina Subdistrict were combined and incorporated into the inriver goal. The number of surplus sockeye salmon within the inriver goal is determined annually based on the Gulkana Hatchery run forecast and a preseason estimate of commercial harvest exploitation rate that wild stocks can likely sustain during the late June and July mixed stock fishery in the Copper River District. It is important to note that these surplus salmon do not fulfill any biological escapement needs, nor are they specifically linked to any upriver subsistence or sport harvest allocations. An unknown percentage of the substantial hatchery surplus is taken during July and August in these upriver fisheries.

### **Preseason Outlook and Harvest Strategy**

The 2004 commercial harvest forecast for the Copper River District was 50,800 Chinook, 884,800 sockeye, and 315,150 coho salmon (Eggers 2003; Table 6). Gulkana Hatchery located north of Paxson Lake was expected to contribute approximately 80,000 sockeye salmon to the commercial harvest. The 2004 inriver goal for salmon passing Miles Lake was set at 551,669 to 751,669 fish. This number equated to a preseason sonar goal of 542,530 to 742,530 salmon by July 31, the normal season ending date for sonar counting at Miles Lake.

The traditional fishing schedule for the Copper River District is 2 evenly spaced periods per week. Periods usually occur on Mondays and Thursdays. Duration of fishing periods is adjusted by emergency order as needed. In early August, the management priority switches to coho salmon management, and fishing has recently begun with one 24-hour period per week. Additional fishing time depends upon the strength of the return determined from harvest and escapement information.

Early-season management of Copper River District is based on actual harvest as compared to anticipated harvest with environmental conditions, fishing effort, and harvest consistency throughout the period, and lower river sonar counts in response to commercial fishing effort taken into account (Appendix A4). This is the most reliable method of evaluating early run strength prior to installation of the inriver sonar at Miles Lake and subsequent sonar escapement trends. In late May, sonar counts and commercial harvest information become the primary factors governing management of the fishery. By mid-June, aerial estimates of sockeye escapement in Copper River Delta systems become an additional consideration when scheduling commercial fishing periods. Due to the many spawning systems in the Copper River Delta, an actual weekly escapement index of selected sockeye and coho salmon systems is compared to an anticipated weekly escapement index. The escapement index goal for the Copper River Delta is 55,000 to 130,000 sockeye salmon and 32,000 to 67,000 coho salmon.

## **Sockeye and Chinook Salmon Fishery Season Summary**

Typically the Copper River District has opened for a single commercial fishing period during statistical week 20 (May 9–15), afterwards the management strategy is to provide for 2 evenly spaced fishing periods per week as escapement allows. In April, 2004 ADF&G staff met with the local SHTF, which is comprised of local processors, fishermen, and fishermen union representatives to discuss initial management strategies for the 2004 Copper River District fishing season. ADF&G presented its concerns and reservations about opening the fishery during statistical week 20. ADF&G viewed the potential opening date as early in light of significant escapement shortfalls early into the 1999 run, the 2004 brood year. The overriding concern was that setting an early opening date before active inriver migration was underway could compromise ADF&G's ability to provide consistent fishing periods early in the run if the season's run was weak reflecting poor parent year escapement in 1999. Despite ADF&G's concerns the ultimate decision for the opening date was given to the SHTF, with the understanding that ADF&G would resume responsibility of achieving adequate inriver escapement once commercial fishing operations had commenced. The SHTF decided that ADF&G's concerns were valid and in the interest of increasing the likelihood of consistent fishing periods and market viability chose to begin the fishing season in statistical week 21 on Monday May 17, 2004.

The spring of 2004 was mild with little snowfall. By the end of April most of the snow on the ground and surrounding hillsides was gone in the Copper River Delta region with Copper River main stem water levels higher than usual due to glacial melt upriver (Appendix A6). In addition water flow had shifted westward with Flag Point Channel receiving more flow than in the previous few years. 2004 Snowcourse data for the Copper River Basin was however greater than that of 2003 with approximately 139.6" of water content in 2004 versus 115.7" water content in 2003 for April 1. The Miles Lake sonar became operational on May 12 and observed salmon escapement on the first day of operations with 14 fish counted. The NVE sonar began observing fish passage through Flag Point Channel on May 13 with an estimated 292 fish counted for the first day.

The first Copper River District commercial fishing period occurred on May 17 and was for 12-hours. Beginning in 1997 until 2002 the first commercial fishing period has had area restrictions to provide for Chinook salmon escapement. Based on radiotag telemetry studies it has been observed that Chinook salmon stocks in the Copper River Basin have distinct run timing curves and temporally overlap one another. In 2004 ADF&G decided to delay possible area restrictions that provide for Chinook salmon escapement with the expectation that by doing so would provide escapement opportunity to the majority of the stocks and that environmental conditions would be more conducive at a later date in which Chinook salmon would be more apt to pursue inriver migration. Therefore, the first period in 2004 had no area restrictions to provide for Chinook salmon escapement. The harvest from the first period was 39,838 sockeye and 8,948 Chinook salmon (Appendix A7 and A8).

The second fishing period was on May 20 and was for 12-hours. ADF&G did not believe an inside area closure restriction for this period was warranted given encouraging early sonar counts at Miles Lake, restrictive fishing time, robust Chinook salmon harvest from the first fishing period, and that a fishing period had been forgone with consensus of the SHTF in statistical week 20. The Miles Lake sonar had reported 1,301 fish passed versus an anticipated count 418 fish on May 17. However, due to uncertainty in Chinook salmon run strength and escapement inseason,

ADF&G felt that some precautionary measure was warranted, thus fishing time was kept to 12-hours for this period. The harvest for the second fishing period was 48,297 sockeye and 5,134 Chinook salmon. Weather for the first and second periods was quite calm providing the fleet unhindered mobility.

On May 21 the cumulative sonar escapement was 10,525 salmon versus an anticipated escapement of 5,832 fish. The NVE sonar project was confirmed that fish inriver migration was responding well to commercial harvest efforts with Catch Per Unit Effort (CPUE) rebounding within 2 days after a commercial fishing period. Harvest distribution across the district also indicated that the fish were spread throughout the district east to west and inside and outside the barrier grass islands. With escapement tracking well ahead of what was anticipated and the fish appearing to be migrating inriver from the district with a sense of urgency, the third period was on Monday, May 24 for 12-hours. ADF&G opted to stay with a 12-hour fishing period for this opener primarily in response to a less than anticipated Chinook harvest for the second fishing period. The third period's harvest was 49,272 sockeye and 2,780 Chinook salmon. Strong winds and heavy seas hindered the fishing period.

By May 25 the water stage height at the Million Dollar Bridge was above average with 41.33 meters stage height versus an historical mean stage height of 39.91 meters (Appendix A6). Sonar escapement continued to track ahead of anticipated escapement with a May 25 cumulative sonar escapement of 70,524 salmon versus an anticipated cumulative escapement of 20,354 fish. The fourth fishing period was for 24-hours and began on May 27 with a reported harvest of 59,313 sockeye and 3,453 Chinook salmon.

The fifth fishing period began on May 31 for 36-hours. The Miles Lake sonar had counted a cumulative escapement of 131,160 salmon versus an anticipated count of 41,935 fish through May 28. Large tides were occurring at this time with the possibility of facilitating further escapement. There was some concern expressed by members of the commercial fleet that harvest and abundance was low in the inside portion of the district and that the run may be slowing, similar to that experienced in the season of 2002. It was believed that given the current escapement to date, NVE sonar performance in response to fishing effort, and reported distribution of harvest, and large tides that additional fishing time for fifth fishing period was warranted. ADF&G would need to begin to manage for delta sockeye salmon escapement in the near future and thus would likely rely on a schedule of two 24-hour fishing periods per week until both delta and upriver escapement warranted additional fishing time. The fifth fishing period had a harvest of 131,941 sockeye and 4,665 Chinook salmon.

Fishing periods 6 through 10 were each for 24-hours beginning on June 3, 7, 10, 14, and 17 respectively. The Eshamy District opened to common property harvest on June 10 with concurrent fishing periods to that of Coghill and the Copper River Districts. Beginning June 10 effort began to decrease from the Copper River District as fishing opportunities increased in other areas. By mid-June ADF&G was actively managing for delta sockeye salmon escapement. A June 10 delta aerial survey was conducted under poor conditions with 3,400 sockeye salmon observed versus an anticipated escapement of 4,200 fish (Appendix A9). On June 1 the cumulative sonar escapement was 202,483 fish versus an anticipated 78,129 fish. Beginning June 3 sonar escapement began to track near daily anticipated counts and by June 8 the cumulative escapement stood at 293,614 fish versus an anticipated count of 173,985 fish. At the conclusion of the tenth fishing period on June 18 the cumulative harvest was 632,412 sockeye and 36,354 Chinook salmon.

The eleventh and twelfth fishing periods were each for 36-hours and began on June 21 and 24 respectively. Eshamy and Coghill districts were open concurrently with these periods and allowed the fleet to spread their effort. To contrast, 293 permits participated during the eleventh period and 214 permits participated during the twelfth fishing period compared to 348 permits fishing the district during the tenth fishing period on June 17. A delta aerial survey was conducted on June 18 under good conditions with 35,000 sockeye salmon observed versus an anticipated count of 8,900 fish. Most of the delta sockeye salmon escapement was observed in Eyak Lake, Martin River and Lake, and Martin River Slough. Miles Lake sonar cumulative escapement was 470,519 fish versus an anticipated count of 329,932 fish on June 23, with daily sonar counts greater than anticipated for this date. Cumulative commercial harvest was 738,679 sockeye and 37,361 Chinook salmon on June 26 the conclusion of the twelfth fishing period.

Fishing periods thirteen through eighteen were all for 48-hours beginning on June 28, July 1, 5, 8, 12, and 15 respectively. On June 24 a delta aerial survey was conducted in fair conditions with 49,315 sockeye salmon observed versus an anticipated count of 19,950 fish. On July 7 the cumulative sonar escapement was 578,675 fish versus an anticipated escapement of 418,658 fish. A subsequent aerial survey was conducted on July 8 in good conditions with 43,580 sockeye salmon observed versus an anticipated count of 42,250 fish. On July 7 the cumulative sonar escapement was 578,675 fish versus an anticipated count of 418,658 fish. Due to little or no rainfall to date much of the escapement was concentrated near mouths of spawning tributaries with dead salmon smolt being observed in several nursery lakes. Fishing effort remained fairly constant during these periods with slightly more than 200 permits participating. The cumulative harvest after the eighteenth fishing period was 1,010,671 sockeye and 38,123 Chinook salmon.

From July 13 until July 23 daily sonar escapements were below the daily escapement objectives. The less than anticipated daily sonar escapement may be attributed to a combination of high river flows and an aggressive fishing schedule. The water stage height at the Million Dollar Bridge peaked on July 18 and 19 with a stage height of 44.56 meters. Incidentally this is the second largest water stage height ever recorded at the Million Dollar Bridge since 1978. A delta aerial survey was conducted July 15 under fair conditions with 31,350 sockeye salmon versus an anticipated count of 45,200 fish. At this time many delta spawning streams were extremely low due to virtually no rainfall for the summer. Little Martin River had no observable flow with adult sockeye salmon stranded in pools. The nineteenth fishing period's fishing time was reduced to 36-hours to begin on July 19 in response to decreased daily sonar counts and lagging delta escapement. The harvest for the period was 17,509 sockeye and 9 Chinook salmon with 159 permit holders fishing.

The twentieth through the twenty fourth fishing periods were all for 24-hours each commencing on July 22, 26, 29, August 2, and 5 respectively. A delta aerial survey was conducted on July 20 under fair conditions with 30,525 sockeye salmon observed versus an anticipated count of 48,625 fish. A subsequent delta aerial survey was conducted on August 2 with only 17,735 sockeye estimated in delta systems versus an anticipated count 51,800 fish. A small undetermined number of coho salmon were also observed.

The actual 2004 sockeye salmon harvest of 1,048,004 fish ranked as the fourteenth largest on record since 1974, but was below the recent 10-year average harvest of 1.54 million sockeye salmon (Appendix A2). The harvest of 38,191 Chinook salmon was below the projected harvest and ranked as the seventeenth largest Chinook salmon harvest since 1974.

ADF&G switched its priority from sockeye to coho salmon management beginning on August 9. The 2004 actual sonar escapement was 669,646 salmon on July 31 when the sonar was removed versus an anticipated escapement of 542,530 to 742,530 salmon for that date. The sockeye salmon escapement index in the lower Copper River in 2004 was above the lower end of the escapement range. The actual delta escapement index of 69,385 sockeye salmon was 18% below the midpoint goal of 84,600 (Appendix A5 and A9).

The summer of 2004 was extremely warm and dry. While the Copper River main stem flows were above normal, delta spawning tributaries were low with warm water temperatures that could have potential adverse effects on spawning success and recruitment. Stream retention of spawning sockeye salmon was noticeably less than in previous years.

Upper Copper River aerial survey index counts for Chinook and sockeye salmon may be found in Appendices A20 and A21 respectively.

The estimated age and sex composition of sockeye and Chinook salmon harvested in the commercial fishery can be found in Appendices A22 and A23 respectively.

### **Coho Salmon Fishery Season Summary**

ADF&G met with the local PWS SHTF and the public in April to discuss coho salmon management. It was decided that a single 24-hour period per week schedule would be maintained until escapement warranted either extending or decreasing fishing time. Deciding on the most appropriate fishing strategy to apply to the coho salmon return has been a contentious issue for the past few seasons. 2 distinct fishing periods per week will potentially allow for 2 “clean up” harvests to occur when milling fish may be more effectively harvested. The contention is that a single long weekly period will allow a broader window of time for fish to mill in the estuary and still escape the fishery. Arriving at a consensus over harvest strategy between processors and the fishing fleet has proven difficult to achieve. Overriding the concern over which would be the best harvest strategy for coho salmon has been the concern about the pattern of weak returns to the Copper River District since 1996 through 2001. Prior to 2002, the district has seen harvests fall below projections and seasons end prematurely due to weak returns. In 1997, coho salmon escapement into delta streams was weak enough to close the commercial season and a bag limit reduction was imposed for sport fishers. In 1998, fall weather precluded an accurate assessment of coho salmon escapement for the year. Because of the recent history of poor coho salmon returns and inconclusive escapement data, ADF&G intended to approach the season with caution.

The coho salmon season officially began at 7:00 a.m. on August 9 with a single 24-hour period that week. The harvest from the first coho salmon fishing period was 14,252 fish with 148 permit holders participating. An aerial survey was conducted in good conditions on August 10 with 4,680 coho salmon observed versus an anticipated count 3,155, with most of the observed escapement in the Martin Lake system (Appendix A11 and A12).

With adequate escapement the decision was made to continue with fishing opportunities through a conservative approach given the persistent low water conditions throughout the Copper River Delta. The second commercial fishing period on August 16 resulted in a harvest of 42,502 coho salmon versus a projected harvest of approximately 47,000 fish for that week. The female percentage measured from the harvest was estimated to be below the historic average for that date. Due to a moderate harvest and female percentages the run at this time appeared to be

tracking slightly late. An aerial survey was conducted on August 17 in fair conditions with 8,910 coho salmon observed versus an anticipated count of 9,675. The third opening on August 23 resulted in a harvest of 76,450 coho salmon with the peak effort of 312 permit holders participating versus a peak effort for the same time in 2003 of 254 permit holders. An aerial survey was conducted August 24 under good conditions with 15,390 coho salmon observed versus an anticipated count of 15,650 coho salmon.

With both escapement and harvest improving coupled with below average female percentages it was decided that the week of September 4 could support increased fishing pressure with two 24-hour fishing periods. The fourth 24-hour period for Monday, August 30 resulted in a coho salmon harvest of 105,774 fish with 308 permit holders participating. The fifth fishing period began on Thursday, September 2 with 72,548 coho salmon harvested. An aerial survey was conducted in good conditions on August 31 with 38,450 coho salmon observed versus an anticipated count of 25,425.

The coho salmon escapement goal for the Copper River District is 32,000 to 67,000 fish with a midpoint goal of 50,000. With coho salmon escapement near the midpoint ADF&G maintained fishing time of two 24-hour fishing periods for the week of September 11. This schedule was agreed upon by most processors in order to allow maximum fishing time and processor tender rotations. The sixth fishing period began on September 6 and was for 24-hours with the seventh fishing period beginning on September 9 for 24-hours. The combined harvest from these 2 fishing periods was 74,130 coho salmon. An aerial survey was conducted in fair conditions on September 7 with 48,150 coho salmon observed versus an anticipated count of 35,425 fish.

The weeks of September 18 and 25 had two 36-hour fishing periods each. With escapement near the midpoint, robust harvest, and female percentages continuing to track below anticipated the run was apparently tracking late and stronger than projected. Coho salmon prices for 2004 were considerably higher than they had been in the past 5 years with most processors offering \$0.70 per pound. The eighth and ninth fishing periods occurred the week of September 18 each for 36-hours with a combined harvest of 56,967 coho salmon. Major processors ceased operations at the conclusion of the ninth fishing period on September 18. The tenth and eleventh fishing periods occurred the week of September 25 each for 36-hours with a combined harvest of 6,293 coho salmon. An aerial survey was conducted September 21 under fair conditions with 60,690 coho salmon observed versus an anticipated count of 34,565 fish.

With peak coho salmon escapement near the upper range of the escapement goal and little fishing effort remaining due to lack of market the weeks of October 2 and 9 each had 156-hour fishing periods with breaks to allow for harvest reporting. The twelfth fishing period of 156-hours that ended October 3 had a reported harvest of 909 coho salmon with 6 permit holders participating. The thirteenth fishing period also for 156-hours ended October 10 with no reported effort or harvest.

The Copper River District coho salmon harvest of 467,859 fish was 48% above the projected harvest of 315,135 (Appendix A10) and ranked as the fifth largest harvest on record since 1974. The estimated coho salmon escapement into the Copper River Delta was 99,980 fish versus an Sustainable Escapement Goal of 33,000 to 67,000 coho salmon. The final delta aerial survey was conducted under poor conditions on October 8.

The estimated age and sex composition of coho salmon harvested in the Copper River commercial fishery can be found in Appendix A24.

## **BERING RIVER DISTRICT**

### **Preseason Outlook and Harvest Strategy**

Opening in early June, the Bering River District is managed concurrently with the Copper River District (Appendix A13). The 2004 harvest of 13,165 sockeye salmon from Bering River District was near the recent 10-year average of 14,425 fish (Appendix A14). Sockeye salmon escapement into Bering River District streams was below the lower range of the escapement goal of 26,000 to 38,000 sockeye salmon with a peak index estimate of 23,260 fish. The Bering River drainage, the largest sockeye salmon spawning system in the district, had a peak index count of 22,550 sockeye salmon versus an anticipated peak count of 22,100 sockeye salmon (Appendix A15).

The coho salmon harvest of 95,595 fish was above the recent 10-year average of 88,400 fish. The coho salmon escapement goal was achieved with a peak escapement index of 30,185 fish versus an escapement goal of 13,000 to 33,000 fish for the Bering River District (Appendix A16).

### **Sockeye Salmon Season Summary**

The Bering River District generally opens the second or third week of June. In 2004, the first period began on June 7 for 24-hours. The Copper River District sockeye salmon harvest and escapement at that time indicated a return near anticipated. Minimal fishing effort and harvest for The Bering River District was reported for the first fishing period. The district was opened to fishing concurrently with Copper River District until the close of the season on October 10. Peak sockeye salmon harvest and effort occurred during the third fishing period on June 14 when 28 permit holders harvested 7,362 sockeye salmon for the period (Appendix A17).

Aerial surveys were conducted on June 10, 18, 24, July 1, 8, 15, 20, 31, August 2, 10, 17, and 24 for sockeye salmon escapement. Beginning June 18 and continuing through July aerial surveys indicated sockeye salmon were near or above the anticipated counts. The Bering Lake drainage had the largest observed escapement for the district. Dick Creeks which are tributaries to Bering Lake had a peak escapement of 1,700 sockeye salmon on July 20. Bering Lake's peak escapement of 20,450 sockeye salmon was observed on July 20. Katalla River which is not a sockeye salmon index system had a peak observed escapement of 1,875 sockeye salmon on July 15.

Dick Creeks' flow was markedly low throughout the season. The Area Management Biologist noted on several occasions that Bering Lake appeared to be much lower than normal, which may be validated by Beaver aircraft transporting sampling personnel to and from the lake that was "bumping" the bottom with its floats on take off. The pilot noted that he had not experienced this before at this location. Additionally, the Area Management Biologist also noted on several occasions that dead salmon smolt, mainly coho salmon were observed in Bering Lake during breaks while conducting aerial surveys.

### **Coho Salmon Season Summary**

The coho salmon fishery is managed concurrently with the Copper River and typically begins in early August. In 2004 the Bering River District coho salmon fishery began on August 9 with a 24-hour fishing period. No permit holders fished for the first period. The district was managed concurrently with the Copper River District until the close of the season on October 10. Peak

fishing effort was on during the fourth fishing period on August 30 when 61 permit holders harvested 25,032 coho salmon.

Aerial surveys conducted from August 10 through October 8 all indicated that coho salmon escapement into Bering River spawning areas were near or above anticipated levels (Appendix A16). The Edwards River peak coho salmon escapement was observed on August 31 with 910 coho salmon observed. The Katalla and Okalee Rivers had peak observed escapements of 6,500 and 5,250 coho salmon on September 14 respectively. Bering Lake had a peak observed escapement on September 21 with 6,600 coho salmon observed. Gandil and Nichawak Rivers had peak observed escapements of 2,000 and 1,475 coho salmon on October 8 respectively.

## **COGHILL DISTRICT (PRIOR TO JULY 21 AND COHO SALMON MANAGEMENT)**

### **Preseason Outlook and Harvest Strategy**

The 2004 fishing season is the second consecutive season that the purse seine fleet has been allowed in the Esther Subdistrict prior to July 21 in accordance with 5AAC 24.370(e)(2). According to the intent of the BOF, ADF&G developed a management strategy for the Coghill District for how the Esther Subdistrict would be managed in years that the purse seine is allowed to fish prior to July 21 due to allocation shortfalls. Drift gillnet gear would be allowed to initiate the season with area within the Esther Subdistrict open to drift gillnet harvest. The initial fishing period would commence on a Monday allowing for subsequent concurrent fishing periods with the Copper River and Eshamy districts. The purse seine fleet would follow with a period of equal duration with area within the Esther Subdistrict open on a Thursday after the first drift gillnet period and concurrent with open fishing periods in the Port Chalmers Subdistrict. Thereafter, the 2 gear groups would alternate fishing periods within the Esther Subdistrict on a similar weekly schedule until run strength allowed more fishing time or area. Area for the drift gillnet fleet was planned to be the entire Esther Subdistrict and that area would be contracted based on wild stock escapement, effort, and PWSAC cost recovery concerns. Area for the purse seine fleet was planned to be the waters of the Esther Subdistrict east of 148° 6' W. longitude and west of 147° 56' W. longitude, and within 1 nautical mile of Esther Island. If either cost recovery or wild stock escapement concerns were to arise, the purse seine fleet would be restricted to the WNH Terminal Harvest Area (THA). If either cost recovery or wild stock escapement concerns were to persist both gillnet and purse seine fleets would be closed from the Esther Subdistrict until those concerns were alleviated.

The BOF met in April, 2004 to discuss and amend 5AAC 24.370 (d)(5) Prince William Sound Management And Salmon Enhancement Allocation Plan. The BOF at this meeting created a "buffer zone" for the Esther Subdistrict that would be in place during periods that purse seine gear was permitted to fish within the subdistrict. The buffer zone consist of waters of Port Wells south of 60° 52.71' N. latitude (Granite Point) and waters of Esther Passage south of 60° 50.84' N. latitude (Shoestring Cove) and would restrict drift gillnet gear from operating in these areas when purse seine gear was actively fishing within the Esther Subdistrict. The buffer zone was to be implemented in the 2004 season.

The 2004 wild stock sockeye salmon run to Coghill Lake was forecasted to be 397,000 fish. Meeting the midpoint escapement goal of 30,000 sockeye salmon would leave approximately 367,000 fish for common property harvest.

The early run of chum salmon to WNH was forecasted by PWSAC to be 3.15 million fish. PWSAC's 2004 revenue goal for chum salmon production was \$2.4 million. Preseason estimates of revenue, broodstock requirements, and PWSAC's corporate escapement needs equated to approximately 1.76 million WNH chum salmon, leaving approximately 1.39 million chum for common property harvest.

PWSAC's 2004 forecast for pink salmon returning to WNH was 8.27 million fish assuming 6.9% marine survival. Preseason PWSAC assumed a broodstock goal of 228,000 pink salmon and approximately 3.68 million pink salmon would be needed to meet production revenue needs. This equated to 52.7% of the anticipated return of pink salmon to WNH for PWSAC corporate escapement needs. Based on the preseason forecast the common property harvest of pink salmon returning to WNH would be 3.91 million fish. Management for pink salmon returning to WNH begins after July 20.

PWSAC's 2004 forecast for coho salmon returning to WNH was 50,700 fish assuming a 7.6% marine survival. PWSAC does not actively harvest coho salmon for cost recovery. PWSAC anticipated that no returning coho salmon to WNH would be needed to satisfy broodstock requirements as they planned to satisfy their broodstock needs from remote egg takes at 18-mile Creek and from VFDA. All returning coho salmon returning to WNH would be available for common property harvest.

### **Season Summary**

The total chum salmon harvest for both the common property and corporate escapement was 1.45 million fish, which was below PWSAC's preseason forecast of 3.15 million chum salmon. The common property harvest of early chum salmon was 921,000 fish (Appendix B1 and B2). The drift gillnet and purse seine chum salmon harvest was 534,959 and 386,042 fish. PWSAC harvested 528,676 chum salmon for sales, and the broodstock goal was not achieved. The total commercial harvest of sockeye salmon in the district was 216,351 fish, of which the purse seine fleet harvested 195 fish and the drift gillnet fleet harvested 216,156 fish. Based on inseason stock contribution estimates approximately 139,504 or 64.3% of the sockeye salmon harvested in the Coghill District were of natural origin, while 77,469 sockeye were of Main Bay origin. Sockeye salmon escapement into Coghill Lake was 30,569 fish, versus an escapement goal of 20,000 to 40,000 fish (Appendix B3, B4, and B5). Peak sockeye salmon passage occurred between June 21 and June 28 when 11,501 sockeye salmon passed the weir. A total of 2,006 pink salmon were counted past the weir. Peak pink salmon passage occurred between July 21 and July 26, when 1,689 pink salmon were passed through the weir.

The Coghill District management strategy discussed at the April SHTF meeting was based on the WNH enhanced chum salmon corporate escapement goal of 1.76 million and the forecasted run of 3.15 million (PWSAC) fish. With a Coghill Lake forecast of 397,000 sockeye salmon and a midpoint escapement goal of 30,000 fish, the Coghill District was expected to open for 2 periods per week beginning in late May or early June (Appendix B6). The strategy for cost recovery was to begin harvesting as soon as adequate numbers of chum salmon were available in the THA and Special Harvest Area (SHA) using purse seine vessels for harvesting. PWSAC began monitoring the run in mid-May and began harvesting chum salmon on June 6. Due to the number of age-4 chum salmon that returned in 2003, a significant component of age-5 salmon were expected to contribute heavily to the 2004 WNH enhanced chum salmon run. These older aged chum salmon generally return earlier in the season than age-4 and age-3 chum salmon. Accurately forecasting

the 2004 chum salmon return was complicated by PWSAC's adoption of a rearing practice that appears to have successfully influenced chum salmon survivals. It remains unclear if the sibling relationship used to model previous forecasts would remain unchanged in light of new rearing strategies. If survivals were indeed enhanced, an increased component of age-5 and age-4 chum salmon by age and number would likely be the result in 2004.

The first drift gillnet commercial opening in the Coghill District excluding the WNH THA and SHA occurred on May 31 for 24-hours after chum salmon were observed in the district. Effort and harvest for this period was moderate for the first period with 14 permit holders harvesting 8,120 chum salmon (Appendix B1). Initial effort in Coghill District was low due to low chum salmon prices and continuous sockeye salmon harvests in the Copper River District.

The second fishing period was for 24-hours beginning on June 3. During this period purse seine gear was allowed in the Esther Subdistrict east of 148° 6' W. longitude and west of 147° 56' W. longitude, and within 1 nautical mile of Esther Island excluding the WNH THA and SHA. Drift gillnet gear was not allowed in the Esther Subdistrict or within the BOF prescribed buffer zone during the period in accordance with the Prince William Sound Management and Salmon Enhancement Allocation Plan 5 AAC 24.370. Drift gillnet gear was however allowed in the Coghill District excluding the Esther Subdistrict and buffer zone for the second period. Drift gillnet effort and harvest was minimal. Twenty-six purse seine permit holders harvested 62,838 chum salmon during the period.

The third commercial opening in the Coghill District excluding the WNH THA and SHA began on June 7 for 24-hours with only drift gillnet gear permitted in accordance with 5 AAC 24.370. Approximately 30 drift gillnet permit holders participated during the period harvesting 21,339 chum and 189 sockeye salmon. PWSAC began cost recovery operations on June 6. On June 9 total harvest stood at 126,000 chum salmon for both common property and cost recovery versus an anticipated harvest of 396,000 for this date. Reports from the grounds and processors was that fish were sparse giving indication that chum salmon returning to WNH were weak in numbers and tracking less than forecasted.

The fourth fishing period was for 24-hours beginning on June 10. During this period purse seine gear was allowed in the Esther Subdistrict east of 148° 6' W. longitude and west of 147° 56' W. longitude, and within 1 nautical mile of Esther Island excluding the WNH THA and SHA. Drift gillnet gear was allowed in the Coghill District excluding the Esther Subdistrict and the buffer zone during the period in accordance with the Prince William Sound Management and Salmon Enhancement Allocation Plan 5 AAC 24.370. Drift gillnet permit holders harvested 17,606 chum and 493 sockeye salmon. The purse seine fleet harvested 146,604 chum salmon during the period. The Coghill River weir became operational on June 10 and no sockeye salmon passed the first day.

Beginning June 12 ADF&G was certain the chum salmon return to WNH was weaker than forecasted. PWSAC requested that time allowed to common property harvest within Esther Subdistrict be reduced to alleviate faltering cost recovery efforts. The fifth fishing period was for 24-hours and began June 14. Drift gillnet gear was permitted to participate during this fishing period with all of the Coghill District open excluding the WNH THA and SHA for 12-hours only, after which the Coghill District excluding the Esther Subdistrict would be open for the remainder of the period. Seventy drift gillnet permit holders participated during the period harvesting 46,403 chum and 3,403 sockeye salmon.

On June 16 ADF&G was convinced that chum salmon returning to WNH would be far less than forecasted and the return would likely be under 2 million fish, of which PWSAC required 1.76 million for corporate escapement needs. ADF&G advised PWSAC that Esther Subdistrict should be closed to common property harvest in the interest of meeting PWSAC escapement needs for cost recovery and broodstock. PWSAC requested that Esther Subdistrict be opened for the sixth fishing period. The sixth fishing period for the district was open to both purse seine and drift gillnet gear in accordance with the Prince William Sound Management and Salmon Enhancement Allocation Plan 5 AAC 24.370. Purse seine gear was allowed in the Esther Subdistrict east of 148° 6' W. longitude and west of 147° 56' W. longitude, and within 1 nautical mile of Esther Island excluding the WNH THA and SHA for 12-hours on June 17. Drift gillnet gear was permitted in the Coghill District excluding the Esther Subdistrict and the buffer zone, during the 12-hour purse seine period. Drift gillnet gear was then allowed to fish in the Coghill District excluding the Esther Subdistrict for the remainder of a 24-hour fishing period that commenced concurrently with the purse seine period on June 17. The purse seine fleet harvested 176,408 chum and 156 sockeye salmon during what would be the final fishing opportunity within the Esther Subdistrict until after July 21. Drift gillnet permit holders harvested 31,668 chum and 1,838 sockeye salmon during the period. On June 19 the Coghill River weir cumulative escapement was 2,164 sockeye salmon versus an anticipated escapement of 501 fish.

PWSAC requested that Esther Subdistrict remain closed until cost recovery improved, thus only drift gillnet gear was allowed in the general Coghill District. The seventh and eighth fishing periods were each for 48-hours commencing on June 21 and June 24 respectively. During both fishing periods the Coghill District excluding Esther Subdistrict was open for the first 24-hours and waters north of 60° 55.89' N. latitude (head of Esther Pass) were open for the entire 48-hour period. At the conclusion of the seventh fishing period the Coghill River weir escapement was 6,755 sockeye salmon versus an anticipated escapement of 1,626 fish. Additionally, initial stock contribution estimates from the commercial drift gillnet harvest indicated that over 90% of the sockeye salmon harvest was of wild origin. With strong sockeye escapement, an above average harvest heavily comprised of wild sockeye salmon, a robust preseason forecast of 397,000 sockeye, and large upcoming tides deep mesh gillnet gear was permitted beginning June 24. The cumulative harvest of the seventh and eighth fishing periods was 43,317 chum and 33,709 sockeye salmon.

PWSAC cost recovery continued to lag through late June and into early July with Esther Subdistrict remaining closed. Eshamy District opened on June 10 and fishing periods for Eshamy, Coghill, Unakwik, Copper, and Bering River Districts were all opened concurrently, spreading fishing effort. With effort spread among the gillnet districts, continued strong Coghill River sockeye salmon escapement, and robust sockeye salmon harvest in the Coghill District fishing periods nine through twelve were for 72-hours each, commencing on June 28, July 1, 5, and 8 respectively. During each of these fishing periods the Coghill District excluding Esther Subdistrict was open for the first 48-hours and waters north of 60° 55.89' N. latitude (head of Esther Pass) were open for the entire 72-hour period. At the conclusion of the fishing period on July 11 the Coghill River weir cumulative escapement was 22,107 versus an anticipated count of 14,835 sockeye salmon. The cumulative harvest of the ninth through the twelfth fishing periods was 310,295 chum and 127,307 sockeye salmon.

PWSAC representatives and the fishing fleet were concerned that this schedule provided too much fishing time within the southern half of the district allowing a targeted harvest of enhanced

chum salmon returning to WNH. ADF&G believed that by providing the increased time that the fishing fleet would continue to remain spread across the district. Daily Coghill River escapement had slowed and ADF&G could not adequately justify concentrating effort solely in the northern half of the district near the Coghill River mouth. ADF&G needed to provide an incentive to retain effort from shifting to the Eshamy District or to the Copper River District. Subsequently the Eshamy District was closed after the July 1 fishing period due to PWSAC cost recovery shortfalls. Lastly, it should be noted that AFG&G does not manage for cost recovery outside of hatchery subdistricts, and within general districts wild stock escapement is ADF&G's highest priority.

Fishing periods thirteen through fifteen were also for 72-hours each beginning July 12, 15, and 19 respectively. Following the same schedule as previous periods the Coghill District excluding Esther Subdistrict was open for the first 48-hours and waters north of 60° 55.89' N. latitude (head of Esther Pass) were open for the entire 72-hour period. Eshamy District remained closed due to cost recovery concerns limiting the drift gillnet fleet's options in western PWS. ADF&G believed that maintaining abundant fishing time was the best option to retain effort in the district and to keep fishing effort spread between Coghill and the Copper River Districts. On July 17 the Coghill River weir had a cumulative escapement of 25,493 sockeye salmon versus an anticipated escapement of 19,027 fish. The cumulative harvest of the thirteenth through the fifteenth fishing periods was 52,656 chum and 46,866 sockeye salmon with as many as 116 permit holders fishing during the thirteenth fishing period.

PWSAC began observing pink salmon within the cost recovery harvest beginning July 20. ADF&G switched its priority from sockeye salmon to pink salmon management beginning July 22. The Coghill River weir was removed for the season on July 26 with a cumulative escapement of 30,569 sockeye salmon versus an anticipated escapement of 22,993 fish for that date. The Coghill River sockeye salmon escapement goal is 20,000 to 40,000 fish. PWSAC harvested approximately 528,676 chum salmon for cost recovery which equated to about 35% of their harvest goal. PWSAC also fell below their chum salmon broodstock goal of 225,000 fish with 209,000 chum salmon collected for broodstock.

The drift gillnet fleet harvested 534,959 chum and 216,156 sockeye salmon in the Coghill District. The purse seine fleet harvested 386,042 chum and 195 sockeye salmon in the Coghill District during 2004. Stock contribution estimates from the commercial harvest of both gear types indicate that 95.3% and 35.7% of the chum and sockeye salmon commercial harvest in the Coghill District were of enhanced origin. Estimated age and sex composition of sockeye salmon harvested in the Coghill District commercial fishery and through the Coghill River weir may be found in Appendices B7 and B8 respectively.

Beginning July 21 both drift gillnet and purse seine gear are managed concurrently for the Coghill District. Purse seine gear is permitted in the district from July 21 until pink salmon are no longer predominant by number in the harvestable surplus. There was minimal to no drift gillnet effort observed until enhanced coho salmon became available.

Historically ADF&G has opened the Esther Subdistrict excluding the WNH SHA for 156-hour fishing periods for the harvest of WNH enhanced coho salmon. PWSAC does not actively harvest coho salmon for cost recovery and for the 2004 season did not plan on collecting broodstock at WNH, but opted to collect broodstock at 18-Mile Creek in the Copper River Delta and at VFDA. The 156-hour fishing periods run from Monday morning until Sunday evening

with breaks for harvest reporting. Fishing periods twenty through 25 were each for 156-hours and commenced on September 6, 13, 20, 27, October 4, and 11 respectively. During each of the fishing periods waters of the Esther Subdistrict were open excluding the WNH SHA. Drift gillnet effort targeting enhanced coho salmon was at its peak with 16 permit holders fishing during periods 20 and 21. There was no reported effort for the last 2 fishing periods that began on October 4 and 11 respectively. The Coghill District was closed for the 2004 season effective 8:00 p.m., October 17. The drift gillnet harvest was 10,200 coho salmon.

## **UNAKWIK DISTRICT**

Drift gillnet and purse seine are legal commercial fishing gear types in Unakwik District. The total 2004 Unakwik District harvest was 7,438 sockeye, 1 coho, 0 pink, and 168 chum salmon (Appendix B9 and B10). The sockeye salmon harvest was above the 10 year average harvest of 5,391 (Appendix B10). The Unakwik District opened June 14 for a 24-hour period (Appendix B6) and followed a schedule of 2 evenly spaced periods per week that were concurrent with that of the Coghill and Eshamy Districts. Primarily sockeye salmon are targeted that are returning to Miners Lake. No changes were made to the concurrent fishing schedule until June 24 when the district was open for 48-hours to provide incentive for drift gillnet permit holders to target the area with opportunity also available in the Coghill and Eshamy Districts. On July 24, the Unakwik District closed for the season due to the arrival of pink salmon returning to Cannery Creek Hatchery in the Northern District.

## **ESHAMY DISTRICT**

### **Preseason Outlook and Harvest Strategy**

Wild stock sockeye salmon returns to Eshamy Lake were forecasted to total 98,000 fish, 30,000 of which were needed to meet the midpoint of the lake's biological escapement goal of 20,000 to 40,000 sockeye salmon. Onsite returns to Main Bay Hatchery were projected by PWSAC to be 1.28 million sockeye salmon composed entirely of Coghill stock. PWSAC anticipated preseason that approximately 369,000 enhanced sockeye returning to Main Bay Hatchery would be needed for cost recovery harvest and broodstock.

PWSAC had announced preseason that each enhanced species that they release would be harvested in accordance to finance the rearing costs for each species. The timing and frequency of common property openings from mid-June through the remainder of the season would be balanced to provide for wild stock escapement, PWSAC's revenue needs, hatchery broodstock, and to maintain a high quality commercial harvest.

ADF&G met with the SHTF on April 26, 2004 to discuss Eshamy District management and concerns regarding the quality of harvest that had taken place in 2003. Concerns from the previous season were that enhanced sockeye salmon in Main Bay Subdistrict were of poor quality, due to either abundance and a lack of harvest efficiency or by a management strategy that was not as aggressive as the run allowed. ADF&G stated a willingness to work with PWSAC and the user groups to address these concerns. After much discussion ADF&G's view that the best avenue for addressing quality concerns and ensuring / facilitating PWSAC cost recovery was to offer the following concessions: 1) Allow PWSAC to conduct cost recovery operations within Falls Bay for enhanced sockeye salmon. ADF&G stipulated that PWSAC provide advance notice to when such operations were to take place to facilitate the scheduling of sampling personnel. Additionally, PWSAC would ensure that all harvest from Main Bay and

Falls Bay would not be mixed to ensure clean samples. PWSAC was also told that operations in Falls Bay would continue as long as harvest were of enhanced origin; 2) ADF&G recommended that PWSAC open the Main Bay Subdistrict early in the season and to have sporadic common property fishing periods within Main Bay until PWSAC had achieved their cost recovery goal. Historically, PWSAC would recommend that all of Eshamy District remain closed until cost recovery achievement was ensured, thus a later and consistent common property fishing schedule would occur. By proposing that common property fishing periods only take place on a sporadic basis within the Main Bay Subdistrict ADF&G believed that PWSAC's cost recovery interests were being obliged as well as allowing routine harvests of surplus enhanced sockeye that may lose flesh quality if only the cost recovery fleet was relied upon to keep fish abundance / quality in check.

In early May ADF&G's Area Management Biologist and PWSAC's General Manager met to further discuss Eshamy Management with what had been discussed at the SHTF as a basis for conversation. PWSAC expressed a strong interest in conducting cost recovery operations within Falls Bay. PWSAC rejected ADF&G's view that only Main Bay Subdistrict be open to initial common property harvest opportunity and called for all of Eshamy District to be open. ADF&G acquiesced to this request with the understanding that PWSAC would or could manage for their own cost recovery needs. ADF&G was reluctant to do so with the concern that cost recovery could fall far enough behind that prolonged closures of the entire district would be necessary whereas a conservative schedule of area and time would more likely keep a semi-consistent schedule of common property fishing periods and cost recovery on track. However, as has been ADF&G's informal policy, PWSAC should be allowed to manage for their own cost recovery needs as long as wild stock escapement is not placed in jeopardy.

Beginning in mid-July, the Eshamy District, including waters south of Loomis Creek, would open during scheduled periods if sockeye salmon escapement past the Eshamy weir was close to the anticipated number. If escapement was below the anticipated curve, area restrictions would likely be imposed to improve wild stock escapement while harvesting enhanced sockeye salmon returning to Main Bay Hatchery.

### **Season Summary**

The run timing of Coghill stock sockeye salmon is from mid-June until about mid-July. PWSAC anticipated installing their barrier seine in mid-June to begin broodstock collection. The first period was for 24-hours for the entire Eshamy District and began on June 10 (Appendix C2). Drift gillnet gear was permitted to fish in the Alternating Gear Zone (AGZ) for this period due to the set gillnet fleet having fished first in the AGZ in 2003. Thirty seven drift and 11 set gillnet permit holders participated in the first fishing period harvesting a total of 3,077 sockeye and 1,056 chum salmon (Appendix C1).

The second and third fishing periods occurred on June 14 and 17 respectively each for 24-hours with all of Eshamy District open. The AGZ was open to set gillnet gear during the second fishing period and accordingly the AGZ was open to drift gillnet gear during the third fishing period. The harvest for the second fishing period was 8,317 sockeye and 1,469 chum salmon. Effort had remained somewhat static from the first fishing period with 43 drift and 19 set gillnet permit holders participating in the third fishing period, harvesting 19,957 sockeye and 5,501 chum salmon.

The fourth fishing period on June 21 was for 24-hours with Eshamy District open excluding the Main Bay THA and SHA, thus the AGZ was also excluded. Effort and harvest for the fourth fishing period dramatically increased from the third fishing period with 133 drift and 23 set gillnet permit holders harvesting 64,144 sockeye and 8,202 chum salmon. PWSAC began their cost recovery harvest on June 22 harvesting 11,600 sockeye salmon within the Main Bay SHA.

Deep mesh gillnet gear was permitted beginning the fifth fishing period on June 24. Deep mesh gillnet gear is permissible for Coghill, Unakwik, and Eshamy Districts and is usually initiated beginning the first Monday in July, however due to strong sockeye salmon escapement past the Coghill River weir it was permitted at an earlier date in 2004. ADF&G's practice is to allow deep mesh gillnet gear in all allowable districts once the practice has been adopted for enforcement practicalities and to allow drift gillnet fishermen using deep gear to move from district to district with greater ease. ADF&G advised PWSAC that the use of deep mesh gillnet gear would certainly increase harvest efficiency and likely attract more effort, therefore in the interest of preserving cost recovery the Main Bay Subdistrict only should be open until PWSAC was secure in their Main Bay Hatchery revenue goals. PWSAC opted to open all of Eshamy District excluding the Main Bay THA and SHA for a 24-hour fishing period to begin June 24. Harvest for the fifth fishing period was 52,641 sockeye and 12,385 chum salmon. Effort was the highest of the season with 184 drift and 24 set gillnet holders participating during the period.

The fifth fishing period with the amount of effort, use of deep gillnet gear, and less than impressive harvest given the preseason forecast indicated to ADF&G that the run of sockeye salmon to Main Bay Hatchery was likely weaker than forecasted. Again, ADF&G advised PWSAC to restrict area until cost recovery goals were secure. PWSAC requested that the sixth fishing period be for 24-hours commencing on June 28 with all of Eshamy District open excluding the Main Bay THA and SHA. During this period 149 drift and 24 set gillnet permit holders harvested 67,080 sockeye and 8,077 chum salmon.

PWSAC cost recovery operations were proceeding slowly with 90,000 sockeye salmon harvested by July 1 with operations occurring daily since June 22. ADF&G again advised PWSAC that the run was tracking weaker than forecasted and area restrictions were needed to secure PWSAC's cost recovery goal. PWSAC requested that the seventh fishing period be for 24-hours commencing on July 1 with all of Eshamy District open excluding the Main Bay THA and SHA. During this period 161 drift and 24 set gillnet permit holders harvested 28,342 sockeye and 12,158 chum salmon.

ADF&G is directed to manage the Eshamy District for returns to the district under 5 AAC 24.370 Prince William Sound Management and Salmon Enhancement Allocation Plan. All returning sockeye salmon from early June to mid July were PWSAC enhanced fish, therefore ADF&G referred management decisions to PWSAC to manage for their own cost recovery success. PWSAC requested the district remain closed until cost recovery harvest goals were secured.

The Eshamy River weir became operational on July 7 with no sockeye salmon observed for the day. Escapement past the weir continued to be slow with 84 sockeye salmon counted through July 17 versus an anticipated count of 2,711. The district continued to remain closed to commercial fishing.

The preseason run forecast for Eshamy Lake sockeye salmon was 98,000 fish. The run timing for this stock is from mid July to early October. The escapement goal for Eshamy Lake is 20,000 to

40,000 sockeye salmon. ADF&G opened the eighth fishing period for 24-hours beginning July 19 with the Crafton Island Subdistrict open south of Main Bay (60° 32.86 N. latitude). Main Bay Subdistrict and waters north of Main Bay remained closed due to PWSAC cost recovery concerns. The harvest for this fishing period was 22,346 sockeye, 6,175 pink, and 1,769 chum salmon.

PWSAC continued to request that area restrictions be imposed to protect cost recovery efforts that were lagging for Main Bay Hatchery. In the past ADF&G used a line south of Loomis Creek to delineate the targeting of Eshamy Lake sockeye and of enhanced sockeye salmon bound for Main Bay Hatchery. The Loomis Creek line is undesirable from an enforcement stand point and does not offer a prominent geographical reference for fishermen to line up on from the water. Therefore, ADF&G opted to use a line from the southern tip of Falls Bay to delineate between natural Eshamy Lake stock and Main Bay enhanced sockeye salmon. Fishing periods 9 through 12 were all for 24-hours each beginning on June 22, 26, 29, and August 2 respectively. The Crafton Island Subdistrict was open south of the southern point of Falls Bay with Falls Bay remaining closed (south of 60° 31'10" N. latitude open). The Eshamy River weir began observing escapement in earnest on July 22 with 6,171 versus an anticipated cumulative count of 6,777 sockeye salmon by August 1 (Appendices C5 and C6). The cumulative harvest for fishing periods nine through 12 was 31,609 sockeye, 43,773 pink, and 2,295 chum salmon.

PWSAC conducted its last cost recovery operation for sockeye salmon returning to Main Bay Hatchery on July 27. By August 1 ADF&G advocated that Coghill sockeye salmon stock should be complete in its run timing and that it would be prudent to not restrict area within the Crafton Island Subdistrict concentrating effort to the southern half of the district. Fishing periods 13 through 19 were each for 24-hours beginning on August 5, 9, 12, 16, 19, 23, and 26 respectively. Crafton Island Subdistrict was open for each of these periods with Main Bay Subdistrict remaining closed. Fishing effort was considered low for each of these fishing periods with a peak effort of 33 permits participating during the thirteenth fishing period with a season low effort of 5 permits participating during the seventeenth and nineteenth fishing periods. Eshamy River weir sockeye salmon escapement was above the anticipated cumulative count from August 4 through August 8, after which escapement began to slow due to low water flow conditions created by dry summer conditions experienced during the 2004 season. With such little fishing effort occurring coupled with the low river conditions it was not believed that fishing effort was slowing escapement, but river conditions were. The season was closed at the conclusion of the nineteenth fishing period due to escapement concerns. The cumulative harvest for the thirteenth through the nineteenth fishing periods was 9,361 sockeye, 56,106 pink, and 880 coho salmon. The Eshamy River weir escapement was 13,443 sockeye salmon versus an anticipated count of 26,518 fish when the weir was removed on August 31.

## **GENERAL PURSE SEINE DISTRICTS**

### **Preseason Outlook and Harvest Strategy**

The general purse seine districts include the Eastern, Northern, Unakwik, Coghill, Northwestern, Southwestern, Montague, and Southeastern Districts (Appendix D). The PWS Management and Salmon Enhancement Allocation Plan (5 AAC 24.370(d)) closes the Southwestern District prior to July 18. The plan also closes the Coghill District to purse seine gear prior to July 21, except under the WNH Management Plan (5 AAC 24.368(f)), to prevent deterioration of fish quality of the harvestable surplus of chum salmon, or under the PWS Management and Salmon

Enhancement Allocation Plan (5AAC 24.370(e)) if the purse seine fleet caught 40 percent or less of the total commercial CPF exvessel value in the PWS area in the previous year. Beginning July 21, both purse seine and drift gillnet gear are allowed in the Coghill District. Purse seine gear is allowed in the district as long as the harvestable surplus is predominantly pink salmon by number. Fishing periods in all districts are established by emergency order.

The general purse seine districts are managed to achieve wild pink and chum salmon escapement goals by district and allow for the orderly harvest of surplus wild and hatchery stocks. Escapement of pink and chum salmon is monitored through the season by weekly aerial surveys of 209 index streams. Management to achieve hatchery corporate escapement goals is accomplished by opening and closing subdistricts near the hatcheries. Subdistrict openings are also utilized to target the fleet on hatchery stocks when wild salmon escapement is weak.

The outlook for the general purse seine fishery in 2004 was for a total return of 40.7 million pink salmon composed of 36.1 million hatchery (hatchery forecasts) and 4.6 million wild stock pink salmon (60% PWSAC, 29% VFDA, 11% wild). The forecast CPF harvest was 22.6 million pink salmon with an additional 16.1 million for corporate escapement and 2.0 million for wild stock escapement. The 2004 chum salmon forecast return in Prince William Sound was 4.6 million fish. The majority (88%) was anticipated to be the result of PWSAC hatchery production. Approximately 997,000 enhanced chum salmon were expected to return to Port Chalmers. All of the Port Chalmers chum salmon are intended to be harvested in the purse seine fishery. PWSAC anticipated harvesting 1.76 million (56%) of the projected 3.1 million WNH enhanced chum salmon for cost recovery. Based on ADF&G's wild chum salmon forecast of 568,000 fish, a potential common property harvest of 393,000 wild chum salmon would be possible. In 2004, the purse seine fleet was allowed to fish the Esther Subdistrict as a consequence of the 2003 exvessel value allocation. This was the first season in which the buffer zone was implemented in the management of the Coghill District fisheries.

As in 2003, poor market conditions, harvest limits, and low prices caused concern over the potential for a successful purse seine season at the Prince William Sound SHTF meeting. Recent purse seine effort has been reduced due to low prices. The SHTF felt that the remaining purse seine fleet would likely concentrate their fishing effort on hatchery returns where high volume harvests could occur. ADF&G restated its intent to open multiple districts concurrently as wild stock escapements allow. This would help to relieve congestion in the hatchery subdistricts where a majority of the hatchery returns have traditionally been harvested. ADF&G also agreed to fish earlier in the Southwestern District if the early wild stock returns showed significant strength and hatchery stocks composed a majority of the samples in the test fishery. ADF&G also reviewed Coghill District management regarding the sharing of the Esther Subdistrict by purse seine and drift gillnet gear groups prior to July 21 (Appendix D).

In consultation with PWSAC, ADF&G collectively manages the pink salmon returns to WNH, CCH, and AFK Hatcheries to achieve revenue goal and brood stock requirements. According to PWSAC's annual management plans, the corporate escapement goal for pink salmon was based on broodstock needs of approximately 964,000 fish and a revenue goal of \$4,076,655. Fish estimated to be surplus to the corporation's needs would be made available for common property harvest. In 2004, 7 processors were contracted to purchase PWSAC pink salmon cost recovery. PWSAC's contract purse seine fleet were required to fish every day that fish were available for harvest so cost recovery and common property fisheries could proceed according to run assessments and not be tied to a completed percentage of cost recovery.

Similarly, ADF&G and VFDA cooperatively manage the Solomon Gulch enhanced pink salmon harvest which peaks in early July while the enhanced coho salmon run typically occurs in late August and early September. It is assumed that all of VFDA's enhanced production returns to the Solomon Gulch Hatchery in Port Valdez, with the exception of a small run of coho salmon that returns to Boulder Bay near the Village of Tatitlek. PWSAC pink salmon stocks peak in mid-August (Appendix E), returning to Cannery Creek, WNH and AFK Hatcheries. A moderate run of coho salmon at WNH is incidental to the late pink salmon fishery.

The 2004 VFDA sales harvest revenue goal was \$2,363,939 as outlined in the VFDA FY-2004 Income and Expense Statement in their 2004 Annual Management Plan. Fish determined to be surplus to the association's needs would be made available for common property harvesting. In 2004, 2 processors had contracts to purchase VFDA's cost recovery salmon. VFDA did not pursue cost recovery during CPF periods either due to cost recovery fishermen's contracts that required them to fish only on days when there was no CPF or cost recovery processors' unwillingness to give processing capacity to the hatchery in favor of their fleets. Without the ability to harvest for cost recovery every day, the preseason management strategy was to allow VFDA to reach approximately 33% of their revenue goal prior to the start of a CPF. This strategy would accomplish three goals: 1) It would allow VFDA to reach their revenue goal in a timely fashion; 2) It would allow ADF&G to assess the strength of the hatchery run and; 3) It would allow early run wild stocks to escape into their natal streams.

### **Chum Salmon Season Summary**

The enhanced chum salmon runs to WNH and Port Chalmers were significantly less than PSWAC's forecast. PWSAC harvested 541,000 of the required 1.76 million chum salmon and did not meet the 2004 WNH chum salmon cost recovery goal. The combined common property and cost recovery harvest of 1.5 million fish was approximately 50% of PWSAC's projected WNH return of 3.1 million chum salmon. All age classes of Port Chalmers chum salmon had otolith thermal marks enabling ADF&G to determine their harvest contributions. The harvest of 342,968 fish was less than the forecast for Montague District and included 13,000 WNH enhanced chum salmon (Appendix E19).

The regulatory provision in the PWS Management and Salmon Enhancement Allocation Plan (5AAC 24.370(e)) was exercised in 2004. This allows the purse seine fleet into the Esther Subdistrict prior to July 21 if in the previous year they caught 40 percent or less of the total commercial CPF exvessel value in the PWS area. According to the intent statement developed and endorsed by the Alaska Board of Fisheries (BOF) at the 2003 meeting, the drift gillnet fleet began with a 24-hour period in the Coghill District on May 31. The purse seine fleet followed with a 24-hour period in the Esther Subdistrict as described in 5AAC 24.370 and thereafter fished in the Esther Subdistrict, alternating periods of equal duration but not necessarily equal area with the gill net fleet until June 17, at which the Esther Subdistrict was closed for cost recovery concerns. The purse seine fleet harvested 351,000 chum salmon in the Coghill District while the gillnet fleet took 658,000 chum salmon. Purse seiners targeted wild chum salmon primarily in the Eastern and Southeastern districts. The 2004 total wild chum salmon harvest for Prince William Sound was approximately 213,000 fish and the escapement fell within the spawning escapement goal range at 214,000 fish. Wild stock chum salmon escapements were within or above escapement goal ranges for every district (Appendix D). The Eastern, Northern, and Southeastern Districts comprise 68% of the expected chum salmon escapement goal.

## **Pink Salmon Season Summary**

The number of pink salmon that returned to Prince William Sound was less than the 40.7 million fish forecast and resulted in a harvest of approximately 23.5 million fish (Table 1). This is the ninth largest harvest on record. The returning adults in 2004 had an average weight of approximately 3.7 pounds. An estimated 2.9 million wild stock pink salmon contributed to the commercial common property and cost recovery fisheries based on otolith recoveries. Approximately 99% of the wild stock harvest occurred in the CPF. The ratio of enhanced pink salmon to wild pink salmon in the 2004 total CPF harvest is estimated to have been 7:1. An estimated 2.0 million pink salmon escaped into Prince William Sound index streams to spawn, which is the tenth largest escapement since 1971. Approximately 41% (105 permit holders) of the Area E salmon purse seine permit holders made at least 1 delivery during the 2004 season.

Aerial surveys to assess early chum and pink salmon escapements in the Eastern and Northern Districts began in mid-June. In July, surveys began in all other purse seine districts. Eastern and Southeastern districts' escapements were within or above the escapement goal ranges. The 2004 summer was extremely dry with many streams having little or no water flow for much of July, August, and September. During aerial surveys pink salmon were staged at stream-mouths for extended periods, unable to enter streams because of low water flow conditions, and some die-off was documented. Significant rainfall occurred in late September. However, weather conditions at this time prevented aerial surveys for 2 to 3 weeks. By the time weather permitted survey flights again (October 5) the pink salmon run was nearly finished. Low water conditions complicated wild stock management as pink and chum salmon accumulated at stream mouths but were unable to enter the streams. As weekly escapement goals were met or exceeded, taking into consideration all fish that had escaped the fishery (stream and stream mouth counts), CPF were allowed in some areas outside the hatchery subdistricts.

### **Eastern District**

VFDA's anticipated 2004 adult return of pink salmon to the Solomon Gulch Hatchery was 11.58 million fish, assuming a 5.61% marine survival from the 2002 fry release of 206.2 million. A total of 323,000 salmon were anticipated to be needed to meet egg take objectives at the hatchery. The 2004 sales harvest revenue goal is \$2.6 million as outlined in the VFDA FY-2004 Income and Expense Statement. Cost recovery began on June 23. VFDA harvested 37% of the cost recovery goal prior to the first CPF period, in an expanded SHA which included all of Port Valdez. The first CPF period occurred on July 3 with a harvest of 1.32 million pink salmon. Common property fishing periods were scheduled for 2 or 3 times per week through early September, however the majority of the pink salmon harvest occurred prior to mid-August. A brief break in regularly scheduled CPF's occurred in mid-July to allow for additional cost recovery and broodstock collection (Appendix D, E). Processing capacity was able to keep pace with run entry and at no time was there a buildup of pink salmon at the head of Port Valdez. VFDA cost recovery and common property fisheries were well balanced in 2004, maximizing harvest efficiency and maintaining high quality. VFDA completed the cost recovery goal on July 25. At that time, purse seine effort was beginning to shift to the PWSAC pink salmon returns.

In 2004, Eastern District wild pink salmon stocks remained above anticipated counts and escapement goals throughout most of the district (Appendix D). Adequate wild stock escapement in most of the Eastern District allowed to common property fisheries 2 to 3 times per week from July 19 until September 2. Closures inside Eastern District SHTF Markers were used as needed to

protect salmon escapement in St. Matthews Bay, Olsen Bay, Irish Cove, Jack Bay, Galena Bay, Landlocked Bay, and Sawmill Bay. As aerial surveys documented adequate escapement those protective closures were lifted.

The peak purse seine effort occurred on July 12 when 160 deliveries accounted for 1.40 million pink salmon. A total of 28 CPF fishing periods were prosecuted in 2004 with a total of 98 permits recording 1,511 landings. The 2004 Eastern District harvest was composed of 9.5 million pink salmon, 102,036 chum salmon, 14,192 sockeye salmon, 30,049 coho salmon, and 33 Chinook salmon (Appendix D). Approximately 102,000 wild chum salmon were harvested in the Eastern District in 2004. Statistical areas 221-20 and 50 harvests in late July and early August accounted for 82,000 of those fish.

Wild stock pink and chum salmon escapement was within or above the escapement goal range in the Eastern District. The 2004 adjusted aerial pink salmon survey index was 725,000 fish, above the even year SEG midpoint of 677,000 pink salmon. The 2004 adjusted aerial chum salmon survey index was 108,000 fish also above the SEG midpoint of 90,000 chum salmon (Appendix D).

The 2004 adult return of coho salmon to the VFDA hatchery was anticipated to be 132,105 fish. Originally, a total of 1,000 salmon were anticipated to be needed for egg take objectives. That number increased to 3,000 under an agreement where VDFDA would collect coho broodstock for PWSAC. The purse seine fleet harvested approximately 30,000 coho salmon in 2004, the majority of which came from the Solomon Gulch Hatchery. The waters of Port Valdez north of the latitude of Rocky Point were opened for 6 consecutive 12 hour periods on September 7 to allow the harvest of coho salmon returning to Solomon Gulch Hatchery (Appendix D). VFDA expressed concern that allowing the fleet into Port Valdez near the hatchery could jeopardize coho salmon broodstock collection. While fishing was slow during all open periods and no build up of coho salmon occurred, VDFDA easily achieved their brood stock collection. The sport fish harvest of coho salmon in Port Valdez was considered good with twice the number of derby tickets sold compared to 2003, but an actual coho salmon harvest number is not yet available.

### **Southeastern District**

Southeastern District wild stock pink and chum salmon escapements remained ahead of anticipated escapement for the entire season starting after the July 19 aerial survey. The 2004 adjusted aerial pink salmon survey index was 689,000 fish, double the even year SEG midpoint of 342,000 pink salmon. The 2004 adjusted aerial chum salmon survey index was 42,000 fish also more than double the SEG midpoint of 17,500 chum salmon (Appendix D).

Southeastern District CPF periods were scheduled concurrently with the Eastern District periods starting on July 19. A total of 14 CPF fishing periods were prosecuted in 2004 with a total of 28 permits recording 68 landings. Peak effort and harvest occurred on August 5 when 13 permit holders landed 80,000 pink salmon and 17,000 chum salmon. Fishing effort was minimal during periods after August 5 with less than 8 permits recording harvests. No fishing effort occurred during the last three fishing periods. The 2004 Southeastern District harvest was composed of 260,992 pink salmon, 49,560 chum salmon, 228 sockeye salmon, and 199 coho salmon (Appendix D).

## **Southwestern District**

In 2004 PWSAC did not achieve their pink salmon cost recovery goal at the AFK Hatchery. Enhanced pink salmon returns at AFK were significantly less than PWSAC's preseason projections. PWSAC harvested approximately 3.5 million fish at AFK. Pink salmon harvest management was based on aerial survey escapement data, test fishing in the Southwestern District, harvest rates, and terminal area run entry. Test fishing in the Southwestern District by the *R/V Solstice* provided crucial pink salmon stock composition and sex ratio data. Initially the pink salmon stock was composed of 55% hatchery fish but by July 29 that percentage increased to 78% hatchery fish and remained at that level or higher for the remainder of the test fishery. Daily bay estimates and harvest of pink salmon at AFK remained low. The pink salmon run entry remained depressed as the female sex ratio in the test fishery and cost recovery harvests climbed to 30–40%. In late July, it was apparent that the enhanced pink salmon return was early and weaker than PWSAC had projected. PWSAC stated that they would like to achieve 50% of the revenue goal prior to any targeted commercial fisheries in hatchery subdistricts. All pink salmon hatchery subdistricts remained closed to CPF until very late in the 2004 season.

As escapement goals were achieved outside hatchery subdistricts ADF&G opened the CPF (Appendix D). Southwestern District wild stock pink salmon escapements were initially below anticipated escapements and delayed CPF openings. However, escapement to stream mouths in Bainbridge and Latouche passages were above anticipated counts. Extreme low stream flows inhibited fish entrance into the streams, holding fish in the mouths of streams. Above anticipated escapement counts in Statistical Areas 226-10, 30, 40 and 50 allowed for limited CPF in those areas. Wild stock pink salmon escapement of 108,000 fish was below the lower end range of the SEG of 130,000. The Southwestern District has minimal chum salmon and has no SEG or population estimates.

In 2004, 11 CPF periods harvested 1.6 million pink salmon in the Southwestern District. The harvest was composed of 226,000 wild stock pink salmon and 1.4 million hatchery fish (1.2 million AFK, 73,000 WNH, 69,000 CCH and 5,500 VFDA). The majority of the harvest (1.07 million pink salmon) was harvested outside of the Port San Juan Subdistrict, in Statistical Area 226-40. Peak effort and harvest occurred on August 16 when 49 permit holders landed 423,882 pink salmon, 389,915 of which were harvested in Statistical Area 226-40. The 2004 Southwestern District harvest was composed of 1.6 million pink salmon, 338 chum salmon, 1,968 sockeye salmon, and 3,003 coho salmon (Appendix D, E).

## **Northern District**

In 2004 PWSAC did not achieve their pink salmon cost recovery goal at CCH. Enhanced pink salmon returns at CCH were significantly less than PWSAC's preseason projections. PWSAC harvested approximately 2.3 million fish out of an anticipated 3.7 million fish cost recovery harvest at CCH. PWSAC's anticipated 2004 adult return of pink salmon to the CCH was 7.5 million fish. Assuming a hatchery broodstock goal of 318,000 fish and approximately 3.7 million pink salmon sold for cost recovery the hatchery harvest was anticipated to be 53.6%.

Northern District wild stock pink and chum salmon bay and stream escapements were initially below anticipated escapements. However, escapement to stream mouths in Columbia, Long, and Wells bays and Unakwick Inlet were above anticipated counts. Extreme low stream flows inhibited fish entrance into the streams, holding fish in the mouths of streams. Wild stock pink salmon escapement of 159,000 fish was below the lower end range of the SEG of 175,000 fish.

Wild stock chum salmon escapement of 42,000 was above the SEG midpoint of 38,000 (Appendix D).

In 2004 the Northern District was open for 9 CPF periods of which only 3 had any effort. Based on aerial survey information limited portions of the Northern District with adequate escapement were opened for fishing. For example, an aerial survey of the eastern portion of the Northern District on August 6 found wild stock pink and chum salmon escapement in the area east of Granite Point ahead of anticipated levels. On August 9, waters of the Northern District east of the longitude of Granite Point opened for a 14-hour period. Wild stock escapements in other areas of the Northern District remained below anticipated levels and were not opened at that time. Peak effort and harvest occurred on August 12 when 6 permit holders landed 21,440 pink salmon. The 2004 Northern District harvest was composed of 45,355 pink salmon, 154 chum salmon, 60 sockeye salmon, and 55 coho salmon. The 45,355 pink salmon were composed of 2,016 wild stock pink salmon and 43,229 hatchery fish (39,308 CCH and 4,032 WNH) (Appendix D, E).

### **Montague District**

Montague District wild stock pink salmon escapements were above anticipated levels for the entire season. Wild stock pink salmon escapement of 184,000 fish was above the SEG midpoint of 123,000 fish. The Montague District had a wild chum salmon escapement of 4,170 fish and has no chum salmon escapement goals (Appendix D).

A fishing schedule of 156-hour periods each week was initiated in the Montague District on May 31 to harvest Port Chalmers remote release chum salmon. The schedule was from Monday at 6:00 a.m. to Sunday at 6:00 p.m. with a 12-hour closure on Sunday night. This schedule was maintained through July 18. The Montague District total common property chum harvest was 342,968 fish, representing 33% of PWSAC's projected Port Chalmers return of 997,000 fish. Additionally, 42,000 or 5% of the total Port Chalmers chum salmon harvest was found in the Coghill District purse seine and gillnet harvests and 6,056 Port Chalmers chum salmon were harvested in the Eshamy District (Appendix E20). All PWSAC Port Chalmers enhanced chum salmon are intended to be harvested by the purse seine fleet. Chum salmon harvest peaked during the fourth period (June 21–27) with a harvest of 83,304 chum salmon reported by 33 permit holders with 108 landings. Regularly scheduled 156 hour periods ended on July 18. The Montague District opened for 14-hour periods every 4 days from August 2 through August 14 and thereafter for 12 hour periods through August 30. There was no harvest or effort reported after August 12. The 2004 Montague District harvest was composed of 342,968 chum salmon, 102,352 pink salmon, 887 sockeye salmon, 522 coho salmon, and 120 Chinook salmon (Appendix D). The pink salmon harvest was composed of 72,280 wild fish and 30,072 hatchery fish (22,879 VFDA, 1,558 CCH, 1,393 WNH, and 4,249 AFK fish). The Montague District closed to salmon fishing for the 2004 season on August 30 (Appendix D, E).

### **Coghill District**

PWSAC's 2004 forecast for pink salmon returning to WNH was 8.3 million fish assuming 6.9% marine survival. Preseason PWSAC assumed a broodstock goal of 228,000 pink salmon and approximately 3.7 million pink salmon would be needed to meet production revenue needs. This equated to 52.7% of the anticipated return of pink salmon to WNH for PWSAC corporate escapement needs. Based on preseason forecast the common property harvest of pink salmon returning to WNH would be 3.9 million fish. Management for pink salmon returning to WNH began after July 20.

In 2004 PWSAC did not achieve their pink salmon cost recovery goal and WNH enhanced pink salmon returns were significantly less than PWSAC's preseason projections. The preseason outlook, harvest strategy and results are detailed in the gillnet section of this report. PWSAC harvested approximately 2.3 million pink salmon at WNH. Cost recovery harvests began on July 20 and continued through late August. Run entry and harvest rates never developed as anticipated with the largest single day catch of 215,000 pink salmon. Pink salmon cost recovery fishing was conducted on a daily basis throughout August. The Esther Subdistrict remained closed to purse seine CPF after the initial six periods. The 2004 Coghill District CPF purse seine harvest was composed of 386,042 chum salmon, 23,609 pink salmon, 195 sockeye salmon, 133 coho salmon, and 2 Chinook salmon (Appendix D).

Coghill District wild stock pink and chum salmon escapements were below anticipated levels for the entire season. Wild stock pink salmon escapement of 79,010 fish was below the lower range of the SEG of 115,000 fish. Wild stock chum salmon escapement of 9,685 fish was above the lower range of the SEG of 8,000 fish but below the 17,500 SEG midpoint (Appendix D).

## **Conclusions and Recommendations**

ADF&G continues to improve pink salmon utilization by broadening its ability to use otolith marks for improved forecasting and inseason management. With otolith marked fish, the risks to wild stocks associated with a harvest decision can be evaluated prior to a fishery being announced. Post fishery analysis can be used to further refine management. Stream escapements, commercial harvests, and migration routes can all be accurately characterized using otolith marks. As a management tool, otolith marks offer a great deal of information about wild and hatchery pink salmon interactions. Figure 7 provides the PWS pink salmon contribution to the commercial harvest based on otolith thermal marks.

ADF&G is concerned about PWSAC enhanced chum salmon straying because of the detection of enhanced chum salmon in harvests outside their point of origin and in wild escapements. An evaluation of remote release fish straying into streams is identified as one of the required evaluations in the Prince William Sound-Copper River Phase III Comprehensive Salmon Plan (1994). The Phase Three Plan delineates a set of studies that were determined to be necessary to evaluate the effect of remote release programs on wild stocks (RPT 1994). The Port Chalmers remote release initially had a coded wire tag straying evaluation component. However, no formal study plan was developed and an unbiased and accurate straying evaluation was never completed. Port Chalmers remote release chum salmon straying has yet to be accurately investigated. In 2003 ADF&G recommended a straying study of enhanced chum salmon in PWS because of the incomplete nature of the initial study, current evidence of straying, and possible negative interactions with wild stocks. ADF&G is further concerned because of the implications regarding the PWS Management and Salmon Enhancement Allocation Plan (5 AAC 24.370). Catch data documents the drift gillnet harvest of significant numbers of Port Chalmers chum salmon in the Coghill District that are allocated for the purse seine fleet.

In 2004 ADF&G conducted a pilot straying study to further investigate potential chum salmon straying. The information from this study and the previous work by Sharp et al. (1993) and Joyce and Evans (1999) suggest 1) PWS hatchery pink and chum salmon may stray at high rates into streams, and 2) ADF&G has been overestimating the escapement of wild pink and chum salmon in PWS. This study documented chum salmon strays from PWS hatcheries and remote release comprising as much as 100% of the sampled otoliths in some streams. Chum salmon strays from

WNH releases were documented in streams as far as 90 miles from their release site and strays from Port Chalmers releases were documented ~79 miles from their release site. ADF&G has assumed that all salmon counted during aerial surveys are wild stocks. Commercial fisheries management of wild pink and chum salmon stocks is based on the assumption that the average productivity of these stocks is known (fixed escapement goal policy). Stream escapements with high proportions of hatchery fish have an unknown productivity. If hatchery stocks do successfully spawn in wild systems, this may result in altered run timing and reduced genetic fitness of existing wild stocks (MacKey et al. 2001). This study adds to the increasing documentation of hatchery strays in PWS escapements (Joyce and Evans 1999; Joyce and Evans *Unpublished*; Sharp et al. 1993). ADF&G and PWSAC should address issues related to hatchery strays outlined by the Sound Science Review Team in 1999.

## **PRINCE WILLIAM SOUND AND COPPER RIVER SUBSISTENCE FISHERIES**

Subsistence and personal use (Appendices F1–F6) harvest has increased over the recent years in the Prince William Sound Management area. The largest subsistence fisheries occur on the upper Copper River, upstream of regulatory markers above Haley Creek to the Copper River's confluence with the Slana River. A major change occurred in this fishery for the 2003 season. At the 2003 Prince William Sound Board of Fisheries meeting, the board reversed its 1999 finding that the Chitina fishery was a Customary and Traditional Use finding for salmon stocks in Chitina Subdistrict on the upper Copper River. This resulted in the Chitina Subdistrict subsistence fishery reverting back to a personal use fishery. As a result, there are currently 2 subsistence fisheries in Upper Copper River District, Glennallen Subdistrict and the Batzulnetas subsistence fishery.

In Prince William Sound, Copper, and Bering River Districts, commercial permit holders may withhold a portion of their commercial harvest for home use. Since 1994, all Chinook salmon in Copper and Bering River Districts that are harvested, but not sold in the commercial fishery must be reported on a fish ticket. In 2004 the harvest of Chinook salmon retained for home use was 525 and 3,632 sockeye salmon were also reported as kept for home use (Appendix F6).

The Prince William Sound Area includes all waters of Alaska between the longitude of Cape Fairfield and the longitude of Cape Suckling. Subsistence fishing permits are not required for marine finfish other than salmon. Herring spawn on kelp may be taken for subsistence purposes as described in 5 AAC 01.610(d)(1)(2) Fishing Seasons. Herring spawn on kelp may be taken from above water from March 15 through June 15. Herring spawn on kelp may be harvested using dive gear only during periods open for the wild herring spawn-on-kelp commercial fishery. Lingcod may be taken for subsistence purposes only from July 1 through December 31. Herring, rockfish, and groundfish other than lingcod or rockfish may also be harvested for subsistence purposes in the Prince William Sound Area.

### **PRINCE WILLIAM SOUND AND LOWER COPPER RIVER**

Boundary lines for Copper River District subsistence fishing are the same as those for the commercial drift gillnet fishery. Subsistence fishing is allowed from May 15 until September 30, until 2 days before the commercial opening of Copper River District, 7 days a week. Once the commercial season has commenced, subsistence fishing is allowed only during commercial

fishing periods or by emergency order. Within Copper River District, drift gillnets are the only legal gear and may have a maximum length of 50 fathoms with a maximum mesh size of 6 inches prior to July 15. In addition to the subsistence fishery, commercial fishermen may withhold a portion of their harvest for home use. Any commercially caught Chinook salmon not sold must be reported on a fish ticket.

In 2004, 8 subsistence permits were issued for Prince William Sound. Seven permits were either not returned or reported as to not have fished and one permit holder fished. The one permit holder that fished reported a harvest total of 8 sockeye and 3 chum salmon. In Copper River District, 511 permits were issued in 2004, of which 29 were not returned. Of the 482 permits that were returned, 161 permit holders did not fish. A harvest of 1,106 Chinook, 1,822 sockeye, and 46 coho salmon was reported from the 321 permits that fished.

## **EASTERN AND SOUTHWESTERN DISTRICT**

Permitting for Southwestern and Eastern Districts subsistence areas began in 1988. Residents of both Chenega and Tatitlek are eligible for subsistence permits in their respective areas. In 1991, a court ruling qualified all residents of Alaska for a subsistence permit in the Eastern and Southwestern Districts. Permit holders are allowed to fish in these areas from May 15 until 2 days before the first commercial fishing period. Once the commercial fishing season is established, subsistence fishing may occur only during commercial fishing periods. Two days after the closure of the commercial fishing season, subsistence harvesting is open to 7 days per week fishing until September 30 in the Southwestern District and until October 31 in the Eastern District.

In 2004, 18 permits were issued for Eastern District of which 8 permits were not returned. Seven permit holders reported fishing, harvesting a total of 322 sockeye, 315 coho, 46 pink, and 28 chum salmon. In Southwestern District, 8 permits were issued and 4 permit holders reported harvesting 3 Chinook, 535 sockeye, 44 coho, 56 pink, and 84 chum salmon. Of the 8 permits issued for the Southwestern District, 3 were not returned and one permit was reported as to not having fished.

## **UPPER COPPER RIVER**

### **Glennallen Subdistrict**

Glennallen Subdistrict is that portion of the main stem Copper River upstream of the McCarthy Bridge to the mouth of the Slana River. This subdistrict is open June 1 through September 30 for continuous fishing. Fish wheels and dip nets are legal gear. During the 1996 BOF meeting, the Copper River District Salmon Fishery Management Plan was modified and a range of 60,000–75,000 subsistence salmon was established to accommodate for variability in harvest levels and allow for increased harvests between board cycles. Participants are allowed one permit per household and the permit identifies the gear type to be used. Total annual harvest cannot exceed 500 salmon for a household of 2 or more and 200 salmon for a household of one. No more than 5 Chinook salmon may be taken by each dip net permit holder. Caudal fins must be clipped from all salmon that are harvested. Subsistence permits with completed harvest information are required to be returned to ADF&G by October 31 of each year.

In 2004, a total of 957 permits were issued to both fish wheel and dip net users for the Glennallen Subdistrict. Total effort has remained somewhat constant since 1999 with an average number of 1,145 permits issued per season. An average of approximately 68,306 salmon was

harvested during the last 5 years (1999–2003) compared to an average of 66,666 salmon during 1994 to 1998 seasons. Sockeye salmon dominate the harvest with approximately 95% of the catch, followed by Chinook and coho salmon.

The 2004 Chinook harvest for the subdistrict was 3,499 compared to a record harvest of 4,782 fish set in 2000 (Appendix F5). The 2004 reported harvest of 57,060 sockeye salmon was below the 1999 to 2003 average of 61,174 sockeye salmon. From the permits received in the past, it appears approximately 25% of Chinook salmon harvested is landed by 2% of the permit holders, indicating that some individuals effectively target Chinook salmon for subsistence uses.

### **Chitina Subdistrict**

Chitina Subdistrict is the portion of the main stem Copper River from a marker just above Haley Creek to the downstream edge of the McCarthy-McCarthy Road Bridge. The BOF changed this fishery from a subsistence fishery to a personal use fishery in 2003. Regulations for the Chitina Subdistrict personal use fishery remained similar to the Copper River Subsistence Use Salmon Dip Net Fishery regulations with the exception that permit holders are required to possess a sport fishing license. Annual bag limits will continue to be 30 salmon for a household of 2 or more, and 15 salmon for a household of one, only one fish may be a Chinook salmon. The BOF determined that retaining the bag limit of one Chinook salmon provided for a reasonable opportunity to harvest Chinook salmon, but would also maintain Chinook salmon harvests at historic levels. Based upon recent harvests the board determined that 100,000–150,000 sockeye salmon were necessary for personal use needs to be met for the Chitina Subdistrict fishery. This number included contributions of hatchery fish, and after this contribution was subtracted, resulted in an 85,000–130,000 sockeye salmon wild stock harvest level.

Per 5 AAC 77.591 Copper River Personal Use Dip Net Salmon Fishery Management Plan requires the fishery to be opened between June 1 and June 11 depending on the strength and timing of the sockeye run. In 2004, the dip net fishery was opened by emergency order on June 3 for a 90-hour fishing period ending at 11:59 p.m. June 6. Beginning June 7, the fishery remained open continuously until September 30.

Reported harvest for the Chitina Subdistrict subsistence fishery in 2004 was 2,390 Chinook, 105,499 sockeye, and 2,526 coho salmon. There were 8,145 permits issued for the subdistrict in 2004 (Appendix F5).

### **Batzulnetas**

In 1987, an interim subsistence fishery was provided by emergency regulation at Batzulnetas to settle the United States District Court case of John vs. Alaska. The Batzulnetas fishery encompasses all waters from the regulatory markers near the mouth of Tanada Creek and approximately 1/2 mile downstream and in Tanada Creek between ADF&G regulatory markers identifying the open waters of the creek. The fishery may begin after June 1. Fishing periods during the month of June are one 48-hour period per week. Beginning in July fishing periods are increased to 84 hours per week until September 1 when the fishery closes.

In 1987, the fishery was conducted near the mouth of Tanada Creek near the historical village site of Batzulnetas. Eight permits were issued in that year to individuals, or family groups, from Mentasta and Dot Lake and the fishery was conducted during July and August. A total harvest of 22 sockeye salmon was reported in 1987. The BOF reviewed the fishery before the 1988 season and set seasons, eliminated the quota, and provided for additional gear types. Permits can be

issued throughout the season and must be completed and returned to ADF&G by October 31. No permits were issued for this fishery between 1988 and 1992 and 1996. Between 1993 and 2002 the average harvest was 211 sockeye salmon. From 1999 to 2002 only one permit was issued each year with a harvest of 55 sockeye salmon for each year. In 2004 one permit was issued with a reported harvest of 182 salmon.

## **2004 PRINCE WILLIAM SOUND HERRING FISHERIES**

### **PRESEASON OUTLOOK AND HARVEST STRATEGY**

The PWS herring management area encompasses all coastal waters of the Gulf of Alaska between Cape Suckling and Cape Fairfield, extending offshore to 59° N. latitude. A total of 5 herring fisheries may occur annually. During the spring season, 2 fisheries target herring for sac roe using either seine or gillnet gear and 2 spawn-on-kelp fisheries harvest either naturally occurring spawn on kelp or spawn on kelp suspended in pounds. In the fall, a food/bait fishery may occur. Of the 5 herring fisheries, only the wild spawn-on kelp and the food/bait fishery are open entry fisheries. Each of these possible fisheries are managed depending on observed population size and age structure.

For management purposes, all herring fisheries target what is treated as a single major stock of herring that spawns from mid-April to early May. At the 1994 BOF meeting in Cordova, the minimum spawning biomass threshold was raised from 8,400 to 22,000 tons for the PWS stock. No fishery may be opened if the estimated spawning biomass is below this level. The 22,000-ton threshold is 25% of the potential spawning biomass from an unfished stock. The higher threshold will establish manageable harvest levels while reducing the risk of driving the population to low abundance through overfishing. When the stock size is between 22,000 and 42,500 tons, the PWS Herring Management Plan (5 AAC 27.365) allocates the projected available surplus to the 5 fisheries based on a 0 to 20% harvest rate. The maximum harvest rate of 20% is applied when stock size is greater than 42,500 tons. The sac roe seine fishery is allocated 58.1% of the available surplus; the food/bait fishery 16.3%; the pound spawn-on-kelp fishery 14.2%; the wild spawn-on-kelp fishery 8.0%; and the gillnet sac roe fishery is allocated 3.4%. The sac roe fishery has dominated catches with a peak in the early 1990's followed by a precipitous decline and a fishery closure in 8 of the past 10 years (Appendix G2; G3).

During the 1999 and 2003 BOF meetings several regulatory changes were made to PWS herring fisheries. In 1999 regulations were standardized for PWS herring buyer, buyer's agent, and fishers' fish ticket reporting requirements with those in other parts of the state. The 1999 BOF further created new regulations that would increase the legal depth of a purse seine used in the fall food/bait fishery and specified herring spawn-on-kelp pound marking requirements. Also in December 1999 the BOF closed Tatitlek Narrows to all commercial herring fishing. This closure was repealed at the 2003 BOF meeting (5AAC 27.350 (b) repealed 24 April 2003). The 2003 BOF meeting put into regulation the requirement that a CFEC permit holder who intends to operate a pound must register with ADF&G's Cordova office by March 15 of that year. A further regulation change included restriction of the number of kelp blades annually based on the number of permit holders registered.

The Prince William Sound herring purse seine fishery is comprised of 104 permanent and 2 interim permits. Purse seines can be 150 fathoms long and 1,025 meshes deep. Mesh size is not

regulated. There are 24 gillnet permits in Prince William Sound. Gillnets are limited to 100 fathoms in aggregate length and 120 meshes in depth during the spring sac roe fishery (1 March through 30 June). Gillnets may be 150 fathoms in aggregate length for the food and bait fishery. Mesh size is regulated from a minimum of 2 1/8 inches to a maximum of 3 inches. Historical sac roe harvest is presented in Appendices G3–G4. There are 128 herring pound permits in Prince William Sound. Seine specifications for the closed pound fishery are the same as the sac roe seine fishery. Open and closed pound fisheries can be managed separately or in combination. The size of the pound is limited to 2,000 square feet at the surface and walls of a closed pound cannot exceed 30 feet in depth. The herring allocation for this fishery is divided among the number of permit holders and ADF&G establishes the maximum number of blades of kelp a permit may maintain in the pound based on the number of permits registered to fish by 15 March. The historical pound spawn-on-kelp harvest peaked in the early 1990's and has declined since that time with multiple season closures (Appendix G6). The wild spawn-on-kelp fishery, utilizing native Prince William Sound kelp, occurs after a major spawning event takes place on marketable species of kelp. Wild kelp is taken by divers or by hand picking depending on the type of kelp available for harvest and market demand. The historical wild spawn-on-kelp fishery harvest is given in Appendix G5. Once instituted, pound fisheries, dominated harvests compared to wild spawn on kelp (Appendix G7). The food/bait fishery season may run from October 1 through January 31; however, industry concerns over product quality usually results in a delay of the season's opening date until November. Purse seine size is not restricted for the food/bait fishery and trawling or gillnetting gear may also be used. The historical food/bait fishery harvest is given in Appendices G8–G9. Historical fishery harvest values for all Prince William Sound fisheries are presented in Appendix G12.

## **SEASON SUMMARY**

Based on current herring stock assessment information, the 2004–2005 food and bait fishery and all 2005 spring herring fisheries including the seine and gillnet sac roe harvests, the spawn-on-kelp in pound fishery, and the wild spawn-on-kelp harvest will be closed until further notice. The Prince William Sound herring biomass estimate is below the minimum spawning biomass threshold of 22,000 tons. According to 5AAC 27.365(b) Prince William Sound herring management plan, no fishery may be opened if the estimated spawning biomass is below this threshold level. By regulation, the Prince William Sound herring food/bait fishery is scheduled to open on October 1 of each year.

Age Structured Assessment modeling was used to estimate the 2005 biomass of Pacific herring. The PWS herring biomass forecast for 2005 is 21,064 tons (Appendix G). Hydroacoustic, net sampling, and aerial surveys were also conducted to assess herring biomass, disease prevalence, age composition, and growth.

Acoustic surveys were conducted with the ADF&G R/V Solstice and the F/V Kyle David, contracted by the Prince William Sound Science Center, during the last week of March. Broad scale sonar surveys were conducted in eastern Prince William Sound up to Galena Bay, north Montague Island, and Green Island. Detailed acoustics data were collected on major concentrations of herring in the St. Matthews Bay to Red Head area and in two Moon Bay. Preliminary analysis of that data yielded a total biomass estimate of 19,100 tons of herring. Age data found 77% age-5 and 12% age-4 herring in 2 Moon Bay, 66% age-5 and 21% age-4 fish in St. Matthews Bay, and 75% age-5 and 13% age-4 fish in Port Gravina (Appendix G).

Herring disease assessment has been included as part of the annual age, sex, and size assessment ADF&G completes each spring. In April, ADF&G examined herring for prevalence of focal skin reddening and the pathogen *Ichthyophonus hoferi*. Prevalence of focal skin reddening associated with viral hemorrhagic septicemia virus (VHSV) was low. However, prevalence of *I. hoferi* was relatively high (14%) and is consistent with the increasing age of the dominant 1999 age class. If this trend continues, mortality of the dominant age class may increase significantly. ADF&G will continue to monitor disease indices in the spring of 2005.

ADF&G conducted 5 aerial surveys during spring 2004. The peak aerial biomass estimate observed during these surveys was 12,300 tons of herring (Appendix G). An estimated 4,900 tons of herring were seen on Knight Island, 2,000 tons in the Montague area, 500 tons in Port Fidalgo, 1,350 tons in Sheep and Simpson bays, and 800 tons in the Naked Island area. In addition, a total of 29.7 miles of spawn were observed this year. Spawn was documented in Fairmont Bay, Montague, Storey and Knight Islands, Gravina Point, and Ellamar (Appendix G).

### **2004–2005 HERRING SEASON OUTLOOK**

Given the PWS herring spawning population, current size and age structure, a commercial harvest is not anticipated in 2005. Consecutive years of low recruitment will further delay the recovery of the herring population to a size that is capable of supporting a sustainable commercial harvest. ADF&G will continue to monitor the PWS herring biomass to assess growth and recruitment. An ongoing disease study will continue to examine the incidence of VHS in the PWS herring population.

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## **TABLES**

**Table 1.**—Prince William Sound Management Area commercial salmon harvest by gear type and district, 2004.

District	Permits	Chinook	Sockeye	Coho	Pink	Chum	Total
<b>Purse Seine</b>							
Eastern	98	33	14,192	30,049	9,512,987	102,036	9,659,297
Northern	7	0	60	55	45,355	154	45,624
Coghill	54	2	195	133	23,609	386,042	409,981
Southwestern	68	1	1,968	3,003	1,628,219	338	1,633,529
Montague	48	120	887	522	102,352	342,968	446,849
Southeastern	28	0	228	199	260,992	49,560	310,979
Unakwik	0	0	0	0	0	0	0
<b>Total Purse Seine</b>	105	156	17,530	33,961	11,573,514	881,098	12,506,259
<b>Drift Gillnet</b>							
Bering River	118	87	13,165	95,595	2	21	108,870
Copper River	510	38,191	1,048,004	467,859	5,175	3,386	1,562,615
Unakwik	12	5	7,438	1	0	168	7,612
Coghill	244	126	216,156	10,200	20,081	534,959	781,522
Eshamy	241	21	215,460	1,467	55,832	43,228	316,008
<b>Total Drift Gillnet</b>	522	38,430	1,500,223	575,122	81,090	581,762	2,776,627
<b>Set Gillnet</b>							
Eshamy	27	11	91,412	825	51,655	10,381	154,284
<b>Total Set Gillnet</b>	27	11	91,412	825	51,655	10,381	154,284
<b>Hatchery</b>							
Solomon Gulch	1	0	0	9,337	3,782,011	0	3,791,348
Cannery Creek	1	0	0	0	2,265,538	0	2,265,538
Wally Noerenberg	1	0	0	637	2,292,300	528,676	2,821,613
Main Bay	1	0	279,902	0	0	0	279,902
Armin F. Koernig	1	0	2,730	0	3,485,375	0	3,488,105
<b>Total Hatchery<sup>a</sup></b>	5	0	282,632	9,974	11,825,224	528,676	12,646,506
<b>Other Harvest</b>							
Donated Fish	44	5	74	0	0	0	79
Confiscated Fish	0	0	0	0	0	0	0
Copper River Per/Use	175	540	525	2	0	0	1,067
All Other Per/Use	4	0	129	0	0	1	130
<b>Total Other Harvest</b>	223	545	728	2	0	1	1,276
<b>Prince William Sound</b>							
<b>Total all categories<sup>b</sup></b>	659	38,597	1,891,926	619,882	23,531,483	2,001,918	28,083,806

<sup>a</sup> Hatchery sales for hatchery operating costs.

<sup>b</sup> Does not include salmon taken for home use as reported on fish tickets.

**Table 2.**—Total commercial salmon harvest by species from all gear types, Prince William Sound Area, 1971–2004.

Year <sup>a</sup>	Harvest					Total
	Chinook	Sockeye	Coho	Pink	Chum	
1971	20,142	741,945	327,697	7,312,730	579,552	8,982,066
1972	23,003	976,115	124,670	57,090	46,088	1,226,966
1973	22,638	473,044	199,019	2,065,844	740,017	3,500,562
1974	20,602	741,340	76,041	458,619	89,210	1,385,812
1975	22,325	546,634	84,109	4,453,041	101,286	5,207,395
1976	32,751	1,008,912	160,494	3,022,426	370,657	4,595,240
1977	22,864	943,943	179,417	4,536,459	573,166	6,255,849
1978	30,435	505,509	312,930	2,917,499	489,771	4,256,144
1979	20,078	369,583	315,774	15,615,810	349,615	16,670,860
1980	8,643	208,724	337,123	14,161,023	482,214	15,197,727
1981	20,782	784,469	396,163	20,558,304	1,888,822	23,648,540
1982	47,871	2,362,328	623,877	20,403,423	1,336,878	24,774,377
1983	53,879	908,469	365,469	13,977,116	1,048,737	16,353,670
1984	39,774	1,303,515	609,484	22,119,309	1,229,185	25,301,267
1985	43,735	1,464,563	1,025,046	25,252,924	1,321,538	29,107,806
1986	42,128	1,288,712	426,240	11,410,302	1,700,906	14,868,288
1987	41,909	1,737,989	175,214	29,230,303	1,919,415	33,104,830
1988 <sup>a</sup>	31,797	767,674	477,816	11,820,121	1,843,317	14,940,725
1989 <sup>a</sup>	32,006	1,175,238	424,980	21,886,466	1,001,809	24,520,499
1990 <sup>a</sup>	22,163	911,607	524,274	44,165,077	967,384	46,590,505
1991 <sup>b</sup>	35,355	1,734,544	641,854	37,135,561	352,321	39,899,635
1992 <sup>c</sup>	41,306	1,771,612	619,460	8,637,116	334,376	11,403,870
1993 <sup>d</sup>	32,005	1,851,133	445,612	5,761,097	1,186,365	9,276,212
1994 <sup>e</sup>	48,558	1,514,329	1,058,154	36,886,301	1,058,213	40,565,555
1995 <sup>e</sup>	67,083	1,523,464	992,798	16,221,493	864,245	19,669,083
1996 <sup>e</sup>	56,457	3,000,602	459,253	26,042,942	2,103,559	31,662,813
1997 <sup>e</sup>	52,482	4,163,074	83,113	25,836,563	2,227,190	32,362,422
1998 <sup>e</sup>	70,910	1,715,778	194,621	28,685,115	1,271,911	31,938,335
1999 <sup>e</sup>	63,434	2,035,293	244,754	45,003,656	2,989,255	50,336,392
2000 <sup>e</sup>	32,411	1,430,838	714,286	38,885,528	5,163,760	46,226,823
2001 <sup>e</sup>	40,461	2,261,097	494,135	35,246,524	3,099,794	41,142,011
2002 <sup>e</sup>	39,706	2,262,134	650,331	18,950,931	6,373,491	28,276,593
2003 <sup>e</sup>	49,227	2,838,679	502,135	51,136,305	3,779,657	58,306,003
2004 <sup>e</sup>	39,142	1,892,525	619,884	23,531,483	2,001,918	28,084,952
1994–2003 Average	52,073	2,274,529	539,358	32,289,536	2,893,108	38,048,603

<sup>a</sup> Includes confiscated and educational special use permits. Also includes hatchery sales harvests and carcass sales.

<sup>b</sup> Includes confiscated and educational special use permits, hatchery sales harvests, donated and discarded catches.

<sup>c</sup> Includes harvests from confiscated and educational special use permits, hatchery sales harvest, and test fisheries.

<sup>d</sup> Includes harvests from confiscated permits, hatchery sales harvests, donated fish harvest, and test fisheries.

<sup>e</sup> Includes harvests from confiscated permits, all hatchery sales harvests (excluding roe salvage), and test fisheries.

**Table 3.**—Mean price and estimated exvessel value of the total commercial salmon harvest by gear type, Prince William Sound, 2004.

Species	Number	Pounds <sup>a</sup>	Average Weight	Price <sup>a</sup>	Value
<b>Purse Seine</b>					
Chinook	156	2,822	18.09	\$0.45	\$1,270
Sockeye	17,530	84,679	4.83	\$0.55	\$46,573
Coho	33,961	289,734	8.53	\$0.42	\$121,688
Pink	11,573,514	42,935,506	3.71	\$0.10	\$4,293,551
Chum	881,098	6,827,584	7.75	\$0.18	\$1,228,965
<b>Total</b>	<b>12,506,259</b>	<b>50,140,325</b>			<b>\$5,692,047</b>
<b>Drift Gillnet</b>					
Chinook	38,430	865,587	22.52	\$4.68	\$4,050,947
Sockeye	1,500,223	8,840,005	5.89	\$1.52	\$13,436,808
Coho	575,122	5,237,734	9.11	\$0.68	\$3,561,659
Pink	81,090	303,349	3.74	\$0.04	\$12,134
Chum	581,762	4,245,882	7.30	\$0.23	\$976,553
<b>Total</b>	<b>2,776,627</b>	<b>19,492,557</b>			<b>\$22,038,101</b>
<b>Set Gillnet<sup>b</sup></b>					
Chinook	11	137	12.45	\$1.38	\$189
Sockeye	91,412	534,952	5.85	\$0.85	\$454,709
Coho	825	5,838	7.08	\$0.28	\$1,635
Pink	51,655	185,964	3.60	\$0.04	\$7,439
Chum	10,381	75,046	7.23	\$0.23	\$17,261
<b>Total</b>	<b>154,284</b>	<b>801,937</b>			<b>\$481,232</b>
<b>Hatchery Sales</b>					
Chinook	0	0	0.00	\$0.00	\$0
Sockeye	282,362	1,510,637	5.35	\$0.66	\$997,020
Coho	9,974	85,078	8.53	\$0.42	\$35,733
Pink	11,825,224	43,989,833	3.72	\$0.13	\$5,718,678
Chum	528,676	3,896,342	7.37	\$0.20	\$779,268
<b>Total</b>	<b>12,646,236</b>	<b>49,481,890</b>			<b>\$7,530,700</b>
<b>Other Gear<sup>c</sup></b>					
Chinook	5	114	22.79	\$4.33	\$493
Sockeye	74	429	5.80	\$1.43	\$614
Coho	0	0	0.00	\$0.00	\$0
Pink	0	0	0.00	\$0.00	\$0
Chum	0	0	0.00	\$0.00	\$0
<b>Total</b>	<b>79</b>	<b>543</b>			<b>\$1,107</b>
<b>Value of Catch by Gear Type</b>					
<b>Gear Type</b>	<b>Value</b>		<b>No. of Permits</b>	<b>Average Earnings</b>	
Purse Seine	\$5,692,047		105	\$54,210	
Drift Gillnet	\$22,038,101		522	\$42,219	
Set Gillnet	\$481,232		27	\$17,823	
<b>Total Value of CCPF<sup>d</sup> Catch</b>	<b>\$28,211,380</b>				
Hatchery	\$7,530,700				
Other Gear	\$1,107				
<b>Total Value</b>	<b>\$35,743,187</b>				

<sup>a</sup> Mean prices are based on weighted average prices given voluntarily by processors and hatchery operators. Pounds of fish are based on fish ticket reporting and do not represent pounds reported in Commercial Operator Annual Reports.

<sup>b</sup> Sockeye salmon price is based on the received price to the hatchery operator.

<sup>c</sup> Includes the sales of confiscated fish.

<sup>d</sup> Commercial Common Property Fishery.

**Table 4.**—Average price paid to permit holders for salmon, Prince William Sound, 1994–2004.

<b>Species/District <sup>a</sup></b>	<b>1994</b>	<b>1995</b>	<b>1996</b>	<b>1997</b>	<b>1998</b>	<b>1999</b>	<b>2000</b>	<b>2001</b>	<b>2002</b>	<b>2003</b>	<b>2004</b>
<b>Chinook Salmon</b>											
Copper/Bering Districts	\$1.43	\$2.19	\$1.96	\$2.00	\$2.07	\$3.44	\$4.02	\$3.30	\$3.34	\$3.48	\$4.69
Prince William Sound	\$0.80	\$0.91	\$0.71	\$1.00	\$0.94	\$1.28	\$1.59	\$0.92	\$0.92	\$0.48	\$0.82
<b>Sockeye Salmon</b>											
Copper River	\$1.27	\$1.67	\$1.38	\$0.88	\$1.49	\$1.84	\$1.72	\$1.35	\$1.29	\$1.16	\$1.81
Bering River	\$1.06	\$1.44	\$1.21	\$0.88	\$1.35	\$1.81	\$1.72	\$1.35	\$1.29	\$1.16	\$1.81
Coghill/Unakwik Districts	\$0.94	\$0.75	\$0.82	\$0.80	\$1.24	\$1.60	\$1.14	\$0.77	\$0.64	\$0.80	\$0.85
Eshamy	\$1.19	\$1.06	\$0.85	\$0.80	\$1.11	\$0.89	\$1.14	\$0.77	\$1.14	\$0.80	\$0.85
General Purse Seine	\$0.88	\$0.94	\$0.73	\$0.85	\$1.06	\$1.18	\$0.90	\$0.74	\$0.56	\$0.71	\$0.55
<b>Coho Salmon</b>											
Copper/Bering Districts	\$0.74	\$0.52	\$0.53	\$0.30	\$0.46	\$0.58	\$0.57	\$0.32	\$0.35	\$0.48	\$0.69
Prince William Sound	\$0.60	\$0.42	\$0.36	\$0.30	\$0.33	\$0.33	\$0.42	\$0.26	\$0.26	\$0.42	\$0.39
<b>Pink Salmon</b>											
	\$0.16	\$0.18	\$0.07	\$0.12	\$0.13	\$0.15	\$0.15	\$0.13	\$0.09	\$0.08	\$0.10
<b>Chum Salmon</b>											
	\$0.45	\$0.45	\$0.13	\$0.27	\$0.22	\$0.21	\$0.28	\$0.37	\$0.15	\$0.17	\$0.20

<sup>a</sup> Based on processor reports, fish tickets, and other sources prior to 1995. The 1995–2002 prices are based on processor reports. A weighted average is generally used. Prices are an estimate and generally do not reflect postseason adjustments. The 2003 prices are based on Commercial Operator Annual Reports, and do not accurately report prices for individual districts. The 2004 prices are based on processor reports. Caution should be used if estimating value from these prices.

**Table 5.**—Estimated exvessel value of the total commercial salmon harvest by gear type, Prince William Sound, 1994–2004.

<b>Purse Seine</b>											
<b>Species</b>	<b>1994</b>	<b>1995</b>	<b>1996</b>	<b>1997</b>	<b>1998</b>	<b>1999</b>	<b>2000</b>	<b>2001</b>	<b>2002</b>	<b>2003</b>	<b>2004</b>
Chinook	1,104	1,169	570	3,422	4,386	7,427	2,706	5,435	1,353	924.00	1,270
Sockeye	432,156	205,178	111,337	151,532	127,854	141,923	195,169	539,388	58,142	847,966.00	46,573
Coho	208,661	327,260	314,773	125,946	124,325	329,317	965,404	398,532	69,207	226,619.00	121,688
Pink	12,537,403	6,736,581	4,445,231	6,795,323	8,565,392	9,456,108	13,728,606	9,584,465	2,425,505	10,716,380.00	4,293,551
Chum	164,181	152,047	386,967	1,742,759	950,912	3,128,816	3,964,546	2,863,466	2,423,525	1,717,083.00	1,228,965
<b>Total</b>	<b>\$13,343,505</b>	<b>\$7,422,236</b>	<b>\$5,258,878</b>	<b>\$8,818,982</b>	<b>\$9,772,869</b>	<b>\$13,063,591</b>	<b>\$18,856,431</b>	<b>\$13,391,287</b>	<b>\$4,977,731</b>	<b>\$13,508,972</b>	<b>\$5,692,047</b>
<b>Drift Gillnet</b>											
Chinook	1,534,059	3,573,848	2,259,958	2,367,538	3,341,148	5,510,840	2,698,417	2,791,619	2,691,215	3,810,019	4,050,947
Sockeye	9,209,486	12,864,113	23,037,225	19,796,170	13,223,761	20,048,000	13,554,212	14,158,076	14,964,894	13,791,971	13,436,808
Coho	7,129,685	4,207,678	1,450,095	57,798	379,366	733,022	2,486,184	790,544	2,027,738	1,762,604	3,561,659
Pink	127,997	165,462	12,028	83,398	249,293	43,612	177,559	144,896	23,889	27,904	12,134
Chum	2,393,837	1,709,831	1,229,842	1,567,526	1,035,808	1,529,765	3,550,614	3,371,206	2,206,854	821,818	976,553
<b>Total</b>	<b>\$20,395,065</b>	<b>\$22,520,932</b>	<b>\$27,989,149</b>	<b>\$23,872,430</b>	<b>\$18,229,376</b>	<b>\$27,865,239</b>	<b>\$22,466,986</b>	<b>\$21,256,342</b>	<b>\$21,914,590</b>	<b>\$20,214,316</b>	<b>\$22,038,101</b>
<b>Set Gillnet</b>											
Chinook	121	182	148	159	25	592	2,902	787	765	0	189
Sockeye	638,164	181,653	697,572	1,055,286	177,723	407,497	912,603	844,123	1,701,077	1,070,058	454,709
Coho	3,513	2,003	612	340	336	1,877	3,346	1,686	388	1,611	1,635
Pink	117,298	18,892	2,373	20,477	16,659	8,721	53,160	22,048	10,848	6,324	7,439
Chum	18,675	21,018	11,312	17,242	337	13,630	25,641	20,045	27,638	6,742	17,261
<b>Total</b>	<b>\$777,770</b>	<b>\$223,747</b>	<b>\$712,017</b>	<b>\$1,093,504</b>	<b>\$195,079</b>	<b>\$432,317</b>	<b>\$997,652</b>	<b>\$888,689</b>	<b>\$1,740,716</b>	<b>\$1,084,735</b>	<b>\$481,233</b>
<b>Hatchery Sales</b>											
Chinook	11,526	11,692	91	1,252	22,621	0	0	0	15	0	0
Sockeye	358,077	380,378	444,198	1,381,948	953,857	143,855	478	174,418	418,114	1,769,179	997,020
Coho	82,571	28,759	100,413	7,090	63,980	0	2	9,459	1	0	35,733
Pink	7,222,015	4,157,847	4,076,578	5,814,214	6,283,525	6,312,337	6,358,529	6,430,468	4,989,921	6,068,403	5,718,678
Chum	1,598,524	895,509	1,430,814	1,758,276	1,261,354	2,380,321	4,007,449	3,070,274	3,794,069	1,643,243	779,268
<b>Total</b>	<b>\$9,272,731</b>	<b>\$5,474,186</b>	<b>\$6,052,094</b>	<b>\$8,965,780</b>	<b>\$8,585,338</b>	<b>\$8,836,513</b>	<b>\$10,366,458</b>	<b>\$9,684,619</b>	<b>\$9,202,119</b>	<b>\$9,480,825</b>	<b>\$7,530,699</b>
<b>Other Gear</b>											
Chinook	143	25	76	0	5,004	448	1,266	0	200	26	493
Sockeye	3,686	27,880	2,582	2,085	2,085	68,525	5,944	509	1,324	195	614
Coho	89	479	0	0	10	106		468	0	0	0
Pink	28,287	88,152	0	1	271	81,476		382	0	2812	0
Chum	35,139	4,234	1	190	13	358	600	4,206	5	0	0
<b>Total</b>	<b>\$67,344</b>	<b>\$120,771</b>	<b>\$2,659</b>	<b>\$2,276</b>	<b>\$7,383</b>	<b>\$150,913</b>	<b>\$7,811</b>	<b>\$5,564</b>	<b>\$1,529</b>	<b>\$3,033</b>	<b>\$1,107</b>

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**Table 5.**—Page 2 of 2.

<b>Average Earnings</b>											
	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
Purse Seine	\$78,032	\$39,691	\$58,432	\$77,359	\$65,590	\$93,983	\$143,942	\$88,101	\$41,481	\$127,443	\$54,210
Drift Gillnet	\$39,990	\$43,477	\$54,989	\$45,909	\$34,922	\$53,280	\$41,994	\$39,731	\$41,039	\$39,327	\$42,219
Set Gillnet	\$29,914	\$8,606	\$26,371	\$42,058	\$12,192	\$20,587	\$35,630	\$27,772	\$62,168	\$38,741	\$17,823
<b>Number of Permits Fished</b>											
Purse Seine	171	187	90	114	149	139	131	152	120	106	105
Drift Gillnet	510	518	509	520	522	523	535	535	534	514	522
Set Gillnet	26	26	27	26	16	21	28	32	28	28	27

**Table 6.**—Preseason harvest or total run projections for the 2004 commercial common property salmon fishery by district and species, Prince William Sound Area.

District/facility <sup>a</sup>	Forecast type <sup>b</sup>	Chinook		Sockeye		Coho		Pink		Chum	
		Point Estimate	Range	Point Estimate	Range	Point Estimate	Range	Point Estimate	Range	Point Estimate	Range
Copper River <sup>c</sup>	commercial harvest	51	34 - 68	885	223 - 1,546	315	20 - 611				
Bering River <sup>d</sup>	commercial harvest			14	4 - 25	88	0 - 231				
Coghill <sup>e</sup>	commercial harvest			373	205 - 972						
Eshamy <sup>c</sup>	commercial harvest			68	23 - 113						
Unakwik <sup>f</sup>	commercial harvest			5	3 - 7						
General PWS Districts <sup>g</sup>	commercial harvest							2,620	0 - 5,980	393	315 - 471
<b>Total Wild Stock</b>		51	34 - 68	1,345	304 - 1,830	403	20 - 653	2,620	0 - 5,980	393	315 - 471
Solomon Gulch <sup>h</sup>	total return					70	NA	7,384	2,327 - 10,583		
Armin F. Koernig <sup>h</sup>	total return							4,378	NA		
Wally Noerenberg <sup>h,i</sup>	total return					51	NA	4,355	NA	2,388	NA
Cannery Creek <sup>h</sup>	total return							3,865	NA		
Main Bay <sup>h,j</sup>	total return			913	NA						
Gulkana <sup>a</sup>	commercial harvest			80	35 - 126						
<b>Total Hatchery</b>				993	NA	120	NA	19,982	NA	2,388	NA
<b>Total Hatchery and Wild</b>		51		2,338		524		22,602		2,781	

<sup>a</sup> Wild fish runs are estimated by fishing district and enhanced runs are estimated by facility of origin. The Alaska Department of Fish and Game completed all wild stock forecasts and the Gulkana Hatchery forecast. Valdez Fisheries Development Association provided the Solomon Gulch Hatchery pink salmon forecast and Prince William Sound Aquaculture Association provided all other enhanced forecasts except the Gulkana Hatchery forecast.

<sup>b</sup> The Alaska Department of Fish and Game provided forecasts of commercial harvest for all wild stocks and Gulkana Hatchery sockeye salmon. All forecasts provided by the nonprofit aquaculture associations were for total runs. The harvest projections do not include salmon harvest by hatcheries for cost recovery.

<sup>c</sup> Formalized sibling model forecast procedures are used for Copper River sockeye salmon runs. Copper River Chinook and coho salmon harvest estimates are based on the mean annual harvest (5-year for Chinook and 10-year for coho salmon).

<sup>d</sup> Bering River coho salmon harvest estimates are based on 10-year mean annual harvest.

<sup>e</sup> Formalized sibling model forecast procedures are used for Coghill and Eshamy District sockeye salmon runs. The Coghill District's wild pink and chum salmon harvest is included in the "General PWS Districts" projection.

<sup>f</sup> The Unakwik District sockeye salmon harvest estimate is based on the 10-year mean annual harvest.

<sup>g</sup> Formal forecast procedures are used for estimating wild stock runs of pink and chum salmon in PWS Hatchery contributions are based on known fry releases and average marine survival rates. Harvest estimates are made only for species that constitute a significant portion of the catch.

<sup>h</sup> Harvest projections calculated by hatchery operator - not by ADF&G.

<sup>i</sup> Wally Noerenberg Hatchery chum salmon harvest estimate includes all on-site and remote release runs of chum salmon.

<sup>j</sup> Main Bay sockeye salmon harvest estimate includes all on-site and remote release runs of sockeye salmon.

**Table 7.**—A listing of finfish processors, their location of operation, and type of product processed, Prince William Sound Area, 2004.

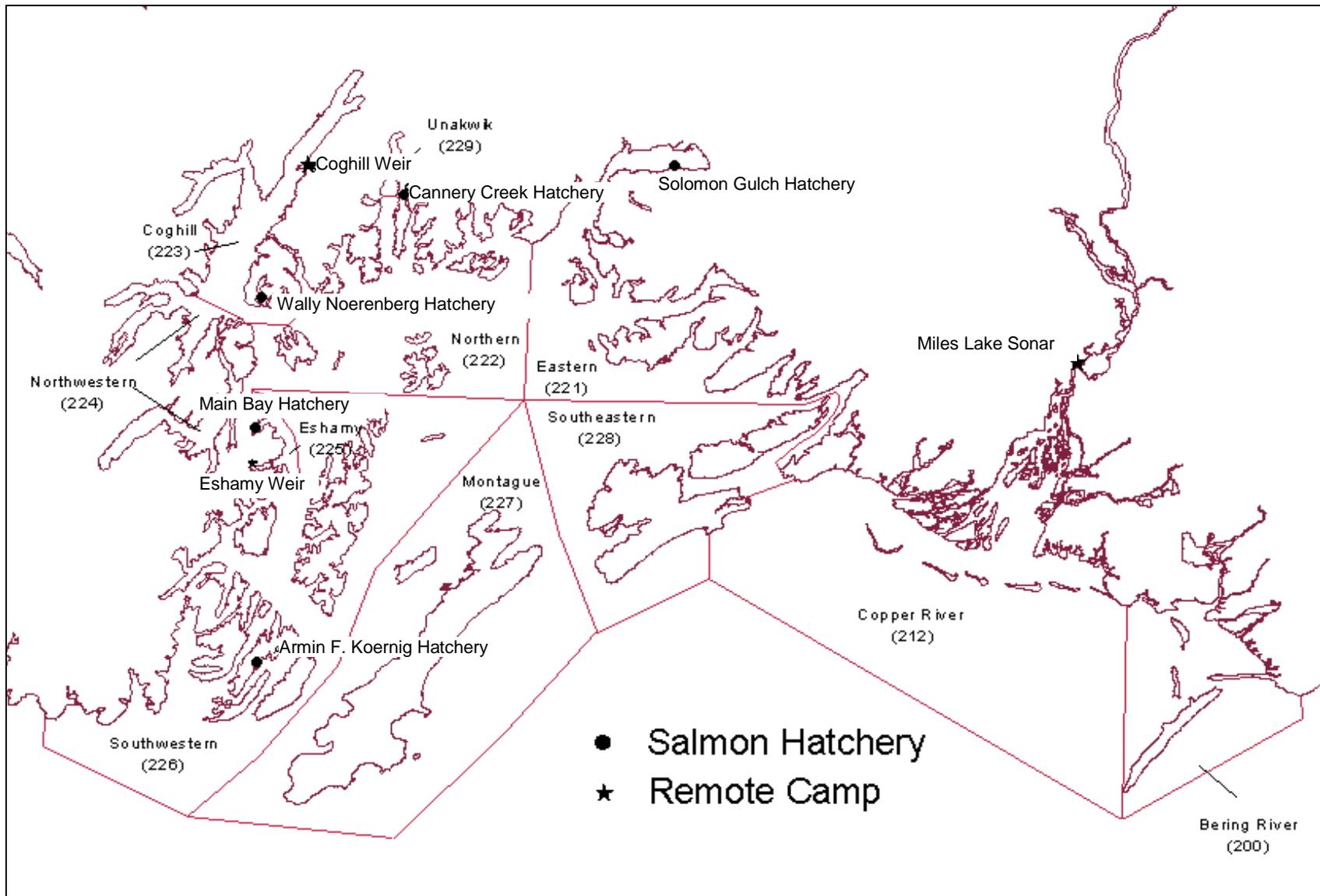
<b>Executive Names, Address Location of Operations</b>	<b>Processor Code</b>	<b>Type of Product</b>	<b>Executive Names, Address Location of Operations</b>	<b>Processor Code</b>	<b>Type of Product</b>
Alaska Seafood P.O. Box 878973 Wasilla, AK 99687 Dave Martinsen	F5805	Salmon	Copper River Caviar and Fish Co. PO Box 756 Cordova, AK 99574 Renner, John	F5150	Salmon
Alaskan Marine Resources, LLC P.O. Box 1976 Cordova, AK 99574 Charles Smith	F4755	Salmon	Deep Creek Custom Box 229 Wasilla, AK 99639 Jeff Beoger	F1051 F3768	Salmon
Bear and Wolf Salmon Co. 4209 21st Ave W. Seattle, WA 98199 Peter Kuttel	F4287	Salmon	Wild Salmon PO Box 1389 Cordova, AK 99574 Dennis Zadra	F6049	Salmon
Bowen, Mike 8731 Kiva Way Wasilla, AK Bowen, Mike	&5662	Salmon	Norquest Seafoods P.O. Box 260 Cordova, AK 99574 Bill Gilbert	F1484 F1486	Salmon
Copper River Seafoods P.O. Box 158 Cordova, AK 99574 William A. Bailey III	F2977	Salmon	North Pacific Processors, Inc. P.O. Box 1040 Cordova, Alaska 99574 Ken Roemhildt	F0232	Salmon
Fee's Custom Seafoods 9321 Arlene St. #10 Anchorage, AK 99502 Edward W. Fee	F5690	Salmon	Ocean Beauty Seafoods P.O. Box 548 Cordova, AK 99574 Hap Symmonds / William Fejes	F1930 F5202	Salmon
FAVCO Box 190968 Anchorage, AK 99519 Bill Buck	F0398	Salmon	Peter Pan Seafoods, Inc. P.O. Box 1027 Valdez, Alaska 99686 Mark Hansen	F1041	Salmon
Gerald D. Thorne P.O. Box 1192 Cordova, AK 99574 Gerald D. Thorne	F5673 F4767	Salmon	Prime Select Seafoods, Inc. P.O. Box 846 Cordova, Alaska 99574 Susan Laird	F1816	Salmon
Great Pacific Seafoods, Inc. P.O. Box 710 Whittier, AK 99693 Glen Brackett / Judi Murdock	F1267 F2857	Salmon	Prince William Sound Aquaculture P.O. Box 1110 Cordova, Alaska 99574 David Reggiani	F1901 F1903 F3468	Salmon
Gulkana Seafoods P.O. Box 1230 Cordova, AK 99574 Bill Webber	F5617	Salmon	White Dawn PO Box 1566 Cordova, AK 99574 Thea Thomas	F6074	Salmon

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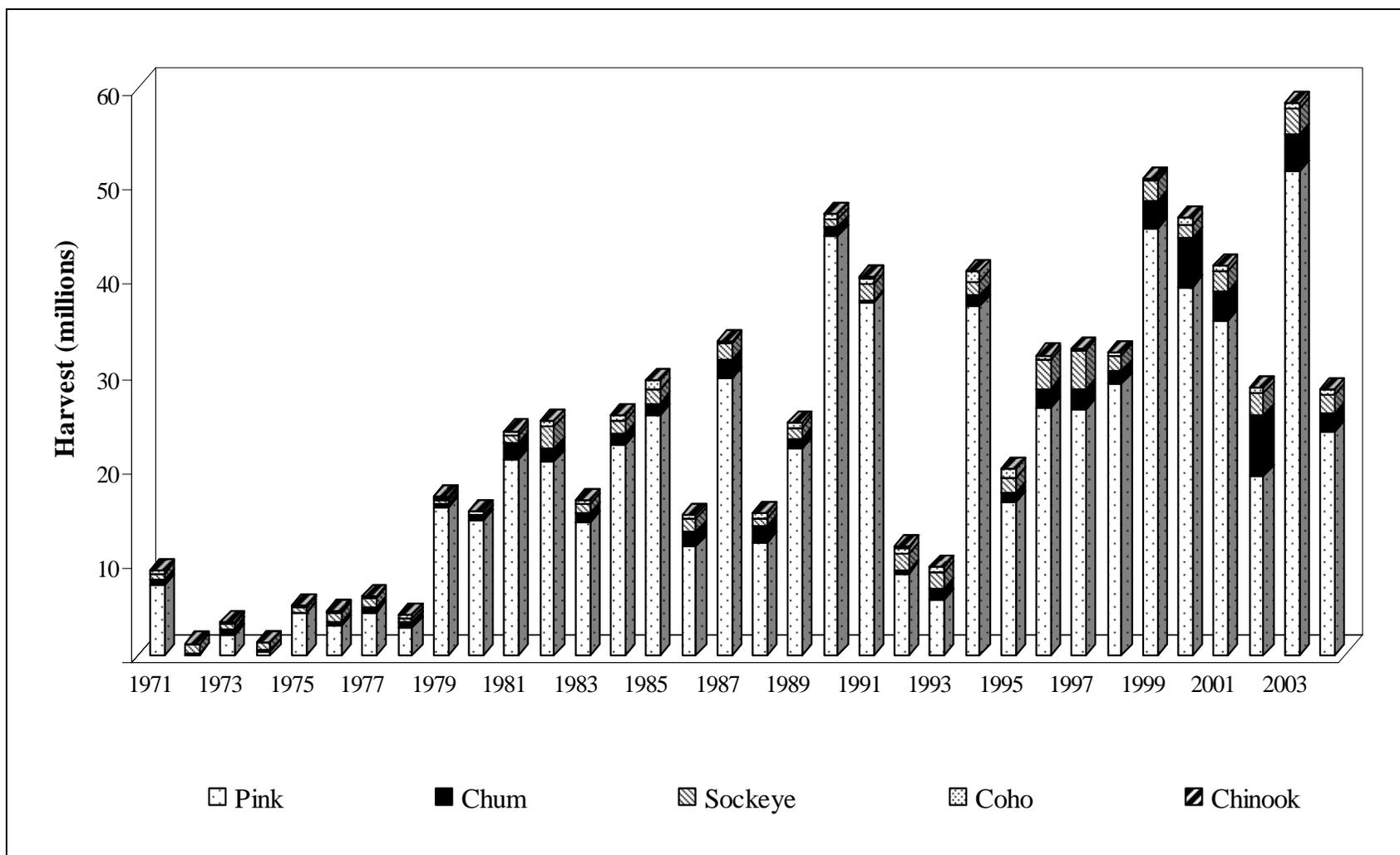
**Table 7.**—Page 2 of 2.

<b>Executive Names, Address Location of Operations</b>	<b>Processor Code</b>	<b>Type of Product</b>	<b>Executive Names, Address Location of Operations</b>	<b>Processor Code</b>	<b>Type of Product</b>
Icicle Seafoods Inc. P.O. Box 8 Seward, Alaska 99664 Tim Schmidt	F0135	Salmon	Snug Harbor Box 701 Kenai, AK 99611 Brenda Stoops	F3894	Salmon
Inlet Fish Producers, Inc. P.O. Box 114 Kenai, AK 99611 Robert Utrup	F4682	Salmon	Valdez Fisheries Development P.O. Box 125 Valdez, Alaska 99686 Mike Wells	F1355	Salmon
Linville Brothers P.O. Box 1753 Seward, AK 99664 Gus Linville	F5769	Salmon	Waterkist Corporation P.O. Box 727 Valdez, AK 99686 Tom Waterer	F2003	Salmon
Lynn Potter P.O. Box 1472 Cordova, AK 99574 Lynn Potter	F3346 F4225	Salmon			

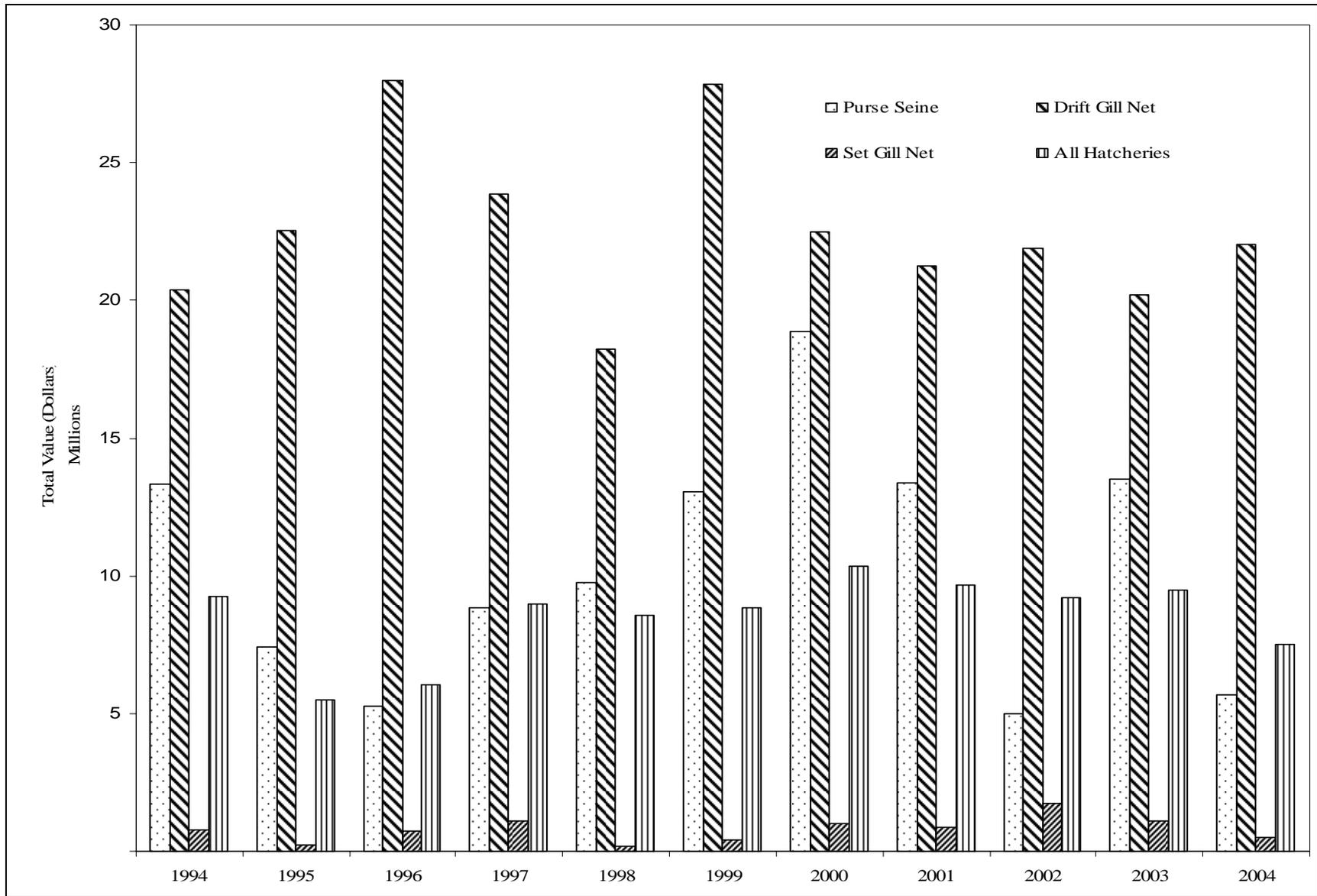
## **FIGURES**



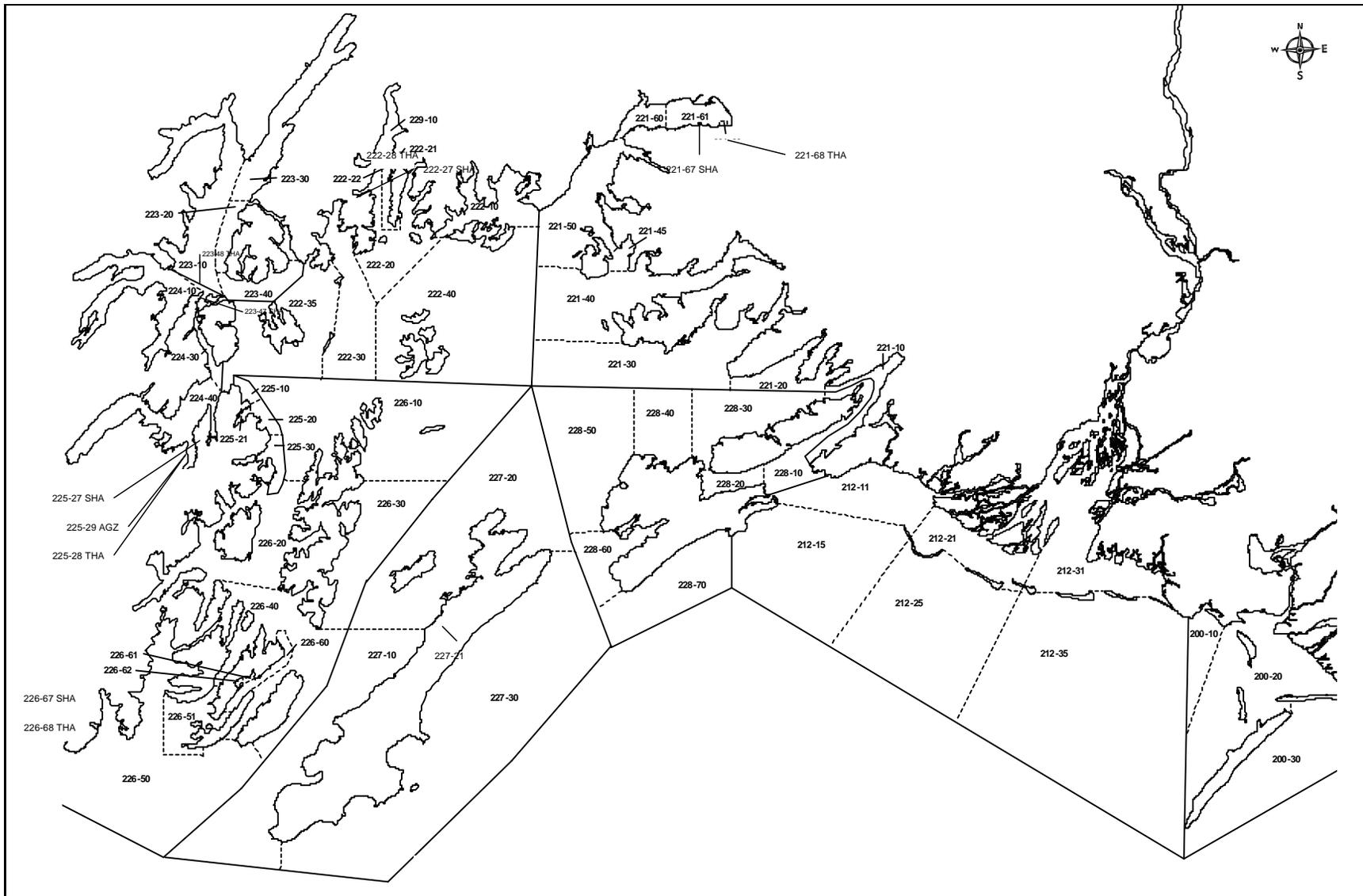
**Figure 1.**—Prince William Sound Management Area showing commercial fishing districts, salmon hatcheries, weir locations, and Miles Lake sonar camp.



**Figure 2.**—Commercial salmon harvest by species for all gear types combined, Prince William Sound, 1971–2004.



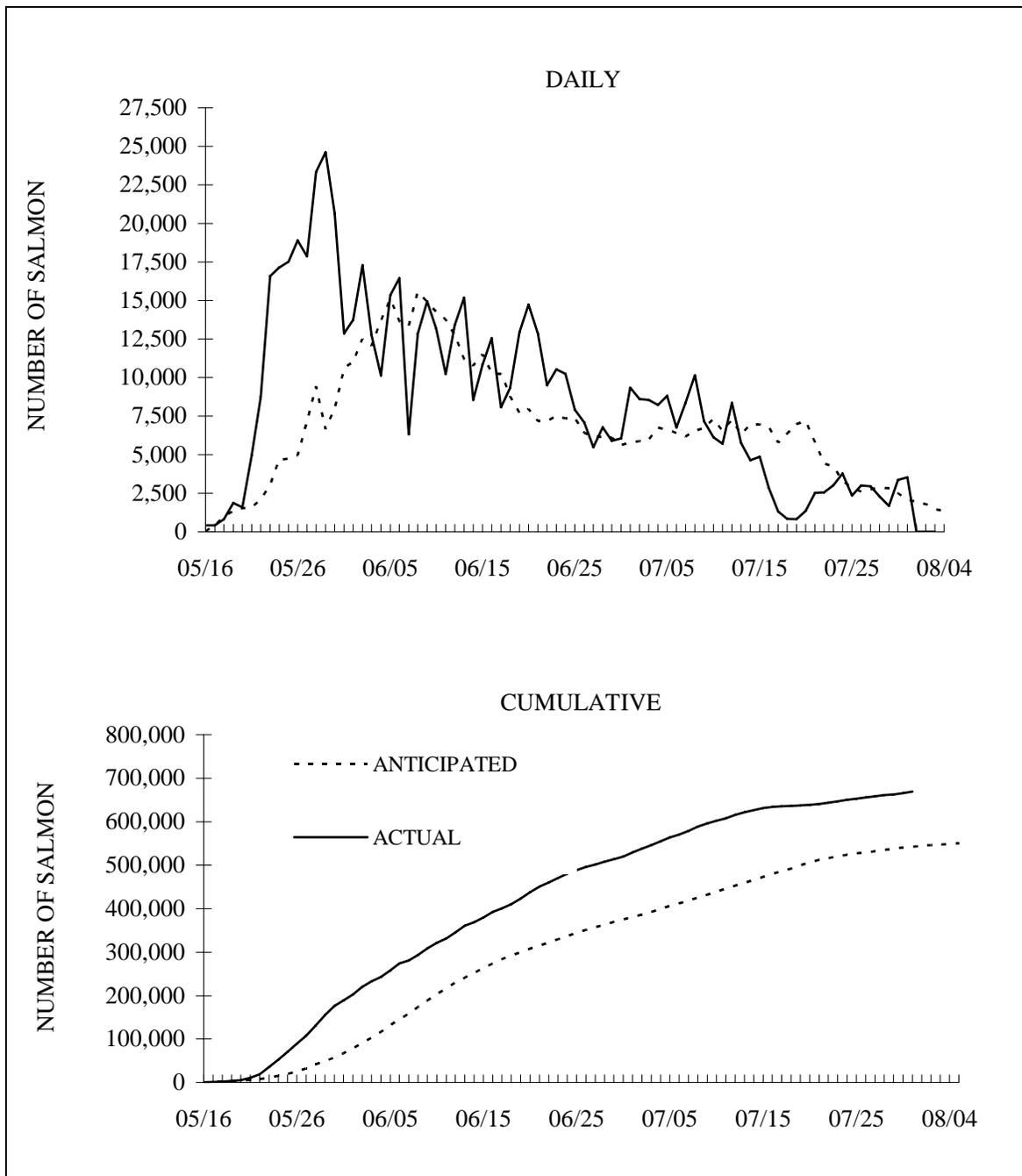
**Figure 3.**—Exvessel value of the commercial salmon harvest by gear type, 1993–2004.



**Figure 4.**—Prince William Sound Area showing commercial fishing districts and statistical reporting areas, 2004.



**APPENDIX A. COPPER AND BERING RIVER DISTRICTS**



**Appendix A1.**—Anticipated versus actual daily and cumulative salmon escapement, Miles Lake sonar, 2004.

**Appendix A2.**—Total commercial salmon harvest by species in the Copper River District, 1974–2004.

<b>Year</b>	<b>Chinook</b>	<b>Sockeye</b>	<b>Coho</b>	<b>Pink</b>	<b>Chum</b>	<b>Total</b>
1974	18,980	607,766	46,625	9,839	664	683,874
1975	19,644	335,384	53,805	236	807	409,876
1976	31,479	865,195	111,900	3,392	178	1,012,144
1977	21,722	602,737	131,356	23,185	335	779,335
1978	29,062	249,872	220,338	3,512	2,233	505,017
1979	17,678	80,528	194,885	1,295	107	294,493
1980	8,454	18,908	225,299	3,966	198	256,825
1981	20,178	477,662	310,154	23,952	1,799	833,745
1982	47,362	1,177,632	454,763	7,154	1,177	1,688,088
1983	52,500	626,735	234,243	7,345	2,217	923,040
1984	38,957	900,043	382,432	32,194	6,935	1,360,561
1985	42,214	927,553	587,990	19,061	5,966	1,582,784
1986	40,670	780,808	295,980	3,016	17,614	1,138,088
1987	41,001	1,180,782	111,599	31,635	14,796	1,379,813
1988	30,741	576,950	315,568	2,775	11,022	937,056
1989	30,863	1,025,923	194,454	25,877	5,845	1,282,962
1990	21,702	844,778	246,797	1,596	7,545	1,122,418
1991	34,787	1,206,811	385,086	1,246	20,220	1,648,150
1992	39,810	970,938	291,627	1,664	5,807	1,309,846
1993	29,727	1,398,234	281,469	9,579	13,002	1,732,011
1994	47,061	1,152,220	677,633	12,079	19,055	1,908,048
1995	65,675	1,271,822	542,658	19,809	56,100	1,956,064
1996	55,646	2,356,365	193,042	6,372	25,533	2,636,958
1997	51,273	2,955,431	18,656	8,483	2,465	3,036,308
1998	68,827	1,341,692	108,232	20,829	5,022	1,544,602
1999	62,337	1,682,559	153,061	10,205	25,321	1,933,483
2000	31,259	880,334	304,944	9,804	5,363	1,231,704
2001	39,524	1,323,577	251,473	9,387	2,789	1,626,750
2002	38,734	1,248,503	504,223	3,677	31,627	1,826,764
2003	47,721	1,188,052	363,489	12,934	10,110	1,622,306
2004	38,191	1,048,004	467,859	5,175	3,386	1,562,615
(1994-2003)						
10-Year Average	50,806	1,540,056	311,741	11,358	18,339	1,932,299

**Appendix A3.**—Daily sockeye salmon escapement estimates at Miles Lake sonar, 2004.

Date	Water Level (m)	Estimated Daily Escapement				Escapement Objective		0600 Count	Projected Daily
		North Bank	South Bank	Daily	Cumulative	Daily	Cumulative		
05/12	40.20	14		14	14				0
05/13	40.18	12		12	26				0
05/14	39.94	150		150	176				0
05/15	40.28	64	230	294	470	0	0		48
05/16	40.33	88	324	412	882	11	11		240
05/17	40.34	72	347	419	1,301	407	418		264
05/18	40.36	96	725	821	2,122	973	1,391	126	504
05/19	40.36	216	1,648	1,864	3,986	1,358	2,748	138	552
05/20	40.53	128	1,451	1,579	5,565	1,526	4,275	468	1,872
05/21	40.71	336	4,624	4,960	10,525	1,558	5,832	934	3,736
05/22	40.88	528	8,233	8,761	19,286	2,093	7,925	2,566	10,264
05/23	41.04	576	16,012	16,588	35,874	3,034	10,959	3,556	14,224
05/24	41.15	800	16,330	17,130	53,004	4,668	15,628	3,710	14,840
05/25	41.33	496	17,024	17,520	70,524	4,727	20,354	4,076	16,304
05/26	41.57	696	18,194	18,890	89,414	4,971	25,325	3,338	13,352
05/27	41.57	560	17,303	17,863	107,277	7,187	32,512	4,502	18,008
05/28	41.34	536	22,811	23,347	130,624	9,422	41,935	4,359	17,436
05/29	41.32	1,624	23,001	24,625	155,249	6,635	48,570	3,721	14,884
05/30	41.31	1,208	19,436	20,644	175,893	7,963	56,534	4,358	17,432
05/31	41.27	488	12,371	12,859	188,752	10,588	67,122	2,390	9,560
06/01	41.39	848	12,883	13,731	202,483	11,008	78,129	2,958	11,832
06/02	41.42	472	16,809	17,281	219,764	12,491	90,620	3,713	14,852
06/03	41.35	392	12,358	12,750	232,514	12,061	102,681	3,299	13,196
06/04	41.27	320	9,809	10,129	242,643	13,665	116,346	1,980	7,920
06/05	41.26	536	14,814	15,350	257,993	15,085	131,431	3,175	12,700
06/06	41.45	408	16,049	16,457	274,450	13,617	145,048	5,253	21,012
06/07	41.61	384	5,936	6,320	280,770	13,382	158,430	2,456	9,824
06/08	42.11	560	12,284	12,844	293,614	15,555	173,985	2,312	9,248
06/09	42.35	664	14,284	14,948	308,562	14,894	188,879	3,276	13,104
06/10	42.37	392	12,768	13,160	321,722	14,279	203,157	4,023	16,092
06/11	42.23	376	9,856	10,232	331,954	13,754	216,911	2,202	8,808
06/12	41.99	296	13,122	13,418	345,372	12,732	229,643	2,924	11,696
06/13	41.77	320	14,879	15,199	360,571	11,185	240,828	3,866	15,464
06/14	41.59	144	8,414	8,558	369,129	10,754	251,582	2,852	11,408
06/15	41.65	120	10,714	10,834	379,963	11,516	263,099	2,462	9,848
06/16	41.79	104	12,457	12,561	392,524	10,287	273,386	3,344	13,376
06/17	41.95	48	8,031	8,079	400,603	10,275	283,661	1,964	7,856
06/18	42.28	64	9,273	9,337	409,940	8,783	292,444	1,411	5,644
06/19	42.67	216	12,724	12,940	422,880	7,688	300,132	2,878	11,512
06/20	43.13	168	14,572	14,740	437,620	7,953	308,085	3,788	15,152
06/21	43.52	200	12,653	12,853	450,473	7,181	315,266	2,956	11,824
06/22	43.79	56	9,457	9,513	459,986	7,167	322,432	2,170	8,680
06/23	43.89	256	10,277	10,533	470,519	7,500	329,932	2,589	10,356
06/24	43.99	840	9,415	10,255	480,774	7,349	337,282	1,890	7,560
06/25	44.17	672	7,250	7,922	488,696	7,347	344,629	2,773	11,092

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Date	Water Level (m)	Estimated Daily Escapement				Escapement Objective		0600 Count	Projected Daily
		North Bank	South Bank	Daily	Cumulative	Daily	Cumulative		
06/26	44.25	704	6,376	7,080	495,776	6,404	351,033	1,734	6,936
06/27	44.35	360	5,125	5,485	501,261	6,210	357,243	1,718	6,872
06/28	44.41	376	6,402	6,778	508,039	6,121	363,364	1,483	5,932
06/29	44.41	280	5,625	5,905	513,944	6,116	369,479	1,514	6,056
06/30	44.34	192	5,861	6,053	519,997	5,604	375,083	1,662	6,648
07/01	44.21	264	9,086	9,350	529,347	5,803	380,886	2,214	8,856
07/02	44.10	136	8,477	8,613	537,960	5,876	386,762	1,884	7,536
07/03	44.01	na	8,551	8,551	546,511	5,959	392,722	2,212	8,848
07/04	43.96	144	8,084	8,228	554,739	6,764	399,486	1,738	6,952
07/05	43.89	88	8,726	8,814	563,553	6,620	406,106	2,128	8,512
07/06	43.66	86	6,672	6,758	570,311	6,391	412,497	1,812	7,248
07/07	43.54	88	8,276	8,364	578,675	6,161	418,658	2,271	9,084
07/08	43.64	144	10,006	10,150	588,825	6,570	425,228	2,379	9,516
07/09	43.81	64	7,109	7,173	595,998	6,725	431,953	1,833	7,332
07/10	43.93	156	5,974	6,130	602,128	7,312	439,265	1,561	6,244
07/11	43.84	56	5,646	5,702	607,830	6,537	445,802	1,655	6,620
07/12	43.90	32	8,318	8,350	616,180	7,255	453,057	1,686	6,744
07/13	44.02	16	5,751	5,767	621,947	6,318	459,375	1,612	6,448
07/14	44.08	8	4,627	4,635	626,582	6,947	466,322	1,392	5,568
07/15	44.16	24	4,840	4,864	631,446	6,966	473,288	1,408	5,632
07/16	44.22	24	2,812	2,836	634,282	6,772	480,060	760	3,040
07/17	44.36	96	1,228	1,324	635,606	5,781	485,840	452	1,808
07/18	44.56	48	798	846	636,452	6,367	492,208	176	704
07/19	44.56	32	789	821	637,273	6,979	499,187	229	916
07/20	44.22	16	1,348	1,364	638,637	7,174	506,361	na	0
07/21	43.87	58	2,469	2,527	641,164	5,764	512,125	441	1,764
07/22	43.73	48	2,502	2,550	643,714	4,423	516,548	355	1,420
07/23	43.78	48	2,972	3,020	646,734	4,211	520,759	600	2,400
07/24	43.39	48	3,730	3,778	650,512	3,303	524,062	630	2,520
07/25	43.29	77	2,261	2,338	652,850	2,850	526,912	514	2,056
07/26	43.09	80	2,908	2,988	655,838	2,594	529,506	585	2,340
07/27	43.05	48	2,913	2,961	658,799	2,753	532,259	478	1,912
07/28	43.14	34	2,253	2,287	661,086	2,887	535,146	810	3,240
07/29	43.55	29	1,653	1,682	662,768	2,827	537,973	396	1,584
07/30	43.60	16	3,337	3,353	666,121	2,499	540,472	371	1,484
07/31	43.60	64	3,461	3,525	669,646	2,058	542,530	1,040	4,160
08/01	Sonar shut down			0		1,960	544,490		
08/02				0		1,786	546,276		
08/03				0		1,467	547,743		
08/04				0		1,328	549,071		
08/05				0		807	549,878		

**Appendix A4.**—Anticipated and actual semi-weekly harvest and escapement of sockeye salmon in the Copper River District drift gillnet fishery, 2004.

<b>Date</b>		<b>Fishing Time (Hours)</b>	<b>Anticipated Harvest <sup>a</sup></b>	<b>Actual Harvest</b>	<b>Anticipated Cumulative Escapement <sup>b</sup></b>	<b>Actual Cumulative Escapement <sup>c</sup></b>
05/15	Sat	0	8,187	0	0	470
05/19	Wed	12	29,953	39,838	2,748	3,986
05/22	Sat	12	49,263	48,297	7,925	19,286
05/26	Wed	12	81,847	49,272	25,325	89,414
05/29	Sat	24	63,215	59,313	48,570	155,249
06/02	Wed	36	75,438	131,941	90,620	219,764
06/05	Sat	24	59,173	81,695	131,431	257,993
06/09	Wed	24	55,206	60,252	188,879	308,562
06/12	Sat	24	31,776	47,400	229,643	345,372
06/16	Wed	24	38,114	58,048	273,386	392,524
06/19	Sat	24	26,747	56,356	300,132	422,880
06/23	Wed	36	30,221	58,580	329,932	470,519
06/26	Sat	36	30,964	47,687	351,033	495,776
06/30	Wed	48	38,883	51,207	375,083	519,997
07/03	Sat	48	31,416	54,964	392,722	546,511
07/07	Wed	48	46,620	46,905	418,658	578,675
07/10	Sat	48	38,289	40,649	439,265	602,128
07/14	Wed	48	42,689	40,366	466,322	626,582
07/17	Sat	48	28,902	37,901	485,840	635,606
07/21	Wed	36	26,374	17,509	512,125	641,164
07/24	Sat	24	15,847	3,770	524,062	650,512
07/28	Wed	24	13,373	582	535,136	661,086
07/31	Sat	24	6,753	4,196	542,530	669,646
08/04	Wed	24	5,624	3,010		
08/07	Sat	24	3,790	3,101		
08/11	Wed	24	2,997	3,093		
08/14	Sat	0	590	0		
08/18	Wed	24	992	877		
08/21	Sat	0	509	0		
08/25	Wed	24	388	878		
08/28	Sat	0	266	0		
09/01	Wed	24	184	206		
09/04	Sat	24	99	18		
09/08	Wed	24	69	63		
09/11	Sat	24	14	13		
<b>Total</b>		<b>900</b>	<b>884,772</b>	<b>1,047,987</b>		

<sup>a</sup> Based on average historical harvests for comparable dates (1992–1999).

<sup>b</sup> Based on historical escapements at Miles Lake sonar, includes upriver "other" salmon escapement component and sockeye salmon broodstock for the Gulkana Hatchery. Does not include sockeye salmon escapements for the Copper/Bering delta streams.

<sup>c</sup> Escapement estimate from sonar counters at Miles Lake. Sonar counts ended July 31.

**Appendix A5.**—Copper River and Bering River area sockeye salmon escapement indices, 1995–2004.

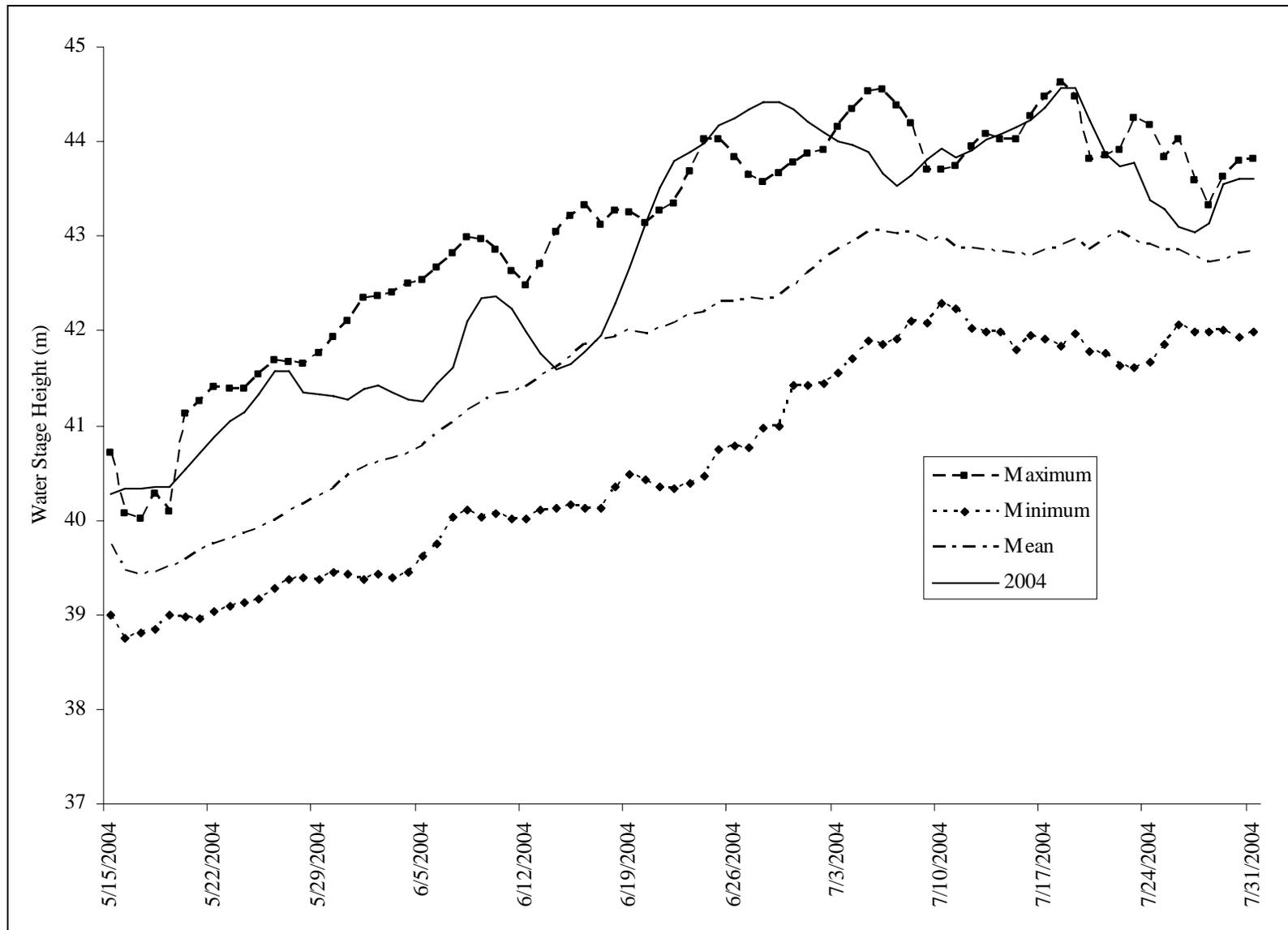
<b>Stream/Lake</b> <sup>a, b</sup>	<b>1995</b>	<b>1996</b>	<b>1997</b>	<b>1998</b>	<b>1999</b>	<b>2000</b>	<b>2001</b>	<b>2002</b>	<b>2003</b>	<b>2004</b>
Eyak Lake	17,720	16,110	<sup>c</sup>	16,300	18,100	20,500	7,400	13,375	12,900	14,300
Hatchery Creek	3,700	1,900	<sup>c</sup>	3,300	200	2,800	950	1,700	0	500
Power Creek	650	1,200	<sup>c</sup>	1,500	1,400	6,700	2,450	1,600	850	1,500
Ibek Creek	<sup>c</sup>	100	<sup>c</sup>	<sup>c</sup>	50	<sup>c</sup>	1,500	0	475	2,300
McKinley Lake	13,100	8,600	8,500	11,300	400	2,850	2,080	4,200	3,200	4,500
Salmon Creek	200	2,600	3,100	3,300	7,100	4,220	9,650	4,900	1,800	7,400
26/27 Mile Creek	2,000	1,440	1,700	1,800	3,800	3,300	4,000	850	475	1,125
39 Mile Creek	5,400	6,200	9,300	11,500	12,000	6,500	9,000	10,000	7,800	2,600
Goat Mountain	650	1,000	350	300	60	60	5	70	0	700
Pleasant Creek	1,600	1,400	5,000	1,000	7,615	2,300	8,100	2,425	6,850	3,525
Martin River	1,500	2,700	1,100	2,700	2,800	2,650	200	700	3,425	2,275
Ragged Pt. River/Lake	6,200	1,540	4,400	4,800	5,900	3,600	2,900	3,375	4,750	1,975
Martin Lake	9,450	9,000	13,100	13,600	19,150	22,900	7,100	10,600	18,900	17,300
Pothole Lake	1,200	1,160	300	1,500	2,100	3,050	1,910	8,400	1,500	1,350
L. Martin Lake	2,500	300	470	750	1,800	830	825	2,540	2,175	1,610
Tokun Lake/River	7,150	7,150	5,750	8,950	7,600	6,485	5,695	6,500	3,600	3,775
Martin River Slough	3,350	3,070	4,000	4,900	10,900	9,300	7,300	4,500	4,450	2,650
<b>Copper River Delta Total</b>	<b>76,370</b>	<b>65,470</b>	<b>57,070</b>	<b>87,500</b>	<b>100,975</b>	<b>98,045</b>	<b>71,065</b>	<b>75,735</b>	<b>73,150</b>	<b>69,385</b>
Upper Copper River <sup>d</sup>	599,265	906,239	1,148,079	866,957	850,951	587,497	833,569	819,886	700,618	669,646
<b>Copper River District Total</b>	<b>675,635</b>	<b>971,709</b>	<b>1,205,149</b>	<b>954,457</b>	<b>951,926</b>	<b>685,542</b>	<b>904,634</b>	<b>895,621</b>	<b>773,768</b>	<b>739,031</b>
Bering River/Lake	28,650	22,420	<sup>c</sup>	21,600	39,030	21,050	7,750	19,540	32,075	22,550
Shepherd Creek	2,600	2,000	1,400	<sup>c</sup>	1,215	950	60	60	205	195
Stillwater Creek	900	1,100	700	400	950	320	320	350	375	500
Kushtaka Lake	400	990	65	500	1,100	700	293	265	185	15
Katalla River	900	800	700	900	3,900	1,200	400	4,500	17,000	1,875
<b>Bering River Area Total</b>	<b>33,450</b>	<b>33,450</b>	<b>27,310</b>	<b>2,865</b>	<b>46,195</b>	<b>24,220</b>	<b>8,823</b>	<b>24,715</b>	<b>49,840</b>	<b>25,135</b>
<b>Copper/Bering River Total</b>	<b>709,085</b>	<b>1,005,159</b>	<b>1,232,459</b>	<b>957,322</b>	<b>998,121</b>	<b>709,762</b>	<b>913,457</b>	<b>920,336</b>	<b>823,608</b>	<b>764,166</b>

<sup>a</sup> The escapement figures in this table are based on peak aerial survey estimates and sonar counts from a majority of known salmon spawning areas in the Copper and Bering River Delta. These indices are not intended to provide a true estimate of total escapement for the coastal stocks, but a comparable index based upon the best data currently available. An effort has been made to standardize the estimates across years.

<sup>b</sup> The areas in this table represent combined survey sites corresponding to the "system" designations for the current year survey results presented elsewhere in this report.

<sup>c</sup> Peak escapement estimates were not possible for these systems due to poor weather or water conditions.

<sup>d</sup> Upriver escapement estimate from Miles Lake sonar counts.



**Appendix A6.**—Measured water stage height at the Million Dollar Bridge from 1982–2004.

**Appendix A7.**—Anticipated and actual semi-weekly harvest of Chinook salmon in the Copper River District drift gillnet fishery, 2004.

<b>Date</b>		<b>Fishing Time (Hours)</b>	<b>Anticipated Harvest <sup>a</sup></b>	<b>Actual Harvest</b>
5/15	Sat	0	3,441	0
5/19	Wed	12	7,195	8,948
5/22	Sat	12	7,161	5,134
5/26	Wed	12	8,114	2,780
5/29	Sat	24	4,891	3,453
6/2	Wed	36	6,315	4,665
6/5	Sat	24	3,580	3,512
6/9	Wed	24	3,573	2,029
6/12	Sat	24	2,139	2,477
6/16	Wed	24	1,697	2,086
6/19	Sat	24	876	1,270
6/23	Wed	36	579	564
6/26	Sat	36	457	443
6/30	Wed	48	281	266
7/3	Sat	48	116	229
7/7	Wed	48	138	126
7/10	Sat	48	73	62
7/14	Wed	48	73	42
7/17	Sat	48	36	37
7/21	Wed	36	32	9
7/24	Sat	24	9	6
7/28	Wed	24	8	0
7/31	Sat	24	3	7
8/4	Wed	24	5	2
8/7	Sat	24	3	0
8/11	Wed	24	2	14
8/14	Sat	0	2	0
8/18	Wed	24	2	22
8/21	Sat	0	0	0
8/25	Wed	24	1	3
8/28	Sat	0	1	0
9/1	Wed	24	1	3
9/4	Sat	24	0	1
9/8	Wed	24	0	1
9/11	Sat	24	0	0
<b>Total</b>		<b>900</b>	<b>50,804</b>	<b>38,191</b>

<sup>a</sup> Based on average historical harvests for comparable dates (1992–2001).

**Appendix A8.**—Copper River District commercial drift gillnet salmon harvest by period, 2004.

Period	Date	Hours	Permits	Landings	Chinook		Sockeye		Coho		Pink		Chum	
					Number	Pounds	Number	Pounds	Number	Pounds	Number	Pounds	Number	Pounds
1	5/17	12	474	656	8,948	218,174	39,838	219,306	0	0	0	0	89	680
2	5/20	12	421	583	5,134	116,800	48,297	273,512	0	0	0	0	1	10
3	5/24	12	466	519	2,780	55,189	49,272	277,276	0	0	0	0	39	326
4	05/27-05/28	24	482	783	3,453	77,986	59,313	339,556	32	190	0	0	1	10
5	05/31-06/01	36	473	1,136	4,665	98,689	131,941	750,220	0	0	0	0	162	1,246
6	06/03-06/04	24	437	693	3,512	79,931	81,695	471,690	1	7	0	0	198	1,462
7	06/07-06/08	24	436	589	2,029	47,221	60,252	348,742	0	0	1	5	8	66
8	06/10-06/11	24	323	441	2,477	49,490	47,400	276,876	19	120	0	0	187	1,410
9	06/14-06/15	24	364	550	2,086	46,890	58,048	340,464	1	10	0	0	2	16
10	06/17-06/18	24	348	495	1,270	32,412	56,356	333,177	15	109	0	0	26	193
11	06/21-06/22	36	293	516	564	13,150	58,580	345,740	19	163	0	0	385	2,456
12	06/24-06/26	36	214	375	443	8,476	47,687	284,817	78	543	64	324	664	4,411
13	06/28-06/30	48	234	494	266	6,053	51,207	303,485	56	374	6	22	50	379
14	07/01-07/03	48	202	460	229	5,151	54,964	327,499	433	3,086	83	293	340	2,016
15	07/05-07/07	48	236	436	126	2,849	46,905	278,112	298	2,089	2	12	144	832
16	07/08-07/10	48	226	400	62	1,069	40,649	241,682	416	2,897	294	996	232	1,544
17	07/12-07/14	48	194	386	42	757	40,366	240,166	247	2,093	566	2,018	173	1,303
18	07/15-07/17	48	203	384	37	649	37,901	221,858	658	4,912	752	2,981	318	2,229
19	07/19-07/20	36	159	244	9	147	17,509	103,721	960	7,388	1,590	6,413	240	1,559
20	07/22-07/23	24	41	48	6	119	3,770	22,579	256	1,932	81	271	16	126
21	07/26-07/27	24	15	16	0	0	582	3,467	80	571	0	0	1	8
22	07/29-07/30	24	69	70	7	78	4,196	25,041	4,287	29,036	688	2,601	53	328
23	08/02-08/03	24	63	67	2	24	3,010	17,520	3,109	20,224	690	2,688	45	301
24	08/05-08/06	24	73	82	0	0	3,101	18,056	7,069	51,814	216	1,108	6	44
25	08/09-08/10	24	148	187	14	118	3,093	20,119	14,252	120,135	52	219	1	7
26	08/16-08/17	24	263	431	22	199	877	6,027	42,502	376,531	29	102	5	41
27	08/23-08/24	24	312	568	3	51	878	6,937	76,450	703,351	1	4	0	0

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Period	Date	Hours	Permits	Landings	Chinook		Sockeye		Coho		Pink		Chum	
					Number	Pounds	Number	Pounds	Number	Pounds	Number	Pounds	Number	Pounds
28	08/30-08/31	24	308	653	3	70	206	1,443	105,774	999,709	0	0	0	0
29	09/02-09/03	24	275	437	1	6	18	110	72,548	668,116	0	0	0	0
30	09/06-09/07	24	268	425	1	10	63	407	43,461	407,604	0	0	0	0
31	09/09-09/10	24	206	283	0	0	13	81	30,669	284,599	60	575	0	0
32	09/13-09/14	36	199	392	0	0	15	92	40,581	377,952	0	0	0	0
33	09/16-09/18	36	135	182	0	0	2	11	16,386	153,678	0	0	0	0
34	09/20-09/21	36	20	33	0	0	0	0	2,904	28,015	0	0	0	0
35	09/23-09/25	36	24	40	0	0	0	0	3,389	32,582	0	0	0	0
36	09/27-10/03	156	6	7	0	0	0	0	909	8,190	0	0	0	0
37	10/04-10/10	156	0	0	0	0	0	0	0	0	0	0	0	0
Total		1356	510	14,061	38,191	861,758	1,048,004	6,099,789	467,859	4,288,020	5,175	20,632	3,386	23,003
Average Weight						22.56		5.82		9.17		3.99		6.79

**Appendix A9.**—Sockeye salmon aerial survey escapement indices by date and location, Copper River Delta, 2004.

Drainage <sup>a</sup>	System	Escapement Indices					
		6/10	6/18	6/24	7/1	7/8	7/15
Eyak River	Eyak River	475	375	300	300	850	50
	West Shore Beaches	NS	3,250	3,300 <sup>b</sup>	3,000	1,325	800
	East Shore Beaches	100	350	1,075	725	5,200 <sup>b</sup>	825
	Middle Arm Beaches <sup>c</sup>	500	1,100	1,100	800	1,100	350
	North Shore Beaches	NS	2,500 <sup>b</sup>	NS	2,300	700	50
	Hatchery Creek Delta	NS	0	0	450	0	0
	Hatchery Creek	NS	0	0	0	0	0
	Power Creek Delta	NS	0	150	950	0	0
	Power Creek	NS	0	175	275	250	175
Ibeck Creek	Ibeck Creek	NS	NS	NS	NS	NS	NS
Alaganik Slough	Alaganik Slough	0	0	0	0	0	0
	McKinley Lake	0	550	4,500 <sup>b</sup>	1,700	0	600
	Salmon Creek West Fork	0	35	10	0	4,500 <sup>b</sup>	50
	Salmon Creek East Fork	0	0	150	900	600	1,500
26/27 Mile Creek	26/27 Mile Creek	0	50	530	1,125 <sup>b</sup>	1,025	600
39 Mile Creek	39 Mile Creek	NS	0	125	100	575	900
Goat Mountain	Goat Mountain Creek	NS	0	0	0	30	50
Pleasant Creek	Pleasant Creek	200	670	3,525 <sup>b</sup>	1,875	1,200	1,025
Martin River	Martin River - Lower	275	900	200	275	250	375
	Ragged Point River	NS	110	325	0	750	150
	Ragged Point Lake Outlet	NS	20	0	0	0	0
	Ragged Point Lake	NS	0	0	0	0	0
	Martin River - Upper <sup>c</sup>	600	1,700	1,025	250	1,900 <sup>b</sup>	1,375
	Martin Lake Outlet	200	1,100	400	100	1,500	2,400 <sup>b</sup>
	Martin Lake	950	19,000	27,600	8,750	8,950	10,100 <sup>b</sup>
	Martin Lake Feeders	0	0	600	3,750	5,750	4,800 <sup>b</sup>
	Pothole River	NS	100	225	500	550	525
	Pothole Lake	NS	0	0	0	225	100
	Little Martin River	0	75	0	0	50	25
	Little Martin Lake	0	25	150	175	825	450
	Tokun	Tokun Springs	0	0	725	750 <sup>b</sup>	700
Tokun River		100	350	1,000	650	1,625	1,750
Tokun Lake Outlet		0	50	0	150	0	0
Tokun Lake		0	1,000	125	0	500	25
Martin River Slough	Martin River Slough	NS	1,800	2,000	1,700	2,650 <sup>b</sup>	1,600
Daily Index Total		3,400	35,110	49,315	31,550	43,580	31,350
Anticipated Escapement Index		4,226	8,889	19,948	26,442	42,249	45,176

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Drainage <sup>a</sup>	System	Escapement Indices					
		7/20	7/31	8/2	8/10	8/17	8/24
Eyak River	Eyak River	200	NS	50 <sup>b</sup>	0	0	0
	West Shore Beaches	1,650	NS	2,200	1,575	450	175
	East Shore Beaches	1,375	NS	1,650	600	1,175	300
	Middle Arm Beaches <sup>c</sup>	1,100	NS	2,600 <sup>b</sup>	1,850	900	300
	North Shore Beaches	1,400	NS	200	150	100	0
	Hatchery Creek Delta	100	NS	300	0	0	0
	Hatchery Creek	0	NS	0	0	0	0
	Power Creek Delta	950	NS	150	0	0	0
	Power Creek	125	NS	100	50	150	100
Ibeck Creek	Ibeck Creek	NS	NS	NS	10	50	25
Alaganik Slough	Alaganik Slough	0	NS	0	0	0	0
	McKinley Lake	425	NS	NS	575	700	1,000
	Salmon Creek West Fork	750	NS	NS	200	200	0
	Salmon Creek East Fork	2,900 <sup>b</sup>	NS	NS	1,350	2,375	200
26/27 Mile Creek	26/27 Mile Creek	850	NS	600	800	485	325
39 Mile Creek	39 Mile Creek	950	NS	NS	2,500	2,600 <sup>b</sup>	900
Goat Mountain	Goat Mountain Creek	275	NS	NS	700 <sup>b</sup>	600	325
Pleasant Creek	Pleasant Creek	925	NS	100	0	0	0
Martin River	Martin River - Lower	1,025	NS	375 <sup>b</sup>	0	0	50
	Ragged Point River	175	NS	125	75	100	10
	Ragged Point Lake Outlet	0	NS	0	25	0	0
	Ragged Point Lake	0	NS	500	750	875	1,350
	Martin River - Upper <sup>c</sup>	1,300	NS	125	0	200	10
	Martin Lake Outlet	1,400	NS	100	0	100	150
	Martin Lake	1,500	NS	2,900	300	375	350
	Martin Lake Feeders <sup>c</sup>	6,800	NS	1,550	550	50	0
	Pothole River <sup>c</sup>	325	NS	100	0	0	0
	Pothole Lake	0	NS	0	0	0	0
	Little Martin River	25	NS	10 <sup>b</sup>	0	0	0
	Little Martin Lake	375	NS	1,600 <sup>b</sup>	700	525	250
	Tokun	Tokun Springs	300	NS	325	150	75
Tokun River		1,800	NS	1,000	550	400	600
Tokun Lake Outlet		0	NS	125	0	25	50
Tokun Lake		200	NS	575	575	650	700
Martin River Slough	Martin River Slough	1,325	NS	375	200	0	0
Daily Index Total		30,525	0	17,735	14,235	13,160	7,175
Anticipated Escapement Index		48,628	51,270	51,796	39,877	42,671	39,958

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Drainage <sup>a</sup>	System	Escapement Indices					
		8/31	9/7	9/14	9/21	10/2	10/8
Eyak River	Eyak River	40	0	0	0	NS	NS
	West Shore Beaches	50	350	200	125	NS	NS
	East Shore Beaches	1,100	175	200	0	NS	NS
	Middle Arm Beaches <sup>c</sup>	1,650	600	600	500	NS	50
	North Shore Beaches	390	100	400	75	NS	NS
	Hatchery Creek Delta	300 <sup>b</sup>	0	0	0	NS	0
	Hatchery Creek	500 <sup>b</sup>	0	0	0	NS	0
	Power Creek Delta	40	300	350 <sup>b</sup>	200	NS	100
	Power Creek	0	1,300	1,500 <sup>b</sup>	1,000	NS	300
Ibeck Creek	Ibeck Creek	2,300 <sup>b</sup>	50	0	0	NS	0
Alaganik Slough	Alaganik Slough	0	0	0	0	NS	NS
	McKinley Lake	1,200	1,700	750	500	NS	100
	Salmon Creek West Fork	1,200	50	0	0	NS	0
	Salmon Creek East Fork	0	710	350	350	NS	0
26/27 Mile Creek	26/27 Mile Creek	0	125	350	300	NS	0
39 Mile Creek	39 Mile Creek	400	700	700	2,080	NS	NS
Goat Mountain	Goat Mountain Creek	0	0	0	25	NS	0
Pleasant Creek	Pleasant Creek	0	0	0	0	NS	0
Martin River	Martin River - Lower	0	0	0	0	NS	NS
	Ragged Point River	0	100	150 <sup>b</sup>	10	NS	NS
	Ragged Point Lake Outlet	0	25	25 <sup>b</sup>	0	NS	NS
	Ragged Point Lake	1,400	300	1,800 <sup>b</sup>	1,400	NS	NS
	Martin River - Upper <sup>c</sup>	0	10	0	0	NS	NS
	Martin Lake Outlet	0	50	0	0	NS	NS
	Martin Lake	40	50	0	500	NS	NS
	Martin Lake Feeders <sup>c</sup>	0	0	0	0	NS	NS
	Pothole River <sup>c</sup>	0	0	100	100 <sup>b</sup>	NS	NS
	Pothole Lake	40	400	400	1,250 <sup>b</sup>	NS	NS
	Little Martin River	0	0	0	0	NS	0
	Little Martin Lake	330	750	200	100	NS	0
	Tokun	Tokun Springs	0	10	0	0	NS
Tokun River		400	250	325 <sup>b</sup>	125	NS	0
Tokun Lake Outlet		20	100	300 <sup>b</sup>	200	NS	25
Tokun Lake		450	2,000	2,400 <sup>b</sup>	1,500	NS	1,850
Martin River Slough	Martin River Slough	0	0	0	0	NS	0
Daily Index Total		11,850	10,205	11,100	10,340	0	2,500
Anticipated Escapement		32,288	28,255	19,940	16,596	12,037	7,006

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**Appendix A9.**–Page 4 of 5.

Drainage <sup>a</sup>	System	Estimated Escapement		
		Site <sup>d</sup>	System <sup>e</sup>	Anticipated
Eyak River	Eyak River	50	16,300	10,046 to 23,745
	West Shore Beaches	3,300		
	East Shore Beaches	5,200		
	Middle Arm Beaches <sup>c</sup>	2,600		
	North Shore Beaches	2,500		
	Hatchery Creek Delta	300		
	Hatchery Creek	500		
	Power Creek Delta	350		
	Power Creek	1,500		
Ibeck Creek	Ibeck Creek	2,300	2,300	
Alaganik Slough	Alaganik Slough	0	11,900	8,211 to 19,409
	McKinley Lake	4,500		
	Salmon Creek West Fork	4,500		
	Salmon Creek East Fork	2,900		
26/27 Mile Creek	26/27 Mile Creek	1,125	1,125	2,097 to 4,956
39 Mile Creek	39 Mile Creek	2,600	2,600	5,829 to 13,778
Goat Mountain	Goat Mountain Creek	700	700	521 to 1,232
Pleasant Creek	Pleasant Creek	3,525	3,525	1,204 to 2,845
Martin River	Martin River - Lower	375	375	
	Ragged Point River	150	1,975	
	Ragged Point Lake Outlet	25		
	Ragged Point Lake	1,800		
	Martin River - Upper <sup>c</sup>	1,900	1,900	
	Martin Lake Outlet	2,400	17,300	17,707 to 41,852
	Martin Lake	10,100		
	Martin Lake Feeders	4,800		
	Pothole River	100	1,350	
	Pothole Lake	1,250		
	Little Martin River	10	1,610	
Little Martin Lake	1,600			
Tokun	Tokun Springs	750	3,775	5,278 to 12,476
	Tokun River	325		
	Tokun Lake Outlet	300		
	Tokun Lake	2,400		
Martin River Slough	Martin River Slough	2,650	2,650	4,106 to 9,706
Index Total			69,385	
Anticipated Escapement				54,999 to 129,999

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Note: NS = no survey, and NC = surveyed but no count due to poor conditions.

- <sup>a</sup> The survey drainages represent most of the known sockeye salmon spawning locations in the Copper River Delta. Weather permitting, surveys are flown weekly. Indices are not intended to provide an actual estimate of escapement for coastal stocks, but have been used for that purpose in the absence of any other escapement estimation method.
- <sup>b</sup> Indicates that the survey count was used as the peak survey for the system without duplication of counts for survey systems along migratory corridors (see footnote d).
- <sup>c</sup> These systems typically have very protracted run timing or 2 temporally segregated spawning populations in the same systems. Counts from more than 1 day may be asterisked and used in the escapement estimate if the surveyor indicates that these counts represented different fish.
- <sup>d</sup> The escapement estimates for each system is in the asterisked survey estimate. Where the survey site is a terminal spawning area, the peak count is used. However, if the site is a schooling area for migratory fish bound for sites further upstream, the count which minimizes possible duplicate of counts across dates is selected.
- <sup>e</sup> The sum of the estimates by site within a system.

**Appendix A10.**—Anticipated and actual weekly harvest of coho salmon in the Copper River District drift gillnet fishery, 2004.

<b>Week Ending Date</b>	<b>Fishing Time (Hours)</b>	<b>Anticipated Harvest <sup>a</sup></b>	<b>Actual Harvest</b>
5/22	24	1	0
5/29	36	24	32
6/5	60	11	1
6/12	48	36	19
6/19	48	88	16
6/26	72	188	97
7/3	96	299	489
7/10	96	643	714
7/17	96	1,774	905
7/24	60	2,060	1,216
7/31	48	3,730	4,367
8/7	48	10,683	10,178
8/14	24	24,390	14,252
8/21	24	46,974	42,502
8/28	24	65,625	76,450
9/4	48	65,492	178,322
9/11	48	53,382	74,130
9/18	72	26,145	56,967
9/25	72	10,689	6,293
10/2	137	2,251	909
10/9	156	650	0
10/16	19		
<b>Total</b>	<b>1,356</b>	<b>315,135</b>	<b>467,859</b>

<sup>a</sup> Based on average historical harvests for comparable dates (1973–2003).

**Appendix A11.**—Aerial escapement indices by date and location for coho salmon returning to the Copper River Delta, 2004.

Drainage <sup>a</sup>	System	Escapement Indices				
		7/31	8/2	8/10	8/17	8/24
Eyak River	Eyak River	NS	100	450	1,400	1,200
	East Shore Beaches	NS	0	0	0	150
	West Shore Beaches	NS	0	0	75	450 <sup>b</sup>
	Middle Arm Beaches	NS	0	0	100	900 <sup>b</sup>
	North Shore Beaches	NS	0	0	0	0
	Hatchery Creek Delta	NS	0	0	0	0
	Hatchery Creek	NS	0	0	0	0
	Power Creek Delta	NS	0	0	0	0
	Power Creek	NS	0	0	0	0
Ibeck Creek	Ibeck Creek	NS	NS	200	675	1,650
Scott River	Scott Lake	NS	NS	20	0	200
	Scott River	NS	NS	NS	NS	NS
	Elsner Lake <sup>c</sup>	NS	NS	0	0	10
Alaganik Slough	Alaganik Slough	NS	0	10	10	25
	18/20 Mile Creek	NS	0	0	0	0
	McKinley Lake	NS	0	0	0	75
	Salmon Creek West Fork	NS	0	0	50	225
	Salmon Creek East Fork	NS	0	0	0	600
26/27 Mile Creek	26/27 Mile Creek	NS	0	0	0	50
39 Mile Creek	39 Mile Creek	NS	0	0	900	1,100
Goat Mountain Creek	Goat Mountain Creek	NS	25	50	175	325
Pleasant Creek	Pleasant Creek	NS	0	0	100	325
Martin River	Martin River - Lower	NS	100	850	1,375	2,100
	Ragged Point River	NS	0	0	200	0
	Ragged Point Lake Outlet	NS	0	0	0	0
	Ragged Point Lake	NS	0	0	0	0
	Martin River - Upper	NS	100	725	500	425
	Martin Lake Outlet	NS	0	500	900	625 <sup>b</sup>
	Martin Lake	NS	0	1,250	1,850	3,400 <sup>b</sup>
	Martin Lake Feeders	NS	0	0	0	0
	Pothole River	NS	0	125	250	300
	Pothole Lake	NS	0	0	0	0
	Little Martin River	NS	0	0	0	5
	Little Martin Lake	NS	0	0	0	600 <sup>b</sup>
	Tokun Springs	NS	0	175	25	25
	Tokun River	NS	0	25	100	250
	Tokun Lake Outlet	NS	0	0	0	0
Tokun Lake	NS	0	0	0	0	
Martin River Slough	Martin River Slough	NS	0	300	225	375
Daily Index Total		NS	325	4,680	8,910	15,390
Anticipated Escapement		201	2,212	3,155	9,674	15,646

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Drainage <sup>a</sup>	System	Escapement Indices				
		8/31	9/7	9/14	9/21	10/8
Eyak River	Eyak River	6,400	4,150	6,900	9,800 <sup>b</sup>	NS
	East Shore Beaches	200	2,200	1,450 <sup>b</sup>	1,050	NS
	West Shore Beaches	0	0	0	200	NS
	Middle Arm Beaches	0	500	100	300	200
	North Shore Beaches	0	0	75	100 <sup>b</sup>	NS
	Hatchery Creek Delta	40	100 <sup>b</sup>	0	0	100
	Hatchery Creek	0	0	0	0	1,350 <sup>b</sup>
	Power Creek Delta	0	0	0	200	100 <sup>b</sup>
	Power Creek	0	0	0	100	400 <sup>b</sup>
Ibeck Creek	Ibeck Creek	10,700	11,200	8,650	13,325	32,000 <sup>b</sup>
Scott River	Scott Lake	30	0	200	200 <sup>b</sup>	25
	Scott River	0	0	0	275 <sup>b</sup>	NS
	Elsner Lake <sup>c</sup>	0	50 <sup>b</sup>	0	20	50
Alaganik Slough	Alaganik Slough	550 <sup>b</sup>	125	450	225	NS
	18/20 Mile Creek	450	525	175	875	1,010 <sup>b</sup>
	McKinley Lake	0	0	0	275 <sup>b</sup>	200
	Salmon Creek West Fork	1,800 <sup>b</sup>	300	100	75	25
	Salmon Creek East Fork	120	4,300 <sup>b</sup>	850	550	1,500
26/27 Mile Creek	26/27 Mile Creek	300	0	100	50	850 <sup>b</sup>
39 Mile Creek	39 Mile Creek	2,300	1,300	1,600	3,120 <sup>b</sup>	NS
Goat Mountain Cr.	Goat Mountain Creek	230	175	250	50	450 <sup>b</sup>
Pleasant Creek	Pleasant Creek	1,340	3,500	3,950 <sup>b</sup>	1,175	155
Martin River	Martin River - Lower	8,300	9,800	11,300	4,800 <sup>b</sup>	NS
	Ragged Point River	160	10	100	275 <sup>b</sup>	NS
	Ragged Point Lake Outlet	0	0	0	0 <sup>b</sup>	NS
	Ragged Point Lake	0	300 <sup>b</sup>	0	0	NS
	Martin River - Upper	1,800	1,525	2,300	6,800 <sup>b</sup>	NS
	Martin Lake Outlet	800	75	200	0	NS
	Martin Lake	1,750	975	200	450	NS
	Martin Lake Feeders	120	350	450 <sup>b</sup>	250	NS
	Pothole River	240	75	250	250 <sup>b</sup>	NS
	Pothole Lake	0	0	0	250 <sup>b</sup>	NS
	Little Martin River	5	275	600	5,600	7,300 <sup>b</sup>
	Little Martin Lake	500	100	125	100	25
	Tokun Springs	15	40	25	25	950 <sup>b</sup>
	Tokun River	10	50	125	175	750 <sup>b</sup>
	Tokun Lake Outlet	0	0	0	0	50 <sup>b</sup>
	Tokun Lake	0	0	0	0	0 <sup>b</sup>
Martin River Slough	Martin River Slough	290	6,150	6,650	9,750 <sup>b</sup>	4,175
Daily Index Total		38,450	48,150	47,175	60,690	51,665
Anticipated Escapement		25,426	35,432	33,786	34,565	34,495

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Drainage <sup>a</sup>	System	Estimated Escapement		
		Site <sup>d</sup>	System <sup>e</sup>	Anticipated
Eyak River	Eyak River	9,800	14,650	7,127
	East Shore Beaches	1,450		
	West Shore Beaches	450		
	Middle Arm Beaches	900		
	North Shore Beaches	100		
	Hatchery Creek Delta	100		
	Hatchery Creek	1,350		
	Power Creek Delta	100		
	Power Creek	400		
Ibeck Creek	Ibeck Creek	32,000	32,000	7,428
Scott River	Scott River	275	475	
	Elsner Lake <sup>c</sup>	50		
	Scott Lake	200		
Alaganik Slough	Alaganik Slough	550	7,935	3,668
	18/20 Mile Creek	1,010		
	McKinley Lake	275		
	Salmon Creek West Fork	1,800		
	Salmon Creek East Fork	4,300		
26/27 Mile Creek	26/27 Mile Creek	850	850	795
39 Mile Creek	39 Mile Creek	3,120	3,120	3,695
Goat Mountain Cr.	Goat Mountain Creek	450	450	1,124
Pleasant Creek	Pleasant Creek	3,950	3,950	
Martin River	Martin River - Lower	4,800	4,800	
	Ragged Point River	275	575	1,122
	Ragged Point Lake Outlet	0		
	Ragged Point Lake	300		
	Martin River - Upper	6,800	6,800	6,136
	Martin Lake Outlet	625	4,475	2,116
	Martin Lake	3,400		
	Martin Lake Feeders	450		
	Pothole River	250	500	1,566
	Pothole Lake	250		
	Little Martin River	7,300	7,900	4,572
	Little Martin Lake	600		
	Tokun Springs	950	1,750	1,257
	Tokun River	750		
	Tokun Lake Outlet	50		
Tokun Lake	0			
Martin River Slough	Martin River Slough	9,750	9,750	9,394
Index Total			99,980	
Anticipated Escapement				50,000

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**Appendix A11.**—Page 4 of 4.

Note: NS = no survey, and NC = surveyed but no count due to poor conditions.

- <sup>a</sup> The survey drainages represent most of the known coho salmon spawning locations in the Copper River Delta drainage. Weather permitting, surveys are flown weekly. Indices are not intended to provide an actual estimate of escapement for coastal stocks but have been used for that purpose in the absence of any other escapement estimating method.
- <sup>b</sup> Indicates that the survey count was used as the peak survey for the system without duplication of counts for survey systems along migratory corridors (see footnote d).
- <sup>c</sup> This stream is not included in the estimated escapement delta wide, it is a non-index stream.
- <sup>d</sup> Where the survey site is a terminal spawning area the peak count is used. However, if the site is a schooling area for migratory fish bound for further sites upstream, the count which minimizes possible duplication of counts across dates is selected.
- <sup>e</sup> The sum of the estimates by site within the index systems.

**Appendix A12.**—Copper River Delta and Bering River coho salmon escapement indices, 1993–2004.

<b>Stream/Lake</b> <sup>a,b</sup>	<b>1993</b>	<b>1994</b>	<b>1995</b>	<b>1996</b>	<b>1997</b>	<b>1998</b>	<b>1999</b>	<b>2000</b>	<b>2001</b>	<b>2002</b>	<b>2003</b>	<b>2004</b>
Eyak Lake	NC <sup>d</sup>	9,900	4,050	5,100	6,800	2,550	1,250	2,130	7,800	17,425	10,050	12,700
Hatchery Creek	NC <sup>d</sup>	700	170	0	1,400	1,200	300	1,900	450	1,400	0	1,450
Power Creek	NC <sup>d</sup>	700	300	0	2,700	4,900	2,700	1,450	480	2,000	1,500	500
Ibeck Creek	NC <sup>d</sup>	3,060	3,000	6,300	4,700	1,500	4,600	7,000	14,000	23,900	26,000	32,000
Scott & Elsner River <sup>c</sup>	1,580	1,600	540	1,000	2,200	750	2,500	300	600	2,400	125	475
18/20 Mile	1,750	3,300	2,550	3,800	3,300	1,300	610	420	420	1,450	205	1,560
McKinley Lake	700	2,100	400	NC <sup>d</sup>	1,100	400	50	120	800	2,200	0	275
Salmon Creek	1,400	0	1,250	1,500	2,500	2,100	3,080	2,600	200	1,100	725	6,100
26/27 Mile	1,500	1,300	1,300	1,480	2,300	700	2,610	1,000	400	240	275	850
39 Mile	1,600	4,150	3,800	5,250	6,100	2,100	3,650	5,000	1,800	4,500	1,250	3,120
Goat Mountain	650	1,000	2,800	1,000	1,400	800	650	430	330	160	125	450
Pleasant Creek <sup>c</sup>	NS	45	100	40	620	450	1,220	45	210	0	2,000	3,950
Martin River	4,540	10,600	5,000	15,400	NC <sup>d</sup>	6,250	3,900	4,500	3,755	13,325	10,200	11,600
Ragged Point River/Lake	300	0	100	0	80	850	275	330	440	3,400	375	575
Martin Lake	150	0	10	0	NC <sup>d</sup>	300	600	1,350	311	1,850	6,300	4,475
Pothole Lake	730	0	300	140	60	1,500	600	245	390	3,400	4,000	500
Little Martin Lake	6,400	200	1,500	700	10,500	3,800	3,600	3,000	3,010	500	1,000	7,900
Tokun River/Lake	950	1,780	1,900	1,300	1,300	2,000	1,130	710	1,600	540	550	1,750
Martin River Slough	11,200	5,120	5,950	4,100	10,500	6,400	12,900	10,600	4,100	10,025	7,500	9,750
<b>Copper Delta Total</b>	<b>33,450</b>	<b>45,555</b>	<b>35,020</b>	<b>47,110</b>	<b>57,560</b>	<b>39,850</b>	<b>46,225</b>	<b>43,130</b>	<b>41,096</b>	<b>89,815</b>	<b>72,180</b>	<b>99,980</b>
Katalla River	4,400	4,500	4,500	6,800	8,000	5,100	3,000	2,800	2,900	5,000	10,000	6,500
Bering Lake	5,900	5,800	10,600	6,000	14,800	14,300	13,800	10,370	21,040	15,375	13,750	10,125
Dick Creek	200	100	100	0	1,300	0	1,270	2,500	760	1,700	2,050	2,750
Shepherd Creek	600	900	800	NC <sup>d</sup>	NC <sup>d</sup>	NC <sup>d</sup>	200	450	300	675	700	1,125
Nichawak River	4,100	2,000	2,700	2,000	4,300	2,500	4,800	4,300	1,300	1,420	900	1,475
Gandil River	1,250	950	1,350	1,000	1,900	950	3,000	600	900	330	900	2,000
Controller Bay	13,600	14,300	7,400	11,000	12,100	6,900	5,220	5,360	2,807	9,700	4,175	6,210
<b>Bering Area Total</b>	<b>30,050</b>	<b>28,550</b>	<b>27,450</b>	<b>26,800</b>	<b>42,400</b>	<b>29,750</b>	<b>31,290</b>	<b>26,380</b>	<b>30,007</b>	<b>34,200</b>	<b>32,475</b>	<b>30,185</b>
<b>Copper/Bering Total</b>	<b>63,500</b>	<b>74,105</b>	<b>62,470</b>	<b>73,910</b>	<b>99,960</b>	<b>69,600</b>	<b>77,515</b>	<b>69,510</b>	<b>71,103</b>	<b>124,015</b>	<b>104,655</b>	<b>130,165</b>

<sup>a</sup> The escapement figures in this table are based on peak aerial survey estimates counts from a majority of the known salmon spawning areas in the Copper and Bering River Delta. These indices are not intended to provide a true estimate of total escapement for the coastal stocks, but a comparable index based upon the best data currently available. An effort has been made to standardize the indices across years, however counts were obtained only as environmental conditions allowed and may not necessarily correspond to periods of peak abundance. Missing counts are generally a result of bad weather, high water, turbulence or other factors that prevent surveys for that given year.

<sup>b</sup> The areas in this table represent combined survey sites corresponding to the "system" designations for the current year survey results presented elsewhere in this report.

<sup>c</sup> Not an indexed stream.

<sup>d</sup> Due poor stream or weather conditions these systems are listed as "NC" no count.

**Appendix A13.**—Summary of periods and emergency orders issued for the commercial salmon drift gillnet fisheries in the Bering and Copper River Districts, 2004.

Bering River District (200)			Copper River District (212)			Emergency
Periods	Dates	Hours Fished	Periods <sup>a</sup>	Dates	Hours Fished	Orders Issued
			01	05/17	12	2-F-E-002-04
			02	05/20	12	2-F-E-003-04
			03	05/24	12	2-F-E-004-04
			04	05/27-05/28	24	2-F-E-005-04
			05	05/31-06/1	36	2-F-E-008-04
			06	06/3-06/4	24	2-F-E-009-04
01	06/7-06/8	24	07	06/7-06/8	24	2-F-E-010-04
02	06/10-06/11	24	08	06/10-06/11	24	2-F-E-013-04
03	06/14-06/15	24	09	06/14-06/15	24	2-F-E-014-04
04	06/17-06/18	24	10	06/17-06/18	24	2-F-E-022-04
05	06/21-06/22	36	11	06/21-06/22	36	2-F-E-023-04
06	06/24-06/26	36	12	06/24-06/26	36	2-F-E-027-04
07	06/28-06/30	48	13	06/28-06/30	48	2-F-E-031-04
08	07/1-07/3	48	14	07/1-07/3	48	2-F-E-035-04
09	07/5-07/7	48	15	07/5-07/7	48	2-F-E-042-04
10	07/8-07/10	48	16	07/8-07/10	48	2-F-E-045-04
11	07/12-07/14	48	17	07/12-07/14	48	2-F-E-051-04
12	07/15-07/17	48	18	07/15-07/17	48	2-F-E-056-04
13	07/19-07/20	36	19	07/19-07/20	36	2-F-E-061-04
14	07/22-07/23	24	20	07/22-07/23	24	2-F-E-067-04
15	07/26-07/27	24	21	07/26-07/27	24	2-F-E-072-04
16	07/29-07/30	24	22	07/29-07/30	24	2-F-E-075-04
17	08/2-08/3	24	23	08/2-08/3	24	2-F-E-082-04
18	08/5-08/6	24	24	08/5-08/6	24	2-F-E-080-04
19	08/9-08/10	24	25	08/9-08/10	24	2-F-E-084-04
20	08/16-08/17	24	26	08/16-08/17	24	2-F-E-087-04
21	08/23-08/24	24	27	08/23-08/24	24	2-F-E-092-04
22	08/30-08/31	24	28	08/30-08/31	24	2-F-E-096-04
23	09/2-09/3	24	29	09/2-09/3	24	2-F-E-101-04
24	09/6-09/7	24	30	09/6-09/7	24	2-F-E-105-04
25	09/9-09/10	24	31	09/9-09/10	24	2-F-E-107-04
26	09/13-09/14	36	32	09/13-09/14	36	2-F-E-108-04
27	09/16-09/18	36	33	09/16-09/18	36	2-F-E-112-04
28	09/20-09/21	36	34	09/20-09/21	36	2-F-E-113-04
29	09/23-09/25	36	35	09/23-09/25	36	2-F-E-117-04
30	09/27-10/3	156	36	09/27-10/3	156	2-F-E-118-04
31	10/4-10/10	156	37	10/4-10/10	156	2-F-E-120-04

<sup>a</sup> The Copper River schedule is typically 2 evenly spaced periods per week; periods commence at 7:00 a.m. on Mondays and at 7:00 p.m. on Thursdays. All 12-hours periods began at 7:00 a.m.

**Appendix A14.**—Total commercial salmon harvest by species in the Bering River District, 1974–2004.

<b>Year</b>	<b>Chinook</b>	<b>Sockeye</b>	<b>Coho</b>	<b>Pink</b>	<b>Chum</b>	<b>Total</b>
1974	32	4,208	28,615	7	2	32,864
1975	162	21,637	24,162	0	0	45,961
1976	228	30,908	42,423	43	1	73,603
1977	127	14,445	47,218	192	221	62,203
1978	331	33,554	91,097	266	2,391	127,639
1979	385	139,015	114,046	6,895	23,094	283,435
1980 <sup>a</sup>	0	0	108,872	0	0	108,872
1981	200	55,585	82,626	9,882	8,307	156,600
1982	254	129,667	144,752	47	333	275,053
1983	610	179,273	117,669	851	4,615	303,018
1984	330	91,784	214,632	309	20,408	327,463
1985	215	26,561	419,276	214	9,642	455,908
1986	128	19,038	115,809	15	243	135,233
1987	34	16,926	15,864	54	7	32,885
1988	19	7,152	86,539	23	181	93,914
1989	30	9,225	26,952	7	2	36,216
1990	14	8,332	42,952	2	1	51,301
1991	28	19,181	110,951	4	195	130,359
1992	21	19,721	125,616	4	1	145,363
1993	130	33,951	115,833	82	22	150,018
1994	121	27,926	259,003	34	63	287,147
1995	44	21,585	282,045	26	229	303,929
1996	111	37,712	93,763	0	30	131,616
1997	23	9,651	97	2	0	9,773
1998	70	8,439	12,284	5	2	20,800
1999	42	13,697	9,852	204	96	23,891
2000	5	1,279	56,329	0	0	57,613
2001	76	5,450	2,715	0	0	8,241
2002	14	235	108,522	0	0	108,771
2003	151	18,266	59,481	33	0	77,931
2004	87	13,165	95,595	2	21	108,870
(1994–2003)						
10-Year Average	66	14,424	88,409	30	42	102,971

<sup>a</sup> In 1980 no fishing was allowed prior to August 11.

**Appendix A15.**—Aerial escapement indices by date and location for sockeye salmon returning to the Bering River Delta, 2004.

Drainage <sup>a</sup>	System	Escapement Indices					
		6/10	6/18	6/24	7/1	7/8	7/15
Bering River	Bering River	0	225	20	0	15	325
	Bering Lake	0	7,600	8,875	14,000	20,275	9,175
	Dick Creek	0	0	0	0	1,600	800
	Shepherd Creek - Lagoon	NS	0	0	0	0	10
	Shepherd Creek	NS	15	5	35	10	50
	Carbon Creek	NS	NS	NS	NS	0	0
	Clear Creek	NS	NS	NS	NS	NS	500 <sup>b</sup>
	Kushtaka Lake	NS	NS	NS	NS	0	0
	Shockum Creek	NS	NS	NS	NS	0	0
	Katalla River <sup>c</sup>	Katalla River	0	225	700	1,100	1,500
Daily Index Total		0	8,065	9,600	15,135	23,400	12,735
Anticipated Escapement Index		2,025	6,131	7,542	11,593	21,092	21,538

Drainage <sup>a</sup>	System	Escapement Indices					
		7/20	7/31	8/2	8/10	8/17	8/24
Bering River	Bering River	35	NS	400 <sup>b</sup>	25	0	0
	Bering Lake	20,450 <sup>b</sup>	NS	800	450	0	0
	Dick Creek	1,700 <sup>b</sup>	NS	3,650	2,650	1,500	150
	Shepherd Creek - Lagoon	0	NS	10 <sup>b</sup>	0	0	0
	Shepherd Creek	175 <sup>b</sup>	NS	25	35	0	0
	Carbon Creek	0	NS	10 <sup>b</sup>	10	0	0
	Clear Creek	500	NS	325	225	125	10
	Kushtaka Lake	0	NS	5	15 <sup>b</sup>	5	0
	Shockum Creek	0	NS	0	0 <sup>b</sup>	0	0
	Katalla River <sup>c</sup>	Katalla River	1,850	NS	1,400	100	0
Daily Index Total		24,710	0	6,625	3,510	1,630	260
Anticipated Escapement Index		21,595	20,190	17,270	8,566	4,931	3,363

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Drainage <sup>a</sup>	System	Estimated Escapement		
		Site <sup>d</sup>	System <sup>e</sup>	Anticipated
Bering River	Bering River	400	22,550	22,097
	Bering Lake	20,450		
	Dick Creek	1,700		
	Shepherd Creek - Lagoon	10	195	4,194
	Shepherd Creek	175		
	Carbon Creek	10		
	Clear Creek	500	500	1,224
	Kushtaka Lake	15	15	1,185
	Shockum Creek	0		
	Katalla River <sup>c</sup>	Katalla River	1,875	
Index Total			23,260	
Anticipated Escapement Index				28,700

Note: NS = no survey, NC = surveyed but no count due to poor conditions.

- <sup>a</sup> The survey drainages represent most of the known sockeye salmon spawning locations in the Bering River drainage. Weather permitting surveys are flown weekly. The indices are not intended to provide an actual estimate of escapement for coastal stocks but have been used for that purpose in the absence of any other escapement estimating method.
- <sup>b</sup> Indicates that this survey count was used as the peak survey for the site without duplication of counts for survey sites along migratory corridors (see footnote d).
- <sup>c</sup> This stream is not included in the estimated escapement for the Bering River drainage, it is a non-index stream.
- <sup>d</sup> Where the survey site is a terminal spawning area the peak count is used. However, if the site is a schooling area for migratory fish bound for sites further upstream, the count which minimizes possible duplication of counts across dates is selected.
- <sup>e</sup> The sum of the estimates by site within a system.

**Appendix A16.**—Aerial escapement indices by date and location for coho salmon returning to the Bering River Delta, 2004.

Drainage <sup>a</sup>	System	Escapement Indices				
		8/10	8/17	8/24	8/31	9/7
Bering River	Bering River <sup>b</sup>	200	75	400	950	3,000
	Bering Lake	0	300	25	1,800	1,050
	Dick Creek	0	0	2,675	1,400	1,450
Shepherd Drainage	Shepherd Creek - Lagoon	0	0	0	0	200
	Shepherd Creek	0	0	25	0	575
	Carbon Creek <sup>c</sup>	0	0	0	0	0
Katalla River	Katalla River	1,000	2,500	4,050	2,900	5,800
Lower Bering River	Gandil River	NS	0	400	760	1,500
	Nichawak River	NS	0	10	440	775
Controller Bay	Campbell River	NS	NS	10	10	50 <sup>d</sup>
	Edwardes River	NS	0	500	910 <sup>d</sup>	0
	Okalee River	NS	NS	5,000	600	1,600
	Other Clear Streams	NS	NS	NS	NS	1,650
Daily Index Total		1,200	2,875	13,095	9,770	17,650
Anticipated Aerial Index		1,060	4,849	8,037	16,566	17,426

Drainage	System	Escapement Indices			
		9/14	9/21	10/2	10/8
Bering River	Bering River <sup>b</sup>	3,525 <sup>d</sup>	NS	NS	1,900
	Bering Lake	1,150	6,600 <sup>d</sup>	NS	475
	Dick Creek	2,750 <sup>d</sup>	1,000	NS	1,100
Shepherd Drainage	Shepherd Creek - Lagoon	300 <sup>d</sup>	NS	NS	NS
	Shepherd Creek	825 <sup>d</sup>	NS	NS	NS
	Carbon Creek <sup>c</sup>	0 <sup>d</sup>	NS	NS	NS
Katalla River	Katalla River	6,500 <sup>d</sup>	NS	NS	2,400
Lower Bering River	Gandil River	1,300	NS	NS	2,000 <sup>d</sup>
	Nichawak River	400	NS	NS	1,475 <sup>d</sup>
Controller Bay	Campbell River	25	NS	NS	0
	Edwardes River	0	NS	NS	0
	Okalee River	5,250 <sup>d</sup>	NS	NS	2,100
	Other Clear Streams <sup>c</sup>	1,400	NS	NS	8,575 <sup>d</sup>
Daily Index Total		23,425	7,600	0	20,025
Anticipated Aerial Index		15,103	14,313	16,129	5,490

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Drainage	System	Estimated Escapement		
		Site <sup>e</sup>	System <sup>f</sup>	Anticipated
Bering River	Bering River <sup>b</sup>	3,525	12,875	7,005
	Bering Lake	6,600		
	Dick Creek	2,750		
Shepherd Drainage	Shepherd Creek - Lagoon	300	1,125	
	Shepherd Creek	825		
	Carbon Creek <sup>c</sup>	0		
Katalla River	Katalla River	6,500	6,500	5,333
Lower Bering River	Gandil River	2,000	3,475	2,901
	Nichawak River	1,475		
Controller Bay	Campbell River	50	6,210	7,760
	Edwardes River	910		
	Okalee River	5,250		
	Other Clear Streams <sup>c</sup>	13,825		
Index Total			30,185	
Anticipated Aerial Index				22,999

Note: NS = no survey, NC = surveyed but no count due to poor conditions.

<sup>a</sup> The survey drainages represent most of the known coho salmon spawning locations in the Bering River drainage. Weather permitting, surveys are flown weekly. The indices are not intended to provide an actual estimate of escapement for coastal stocks but have been used for that purpose in the absence of any other escapement estimating method.

<sup>b</sup> Bering River counts include coho observed in the Don Miller Hill tributaries.

<sup>c</sup> This stream is not included in the estimated escapement delta wide, it is a non-index stream.

<sup>d</sup> The survey count was used as the peak survey for the site without duplication of counts for survey sites along migratory corridors (see footnote e).

<sup>e</sup> Where the survey site is a terminal spawning area the peak count is used. However, if the site is a schooling area for migratory fish bound for sites further upstream, the count which minimizes possible duplication of counts across dates is selected.

<sup>f</sup> The sum of the estimates by site within a system.

**Appendix A17.**—Bering River District commercial drift gillnet salmon harvest by period, 2004.

Period <sup>a</sup>	Date	Hours	Permits	Landings	Chinook		Sockeye		Coho		Pink		Chum	
					Number	Pounds	Number	Pounds	Number	Pounds	Number	Pounds	Number	Pounds
1	6/7-6/8	24	2	2	5	118	459	2,485	0	0	0	0	0	0
2	6/10-6/11	24	7	7	10	232	2,511	17,603	0	0	0	0	21	150
3	6/14-6/15	24	28	32	68	1,508	7,362	41,889	0	0	0	0	0	0
4	6/17-6/18	24	10	12	3	122	2,302	12,709	0	0	0	0	0	0
5	6/21-6/22	36	0	0	0	0	0	0	0	0	0	0	0	0
6	6/24-6/26	36	3	4	0	0	380	2,802	0	0	0	0	0	0
7	6/28-6/30	48	0	0	0	0	0	0	0	0	0	0	0	0
8	7/1-7/3	48	0	0	0	0	0	0	0	0	0	0	0	0
9	7/5-7/7	48	0	0	0	0	0	0	0	0	0	0	0	0
10	7/8-7/10	48	0	0	0	0	0	0	0	0	0	0	0	0
11	7/12-7/14	48	0	0	0	0	0	0	0	0	0	0	0	0
12	7/15-7/17	48	1	1	0	0	139	975	0	0	0	0	0	0
13	7/19-7/20	36	0	0	0	0	0	0	0	0	0	0	0	0
14	7/22-7/23	24	0	0	0	0	0	0	0	0	0	0	0	0
15	7/26-7/27	24	0	0	0	0	0	0	0	0	0	0	0	0
16	7/29-7/30	24	0	0	0	0	0	0	0	0	0	0	0	0
17	8/2-8/3	24	0	0	0	0	0	0	0	0	0	0	0	0
18	8/5-8/6	24	0	0	0	0	0	0	0	0	0	0	0	0
19	8/9-8/10	24	0	0	0	0	0	0	0	0	0	0	0	0
20	8/16-8/17	24	1	1	0	0	0	0	20	230	0	0	0	0
21	8/23-8/24	24	7	10	0	0	2	11	1,761	14,988	0	0	0	0
22	8/30-8/31	24	61	125	1	17	3	15	25,032	224,761	2	10	0	0
23	9/2-9/3	24	50	101	0	0	0	0	17,314	155,437	0	0	0	0
24	9/6-9/7	24	45	71	0	0	2	16	8,932	81,368	0	0	0	0
25	9/9-9/10	24	41	72	0	0	3	16	11,560	104,621	0	0	0	0
26	9/13-9/14	36	45	140	0	0	2	12	21,291	194,267	0	0	0	0
27	9/16-9/18	36	36	66	0	0	0	0	6,864	61,751	0	0	0	0
28	9/20-9/21	36	6	12	0	0	0	0	2,821	25,329	0	0	0	0
29	9/23-9/25	36	0	0	0	0	0	0	0	0	0	0	0	0
30	9/27-10/3	156	0	0	0	0	0	0	0	0	0	0	0	0
31	10/4-10/10	156	0	0	0	0	0	0	0	0	0	0	0	0
<b>Total</b>			<b>118</b>	<b>656</b>	<b>87</b>	<b>1,997</b>	<b>13,165</b>	<b>78,533</b>	<b>95,595</b>	<b>862,752</b>	<b>2</b>	<b>10</b>	<b>21</b>	<b>150</b>
<b>Average Weight</b>						<b>22.95</b>		<b>5.97</b>		<b>9.03</b>		<b>5</b>		<b>7.14</b>

<sup>a</sup> The waters of the Bering River District were open for periods 1 through 31.

**Appendix A18.**—Anticipated and actual weekly harvest and escapement of coho salmon in the Bering River District drift gillnet fishery, 2004.

<b>Week Ending Date</b>	<b>Fishing Time (hours)</b>	<b>Actual Harvest</b>	<b>Anticipated Harvest <sup>a</sup></b>	<b>Actual Aerial Index <sup>b</sup></b>	<b>Anticipated Index <sup>c</sup></b>
6/12	24 and 24	0	36		
06/19	24 and 24	0	88		
06/26	36 and 36	0	188		
07/03	48 and 48	0	299		
07/10	48 and 48	0	643		
07/17	48 and 48	0	1,774		
07/24	36 and 24	0	2,060		
07/31	24 and 24	0	3,730	No Count	10
08/07	24 and 24	0	10,683	No Count	1,087
08/14	24	0	24,390	1,200	1,060
08/21	24	20	46,974	2,875	4,849
08/28	24 and 24	1,761	65,625	13,095	8,037
09/04	24 and 24	42,346	65,492	9,770	16,566
09/11	24 and 24	20,492	53,382	17,650	17,426
09/18	36 and 36	28,155	26,145	23,425	15,103
09/25	36 and 36	2,821	10,689	7,600	14,313
10/02	156	0	2,251	NS	16,129
10/09	156	0	650	20,025	5,490
<b>Season Totals</b>		<b>95,595</b>	<b>315,099</b>		

<sup>a</sup> Based on average historical harvest for comparable dates (1970–2002, excluding years 1972, 1975, 1987, 1997–1999).

<sup>b</sup> Coho salmon surveys were actively conducted weather permitting beginning August 9.

<sup>c</sup> Based on average historical aerial escapement surveys for comparable dates (1984–1992).

**Appendix A19.**—Upper Copper River Chinook salmon aerial escapement index counts, 1977–2004.

Year <sup>b</sup>	Copper River							Tonsina Drainage <sup>a</sup>			Total
	Upstream of Gulkana <sup>a</sup>			Tazlina Drainage <sup>a</sup>		Klutina Drainage <sup>a</sup>		Little			
	Gulkana River <sup>c</sup>	East Fork Chistochina R.	Indian River	Mendeltna Creek	Kiana Creek	St. Anne Creek	Manker Creek	Tonsina River	Gruening Creek		
1977	729	132	<sup>d</sup>	73	91	10	15	<sup>d</sup>	<sup>d</sup>	1,050	
1978	618 <sup>f</sup>	137	9	52 <sup>e</sup>	125 <sup>e</sup>	24 <sup>e</sup>	20 <sup>e</sup>	285 <sup>e</sup>	92 <sup>e</sup>	1,362	
1979	764	810	29	5 <sup>e</sup>	279 <sup>e</sup>	16 <sup>e</sup>	16 <sup>e</sup>	285 <sup>e</sup>	153 <sup>e</sup>	2,357	
1980	712	575	24	3 <sup>e</sup>	247	8 <sup>e</sup>	35 <sup>e</sup>	70 <sup>e</sup>	66 <sup>e</sup>	1,740	
1981	77	120	<sup>d</sup>	51	191	19	33	191	107	789	
1982	879 <sup>e</sup>	1260	179	70 <sup>e</sup>	200 <sup>e</sup>	35 <sup>e</sup>	49 <sup>e</sup>	440 <sup>e</sup>	124 <sup>e</sup>	3,236	
1983	589	575	41	12 <sup>e</sup>	166	87	141	330	287	2,228	
1984	1,331	577	17	26 <sup>e,f</sup>	382 <sup>f</sup>	89 <sup>f</sup>	264 <sup>f</sup>	568	279	3,533	
1985	224	360	14	26 <sup>e</sup>	91 <sup>e</sup>	15 <sup>e</sup>	22 <sup>e</sup>	203 <sup>e</sup>	58 <sup>e</sup>	1,013	
1986	1,484	618	<sup>d</sup>	76	328	182	251	424	224	3,587	
1987	1,098	764	33	10	80	192	141	247	112	2,677	
1988	831	709	<sup>d</sup>	25 <sup>e</sup>	249	64	119	78	167	2,242	
1989	2,009	750	7	187	345	90	165	68 <sup>e</sup>	78	3,699	
1990	1,171 <sup>e</sup>	645	15 <sup>e</sup>	323 <sup>e</sup>	414 <sup>e</sup>	43 <sup>e</sup>	43	57	52 <sup>e</sup>	2,763	
1991	1,223 <sup>e</sup>	925	18	310 <sup>f</sup>	522 <sup>f</sup>	130	107	59	159	3,453	
1992	540	88	1	83 <sup>e</sup>	79 <sup>e</sup>	12 <sup>e</sup>	14 <sup>e</sup>	107	17 <sup>e</sup>	941	
1993	693	<sup>d</sup>	<sup>d</sup>	<sup>d</sup>	<sup>d</sup>	<sup>d</sup>	<sup>d</sup>	<sup>d</sup>	<sup>d</sup>	693	
1994	786	508	47	120	430	250	75	4 <sup>e</sup>	2 <sup>e</sup>	2,222	
1995	285 <sup>f</sup>	37 <sup>e</sup>	2 <sup>e</sup>	32 <sup>e</sup>	111 <sup>e</sup>	26 <sup>e</sup>	8 <sup>e</sup>	25 <sup>e</sup>	26 <sup>e</sup>	552	
1996	1,364 <sup>f</sup>	450 <sup>f</sup>	11 <sup>f</sup>	360 <sup>f</sup>	723 <sup>f</sup>	117 <sup>f</sup>	164 <sup>f</sup>	25 <sup>f</sup>	143 <sup>f</sup>	3,357	
1997	2,270	2,245 <sup>f</sup>	270 <sup>f</sup>	311 <sup>f</sup>	693 <sup>f</sup>	900 <sup>f</sup>	466 <sup>f</sup>	55 <sup>f</sup>	330 <sup>f</sup>	7,540	
1998	1,407	740 <sup>f</sup>	48	280 <sup>f</sup>	700 <sup>f</sup>	515 <sup>f</sup>	843 <sup>f</sup>	60	527 <sup>f</sup>	5,120	
1999	934 <sup>e</sup>	82 <sup>e</sup>	2 <sup>e</sup>	38 <sup>e</sup>	216 <sup>e</sup>	486 <sup>e</sup>	69 <sup>e</sup>	93 <sup>e</sup>	88 <sup>e</sup>	2,008	
2000	1,174	580	62	125	155 <sup>e</sup>	70	54 <sup>e</sup>	26 <sup>e</sup>	104 <sup>e</sup>	2,350	
2001	556 <sup>e</sup>	0 <sup>g</sup>	0 <sup>g</sup>	80 <sup>e</sup>	154 <sup>e</sup>	75 <sup>e</sup>	24 <sup>e</sup>	7 <sup>e</sup>	73 <sup>e</sup>	969	
2002	2,087	956	27	220	240	130	130	139	164	4,093	
2003	2,113	160 <sup>e</sup>	4 <sup>e</sup>	<sup>d</sup>	200 <sup>e</sup>	85 <sup>e</sup>	<sup>d</sup>	<sup>d</sup>	<sup>d</sup>	2,562	
2004	3,175	38 <sup>e</sup>	<sup>d</sup>	73 <sup>e</sup>	180 <sup>e</sup>	13 <sup>e</sup>	9 <sup>e</sup>	37 <sup>e</sup>	<sup>d</sup>	3,525	
1977-1986 <sup>h</sup>	725	516	45	67	234	77	141	378	224	2,407	
1987-1996 <sup>h</sup>	951	605	20	197	392	141	116	96	132	2,650	
1997-2003 <sup>h</sup>	1,810	1,130	102	234	544	404	480	85	340	5,129	

<sup>a</sup> Some data published in Brady et al. 1991, but the remainder is unpublished.

<sup>b</sup> Data in this table have been modified from previous year's reports. Past years table reporting accounted for estimates from outside of defined survey reaches and included extrapolated data.

<sup>c</sup> Gulkana River index counts are those upstream and including the West Fork.

<sup>d</sup> No aerial survey conducted.

<sup>e</sup> Survey flown outside of July 17-31.

<sup>f</sup> Counts determined by 2 surveyors. In years where more than one surveyor was used, counts from the most experienced surveyor are listed.

<sup>g</sup> Visibility poor due to high water conditions.

<sup>h</sup> Averages exclude years when surveys were flown outside July 17–31.

**Appendix A20.**—Aerial survey indices of sockeye salmon escapement to the upper Copper River drainage, 1993–2004.

Location <sup>a</sup>	Yearly Survey Indices											10-Year Average 1983–1992 <sup>c</sup>	
	1993 <sup>b</sup>	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003		2004
Fish Lake				4,800		4,900	1,880	5,000	5,000	125	1,300	0	6,418
Bad Crossing 1 & 2				780		7,800	195	19	2,000	157	90	30	2,604
Suslota Lake				4,100		1,060	0	3,000	2,500	1,500	2,750	1,975	1,416
Dickey Lake				0		350	11	0	1	0	0	10	115
Keg Creek				850	420	160	125	0	1	30	38	0	725
Mahlo Creek				3,800	11,800	12,300	325	1,000	400	5,000	6,850	500	2,648
St. Anne Creek				3,500	4,800	4,100	1,300	1,100	300	3,500	3,750	970	4,888
Fish Creek-Mentasta				400		1,400	450	800	3,500	900		b	963
Swede Lake				20		770	270	135	500	150	325	225	531
Tana River											250	b	1,345
Mentasta Lake				2,800		6,100	715	1,200	13,000	5,400	4,800	6,000	3,277
Tanada Lake		6,270	3,100				350	3,200	200	950	0	3,950	3,849
Salmon Creek							0	500	1,500	1,400	300	b	825
Paxson Inlet-Mud Creek				16,800		15,200	5,700	2,200	7,000	4,800	2,800	2,200	6,560
Mud Creek and Lake				240			20	30	300	30	75	5	172
Mendeltna Creek				1,250	400		120	2,800	800	1,875	1,200	50	2,470
Paxson Lake Outlet						200	1,800	1,000	200	140		5	2,661
Mud Creek.- Summit Lake						700	820	140	450	2,800	3,900	40	7,445
Long Lake												b	1,577
Tonsina Lake												0	1,080
Totals		6,270	3,100	39,340	17,420	55,040	14,081	22,124	37,652	28,757	28,428	15,960	51,569

<sup>a</sup> These escapement numbers are based on peak aerial survey estimates and weir counts from a majority of the known spawning areas in the upper Copper River drainage. These indices are not intended to provide a true estimate of escapement for these stocks, but a comparable index based upon the best data currently available. An effort has been made to standardize the indices across years; however, counts were obtained only as environmental conditions allowed and may not necessarily correspond to periods of peak abundance. Missing counts are generally a result of bad weather, high water or other factors that prevented surveys for that given year.

<sup>b</sup> No survey flown.

<sup>c</sup> The 1983-1992 average used for anticipated estimate.

**Appendix A21.**—Estimated age and sex composition of sockeye salmon harvested in the Copper River District commercial common property drift gillnet fishery, 2004.

		Brood Year and Age Class									
		2001		2000		1999			1998		Total
		0.2	1.1	0.3	1.2	0.4	1.3	2.2	1.4	2.3	
Strata Combined:		5/17 - 9/18									
Sampling dates:		5/17 - 7/24									
Sample size:		4,727									
Female	Sample size	7	1	164	665	5	1,446	53	10	93	2,444
	Percentage of sample	0	0	4	12	0	31	1	0	2	51
	Number in catch	1,575	77	38,989	130,956	1,142	325,521	10,048	2,222	21,601	532,131
Male	Sample size	15	0	178	649	1	1,290	44	10	78	2,265
	Percentage of sample	0	0	4	13	0	28	1	0	2	49
	Number in catch	4,135	0	43,963	138,062	297	294,398	10,356	1,819	18,375	511,406
Total	Sample size	22	1	346	1,316	6	2,745	97	21	173	4,727
	Percentage of sample	1	0	8	26	0	59	2	0	4	100
	Number in catch	5,710	77	83,836	269,350	1,439	622,673	20,404	4,206	40,308	1,048,004
	Standard error	1,293	77	4,496	6,853	595	7,959	2,187	956	3,148	

**Appendix A22.**—Estimated age and sex composition of Chinook salmon harvested in the Copper River District commercial common property drift gillnet fishery, 2004.

		<b>Brood Year and Age Class</b>								
		<b>2001</b>	<b>2000</b>		<b>1999</b>		<b>1998</b>		<b>1997</b>	<b>Total</b>
		<b>1.1</b>	<b>1.2</b>	<b>2.1</b>	<b>1.3</b>	<b>2.2</b>	<b>1.4</b>	<b>2.3</b>	<b>2.4</b>	
Strata Combined:	5/17 - 9/7									
Sampling dates:	5/17 - 6/5									
Sample size:	1,865									
Female	Sample size	3	77	0	640	1	454	7	8	1190
	Percentage of sample	0.1	4.3	0.0	34.9	0.0	23.6	0.4	0.4	63.7
	Number in harvest	57	1,630	0	13,320	19	9,002	136	150	24,314
Male	Sample size	7	35	1	270	3	349	5	5	675
	Percentage of sample	0.5	1.9	0.0	15.3	0.2	17.8	0.3	0.3	36.3
	Number in harvest	187	741	19	5,839	68	6,817	102	104	13,877
Total	Sample size	10	112	1	910	4	803	12	13	1865
	Percentage of sample	0.6	6.2	0.0	50.2	0.2	41.4	0.6	0.7	100.0
	Number in harvest	244	2,372	19	19,159	87	15,819	238	254	38,191
	Standard error	79	222	19	451	44	436	70	72	

**Appendix A23.**—Estimated age composition of Copper/Bering River area coho salmon in commercial common property drift gillnet harvest, 2004.

<b>Location</b>	<b>Sample Size</b>	<b>Commercial Harvest</b>	<b>Percentage of Harvest by Brood Year and Age Group</b>		
			<b>2001</b>	<b>2000</b>	<b>1999</b>
			<b>1.1</b>	<b>2.1</b>	<b>3.1</b>
Copper River	1,252	467,859	70.5	29.4	0.1
Bering River	802	95,595	71.7	28.0	0.3

**APPENDIX B. COGHILL AND UNAKWIK DISTRICTS**

**Appendix B1.**—Total Coghill District commercial common property salmon harvest by period in the drift gillnet and purse seine fisheries, 2004.

Period	Date	Hours	Permits	Landings	Chinook		Sockeye		Coho		Pink		Chum	
					Number	Pounds	Number	Pounds	Number	Pounds	Number	Pounds	Number	Pounds
<b>Drift Gillnet</b>														
1 <sup>a</sup>	05/31-06/01	24	14	17	0	0	0	0	0	0	0	0	8,120	63,345
2 <sup>b</sup>	06/03-06/04	24	3	5	0	0	0	0	0	0	0	0	2,412	19,253
3 <sup>a</sup>	06/07-06/08	24	30	70	0	0	189	1,394	0	0	0	0	21,339	183,222
4 <sup>b</sup>	06/10-06/11	24	40	86	1	15	493	2,946	0	0	0	0	17,606	133,993
5 <sup>c</sup>	06/14-06/15	24	70	172	8	122	3,403	21,294	0	0	0	0	46,403	354,375
6 <sup>d</sup>	06/17-06/18	24	35	79	1	21	1,838	10,956	0	0	0	0	31,668	216,586
7 <sup>e</sup>	06/21-06/23	48	105	226	2	27	14,495	91,699	0	0	0	0	25,222	178,246
8 <sup>e</sup>	06/24-06/26	48	121	261	4	115	19,214	121,633	3	20	1	4	18,095	125,517
9 <sup>f</sup>	06/28-07/01	72	154	445	56	559	23,604	147,113	16	100	32	152	76,122	547,205
10 <sup>f</sup>	07/01-07/04	72	138	366	16	204	16,496	98,975	82	635	58	192	105,543	757,211
11 <sup>f</sup>	07/05-07/08	72	114	433	4	45	39,417	241,669	205	1,424	578	2,388	89,924	642,201
12 <sup>f</sup>	07/08-07/11	72	112	446	9	122	47,790	302,075	876	6,684	596	2,109	38,706	280,645
13 <sup>f</sup>	07/12-07/15	72	116	368	23	266	25,882	159,296	281	1,953	2,369	8,235	26,258	195,258
14 <sup>f</sup>	07/15-07/18	72	83	237	2	20	12,833	79,190	166	1,226	3,786	13,097	19,612	148,486
15 <sup>f</sup>	07/19-07/22	72	53	116	0	0	8,151	48,901	202	1,372	6,683	24,610	6,786	46,747
16 <sup>g</sup>	07/22-07/24	48	10	15	0	0	1,846	11,677	112	850	1,575	4,743	470	3,749
17 <sup>g</sup>	07/26-07/28	48	8	8	0	0	488	2,920	22	176	3,215	9,648	671	5,360
18 <sup>g</sup>	07/29-07/30	24	0	0	0	0	0	0	0	0	0	0	0	0
19 <sup>g</sup>	08/02-08/03	24	0	0	0	0	0	0	0	0	0	0	0	0
20 <sup>h</sup>	09/06-09/12	156	16	43	0	0	13	79	2,975	21,290	1,188	3,675	1	8
21 <sup>h</sup>	09/13-09/19	156	16	42	0	0	4	24	4,292	33,424	0	0	1	4
22 <sup>h</sup>	09/20-09/26	156	4	4	0	0	0	0	880	6,129	0	0	0	0
23 <sup>h</sup>	09/27-10/03	156	1	1	0	0	0	0	88	668	0	0	0	0
24 <sup>h</sup>	10/04-10/10	156	0	0	0	0	0	0	0	0	0	0	0	0
25 <sup>h</sup>	10/11-10/17	156	0	0	0	0	0	0	0	0	0	0	0	0
Total			244	3,440	126	1,516	216,156	1,341,841	10,200	75,951	20,081	68,853	534,959	3,901,411
Average Weight						12.03		6.21		7.45		3.43		7.29

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Period	Date	Hours	Permits	Landings	Chinook		Sockeye		Coho		Pink		Chum	
					Number	Pounds	Number	Pounds	Number	Pounds	Number	Pounds	Number	Pounds
Purse Seine														
2 <sup>i</sup>	06/03-06/04	24	26	32	0	0	0	0	0	0	0	0	62,838	496,952
4 <sup>i</sup>	06/10-06/11	25	50	76	1	8	6	36	0	0	0	0	146,604	1,162,969
6 <sup>i</sup>	06/17	12	36	49	1	30	156	916	0	0	1	4	176,408	1,372,489
16 <sup>j</sup>	07/22-07/24	48	1	1	0	0	10	61	0	0	1,229	3,688	17	140
17 <sup>j</sup>	07/26-07/28	48	1	1	0	0	9	55	2	16	1,920	5,759	36	288
18 <sup>j</sup>	07/29-07/30	24	3	3	0	0	14	82	6	46	6,727	22,536	72	520
19 <sup>j</sup>	08/02-08/03	24	1	1	0	0	0	0	0	0	13,732	41,197	67	534
20 <sup>k</sup>	09/06-09/12	156	1	1	0	0	0	0	125	652	0	0	0	0
21 <sup>k</sup>	09/13-09/19	156	0	0	0	0	0	0	0	0	0	0	0	0
Total			54	164	2	38	195	1,150	133	714	23,609	73,184	386,042	3,033,892
Average Weight					19.00		5.90		5.37		3.10		7.86	

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<sup>a</sup> Waters of the Coghill District excluding the Wally Noerenberg Hatchery Terminal Harvest Area and Special Harvest Area were open.

<sup>b</sup> Waters of the Coghill District excluding the Esther Subdistrict and the buffer zone were open.

<sup>c</sup> Waters of the Coghill District excluding the Esther Subdistrict were open for 24 hours. The Esther Subdistrict excluding the WNH THA and SHA were open for 12 hours.

<sup>d</sup> Waters of the Coghill District excluding the Esther Subdistrict and the buffer zone were open for 12 hours. Waters of the Coghill District excluding the Esther Subdistrict were open the next 12 hours.

<sup>e</sup> The Coghill District excluding the Esther Subdistrict was open for the first 24 hours, waters of the Coghill District north of 60° 55.89' were open for 48 hours.

<sup>f</sup> The Coghill District excluding the Esther Subdistrict was open for the first 48 hours, waters of the Coghill District north of 60° 55.89' were open for 72 hours.

<sup>g</sup> Waters of the Coghill District north of 60° 55.89' were open.

<sup>h</sup> In the Coghill District, waters of the Esther Subdistrict excluding the Wally Noerenberg Hatchery SHA were open.

<sup>i</sup> In the Coghill District, the Esther Subdistrict east of 148° 07' W. longitude, west of 147° 05' W. longitude, and within 1 nautical mile of Esther Island, excluding the WNH THA and SHA, were open.

<sup>j</sup> Waters of the Coghill District north of 60° 55.89' N. latitude were open.

<sup>k</sup> The Esther Subdistrict, excluding the Wally Noerenberg Hatchery SHA and THA, was open.

**Appendix B2.**—Total commercial common property harvest by species in the Coghill District, 1983–2004.

<b>Year</b>	<b>Chinook</b>	<b>Sockeye</b>	<b>Coho</b>	<b>Pink</b>	<b>Chum</b>	<b>Total</b>
<b>Drift Gillnet</b>						
1983	340	38,273	1,013	233,263	234,022	506,911
1984	396	94,956	563	897,496	264,878	1,258,289
1985	380	339,296	1,131	454,531	246,824	1,042,162
1986	617	381,565	789	68,887	218,971	670,829
1987	352	377,454	13,396	712,897	318,842	1,422,941
1988	501	82,294	41,307	1,314,061	346,388	1,784,551
1989	364	106,114	80,737	628,522	194,584	1,010,321
1990	126	11,988	128,605	1,907,510	301,209	2,349,438
1991	92	3,888	78,363	231,501	34,223	348,067
1992	242	57,919	86,782	167,384	182,433	494,760
1993	576	66,532	37,898	141,279	635,208	881,493
1994	390	12,928	50,879	58,334	554,181	676,712
1995	468	57,797	29,343	161,493	379,659	628,760
1996	575	177,530	20,926	59,447	612,969	871,447
1997	862	227,231	5,618	154,969	689,977	1,078,657
1998	605	59,463	2,925	383,604	347,317	793,914
1999	401	106,028	1,114	32,408	689,210	829,161
2000	269	176,452	82,869	88,228	1,643,801	1,991,619
2001	216	87,539	3,185	308,707	1,142,449	1,542,096
2002	203	59,758	784	6,457	1,660,443	1,727,645
2003	114	161,872	9,900	44,419	726,431	942,736
2004	126	216,156	10,200	20,081	534,959	781,522
10-Year Average (1994-2003)	410	112,660	20,754	129,807	844,644	1,108,275
<b>Purse Seine</b>						
1983	0	175	16	41,048	8,958	50,197
1984	0	21	0	10,911	1,126	12,058
1985	85	10,757	112	69,242	19,330	99,526
1986	186	18,514	98	145,706	27,078	191,582
1987	58	38,899	1,956	865,671	59,252	965,836
1988	63	1,623	15,787	1,600,481	11,755	1,629,709
1989	61	2,030	39,484	3,296,965	124,639	3,463,179
1990	2	286	11,819	785,278	10,951	808,336
1991	11	1,562	621	1,980,074	11,519	1,993,787
1992	6	765	27,382	196,503	1,603	226,259
1993	46	6,250	1,760	352,468	3,645	364,169
1994	50	21,060	30,517	3,538,760	3,575	3,593,962
1995	33	20,670	5,337	917,200	2,597	945,837
1996	1	2,640	5,319	1,484,422	463	1,492,845
1997	7	5,694	1,269	1,875,617	33,139	1,915,726
1998	20	1,702	1,531	2,845,157	21,600	2,870,010
1999	34	3,229	338	3,509,722	621,349	4,134,672
2000	1	2,984	31,991	3,271,314	1,338	3,307,628
2001	8	2,398	356	648,335	3,802	654,899
2002	5	2,068	2,431	1,271,180	794,794	2,070,478
2003	15	125,641	724	11,439,915	750,834	12,317,129
2004	2	195	133	23,609	386,042	409,981
10-Year Average (1994-2003)	17	18,809	7,981	3,080,162	223,349	3,330,319

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**Appendix B2.**–Page 2 of 2.

<b>Year</b>	<b>Chinook</b>	<b>Sockeye</b>	<b>Coho</b>	<b>Pink</b>	<b>Chum</b>	<b>Total</b>
	<b>Combined Gear</b>					
1983	340	38,448	1,029	274,311	242,980	557,108
1984	396	94,977	563	908,407	266,004	1,270,347
1985	465	350,053	1,243	523,773	266,154	1,141,688
1986	803	400,079	887	214,593	246,049	862,411
1987	410	416,353	15,352	1,578,568	378,094	2,388,777
1988	564	83,917	57,094	2,914,542	358,143	3,414,260
1989	425	108,144	120,221	3,925,487	319,223	4,473,500
1990	128	12,274	140,424	2,692,788	312,160	3,157,774
1991	103	5,450	78,984	2,211,575	45,742	2,341,854
1992	248	58,684	114,164	363,887	184,036	721,019
1993	622	72,782	39,658	493,747	638,853	1,245,662
1994	440	33,988	81,396	3,597,094	557,756	4,270,674
1995	501	78,467	34,680	1,078,693	382,256	1,574,597
1996	576	180,170	26,245	1,543,869	613,432	2,364,292
1997	869	232,925	6,887	2,030,586	723,116	2,994,383
1998	625	61,165	4,456	3,228,761	368,917	3,663,924
1999	435	109,257	1,452	3,542,130	1,310,559	4,963,833
2000	270	179,436	114,860	3,359,542	1,645,139	5,299,247
2001	224	89,937	3,541	957,042	1,146,251	2,196,995
2002	208	61,826	3,215	1,277,637	2,455,237	3,798,123
2003	129	287,513	10,624	11,484,334	1,477,265	13,259,865
2004	128	216,351	10,333	43,690	921,001	1,191,503
10-Year Average (1994-2003)	428	131,468	28,736	3,209,969	1,067,993	4,438,593

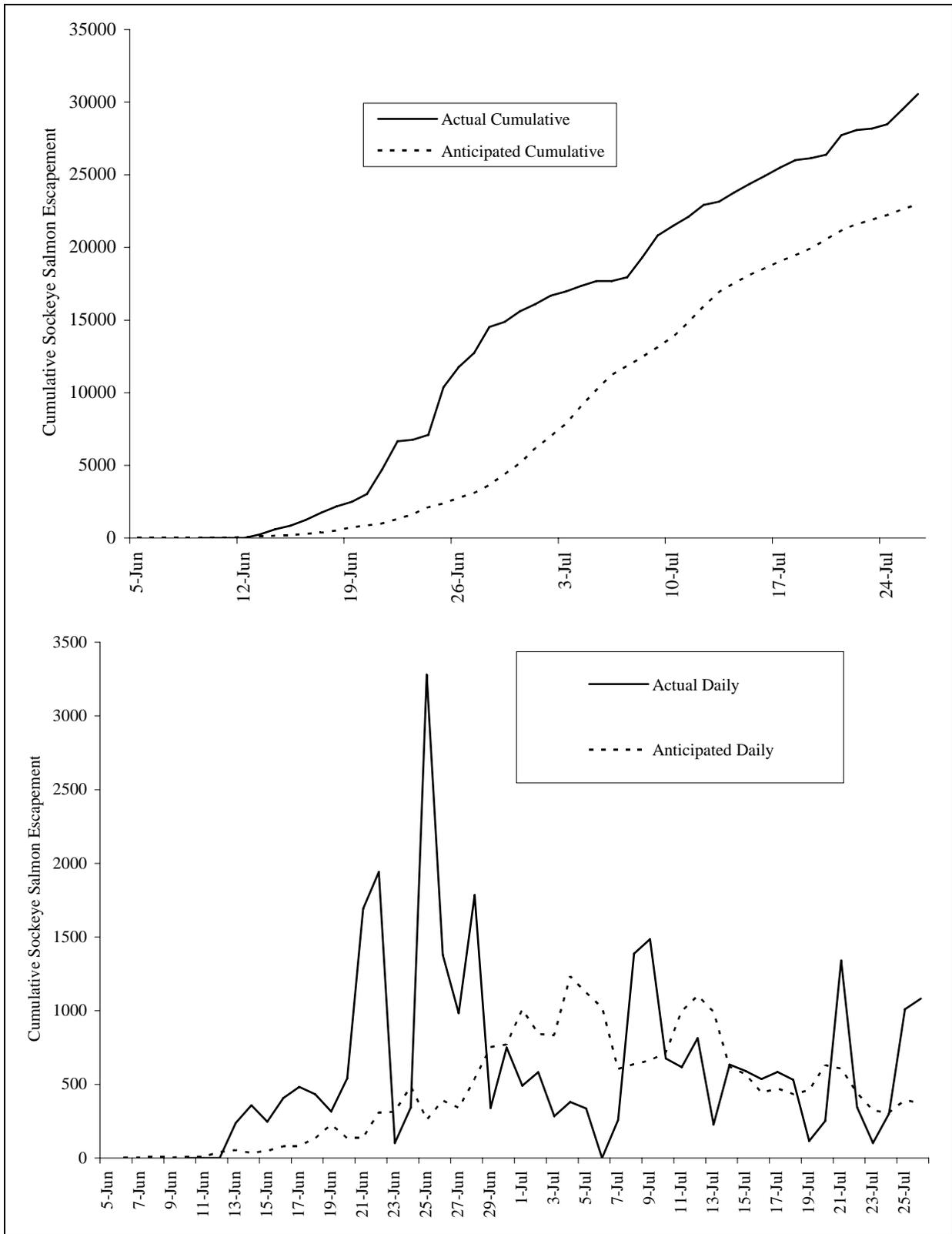
**Appendix B3.**—Anticipated daily and cumulative salmon escapement versus actual escapement through the Coghill River weir, 2004.

Date	Sockeye		Projected	Projected	Sockeye	Pink		Comments
	Daily	Cumulative	Daily	Cumulative	Below Weir	Daily	Cumulative	
5-Jun				0				
6-Jun			0	0				
7-Jun			2	2				
8-Jun			4	6				
9-Jun		0	4	9				
10-Jun	0	0	8	17				
11-Jun	0	0	9	26				
12-Jun	0	0	41	67	20			water level dropping
13-Jun	237	237	53	120	2			
14-Jun	358	595	35	156	20			
15-Jun	247	842	49	204	10			
16-Jun	407	1,249	80	285	30			
17-Jun	483	1,732	81	366	20			river is high
18-Jun	432	2,164	135	501	10			
19-Jun	316	2,480	228	729	10			
20-Jun	541	3,021	135	864	100	0	0	
21-Jun	1,691	4,712	138	1,002	900	42	42	
22-Jun	1,942	6,654	310	1,312	300	125	167	
23-Jun	101	6,755	313	1,626	1,000	0	167	holding fish for samples
24-Jun	342	7,097	486	2,111	2,000	0	167	holding fish for samples
25-Jun	3,280	10,377	260	2,371	800	1	168	
26-Jun	1,380	11,757	389	2,761	600	2	170	
27-Jun	981	12,738	340	3,100	700	0	170	
28-Jun	1,784	14,522	535	3,635	200	1	171	
29-Jun	340	14,862	753	4,388	250	0	171	
30-Jun	749	15,611	770	5,158	300	2	173	
1-Jul	491	16,102	1,008	6,166	200	1	174	
2-Jul	583	16,685	842	7,008	150	3	177	4 chum
3-Jul	285	16,970	835	7,843	125	0	177	
4-Jul	381	17,351	1,234	9,077	200	0	177	2 chum

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Date	Sockeye		Projected	Projected	Sockeye	Pink		Comments
	Daily	Cumulative	Daily	Cumulative	Below Weir	Daily	Cumulative	
5-Jul	336	17,687	1,122	10,199	20	0	177	2 chum
6-Jul	0	17,687	1,021	11,220	1,000	0	177	
7-Jul	258	17,945	605	11,825	1,200	0	177	fish held back for AWL
8-Jul	1,387	19,332	638	12,462	1,000	2	179	finished sample
9-Jul	1,484	20,816	662	13,124	400	7	186	6 chum
10-Jul	675	21,491	715	13,839	300	3	189	
11-Jul	616	22,107	996	14,835	150	1	190	2 chum
12-Jul	813	22,920	1,102	15,938	200	8	198	
13-Jul	228	23,148	990	16,927	200	6	204	
14-Jul	634	23,782	618	17,546	400	14	218	
15-Jul	591	24,373	566	18,111	250	14	232	4 chum
16-Jul	536	24,909	443	18,555	700	18	250	
17-Jul	584	25,493	472	19,027	275	23	273	
18-Jul	531	26,024	433	19,460	400	28	301	
19-Jul	116	26,140	460	19,920	900	12	313	holding for AWL
20-Jul	252	26,392	631	20,551	800	4	317	
21-Jul	1,340	27,732	606	21,158	200	151	468	
22-Jul	344	28,076	439	21,597	100	130	598	
23-Jul	101	28,177	322	21,918	100	54	652	
24-Jul	301	28,478	309	22,227	300	53	705	
25-Jul	1,010	29,488	391	22,618	300	402	1,107	
26-Jul	1,081	30,569	375	22,993		899	2,006	flooding -pulled pickets
27-Jul	weir operations ended		213	23,206				weir operations ended
28-Jul			158	23,364				
29-Jul			163	23,527				
30-Jul			169	23,697				
31-Jul			154	23,850				
1-Aug			118	23,969				
2-Aug			122	24,091				



**Appendix B4.**—Anticipated cumulative and daily sockeye salmon escapement versus actual escapement through the Coghill River weir, 2004.

**Appendix B5.**—Salmon escapement by species in the Coghill District 1970–2004.

<b>Year</b>	<b>Sockeye<sup>a</sup></b>	<b>Pink<sup>b</sup></b>	<b>Chum<sup>b</sup></b>
1970	35,200	95,170	11,880
1971	15,000	62,160	6,600
1972	51,000	30,960	28,160
1973	55,000	493,780	72,610
1974	22,333	56,940	29,280
1975	34,855	452,430	3,640
1976	9,056	57,090	25,670
1977	31,562	130,510	43,940
1978	42,284	85,450	18,160
1979	48,281	70,980	6,330
1980	142,253	214,930	23,340
1981	156,112	106,450	2,050
1982	180,314	368,380	22,130
1983	38,783	310,330	61,410
1984	63,622	429,450	19,690
1985	163,311	296,970	22,140
1986	71,095	101,600	13,140
1987	187,263	147,060	24,510
1988	72,052	37,070	39,240
1989	37,751	45,510	22,680
1990	8,949	49,110	26,020
1991	9,752	98,580	6,070
1992	29,642	23,611	10,003
1993	9,232	41,837	8,430
1994	7,264	65,648	14,176
1995	30,382	46,029	11,596
1996	38,693	104,781	19,669
1997	35,517	52,961	3,101
1998	28,923	85,968	22,764
1999	59,311	168,816	5,057
2000	28,446	223,646	20,488
2001	38,558	148,665	13,388
2002	28,323	54,882	7,430
2003	75,427	375,147	19,729
2004	30,569	36,717	5,000
10-Year Average (1994–2003)	37,084	132,654	13,740

<sup>a</sup> Escapement count of sockeye salmon past the Coghill River weir.

<sup>b</sup> Pink and chum escapements estimated for streams in district by aerial surveys. Historical data revised in 1990.

**Appendix B6.**—Summary of periods, dates, duration, and emergency orders issued for the commercial common property salmon fisheries in the Coghill and Unakwik Districts, 2004.

UNAKWIK (229)				COGHILL(223)			
Periods	Dates	Duration	Emergency Orders Issued	Periods	Dates	Duration	Emergency Orders Issued
<b>Drift Gillnet</b>							
01	06/14-06/15	24	2-F-E-017-04	01 <sup>a</sup>	05/31-06/01	24	2-F-E-007-04
02	06/17-06/18	24	2-F-E-019-04	02 <sup>b</sup>	06/03-06/04	24	2-F-E-007-04
03	06/21-06/22	24	2-F-E-026-04	03 <sup>a</sup>	06/07-06/08	24	2-F-E-011-04
04	06/24-06/26	48	2-F-E-030-04	04 <sup>b</sup>	06/10-06/11	24	2-F-E-011-04
05	06/28-06/30	48	2-F-E-034-04	05 <sup>c</sup>	06/14-06/15	24	2-F-E-015-04
06	07/01-07/03	48	2-F-E-038-04	06 <sup>d</sup>	06/17-06/18	24	2-F-E-021-04
07	07/05-07/07	48	2-F-E-044-04	07 <sup>e</sup>	06/21-06/23	48	2-F-E-024-04
08	07/08-07/10	48	2-F-E-047-04	08 <sup>f</sup>	06/24-06/26	48	2-F-E-028-04
09	07/12-07/14	48	2-F-E-053-04	09 <sup>g</sup>	06/28-07/01	72	2-F-E-032-04
10	07/15-07/17	48	2-F-E-058-04	10 <sup>g</sup>	07/01-07/04	72	2-F-E-036-04
11	07/19-07/21	48	2-F-E-064-04	11 <sup>g</sup>	07/05-07/08	72	2-F-E-043-04
12	07/22-07/24	48	2-F-E-069-04	12 <sup>g</sup>	07/08-07/11	72	2-F-E-046-04
				13 <sup>g</sup>	07/12-07/15	72	2-F-E-052-04
				14 <sup>g</sup>	07/15-07/18	72	2-F-E-057-04
				15 <sup>g</sup>	07/19-07/22	72	2-F-E-062-04
				16 <sup>h</sup>	07/22-07/24	48	2-F-E-066-04
				17 <sup>h</sup>	07/26-07/28	48	2-F-E-073-04
				18 <sup>h</sup>	07/29-07/30	24	2-F-E-077-04
				19 <sup>h</sup>	08/02-08/03	24	2-F-E-078-04
				20 <sup>i</sup>	09/06-09/12	156	2-F-E-106-04
				21 <sup>i</sup>	09/13-09/19	156	2-F-E-109-04
				22 <sup>i</sup>	09/20-09/26	156	2-F-E-114-04
				23 <sup>i</sup>	09/27-10/03	156	2-F-E-119-04
				24 <sup>i</sup>	10/04-10/10	156	2-F-E-121-04
				25 <sup>i</sup>	10/11-10/17	156	2-F-E-123-04
<b>Purse Seine</b>							
01	06/14-06/15	24	2-F-E-017-04	02 <sup>j</sup>	06/03-06/04	24	2-F-E-007-04
02	06/17-06/18	24	2-F-E-019-04	04 <sup>j</sup>	06/10-06/11	24	2-F-E-011-04
03	06/21-06/22	24	2-F-E-026-04	06 <sup>j</sup>	06/17/04	12	2-F-E-021-04
04	06/24-06/26	48	2-F-E-030-04	16 <sup>k</sup>	07/22-07/24	48	2-F-E-066-04
05	06/28-06/30	48	2-F-E-034-04	17 <sup>k</sup>	07/26-07/28	48	2-F-E-073-04
06	07/01-07/03	48	2-F-E-038-04	18 <sup>k</sup>	07/29-07/30	24	2-F-E-077-04
07	07/05-07/07	48	2-F-E-044-04	19 <sup>k</sup>	08/02-08/03	24	2-F-E-078-04
08	07/08-07/10	48	2-F-E-047-04	20 <sup>l</sup>	09/06-09/12	156	2-F-E-106-04
09	07/12-07/14	48	2-F-E-053-04	21 <sup>l</sup>	09/13-09/19	156	2-F-E-109-04
10	07/15-07/17	48	2-F-E-058-04				
11	07/19-07/21	48	2-F-E-064-04				
12	07/22-07/24	48	2-F-E-069-04				

<sup>a</sup> Waters of the Coghill District excluding the Wally Noerenberg Hatchery Terminal Harvest Area and Special Harvest Area were open.

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- <sup>b</sup> Waters of the Coghill District excluding the Esther Subdistrict and waters of Port Wells south of 60° 52.71' N. latitude and waters of Esther Passage south of 60° 50.84' N. latitude were open.
- <sup>c</sup> Waters of the Coghill District excluding the Wally Noerenberg Hatchery Terminal Harvest Area and Special Harvest Area were open from 8:00 a.m. until 8:00 p.m. June 14. Waters of the Coghill District excluding the Esther Subdistrict were open for the entire fishing period.
- <sup>d</sup> Waters of the Coghill District excluding the Esther Subdistrict and waters of Port Wells south of 60° 52.71' N. latitude and waters of Esther Passage south of 60° 50.84' N. latitude were open from 8:00 a.m. until 8:00 p.m. June 17. Waters of the Coghill District excluding the Esther Subdistrict were open from 8:01 p.m. June 17 until 8:00 a.m. June 18.
- <sup>e</sup> Waters of Coghill District excluding the Esther Subdistrict were open for 24 hours. Waters of Coghill District were open north of 60° 55.89' N. latitude for 48 hours.
- <sup>f</sup> Waters of Coghill District excluding the Esther Subdistrict were open for 24 hours. Waters of Coghill District were open north of 60° 55.89' N. latitude for 48 hours. Deep gillnet gear permitted.
- <sup>g</sup> Waters of Coghill District excluding the Esther Subdistrict were open for 48 hours. Waters of Coghill District were open north of 60° 55.89' N. latitude for 72 hours. Deep gillnet gear permitted.
- <sup>h</sup> Waters of Coghill District were open north of 60° 55.89' N.
- <sup>i</sup> Waters of the Coghill District excluding the Wally Noerenberg Hatchery Special Harvest Area were open.
- <sup>j</sup> In the Coghill District, waters of the Esther Subdistrict east of 148° 07' W. longitude, west of 147° 56' W. longitude, and within 1 nautical mile of Esther Island, excluding the Wally Noerenberg Hatchery Terminal Harvest Area and Special Harvest Area were open.
- <sup>k</sup> Waters of Coghill District were open north of 60° 55.89' N.
- <sup>l</sup> Waters of the Coghill District excluding the Wally Noerenberg Hatchery Special Harvest Area were open.

**Appendix B7.**—Estimated age and sex composition of sockeye salmon harvested in the Coghill District commercial common property drift gillnet and purse seine fisheries, 2004.

		<b>Brood Year and Age Class <sup>a</sup></b>								
		<b>2001</b>		<b>2000</b>		<b>1999</b>		<b>1998</b>		<b>Total</b>
		<b>0.2</b>	<b>1.1</b>	<b>1.2</b>	<b>1.3</b>	<b>2.2</b>	<b>1.4</b>	<b>2.3</b>		
Strata Combined:	5/31 - 9/19									
Sampling dates:	6/27 - 7/15									
Sample size:	1,128									
Female	Percentage of sample	0.0	0.0	25.5	37.1	0.4	0.0	0.0	63.0	
	Number in harvest	0	96	55,232	80,176	802	0	0	136,306	
Male	Percentage of sample	0.1	0.0	18.8	17.7	0.3	0.1	0.0	37.0	
	Number in harvest	193	0	40,648	38,291	618	198	96	80,045	
Total	Percentage of sample	0.1	0.0	44.3	54.8	0.7	0.1	0.0	100.0	
	Number in harvest	193	96	95,880	118,467	1,420	198	96	216,351	
	Standard error	136	96	3,471	3,473	610	198	96		

<sup>a</sup> Age composition generated using length frequency data only.

**Appendix B8.**—Estimated age and sex composition of sockeye salmon passed through the Coghill River weir, 2004.

		<b>Brood Year and Age Class <sup>a</sup></b>							
		<b>2001</b>		<b>2000</b>	<b>1999</b>		<b>1998</b>		
		<b>0.2</b>	<b>1.1</b>	<b>1.2</b>	<b>1.3</b>	<b>2.2</b>	<b>1.4</b>	<b>2.3</b>	<b>Total</b>
Strata Combined:	6/12 - 7/27								
Sampling dates:	6/23 - 7/21								
Sample size:	1,269								
Female	Percentage of sample	0.0	0.0	13.1	43.5	0.3	0.2	0.1	57.2
	Number in escapement	0	0	4,005	13,306	91	48	24	17,474
Male	Percentage of sample	0.1	0.2	16.2	25.9	0.4	0.0	0.0	42.8
	Number in escapement	23	71	4,965	7,920	117	0	0	13,095
Total	Percentage of sample	0.1	0.2	29.3	69.4	0.7	0.2	0.1	100.0
	Number in escapement	23	71	8,970	21,226	207	48	24	30,569
	Standard error	23	41	390	395	69	34	24	

<sup>a</sup> Age composition generated using length frequency data only.

**Appendix B9.**—Total commercial common property salmon harvest by period in the Unakwik District drift gillnet and purse seine fisheries, 2004.

Period	Date <sup>a</sup>	Hours	Permits	Landings	Chinook		Sockeye		Coho		Pink		Chum		
					Number	Pounds	Number	Pounds	Number	Pounds	Number	Pounds	Number	Pounds	
<b>Drift Gillnet</b>															
01	06/14-06/15	24	0	0	0	0	0	0	0	0	0	0	0	0	
02	06/17-06/18	24	0	0	0	0	0	0	0	0	0	0	0	0	
03	06/21-06/22	24	1	1	0	0	600	3715	0	0	0	0	0	0	
04	06/24-06/26	48	9	17	4	53	4488	28918	0	0	0	0	45	332	
05	06/28-06/30	48	7	14	1	9	1397	8333	0	0	0	0	28	181	
06	07/01-07/03	48	2	2	0	0	461	2773	0	0	0	0	7	58	
07	07/05-07/07	48	2	2	0	0	424	2745	0	0	0	0	77	616	
08	07/08-07/10	48	0	0	0	0	0	0	0	0	0	0	0	0	
09	07/12-07/14	48	0	0	0	0	0	0	0	0	0	0	0	0	
10	07/15-07/17	48	1	1	0	0	68	408	1	7	0	0	11	80	
11	07/19-07/21	48	0	0	0	0	0	0	0	0	0	0	0	0	
12	07/22-07/24	48	0	0	0	0	0	0	0	0	0	0	0	0	
Total				12	37	5	62	7438	46892	1	7	0	0	168	1267
Average Weight							12.40		6.30		7.00		0.00		7.54
<b>Purse Seine</b>															
01	06/14-06/15	24	0	0	0	0	0	0	0	0	0	0	0	0	
02	06/17-06/18	24	0	0	0	0	0	0	0	0	0	0	0	0	
03	06/21-06/22	24	0	0	0	0	0	0	0	0	0	0	0	0	
04	06/24-06/26	48	0	0	0	0	0	0	0	0	0	0	0	0	
05	06/28-06/30	48	0	0	0	0	0	0	0	0	0	0	0	0	
06	07/01-07/03	48	0	0	0	0	0	0	0	0	0	0	0	0	
07	07/05-07/07	48	0	0	0	0	0	0	0	0	0	0	0	0	
08	07/08-07/10	48	0	0	0	0	0	0	0	0	0	0	0	0	
09	07/12-07/14	48	0	0	0	0	0	0	0	0	0	0	0	0	
10	07/15-07/17	48	0	0	0	0	0	0	0	0	0	0	0	0	
11	07/19-07/21	48	0	0	0	0	0	0	0	0	0	0	0	0	
12	07/22-07/24	48	0	0	0	0	0	0	0	0	0	0	0	0	
Total				0	0	0	0	0	0	0	0	0	0	0	
Average Weight							0.00		0.00		0.00		0.00	0.00	

<sup>a</sup> For area and opening times refer to Appendix B6.

**Appendix B10.**—Total commercial common property salmon harvest by species in the Unakwik District, 1990–2004.

Year	Chinook	Sockeye	Coho	Pink	Chum	Total
<b>Drift Gillnet</b>						
1982	1	48,947	0	335	598	49,881
1983	3	13,215	0	1,515	1,426	16,159
1984	2	18,522	0	27,742	7,125	53,391
1985	26	27,532	22	9,191	3,942	40,713
1986	5	25,759	1	1,973	2,463	30,201
1987	2	5,894	1	4,871	1,356	12,124
1988	15	8,589	0	281	1,504	10,389
1989	31	21,412	27	41,820	404	63,694
1990	3	247	127	9,986	23	10,386
1991	13	4,482	11	12,299	118	16,923
1992	3	2,224	13	3,972	94	6,306
1993	5	14,691	4	3,338	978	19,016
1994	0	548	0	300	0	848
1995	8	2,116	0	1	36	2,161
1996	3	6,063	0	17	694	6,777
1997	3	3,411	0	0	177	3,591
1998	10	13,651	55	1,932	586	16,234
1999	4	8,544	5	0	296	8,849
2000	0	1,119	0	0	20	1,139
2001	3	2,298	2	4	44	2,351
2002	5	9,825	14	0	761	10,605
2003	0	2,163	0	0	0	2,163
2004	5	7,438	1	0	168	7,612
10-Year Average (1994-2003)	4	4,974	8	225	261	5,472
<b>Purse Seine</b>						
1982	0	2	4	89,137	517	89,660
1983	0	6	0	3,344	716	4,066
1986 <sup>a</sup>						
1985	0	138	0	28,210	4,123	32,471
1986	0	76	0	4,718	4,675	9,469
1987	0	146	0	187,752	6,549	194,447
1988	0	667	7	57,844	23,860	82,378
1989 <sup>a</sup>						
1990 <sup>a</sup>						
1991	0	819	3	121,068	79	121,969
1992	0	42	2	13,264	119	13,427
1993	0	79	0	3,233	67	3,379
1994	0	226	102	388,901	73	389,302
1995 <sup>a</sup>						
1996 <sup>a</sup>						
1997 <sup>a</sup>						
1998 <sup>a</sup>						
1999	1	386	0	0	2	389
2000	0	0	0	20,485	0	20,485
2001 <sup>a</sup>						
2002	3	1,141	16	133	123	1,416
2003	0	1,017	0	2,261	20	3,298
2004 <sup>a</sup>						
10-Year Average (1994-2003)	1	554	24	82,356	44	82,978

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<b>Year</b>	<b>Chinook Sockeye Coho</b>		<b>Pink</b>	<b>Chum</b>	<b>Total</b>
	<b>Combined Gear</b>				
1982	1	48,949	4	89,472	1,115 139,541
1983	3	13,221	0	4,859	2,142 20,225
1984	2	18,522	0	27,742	7,125 53,391
1985	26	27,670	22	37,401	8,065 73,184
1986	5	25,835	1	6,691	7,138 39,670
1987	2	6,040	1	192,623	7,905 206,571
1988	15	9,256	7	58,125	25,364 92,767
1989	31	21,412	27	41,820	404 63,694
1990	3	247	127	9,986	23 10,386
1991	13	5,301	14	133,367	197 138,892
1992	3	2,266	15	17,236	213 19,733
1993	5	14,770	4	6,571	1,045 22,395
1994	0	774	102	389,201	73 390,150
1995	8	2,116	0	1	36 2,161
1996	3	6,063	0	17	694 6,777
1997	4	3,797	0	0	179 3,980
1998	10	14,668	55	4,193	606 19,532
1999	5	8,930	5	0	298 9,238
2000	0	1,119	0	20,485	20 21,624
2001	3	2,298	2	4	44 2,351
2002	8	10,966	30	133	884 12,021
2003	0	3,180	0	2,261	20 5,461
2004	5	7,438	1	0	168 7,612
10-Year Average (1994-2003)	4	5,391	19	41,630	285 47,330

<sup>a</sup> No harvest recorded.

**Appendix B11.**–Wally Noerenberg Hatchery salmon cost recovery harvest by day, 2004.

Harvest Dates	Landings	Chinook		Sockeye		Coho		Pink		Chum	
		Number	Pounds	Number	Pounds	Number	Pounds	Number	Pounds	Number	Pounds
6/6/2004	1	0	0	0	0	0	0	0	0	14,141	120,206
6/7/2004	1	0	0	0	0	0	0	0	0	13,283	118,222
6/8/2004	1	0	0	0	0	0	0	0	0	6,013	51,110
6/9/2004	2	0	0	0	0	0	0	0	0	24,797	202,097
6/10/2004	2	0	0	0	0	0	0	0	0	15,575	132,846
6/11/2004	1	0	0	0	0	0	0	0	0	10,090	84,752
6/12/2004	2	0	0	0	0	0	0	0	0	7,391	60,790
6/13/2004	3	0	0	0	0	0	0	0	0	31,668	250,174
6/15/2004	1	0	0	0	0	0	0	0	0	6,880	52,979
6/16/2004	2	0	0	0	0	0	0	0	0	26,584	204,697
6/17/2004	1	0	0	0	0	0	0	0	0	18,403	139,860
6/18/2004	1	0	0	0	0	0	0	0	0	26,857	193,367
6/19/2004	2	0	0	0	0	0	0	0	0	39,383	280,721
6/20/2004	2	0	0	0	0	0	0	0	0	25,127	190,236
6/21/2004	2	0	0	0	0	0	0	0	0	31,011	235,690
6/27/2004	1	0	0	0	0	0	0	0	0	6,544	47,116
7/1/2004	1	0	0	0	0	0	0	0	0	28,623	206,084
7/2/2004	1	0	0	0	0	0	0	0	0	737	5,234
7/3/2004	1	0	0	0	0	0	0	0	0	16,504	117,181
7/4/2004	1	0	0	0	0	0	0	0	0	14,413	103,774
7/5/2004	1	0	0	0	0	0	0	0	0	15,478	108,349
7/6/2004	1	0	0	0	0	0	0	0	0	16,441	115,089
7/7/2004	1	0	0	0	0	0	0	0	0	22,912	158,090
7/8/2004	1	0	0	0	0	0	0	0	0	7,688	52,283
7/14/2004	1	0	0	0	0	0	0	0	0	16,061	104,398
7/16/2004	1	0	0	0	0	0	0	0	0	15,012	97,581
7/18/2004	1	0	0	0	0	0	0	0	0	16,346	106,250
7/20/2004	1	0	0	0	0	0	0	1,823	6,563	14,997	95,981
7/22/2004	1	0	0	0	0	0	0	5,072	18,766	25,144	163,433
7/24/2004	1	0	0	0	0	0	0	10,547	42,189	0	0
7/28/2004	2	0	0	0	0	0	0	40,027	156,105	11,173	76,315

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Appendix B11.--Page 2 of 2.

Harvest Dates	Landings	Chinook		Sockeye		Coho		Pink		Chum	
		Number	Pounds	Number	Pounds	Number	Pounds	Number	Pounds	Number	Pounds
7/29/2004	1	0	0	0	0	0	0	56,442	231,414	2,240	16,353
7/30/2004	2	0	0	0	0	0	0	54,952	235,634	1,160	7,338
7/31/2004	2	0	0	0	0	0	0	55,394	227,112	0	0
8/1/2004	2	0	0	0	0	0	0	127,710	492,243	0	0
8/2/2004	3	0	0	0	0	0	0	79,240	329,862	0	0
8/3/2004	3	0	0	0	0	0	0	88,413	363,285	0	0
8/4/2004	3	0	0	0	0	0	0	73,797	301,338	0	0
8/5/2004	2	0	0	0	0	0	0	100,506	391,973	0	0
8/6/2004	4	0	0	0	0	0	0	137,985	545,181	0	0
8/7/2004	5	0	0	0	0	0	0	215,582	865,591	0	0
8/8/2004	3	0	0	0	0	0	0	168,945	655,557	0	0
8/9/2004	3	0	0	0	0	0	0	99,074	383,975	0	0
8/10/2004	4	0	0	0	0	0	0	142,614	549,956	0	0
8/11/2004	2	0	0	0	0	0	0	137,230	506,640	0	0
8/12/2004	2	0	0	0	0	0	0	76,814	277,132	0	0
8/13/2004	2	0	0	0	0	0	0	112,508	405,028	0	0
8/14/2004	2	0	0	0	0	0	0	73,332	267,030	0	0
8/15/2004	2	0	0	0	0	0	0	93,596	329,032	0	0
8/16/2004	2	0	0	0	0	0	0	69,408	248,954	0	0
8/17/2004	1	0	0	0	0	0	0	33,643	124,428	0	0
8/18/2004	1	0	0	0	0	0	0	24,081	84,282	0	0
8/19/2004	1	0	0	0	0	0	0	22,679	81,643	0	0
8/20/2004	1	0	0	0	0	0	0	34,609	114,211	0	0
8/22/2004	1	0	0	0	0	0	0	17,767	62,186	0	0
8/23/2004	1	0	0	0	0	0	0	18,435	64,523	0	0
8/24/2004	1	0	0	0	0	0	0	40,223	140,780	0	0
8/25/2004	1	0	0	0	0	0	0	41,856	142,311	0	0
8/26/2004	1	0	0	0	0	0	0	21,162	76,184	0	0
8/27/2004	1	0	0	0	0	389	1,635	10,518	34,709	0	0
8/28/2004	1	0	0	0	0	248	1,386	6,316	22,106	0	0
Total	101	0	0	0	0	637	3,021	2,292,300	8,777,923	528,676	3,898,596
Average Weight			0.00		0.00		4.74		3.83		7.37

<sup>a</sup> Numbers do not include 267,716 pink and 208,795 chum salmon for egg take.

## **APPENDIX C. ESHAMY DISTRICT**

**Appendix C1.**—Total drift and set gillnet common property salmon harvest by period in the Eshamy District, 2004.

<b>Drift Gillnet</b>															
<b>Period</b>	<b>Date</b>	<b>Hours</b>	<b>Number</b>		<b>Chinook</b>		<b>Sockeye</b>		<b>Coho</b>		<b>Pink</b>		<b>Chum</b>		
			<b>Permits</b>	<b>Landings</b>	<b>Number</b>	<b>Pounds</b>	<b>Number</b>	<b>Pounds</b>	<b>Number</b>	<b>Pounds</b>	<b>Number</b>	<b>Pounds</b>	<b>Number</b>	<b>Pounds</b>	
01 <sup>a</sup>	06/10-06/11	24	37	44	2	30	2,059	12,197	0	0	27	96	730	5,253	
02 <sup>b</sup>	06/14-06/15	24	17	29	0	0	3,130	18,552	0	0	0	0	919	6,807	
03 <sup>a</sup>	06/17-06/18	24	43	89	7	93	15,519	91,401	2	14	1	5	4,492	32,837	
04 <sup>c</sup>	06/21-06/22	24	133	291	2	14	48,617	281,603	6	45	1	4	6,903	49,666	
05 <sup>c</sup>	06/24-06/25	24	184	362	3	30	40,550	237,081	218	1,535	197	652	11,412	85,872	
06 <sup>c</sup>	06/28-06/29	24	149	323	5	72	55,780	334,426	18	123	71	261	6,920	51,264	
07 <sup>c</sup>	07/01-07/02	24	161	264	2	15	20,883	126,682	25	180	871	2,771	9,246	69,271	
08 <sup>d</sup>	07/19-07/20	24	58	104	0	0	12,433	74,944	386	2,976	3,960	13,913	1,145	8,469	
09 <sup>e</sup>	07/22-07/23	24	13	29	0	0	3,687	21,785	157	1,305	1,936	6,557	358	2,807	
10 <sup>e</sup>	07/26-07/27	24	26	48	0	0	5,797	33,408	99	739	4,531	18,613	367	2,694	
11 <sup>e</sup>	07/29-07/30	24	22	34	0	0	2,453	14,407	46	376	9,158	34,185	199	1,427	
12 <sup>e</sup>	08/02-08/03	24	13	27	0	0	1,296	7,743	33	247	6,060	26,073	122	880	
13 <sup>f</sup>	08/05-08/06	24	21	41	0	0	1,402	7,850	136	1,082	13,060	54,816	323	2,125	
14 <sup>f</sup>	08/09-08/10	24	9	11	0	0	829	4,808	62	489	4,965	18,178	31	250	
15 <sup>f</sup>	08/12-08/13	24	8	9	0	0	481	2,883	49	339	5,300	18,357	35	252	
16 <sup>f</sup>	08/16-08/17	24	4	4	0	0	328	1,877	37	319	2,691	10,352	13	100	
17 <sup>g</sup>	08/19-08/20	24	1	1	0	0	15	89	30	182	437	1,310	6	36	
18 <sup>g</sup>	08/23-08/24	24	4	4	0	0	190	1,143	148	928	2,049	6,150	7	41	
19 <sup>g</sup>	08/26-08/27	24	3	3	0	0	11	71	15	125	517	1,561	0	0	
<b>Total</b>			241	1,717	21	254	215,460	1,272,950	1,467	11,004	55,832	213,854	43,228	320,051	
<b>Average Weight</b>							12.10	5.91		7.50		3.83		7.40	

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Set Gillnet														
Period	Date	Hours	Permits	Landings	Chinook		Sockeye		Coho		Pink		Chum	
					Number	Pounds	Number	Pounds	Number	Pounds	Number	Pounds	Number	Pounds
01 <sup>a</sup>	06/10-06/11	24	11	18	0	0	1,016	6,125	0	0	0	0	326	2,450
02 <sup>b</sup>	06/14-06/15	24	21	52	1	18	5,187	30,444	0	0	1	4	550	3,868
03 <sup>a</sup>	06/17-06/18	24	19	46	1	17	4,438	25,441	0	0	0	0	1,009	7,203
04 <sup>c</sup>	06/21-06/22	24	23	78	0	0	15,527	91,878	1	10	0	0	1,299	9,213
05 <sup>c</sup>	06/24-06/25	24	24	68	4	34	12,091	71,074	0	0	14	72	973	6,989
06 <sup>c</sup>	06/28-06/29	24	24	72	2	28	11,300	66,813	3	24	17	65	1,157	8,442
07 <sup>c</sup>	07/01-07/02	24	24	64	1	11	7,459	44,275	10	77	233	931	2,912	21,571
08 <sup>d</sup>	07/19-07/20	24	21	59	0	0	9,913	56,731	110	832	2,215	7,660	624	4,353
09 <sup>e</sup>	07/22-07/23	24	15	40	1	22	7,206	42,015	139	973	2,610	8,884	374	2,837
10 <sup>e</sup>	07/26-07/27	24	10	25	1	7	4,613	26,452	52	417	3,886	15,045	355	2,639
11 <sup>e</sup>	07/29-07/30	24	19	52	0	0	4,921	28,527	71	568	11,148	42,691	455	3,250
12 <sup>e</sup>	08/02-08/03	24	12	23	0	0	1,636	9,725	36	272	4,444	17,563	65	454
13 <sup>f</sup>	08/05-08/06	24	12	36	0	0	2,550	14,373	59	414	8,154	30,955	138	926
14 <sup>f</sup>	08/09-08/10	24	12	23	0	0	1,721	10,135	71	483	7,176	24,228	100	569
15 <sup>f</sup>	08/12-08/13	24	8	12	0	0	787	4,655	75	519	4,138	14,708	24	144
16 <sup>f</sup>	08/16-08/17	24	4	6	0	0	468	2,812	66	465	3,067	9,497	4	19
17 <sup>g</sup>	08/19-08/20	24	4	4	0	0	316	1,899	71	417	2,168	6,507	13	93
18 <sup>g</sup>	08/23-08/24	24	3	3	0	0	157	942	27	160	890	2,674	2	20
19 <sup>g</sup>	08/26-08/27	24	2	2	0	0	106	636	34	207	1,494	4,480	1	6
Total			27	683	11	137	91,412	534,952	825	5,838	51,655	185,964	10,381	75,046
Average Weight					12.45		5.85		7.08		3.60		7.23	

- <sup>a</sup> Waters of the Eshamy district were open. The alternating gear zone (AGZ) was open to drift gillnet.
- <sup>b</sup> Waters of the Eshamy district were open. The alternating gear zone (AGZ) was open to set gillnet.
- <sup>c</sup> Waters of the Eshamy District excluding the Main Bay Hatchery SHA and THA were open.
- <sup>d</sup> The Crafton Island Subdistrict south of 60° 32. 86 N. latitude was open.
- <sup>e</sup> The Crafton Island Subdistrict south of 60° 31' 10'' N. latitude, excluding Falls Bay, was open.
- <sup>f</sup> The Crafton Island Subdistrict was open.
- <sup>g</sup> The Crafton Island Subdistrict north of 60° 31' 10'' N. latitude, including Falls Bay, was open.

**Appendix C2.**—Summary of periods, dates, duration, and emergency orders issued for the commercial common property fisheries in the Eshamy District, 2004.

Main Bay Subdistrict (225-21)			Crafton Island Subdistrict (225-10, 20, 30)			Emergency Orders
Period	Dates	Duration	Periods	Dates	Duration	Issued
01 <sup>a</sup>	06/10-06/11	24	01 <sup>a</sup>	06/10-06/11	24	2-F-E-012-04
02 <sup>b</sup>	06/14-06/15	24	02 <sup>b</sup>	06/14-06/15	24	2-F-E-016-04
03 <sup>a</sup>	06/17-06/18	24	03 <sup>a</sup>	06/17-06/18	24	2-F-E-020-04
04 <sup>c</sup>	06/21-06/22	24	04 <sup>c</sup>	06/21-06/22	24	2-F-E-025-04
05 <sup>d</sup>	06/24-06/25	24	05 <sup>d</sup>	06/24-06/25	24	2-F-E-029-04
06 <sup>d</sup>	06/28-06/29	24	06 <sup>d</sup>	06/28-06/29	24	2-F-E-033-04
07 <sup>d</sup>	07/01-07/02	24	07 <sup>d</sup>	07/01-07/02	24	2-F-E-037-04
			08 <sup>e</sup>	07/19-07/20	24	2-F-E-063-04
			09 <sup>f</sup>	07/22-07/23	24	2-F-E-068-04
			10 <sup>f</sup>	07/26-07/27	24	2-F-E-071-04
			11 <sup>f</sup>	07/29-07/30	24	2-F-E-076-04
			12 <sup>f</sup>	08/02-08/03	24	2-F-E-083-04
			13 <sup>g</sup>	08/05-08/06	24	2-F-E-079-04
			14 <sup>g</sup>	08/09-08/10	24	2-F-E-085-04
			15 <sup>g</sup>	08/12-08/13	24	2-F-E-088-04
			16 <sup>g</sup>	08/16-08/17	24	2-F-E-090-04
			17 <sup>h</sup>	08/19-08/20	24	2-F-E-093-04
			18 <sup>h</sup>	08/23-08/24	24	2-F-E-097-04
			19 <sup>h</sup>	08/26-08/27	24	2-F-E-098-04

<sup>a</sup> Waters of the Eshamy District were open. The alternating gear zone was open to drift gillnet. Anadromous stream closures were not in effect in Main Bay or Falls Bay.

<sup>b</sup> Waters of the Eshamy District were open. The alternating gear zone was open to set gillnet. Anadromous stream closures were not in effect in Main Bay or Falls Bay.

<sup>c</sup> Waters of the the Eshamy District, excluding the Main Bay Hatchery Terminal Harvest Area and Special Harvest Area, were open.

<sup>d</sup> Waters of the the Eshamy District, excluding the Main Bay Hatchery Terminal Harvest Area and Special Harvest Area, were open. Deep gillnet gear permitted.

<sup>e</sup> Waters of the the Crafton Island Subdistrict south of 60° 32.86' N. latitude (Main Bay) were open. Deep gillnet gear permitted.

<sup>f</sup> Waters of the the Crafton Island Subdistrict south of 60° 31'10" N. latitude (Falls Bay) were open. Deep gillnet gear permitted.

<sup>g</sup> Waters of the the Crafton Island Subdistrict were open. Deep gillnet gear permitted.

<sup>h</sup> Waters of the the Crafton Island Subdistrict north of 60° 31'10" N. latitude (Falls Bay) were open. Deep gillnet gear permitted.

**Appendix C3.**—Estimated age and sex composition of sockeye salmon harvested in the Eshamy District commercial common property gillnet fishery, 2004.

		<b>Brood Year and Age Class</b>				<b>Total</b>
		<b>2000</b>	<b>1999</b>		<b>1998</b>	
		<b>1.2</b>	<b>1.3</b>	<b>2.2</b>	<b>1.4</b>	
Strata Combined:	6/9 - 8/27					
Sampling dates:	6/16 - 6/30					
Sample size:	1,348					
Female	Sample size	526	95	0	1	622
	Percentage of sample	41.7	4.2	0.0	0.1	45.9
	Number in harvest	127,856	12,926	0	196	140,979
Male	Sample size	598	118	2	1	719
	Percentage of sample	45.7	7.5	0.4	0.0	53.6
	Number in harvest	140,288	23,111	1,101	21	164,521
Total	Sample size	1,131	213	2	2	1348
	Percentage of sample	87.8	11.7	0.4	0.1	100.0
	Number in harvest	269,517	36,037	1,101	217	306,872
	Standard error	3,758	3,692	777	197	

**Appendix C4.**—Estimated age and sex composition of the sockeye salmon escapement through the weir at the head of Eshamy Lagoon, 2004.

		<b>Brood Year and Age Class <sup>a</sup></b>								
		<b>2001</b>	<b>2000</b>			<b>1999</b>		<b>1998</b>		
		<b>1.1</b>	<b>0.3</b>	<b>1.2</b>	<b>2.1</b>	<b>1.3</b>	<b>2.2</b>	<b>1.4</b>	<b>2.3</b>	<b>Total</b>
Strata Combined:	7/8 - 8/31									
Sampling dates:	7/28 - 8/21									
Sample size:	1,253									
Female	Sample size	0	1	176	0	413	9	0	15	614
	Percentage of sample	0.0	0.1	13.8	0.0	34.0	0.7	0.0	1.1	49.7
	Number in escapement	0	15	1,850	0	4,569	95	0	152	6,682
Male	Sample size	1	0	161	1	436	18	1	21	639
	Percentage of sample	0.1	0.0	13.2	0.1	33.9	1.3	0.1	1.7	50.3
	Number in escapement	8	0	1,777	15	4,563	168	8	223	6,761
Total	Sample size	1	1	337	1	849	27	1	36	1,253
	Percentage of sample	0.1	0.1	27.0	0.1	67.9	2.0	0.1	2.8	100
	Number in escapement	8	15	3,627	15	9,132	264	8	375	13,443
	Standard error	7.9	15.2	177.0	15.2	185.7	52.5	7.9	64.3	

<sup>a</sup> Generated using length frequency data only.

**Appendix C5.**—Daily salmon escapement past the Eshamy River weir, 2004.

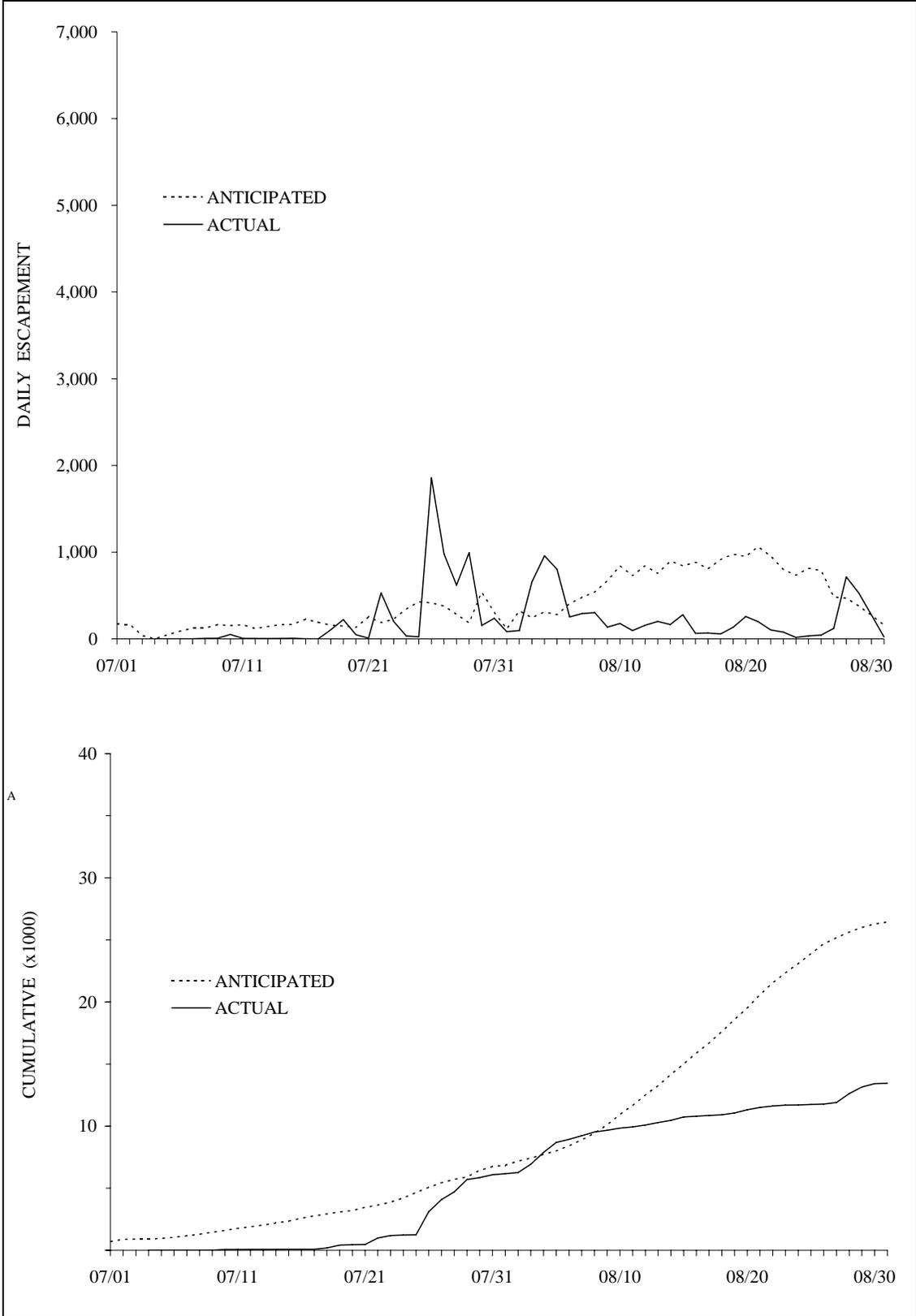
Date	Sockeye		Pink <sup>a</sup>		Chum		Coho		Chinook	
	Daily	Cumulative	Daily	Cumulative	Daily	Cumulative	Daily	Cumulative	Daily	Cumulative
7/2				0		0		0		0
7/3		0		0		0		0		0
7/4		0		0		0		0		0
7/5		0		0		0		0		0
7/6		0		0		0		0		0
7/7	0	0	0	0	0	0	0	0	0	0
7/8	5	5	0	0	0	0	0	0	0	0
7/9	7	12	0	0	0	0	0	0	0	0
7/10	50	62	0	0	0	0	0	0	0	0
7/11	6	68	0	0	0	0	0	0	0	0
7/12	3	71	1	1	0	0	0	0	0	0
7/13	1	72	1	2	0	0	0	0	0	0
7/14	4	76	0	2	0	0	0	0	0	0
7/15	8	84	0	2	0	0	0	0	0	0
7/16	0	84	0	2	0	0	0	0	0	0
7/17	0	84	0	2	0	0	0	0	0	0
7/18	104	188	1	3	0	0	0	0	0	0
7/19	221	409	0	3	0	0	0	0	0	0
7/20	47	456	0	3	0	0	0	0	0	0
7/21	8	464	0	3	0	0	0	0	0	0
7/22	529	993	0	3	0	0	0	0	0	0
7/23	200	1,193	0	3	0	0	0	0	0	0
7/24	34	1,227	0	3	0	0	0	0	0	0
7/25	21	1,248	0	3	0	0	0	0	0	0
7/26	1,856	3,104	10	13	0	0	0	0	0	0
7/27	980	4,084	0	13	0	0	0	0	0	0
7/28	620	4,704	0	13	0	0	0	0	0	0
7/29	993	5,697	0	13	0	0	0	0	0	0
7/30	155	5,852	0	13	0	0	0	0	0	0
7/31	237	6,089	0	13	0	0	0	0	0	0

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Appendix C5.–Page 2 of 2.

Date	Sockeye		Pink <sup>a</sup>		Chum		Coho		Chinook	
	Daily	Cumulative	Daily	Cumulative	Daily	Cumulative	Daily	Cumulative	Daily	Cumulative
8/1	82	6,171	0	13	0	0	0	0	0	0
8/2	96	6,267	0	13	0	0	0	0	0	0
8/3	657	6,924	0	13	0	0	0	0	0	0
8/4	957	7,881	0	13	0	0	0	0	0	0
8/5	803	8,684	0	13	0	0	0	0	0	0
8/6	253	8,937	5	18	0	0	0	0	0	0
8/7	291	9,228	0	18	0	0	0	0	0	0
8/8	301	9,529	0	18	0	0	0	0	0	0
8/9	134	9,663	0	18	0	0	0	0	0	0
8/10	176	9,839	0	18	0	0	0	0	0	0
8/11	95	9,934	0	18	0	0	0	0	0	0
8/12	157	10,091	1	19	0	0	0	0	0	0
8/13	201	10,292	5	24	0	0	0	0	0	0
8/14	166	10,458	2	26	0	0	0	0	0	0
8/15	278	10,736	5	31	0	0	0	0	0	0
8/16	63	10,799	4	35	0	0	0	0	0	0
8/17	66	10,865	8	43	0	0	0	0	0	0
8/18	56	10,921	7	50	0	0	0	0	0	0
8/19	132	11,053	6	56	0	0	0	0	0	0
8/20	257	11,310	15	71	0	0	0	0	0	0
8/21	198	11,508	91	162	0	0	0	0	0	0
8/22	103	11,611	63	225	0	0	0	0	0	0
8/23	78	11,689	97	322	0	0	0	0	0	0
8/24	17	11,706	76	398	0	0	0	0	0	0
8/25	34	11,740	100	498	0	0	0	0	0	0
8/26	43	11,783	148	646	0	0	0	0	0	0
8/27	121	11,904	227	873	0	0	0	0	0	0
8/28	715	12,619	193	1,066	0	0	0	0	0	0
8/29	528	13,147	238	1,304	0	0	0	0	0	0
8/30	275	13,422	145	1,449	0	0	0	0	0	0
8/31	21	13,443	69	1,518	0	0	0	0	0	0
Totals	13,443		1,518		0		0		0	

<sup>a</sup> The weir is designed to prohibit passage of sockeye salmon, smaller pink salmon may pass through the weir uncounted.



**Appendix C6.**—Anticipated daily and cumulative sockeye salmon escapement versus actual escapement past the Eshamy River weir, 2004.

**Appendix C7.**—Total commercial common property salmon harvest by species in the Eshamy District, 1987–2004.

<b>Year</b>	<b>Chinook</b>	<b>Sockeye</b>	<b>Coho</b>	<b>Pink</b>	<b>Chum</b>	<b>Total</b>
<b>Drift Gillnet</b>						
1987	2	642	3	3,225	7,060	10,932
1988	94	50,868	794	348,873	206,060	606,689
1989 <sup>a</sup>						
1990	110	12,967	574	165,362	264,772	443,785
1991	107	296,234	468	44,516	202,183	543,508
1992	158	373,596	1,017	153,018	50,974	578,763
1993	8	80,807	673	45,974	27,045	154,507
1994	2	61,848	623	254,535	9,497	326,505
1995	21	29,851	1,468	60,712	13,284	105,336
1996	19	179,064	1,056	19,043	23,552	222,734
1997	17	475,498	426	146,324	34,768	657,033
1998	2	98,002	252	101,068	343	199,667
1999	30	86,032	2,036	127,082	13,120	228,300
2000	634	235,085	5,396	375,250	27,511	643,876
2001	47	499,972	10,423	367,588	21,316	899,346
2002	428	589,199	3,532	122,365	104,284	819,808
2003	19	575,608	1,764	61,565	16,057	655,013
2004	21	215,460	1,467	55,832	43,228	316,008
<b>10-Year</b>						
Average (1994-2003)	122	283,016	2,698	163,553	26,373	475,762
<b>Set Gillnet</b>						
1987	31	5,387	336	86,677	45,099	137,530
1988	100	18,321	283	180,456	93,577	292,737
1989 <sup>a</sup>						
1990	56	10,204	532	369,589	94,494	474,875
1991	76	184,028	504	20,075	49,394	254,077
1992	101	144,568	1,242	390,097	4,695	540,703
1993	55	101,717	832	84,568	20,369	207,541
1994	9	97,664	628	311,134	6,908	416,343
1995	19	30,814	695	28,118	6,621	66,267
1996	13	132,268	309	16,648	9,276	158,514
1997	12	196,005	163	76,610	8,475	281,265
1998	1	25,533	91	33,916	214	59,755
1999	131	74,378	1,092	43,443	11,101	130,145
2000	41	101,105	662	139,008	12,319	253,135
2001	25	176,060	1,006	127,737	7,057	311,885
2002	30	241,660	525	64,421	22,987	329,623
2003	0	215,733	663	28,537	6,265	251,198
2004	11	91,412	825	51,655	10,381	154,284
<b>10-Year</b>						
Average (1994-2003)	28	129,122	583	86,957	9,122	225,813

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<b>Year</b>	<b>Chinook</b>	<b>Sockeye</b>	<b>Coho</b>	<b>Pink</b>	<b>Chum</b>	<b>Total</b>
<b>Combined Gear</b>						
1987	33	6,029	339	89,902	52,159	148,462
1988	194	69,189	1,077	529,329	299,637	899,426
1989 <sup>a</sup>						
1990	166	23,171	1,106	534,951	359,266	918,660
1991	183	480,262	972	64,591	251,577	797,585
1992	259	518,164	2,259	543,115	55,669	1,119,466
1993	63	182,524	1,505	130,542	47,414	362,048
1994	11	159,512	1,251	565,669	16,405	742,848
1995	40	60,665	2,163	88,830	19,905	171,603
1996	32	311,332	1,365	35,691	32,828	381,248
1997	29	671,503	589	222,934	43,243	938,298
1998	3	123,535	343	134,984	557	259,422
1999	161	160,410	3,128	170,525	24,221	358,445
2000	675	336,190	6,058	514,258	39,830	897,011
2001	72	676,032	11,429	495,325	28,373	1,211,231
2002	458	830,859	4,057	186,786	127,271	1,149,431
2003	19	791,341	2,427	90,102	22,322	906,211
2004	32	306,872	2,292	107,487	53,609	470,292
10-Year						
Average (1994-2003)	150	412,138	3,281	250,510	35,496	701,575

<sup>a</sup> Fishing was closed because of oil contamination on the beaches.

**Appendix C8.**—Salmon escapement by species past the Eshamy River weir, 1967–2004.

<b>Year</b>	<b>Chinook</b>	<b>Sockeye</b>	<b>Coho</b>	<b>Pink</b>	<b>Chum</b>	<b>Total</b>
1967	0	10,821	192	10,433	1	21,447
1968	1	68,048	450	919	1	69,419
1969	0	61,196	96	3,095	2	64,389
1970	0	11,460	25	387	0	11,872
1971 <sup>a</sup>	0	954	97	3,179	0	4,230
1972 <sup>b</sup>		28,683				28,683
1973	0	10,202	205	1,698	0	12,105
1974 <sup>b</sup>		633				633
1975 <sup>b</sup>		1,724				1,724
1976 <sup>b</sup>		19,367				19,367
1977	0	11,746	230	32,080	0	44,056
1978	0	12,580	20	552	0	13,152
1979	0	12,169	5	3,654	1	15,829
1980	5	44,263	128	963	2	45,361
1981	1	23,048	249	5,956	13	29,267
1982	0	6,782	79	1,056	79	7,996
1983	0	10,348	40	7,047	4	17,439
1984	2	36,121	881	3,970	0	40,974
1985	0	26,178	96	6,271	0	32,545
1986	2	6,949	55	1,004	31	8,041
1987 <sup>c</sup>						
1988	2	31,747	48	1,205	1	33,003
1989	1	57,232	0	7,782	210	65,225
1990	0	14,477	43	2,209	5	16,734
1991	2	46,229	907	31,241	17	78,396
1992	1	36,237	52	3,004	5	39,299
1993	1	42,893	92	3,435	9	46,430
1994	1	64,660	1,184	12,061	87	77,993
1995	7	21,701	1,076	18,601	407	41,792
1996	2	5,271	108	7,959	9	13,349
1997	2	39,015	111	15,142	18	54,288
1998 <sup>c</sup>						
1999	1	27,057	194	32,756	3	60,011
2000	2	22,653	151	20,515	381	43,702
2001	0	55,187	335	21,027	176	76,725
2002	0	40,478	14	4,843	1,072	46,407
2003	2	39,845	N/A	2,440	335	42,622
2004	0	13,443	0	1,518	0	14,961
10-Year Average (1994–2003)	2	35,096	353	15,038	276	50,765

Note: For the break down of jacks versus adult sockeye salmon see specific year's daily escapement enumeration table.

<sup>a</sup> Escapement estimate may be low due to holes in weir. Actual escapement is estimated to be more than 3,000 sockeye salmon.

<sup>b</sup> Passage of salmon other than sockeye salmon was not recorded.

<sup>c</sup> The Eshamy River weir was not in operation.

**APPENDIX D. PRINCE WILLIAM SOUND PURSE SEINE  
DISTRICTS**

**Appendix D1.**—Prince William Sound commercial common property purse seine harvest by day, 2004.

Date	Permits	Landings	Chinook		Sockeye		Coho		Pink		Chum	
			Number	Pounds	Number	Pounds	Number	Pounds	Number	Pounds	Number	Pounds
05/31	1	1	0	0	0	0	0	0	0	0	142	1,697
06/01	5	5	0	0	0	0	0	0	0	0	1,023	9,945
06/03	16	17	0	0	0	0	0	0	0	0	31,239	252,786
06/04	15	15	0	0	0	0	0	0	0	0	31,599	244,166
06/05	5	5	1	20	0	0	0	0	0	0	1,272	11,270
06/06	12	13	7	139	0	0	0	0	0	0	3,830	34,648
06/07	12	14	20	342	0	0	0	0	0	0	5,698	47,175
06/08	12	13	3	60	0	0	0	0	0	0	3,861	33,645
06/09	7	7	4	40	0	0	0	0	0	0	2,401	19,228
06/10	39	43	0	0	1	4	0	0	0	0	84,880	670,207
06/11	31	33	1	8	5	32	0	0	0	0	61,724	492,762
06/12	12	13	35	755	0	0	0	0	0	0	3,762	31,537
06/13	15	15	15	247	0	0	0	0	0	0	8,796	69,623
06/14	13	13	1	20	0	0	0	0	0	0	7,127	58,632
06/15	17	18	8	117	0	0	0	0	0	0	12,069	91,007
06/16	1	1	0	0	0	0	0	0	0	0	469	3,751
06/17	41	58	3	57	156	916	0	0	1	4	181,784	1,416,260
06/18	18	18	3	82	0	0	0	0	0	0	18,878	157,216
06/19	17	18	1	35	0	0	0	0	0	0	9,178	67,612
06/20	20	21	0	0	0	0	0	0	0	0	7,541	61,840
06/21	25	26	1	25	0	0	0	0	0	0	22,242	185,180
06/22	8	8	0	0	0	0	0	0	52	155	5,689	45,498
06/23	23	23	6	73	29	165	0	0	200	598	21,562	172,663
06/24	9	11	0	0	0	0	0	0	2,182	7,328	6,789	53,399
06/25	18	18	0	0	22	110	0	0	3,083	9,248	12,006	97,117
06/26	9	9	0	0	0	0	0	0	1,138	3,985	5,829	46,668
06/27	13	13	1	20	127	640	0	0	1,643	4,935	9,187	70,711
06/28	17	17	0	0	140	696	0	0	4,929	14,794	11,281	83,772

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Date	Permits	Landings	Chinook		Sockeye		Coho		Pink		Chum	
			Number	Pounds	Number	Pounds	Number	Pounds	Number	Pounds	Number	Pounds
06/29	9	9	4	95	88	323	0	0	827	2,491	5,468	42,462
06/30	12	12	5	82	264	1,299	0	0	10,088	30,705	15,779	118,596
07/01	7	7	0	0	16	80	0	0	0	0	10,511	78,176
07/02	5	6	2	60	0	0	0	0	18	82	11,731	92,822
07/03	77	135	0	0	0	0	0	0	1,079,245	3,887,697	8,433	63,610
07/04	4	4	0	0	0	0	0	0	0	0	11,151	83,651
07/05	81	139	1	16	17	95	0	0	941,778	3,505,162	12,275	92,094
07/06	61	84	1	18	0	0	4	20	790,127	2,820,684	12,679	95,109
07/07	2	2	0	0	0	0	0	0	4	15	5,532	42,414
07/08	80	141	0	0	156	968	0	0	993,848	3,680,533	13,717	102,453
07/09	1	1	0	0	0	0	0	0	0	0	1,558	11,692
07/10	84	154	1	11	224	1,451	6	42	1,107,880	4,199,851	7,049	52,195
07/11	1	1	0	0	2	12	3	16	5	16	2,277	15,942
07/12	83	145	1	6	79	472	0	0	1,136,527	4,434,734	3,811	25,568
07/13	1	1	0	0	0	0	0	0	0	0	1,015	7,110
07/14	87	161	0	0	28	164	6	39	1,023,876	3,995,066	1,508	9,254
07/16	2	2	0	0	3	18	12	76	960	3,843	10,199	61,201
07/17	3	3	0	0	0	0	1	5	845	3,382	3,438	20,634
07/18	2	2	0	0	0	0	0	0	583	2,338	7,131	36,798
07/19	81	86	0	0	1,063	6,311	148	1,054	436,413	1,713,528	16,793	129,528
07/21	4	7	0	0	0	0	0	0	5,994	23,987	11,528	69,365
07/22	73	75	1	15	817	4,243	168	989	200,581	733,429	29,347	219,557
07/23	1	1	0	0	10	61	0	0	1,229	3,688	17	140
07/26	68	70	4	65	733	4,584	200	1,617	375,562	1,348,636	20,703	164,396
07/27	1	1	0	0	9	55	2	16	1,920	5,759	36	288
07/29	71	75	18	262	606	3,467	460	3,338	349,365	1,282,996	29,349	227,109
07/30	3	3	0	0	14	82	6	46	6,727	22,536	72	520
08/02	76	87	1	28	9,434	37,487	1,428	10,999	500,622	1,833,162	9,277	72,758
08/03	1	1	0	0	0	0	0	0	13,732	41,197	67	534

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Date	Permits	Landings	Chinook		Sockeye		Coho		Pink		Chum	
			Number	Pounds	Number	Pounds	Number	Pounds	Number	Pounds	Number	Pounds
08/05	78	91	2	35	1,038	6,117	1,814	15,631	569,001	2,122,161	22,727	171,490
08/09	84	89	2	47	630	3,643	1,674	14,325	454,476	1,668,441	4,830	39,074
08/12	75	77	0	0	299	1,740	1,284	11,495	279,057	1,017,973	3,053	26,344
08/14	29	30	0	0	85	477	1,131	9,833	73,592	272,018	11,389	89,007
08/16	56	67	0	0	457	3,154	1,134	10,606	446,868	1,571,929	3,048	23,149
08/19	51	57	1	8	557	3,362	1,473	12,320	360,833	1,303,061	1,136	8,478
08/23	39	43	0	0	263	1,567	1,675	12,963	245,249	879,991	14	103
08/26	22	24	0	0	136	767	2,144	19,437	136,667	429,452	90	732
08/30	6	6	0	0	12	66	863	7,615	15,191	51,654	445	2,762
09/02	2	2	0	0	4	21	435	3,906	589	2,238	0	0
09/07	21	21	1	14	0	0	1,914	16,592	0	0	41	317
09/09	19	19	1	20	6	30	14,424	124,346	1	3	16	137
09/11	5	5	0	0	0	0	1,552	12,408	1	2	0	0
Total	105	2,412	156	2,822	17,530	84,679	33,961	289,734	11,573,514	42,935,506	881,098	6,827,584
Average Weight				18.09		4.83		8.53		3.71		7.75

**Appendix D2.**—Total commercial salmon harvest by species, all gear and districts combined, 1971–2004.

<b>Year<sup>a</sup></b>	<b>Chinook</b>	<b>Sockeye</b>	<b>Coho</b>	<b>Pink</b>	<b>Chum</b>	<b>Total</b>
1971	3,551	88,368	30,551	7,310,964	574,265	8,007,699
1972 <sup>b</sup>	547	197,526	1,634	54,783	45,370	299,860
1973	2,405	124,802	1,399	2,056,878	729,839	2,915,323
1974 <sup>b</sup>	1,590	129,366	801	448,773	88,544	669,074
1975	2,519	189,613	6,142	4,452,805	100,479	4,751,558
1976	1,044	112,809	6,171	3,018,991	370,478	3,509,493
1977	648	310,358	843	4,513,082	572,610	5,397,541
1978	1,042	222,083	1,495	2,913,721	485,147	3,623,488
1979	2,015	150,040	6,843	15,607,620	326,414	16,092,932
1980	189	189,816	2,952	14,157,057	482,016	14,832,030
1981	404	251,222	4,383	20,524,470	1,878,716	22,659,195
1982	255	1,055,099	24,362	20,396,222	1,335,368	22,811,306
1983	1,048	92,111	10,496	14,038,796	1,041,309	15,183,760
1984	489	311,955	12,420	22,086,806	1,201,842	23,613,512
1985	1,104	493,278	19,753	25,056,663	1,280,093	26,850,891
1986	1,330	488,715	12,277	11,407,271	1,683,049	13,592,642
1987	874	540,109	47,751	29,198,507	1,904,494	31,691,735
1988	1,037	183,572	75,709	11,817,323	1,832,114	13,909,755
1989	1,113	140,090	203,574	21,860,582	995,962	23,201,321
1990	447	58,497	234,525	44,163,479	959,838	45,416,786
1991	445	507,815	145,311	37,134,311	331,906	38,119,788
1992	1,475	780,932	202,311	8,635,448	328,568	9,948,734
1993	2,148	418,948	48,310	5,761,436	1,173,341	7,404,183
1994	1,376	334,183	121,518	36,874,188	1,039,095	38,370,360
1995	1,364	230,057	140,314	16,045,396	702,216	17,119,347
1996	700	606,525	172,448	26,036,570	2,077,996	28,894,239
1997	1,186	1,197,776	64,360	25,828,078	2,224,725	29,316,125
1998	2,013	365,591	74,105	28,664,281	1,266,887	30,372,877
1999	1,055	339,037	81,841	44,993,247	2,963,838	48,379,018
2000	1,133	548,790	353,013	38,875,724	5,158,397	44,937,057
2001	861	932,070	239,947	35,237,137	3,097,005	39,507,020
2002	958	1,013,396	37,586	18,947,254	6,341,864	26,341,058
2003	256	1,519,598	98,947	51,962,716	3,793,499	57,375,016
2004	39,142	1,892,525	619,884	23,531,483	2,001,918	28,084,952
1994-2003 Average	1,090	708,702	138,408	32,346,459	2,866,552	36,061,212

<sup>a</sup> Includes purse seine, drift gillnet, and set gillnet harvests from all PWS fishing districts; Eastern, Northern, Unakwik, Coghill, Northwestern, Eshamy, Southwestern, Montague and Southeastern. Also includes hatchery sales harvests, confiscated fish, donated and discarded fish, the surimi study fish, and special use educational permit harvests.

<sup>b</sup> General purse seine season closed.

**Appendix D3.**—Commercial common property pink salmon harvest for all gear types, by district, 1975–2004.

Year	Eastern	Northern	Coghill	Northwestern	Eshamy	Southwestern	Montague	Southeastern	Total
1975	712,328	171,657	303,597	420,891		1,673,887	118,467	875,456	4,276,283
1976	1,380,943	384,267	217,696	207,190		589,458		82,366	2,861,920
1977	1,673,044	147,964	230,215	208,727		930,469	77,104	824,374	4,091,897
1978	1,516,076	933,013	13,059					216,696	2,678,844
1979	4,500,032	115,886	38,560	59,423		5,111,073	1,347,413	4,160,925	15,333,312
1980	3,140,134	1,271,177	134,876	306,109		7,507,776	950	1,271,389	13,632,411
1981	4,797,583	1,194,621	34,155	46,874		10,371,220	278,879	3,221,268	19,944,600
1982	2,959,601	2,331,903	1,000,524	520,972	3,997	10,801,771	6,444	747,116	18,372,328
1983	2,430,063	1,021,345	273,131	714,522		5,957,068	158,241	1,482,013	12,036,383
1984	4,525,029	2,194,904	996,483	1,412,822	544,082	10,197,349	11,587	1,245,042	21,127,298
1985	6,715,143	1,002,872	523,773	527,132	58,183	10,843,752	1,448,809	2,733,562	23,853,226
1986	2,488,540	944,871	214,593	285,184	43,061	6,374,535		147,268	10,498,052
1987	6,964,549	2,419,611	1,578,568	750,877	89,902	13,341,940	111,011	955,988	26,212,446
1988	481,324	286,743	2,932,072	7,738	529,329	5,411,424		1,776	9,650,406
1989	3,151,096	6,464,090	3,925,487	181,565	<sup>b</sup>	<sup>b</sup>	<sup>b</sup>	73,177	13,795,415
1990	7,970,364	5,482,585	2,692,788	891,444	534,951	17,811,479	10,658	12,325	35,406,594
1991	2,617,222	4,150,612	2,211,575		64,591	17,849,425			26,893,425
1992	489,228	1,142,061	363,887		543,115	3,039,775			5,578,066
1993		413,308	493,747		130,542	2,475,798			3,513,395
1994	11,554,320	7,171,038	3,597,094		565,669	3,408,093			26,296,214
1995	4,235,638	3,656,119	1,078,693		88,830	1,707,745	18,239	11,418	10,796,682
1996	6,059,063	5,039,988	1,543,869		35,691	5,046,919			17,725,530
1997 <sup>c</sup>	4,534,365	3,162,822	2,030,586		222,934	5,929,544	65,107	28,040	15,973,398
1998 <sup>c</sup>	2,231,061	5,035,736	3,228,761		134,984	8,425,853	430,525	350,081	19,837,001
1999	12,305,629	4,981,085	3,542,130		170,525	9,511,998	189,641	914,907	31,615,915
2000	9,819,466	4,093,620	3,359,542	17,223	514,258	9,308,399	87,634	549,763	27,749,905
2001	16,050,235	404,899	957,042		495,325	3,072,848	807,010	534,538	22,321,897
2002	355,964	594,245	1,277,637		186,786	5,710,938	32,857	1,075	8,159,502
2003	14,945,744	5,909,643	11,439,915		90,102	5,789,419	60,287	514,452	38,749,562
2004	9,512,987	45,355	43,690		107,487	1,628,219	102,352	260,992	11,701,082
Average									
1994–2003	8,209,149	4,004,920	3,205,527	17,223	250,510	5,791,176	211,413	363,034	21,922,561

<sup>a</sup> Includes purse seine, drift gillnet, and set gillnet harvests from all Prince William Sound districts; Unakwik harvests are included in the Northern District. Does not include hatchery cost recovery, confiscated, or test fish harvests.

<sup>b</sup> These districts were closed due to the Exxon Valdez oil spill.

<sup>c</sup> Eastern and Northern District totals exclude discarded salmon.

**Appendix D4.**—Aerial escapement indices for pink and chum salmon by district, 2004.

<b>Pink Salmon</b>						
<b>District</b>	<b>Escapement Goal Midpoint</b>	<b>Even Cycle Escapement Goal Range</b>	<b>1976–2000 Mean Index</b>	<b>Observed Escapement Index<sup>a</sup></b>	<b>Deviation From Midpoint</b>	
Eastern	677,500	425,000 - 930,000	441,384	724,663	7.0%	
Northern	282,500	175,000 - 390,000	173,788	158,958	-43.7%	
Coghill	182,500	115,000 - 250,000	115,692	79,010	-56.7%	
Northwestern	175,000	110,000 - 240,000	107,319	51,306	-70.7%	
Eshamy	10,000	5,000 - 15,000	2,238	2,300	-77.0%	
Southwestern	207,500	130,000 - 285,000	125,326	108,192	-47.9%	
Montague	122,500	75,000 - 170,000	78,871	183,891	50.1%	
Southeastern	342,500	215,000 - 470,000	227,924	687,903	100.8%	
Total	2,000,000			1,996,223	-0.2%	

<b>Chum Salmon</b>						
<b>District</b>	<b>Escapement Goal Midpoint</b>	<b>Even Cycle Escapement Goal Range</b>	<b>1976–2001 Mean Index</b>	<b>Observed Escapement Index<sup>a</sup></b>	<b>Deviation From Midpoint</b>	
Eastern	90,000	50,000 - 130,000	111,197	108,833	20.9%	
Northern	38,000	21,000 - 55,000	44,256	42,456	11.7%	
Coghill	16,500	8,000 - 25,000	23,365	9,685	-41.3%	
Northwestern	12,500	6,000 - 19,000	15,805	10,371	-17.0%	
Eshamy	None	None - None	64	0	NA	
Southwestern <sup>b</sup>	None	None - None	2,673	1,810	NA	
Montague <sup>b</sup>	None	None - None	4,869	4,170	NA	
Southeastern	17,500	15,000 - 20,000	24,111	42,344	142.0%	
Total	174,500			219,669	25.9%	

<sup>a</sup> Based on weekly aerial survey counts of 209 index spawning streams in Prince William Sound. This does not represent the total spawning escapement but rather a comparable annual index.

<sup>b</sup> Escapement goal removed in 2003 after review.

**Appendix D5.**—Pink salmon escapement indices by district, 1971–2004.

<b>Year</b>	<b>Eastern</b>	<b>Unakwik</b>	<b>Coghill</b>	<b>Northwestern</b>	<b>Eshamy</b>	<b>Southwestern</b>	<b>Montague</b>	<b>Southeastern</b>	<b>Total</b>
Escapement Indices									
1965	257,853	59,820	91,584	159,011	9,340	65,380	77,042	255,926	975,956
1966	544,980	288,710	135,440	79,960	11,720	115,570	42,220	204,570	1,423,170
1967	255,240	144,200	65,240	82,980	5,020	42,950	10,020	236,610	842,260
1968	364,930	151,120	108,020	117,430	10,770	172,770	52,350	179,120	1,156,510
1969	160,600	94,770	39,020	23,830	0	57,890	1,550	26,910	404,570
1970	387,090	125,360	95,170	82,660	7,610	66,790	73,880	140,660	979,220
1971	352,800	126,210	62,160	14,320	1,710	79,140	296,730	179,480	1,112,550
1972	344,470	83,900	30,960	39,020	1,100	29,530	33,140	79,060	641,180
1973	309,040	69,660	493,780	2,910	0	52,320	119,520	177,780	1,225,010
1974	256,880	206,750	56,940	163,930	6,240	160,980	11,750	94,650	958,120
1975	412,560	38,260	452,430	4,990	0	77,270	85,380	194,670	1,265,560
1976	472,080	139,600	57,090	68,150	5,840	52,120	13,790	117,590	926,260
1977	390,930	69,980	130,510	80,890	16,450	178,670	152,960	277,780	1,298,170
1978	279,120	163,010	85,450	132,300	5,430	258,980	56,690	164,030	1,145,010
1979	642,220	200,730	70,980	124,020	0	231,300	219,400	728,630	2,217,280
1980	535,960	189,140	214,930	159,260	13,100	133,470	118,400	307,680	1,671,940
1981	599,340	243,170	106,450	51,210	3,990	93,630	255,420	359,870	1,713,080
1982	573,070	332,560	368,380	174,290	15,080	195,950	132,380	482,860	2,274,570
1983	481,950	168,410	310,330	196,630	12,610	161,290	230,200	601,680	2,163,100
1984	1,209,740	593,310	429,450	452,370	16,860	345,760	191,810	792,560	4,031,860
1985	750,530	214,210	296,970	199,190	1,410	181,270	332,240	645,510	2,621,330
1986	356,380	141,420	101,600	81,490	3,840	74,980	44,680	155,830	960,220
1987	514,570	132,960	147,060	75,390	3,450	112,920	149,260	330,630	1,466,240
1988	362,370	143,850	37,070	73,780	490	126,440	67,990	152,540	964,530
1989	359,730	106,530	45,510	68,540	19,470	176,230	181,760	315,000	1,272,770
1990	443,660	131,580	49,110	115,870	17,870	150,100	113,572	304,090	1,325,852
1991	474,380	165,930	98,580	101,320	18,800	197,095	247,890	533,170	1,837,165

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Year	Eastern	Unakwik	Coghill	Northwestern	Eshamy	Southwestern	Montague	Southeastern	Total
Escapement Indices									
1992	204,383	72,915	23,611	42,308	2,709	66,953	47,156	95,070	555,105
1993	315,209	95,614	41,837	46,011	9,348	98,573	144,784	315,093	1,066,469
1994	615,240	178,151	65,648	141,290	11,799	144,594	60,084	196,378	1,413,184
1995	396,696	84,447	46,029	50,582	10,182	82,490	183,448	336,310	1,190,184
1996	584,236	218,022	104,781	86,709	3,000	63,337	92,966	330,285	1,483,336
1997	345,725	65,260	52,961	53,740	914	112,010	206,943	585,135	1,422,688
1998	377,700	213,288	85,968	97,485	4,644	280,335	161,275	199,410	1,420,105
1999	622,502	214,723	168,816	52,340	6,900	163,347	381,054	853,180	2,462,862
2000	554,984	168,247	223,646	66,078	4,286	131,648	227,881	282,258	1,659,028
2001	436,585	163,573	148,665	102,294	2,963	176,503	314,323	655,480	2,000,386
2002	226,068	138,204	54,882	50,981	1,397	35,554	71,461	364,630	943,177
2003	975,327	255,059	375,147	103,931	5,206	130,356	320,494	691,769	2,857,289
2004	724,663	158,958	79,010	51,306	2,300	108,192	183,891	687,903	1,996,223
Even Cycle Average (1966–2004)									
	470,900	191,905	120,358	113,833	7,304	135,703	89,868	266,559	1,396,430
Odd Cycle Average (1971–2003)									
	425,182	129,393	150,995	78,431	6,450	123,173	188,943	400,465	1,503,034

Note: Historical data revised in 1989. Coghill and Northwestern escapement numbers correspond to current district boundaries.

**Appendix D6.**—Weekly aerial survey indices of pink salmon escapement by statistical area, 2004.

Survey Location	Stat	Week Ending dates <sup>a</sup>																		Adjusted
	Area	6/6	6/20	6/27	7/4	7/11	7/18	7/25	8/1	8/8	8/15	8/22	8/29	9/5	9/12	9/19	9/26	10/3	10/10	Total <sup>b</sup>
Orca Inlet	221-10	0	0	0	0	0	3,700	5,300	9,000	29,950	27,500	22,500	3,000	400	1,600	50	0	NS	NS	52,481
Simpson & Sheep Bay	221-20	0	0	0	0	0	0	1,300	10,200	13,500	12,250	14,700	42,000	67,900	NS	56,100	28,700	NS	NS	128,443
Port Gravina	221-30	0	0	0	0	600	5,500	2,240	30,500	81,100	95,350	82,550	30,450	189,500	NS	36,050	19,590	NS	NS	261,858
Port Fidalgo	221-40	0	0	0	0	0	250	2,170	11,200	18,050	23,000	24,300	19,700	143,000	NS	28,600	19,500	NS	NS	160,033
Valdez Arm	221-50	0	0	50	100	200	3,000	8,910	10,300	38,010	37,440	28,920	31,250	65,175	NS	27,000	12,020	NS	NS	121,848
Port Valdez	221-61	NS	NS	NS	0	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	0
<b>Eastern District</b>		0	0	50	100	800	12,450	19,920	71,200	180,610	195,540	172,970	126,400	465,975	1,600	147,800	79,810	NS	NS	724,663
Columbia & Long Bay	222-10	NS	NS	0	0	0	1,000	800	4,150	9,750	9,620	8,900	9,600	10,525	NS	400	20	NS	NS	23,479
Wells Bay & Unakwik Inlet	222-20	0	0	0	0	0	3,200	8,050	14,800	17,920	22,490	27,860	25,400	55,050	NS	900	9	NS	NS	98,528
Eaglek Bay	222-30	NS	NS	NS	NS	970	2,500	465	NS	5,550	2,770	12,150	16,800	25,700	NS	NS	NS	NS	NS	36,951
<b>Northern District</b>		0	0	0	0	970	6,700	9,315	18,950	33,220	34,880	48,910	51,800	91,275	NS	1,300	29	NS	NS	158,958
Upper Unakwik Inlet	229-10	NS	NS	NS	NS	0	0	0	NS	0	0	150	800	3,900	NS	NS	NS	NS	NS	3,900
<b>Unakwik District</b>		NS	NS	NS	NS	0	0	0	NS	0	0	150	800	3,900	NS	NS	NS	NS	NS	3,900
West Side Port Wells	223-10	NS	NS	NS	NS	2	900	2,270	NS	3,960	9,350	10,670	13,350	22,600	NS	NS	NS	NS	NS	36,402
Esther Passage	223-20	NS	NS	NS	NS	0	0	0	NS	400	275	1,175	1,600	4,800	NS	NS	NS	NS	NS	4,800
College Fiord	223-30	NS	NS	NS	NS	0	100	200	NS	1,500	6,525	17,510	16,400	25,800	NS	NS	NS	NS	NS	37,808
<b>Coghill District</b>		NS	NS	NS	NS	2	1,000	2,470	NS	5,860	16,150	29,355	31,350	53,200	NS	NS	NS	NS	NS	79,010
Passage Canal & Cochrane	224-10	NS	NS	NS	NS	0	1,600	3,370	NS	2,125	4,580	8,390	12,200	21,100	NS	NS	NS	NS	NS	29,861
Culross Passage	224-30	NS	NS	NS	NS	0	500	350	NS	1,640	2,610	1,790	1,400	7,000	NS	NS	NS	NS	NS	9,417
Port Nellie Juan	224-40	NS	NS	NS	NS	0	200	2,250	NS	1,250	4,425	4,515	5,500	6,800	NS	NS	NS	NS	NS	12,028
<b>Northwestern District</b>		NS	NS	NS	NS	0	2,300	5,970	NS	5,015	11,615	14,695	19,100	34,900	NS	NS	NS	NS	NS	51,306
Eshamy Bay	225-30	NS	NS	NS	NS	0	0	0	NS	40	20	110	250	2,300	NS	NS	NS	NS	NS	2,300
<b>Eshamy District</b>		NS	NS	NS	NS	0	0	0	NS	40	20	110	250	2,300	NS	NS	NS	NS	NS	2,300
Chenega Isl. & Dangerous P.	226-20	NS	NS	NS	NS	NS	1,090	1,750	2,900	13,970	11,140	21,165	NS	36,550	21,900	NS	NS	NS	0	69,187
East Knight Island	226-30	NS	NS	NS	NS	NS	0	0	850	400	1,500	9,500	NS	2,500	600	NS	NS	NS	0	9,500
Bainbridge & Latouche Pass	226-40	NS	NS	NS	NS	NS	0	50	1,750	220	850	4,650	NS	6,300	14,300	NS	NS	NS	0	21,968
Port Bainbridge	226-50	NS	NS	NS	NS	NS	0	0	3,500	3,000	3,500	2,000	NS	1,200	1,500	NS	NS	NS	0	7,537
<b>Southwestern District</b>		NS	NS	NS	NS	NS	1,090	1,800	9,000	17,590	16,990	37,315	NS	46,550	38,300	NS	NS	NS	0	108,192
Montague Strait	227-10	NS	NS	NS	NS	NS	650	1,150	16,310	20,020	62,220	46,960	NS	33,175	38,700	NS	NS	NS	100	125,150
Green Island	227-20	NS	NS	NS	NS	NS	0	0	11,130	2,925	4,860	22,660	NS	30,950	20,700	NS	NS	NS	105	58,741

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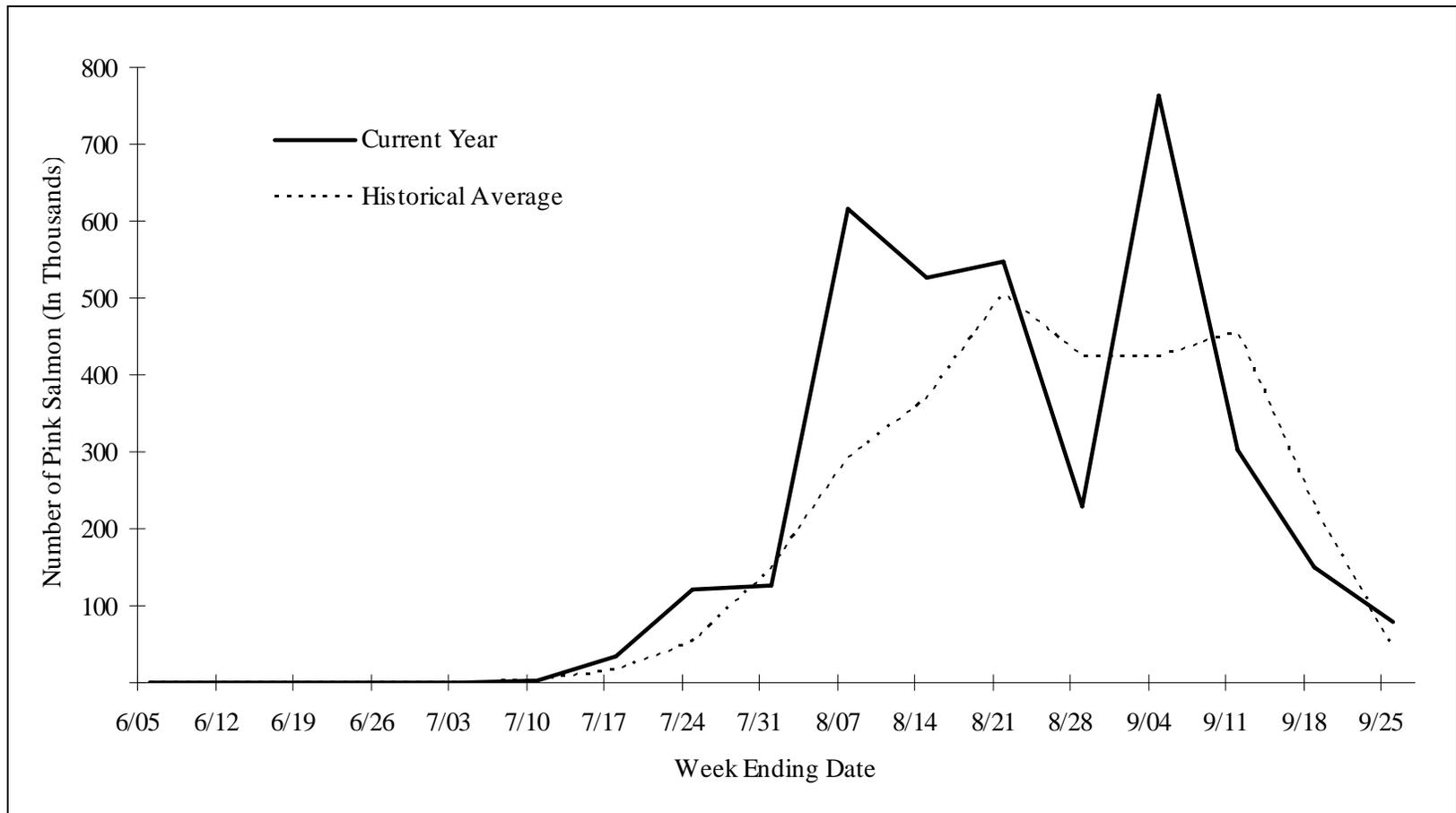
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Survey Location	Stat	Week Ending dates <sup>a</sup>																		Adjusted
	Area	6/6	6/20	6/27	7/4	7/11	7/18	7/25	8/1	8/8	8/15	8/22	8/29	9/5	9/12	9/19	9/26	10/3	10/10	Total <sup>b</sup>
<b>Montague District</b>		NS	NS	NS	NS	NS	650	1,150	27,440	22,945	67,080	69,620	NS	64,125	59,400	NS	NS	NS	205	183,891
Orca Island & East Hawkins	228-10	NS	NS	0	0	0	0	200	NS	1,000	500	2,000	NS	NS	450	NS	NS	NS	NS	2,780
Hawkins Cutoff	228-20	NS	NS	0	0	0	2,252	30,500	NS	73,500	46,200	10,800	NS	NS	9,450	NS	NS	NS	NS	96,534
N. Hawkins & Canoe Pass	228-30	NS	NS	0	0	0	0	10,550	NS	83,000	25,500	13,000	NS	NS	18,800	NS	NS	NS	NS	99,737
Double Bay	228-40	NS	NS	0	0	0	3,500	10,900	NS	43,500	19,800	22,750	NS	NS	15,750	NS	NS	NS	NS	74,093
Johnstone Point	228-50	NS	NS	0	0	800	1,000	3,700	NS	17,500	9,300	27,000	NS	NS	7,500	NS	NS	NS	NS	43,874
Port Etches	228-60	NS	NS	0	40	0	4,500	24,400	NS	132,000	84,000	98,050	NS	NS	151,500	NS	NS	NS	NS	370,885
<b>Southeastern District</b>		NS	NS	0	40	800	11,252	80,250	NS	350,500	185,300	173,600	NS	NS	203,450	NS	NS	NS	NS	687,903
<b>Total of all Districts</b>		0	0	50	140	2,572	35,442	120,875	126,590	615,780	527,575	546,725	229,700	762,225	302,750	149,100	79,839	NS	205	2,000,123

Note: NS = No Survey. No surveys were flown the week ending of 6/13.

<sup>a</sup> There are a total of 208 streams included in the systematic aerial survey program. The survey program commences in the Eastern District where the earliest escapements in the Sound occur. Weather and conditions permitting, each stream is flown weekly. Failure to fly a survey due to run timing or bad survey conditions is denoted by NS (no survey). A notation of NC (no count) occurs when a stream is flown but no count is possible because of survey conditions (i.e., water clarity). During the peak of the pink salmon run many streams are flown twice weekly to provide fisheries managers with timelier escapement data. In cases where more than one survey per week was flown the weekly observation shown in this table is the average of the two counts if observing conditions during both were good or, the maximum of the two counts if conditions during the minimum count were poor.

<sup>b</sup> The adjusted total is an escapement estimate based a geometric method used since the inception of the systematic survey program in the early 1960's. In this method, aerial observers are assumed to count without error or bias. Linear interpolations between observations are used to estimate numbers of fish in the stream on days when no surveys are flown. All daily observations and interpolations are summed across the season. Because fish seen on day i+1 may include fish seen on day i, the sum of all daily observations and interpolations must be divided by some residence time for fish in the streams to account for duplicate observations. The residence time of 17.5 days has historically been used in this calculation and is from tagging studies completed by National Marine Fisheries Service on Olsen Creek in the early 1960's. Because observer bias does occur and because both observer bias and stream life are stream specific, adjusted totals in this table may be used for interannual comparisons, but should not be interpreted as the true escapement.



**Appendix D7.**—Current year and historical weekly pink salmon escapement performance of index spawning streams, 2004.

**Appendix D8.**—Total chum salmon harvests and escapement indices, including hatchery sales harvests and broodstock, 1965–2004.

Year	Chum Salmon Escapements <sup>a</sup>									Hatchery		Common	Total
	Eastern	Northern	Coghill	Northwest	Eshamy	Southwest	Montague	Southeast	Total	Sales	Brood	Property Harvest <sup>b</sup>	Run <sup>c</sup>
1965	69,180	20,980	20,768	18,907	0	1,829	17,500	46,480	195,644			201,043	396,687
1966	75,690	24,870	10,540	5,770	0	2,180	14,100	9,410	142,560			426,628	569,188
1967	74,570	23,270	7,450	1,670	0	6,200	4,980	9,070	127,210			274,234	401,444
1968	48,960	10,620	8,780	800	0	580	220	4,610	74,570			342,939	417,509
1969	58,690	17,340	8,410	780	0	0	0	6,320	91,540			320,977	412,517
1970	34,430	4,020	11,880	2,720	0	550	0	7,950	61,550			230,661	292,211
1971	49,730	11,870	6,600	5,600	100	1,430	27,990	6,450	109,770			574,265	684,035
1972	112,950	70,760	28,160	22,980	0	4,010	3,340	26,990	269,190			45,370	314,560
1973	213,170	140,030	72,610	13,250	0	1,020	3,110	48,080	491,270			729,839	1,221,109
1974	72,010	55,510	29,280	6,580	0	240	80	3,200	166,900			88,544	255,444
1975	30,040	8,910	3,640	430	0	1,280	140	2,850	47,290			100,479	147,769
1976	16,260	29,430	25,670	8,300	0	90	0	770	80,520			370,478	450,998
1977	47,880	48,600	43,940	10,090	0	700	0	8,280	159,490			575,839	735,329
1978	90,250	27,480	18,160	12,940	0	790	0	6,550	156,170			485,147	641,317
1979	42,630	17,320	6,330	8,770	0	90	0	5,140	80,280			324,040	404,320
1980	26,720	27,880	23,340	3,060	0	2,040	70	6,710	89,820	6		412,948	502,774
1981	71,560	28,670	2,050	15,130	0	710	0	16,010	134,130	118		1,745,869	1,880,117
1982	146,120	68,580	22,130	21,880	0	1,530	0	25,260	285,500	0	86,200	1,335,368	1,707,068
1983	143,800	85,720	61,410	31,660	340	3,170	0	21,410	347,510	0	44,000	1,030,546	1,422,056
1984	129,190	59,080	19,690	7,920	0	20	0	8,650	224,550	4,886	3,000	1,196,785	1,429,221
1985	111,310	33,410	22,140	13,290	0	620	0	4,470	185,240	3,840	0	1,302,090	1,491,170
1986	126,690	50,740	13,140	17,420	0	1,890	0	8,830	218,710	20,683	12,523	1,662,366	1,914,282
1987	183,620	38,700	24,510	26,460	0	1,690	0	44,020	319,000	2,549	15,574	1,902,063	2,239,186
1988	258,560	75,420	39,240	40,780	0	2,350	500	66,930	483,780	42,694	108,271	1,792,616	2,427,361
1989	112,080	46,470	22,680	27,430	320	11,690	0	22,640	243,310	129,551	74,513	862,551	1,309,925
1990	115,100	112,480	26,020	37,020	0	80	1,050	7,275	299,025	24,554	107,284	935,284	1,366,147
1991	86,360	19,080	6,070	8,960	0	2,800	925	9,203	133,398	13,471	114,814	318,435	580,118

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Year	Chum Salmon Escapements <sup>a</sup>									Hatchery		Common Property	Total
	Eastern	Northern	Coghill	Northwest	Eshamy	Southwest	Montague	Southeast	Total	Sales	Brood	Harvest <sup>b</sup>	Run <sup>c</sup>
1992	48,804	12,903	10,003	11,072	300	2,940	783	3,881	90,686	57,392	183,940	271,176	603,194
1993	54,102	24,975	8,430	18,966	0	1,300	30	19,172	126,975	475,148	140,330	706,196	1,448,649
1994	40,476	23,942	14,176	12,992	100	2,225	0	4,057	97,968	380,365	114,654	677,848	1,270,835
1995	75,655	28,899	11,596	4,883	0	2,250	1,000	23,200	147,483	231,539	172,542	486,510	1,038,074
1996	137,908	55,568	19,669	24,405	0	2,231	5,216	47,334	292,331	1,066,705	253,751	1,011,291	2,624,078
1997	93,146	19,429	3,101	8,387	0	800	4,000	43,274	172,137	811,179	178,933	1,413,546	2,575,795
1998	86,227	28,867	22,764	7,553	0	1,602	10,690	52,103	209,806	519,215	179,875	747,672	1,656,568
1999	242,713	36,691	5,057	4,544	0	2,393	8,725	36,181	336,304	777,180	207,073	2,186,658	3,507,215
2000	196,253	23,655	20,488	10,150	16	11,440	66,202	34,969	363,173	1,729,876	85,441	3,428,521	5,607,011
2001	198,683	75,473	13,388	6,373	700	5,187	10,408	37,526	347,738	936,028	171,046	2,153,920	3,608,732
2002	94,046	30,531	7,430	16,194	60	3,985	565	104,906	257,717	2,580,936	209,833	3,760,934	6,809,420
2003	198,921	44,272	19,729	12,736	110	12,373	9,015	116,131	413,287	1,540,227	200,933	3,981,763	6,136,210
2004	108,833	42,456	9,685	10,371				42,344	213,689	528,676	208,795	1,473,242	2,424,402
Avg.	103,083	40,123	18,754	12,981	52	2,521	4,888	24,966	207,181	475,073	124,927	1,047,167	1,623,101

<sup>a</sup> Coghill and Northwestern District escapement numbers correspond to current district boundaries.

<sup>b</sup> Includes the commercial common property harvest of both wild and hatchery stocks. Does not include hatchery sales harvests.

<sup>c</sup> Represents the sum of the common property harvest, hatchery sales and brood(including roe recovery), plus the escapement index. Does not account for wild stock escapement into nonindex streams.

Appendix D9.—Weekly aerial survey indices of chum salmon escapement by statistical area, 2004.

Survey Location	Week Ending dates <sup>a</sup>																			Adjusted Total <sup>b</sup>	
	District	6-Jun	13-Jun	20-Jun	27-Jun	4-Jul	11-Jul	18-Jul	25-Jul	1-Aug	8-Aug	15-Aug	22-Aug	29-Aug	5-Sep	12-Sep	19-Sep	26-Sep	3-Oct		10-Oct
Orca Inlet	22110	0	NS	0	50	40	250	650	1,240	0	3,750	4,000	3,000	0	30	0	0	0	NS	NS	7,313
Simpson & Sheep Bay	22120	0	NS	0	0	0	0	3,000	4,620	11,100	7,800	6,100	4,400	5,000	900	NS	100	0	NS	NS	17,523
Port Gravina	22130	50	NS	50	1,000	2,250	3,720	4,900	8,500	32,300	27,700	23,050	5,700	6,000	1,100	NS	1,000	0	NS	NS	47,834
Port Fidalgo	22140	0	NS	0	0	0	100	1,450	550	3,300	3,090	2,150	3,240	3,400	3,800	NS	100	400	NS	NS	9,978
Valdez Arm	22150	0	NS	0	20	700	1,000	5,200	3,100	9,700	9,650	7,420	4,950	12,950	5,950	NS	1,950	50	NS	NS	26,185
Port Valdez	22161	NS	NS	NS	NS	0	NS	NS	NS	0											
<b>Eastern District</b>		50	NS	50	1,070	2,990	5,070	15,200	18,010	56,400	51,990	42,720	21,290	27,350	11,780	0	3,150	450	NS	NS	108,833
Columbia & Long Bay	22210	NS	NS	NS	0	0	1,050	5,500	3,400	1,800	2,900	2,150	1,800	1,400	0	NS	0	0	NS	NS	9,160
Wells Bay & Unakwik Inlet	22220	0	NS	0	50	2,000	4,750	9,000	14,400	7,000	7,260	5,950	10,350	1,650	2,900	NS	0	0	NS	NS	30,908
Eaglek Bay	22230	NS	NS	NS	NS	NS	10	650	685	NS	220	65	1,510	1,600	0	NS	NS	NS	NS	NS	2,388
<b>Northern District</b>		0	NS	0	50	2,000	5,810	15,150	18,485	8,800	10,380	8,165	13,660	4,650	2,900	NS	0	0	NS	NS	42,456
Upper Unakwik Inlet	22910	NS	NS	NS	NS	NS	0	0	0	NS	0	0	0	0	0	NS	NS	NS	NS	NS	0
Unakwik District		NS	NS	NS	NS	NS	0	0	0	NS	0	0	0	0	0	NS	NS	NS	NS	NS	0
West Side Port Wells	22310	NS	NS	NS	NS	NS	0	30	370	NS	1,420	2,590	2,480	2,150	880	NS	NS	NS	NS	NS	4,385
Esther Passage	22320	NS	NS	NS	NS	NS	0	0	0	NS	0	0	0	300	0	NS	NS	NS	NS	NS	300
College Fiord	22330	NS	NS	NS	NS	NS	0	10	0	NS	400	2,200	3,500	5,000	0	NS	NS	NS	NS	NS	5,000
<b>Coghill District</b>		NS	NS	NS	NS	NS	0	40	370	NS	1,820	4,790	5,980	7,450	880	NS	NS	NS	NS	NS	9,685
Passage Canal & Cochrane	22410	NS	NS	NS	NS	NS	25	600	1,490	NS	5,780	2,925	2,960	1,500	890	NS	NS	NS	NS	NS	7,612
Culross Passage	22430	NS	NS	NS	NS	NS	0	0	150	NS	0	50	100	0	0	NS	NS	NS	NS	NS	250
Port Nellie Juan	22440	NS	NS	NS	NS	NS	0	925	570	NS	1,650	625	525	1,000	0	NS	NS	NS	NS	NS	2,509
<b>Northwestern District</b>		NS	NS	NS	NS	NS	25	1,525	2,210	NS	7,430	3,600	3,585	2,500	890	NS	NS	NS	NS	NS	10,371
Eshamy Bay	22530	NS	NS	NS	NS	NS	0	0	0	NS	0	0	0	0	0	NS	NS	NS	NS	NS	0
Eshamy District		NS	NS	NS	NS	NS	0	0	0	NS	0	0	0	0	0	NS	NS	NS	NS	NS	0
Chenega Is. & Dangerous Pass	22620	NS	NS	NS	NS	NS	NS	0	0	0	100	970	0	NS	0	0	NS	NS	NS	0	1,070
East Knight Is.	22630	NS	NS	NS	NS	NS	NS	0	0	500	0	75	0	NS	0	0	NS	NS	NS	0	500
Bainbridge & Latouche Pass	22640	NS	NS	NS	NS	NS	NS	0	0	0	0	40	0	NS	0	0	NS	NS	NS	0	40
Port Bainbridge	22650	NS	NS	NS	NS	NS	NS	0	0	0	0	200	0	NS	0	0	NS	NS	NS	0	200
<b>Southwestern District</b>		NS	NS	NS	NS	NS	NS	0	0	500	100	1,285	0	NS	0	0	NS	NS	NS	0	1,810
Montague Strait	22710	NS	NS	NS	NS	NS	NS	0	25	0	50	1,775	100	NS	400	0	NS	NS	NS	0	2,000
Green Is.	22720	NS	NS	NS	NS	NS	NS	150	0	1,500	250	560	0	NS	700	0	NS	NS	NS	0	2,170

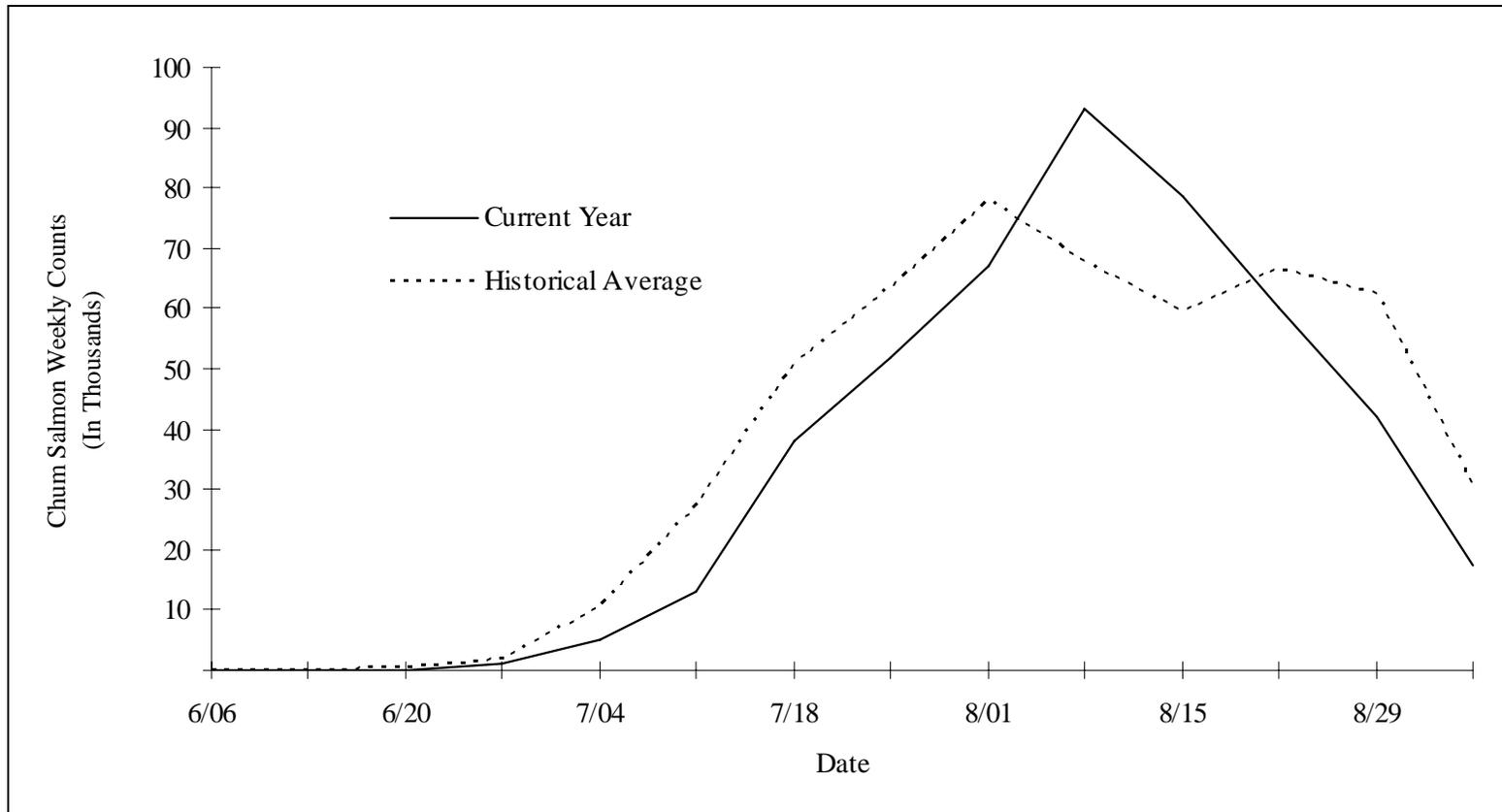
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Survey Location	District	Week Ending dates <sup>a</sup>																		Adjusted Total <sup>b</sup>	
		6-Jun	13-Jun	20-Jun	27-Jun	4-Jul	11-Jul	18-Jul	25-Jul	1-Aug	8-Aug	15-Aug	22-Aug	29-Aug	5-Sep	12-Sep	19-Sep	26-Sep	3-Oct		10-Oct
<b>Montague District</b>		NS	NS	NS	NS	NS	NS	150	25	1,500	300	2,335	100	NS	1,100	0	NS	NS	NS	0	4,170
Orca Is. & East Hawkins	22810	NS	NS	NS	0	0	0	0	0	NS	0	0	0	NS	NS	0	NS	NS	NS	NS	0
Hawkins Cutoff	22820	NS	NS	NS	0	0	0	300	2,500	NS	4,400	0	0	NS	NS	0	NS	NS	NS	NS	4,700
North Hawkins & Canoe Pass	22830	NS	NS	NS	0	0	0	0	200	NS	0	100	0	NS	NS	0	NS	NS	NS	NS	300
Double Bay	22840	NS	NS	NS	0	0	0	1,200	1,850	NS	4,250	1,600	2,500	NS	NS	0	NS	NS	NS	NS	6,474
Johnstone Point	22850	NS	NS	NS	0	0	500	1,200	1,600	NS	2,450	500	900	NS	NS	0	NS	NS	NS	NS	3,957
Port Etches	22860	NS	NS	NS	0	100	1,802	3,200	6,600	NS	9,900	13,700	12,100	NS	NS	0	NS	NS	NS	NS	26,913
Southeastern District		NS	NS	NS	0	100	2,302	5,900	12,750	NS	21,000	15,900	15,500	NS	NS	0	NS	NS	NS	NS	42,344
<b>TOTAL OF 9 DISTRICTS</b>		50	NS	50	1,120	5,090	13,207	37,965	51,850	67,200	93,020	78,795	60,115	41,950	17,550	0	3,150	450	NS	0	219,669

<sup>a</sup> There are a total of 208 streams included in the systematic aerial survey program. The survey program commences in the Eastern District where the earliest escapements in the Sound occur. Weather and conditions permitting, each stream is flown weekly. Failure to fly a survey due to run timing or bad survey conditions is denoted by NS (no survey). A notation of NC (no count) occurs when a stream is flown but no count is possible because of survey conditions (i.e., water clarity). During the peak of the pink salmon run many streams are flown twice weekly to provide fisheries managers with timelier escapement data. In cases where more than one survey per week was flown the weekly observation shown in this table is the average of the two counts if observing conditions during both were good or, the maximum of the two counts if conditions during the minimum count were poor.

<sup>b</sup> The adjusted total is an escapement estimate based a geometric method used since the inception of the systematic survey program in the early 1960's. In this method, aerial observers are assumed to count without error or bias. Linear interpolations between observations are used to estimate numbers of fish in the stream on days when no surveys are flown. All daily observations and interpolations are summed across the season. Because fish seen on day i+1 may include fish seen on day i, the sum of all daily observations and interpolations must be divided by some residence time for fish in the streams to account for duplicate observations. The residence time of 17.5 days has historically been used in this calculation and is from tagging studies completed by National Marine Fisheries Service on Olsen Creek in the early 1960's. Because observer bias does occur and because both observer bias and stream life are stream specific, adjusted totals in this table may be used for interannual comparisons, but should not be interpreted as the true escapement.



**Appendix D10.**—Current year and historical weekly chum salmon escapement performance of index spawning streams, 2004.

**Appendix D11.**—Aerial survey escapement indices of sockeye salmon from selected systems, 2004.

System Name	Stream	Week Ending Date <sup>a</sup>										
	Number	06/27	07/04	07/11	07/18	07/25	08/01	08/08	08/15	08/22	08/29	09/05
Billy's Hole	218	0	0	0	170	200	150	150	120	0	0	0
Miner's River	244	NS	NS	250	300	650	NS	750	750	700	2,000	450
Red Creek	300	NS	NS	0	0	250	NS	150	125	20	0	0
Coghill River	322	NS	NS	500	150	700	NS	1,500	1,800	2,500	0	0
Chimevsky Creek	495	NS	NS	10	0	0	NS	0	0	0	0	0
Shrode Creek	476	NS	NS	500	500	20	NS	75	120	40	0	0
Gumboot Creek	507	NS	NS	100	0	0	0	0	0	0	0	0
Eshamy River	511	NS	NS	0	0	300	NS	400	2,000	2,200	4,000	0
Jackpot River	608	NS	NS	NS	40	150	400	1,300	550	500	650	0
Brizgaloff Creek	623	NS	NS	NS	4	0	0	10	25	0	0	0
Bainbridge Creek	630	NS	NS	NS	30	100	0	500	350	0	300	0
Total		0	0	1,360	1,194	2,370	550	4,835	5,840	5,960	6,950	450

Note: NS = Not surveyed.

<sup>a</sup> Counts contained in this table are obtained in conjunction with the regular pink and chum salmon aerial survey program. Many of these sockeye salmon systems are difficult to survey by air and thus the counts do not necessarily represent total live abundance at a particular time.

**Appendix D12.**—Temporally stratified age and sex composition of chum salmon harvested in the Prince William Sound commercial common property purse seine fishery, 2004.

		<b>Brood Year and Age Class</b>				<b>Total</b>
		<b>2001</b>	<b>2000</b>	<b>1999</b>	<b>1998</b>	
		<b>0.2</b>	<b>0.3</b>	<b>0.4</b>	<b>0.5</b>	
<b>Coghill District</b>						
Strata Combined:	05/31 - 10/03					
Sampling dates:	06/04 - 07/01					
Sample size:	1,155					
Female	Percentage of sample	6.6	23.6	18.7	1.1	50.1
	Number in harvest	61,219	217,671	172,498	10,285	461,672
Male	Percentage of sample	5.9	22.2	19.8	1.3	49.3
	Number in harvest	54,493	204,246	182,764	12,173	453,675
Total	Percentage of sample	12.6	46.1	38.9	2.4	100.0
	Number in harvest	115,712	424,261	358,570	22,457	921,001
	Standard error	8,999	13,434	13,345	4,017	
<b>Eastern District</b>						
Strata Combined:	07/03 - 09/13					
Sampling date:	07/23 - 07/23					
Sample size:	377					
Female	Percentage of sample	2.1	33.7	24.1	0.0	59.9
	Number in harvest	2,165	34,373	24,629	0	61,167
Male	Percentage of sample	0.0	23.3	15.9	0.5	39.8
	Number in harvest	0	23,817	16,239	541	40,598
Total	Percentage of sample	2.1	57.0	40.3	0.5	100.0
	Number in harvest	2,165	58,190	41,139	541	102,036
	Standard error	758	2,605	2,581	382	
<b>Montague District</b>						
Strata Combined:	05/31 - 08/14					
Sampling dates:	06/08 - 06/25					
Sample size:	649					
Female	Percentage of sample	1.3	27.6	16.9	0.6	46.5
	Number in harvest	4,518	94,772	58,126	2,203	159,619
Male	Percentage of sample	1.6	28.2	22.7	1.0	53.5
	Number in harvest	5,555	96,667	77,855	3,272	183,349
Total	Percentage of sample	2.9	55.8	39.6	1.6	100.0
	Number in harvest	10,073	191,440	135,980	5,475	342,968
	Standard error	2,728	7,225	7,072	1,363	

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		Brood Year and Age Class				Total
		2001	2000	1999	1998	
		0.2	0.3	0.4	0.5	
<b>Southeastern District</b>						
Strata Combined:		07/19 - 08/30				
Sampling date:		07/30 - 07/30				
Sample size:		88				
Female	Percentage of sample	2.3	45.5	23.9	0.0	71.6
	Number in harvest	1,126	22,527	11,827	0	35,480
Male	Percentage of sample	1.1	17.0	10.2	0.0	28.4
	Number in harvest	563	8,448	5,069	0	14,080
Total	Percentage of sample	3.4	62.5	34.1	0.0	100.0
	Number in harvest	1,690	30,975	16,895	0	49,560
	Standard error	964	2,572	2,519	0	
<b>All Districts Combined</b>						
Stratum dates:		05/31 - 10/03				
Sampling dates:		06/04 - 07/30				
Sample size:		2,269				
Female	Percentage of sample	9.6	51.4	37.2	1.7	50.9
	Number in harvest	69,029	369,343	267,080	12,488	717,940
Male	Percentage of sample	8.8	48.2	40.8	2.3	49.1
	Number in harvest	60,611	333,178	281,926	15,986	691,701
Total	Percentage of sample	9.2	49.8	38.9	2.0	100.0
	Number in harvest	129,640	702,522	549,006	28,473	1,409,641

**Appendix D13.**—Summary of commercial purse seine salmon fishery periods, dates, duration, and emergency orders issued by district, 2004.

Eastern (221)		Northern (222)		Coghill (223)		Southwestern (226)		Montague (227)		Southeastern (228)		Unakwik (229)		Emergency Orders			
Date	Hours	Date	Hours	Dates	Hours	Date	Hours	Dates	Hours	Date	Hours	Date	Hours				
								5/31-6/06	156	<sup>a</sup>				2-F-E-006-04			
				6/03-6/04	24	<sup>a</sup>								2-F-E-007-04			
								6/07-6/13	156	<sup>a</sup>				2-F-E-006-04			
				6/10-6/11	25	<sup>a</sup>		6/14-6/20	156	<sup>a</sup>		06/14	24	2-F-E-006-04, 2-F-E-011-04, 2-F-E-017-04			
				06/17	12	<sup>a</sup>		6/21-6/27	156	<sup>a</sup>		06/17	24	2-F-E-006-04, 2-F-E-021-04, 2-F-E-019-04			
												06/21	24	2-F-E-026-04			
								6/28-7/04	156	<sup>a</sup>				2-F-E-006-04			
												06/24	48	2-F-E-030-04			
												06/28	48	2-F-E-034-04			
												07/01	48	2-F-E-038-04			
														2-F-E-039-04			
07/03	12	<sup>a</sup>															
07/05	12	<sup>a</sup>						7/05-7/11	156	<sup>a</sup>		07/05	48	2-F-E-006-04, 2-F-E-040-04, 2-F-E-044-04			
07/06	12	<sup>a</sup>												2-F-E-041-04			
07/08	12	<sup>b</sup>												2-F-E-049-04			
07/10	12	<sup>c</sup>										07/08	48	2-F-E-050-04, 2-F-E-047-04			
07/12	12	<sup>c</sup>						7/12-7/18	156	<sup>a</sup>		07/12	48	2-F-E-006-04, 2-F-E-054-04, 2-F-E-053-04			
07/14	12	<sup>c</sup>												2-F-E-055-04			
												07/15	48	2-F-E-058-04			
07/19	12	<sup>d</sup>						7/19-7/21	60	<sup>a</sup>	07/19	12	<sup>a</sup>	07/19	48	2-F-E-060-04, 2-F-E-065-04, 2-F-E-064-04	
07/22	12	<sup>e</sup>		7/22-7/24	48	<sup>b</sup>					07/22	12	<sup>b</sup>	07/22	48	2-F-E-066-04, 2-F-E-069-04	
07/26	14	<sup>e</sup>		7/26-7/28	48	<sup>b</sup>					07/26	14	<sup>b</sup>			2-F-E-073-04	
07/29	14	<sup>e</sup>		7/29-7/30	24	<sup>b</sup>					07/29	14	<sup>b</sup>			2-F-E-077-04	
08/02	14	<sup>e</sup>		8/02-8/03	24	<sup>b</sup>		08/02	14	<sup>b</sup>	08/02	14	<sup>b</sup>			2-F-E-078-04	
08/05	14	<sup>f</sup>					08/05	14	<sup>a</sup>	08/05	14	<sup>b</sup>	08/05	14	<sup>b</sup>		2-F-E-081-04
08/09	14	<sup>f</sup>	08/09	14	<sup>a</sup>		08/09	14	<sup>a</sup>	08/09	14	<sup>b</sup>	08/09	14	<sup>b</sup>		2-F-E-086-04
08/12	14	<sup>f</sup>	08/12	14	<sup>a</sup>		08/12	14	<sup>a</sup>	08/12	14	<sup>b</sup>	08/12	14	<sup>b</sup>		2-F-E-089-04
08/14	14	<sup>f</sup>					08/14	14	<sup>b</sup>	08/14	14	<sup>b</sup>	08/14	14	<sup>b</sup>		2-F-E-091-04
08/16	12	<sup>f</sup>	08/16	12	<sup>a</sup>		08/16	12	<sup>b</sup>	08/16	12	<sup>b</sup>	08/16	12	<sup>b</sup>		2-F-E-091-04
08/19	12	<sup>f</sup>	08/19	12	<sup>a</sup>		08/19	12	<sup>b</sup>	08/19	12	<sup>b</sup>	08/19	12	<sup>b</sup>		2-F-E-094-04
08/23	12	<sup>f</sup>	08/23	12	<sup>a</sup>		08/23	12	<sup>b</sup>	08/23	12	<sup>b</sup>	08/23	12	<sup>b</sup>		2-F-E-095-04

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Eastern (221)		Northern (222)		Coghill (223)		Southwestern (226)		Montague (227)		Southeastern (228)		Unakwik (229)		Emergency Orders
Date	Hours	Date	Hours	Dates	Hours	Date	Hours	Dates	Hours	Date	Hours	Date	Hours	
08/26	12 <sup>f</sup>	08/26	12 <sup>a</sup>			08/26	12 <sup>b</sup>	08/26	12 <sup>b</sup>	08/26	12 <sup>b</sup>			2-F-E-099-04
08/30	12 <sup>f</sup>	08/30	12 <sup>a</sup>			08/30	12 <sup>b</sup>	08/30	12 <sup>b</sup>	08/30	12 <sup>b</sup>			2-F-E-100-04
09/02	12 <sup>f</sup>					09/02	12 <sup>b</sup>							2-F-E-103-04
		09/06	12 <sup>b</sup>	9/06-9/12	156 <sup>c</sup>	09/06	12 <sup>c</sup>							2-F-E-106-04, 2-F-E-104-04
09/07	12 <sup>g</sup>	09/07	12 <sup>b</sup>			09/07	12 <sup>c</sup>							2-F-E-004-04
09/09	12 <sup>h</sup>													2-F-E-125-04
09/11	12 <sup>h</sup>													2-F-E-110-04
09/13	12 <sup>h</sup>			9/13-9/19	156 <sup>c</sup>									2-F-E-109-04, 2-F-E-110-04
09/14	12 <sup>h</sup>													2-F-E-111-04
09/15	12 <sup>h</sup>													2-F-E-111-04

**Eastern District**

- <sup>a</sup> Waters of Port Valdez north of a line from Entrance Point to Potato Point were open excluding waters of Port Valdez east of 146° 21.3' W. longitude within 500 yards of south shore.
- <sup>b</sup> Waters north of the latitude of Rocky Point were open excluding waters inside a line from the brown oil boom container van located between Solomon Gulch Hatchery and Allison Point, along the yellow SERVS buoys around VFDA Hatchery to the brown oil boom container east of the hatchery between VFDA and PetroStar and waters inside the yellow SHTF markers in Jack Bay, Galena, and Sawmill bays.
- <sup>c</sup> Waters north of the latitude of Rocky Point light were open excluding waters of Port Valdez east of the longitude of the Alyeska Marine Terminal Security Zone A buoy at 146° 26.20' W. longitude and waters of Jack Bay, Galena Bay, and Sawmill Bay inside the yellow SHTF markers.
- <sup>d</sup> In the Eastern District were open excluding waters of Port Valdez north of a line from Entrance Point to Potato Point, St. Matthews Bay, Olsen Bay, Irish Cove, Sheep Bay, Jack Bay, Galena Bay, Landlocked Bay, Sawmill Bay and Beartrap Bay inside the yellow Salmon Harvest Task Force Markers and the Port Fidalgo Subdistrict.
- <sup>e</sup> In the Eastern District were open excluding waters of Port Valdez north of a line from Entrance Point to Potato Point, St. Matthews Bay, Olsen Bay, Irish Cove, Jack Bay, Galena Bay, Landlocked Bay, and Sawmill Bay inside the yellow Salmon Harvest Task Force Markers and the Port Fidalgo Subdistrict.
- <sup>f</sup> In the Eastern District were open excluding waters of Port Valdez north of a line from Entrance Point to Potato Point, Jack Bay, Galena Bay, Landlocked Bay, and Sawmill Bay inside the yellow Salmon Harvest Task Force Markers and the Port Fidalgo Subdistrict.
- <sup>g</sup> In the Eastern District, waters north of the latitude of Rocky Point were open excluding waters of Port Valdez east of a line from the Alyeska Marine Terminal Security Zone B buoy, to the east end of the container dock in front of the grain elevators on the north shore of Port Valdez and the waters of Jack Bay, Galena Bay, and Sawmill Bay inside the yellow SHTF markers.
- <sup>h</sup> In the Eastern District, excluding waters of Port Valdez east of a line from the brown oil boom container between the Solomon Gulch Hatchery and Allison Point, to the east end of the container dock in front of the grain elevators on the north shore of Port Valdez and the waters of Jack Bay, Galena Bay, and Sawmill Bay inside the yellow SHTF markers.

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**Northern District**

- <sup>a</sup> The Northern District east of Granite Point was open.
- <sup>b</sup> Waters of Unakwik Inlet in the Northern Dist. north of the latitude of Payday Point was open excluding the CCH SHA and waters of Jonah Bay and Siwash Bay inside the yellow SHTF Markers.

**Coghill District**

- <sup>a</sup> In the Coghill District, the Esther Subdistrict east of 148° 7' W. longitude, west of 147° 56' W. longitude, and within 1 nautical mile of Esther Island, excluding the WNH THA and SHA, were open.
- <sup>b</sup> Waters of the Coghill District north of 60° 55.89' N. latitude were open.
- <sup>c</sup> The Esther Subdistrict, excluding the Wally Noerenberg Hatchery SHA and THA, was open.

**Southwestern District**

- <sup>a</sup> Waters of the Southwestern District on the east side of Knight Island south of 60°28.5' N. latitude and north of the latitude of Point Helen were open. Anadromous stream closures in the AFK SHA were not in effect.
- <sup>b</sup> In the Southwestern District was open excluding the Port San Juan, Point Elrington subdistricts, waters west of Knight Island and north of the latitude of Point Helen and waters of Latouche Passage north of 59° 55.3' N. latitude and south of 60° 04.7' N. latitude.
- <sup>c</sup> In the Southwestern District, waters of the Port San Juan Subdistrict excluding the AFK Hatchery SHA was open.

**Montague District**

- <sup>a</sup> In the Montague District, only the Port Chalmers Subdistrict was open. Anadromous stream closures and regulatory closed waters in the Port Chambers Subdistrict were not in effect.
- <sup>b</sup> The waters of the Montague District were open.

**Southeastern District**

- <sup>a</sup> Waters of the Southeastern District, west of the longitude of Middle Ground buoy, were open.
- <sup>b</sup> Waters of the Southeastern District were open.

**Unakwik District**

- <sup>a</sup> Waters of the Unakwik District were open.



## **APPENDIX E. HATCHERY RETURNS**

**Appendix E1.**—Daily salmon sales harvests and sex ratios at the Wally Noerenberg Hatchery, 2004.

<b>Date</b>	<b>Pink Salmon % Female</b>	<b>Pink Salmon</b>	<b>Chum Salmon</b>
6/6/2004		0	14,141
6/7/2004		0	13,283
6/8/2004		0	6,013
6/9/2004		0	24,797
6/10/2004		0	15,575
6/11/2004		0	10,090
6/12/2004		0	7,391
6/13/2004		0	31,668
6/15/2004		0	6,880
6/16/2004		0	26,584
6/17/2004		0	18,403
6/18/2004		0	26,857
6/19/2004		0	39,383
6/20/2004		0	25,127
6/21/2004		0	31,011
6/27/2004		0	6,544
7/1/2004		0	28,623
7/2/2004		0	737
7/3/2004		0	16,504
7/4/2004		0	14,413
7/5/2004		0	15,478
7/6/2004		0	16,441
7/7/2004		0	22,912
7/8/2004		0	7,688
7/14/2004		0	16,061
7/16/2004		0	15,012
7/18/2004		0	16,346
7/20/2004	NA	1,823	14,997
7/22/2004	NA	5,072	25,144
7/24/2004	NA	10,547	0
7/28/2004	29%	40,027	11,173
7/29/2004	22%	56,442	2,240
7/30/2004	24%	54,952	1,160
7/31/2004	31%	55,394	0
8/1/2004	31%	127,710	0
8/2/2004	34%	79,240	0
8/3/2004	37%	88,413	0
8/4/2004	37%	73,797	0
8/5/2004	34%	100,506	0
8/6/2004	41%	137,985	0
8/7/2004	44%	215,582	0

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**Appendix E1.–Page 2 of 2.**

<b>Date</b>	<b>Pink Salmon % Female</b>	<b>Pink Salmon</b>	<b>Chum Salmon</b>
8/8/2004	48%	168,945	0
8/9/2004	51%	99,074	0
8/10/2004	50%	142,614	0
8/11/2004	50%	137,230	0
8/12/2004	51%	76,814	0
8/13/2004	53%	112,508	0
8/14/2004	56%	73,332	0
8/15/2004	57%	93,596	0
8/16/2004	61%	69,408	0
8/17/2004	60%	33,643	0
8/18/2004	53%	24,081	0
8/19/2004	58%	22,679	0
8/20/2004	55%	34,609	0
8/22/2004	56%	17,767	0
8/23/2004	58%	18,435	0
8/24/2004	54%	40,223	0
8/25/2004	58%	41,856	0
8/26/2004	57%	21,162	0
8/27/2004	65%	10,518	0
8/28/2004	60%	6,316	0
<b>Totals</b>		2,292,300	528,676
<b>Sales</b>			
<b>Summary</b>			
Pounds			
Sold		8,777,923	3,898,596
Average Weights		3.83	7.37
<b>Broodstock</b>			
<b>Summary</b>			
Fish spawned at hatchery		203,800	208,795
Green/bad/excess		74,869	50,580
Eggtake mortality		82,259	38,127
<b>Total available broodstock</b>			
Estimated unharvested return			
Estimated return to hatchery		2,676,491	826,178

**Appendix E2.**—Daily salmon sales harvests and sex ratios at the Armin F. Koernig Hatchery, 2004.

<b>Date</b>	<b>% Female</b>	<b>Pink Salmon</b>
07/25	13.0%	68,957
07/26	NA	34,794
07/27	NA	30,235
07/28	24%	30,141
07/29	21%	70,776
07/30	27%	114,865
07/31	28%	157,266
08/01	27%	84,430
08/02	28%	107,589
08/03	33%	81,414
08/04	32%	171,229
08/05	35%	70,787
08/06	33%	160,552
08/07	40%	145,566
08/08	38%	192,699
08/09	40%	140,174
08/10	48%	209,422
08/11	45%	81,694
08/12	45%	147,649
08/13	46%	151,542
08/14	52%	113,979
08/15	49%	81,424
08/16	54%	87,326
08/17	63%	53,001
08/18	49%	45,106
08/19	52%	122,593
08/20	55%	77,427
08/21	55%	117,419
08/22	54%	59,343
08/23	64%	77,659
08/24	61%	54,916
08/25	67%	53,695
08/26	74%	31,113
08/27	67%	25,477
08/28	68%	66,532
08/29	NA	50,085
08/30	54%	24,638
08/31	NA	33,771
09/01	NA	40,783
09/02	NA	17,307
<b>Totals</b>		<b>3,485,375</b>
<b>Sales Summary</b>		
Pounds Sold		12,620,103
Average Weight		3.62
<b>Pink Broodstock Summary</b>		
Spawned at hatchery		451,000
Excessed/green/bad		86,252
Roe Fish		
Fishway/system mortality		213,000
<b>Total available broodstock</b>		
Estimated unharvested return		
Estimated return to hatchery		4,235,627

**Appendix E3.**—Daily pink salmon sales harvests at the Solomon Gulch Hatchery, 2004.

<b>Date</b>	<b>Pink Salmon</b>
06/23	21,720
06/24	36,843
06/25	67,684
06/26	91,211
06/27	82,138
06/28	134,075
06/29	277,233
06/30	214,984
07/01	197,929
07/02	299,860
07/04	216,384
07/05	6,367
07/07	263,532
07/09	353,370
07/11	267,773
07/13	205,718
07/14	4,823
07/15	227,548
07/16	186,416
07/17	201,950
07/18	164,207
07/20	22,006
07/23	75,675
07/25	71,038
08/18	7,994
08/19	7,740
08/20	10,513
08/23	7,483
08/24	7,418
08/25	6,893
08/26	6,256
08/27	5,121
08/30	20,521
08/31	6,161
09/02	5,427
09/08	0
09/10	0
09/13	0
09/17	0
09/20	0
09/22	0
10/07	0
<b>Totals</b>	<b>3,782,011</b>

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**Appendix E3.**–Page 2 of 2.

<b>Sales Summary</b>	<b>Pink Salmon</b>
Total Pounds Sold	14,049,570
Average Weight	3.71
Roe Sales (lbs.)	186,360
<b>Pink Broodstock Summary</b>	
Spawned at hatchery	234,714
Green/bad/excess	19,485
System mortalities	46,163
<b>Total available broodstock</b>	<b>300,362</b>
Estimated creek spawners	47,455
Estimated unharvested return	
Estimated return to hatchery	4,129,828
<b>Coho Broodstock Summary</b>	
Spawned at hatchery	
Green/bad/excess	
System mortalities	
<b>Total available broodstock</b>	
Estimated creek/bay spawners	
Roe Sales	7,755
Fish estimated remaining above weir	
Estimated return to hatchery	

**Appendix E4.**—Daily pink salmon sales harvests and sex ratios at the Cannery Creek Hatchery, 2004.

<b>Date</b>	<b>% Female</b>	<b>Pink</b>
07/31	20%	64,096
08/01	25%	44,645
08/02	28%	68,556
08/03	33%	81,197
08/04	29%	146,833
08/05	39%	50,195
08/06	39%	124,412
08/07	36%	142,441
08/08	39%	154,040
08/09	42%	70,909
08/10	43%	161,933
08/11	46%	255,027
08/12	49%	123,937
08/13	47%	147,919
08/14	50%	130,125
08/15	54%	94,580
08/16	60%	53,562
08/17	55%	55,672
08/20	NA	108,738
08/21	NA	80,169
08/22	57%	106,552
<b>Totals</b>		<b>2,265,538</b>

**Sales Summary**

Pounds Sold	8,576,399
Average Weight	3.79

**Pink Broodstock Summary**

Spawned at hatchery	360,581
Green/bad/excess	114,552
Roe fish	
Mortality	64,996

**Total available broodstock**

Estimated unharvested return	
Estimated return to hatchery	2,631,156

**Appendix E5.**—Daily salmon sales harvests at the Main Bay Hatchery, 2004.

<b>Date</b>	<b>Sockeye</b>
06/22	11,609
06/23	26,592
06/24	20,449
06/25	1,805
06/26	8,290
06/27	4,513
06/28	6,181
06/29	3,787
06/30	7,478
07/01	3,575
07/03	2,415
07/04	8,418
07/05	11,020
07/06	2,826
07/07	6,541
07/08	14,025
07/09	23,172
07/10	8,661
07/13	11,424
07/15	18,206
07/17	15,238
07/19	13,358
07/21	7,225
07/23	3,966
07/25	10,464
07/27	10,762
07/29	8,325
07/30	3,071
08/07	6,506
<b>Totals</b>	<b>279,902</b>

**Sales Summary**

Pounds Sold	1,496,434
Average Weight	5.35

**Main Bay Sockeye Broodstock Summary**

**Main Bay Late Stock/Eshamy Lake**

Good	17,578
Green/bad/excess	355
System mortalities	12,073
<b>Estimated return to Hatchery</b>	<b>309,908</b>

**Appendix E6.**—Sales harvests of salmon by species from private nonprofit hatcheries as reported on fish tickets, 1977–2004.

Year	Hatchery <sup>b</sup>	Harvest by Species <sup>a</sup>				Total
		Sockeye	Coho	Pink	Chum	
1977	AFK			15545		15545
1978	AFK			114,188		114,188
1979	AFK			223,748		223,748
1980	AFK, N			346,728	6	346,734
1981	AFK			707,037	118	707,155
1982	AFK			1,354,732		1,354,732
1983	AFK			616,963		616,963
1984	AFK, SG			415,393	4,886	420,279
1985	AFK, SG			1,209,960	3,840	1,213,800
1986	AFK, SG		2,156	905,464	20,683	928,303
1987 <sup>c</sup>	AFK, SG, E, CC		7,015	2,691,190	2,549	2,700,754
1988	AFK, SG, E		6,110	1,632,701	42,694	1,681,505
1989 <sup>d</sup>	AFK, SG, WNH, CC, MB		52,307	7,812,373	131,362	7,996,042
1990	AFK, SG, WNH, CC		14,199	8,732,658	24,554	8,771,411
1991	AFK, SG, WNH, CC		52,625	5,955,561	13,471	6,021,657
1992	AFK, SG, WNH, CC, MB	163,086	73,530	3,049,394	57,392	3,343,402
1993	AFK, SG, WNH, CC, MB	113,738	3,259	2,212,403	475,148	2,804,548
1994	AFK, SG, WNH, CC, MB	79,541	22,454	10,521,439	380,365	11,003,799
1995	AFK, SG, WNH, CC, MB	63,326	13,248	5,100,819	231,539	5,408,932
1996 <sup>e</sup>	AFK, SG, WNH, CC, MB	86,911	38,945	8,291,205	1,066,683	9,483,744
1997	AFK, SG, WNH, CC, MB,GH	266,335	2,933	9,854,675	811,179	10,935,122
1998	AFK, SG, WNH, CC, MB,GH	148,288	20,199	8,825,226	519,215	9,512,928
1999	AFK, SG, WNH, CC, GH	28,777	0	13,130,211	777,180	13,936,168
2000	AFK, SG, WNH, CC, MB	218	1	11,125,819	1,729,876	12,855,914
2001	AFK, SG, WNH, CC, MB	43,073	21,781	12,914,314	936,028	13,915,196
2002	AFK, SG, WNH, CC, MB	93,722	1	10,787,752	2,580,926	13,462,402
2003 <sup>f</sup>	AFK, SG, WNH, CC, MB	366,770	0	12,426,375	1,540,227	14,333,372
2004	AFK, SG, WNH, CC, MB	279,902	0	11,825,224	528,676	12,633,802
<b>Average (1994–2004)</b>		<b>132,442</b>	<b>10,869</b>	<b>10,436,642</b>	<b>1,009,263</b>	<b>11,589,216</b>

<sup>a</sup> Includes salmon harvested by private nonprofit hatcheries in Prince William Sound to generate revenues to offset operating costs. Does not include carcass sales or fish processed only for roe extraction after egg takes.

<sup>b</sup> Hatcheries:

AFK = Armin F. Koernig (PWSAC) (formerly Port San Juan Hatchery)

E = Esther Hatchery (PWSAC), renamed WNH in 1989

SG = Solomon Gulch Hatchery (VFDA)

N = NERKA Inc.

CC = Cannery Creek (PWSAC) (formerly operated by ADF&G)

WHN = Wally Noerenberg Hatchery (PWSAC) (formerly Esther Hatchery)

MB = Main Bay (PWSAC) (formerly operated by ADF&G)

GH = Gulkana Hatchery (Crosswind Lake Weir)(formerly operated by ADF&G)

<sup>c</sup> PWSAC administered a sales harvest at the state owned Cannery Creek hatchery. A majority of the coho salmon sold were carcasses and surplus brood fish from the Solomon Gulch hatchery.

<sup>d</sup> PWSAC administered a sales harvest at the state owned Main Bay Hatchery to harvest a surplus of chum salmon due to closure of the common property fishery.

<sup>e</sup> Includes 269,848 pink salmon Peter Pan Seafoods bought from VFDA and then discarded after roe salvage. Also includes approximately 250,000 chum processed by PWSAC for meal production and roe salvage.

<sup>f</sup> Does not include 730,599 pink, 22,792 chum, and 19,782 coho salmon processed for roe extraction.

**Appendix E7.**—Summary of pink and chum salmon runs to Prince William Sound hatcheries, 2004.

<b>Pink salmon runs to Prince William Sound hatcheries. <sup>a</sup></b>								
<b>Hatchery</b>	<b>2003 Fry Release</b>	<b>2004 Forecast Run <sup>b</sup></b>	<b>Estimated Total Run</b>	<b>Marine Survival</b>	<b>Estimated CPF Contribution</b>	<b>Estimated Sales Harvest Contribution <sup>c</sup></b>	<b>Broodstock Escapement <sup>d</sup></b>	<b>Eggs Collected (millions)</b>
Solomon Gulch	206,397,607	11,580,000	11,139,432	5.4%	7,262,379	3,782,011	300,362	230,016,054
Armin F. Koernig	146,407,222	8,651,000	4,561,539	3.1%	1,293,453	3,485,375	750,252	146,256,863
Wally Noerenberg	119,553,743	8,266,000	2,704,709	2.3%	144,533	2,292,300	360,928	94,926,118
Cannery Creek	135,584,680	7,545,000	2,761,241	2.0%	135,021	2,265,538	540,129	149,576,008
<b>Total Pink Salmon</b>	<b>607,943,252</b>	<b>36,042,000</b>	<b>21,166,921</b>		<b>8,835,385</b>	<b>11,825,224</b>	<b>1,951,671</b>	<b>620,775,043</b>

<b>Chum salmon runs to Prince William Sound hatcheries. <sup>a</sup></b>								
<b>Hatchery or release site <sup>e</sup></b>	<b>2003 Fry Release</b>	<b>2004 Forecast Run <sup>b</sup></b>	<b>Estimated Total Run</b>	<b>Marine Survival</b>	<b>Estimated CPF Contribution</b>	<b>Estimated Sales Harvest Contribution <sup>c</sup></b>	<b>Broodstock Escapement <sup>d</sup></b>	<b>Eggs Collected (millions)</b>
Armin F. Koernig	15,656,521							
Wally Noerenberg <sup>f</sup>	59,454,741	3,151,000	1,597,480	2.7%	888,130	528,676	297,502	149,686,747
Port Chalmers	23,555,057	997,000	395,978	1.7%	367,857			
<b>Total Chum Salmon</b>	<b>98,666,319</b>	<b>4,148,000</b>	<b>1,993,457</b>		<b>1,255,986</b>	<b>528,676</b>	<b>297,502</b>	<b>149,686,747</b>

<sup>a</sup> Contribution estimates of pink and chum salmon from PWS hatcheries are based on analysis of otolith recoveries and location of harvest as reported on fish tickets.

<sup>b</sup> The 2004 forecasts of hatchery runs were completed by Prince William Sound Aquaculture and Valdez development Association.

<sup>c</sup> Does not include carcass sales because they are part of the broodstock.

<sup>d</sup> Includes broodstock, overmature/green fish, holding mortalities, excess fish and fish processed for roe extraction. Also includes watershed spawners, and fish remaining in the bays after all other harvests were complete.

<sup>e</sup> All returning chum salmon were reared at WNH. The AFK and Port Chalmers runs were remote releases of fish reared at WNH.

<sup>f</sup> The WNH total chum salmon run was calculated as the sum of CPF harvests in the Eshamy and Coghill Districts minus the average 1970–1986 wild chum salmon harvests in the Eshamy and Coghill Districts plus the WNH cost recovery harvest and broodstock escapement.

**Appendix E8.**—Historical harvest contributions, thermally marked otolith releases, and total returns of pink salmon to Prince William Sound hatcheries, return years 1997–2004.

<b>Brood Year</b>	<b>Return Year</b>	<b>Fry Release</b>	<b>Hatchery Contribution to Broodstock Esc.<sup>a</sup></b>	<b>Total Cost Recovery Harvest</b>	<b>Hatchery Contribution to CR Harvest</b>	<b>Hatchery Contribution to the CCPF<sup>b</sup></b>	<b>Total Hatchery Return</b>	<b>Estimated Marine Survival</b>
<b>Solomon Gulch Hatchery</b>								
1995	1997	233,088,327	728,923	2,431,007	2,428,010	4,005,264	7,162,197	3.07%
1996	1998	188,862,094	295,438	3,428,348	3,076,945	1,226,679	4,599,062	2.44%
1997	1999	195,162,163	954,305	4,379,659	4,354,601	9,465,378	14,774,284	7.57%
1998	2000	213,906,642	520,934	4,033,635	3,983,473	7,635,581	12,139,988	5.68%
1999	2001	195,763,690	524,857	3,970,310	3,932,080	11,458,958	15,915,895	8.13%
2000	2002	203,897,201	420,062	4,430,173	4,368,519	360,850	5,149,431	2.53%
2001	2003	202,573,328	1,636,618	4,188,294	4,184,463	11,871,024	17,692,105	8.73%
2002	2004	206,397,607	300,362	3,782,011	3,597,708	7,262,379	11,160,448	5.41%
<b>Armin F. Koernig Hatchery</b>								
1995	1997	108,636,976	0	3,206,683	3,139,053	3,815,265	6,954,318	6.40%
1996	1998	52,384,532	643,153	1,634,956	1,582,038	5,037,454	7,262,645	13.86%
1997	1999	105,974,235	1,352,746	2,814,760	2,994,037	5,108,346	9,455,129	8.92%
1998	2000	133,156,995	235,813	2,017,913	1,998,334	4,646,469	6,880,616	5.17%
1999	2001	142,537,692	368,706	2,929,441	2,803,175	1,668,025	4,839,906	3.40%
2000	2002	150,287,930	368,694	2,285,050	2,291,770	5,098,103	7,758,567	5.16%
2001	2003	155,982,828	1,135,571	1,436,990	1,436,990	4,494,486	7,067,047	4.53%
2002	2004	146,407,222	750,252	3,485,375	2,816,777	1,293,453	4,860,481	3.32%
<b>Wally Noerenberg Hatchery</b>								
1995	1997	176,431,919	409,455	2,280,868	2,321,255	3,464,254	6,194,964	3.51%
1996	1998	106,440,456	1,163,890	2,437,615	2,427,120	4,817,354	8,408,364	7.90%
1997	1999	103,675,208	886,277	3,860,431	3,861,891	4,828,682	9,576,850	9.24%
1998	2000	123,869,678	255,851	3,536,232	3,520,212	4,980,503	8,756,566	7.07%
1999	2001	116,069,339	325,003	4,937,169	4,949,180	1,906,503	7,180,686	6.19%
2000	2002	127,651,881	350,000	3,471,338	3,426,483	1,840,319	5,616,802	4.40%
2001	2003	106,229,524	982,982	4,400,958	4,400,958	12,422,082	17,806,022	16.76%
2002	2004	119,553,743	360,928	2,292,300	2,292,300	144,533	2,797,761	2.34%

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Brood Year	Return Year	Fry Release	Hatchery Contribution to Broodstock Esc. <sup>a</sup>	Total Cost Recovery Harvest	Hatchery Contribution to CR Harvest	Hatchery Contribution to the CCPF <sup>b</sup>	Total Hatchery Return	Estimated Marine Survival
<b>Cannery Creek Hatchery</b>								
1995	1997	140,441,131	577,736	1,897,259	1,852,317	3,608,272	6,038,325	4.30%
1996	1998	136,838,852	904,945	1,324,307	1,305,144	4,869,014	7,079,103	5.17%
1997	1999	137,571,564	1,293,460	2,076,361	2,014,448	5,414,942	8,722,850	6.34%
1998	2000	131,195,588	280,811	1,538,039	1,575,341	4,688,206	6,544,358	4.99%
1999	2001	132,236,317	428,859	1,089,998	1,103,072	589,171	2,121,102	1.60%
2000	2002	139,226,716	345,082	601,191	616,354	627,065	1,588,501	1.14%
2001	2003	138,626,713	551,247	2,400,133	2,400,133	5,390,008	8,341,388	6.02%
2002	2004	135,584,680	540,129	2,265,538	2,265,538	135,021	2,940,688	2.17%

<sup>a</sup> Broodstock escapements include all fish remaining after commercial harvests, i.e., fish used for brood, watershed spawners, and fish remaining in front of the hatchery.

<sup>b</sup> Commercial common property fisheries(CCPF).

**Appendix E9.**—Historical hatchery fry releases, harvest contributions, and total returns of pink salmon to all hatcheries combined, Prince William Sound, 1997–2004.

Brood Year	Return Year	Fry Release <sup>a</sup>	CWT/Otolith	Total	Total	Hatchery contributions <sup>d</sup>					Estimated
			Applied to Fry Release <sup>a</sup>	Broodstock Escapement <sup>a,b</sup>	CR Harvest <sup>c</sup>	Brood esc	CR Harvests	Other <sup>e</sup>	CPF	Total	Marine Survival
1995	1997	641,675,469 <sup>f</sup>	1,079,354	1,977,463	9,854,675	1,974,521	9,780,451	226	14,893,055	26,648,253	4.15%
1996	1998	483,704,011 <sup>f</sup>	All	3,011,186	8,825,226	3,008,251	8,666,960	6,931	16,145,999	27,828,141	5.75%
1997	1999	542,383,070 <sup>f</sup>	All	4,531,560	13,130,211	4,529,055	12,988,616	237,318	24,838,848	42,593,837	7.85%
1998	2000	602,128,903 <sup>f</sup>	All	1,293,409	11,125,819	1,293,409	11,055,419	728	22,099,196	34,448,752	5.72%
1999	2001	586,607,038 <sup>f</sup>	All	1,647,425	12,914,314	1,647,425	12,765,960	1,204	15,625,341	30,039,930	5.12%
2000	2002	621,062,096 <sup>f</sup>	All	1,497,115	10,787,752	1,497,115	10,703,126	992	7,926,335	20,127,568	3.24%
2001	2003	603,412,393 <sup>f</sup>	All	4,306,418	12,426,375	4,306,418	12,422,544	606	34,315,227	51,044,795	8.46%
2002	2004	607,943,252 <sup>f</sup>	All	1,359,062	11,825,224	1,951,671	11,825,224	0	8,835,385	22,612,280	3.72%

Note: Acronyms used in this table: Coded Wire Tag (CWT); Hatchery Cost Recovery (CR) Common Property Fishery (CPF), Escapements (Esc).

<sup>a</sup> Data from Prince William Sound Aquaculture and Valdez Fisheries Development Association annual reports and tagging reports.

<sup>b</sup> Brood escapements include all fish not sold in the commercial common property or cost recovery fisheries, i.e., fish used for brood, excess to brood, and remaining in the bays after all fisheries and brood collections.

<sup>c</sup> Data from ADF&G fish ticket database.

<sup>d</sup> Data from ADF&G contribution estimates. No otolith collections were made from broodstock escapements after 1999 because the 1997–1999 data indicated broodstock escapements were < 0.05 % wild stock fish. Otolith sampling has been a low priority in the hatchery cost recovery (CR) harvests since 1999 because sampling in the 1997-1999 CR harvests indicated few wild fish (< 2%). The other harvests and commercial common property contributions are from all fishing districts in Prince William Sound (221-229) excluding the Bering and Copper River District harvests.

<sup>e</sup> Includes donated, discarded, test fisheries, and all other miscellaneous harvests. Data from ADF&G fish ticket and special project data summaries.

<sup>f</sup> All hatchery pink salmon fry released after brood year 1995 had thermal otolith marks.

**Appendix E10.**—Historical harvest contributions, coded wire tag (CWT) and thermally marked otolith releases, and total returns of pink salmon to all hatcheries combined, 1977–2004.

Brood Year (BY)	Return Year	CWT/Otolith		Total Cost Recovery Harvest <sup>c</sup>	Hatchery Contributions			Broodstock Escapements <sup>a, g</sup>	Total Return	Estimated Marine Survival
		Fry Release <sup>a</sup>	Applied to Fry Release <sup>b</sup>		Hatchery cost Recovery Harvests <sup>b</sup>	Commercial Common Property Harvests <sup>a</sup>	Other Harvests <sup>d</sup>			
1975	1977	1,000,000	0	15,545	7,745	4,000	0	16,112	27,857	2.79%
1976	1978	11,010,577	0	114,188	114,188	0	0	40,432	154,620	1.40%
1977	1979	16,950,784	0	223,748	223,748	275,000	0	54,207	552,955	3.26%
1978	1980	25,600,739	0	346,728	346,728	1,092,048	0	145,061	1,583,837	6.19%
1979	1981	24,194,000	0	707,037	707,037	1,430,747	0	268,501	2,406,285	9.95%
1980	1982	91,076,000	0	1,354,732	1,354,732	4,303,900	0	239,945	5,898,577	6.48%
1981	1983	91,951,000	0	686,963	686,963	3,338,366	0	258,062	4,283,391	4.66%
1982	1984	115,107,533	0	415,393	415,393	3,313,423	0	341,259	4,070,075	3.54%
1983	1985	116,336,000	0	1,209,960	1,209,960	6,259,923	0	640,340	8,110,223	6.97%
1984	1986	191,306,265	0	905,464	905,464	5,662,315	0	466,471	7,034,250	3.68%
1985	1987	231,538,713	646,561	2,691,190	2,691,190	14,197,065	0	1,158,908	18,047,163	7.79%
1986	1988	218,830,647	568,688	1,632,701	1,632,701	8,748,000	0	824,302	11,205,003	5.12%
1987	1989	532,045,966	939,498	7,853,419	5,767,911	10,561,099	0	856,927	19,052,529 <sup>e</sup>	3.58%
1988	1990	507,688,297	1,074,099	8,732,658	6,691,160	24,379,475	0	749,910	33,315,579 <sup>e</sup>	6.56%
1989	1991	615,139,948	1,128,899	6,119,141	5,201,860	20,900,355	3,573,805	1,324,255	32,750,955 <sup>e</sup>	5.32%
1990	1992	603,519,636	1,091,403	3,049,394	2,626,248	4,345,805	30,290	789,880	8,579,332 <sup>e</sup>	1.42%
1991	1993	495,700,200	823,128	2,639,982	1,544,727	2,392,162	14,648	921,073	6,177,575 <sup>e</sup>	1.25%
1992	1994	567,320,470	950,976	10,308,169	7,613,582	21,173,273	56,396	1,422,306	35,100,601 <sup>e</sup>	6.19%
1993	1995	488,575,978	941,811	5,057,418	4,703,457	9,072,469	78,020	1,154,635	14,475,842 <sup>e</sup>	2.96%
1994	1996	613,158,229 <sup>f</sup>	1,017,782	8,285,166	5,363,551	14,502,198	0	544,531	24,284,522 <sup>e</sup>	3.96%
1995	1997	651,675,427 <sup>f</sup>	1,079,354	9,854,675	9,780,451	14,893,055	226	1,974,521	26,648,253	4.09%
1996	1998	484,525,934 <sup>f</sup>	484,525,934	8,825,226	8,666,960	16,145,999	6,931	3,008,251	27,828,141	5.74%
1997	1999	542,356,070 <sup>f</sup>	542,356,934	13,130,211	12,988,616	24,838,848	237,318	4,529,055	42,593,837	7.85%
1998	2000	602,128,903 <sup>f</sup>	602,128,903	11,125,819	11,055,419	22,099,196	728	1,293,409	34,448,752	5.72%
1999	2001	586,607,038 <sup>f</sup>	586,607,038	12,914,314	12,765,960	15,625,341	1,204	1,647,425	30,039,930	5.12%
2000	2002	621,063,728 <sup>f</sup>	621,063,728	10,787,752	10,703,126	7,926,335	992	1,497,115	20,127,568	3.24%
2001	2003	603,412,393 <sup>f</sup>	603,412,393	12,426,990	12,422,544	34,177,600	606	4,306,418	50,907,168	8.44%
2002	2004	607,943,252	607,943,252	11,825,224	11,825,224	8,835,385	0	1,951,671	22,612,280	3.72%

<sup>a</sup> Data for brood years 1985 and 1987 - 1995 provided by the ADF&G CWT project. Prince William Sound Aquaculture (PWSAC) provided data for all other years. Beginning in 1994, broodstock numbers include fish processed for roe and reported by PWSAC. The hatchery contribution to broodstock escapements includes all fish not harvested in CPF or sales harvests.

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- <sup>b</sup> Data for brood years 1985–1995 provided by the ADF&G CWT project; succeeding years data from thermally marked otoliths. Sales numbers include inter-hatchery contributions.
- <sup>c</sup> Data for all years from ADF&G fish ticket information.
- <sup>d</sup> Includes donated, discarded, and confiscated fish in addition to all fish harvested in the Southwestern District otolith test fishery.
- <sup>e</sup> Revised contribution based on individual hatchery CWT adjustment factors. The individual categories were not adjusted; only the total return and estimated marine survival.
- <sup>f</sup> All hatchery pink salmon fry released after brood year 1995 had thermal otolith marks.
- <sup>g</sup> Broodstock escapements prior to 1997 may not include fish remaining in the bay and watershed spawners and therefore may underestimate the broodstock escapements.

**Appendix E11.**—Hatchery contributions to the commercial common property pink salmon purse seine fishery in the Eastern District, 2004.

Period	Harvest Date(s)	SGH	%	CCH	%	WNH	%	AFK	%	Wild	%	Total
1	07/03 - 07/03	1,068,003	99.0	0	0.0	0	0.0	0	0.0	11,242	1.0	1,079,245
2	07/05 - 07/05	941,778	100.0	0	0.0	0	0.0	0	0.0	0	0.0	941,778
3	07/06 - 07/09	765,436	96.9	0	0.0	8,230	1.0	0	0.0	16,461	2.1	790,127
4	07/08 - 07/08	973,136	97.9	0	0.0	0	0.0	0	0.0	20,705	2.1	993,841
5	07/10 - 07/10	1,084,799	97.9	11,540	1.0	0	0.0	0	0.0	11,540	1.0	1,107,880
6	07/12 - 07/12	1,100,519	96.8	0	0.0	0	0.0	0	0.0	35,886	3.2	1,136,405
7	07/14 - 07/14	981,210	95.8	0	0.0	10,665	1.0	0	0.0	31,996	3.1	1,023,871
8	07/19 - 07/19	183,595	42.1	0	0.0	0	0.0	0	0.0	252,442	57.9	436,037
9	07/22 - 07/22	5,910	3.3	0	0.0	0	0.0	0	0.0	173,368	96.7	179,278
10	07/26 - 07/26	62,651	20.0	0	0.0	0	0.0	0	0.0	250,604	80.0	313,255
11	07/29 - 07/29	10,229	3.1	0	0.0	0	0.0	0	0.0	317,106	96.9	327,335
12	08/02 - 08/02	29,903	7.3	0	0.0	0	0.0	0	0.0	380,192	92.7	410,095
13	08/05 - 08/05	0	0.0	0	0.0	0	0.0	0	0.0	373,467	100.0	373,467
14	08/09 - 08/09	11,438	5.3	6,863	3.2	2,288	1.1	4,575	2.1	189,873	88.3	215,037
15	08/12 - 08/12	4,061	4.5	1,354	1.5	0	0.0	0	0.0	83,933	93.9	89,348
16	08/14 - 08/14	8,316	14.3	0	0.0	0	0.0	0	0.0	49,898	85.7	58,214
17	08/16 - 08/16	2,043	8.9	255	1.1	0	0.0	255	1.1	20,432	88.9	22,986
18	08/19 - 08/19	690	8.9	86	1.1	0	0.0	86	1.1	6,902	88.9	7,765
19	08/23 - 08/23	0	0.0	231	0	346	0	231	4.7	4,156	0	4,964
20	08/26 - 08/26	0	0.0	4	0	7	0	4	4.7	79	0	94
21	08/30 - 08/30	0	0.0	64	0	96	0	64	4.7	1,150	0	1,374
22	09/02 - 09/02	0	0.0	27	0	41	0	27	4.7	493	0	589
23	09/07 - 09/07	0	0	0	0	0	0	0	0	0	0	0
24	09/09 - 09/09	0	0	0	0	0	0	0	0	1	0	1
25	09/11 - 09/11	0	0	0	0	0	0	0	0	1	0	1
26	09/13 - 09/13	0	0	0	0	0	0	0	0	0	0	0
27	09/14 - 09/14	0	0	0	0	0	0	0	0	0	0	0
28	09/15 - 09/15	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>		<b>7,233,717</b>	<b>76.0%</b>	<b>20,425</b>	<b>0.2%</b>	<b>21,673</b>	<b>0.2%</b>	<b>5,243</b>	<b>0.1%</b>	<b>2,231,928</b>	<b>23.5%</b>	<b>9,512,987</b>

Note: Acronyms used in this table: Solomon Gulch Hatchery (SGH), Cannery Creek Hatchery (CCN), and Wally Noerenberg Hatchery (WNH).

**Appendix E12.**—Hatchery contributions to the commercial common property pink salmon purse seine fishery in the Northern District, 2004.

<b>Period</b>	<b>Harvest Date</b>	<b>SGH</b>	<b>%</b>	<b>CCH</b>	<b>%</b>	<b>WNH</b>	<b>%</b>	<b>AFK</b>	<b>%</b>	<b>Wild</b>	<b>%</b>	<b>Total</b>
1	08/09	0		14,979	86.7	1,536	8.9	0		768	4.4	17,284
2	08/12	0		18,581	86.7	1,906	8.9	0		953	4.4	21,440
3	08/16	0		0		0		0		0		0
4	08/19	0		5,747	86.7	589	8.9	0		295	4.4	6,631
5	08/23	0		0		0		0		0		0
6	08/26	0		0		0		0		0		0
7	08/30	0		0		0		0		0		0
8	09/06	0		0		0		0		0		0
9	09/07	0		0		0		0		0		0
<b>Totals</b>		<b>0</b>	<b>0.0%</b>	<b>39,308</b>	<b>86.7%</b>	<b>4,032</b>	<b>8.9%</b>	<b>0</b>	<b>0.0%</b>	<b>2,016</b>	<b>4.4%</b>	<b>45,355</b>

Note: Acronyms used in this table: Solomon Gulch Hatchery (SGH), Cannery Creek Hatchery (CCN), and Wally Noerenberg Hatchery (WNH).

**Appendix E13.**—Hatchery contributions to the commercial common property pink salmon drift gillnet and purse seine fisheries in the Coghill District, 2004.

<b>Period</b>	<b>Harvest Dates</b>	<b>SGH</b>	<b>%</b>	<b>CCH</b>	<b>%</b>	<b>WNH</b>	<b>%</b>	<b>AFK</b>	<b>%</b>	<b>Wild</b>	<b>%</b>	<b>Total</b>
1	05/31 - 06/01	0		0		0		0		0		0
2	06/03 - 06/04	0		0		0		0		0		0
3	06/07 - 06/08	0		0		0		0		0		0
4	06/10 - 06/11	0		0		0		0		0		0
5	06/14 - 06/15	0		0		0		0		0		0
6	06/17 - 06/18	0		0		0		0		0		0
7	06/21 - 06/23	0		0		0		0		0		0
8	06/24 - 06/26	0		0		0		0		1	100.0	1
9	06/28 - 07/01	0		0		0		0		32	100.0	32
10	07/01 - 07/04	0		0		0		0		58	100.0	58
11	07/05 - 07/08	0		0		0		0		578	100.0	578
12	07/08 - 07/11	0		0		0		0		596	100.0	596
13	07/12 - 07/15	0		0		0		0		2,369	100.0	2,369
14	07/15 - 07/18	0		0		0		0		3,786	100.0	3,786
15	07/19 - 07/22	0		0		0		0		6,683	100.0	6,683
16	07/22 - 07/24	0		0		0		0		2,804	100.0	2,804
17	07/26 - 07/28	0		0		0		0		5,135	100.0	5,135
18	07/29 - 07/30	0		0		0		0		6,727	100.0	6,727
19	08/02 - 08/03	0		0		0		0		13,732	100.0	13,732
20	09/06 - 09/12	0		0		0		0		1,188	100.0	1,188
21	09/13 - 09/19	0		0		0		0		0		0
22	09/20 - 09/26	0		0		0		0		0		0
23	09/27 - 10/03	0		0		0		0		0		0
24	10/04 - 10/10	0		0		0		0		0		0
25	10/11 - 10/17	0		0		0		0		0		0
<b>Totals</b>		<b>0</b>	<b>0.0%</b>	<b>0</b>	<b>0.0%</b>	<b>0</b>	<b>0.0%</b>	<b>0</b>	<b>0.0%</b>	<b>43,689</b>	<b>100.0%</b>	<b>43,689</b>

Note: Acronyms used in this table: Solomon Gulch Hatchery (SGH), Cannery Creek Hatchery (CCN), and Wally Noerenberg Hatchery (WNH).

**Appendix E14.**—Hatchery contributions to the commercial common property pink salmon drift and set gillnet fisheries in the Eshamy District, 2004.

Period	Harvest Dates	SGH	%	CCH	%	WNH	%	AFK	%	Wild	%	Total
01	06/10 - 06/11	0	0.0	0	1.6	11	40.3	8	30.6	7	27.4	27
02	06/14 - 06/15	0	0.0	0	1.6	0	40.3	0	30.6	0	27.4	1
03	06/17 - 06/18	0	0.0	0	1.6	0	40.3	0	30.6	0	27.4	1
04	06/21 - 06/22	0	0.0	0	1.6	0	40.3	0	30.6	0	27.4	1
05	06/24 - 06/25	0	0.0	3	1.6	85	40.3	65	30.6	58	27.4	211
06	06/28 - 06/29	0	0.0	1	1.6	35	40.3	27	30.6	24	27.4	88
07	07/01 - 07/02	0	0.0	18	1.6	445	40.3	338	30.6	303	27.4	1,104
08	07/19 - 07/20	0	0.0	100	1.6	2490	40.3	1892	30.6	1,693	27.4	6,175
09	07/22 - 07/23	0	0.0	73	1.6	1833	40.3	1393	30.6	1,246	27.4	4,546
10	07/26 - 07/27	0	0.0	136	1.6	3394	40.3	2579	30.6	2,308	27.4	8,417
11	07/29 - 07/30	0	0.0	328	1.6	8188	40.3	6223	30.6	5,568	27.4	20,306
12	08/02 - 08/03	0	0.0	169	1.6	4235	40.3	3219	30.6	2,880	27.4	10,504
13	08/05 - 08/06	0	0.0	342	1.6	8554	40.3	6501	30.6	5,817	27.4	21,214
14	08/09 - 08/10	0	0.0	196	1.6	4896	40.3	3721	30.6	3,329	27.4	12,141
15	08/12 - 08/13	118	1.3	0	0.0	2949	31.3	4011	42.5	2,360	25.0	9,438
16	08/16 - 08/17	72	1.3	0	0.0	1799	31.3	2447	42.5	1,440	25.0	5,758
17	08/19 - 08/20	33	1.3	0	0.0	814	31.3	1107	42.5	651	25.0	2,605
18	08/23 - 08/24	37	1.3	0	0.0	918	31.3	1249	42.5	735	25.0	2,939
19	08/26 - 08/27	25	1.3	0	0.0	628	31.3	855	42.5	503	25.0	2,011
<b>Totals</b>		<b>284</b>	<b>0.3%</b>	<b>1,367</b>	<b>1.3%</b>	<b>41,277</b>	<b>38.4%</b>	<b>35,637</b>	<b>33.2%</b>	<b>28,922</b>	<b>26.9%</b>	<b>107,487</b>

Note: Acronyms used in this table: Solomon Gulch Hatchery (SGH), Cannery Creek Hatchery (CCN), and Wally Noerenberg Hatchery (WNH).

**Appendix E15.**—Hatchery contributions to the commercial common property pink salmon purse seine fishery in the Southwestern District, 2004.

<b>Period</b>	<b>Harvest Dates</b>	<b>SGH</b>	<b>%</b>	<b>CCH</b>	<b>%</b>	<b>WNH</b>	<b>%</b>	<b>AFK</b>	<b>%</b>	<b>Wild</b>	<b>%</b>	<b>Total</b>
01	08/05 - 08/05	0	0.0	6199	5.0	12398	10.0	61990	50.0	43393	35.0	123,979
02	08/09 - 08/09	3,828	2.1	19142	10.4	9571	5.2	114851	62.5	36370	19.8	183,762
03	08/12 - 08/12	1,679	1.1	3358	2.1	13430	8.4	112480	70.5	28540	17.9	159,486
04	08/16 - 08/16	0	0.0	4415	1.0	4415	1.0	357650	84.4	57401	13.5	423,882
05	08/19 - 08/19	0	0.0	31815	9.2	24745	7.1	268664	77.6	21210	6.1	346,435
06	08/23 - 08/23	0	0.0	2529	1.1	5059	2.1	214992	89.5	17705	7.4	240,285
07	08/26 - 08/26	0	0.0	4453	3.3	5938	4.3	106883	78.3	19298	14.1	136,573
08	08/30 - 08/30	0	0.0	451	3.3	601	4.3	10813	78.3	1952	14.1	13,817
09	09/02 - 09/06	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0
10	09/06 - 09/06	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0
11	09/07 - 09/07	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0
<b>Totals</b>		<b>5,507</b>	<b>0.3%</b>	<b>72,363</b>	<b>4.4%</b>	<b>76,157</b>	<b>4.7%</b>	<b>1,248,323</b>	<b>76.7%</b>	<b>225,869</b>	<b>13.9%</b>	<b>1,628,219</b>

Note: Acronyms used in this table: Solomon Gulch Hatchery (SGH), Cannery Creek Hatchery (CCN), and Wally Noerenberg Hatchery (WNH).

**Appendix E16.**—Hatchery contributions to the commercial common property pink salmon purse seine fishery in the Montague District, 2004.

Period	Harvest Dates	SGH	%	CCH	%	WNH	%	AFK	%	Wild	%	Total
01	05/31 - 06/06	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0
02	06/07 - 06/13	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0
03	06/14 - 06/20	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0
04	06/21 - 06/27	7,669	92.4	0	0.0	0	0.0	0	0.0	629	7.6	8,298
05	06/28 - 07/04	15,201	95.8	165	1.0	0	0.0	0	0.0	496	3.1	15,862
06	07/05 - 07/11	0	0.0	0	0.0	0	0.0	0	0.0	21	100.0	21
07	07/12 - 07/18	0	0.0	0	0.0	0	0.0	0	0.0	2,515	100.0	2,515
08	07/19 - 07/21	0	0.0	0	0.0	0	0.0	70	1.2	5,924	98.8	5,994
09	08/02 - 08/02	0	0.0	1,037	2.0	1,037	2.0	3,110	6.0	46,645	90.0	51,828
10	08/05 - 08/05	0	0.0	161	2.0	161	2.0	484	6.0	7,259	90.0	8,065
11	08/09 - 08/09	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0
12	08/12 - 08/12	0	0.0	195	2.0	195	2.0	586	6.0	8,792	90.0	9,769
13	08/14 - 08/14	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0
14	08/16 - 08/16	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0
15	08/19 - 08/19	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0
16	08/23 - 08/23	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0
17	08/26 - 08/26	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0
18	08/30 - 08/30	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0
<b>Totals</b>		<b>22,870</b>	<b>22.3%</b>	<b>1,558</b>	<b>1.5%</b>	<b>1,393</b>	<b>1.4%</b>	<b>4,249</b>	<b>4.2%</b>	<b>72,280</b>	<b>70.6%</b>	<b>102,352</b>

Note: Acronyms used in this table: Solomon Gulch Hatchery (SGH), Cannery Creek Hatchery (CCN), and Wally Noerenberg Hatchery (WNH).

**Appendix E17.**—Hatchery contributions to the commercial common property pink salmon purse seine fishery in the Southeastern District, 2004.

<b>Period</b>	<b>Harvest Dates</b>	<b>SGH</b>	<b>%</b>	<b>CCH</b>	<b>%</b>	<b>WNH</b>	<b>%</b>	<b>AFK</b>	<b>%</b>	<b>Wild</b>	<b>%</b>	<b>Total</b>
01	07/19 - 07/19	0		0		0		0		376	100.0	376
02	07/22 - 07/22	0		0		0		0		21,303	100.0	21,303
03	07/26 - 07/26	0		0		0		0		62,307	100.0	62,307
04	07/29 - 07/29	0		0		0		0		22,030	100.0	22,030
05	08/02 - 08/02	0		0		0		0		22,092	100.0	22,092
06	08/05 - 08/05	0		0		0		0		80,097	100.0	80,097
07	08/09 - 08/09	0		0		0		0		38,393	100.0	38,393
08	08/12 - 08/12	0		0		0		0		8,783	100.0	8,783
09	08/14 - 08/14	0		0		0		0		5,609	100.0	5,609
10	08/16 - 08/16	0		0		0		0		0	0.0	0
11	08/19 - 08/19	0		0		0		0		2	100.0	2
12	08/23 - 08/23	0		0		0		0		0	0.0	0
13	08/26 - 08/26	0		0		0		0		0	0.0	0
14	08/30 - 08/30	0		0		0		0		0	0.0	0
<b>Totals</b>		<b>0</b>	<b>0.0%</b>	<b>0</b>	<b>0.0%</b>	<b>0</b>	<b>0.0%</b>	<b>0</b>	<b>0.0%</b>	<b>260,992</b>	<b>100.0%</b>	<b>260,992</b>

Note: Acronyms used in this table: Solomon Gulch Hatchery (SGH), Cannery Creek Hatchery (CCN), and Wally Noerenberg Hatchery (WNH).

**Appendix E18.**—Hatchery contributions to the commercial common property pink salmon drift gillnet and purse seine fisheries in the Unakwik District, 2004.

<b>Period</b>	<b>Harvest Dates</b>	<b>SGH</b>	<b>%</b>	<b>CCH</b>	<b>%</b>	<b>WNH</b>	<b>%</b>	<b>AFK</b>	<b>%</b>	<b>Wild</b>	<b>%</b>	<b>Total</b>
01	06/14 - 06/15	0		0		0		0		0		0
02	06/17 - 06/18	0		0		0		0		0		0
03	06/21 - 06/22	0		0		0		0		0		0
04	06/24 - 06/26	0		0		0		0		0		0
05	06/28 - 06/30	0		0		0		0		0		0
06	07/01 - 07/03	0		0		0		0		0		0
07	07/05 - 07/07	0		0		0		0		0		0
08	07/08 - 07/10	0		0		0		0		0		0
09	07/12 - 07/14	0		0		0		0		0		0
10	07/15 - 07/17	0		0		0		0		0		0
11	07/19 - 07/21	0		0		0		0		0		0
12	07/22 - 07/24	0		0		0		0		0		0
<b>Totals</b>		<b>0</b>	<b>0.0%</b>	<b>0</b>	<b>0.0%</b>	<b>0</b>	<b>0.0%</b>	<b>0</b>	<b>0.0%</b>	<b>0</b>	<b>0.0%</b>	<b>0</b>

Note: Acronyms used in this table: Solomon Gulch Hatchery (SGH), Cannery Creek Hatchery (CCN), and Wally Noerenberg Hatchery (WNH).

**Appendix E19.**—Chum salmon hatchery and wild stock contributions to the Montague District commercial common property fishery by period, 2004.

Dates	Period	Hours	Origin							Total
			Wally Noerenberg		Port Chalmers		Hatchery	Wild		
			Number	Percent	Number	Percent		Number	Percent	
05/31 - 06/06	1 <sup>a</sup>	156	0	0.0	5,840	93.2	5,840	427	6.8	6,267
06/07 - 06/13	2	156	0	0.0	22,846	93.2	22,846	1,672	6.8	24,518
06/14 - 06/20	3	156	1,915	3.2	58,085	95.8	60,000	638	1.1	60,638
06/21 - 06/27	4	156	3,471	4.2	77,230	92.7	80,701	2,603	3.1	83,304
06/28 - 07/04	5	156	4,646	6.3	66,598	89.6	71,244	3,098	4.2	74,342
07/05 - 07/11	6	156	1,722	3.2	51,092	94.7	52,814	1,148	2.1	53,962
07/12 - 07/18	7	156	290	1.1	25,490	94.6	25,779	1,159	4.3	26,938
07/19 - 07/21	8	60	516	4.5	10,840	94.0	11,356	172	1.5	11,528
08/02 - 08/02	9 <sup>b</sup>	14	63	4.5	1,332	94.0	1,396	21	1.5	1,417
08/05 - 08/05	10 <sup>b</sup>	14	2	4.5	42	94.0	44	1	1.5	45
08/09 - 08/09	11 <sup>c</sup>	14	0		0		0	0		0
08/12 - 08/12	12 <sup>b</sup>	14	0		8	89.4	8	1	10.6	9
08/14 - 08/14	13 <sup>c</sup>	14	0		0		0	0		0
08/16 - 08/16	14 <sup>c</sup>	12	0		0		0	0		0
08/19 - 08/19	15 <sup>c</sup>	12	0		0		0	0		0
08/23 - 08/23	16 <sup>c</sup>	12	0		0		0	0		0
08/26 - 08/26	17 <sup>c</sup>	12	0		0		0	0		0
08/30 - 08/30	18 <sup>c</sup>	12	0		0		0	0		0
<b>Total</b>			<b>12,626</b>	<b>3.7</b>	<b>319,403</b>	<b>93.1</b>	<b>332,029</b>	<b>10,940</b>	<b>3.2</b>	<b>342,968</b>

<sup>a</sup> Proportions from period 2 were used to allocate harvest.

<sup>b</sup> Proportions from period 8 were used to allocate harvest.

<sup>c</sup> No chum salmon were harvested.

**Appendix E20.**—Chum salmon hatchery and wild stock contributions to the Coghill District commercial common property fishery by period, 2004.

Dates	Period	Hours	Origin						Total	
			Wally Noerenberg		Port Chalmers		Hatchery	Wild		
			Number	Percent	Number	Percent		Number		Percent
05/31 - 06/01	1 <sup>a</sup>	24	7,094	87.4	85	1.1	7,180	940	11.6	8,120
06/03 - 06/04	2	24	57,008	87.4	687	1.1	57,695	7,555	11.6	65,250
06/07 - 06/08	3	24	17,745	83.2	2,471	11.6	20,216	1,123	5.3	21,339
06/10 - 06/11	4	24	148,653	90.5	8,643	5.3	157,296	6,914	4.2	164,210
06/14 - 06/15	5	24	42,053	90.6	3,384	7.3	45,436	967	2.1	46,403
06/17 - 06/18	6	24	188,569	90.6	10,837	5.2	199,406	8,670	4.2	208,076
06/21 - 06/23	7	48	23,908	94.8	0	0.0	23,908	1,314	5.2	25,222
06/24 - 06/26	8	48	16,771	92.7	0	0.0	16,771	1,324	7.3	18,095
06/28 - 07/01	9	72	67,937	89.2	5,730	7.5	73,666	2,456	3.2	76,122
07/01 - 07/04	10	72	97,847	92.7	4,398	4.2	102,245	3,298	3.1	105,543
07/05 - 07/08	11	72	86,177	95.8	937	1.0	87,114	2,810	3.1	89,924
07/08 - 07/11	12	72	31,852	82.3	4,435	11.5	36,287	2,419	6.3	38,706
07/12 - 07/15	13	72	24,047	91.6	553	2.1	24,600	1,658	6.3	26,258
07/15 - 07/18	14	72	19,268	98.2	0	0.0	19,268	344	1.8	19,612
07/19 - 07/22	15	72	5,489	80.9	200	2.9	5,688	1,098	16.2	6,786
07/22 - 07/24	16 <sup>b</sup>	48	394	80.9	14	2.9	408	79	16.2	487
07/26 - 07/28	17 <sup>b</sup>	48	572	80.9	21	2.9	593	114	16.2	707
07/29 - 07/30	18 <sup>b</sup>	24	58	80.9	2	2.9	60	12	16.2	72
08/02 - 08/03	19 <sup>b</sup>	24	54	80.9	2	2.9	56	11	16.2	67
09/06 - 09/12	20 <sup>b</sup>	156	1	100.0	0	0.0	1	0	0.0	1
09/13 - 09/19	21 <sup>b</sup>	156	1	100.0	0	0.0	1	0	0.0	1
09/20 - 09/26	22 <sup>c</sup>	156	0		0		0	0		0
09/27 - 10/03	23 <sup>c</sup>	156	0		0		0	0		0
10/04 - 10/10	24 <sup>c</sup>	156	0		0		0	0		0
10/11 - 10/17	25 <sup>c</sup>	156	0		0		0	0		0
<b>Total</b>			<b>835,498</b>	<b>90.7</b>	<b>42,397</b>	<b>4.6</b>	<b>877,895</b>	<b>43,106</b>	<b>4.7</b>	<b>921,001</b>

<sup>a</sup> Proportions from period 2 were used to allocate harvest.

<sup>b</sup> Proportions from period 15 were used to allocate harvest.

<sup>c</sup> No chum salmon were harvested.



## **APPENDIX F. SUBSISTENCE AND PERSONAL USE FISHERIES**

**Appendix F1.**—Subsistence salmon harvest by species and gear type, Prince William Sound and Upper Copper River, 2004.

<b>Area</b>	<b>Permits Issued</b>	<b>Permits Fished</b>	<b>Gear Type</b>	<b>Chinook<sup>a</sup></b>	<b>Sockeye<sup>a</sup></b>	<b>Coho<sup>a</sup></b>	<b>Pink<sup>a</sup></b>	<b>Chum<sup>a</sup></b>	<b>Other<sup>b</sup></b>	<b>Total</b>
Prince William Sound	8	1	Drift Gillnet	0	8	0	0	3	0	11
Copper River District	511	321	Drift Gillnet	1,106	1,822	46	3	5	0	2,982
Upper Copper River	9,109	NA	Dip Net and Fish Wheel	5,841	162,822	3,437	0	0	560	172,660
Eastern/Northern Districts	18	7	Drift gillnet, purse seine, and dip net	2	322	315	46	28	0	713
Southwestern District	8	4	Drift gillnet, purse seine, and dip net	3	535	44	56	84	0	722
Batzulnetas	1	1	Dip Net and Spear	0	182	0	0	0	0	182
<b>Total</b>	<b>9,655</b>	<b>334</b>		<b>6,952</b>	<b>165,691</b>	<b>3,842</b>	<b>105</b>	<b>120</b>	<b>560</b>	<b>177,270</b>

<sup>a</sup> Reported harvest only.

<sup>b</sup> Includes steelhead, whitefish, flounder, and Dolly Varden.

**Appendix F2.**—Salmon harvest and effort in the Prince William Sound subsistence fishery, 1965–2004.

Year	Permits		Harvest <sup>a</sup>						Total
	Issued	Returned	Chinook	Sockeye	Coho	Pink	Chum	Unknown	
1965	22	16				179	25		204
1966	3	3		3	19	20	50		92
1967	4	3			4	4			8
1968	4	3			20	156		22	198
1969	7	3			16				16
1970	1	1							0
1971	3	2				46			46
1972	0								0
1973	19	16			289				289
1974	3	1							0
1975	2	0							0
1976	0								0
1977	4	4							0
1978	3	2							0
1979	15	2							0
1980	26	15		7	6				13
1981	12	8		3	29		2		34
1982	35	27		84	4	31	24		143
1983	26	21		22	36	9	79		146
1984	8	8		10		11	2		23
1985	22	16	1	27	16	14	26		84
1986	25	14		5	15				20
1987	18	17	5	31	6		16		58
1988	7	7	2	51	7	10	9		79
1989	11	7	0	0	0	0	3	0	3
1990	8	7	0	0	7	4	0	0	11
1991	9	5	0	2	0	0	0	0	2
1992	10	6	0	20	0	0	0	0	20
1993	6	6	1	104	10	0	0	0	115
1994	5	4	0	0	0	0	0	0	0
1995	4	2	0	0	0	0	0	0	0
1996	10	7	0	0	0	0	0	0	0
1997	4	3	0	3	0	0	0	0	3
1998	4	3	0	0	0	0	0	0	0
1999	3	3	0	0	0	0	0	0	0
2000	3	3	0	0	0	0	0	0	0
2001	3	3	0	0	0	0	0	0	0
2002	11	9	0	31	0	9	7	0	47
2003	11	11	0	48	0	0	3	0	51
2004	8	5	0	8	0	0	3	0	11

<sup>a</sup> Includes harvest from Prince William Sound Area, exclusive of the Copper River District and customary and traditional subsistence locations within PWS. Reported harvest only.

**Appendix F3.**—Salmon harvest and effort in the Copper River District subsistence drift gillnet fishery, 1965–2004.

Year	Total Issued	Permits Issued			Harvest			Total
		Fished <sup>a</sup>	Not Fished	Not Returned	Chinook <sup>b</sup>	Sockeye <sup>b</sup>	Coho <sup>b</sup>	
1965	31	15	5	11	12	459	85	556
1966	45	21	10	14	47	175		222
1967	61	37	19	5	83	153		236
1968	17	7	8	2	11	36		47
1969	49	20	13	16	16	63	85	164
1970	32	24	3	5	66	179		245
1971	29	17	9	3	10	32	4	46
1972	104	75	5	24	149	569	53	771
1973	94	89	N/A	5	153	326	180	659
1974	9	3	2	4	5	4	2	11
1975	2	2	N/A	0	0	5	0	5
1976	27	14	N/A	13	1	10	0	11
1977	23	22	N/A	1	10	71	0	81
1978	34	9	19	6	37	18	12	67
1979	49	21	20	8	45	26	17	88
1980	39	18	17	4	19	27	17	63
1981	72	30	21	21	48	145	104	297
1982	108	48	42	18	60	634	106	802 <sup>c</sup>
1983	87	31	42	14	79	107	57	254 <sup>c</sup>
1984	118	57	47	14	68	324	135	549 <sup>c</sup>
1985	94	67	27	0	88	261	83	433 <sup>c</sup>
1986	88	57	28	3	86	348	47	481 <sup>c</sup>
1987	95	39	50	6	49	359	14	510 <sup>c</sup>
1988	114	57	40	17	59	226	42	440 <sup>c</sup>
1989	75	32	32	11	56	339	51	454 <sup>c</sup>
1990	88	40	39	12	60	469	82	680 <sup>d,e</sup>
1991	129	71	44	14	136	830	38	1,009 <sup>d,e</sup>
1992	126	67	47	12	142	785	42	999 <sup>d,e</sup>
1993	111	50	43	18	120	428	29	579 <sup>d,e</sup>
1994	101	60	37	4	164	474	67	708 <sup>e</sup>
1995	126	72	41	13	154	692	31	880 <sup>d,e</sup>
1996	176	101	57	18	276	969	47	1,294 <sup>d,e</sup>
1997	269	165	78	26	200	1,001	1,777	2,989 <sup>d,e</sup>
1998	245	144	87	14	295	850	680	1,832 <sup>d,e</sup>
1999	294	175	100	19	353	1,330	682	2,379 <sup>d,e</sup>
2000	416	293	107	16	689	4,360	44	5,118 <sup>c</sup>
2001	468	288	151	29	826	3,072	70	3,971 <sup>c</sup>
2002	355	199	132	24	549	3,067	28	3,695 <sup>e</sup>
2003	384	225	140	19	710	1,607	36	2,353
2004	511	321	161	29	1,106	1,822	46	2,982 <sup>e</sup>

<sup>a</sup> Includes all permit holders, successful or unsuccessful.

<sup>b</sup> Reported harvest only.

<sup>c</sup> Total also includes pink, chum, and/or Dolly Varden.

<sup>d</sup> Data updated in 2000.

<sup>e</sup> Total includes whitefish, Dolly Varden, and/or other species.

**Appendix F4.**—Salmon harvest and effort in the Eastern District (Tatitlek) and Southwestern District (Chenega) subsistence fisheries, 1988–2004.

Year	Permits		Harvest <sup>a</sup>						Total
	Issued	Fished	Chinook	Sockeye	Coho	Pink	Chum	Unknown	
<b>Eastern</b>									
1988 <sup>b</sup>	17	9	2	210	211	143	245	0	811
1989 <sup>b</sup>	14	7	1	107	653	33	43	0	837
1990 <sup>b</sup>	13	3	0	5	241	10	4	0	260
1991 <sup>b</sup>	17	7	0	107	984	320	28	0	1,439
1992 <sup>b</sup>	16	5	2	441	369	30	49	0	891
1993	18	7	2	512	305	144	74	180	1,217
1994	14	4	0	50	143	50	70	0	313
1995 <sup>c</sup>	15								
1996	6	1	0	0	38	0	0	0	38
1997	6	3	0	107	45	0	54	0	206
1998 <sup>b</sup>	11	3	0	2	321	4	28	0	355
1999	17	8	0	344	541	31	31	0	947
2000	12	3	0	140	468	40	40	0	688
2001	14	8	0	114	230	60	12	0	416
2002 <sup>d</sup>	19	5	0	375	136	28	36	0	575
2003 <sup>e</sup>	15	4	0	81	185	20	12	0	298
2004	18	7	2	322	315	46	28	0	713
<b>Southwestern</b>									
1988	10	5	1	50	8	251	294	0	604
1989	8	7	0	322	0	554	180	0	1,056
1990	7	2	1	36	5	20	2	0	64
1991	12	4	3	345	42	195	53	0	638
1992	14	8	1	526	23	313	99	0	962
1993 <sup>b</sup>	22	17	2	875	60	232	124	0	1,293
1994	16	8	5	192	77	402	161	0	837
1995	10	5	2	152	67	67	41	0	329
1996 <sup>b</sup>	7	4	0	135	9	125	46	0	315
1997	5	4	44	193	30	110	272	0	649
1998	4	3	13	114	20	65	119	0	331
1999	14	7	57	499	62	168	101	0	887
2000	12	6	24	39	229	211	143	0	646
2001	16	8	2	119	92	95	146	0	454
2002	10	4	10	142	123	83	60	0	418
2003 <sup>f</sup>	13	5	6	219	156	149	147	0	677
2004	8	4	3	535	44	56	84	0	722

<sup>a</sup> Reported harvest only.

<sup>b</sup> Data updated 2001.

<sup>c</sup> No permits were returned.

<sup>d</sup> Of the 19 permits issued, only 6 permits were returned.

<sup>e</sup> Of the 15 permits issued, only 5 permits were returned and 4 of 5 permits reported fishing.

<sup>f</sup> Of the 13 permits issued, only 7 permits were returned and 5 of 7 permits reported fishing.

**Appendix F5.**—Salmon harvest by species and numbers of permits by gear type for the Upper Copper River subsistence and personal use fisheries, 1981–2003.

Year	Fishery or Subdistrict	Number Permits Issued			Reported Harvest <sup>a</sup>			Reported Harvest by Species			Total Salmon Harvest	
		Dip Net	Fish		% Dip Net	% Fish		Chinook	Sockeye	Coho	Reported	Estimated
			Wheel	Total		Wheel	Total					
1981	Subsistence	3,555	523	4,078	52%	48%	55,796	1,913	53,008	849	55,770	68,654
1982	Subsistence	5,475	615	6,090	62%	38%	100,734	2,532	96,799	1,246	100,577	109,557
1983	Subsistence	6,911	630	7,541	67%	33%	108,228	5,421	100,995	1,690	108,106	118,599
1984	Subsistence	104	458	562	6%	94%	20,597	366	20,101	120	20,587	28,715
	Personal use	5,311	17	5,328	100%		47,306	1,641	44,977	669	47,287	50,734
	Total	5,415	475	5,890	70%	30%	67,903	2,007	65,078	789	67,874	79,449
1985	Subsistence	4,153	533	5,686	57%	43%	52,733	1,673	50,488	544	52,705	64,164
1986	Subsistence <sup>b</sup>	39	366	405	3%	97%	25,781	622	24,890	264	25,776	28,423
	Personal use	3,966	65	4,031	98%	2%	42,695	2,294	39,794	521	42,609	44,047
	Total	4,005	431	4,436	62%	38%	68,476	2,916	64,684	785	68,385	72,470
1987	Subsistence <sup>b</sup>	59	372	431	4%	96%	25,271	531	21,615	105	22,251	34,142
	Personal use	4,186	73	4,259	99%	1%	43,449	2,749	40,285	393	43,427	46,908
	Total	4,245	445	4,690	64%	36%	68,720	3,280	61,900	498	65,678	81,050
1988	Subsistence	70	339	409	9%	91%	21,481	693	20,391	260	21,344	30,755
	Personal use	4,205	46	4,251	97%	3%	41,721	2,724	38,514	456	41,694	45,855
	Total	4,275	385	4,660	68%	32%	63,202	3,417	58,905	716	63,038	76,610
1989	Subsistence	78	308	386	8%	92%	27,732	745	26,835	65	27,645	29,308
	Personal use	4,447	137	4,584	94%	6%	56,769	2,168	53,722	825	56,715	58,941
	Total	4,525	445	4,970	66%	34%	84,501	2,913	80,557	890	84,360	88,249
1990	Subsistence	95	311	406	9%	91%	30,663	610	29,947	87	30,644	32,524
	Personal use	5,631	58	5,689	99%	1%	68,277	2,611	64,054	1,457	68,122	70,812
	Total	5,726	369	6,095	71%	29%	98,940	3,221	94,001	1,544	98,766	103,336
1991	Subsistence	293	418	711	16%	84%	37,761	1,217	36,289	213	37,719	41,205
	Personal use	6,222	NA	6,222	100%		82,767	3,947	75,499	3,264	82,710	85,059
	Total	6,515	418	6,933	74%	26%	120,528	5,164	111,788	3,477	120,429	126,264
1992	Subsistence	151	504	655	10%	90%	44,448	1,368	42,689	330	44,387	47,095
	Personal use	6,387	NA	6,387	100%		89,840	3,337	84,981	1,487	89,805	91,683
	Total	6,538	504	7,042	70%	30%	134,288	4,705	127,670	1,817	134,192	138,778

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Year	Fishery or Subdistrict	Number Permits Issued			Reported Harvest <sup>a</sup>			Reported Harvest by Species			Total Salmon Harvest	
		Dip Net	Fish		% Fish			Chinook	Sockeye	Coho	Reported	Estimated
			Wheel	Total	% Dip Net	Wheel	Total					
1993	Subsistence	14	759	773	1%	99%	50,044	1,308	48,582	70	49,960	54,854
	Personal use	7,914	NA	7,914	100%		93,747	2,729	89,629	1,358	93,716	97,767
	Total	7,928	759	8,687	65%	35%	143,791	4,037	138,211	1,428	143,676	152,621
1994	Subsistence	267	703	970	10%	90%	64,658	1,827	62,717	55	64,599	70,391
	Personal use	7,061	NA	7,061	100%		95,903	3,596	90,332	1,903	95,831	99,822
	Total	7,328	703	8,031	64%	36%	160,561	5,423	153,049	1,958	160,430	170,213
1995	Subsistence	191	665	856	7%	93%	51,517	1,762	48,903	821	51,486	55,323
	Personal use	6,760	NA	6,760	100%		85,997	4,568	76,670	4,726	85,964	88,617
	Total	6,951	667	7,616	65%	35%	137,514	6,330	125,573	5,547	137,450	143,940
1996	Subsistence	219	631	850	11%	89%	50,843	1,388	48,747	522	50,657	54,290
	Personal use	7,198	NA	7,198	100%		99,511	3,493	92,590	3,295	99,378	102,108
	Total	7,417	631	8,048	70%	30%	150,354	4,881	141,337	3,817	150,035	156,398
1997	Subsistence	286	847	1,133	10%	90%	80,961	2,439	78,188	177	80,804	85,744
	Personal use	9,086	NA	9,086	100%		151,842	5,359	146,311	157	151,827	154,349
	Total	9,372	847	10,219	69%	31%	232,803	7,798	224,499	334	232,631	240,093
1998	Subsistence	272	738	1,010	13%	87%	63,633	1,751	61,268	507	63,526	66,951
	Personal use	10,006	NA	10,006	100%		143,027	6,583	134,299	2,100	142,982	146,075
	Total	10,278	738	11,016	73%	27%	206,660	8,334	195,567	2,607	206,508	213,026
1999	Subsistence	336	766	1,104	12%	88%	76,391	3,058	72,901	292	76,251	82,119
	Personal use	9,943	NA	9,943	100%		145,853	5,758	137,945	2,117	145,820	149,779
	Total	10,279	766	11,047	70%	30%	222,244	8,816	210,846	2,409	222,071	231,898
2000	Glennallen Subdistrict	464	787	1,251	14%	86%	63,739	4,782	58,241	511	63,534	64,885
	Chitina Subdistrict <sup>c</sup>	8,151	NA	8,151	100%		110,095	3,037	103,329	3,540	109,906	114,681
	Total	8,615	787	9,402	69%	31%	173,834	7,819	161,570	4,051	173,440	179,566
2001	Glennallen Subdistrict	408	832	1,240	11%	89%	83,668	3,373	79,117	1,101	83,591	88,578
	Chitina Subdistrict <sup>c</sup>	9,462	NA	9,462	100%		126,866	2,803	121,304	2,385	126,492	138,425
	Total	9,870	832	10,702	64%	36%	210,534	6,176	200,421	3,486	210,083	227,003
2002	Glennallen Subdistrict	460	662	1,122	14%	86%	51,866	3,424	47,892	524	51,840	55,059
	Chitina Subdistrict <sup>c</sup>	6,805	NA	6,805	100%		79,472	1,745	75,747	1,712	79,204	90,241
	Total	7,265	662	7,927	66%	34%	131,338	5,169	123,639	2,236	131,044	145,300

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Year	Fishery or Subdistrict	Number Permits Issued			Reported Harvest <sup>a</sup>			Reported Harvest by Species			Total Salmon Harvest	
		Dip Net	Fish		% Dip Net	% Fish		Chinook	Sockeye	Coho	Reported	Estimated
			Wheel	Total		Wheel	Total					
2003	Glennallen Subdistrict	399	613	1,012	14%	86%	47,054	2,585	47,719	487	50,791	50,892
	Chitina Subdistrict <sup>d</sup>	6,418	NA	6,418	100%	0%	84,686	1,870	80,134	2,409	84,413	84,686
	Total	6,817	613	7,430	67%	33%	131,740	4,455	127,853	2,896	135,204	135,578
2004	Glennallen Subdistrict	330	626	956	9%	91%	122,318	3,166	52,130	76	55,372	59,497
	Chitina Subdistrict <sup>d</sup>	8,153	NA	8,153	100%	0%	159,950	2,108	93,182	2,304	97,594	113,163
	Total	8,483	626	9,109			282,268	5,274	145,312	2,380	152,966	172,660

<sup>a</sup> Includes all reported species.

<sup>b</sup> Subsistence dip net catch estimated.

<sup>c</sup> State personal use in the Chitina Subdistrict was changed to subsistence in 2000.

<sup>d</sup> State subsistence in the Chitina Subdistrict was changed to personal use in 2003.

**Appendix F6.**—"Home Pack" salmon harvest by district, species, and gear type, Prince William Sound Management Area, 2004.

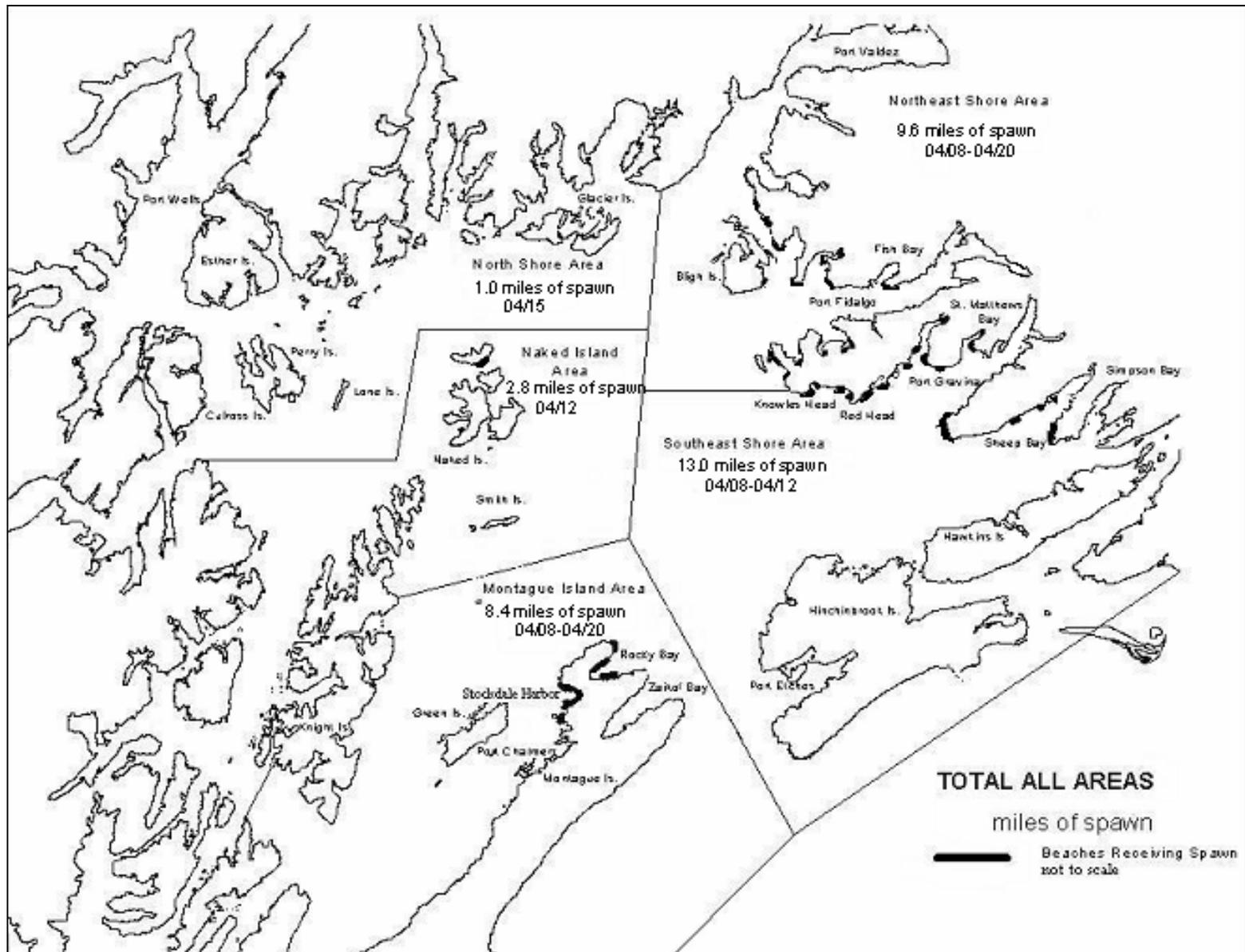
<b>District</b>	<b>Permits</b>	<b>Landings</b>	<b>Gear Type</b>	<b>Chinook<sup>a</sup></b>	<b>Sockeye</b>	<b>Coho</b>	<b>Pink</b>	<b>Chum</b>
Copper River	175	288	Drift gillnet	525	3,503	2	0	0
Bering River	0	0	Drift gillnet	0	0	0	0	0
PWS <sup>b</sup>	4	5	Drift and set gillnet, purse seine	0	129	0	0	1
<b>Total</b>	<b>179</b>	<b>293</b>		<b>525</b>	<b>3,632</b>	<b>2</b>	<b>0</b>	<b>1</b>

<sup>a</sup> In 1994 the BOF passed regulation 5 AAC 24.356 requiring all Chinook salmon taken in the Copper River and Bering River Districts, but not sold be reported on fish tickets.

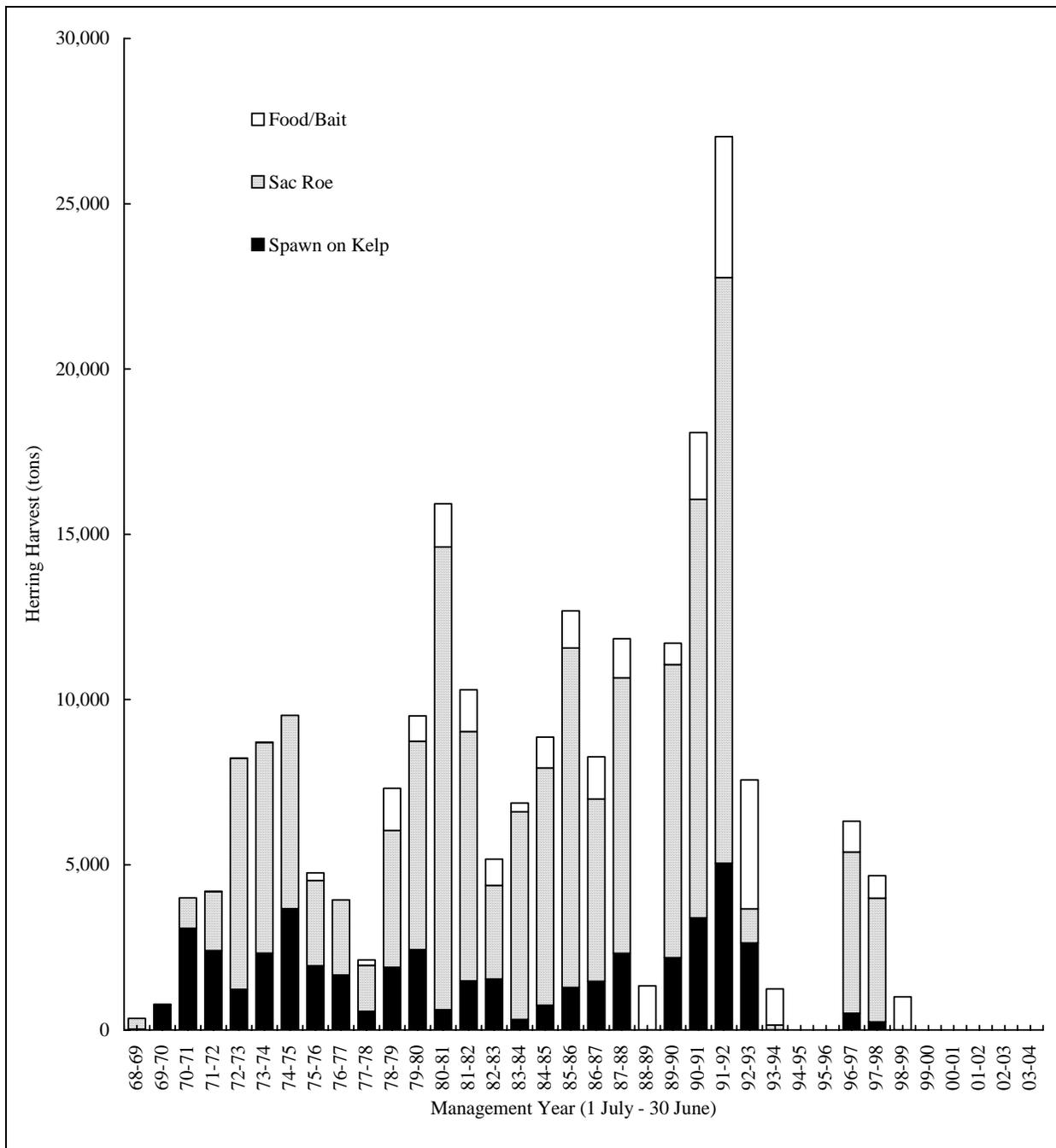
<sup>b</sup> Coghill, Eshamy, and Southwestern Districts.



## **APPENDIX G. HERRING FISHERIES**



**Appendix G1.**—Location of spawning herring and miles of spawn observed during aerial surveys in Prince William Sound, 2004.



**Appendix G2**—Prince William Sound commercial Pacific herring harvest by management year and fishery, 1968–2004.

**Appendix G3.**—Pacific herring sac roe purse seine and drift gillnet fishery effort, anticipated harvest, and actual harvest, 1969–2004.

Year	Opening Dates	Hours	Effort (Boats)	Guideline Harvest <sup>a</sup>	Harvest (tons)	CPUE (tons/Boat Hr)	Estimated Roe %
<b>Purse Seine Fishery</b>							
1969	03/01 - 06/30		5		325.4		
1970	03/01 - 06/30						
1971	03/01 - 06/30		12		919.2		
1972	03/01 - 06/30		18		1,777.2		
1973	04/23 - 05/09		31		6,991.9		
1974	04/10 - 04/17		72		6,371.0		
1975	04/15 - 04/22	14.0	76		5,853.8	5.50	
1976	05/08 & 06/01	13.0	66		2,584.2	3.01	
1977	04/09 - 04/10	38.0	58		2,265.6	1.03	
1978	04/17 - 04/21 <sup>b</sup>	106.0	75	5,000	1,329.5	0.17	
1979	04/07 - 04/19	215.5	89	5,000	4,138.0	0.22	
1980	04/01 - 04/09	162.0	76	5,000	6,042.2	0.49	
1981	04/01 - 04/09	60.0	106	5,000	13,768.2	2.16	
1982	04-23	2.0	95	5,000	7,148.3	37.62	10-14%
1983	04-13	1.0	103 <sup>c</sup>	5,000	2,728.5	26.49	11.0%
1984	04-14	3.0	105 <sup>d</sup>	5,000	5,946.1	18.88	10-11%
1985	04/28 - 04/29	4.0	103 <sup>e</sup>	5,000	6,764.1	16.42	10-12%
1986	04-17	3.0	106	5-7,000	9,828.1	30.91	11.0%
1987	04/08 - 04/09	1.5	96	3-5,000	4,982.2	34.60	10.0%
1988	04/21 - 04/22	2.0	105	4-5,000	7,977.3	37.99	10.5%
1989	Season Closed <sup>f</sup>			6,400			
1990	04/12	0.3	96	6,038	8,362.1	290.35	10.0%
1991	04/09, 04/10, & 04/19	1.3	104	11,233	11,923.0 <sup>g</sup>	85.32	10.5%
1992	04/13, 04/17, & 04/21	2.0	104	14,100	16,784.2 <sup>h</sup>	80.69	10.0%
1993	No Harvest			15,586			
1994	Season Closed <sup>i</sup>			0	151.0 <sup>j</sup>		
1995	Season Closed <sup>i</sup>			0			
1996	Season Closed <sup>i</sup>			0			
1997	04/13,04/15	1.8	71	2,965	4,703.5	36.80	9.75%
1998	04/06	0.5	46	3,367	3,329.7	144.77	9.6%
1999	Season Closed <sup>j</sup>			3,447			
2000	Season Closed <sup>j</sup>			0			
2001	Season Closed <sup>j</sup>			0			
2002	Season Closed <sup>j</sup>			0			
2003	Season Closed <sup>j</sup>			0			
2004	Season Closed <sup>j</sup>			0			

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Year	Opening Dates	Hours	Effort (Boats)	Guideline Harvest <sup>a</sup>	Harvest (tons)	CPUE (tons/Boat Hr)	Estimated Roe %	Seine and Drift Total Harvest (tons)
<b>Drift Gillnet Fishery</b>								
1969								325.4
1970								
1971								919.2
1972								1,777.2
1973								6,991.9
1974	04/10 - 04/17		3		3.8			6,374.8
1975		14.0						5,853.8
1976		13.0						2,584.2
1977	04/09 - 04/10	38.0	1		1.6	0.04		2,267.1
1978	04/17 - 04/21	106.0	38		61.7	0.02		1,391.2
1979	CLOSED <sup>k</sup>							4,138.0
1980	04/17 - 05/05		16		264.4			6,306.7
1981	04/16 - 04/18	53.0	18		234.5	0.25		14,002.8
1982	04/24 - 04/26	54.0	18		393.9	0.41	12-15%	7,542.2
1983	04/21 - 04/22	24.0	22		105.4	0.20	11.0%	2,833.9
1984	04/18 - 04/22	59.0	23	250	342.7	0.25	8-14%	6,288.8
1985	04/29 - 05/01	34.0	21	250	413.3	0.58	10-12%	7,177.4
1986	04/24 - 04/28	90.0	24	3-400	448.6	0.21	11.4%	10,276.7
1987	04/10 - 04/11	24.0	24	2-300	533.3	0.93	9.5%	5,515.5
1988	04-23	5.5	24	275	353.0	2.67	10.0%	8,330.3
1989				375				0
1990	04/13	4.0	24	353	505.4	5.26	10.6%	8,867.5
1991	04/18	10.5	24	657	742.0	2.94	11.06%	12,665.1
1992	04/23 - 04/24	11.0	24	825	940.6	3.56	10.8%	17,724.8
1993	04/15, 04/17-04/19	36.0	24	912	1,029.9	1.19	11.01%	1,029.9
1994				0				151.0
1995				0				0
1996				0				0
1997	04/09	2.5	22	175	175.7	3.19	8.00%	4,879.2
1998	04/11, 04/12	6.5	20	197	415.1	3.19	11.0%	3,744.8
1999				202				0
2000				0				0
2001				0				0
2002				0				0
2003				0				0
2004				0				0

<sup>a</sup> Guideline harvest based on pre-season harvest projection beginning in 1986.

<sup>b</sup> An additional opening on 6/14 for 6 hours resulted in no harvest.

<sup>c</sup> Harvest for 1994 consisted of a single test fishing harvest made by ADF&G for aerial survey calibration.

<sup>d</sup> Of 103 permit holders participating, 72 actually made deliveries.

<sup>e</sup> Of 105 permit holders participating, 101 actually made deliveries.

<sup>f</sup> Of 103 permit holders participating, 62 made deliveries at Montague Island and 90 made deliveries in the north-shore area.

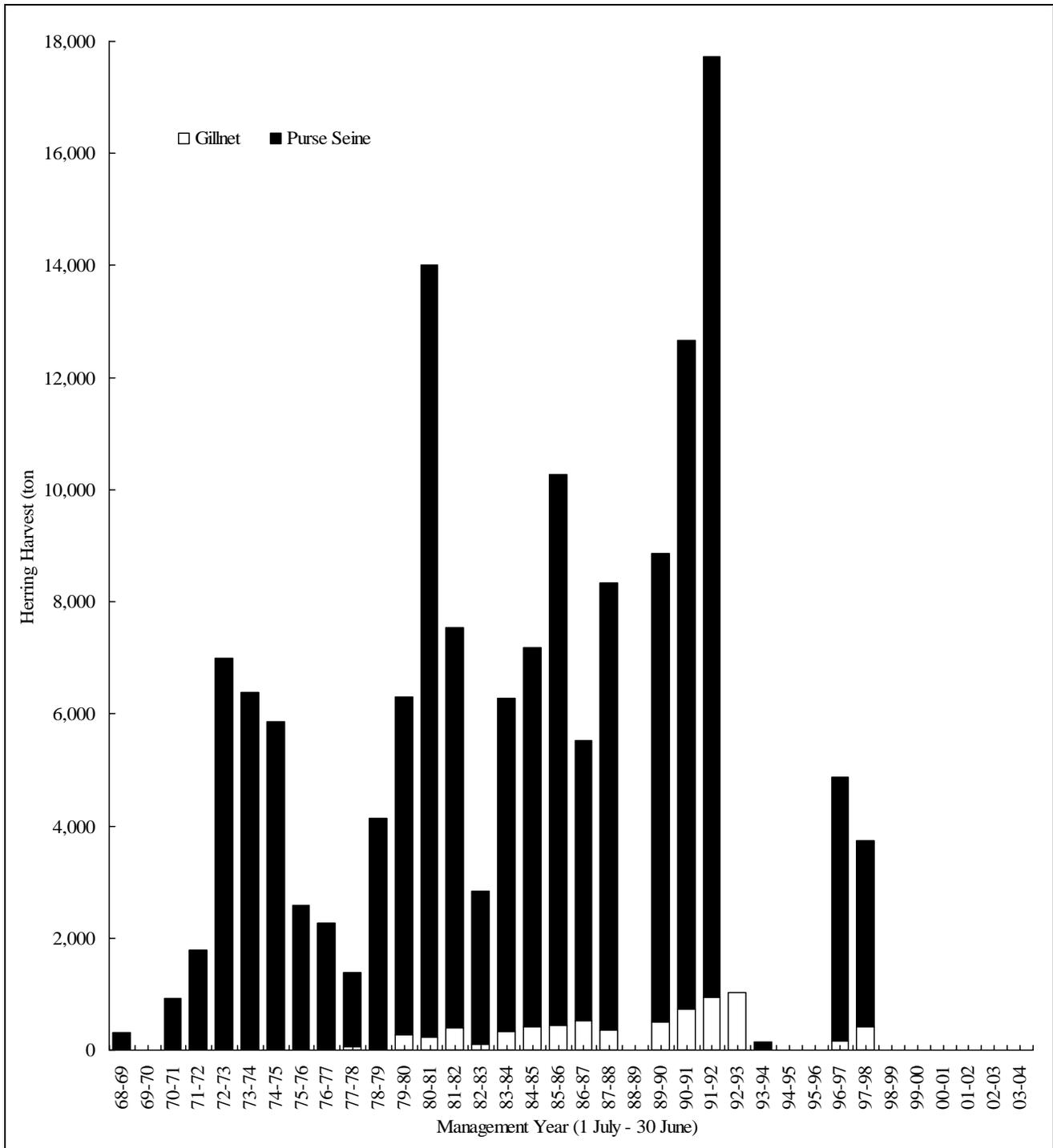
<sup>g</sup> All herring commercial fisheries in PWS were closed during spring 1989 because of the potential for contamination from the T/V Exxon Valdez oil spill.

<sup>h</sup> Total for 1991 includes a 92.2 ton test fishing set made by ADF&G for aerial survey calibration.

<sup>i</sup> Total for 1992 includes a 192.5 ton test fishing harvest made by ADF&G for aerial survey calibration.

<sup>j</sup> Season closed because the herring biomass was forecast to be less than the 22,000 ton spawning biomass threshold.

<sup>k</sup> Drift gillnet fishery closed by Board of Fisheries action.



**Appendix G4.**—Prince William Sound commercial Pacific herring sac roe purse seine and gillnet harvest by management year, 1968–2004.

Appendix G5.—Pacific herring spawn-on-kelp harvests from natural spawning, 1969–2004.

Year	Fishery Dates	Hours	Effort (No. of Divers)	Guideline Harvest (tons)	Harvest by Kelp Species and Grounds Price (\$/lb)								Spawn-on-Kelp Harvest		Herring Utilized <sup>a</sup> (tons)
					Ribbon		Sieve		Fucus		Other		lbs.	tons	
					Percent	Price	Percent	Price	Percent	Price	Percent	Price			
1969	05/18 - 05/31		3										5,424	2.7	21.7
1970	04/19 - 06/06		34										190,374	95.2	761.5
1971	04/18 - 05/15		159										769,481	384.7	3,077.9
1972	04/30 - 05/20		397										600,453	300.2	2,401.8
1973	04/23 - 05/26		176										306,358	153.2	1,225.4
1974	04/22 - 05/04		143										580,588	290.3	2,322.4
1975	04/25 - 05/10		328										916,919	458.5	3,667.7
1976	04/21 - ?		279										485,043	242.5	1,940.2
1977	04/27 - 12/31		104										417,000	208.5	1,668.0
1978	04/20 - 04/30		66	165	23%		50%				27% <sup>b</sup>		141,268	70.6	565.1
1979	04/25 - 05/03		97	200									474,242	237.1	1,897.0
1980	04/23 - 04/30	10	458	200	60%	\$1.25	40%	\$0.85					603,880	301.9	2,415.5
1981	04-25	12	196	200	38%	\$1.25	60%	\$0.85			2% <sup>b</sup>	\$0.60	122,532	61.3	490.1
1982	05/05 - 05/08	73	152	187	83%	\$1.42	11%	\$0.95			6% <sup>b</sup>	\$0.74	291,430	145.7	1,165.7
1983	04/27	12	185	187	51%	\$2.00-2.45	35%	\$1.50-1.70			14% <sup>c</sup>		298,362	149.2	1,193.4
1984	Season Closed <sup>d</sup>		225 <sup>e</sup>	187											
1985	05/06 & 05/08	20	106	169	51%	\$1.25	49%	\$0.50					60,832	30.4	243.3
1986	04/30 - 05/03	86	29	142	97%	\$1.75		\$0.80			<sup>b</sup>	\$0.80	95,205	47.6	380.8
1987	04/15 - 04/17	44	59	103	90%	\$1.70		\$0.85			<sup>b</sup>	\$0.80	176,485	88.2	705.9
1988	04/29 & 04/30	12	159	103	64%	\$1.50	24%	\$0.75-1.00			12% <sup>b</sup>	\$0.75-1.00	194,762	97.4	779.0
1989	Season Closed <sup>f</sup>			110											
1990	04/21 - 04/22	16	134	104	37%	\$0.99	6%	\$0.52			57% <sup>b</sup>	\$0.88	237,575	118.8	950.3
1991	05/11 - 05/17	95	48	195					100%	\$0.75-0.85			215,147	107.6	860.8
1992	04/24 - 04/30	101	217	243	21%	\$0.70			76%	\$0.40	3%		504,663	252.3	2,018.7
1993	04/19 - 04/24	114	83	268					100%	\$0.55			325,181	162.6	1,300.7
1994	Season Closed <sup>g</sup>			110											
1995	Season Closed <sup>g</sup>														
1996	Season Closed <sup>g</sup>														
1997	04/25 & 04/26	26.4	45	56.4					100%				52,800	26.4	211.2
1998	04/22 - 04/27	62	35	464	16%	\$0.80			84%	\$0.50			34,695	17.3	138.8
1999	Season Closed <sup>g</sup>			475											
2000	Season Closed <sup>g</sup>														
2001	Season Closed <sup>g</sup>														
2002	Season Closed <sup>g</sup>														
2003	Season Closed <sup>g</sup>														
2004	Season Closed <sup>g</sup>														

<sup>a</sup> Indicates the annual removal of reproductive capacity from the population based on the assumption that average fish roe recovery is 10%, and 80% of spawn-on-kelp harvest weight consists of eggs.

<sup>b</sup> Hair kelp.

<sup>c</sup> Mostly Macrocystis, some hair kelp.

<sup>d</sup> Season remained closed due to lack of suitable spawn.

<sup>e</sup> Permits issued.

<sup>f</sup> All herring commercial fisheries in Prince William Sound were closed spring 1989 because of the potential for contamination of catches from the T/V Exxon Valdez oil spill.

<sup>g</sup> Season remained closed due to low herring abundance.

**Appendix G6.**—Pacific herring spawn-on-kelp harvest produced in pounds, 1979–2004.

Year	Fishery Dates <sup>c</sup>	Effort			Guideline Harvest (tons)	Blades per Permit Holder		Spawn-on-Kelp Harvest (tons)			Herring Utilized <sup>b</sup> (tons)	
		CFEC Permits <sup>d</sup>	Permits Committed <sup>e</sup>	Producing Permits <sup>a</sup> Closed <sup>f</sup> Open <sup>g</sup>		Closed <sup>f</sup>	Open <sup>g</sup>	Ribbon	Macrocystis	Total		
1979		2	0									
1980	04-14	14	4	2	8			0.9	0.4	1.3	16.6	
1981	04-14	18	18	7	16			8.6	1.1	9.7	120.7	
1982	04/29 - 05/10	25	20	18	26			25.1	0.5	25.5	319.2	
1983	04/30 - 05/04	47	38	26	26			17.7	10.1	27.7	346.7	
1984	04/24 - 05/08	65	45	37	26			6.4	18.8	25.2	315.1	
1985	04/25 - 05/07	81	59	50	40			12.1	28.1	40.2	502.1	
1986	04/21 - 04/28	104	82	81	60			0	72.2	72.2	903.0	
1987	04/10 - 04/21	111	111	108	85			0	61.2	61.2	765.1	
1988	04/12 - 04/23	122	122	119	85			0	123.2	123.2	1,540.5	
1989	Season Closed <sup>h</sup>											
1990	04/11 - 04/26	128	128	122	118			0	98.8	98.8	1,235.3	
1991	04/07 - 04/20	126	126	119	220	1,200		0	202.4	202.4	2,530.5	
1992	04/07 - 04/24	127	127	127	276	1,770		0	242.2	242.2	3,027.7	
1993	04/10 - 04/22	128	124	52	305	1,950		0	106.4	106.4	1,330.5	
1994	Season Closed <sup>i</sup>											
1995	Season Closed <sup>i</sup>											
1996	Season Closed <sup>i</sup>											
1997	04/10 - 05/06	128	116	7	84	725	410	640	0	34.3	34.3	290.5
1998	<sup>j</sup>	128	36	13	20	823	425	660	0	10.7	10.7	104.3
1999	<sup>k</sup>	128	27	7	2	843	435	680	0	6.2	6.2	48.8
2000	Season Closed <sup>i</sup>											
2001	Season Closed <sup>i</sup>											
2002	Season Closed <sup>i</sup>											
2003	Season Closed <sup>i</sup>											
2004	Season Closed <sup>i</sup>											

<sup>a</sup> Number of permits successful in producing product. Because of group cooperation, production is often reported for some individuals whose pounds did not produce product.

<sup>b</sup> The equivalent harvest of herring due to stress mortality and the removal of reproductive capacity from the population based on the assumption that 12.5 tons of herring are used to produce each ton of spawn-on-kelp product.

<sup>c</sup> Dates that the fishery was opened to purse seines for the capture and placement of herring into pounds.

<sup>d</sup> Prior to 1994, Commissioner's permits issued to applicants registering prior to the March 1 deadline. After 1994, the number of permits represents limited entry permits. Beginning in 1997 permit holders could operate pounds in open or closed configuration, but were required to state intended configuration prior to season.

<sup>e</sup> The number of individuals receiving an equal allocation of the guideline harvest. Prior to 1994 this represents the number of individual pounds constructed by the April 1 deadline. Beginning in 1997, this number represents permit holders stating intended configuration prior to season.

<sup>f</sup> A pound fished in a closed configuration consists of a rectangular floating frame with webbing suspended below, that encloses herring and kelp for period of time during spawning.

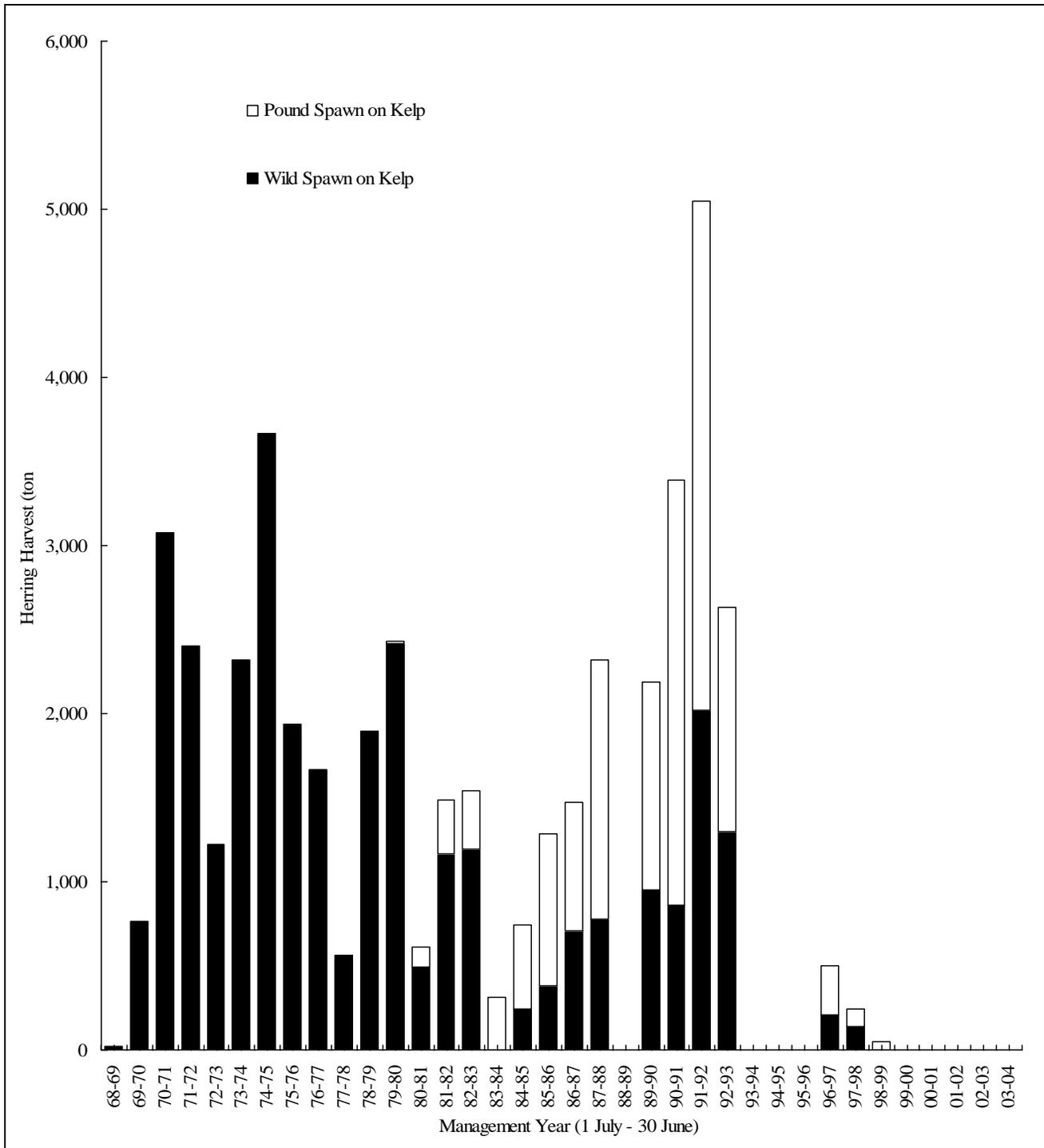
<sup>g</sup> A pound fished in an open configuration consists of a rectangular floating frame with either no webbing suspended below, or with webbing that permits volitional entry and exit of herring on at least one side.

<sup>h</sup> All herring commercial fisheries in Prince William Sound were closed spring 1989 because of the potential for contamination from the T/V Exxon Valdez oil spill.

<sup>i</sup> Season closed because the herring biomass was forecast to be less than the 22,000 ton spawning biomass threshold.

<sup>j</sup> Opening dates for each area were: Montague Island 4/04, Eastern 4/05, Northern 4/09, and Southeastern 4/13. All areas closed by regulation on 12/31/1998.

<sup>k</sup> Opening dates for each area were: Montague Island 04/01, St. Matthews Bay 04/20. All areas closed by emergency order on 04/25/1999.



**Appendix G7.**—Prince William Sound commercial spawn-on-kelp Pacific herring usage by management year, 1968–2004.

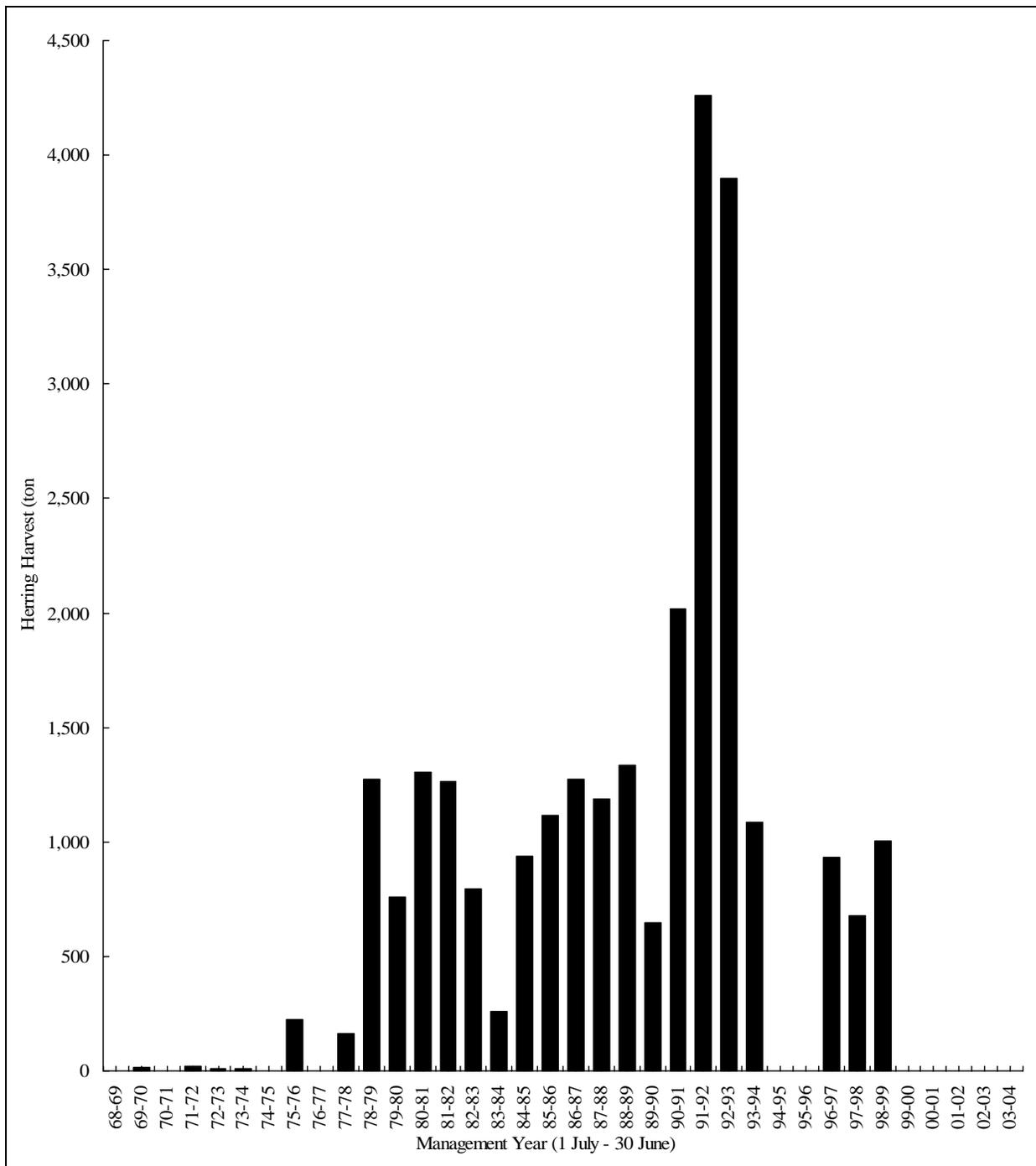
**Appendix G8.**—Prince William Sound commercial Pacific herring food/bait fishery effort and harvests, management years 1969–2004.

Harvest Management Year	Fishing Dates		Guideline Harvest	Purse Seine		Pair Trawl		Mid-Water Trawl		Otter Trawl		Total Harvest (tons)
	Opened	Closed		Effort (Boats)	Harvest (tons)	Effort (Boats)	Harvest (tons)	Effort (Boats)	Harvest (tons)	Effort (Boats)	Harvest (tons)	
	1969-1970	10/01/69		06/30/70 <sup>a</sup>		-	14.0					
1970-1971	10/01/70	06/30/71 <sup>a</sup>										0
1971-1972	10/01/71	06/30/72 <sup>a</sup>		-	20.0							20.0
1972-1973	10/01/72	05/09/73 <sup>a</sup>		-	9.0							9.0
1973-1974	08/27/73	04/17/74 <sup>a</sup>	<sup>b</sup>	-	8.5							8.5
1974-1975	07/15/74	03/10/75	<sup>b</sup>									0
1975-1976	06/01/75	06/25/75 <sup>c</sup>	<sup>b</sup>	4	226.7							226.7
1976-1977	02/01/77	03/09/77	<sup>b</sup>									0
1977-1978	10/01/77	02/28/78	<sup>b</sup>	-	17.0	-	145.3					162.3
1978-1979	10/16/78	? <sup>d</sup>	<sup>b</sup>	-	195.4	7	988.7	-	9.4	-	81.0	1,274.4
1979-1980	09/16/79	02/28/80 <sup>e</sup>	1,400	-	510.8	4	145.1	-	103.2	-	2.6	761.7
1980-1981	09/15/80	11/07/80	1,400	-	1,030.4	6	275.7					1,306.1
1980-1982	09/15/81	09/30/81	1,400	7	1,189.4	-	73.1					1,262.5
1982-1983	09/15/82	01/31/83	1,400	6	797.3							797.3
1983-1984	09/15/83	01/31/84	1,400	-	257.6							257.6
1984-1985	09/15/84	01/31/85	1,400	-	936.2							936.2
1985-1986	09/01/85	02/15/86	1,400	6	1,118.1							1,118.1
1986-1987	09/01/86	10/24/86	1,400	6	1,276.2							1,276.2
1987-1988	09/02/87	11/12/87 <sup>f</sup>	1,400	7	1,189.4							1,189.4
1988-1989	11/01/88	11/05/88	1,400	8	1,335.3							1,335.3
1989-1990	11/01/89	01/31/90	1,694	-	646.1							646.1
1990-1991	09/21/90	11/24/90 <sup>g</sup>	3,151	5	1,955.0			-	60.8			2,015.9
1991-1992	10/01/91	10/14/91	3,956	14	4,258.5							4,258.5
1992-1993	10/01/92	10/22/92	3,416 <sup>h</sup>	17	3,900.3							3,900.3
1993-1994	10/07/93	10/10/93	978 <sup>i</sup>	8	1,087.0							1,087.0
1994-1995	Season Closed <sup>j</sup>											0
1995-1996	Season Closed <sup>j</sup>											0
1996-1997	11/01/96	11/03/96	825	6	933.9							933.9
1997-1998 <sup>k</sup>	11/1/97,	02/19/98	945	12	679.7							679.7
1998-1999	11/02/98,	11/04/98, 11/06/98	967	11 <sup>l</sup>	1,003.3	-	-					1,003.3
1999-2000	Season Closed <sup>j</sup>											0
2000-2001	Season Closed <sup>j</sup>											0
2001-2002	Season Closed <sup>j</sup>											0
2002-2003	Season Closed <sup>j</sup>											0
2003-2004	Season Closed <sup>j</sup>											0

-continued-

**Appendix G8.–Page 2 of 2.**

- <sup>a</sup> Openings set by regulation. Ending date coincides with regulatory ending of sac roe season.
- <sup>b</sup> No official quota, but unofficial goal was 1,500 tons.
- <sup>c</sup> Harvest from special June food-and-bait fishery opening. Although this harvest actually occurred at the end of the 1975 management year, it is included in the 1976 harvest management year to be consistent with other food-and-bait harvests that occur after spring sac roe fisheries.
- <sup>d</sup> Fishery closed from 1 January to 6 January 1979.
- <sup>e</sup> Fishery closed from 1 January to 15 February 1980.
- <sup>f</sup> Fishing season opened by regulation on September 1, 1987 in the District. The north-shore and east-shore herring districts opened on September 23. The season was closed by emergency order on October 6 for a period of 5 weeks, reopened on November 9, and closed for the duration of the 1987-88 season on November 12, 1987.
- <sup>g</sup> Fishery open from September 21 until November 24. The Montague Island area was open from September 24 until November 24.
- <sup>h</sup> Preseason guideline harvest level based on spawn deposition biomass estimate. Final guideline harvest based on age-structured analysis was issued in January 1993 and was 4,373 tons.
- <sup>i</sup> Preseason guideline harvest level based on preliminary aerial survey biomass estimate of 40,000 tons.
- <sup>j</sup> Season closed because the herring biomass was forecast to be less than the 22,000 ton spawning biomass threshold.
- <sup>k</sup> Season reopened in spring 1998 based on final age structured assessment modeling. Of the total harvest, 578.1 tons were taken in November 1997 and 101.6 tons were taken in February 1998.
- <sup>l</sup> Includes sale from ADF&G test fishing near Knowles Head, 31 October 1998.



**Appendix G9.**—Prince William Sound commercial food/bait Pacific herring harvest, management years 1968–2004.

**Appendix G10.**—Annual Pacific herring biomass indices for harvest management years 1973–2004.

Harvest Management Year	Total Spring	Aerial Survey Estimates				Unexploited Esc. Biomass	Pre-Fishery Run Biomass	Observed Peak Acoustic Biomass Estimates		Prior Year Forecast (tons)
	Use and Harvest Mortality <sup>a</sup>	Peak Biomass Estimate <sup>b</sup>	Maximum Possible Observed Biomass <sup>c</sup>	Miles of Spawn <sup>d</sup>	Mile Days of Spawn <sup>e</sup>	Age Structured Analysis <sup>f</sup>	Age Structured Analysis <sup>f</sup>	Fall (tons)	Spring (tons)	
	(tons)	(tons)	(tons)			(tons)	(tons)			
1973-1974	6,375	41,080	107,290	38.5	75.2					
1974-1975	5,854			34.2	42.4					
1975-1976	2,584	7,330	25,247	32.8	33.7					
1976-1977	2,267	16,830	17,460	39.3	73.5					
1977-1978	1,391	13,410	36,540	28.7	36.3					
1978-1979	4,138	42,100	107,390	54.5	73.2					
1979-1980	6,323	62,110	122,050	50.5	73.9	55,690	60,993			
1980-1981	14,124	77,810	161,690	85.4	140.1	60,744	74,263			
1981-1982	7,861	68,790	97,620	49.0	65.1	55,189	62,776			
1982-1983	3,181	41,850	107,710	67.4	99.8 <sup>h</sup>	66,232	69,045			
1983-1984	6,604	58,870	158,760	60.1	86.8	81,340	87,324			
1984-1985	7,679	20,830	60,954	101.2	149.5	110,516	117,779			
1985-1986	11,180	15,180	54,820	72.4	152.3	95,660	106,325			
1986-1987	6,281	26,530	52,192	65.3	155.9	98,711	104,084			
1987-1988	9,871	34,270	67,175	166.3	236.9	129,571	139,042			43,992
1988-1989	<sup>i</sup>	56,915	186,708	98.4	185.8	123,895	123,895			54,899
1989-1990	10,103	57,900	145,013	94.1	144.4	89,818	100,016			51,692
1990-1991	15,196	42,765	141,375	58.0	64.8	62,092	76,261			96,666
1991-1992	20,752	53,835	130,569	74.7	99.5	64,648	83,901			121,342
1992-1993	2,360	20,725	109,865	20.4	40.8	29,249	31,389			134,133
1993-1994	151	19,640	154,008	14.6	20.0	15,371	15,371	20,998		29,787
1994-1995	0	7,113	20,868	20.4	32.3	16,448	16,448	13,840	14,643	19,009
1995-1996	0	10,691	37,771	27.2	39.1	26,466	26,466	26,776	25,353	24,332
1996-1997	5,170	10,858	57,114	42.7	56.0	32,042	36,566	3,086	44,095	37,599
1997-1998	3,849	13,817	50,124	38.7	48.5	32,122	35,879		25,045	38,640
1998-1999	49	6,366	10,872	25.4	37.8	21,917	21,972		19,113	39,557
1999-2000	0	1,610	2,889	19.5	24.6	16,642	16,642		7,444	23,987
2000-2001	0	587	898	16.0	16.8	10,528	10,528		7,037	NA
2001-2002	0	150	1,063	21.5	23.0	16,102	16,102		12,015	NA
2002-2003	0	2,560	5,600	25.2	28.6	23,050	23,050		29,873	NA
2003-2004	0	4,930	12,305	29.7	34.7	22,959	22,959		21,046	NA

<sup>a</sup> Represents the common property seine and gillnet sac roe harvest, and equivalent use of herring in closed pound SOK fisheries.

<sup>b</sup> Largest single day aerial estimate of herring biomass in short tons.

<sup>c</sup> The sum of all daily aerial biomass estimates for a given year.

<sup>d</sup> Total linear miles of spawn.

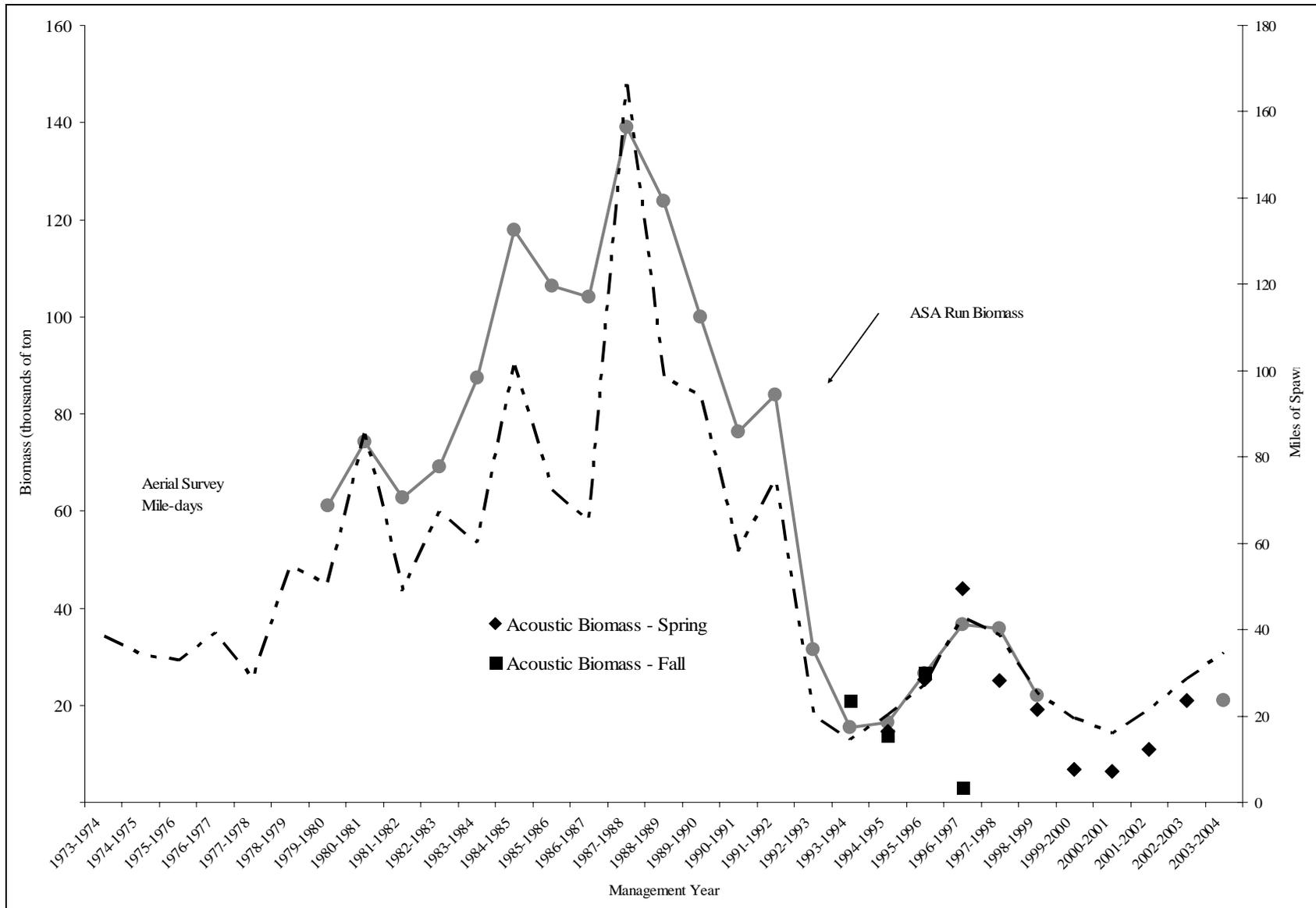
<sup>e</sup> The sum of the daily observed linear miles of herring spawn.

<sup>f</sup> Estimates are made from underwater surveys of spawn deposition.

<sup>g</sup> Unexploited escapement and run biomass estimates from age structured analysis, September 2004.

<sup>h</sup> Partial estimate of spawning biomass from feasibility study.

<sup>i</sup> All herring commercial fisheries in PWS were closed spring 1989 because of the potential for the contamination of catches from the T/V Exxon Valdez oil spill.

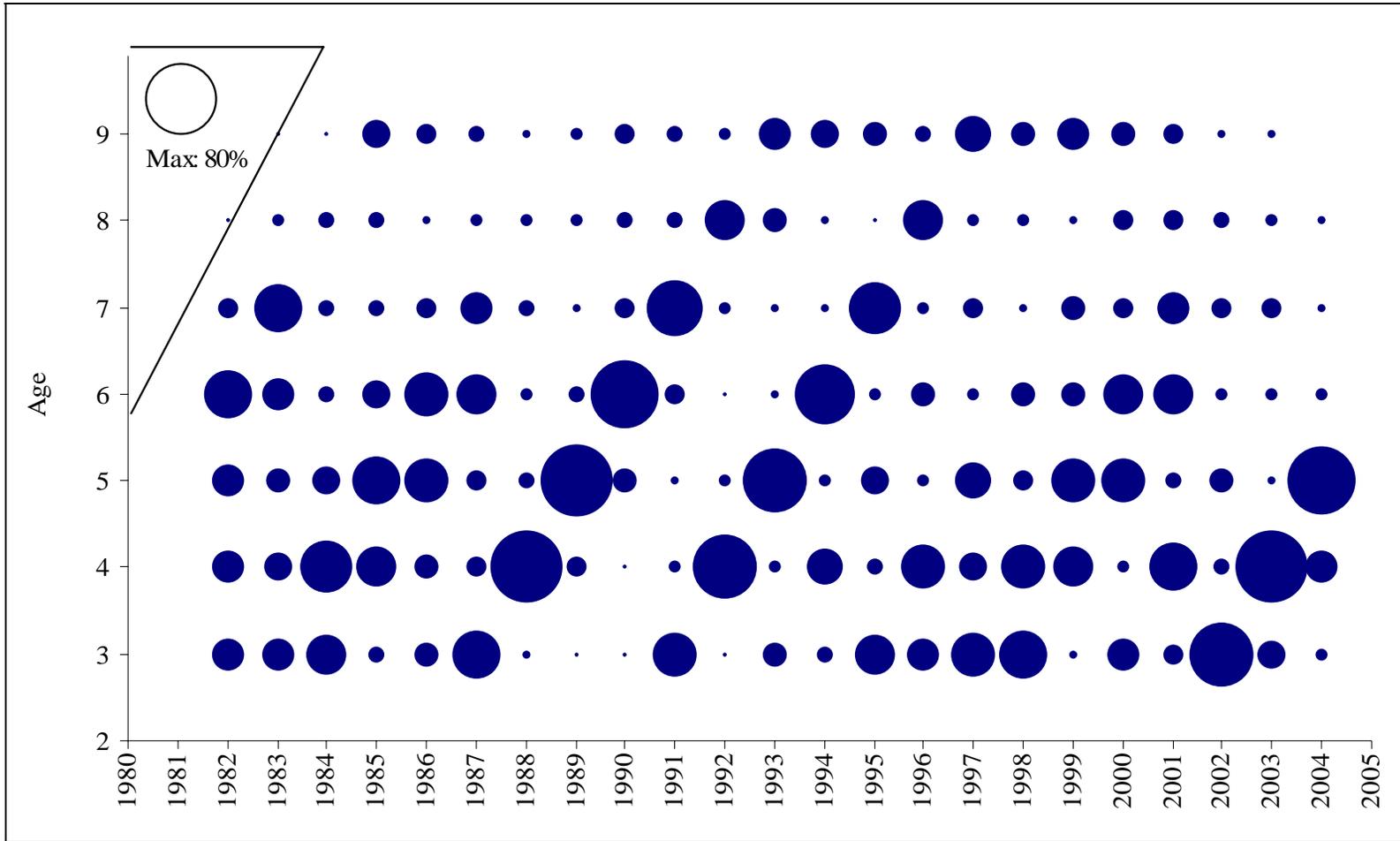


**Appendix G11.**—Prince William Sound annual Pacific herring biomass indices by management year, 1973–2004, and forecast run biomass from 2000 run of the ASA model.

**Appendix G12.**—Mean price and estimated exvessel value of the commercial Pacific herring harvest by gear type based on verbal post season estimates from processors and permit holders, 1978-2004.

Calendar Year	Sac Roe Fisheries				Spawn on Kelp Fisheries				Food-and-Bait Fishery		
	Purse Seine		Drift Gillnet		Wild Spawn on Kelp		Pounds		Mixed Gear		
	Price per ton	Total Value	Price per ton	Total Value	Price per lb	Total Value	Price per lb <sup>a</sup>	Total Value	Price per ton	Total Value	TOTAL VALUE
1978	\$ 720	\$ 956,800			\$ 1.25	\$ 175,000			\$ 380	\$ 489,820	\$ 1,621,700
1979	\$ 1,260	\$ 5,213,880			\$ 1.74	\$ 821,280			\$ 300	\$ 196,800	\$ 6,231,960
1980	\$ 320	\$ 1,933,760			\$ 1.09	\$ 667,080			\$ 300	\$ 424,800	\$ 3,025,640
1981	\$ 400	\$ 5,508,000	\$ 580	\$ 135,720	\$ 1.00	\$ 122,000			\$ 260	\$ 328,120	\$ 6,093,840
1982	\$ 380	\$ 2,716,240	\$ 640	\$ 251,520	\$ 1.29	\$ 397,320			\$ 220	\$ 194,260	\$ 3,559,340
1983	\$ 600	\$ 1,634,400	\$ 1,040	\$ 109,200	\$ 2.10	\$ 634,200			\$ 260	\$ 70,980	\$ 2,448,780
1984	\$ 760	\$ 4,435,360	\$ 640	\$ 218,880	NO HARVEST		\$ 3.50	\$ 176,439	\$ 260	\$ 265,460	\$ 5,096,139
1985	\$ 760	\$ 5,380,800	\$ 900	\$ 371,700	\$ 0.48	\$ 19,200	\$ 7.09	\$ 569,058	\$ 250	\$ 279,500	\$ 6,620,258
1986	\$ 820	\$ 8,058,960	\$ 920	\$ 412,160	\$ 1.70	\$ 159,800	\$ 8.00	\$ 1,155,200	\$ 180	\$ 229,680	\$ 0,015,800
1987	\$1,100	\$ 5,480,200	\$ 960	\$ 511,680	\$ 1.70	\$ 299,200	\$ 15.00	\$ 1,836,000	\$ 300	\$ 356,700	\$ 8,483,780
1988	\$ 840	\$ 6,600,000	\$ 1,400	\$ 537,000	\$ 1.20	\$ 232,000	\$ 18.00	\$ 4,500,000	\$ 300	\$ 400,590	\$ 12,236,500
1989				SEASON CLOSED					\$ 300	\$ 193,830	\$ 193,830
1990	\$ 640	\$ 5,351,744	\$ 640	\$ 323,456	\$ 0.90	\$ 213,840	\$ 11.40	\$ 2,305,080	\$ 300	\$ 605,130	\$ 8,799,250
1991	\$ 600	\$ 7,153,800	\$ 600	\$ 445,200	\$ 0.80	\$ 172,160	\$ 9.00	\$ 2,880,000	\$ 250	\$ 1,064,625	\$ 11,715,785
1992	\$ 400	\$ 6,713,680	\$ 800	\$ 752,480	\$ 0.46	\$ 232,116	\$ 8.00	\$ 3,875,200	\$ 200	\$ 780,060	\$ 2,353,536
1993	NO HARVEST		\$ 400	\$ 411,960	\$ 0.55	\$ 178,860	\$ 10.00	\$ 2,000,000	\$ 200	\$ 217,400	\$ 2,808,220
1994				SEASON CLOSED						SEASON CLOSED	
1995				SEASON CLOSED						SEASON CLOSED	
1996				SEASON CLOSED					\$ 200	\$ 187,000	\$ 187,000
1997	\$ 200	\$ 940,600	\$ 80	\$ 14,080	\$ 0.61	\$ 32,000	\$ 8.00	\$ 426,816	\$ 250	\$ 170,000	\$ 1,583,496
1998	\$ 300	\$ 999,000	\$ 375	\$ 156,000	\$ 0.65	\$ 23,000	\$ 5.00	\$ 107,000	\$ 295	\$ 296,000	\$ 1,581,000
1999				SEASON CLOSED			\$ 8.00	\$ 99,000		SEASON CLOSED	
2000				SEASON CLOSED						SEASON CLOSED	
2001				SEASON CLOSED						SEASON CLOSED	
2002				SEASON CLOSED						SEASON CLOSED	
2004				SEASON CLOSED						SEASON CLOSED	

<sup>a</sup> The price per pound for spawn on kelp in pounds is based on the final product weight, not harvest weight.



**Appendix G13.**—Pacific herring percentage contribution by weight of each age group to the spring run biomass, 1982–2004.