Fishery Management Report No. 08-12

2007 Lower Cook Inlet Annual Finfish Management Report

by

Lee F. Hammarstrom

and

Ethan G. Ford

March 2008

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.

Weights and measures (metric)

centimeter	cm
deciliter	dL
gram	g
hectare	ha
kilogram	kg
kilometer	km
liter	L
meter	m
milliliter	mL
millimeter	mm

Weights and measures (English)

cubic feet per second	ft^3/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 (negative log of)	pH
parts per million	ppm
parts per thousand	ppt, ‰
volts	V
watts	W

General

Alaska Administrative Code	AAC
all commonly accepted abbreviations	e.g., Mr., Mrs., AM, PM, etc.
all commonly accepted professional titles	e.g., Dr., Ph.D., R.N., etc.
at	@
compass directions:	
east	E
north	N
south	S
west	W
copyright	©
corporate suffixes:	
Company	Co.
Corporation	Corp.
Incorporated	Inc.
Limited	Ltd.
District of Columbia	D.C.
et alii (and others)	et al.
et cetera (and so forth)	etc.
exempli gratia (for example)	e.g.
Federal Information Code	FIC
id est (that is)	i.e.
latitude or longitude	lat. or long.
monetary symbols (U.S.)	$, ¢
months (tables and figures): first three letters	Jan,...,Dec
registered trademark	®
trademark	™
United States (adjective)	U.S.
United States of America (noun)	USA
U.S.C.	United States Code
U.S. state	use two-letter abbreviations (e.g., AK, WA)

Measures (fisheries)

fork length	FL
mideye-to-fork	MEF
mideye-to-tail-fork	METF
standard length	SL
total length	TL

Mathematics, statistics

all standard mathematical signs, symbols and abbreviations	
alternate hypothesis	H_A
base of natural logarithm	*e*
catch per unit effort	CPUE
coefficient of variation	CV
common test statistics	(F, t, χ^2, etc.)
confidence interval	CI
correlation coefficient (multiple)	R
correlation coefficient (simple)	r
covariance	cov
degree (angular)	°
degrees of freedom	df
expected value	*E*
greater than	>
greater than or equal to	≥
harvest per unit effort	HPUE
less than	<
less than or equal to	≤
logarithm (natural)	ln
logarithm (base 10)	log
logarithm (specify base)	$\log_2$, etc.
minute (angular)	'
not significant	NS
null hypothesis	H_O
percent	%
probability	P
probability of a type I error (rejection of the null hypothesis when true)	α
probability of a type II error (acceptance of the null hypothesis when false)	β
second (angular)	"
standard deviation	SD
standard error	SE
variance	
population	Var
sample	var

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Alaska Department of Fish and Game, Division of Commercial Fisheries, Homer

Alaska Department of Fish and Game
Division of Sport Fish, Research and Technical Services
333 Raspberry Road, Anchorage, Alaska, 99518-1599

March 2008

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Lee F. Hammarstrom and Ethan G. Ford,
Alaska Department of Fish and Game, Division of Commercial Fisheries,
3298 Douglas Place, Homer, AK 99603, USA

This document should be cited as:
Hammarstrom, L. F. and E.G. Ford. 2008. 2007 Lower Cook Inlet Annual Finfish Management Report. Alaska Department of Fish and Game, Fishery Management Report No. 08-12, Anchorage.

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ABSTRACT

The 2007 Lower Cook Inlet commercial salmon fishery was characterized by above average sockeye salmon *Oncorhynchus nerka* harvests but below average Chinook *O. tshawytscha*, coho *O. kisutch*, pink *O. gorbuscha*, and chum *O. keta* salmon harvests. The all-species commercial harvest totaled approximately 662,200 fish, dominated by sockeye salmon at 55% and pink salmon at 43%. The commercial fishery exvessel value was approximately $1.64 million, the fifth lowest over the past decade. Participation remained at low levels for the only two allowable gear groups, purse seine and set gillnet, with effort for both showing decreases over the previous season. Although salmon enhancement continued to play a key role in commercial harvests due to numerous sockeye salmon lake stocking projects, only one pink salmon hatchery provided supplemental production for the second consecutive season, a decrease from the long-term pattern of two such facilities. The harvest of salmon for cost recovery purposes by hatchery facilities in Lower Cook Inlet, expressed as a proportion of total commercial catches, was estimated at approximately 28% in numbers of fish and 13% in exvessel value for the season, considerably less than the historical average.

The Southern District Personal Use Coho Salmon Fishery in Kachemak Bay produced an estimated harvest of 1,430 coho salmon, falling within the guideline harvest range of 1,000 to 2,000 coho salmon. Participation in the fishery, at 95 permits actively fished, was the highest figure since 2001.

The commercial Pacific herring *Clupea pallasi* fishery in Lower Cook Inlet was closed during 2007 for the ninth consecutive season due to continuing low abundance levels.

Key words: Lower Cook Inlet, commercial salmon harvest, salmon enhancement, hatchery, cost recovery, personal use fishery, purse seine, set gillnet, escapement, sockeye *Oncorhynchus nerka*, pink *O. gorbuscha*, chum *O. keta*, coho *O. kisutch*, Pacific herring *Clupea pallasi*.

2007 COMMERCIAL SALMON FISHERY

INTRODUCTION

The Lower Cook Inlet (LCI) management area, comprised of all waters west of the longitude of Cape Fairfield, north of the latitude of Cape Douglas, and south of the latitude of Anchor Point, is divided into five commercial salmon fishing districts (Figure 1). The Barren Islands District is the only fishing district where no salmon fishing occurs, with the remaining four districts (Southern, Outer, Eastern, and Kamishak Bay) separated into approximately 40 subdistricts and sections to facilitate management of discrete stocks of salmon.

The 2007 LCI all-species salmon harvest of 662,200 fish (Table 1, Figure 7) was easily the lowest during the past decade, representing only one-third of the recent 10-year average of 2.027 million (Appendix A5). The overall harvest failed to achieve the cumulative preseason forecast of 1.45 million fish (Appendix C1), in large part due to much smaller than anticipated harvests of natural runs of pink salmon *Oncorhynchus gorbuscha*. Additionally, relatively weak returns of chum salmon *O. keta* occurred for the first time in the past eight years, resulting in a commercial catch of less than 1,800 fish (Tables 1 and 6, Figure 11), the lowest since statehood. The bright spot in LCI this season was sockeye salmon *O. nerka*, with a commercial harvest of just over 366,000 fish (Tables 1 and 3, Figure 8), exceeding the recent 10-year average of 298,000 by about 23% (Appendix A13). Prices paid for salmon this season yielded an estimated exvessel value of approximately $1.64 million (Table 7), making the value of the 2007 LCI harvest approximately 13% less than the recent 10-year average and the fifth lowest during that time period (Appendix A2). Seine fishing effort showed a decrease over the previous year, and with only 19 of 86 permit holders making deliveries this season (Appendix A1), participation continued to follow a recent low trend. The number of active set gillnet permits in 2007 was 16 (Appendix A1), the lowest level observed since 1994.

For the second consecutive season, but a departure from a long-term trend, LCI commercial salmon harvests in 2007 were not dominated by hatchery and enhanced fish production, primarily because no pink salmon returned to the Tutka Hatchery facility, where Cook Inlet Aquaculture Association (CIAA) suspended operations after the 2004 season. Hatchery production did contribute to sockeye salmon catches, however, with nearly 40% of the LCI sockeye salmon harvest in numbers of fish attributed to lake stocking and fertilization projects, most of which were originally begun by Alaska Department of Fish and Game (ADF&G) but are currently maintained by CIAA. These projects were conducted at Leisure and Hazel lakes in the Southern District, Kirschner Lake in the Kamishak Bay District, and Bear Lake in the Eastern District. Another traditional sockeye salmon enhancement project, conducted by the Nanwalek Salmon Enhancement Project (NSEP) in conjunction with Chugach Regional Resources Commission (CRRC) at English Bay Lakes in the Southern District, contributed a small number of sockeye salmon to commercial set gillnet harvests this season while additionally providing fish for local subsistence users. Despite the unexpectedly poor production from enhancement projects, the overall areawide commercial harvest of sockeye salmon in LCI, at just over 366,000 fish, still exceeded the recent 10-year average of 298,000 sockeye salmon (Appendix A13).

Returns of pink salmon, usually the dominant species in numbers of commercially harvested salmon in LCI, were considered relatively good this year, but the overall catch of 287,400 fish (Tables 1 and 5, Figure 10) did not necessarily reflect this. The 2007 harvest represents the second lowest commercial all-species total since 1987, the last season that pink salmon were not the most numerous species in the LCI commercial catches (Appendix A5). Despite numerous and fairly liberal openings to target reasonably strong natural returns of pink salmon, erratic tender service to remote LCI districts caused catches to remain low. At Port Graham Hatchery, the catch of 118,000 pink salmon (Table 9) was used entirely in an unsuccessful attempt to achieve the facility's annual revenue goal, while no pink salmon were taken for hatchery broodstock purposes by the facility.

Although private non-profit (PNP) corporations in LCI continued to harvest fish for sale this season, for the second consecutive year a much smaller than average portion of the overall salmon harvest was utilized as hatchery cost recovery to recoup expenses incurred by the various stocking and enhancement projects throughout the management area. Only about 28% of the all-species salmon harvest in numbers of fish was taken by CIAA and Port Graham Hatchery Corporation (PGHC) to support the lake stocking programs and Port Graham Hatchery operations, representing about 13% of the exvessel value of the LCI salmon fishery (Table 7).

The shortage of regular tender service in remote districts, a persistent factor affecting the amount and distribution of seine effort , and ensuing harvest of salmon, in LCI over the past decade, once again seemed to impact overall harvests during 2007. The policy to severely restrict or eliminate such remote tender service was adopted in 1994 by major processors as a means to reduce costs. Prior to that time, processors routinely stationed a tender (or tenders) in remote districts in anticipation of salmon harvests, even when run strengths and catches were marginal. Once that policy was abandoned, however, seiners were forced to devise their own means to transport fish from these remote areas to a processing plant in Homer or elsewhere. Due to equipment limitations and the high cost of contracting out for tendering services, significant numbers of fishermen were often unable to fish in remote areas, while others retained the flexibility to fish these traditional areas because of onboard chilling equipment. In spite of relatively strong pink

salmon returns to Port Dick and Kamishak Bay systems, very little tender service was available in these remote areas in 2007.

Prices paid for salmon species in LCI were variable this season (Appendix A3), with those for Chinook *O. tshawytscha* and coho *O. kisutch* increasing over the previous year while falling for the other three species. Nonetheless, the low prices paid for the most abundant species, pink salmon, coupled with the small numbers of available buyers and sometimes limited tender service, frequently dictated the fishing strategy of individual fishermen, even to the point of total non-participation, thus contributing to continuing low levels of seine effort.

PRESEASON FORECAST

The projected 2007 LCI all-species salmon harvest of approximately 1.45 million fish was approximately 29% less than the recent 20-year average actual harvest. Formal total forecasts for natural salmon runs other than pink salmon were not prepared because escapement and age, weight, and length data are limited for those species. However, catch projections were calculated from relative estimates of parental run size, average age composition data, and recent relative productivity trends.

Preseason LCI harvest projections and actual catches for all species in 2007 are listed below:

Species	Projected Harvest	Actual Harvest	1987–2006 Average
Chinook	1,300	467	1,422
Sockeye	366,600	366,225	273,709
Coho	14,100	6,319	12,602
Pink	1,065,300	287,411	1,322,110
Chum	40,600	1,777	60,488
Total	**1,454,900**	**662,199**	**1,670,330**

Enhanced runs to Leisure and Hazel lakes in the Southern District, Kirschner Lake in the Kamishak Bay District, and Bear Lake in the Eastern District were expected to comprise the bulk of the LCI sockeye salmon harvests this season. The sockeye salmon run to the English Bay Lakes system in the Southern District, although important in some recent years, was not expected to produce any harvestable surplus for commercial set gillnet harvests in LCI due to a weak forecast resulting from low level smolt outmigrations in previous years. Although Chenik Lake in the Kamishak Bay District benefited from regular fry stocking and intermittent fertilization during the 1980s and early 1990s, the program was suspended after 1996 due to an epizootic of Infectious Hematopoietic Necrosis Virus (IHNV) within the system in previous years. Despite this lack of enhanced production, adult sockeye salmon returns to Chenik Lake from 2003–2006 were surprisingly good, resulting in the first directed effort at this stock in over a decade and annual commercial harvests ranging from 12,000 to 47,000 sockeye salmon between 2004 and 2006. Because of the unexpectedly strong runs the previous four seasons, the outlook for the adult sockeye salmon return at Chenik Lake in 2007 was cautiously optimistic, with fishermen hoping for reasonable harvest opportunities.

With the suspension of operations at Tutka Bay Hatchery after the 2004 season, no pink salmon were slated to return to that facility for the second consecutive year. Thus, the only hatchery-produced pink salmon returning to LCI would be at Port Graham, with a forecasted harvest of just 77,000 fish, all of which would be likely be required for cost recovery. The projection was based on typical recent-year survivals from a release of approximately 14 million fry from Port Graham Hatchery in 2006 (Appendix A31). Broodstock requirements were expected to total an additional 200,000 pink salmon at Port Graham Hatchery.

Reasonably good pink salmon escapements to major systems in 2005 contributed to a harvest projection of nearly 1.0 million naturally produced pink salmon throughout the entire LCI management area this season. Port Dick, Windy Bay, Rocky Bay, and Port Chatham Subdistricts in the Outer District, Ursus Cove and Rocky Cove Subdistricts in the Kamishak Bay District, and Humpy Creek and Seldovia Bay Subdistricts in the Southern District, all figured to provide the potential for harvestable surpluses, but the projected fishing effort in the remote districts was debatable due to uncertain markets and questionable levels of available tender service.

Due to seven consecutive seasons of relatively strong chum salmon runs and catches in LCI, the chum salmon harvest outlook in 2007 once again appeared bright. Most west-side LCI systems experienced good escapements during the 2002 and 2003 parent years, and recent years' runs to area systems have continued to display a generally encouraging trend. Numerous systems, especially those in northern Kamishak Bay, seemed to effectively rebound from chronic low level returns in the 1990s decade, while chum runs to the larger Big and Little Kamishak Rivers have also been comparatively strong during the past seven years. The good catches during the last seven seasons, as well as the recent overall trend, suggested that harvest opportunities for chum could be numerous in 2007.

2007 SUMMARY BY SPECIES

Chinook Salmon

The 2007 harvest of Chinook salmon, not normally a commercially important species in LCI, totaled just under 500 fish (Table 2), or less than 40% of the average during the last decade and only one-third of the long-term average of just over 1,400 fish (Appendix A12). Virtually all of the catch came from the Southern District, with the majority taken in Halibut Cove Subdistrict, the location of a remote release site. Even though this Chinook salmon enhancement project, and a similar one in Seldovia Bay of the Southern District, is intended to primarily benefit recreational fishermen, adult fish returning to both stocking sites are incidentally taken in the commercial fishery. Set gillnetters this season accounted for 94% of the Southern District Chinook salmon catch, with purse seiners taking the remaining 6%.

Sockeye Salmon

The 2007 sockeye salmon harvest of 366,200 fish (Table 3; Figure 8) was the third highest for LCI since 1996, exceeding the 20-year average of 273,700 fish (Appendix A13) by over 33%. Sockeye salmon accounted for 55% of the LCI salmon harvest in total numbers of fish, yet provided over 90% of the exvessel value of the entire salmon fishery this season (Table 7). The 2007 LCI commercial sockeye salmon harvest was characterized by much weaker than expected returns to key enhanced systems at Leisure and Hazel lakes (Southern District) and Bear Lake (Eastern District). In contrast, natural sockeye salmon returns within the management area ranged from good to outstanding, with all five major systems achieving or exceeding their

respective sustainable escapement goals (SEG's). Of particular note was the formerly enhanced system of Chenik Lake, located in the Kamishak Bay District on the west side of LCI, where the sockeye salmon return this season was one of the best on record. The resulting 2007 commercial catch in nearby waters totaled over 160,000 fish, which was over five times the average catch during the previous three seasons (Appendix A16). Stocking of Chenik Lake was discontinued after the 1996 season, thus all present production is considered natural, and this season's return was estimated at approximately 180,000 sockeye salmon, continuing a five-year trend of good returns to the system. The English Bay Lakes system, with both natural and (at times) enhanced production, also attained its desired inriver return. As has been the case during past seasons, non-local stocks were thought to have intermixed with local stocks while migrating through the Southern District terminal harvest areas, providing additional sockeye salmon for harvest there.

Sockeye salmon runs to Southern District enhancement sites, which frequently provide the bulk of the annual LCI sockeye salmon catch, were weak for the fourth consecutive season, continuing a recent pattern of relatively meager runs to these enhancement sites. Harvests of enhanced runs of sockeye salmon returning to Leisure and Hazel lakes were predicted to cumulatively total about 106,000 fish in 2007, but the estimated combined harvest amounted to only around 83,800 fish (Figure 9; Appendix A15). This figure was well below the recent 10-year average of over 157,000 sockeye salmon and also represented the fourth lowest combined total since adults began returning to both the Leisure and Hazel lakes enhancement sites in 1991 (prior to that year, only Leisure Lake sockeye salmon contributed to the harvests).

Also in the Southern District, the sockeye salmon run to English Bay Lakes was considerably better than expected, achieving the desired inriver escapement goal while also providing modest harvest opportunities for commercial set gillnetters in Port Graham Subdistrict and subsistence set gillnetters from the two local native villages. Both the commercial and subsistence set gillnet fisheries in waters of Port Graham Subdistrict remained closed for the early portion of the sockeye salmon run in order to protect fish for escapement purposes. The subsistence fishery in those waters was only allowed to reopen on June 23 after the escapement goal was assured, while the commercial fishery opened just over a week later, resulting in a seasonal harvest of approximately 4,300 sockeye salmon (Table 3) for the latter user group. The continued viability of the sockeye salmon returns to the English Bay Lakes system may rest on the future success of the inconsistent rehabilitation project originally initiated by ADF&G in the late 1980s and presently being conducted by Chugach Regional Resources Commission (CRRC) in conjunction with NSEP, operated by the village of Nanwalek. This sockeye salmon project has encountered setbacks in recent seasons due to viral and disease outbreaks in the pen rearing of juveniles, as well as years when no or reduced numbers of broodstock were collected. For the 2007 season, no juvenile sockeye salmon were released back into the English Bay Lakes system for the second consecutive season, but just under 400 sockeye salmon were collected for broodstock.

In the Kamishak Bay District, the enhanced run of sockeye salmon to Kirschner Lake produced a catch of over 35,000 fish (Table 3) or about 37% greater than the preseason harvest forecast of 25,900 fish. Just over three-fourths of the sockeye salmon returning to Kirschner Lake in 2007 were utilized for hatchery cost recovery, with the remainder taken by commercial seiners.

At Bear Lake in Resurrection Bay of the Eastern District, the cumulative seine and hatchery catch of "early run" sockeye salmon destined for Bear Lake totaled 23,900 fish (Table 3), falling far short of the original preseason harvest forecast of 100,000 sockeye salmon. Nonetheless, the

desired inriver sockeye salmon goal for Bear Lake was achieved despite the weaker than predicted return.

The LCI management area has only six lake systems with significant naturally occurring sockeye salmon runs, and five achieved or exceeded their sustainable escapement goals (SEG's) in 2007, while the sixth system has no formal escapement goal. In East Nuka Bay Subdistrict of the Outer District, an uncharacteristically strong and somewhat late return to Delight Lake produced an escapement estimate, enumerated via a picket weir and aerial surveys, of 44,000 sockeye salmon (Appendix A23), surpassing its SEG of 6,000 to 12,600 fish. The peak daily aerial survey escapement estimate at nearby Desire Lake totaled 10,000 sockeye salmon, falling within the SEG range of 8,800 to 15,200. Commercial seine fishing effort on the sockeye salmon runs bound for the two aforementioned systems in East Nuka Bay resulted in a harvest totaling 32,500 sockeye salmon for the season (Table 3), the highest since 1986. A third system in East Nuka Bay, known as Delusion (Ecstasy) Lake, is a recently formed glacial system that supported no documented salmon run prior to the mid 1980s. The sockeye salmon run to this system showed a peak aerial escapement estimate of 2,100 sockeye salmon in 2007 (Table 3).

Targeted fishing effort was allowed on sockeye salmon returning to Chenik Lake in the Kamishak Bay District for the fourth consecutive season in 2007. From 1994 through 2002, returns to that system had been poor due to the after-effects of an outbreak of IHNV, a naturally occurring viral disease, in the early 1990s. The outbreak caused increased mortality to young salmon, subsequently resulting in weak adult returns, and CIAA ultimately suspended a traditional stocking program at Chenik Lake after the 1996 season. The sockeye salmon run to Chenik this year, the fifth consecutive good run, was considered outstanding, with a total return estimated at almost 180,000 sockeye salmon, consisting of a commercial seine harvest of 161,600 fish and an approximate escapement of 18,200 (Appendix A16). The latter figure exceeded the escapement goal range of 2,000 to 9,300. It is important to note that all adults returning to Chenik Lake in the last five seasons were entirely the result of natural production since the stocking program has not been conducted at this system since 1996.

Waters of Aialik Bay in the Eastern District were not opened to commercial fishing in 2007 due to a relatively weak sockeye salmon return to Aialik Lake sockeye salmon. As a result, no harvest resulted and all fish entered the system as escapement, estimated by aerial surveys at just under 5,400 fish, falling within the SEG range of 3,700 to 8,000 sockeye salmon (Table 3; Appendix A23). At Mikfik Lake in the Kamishak Bay District, a reasonably good run resulted in an escapement estimated at 11,200 sockeye salmon (Table 3; Appendix A23), falling near the upper end of the established goal range of 6,300 to 12,200. Despite the good return, no seine effort targeting Mikfik sockeye salmon occurred despite continuous fishing time allowed in June, thus no harvest resulted.

Coho Salmon

The coho salmon resource in the LCI management area is not extensive; therefore this species rarely attains commercial prominence. The 2007 commercial harvest of 6,300 coho salmon (Table 4) was only about half of the average catch during the past 10 years (Appendix A17). The Eastern District, which frequently dominates coho catches because of the Seward Silver Salmon Derby and CIAA hatchery cost recovery at Bear Lake, accounted for around 45% of the areawide coho harvest, but all harvest from that district this season was entirely attributed to the derby. It should be noted that the organizer of the derby, the city of Seward, annually sells the

derby entries to a commercial processor as a means to generate revenue, hence these derby entries are listed as "commercial" harvests. The remainder of the LCI coho catch was split about equally between set gillnetters (26%) and seiners (27%) in the Southern District, while hatchery fishers in the Southern District and seiners in the Kamishak Bay and Outer Districts caught negligible numbers.

Because the coho resource in LCI, and assessment of it, is limited, commercial coho harvests can sometimes be used to gauge coho salmon run strength. However, market conditions in recent years have discouraged directed effort, making the incidental commercial harvest of this species an unreliable indicator. Sport and personal use harvests generally provide the best indicators of run strength. The weak commercial catches, and other informal signs, suggested that returns during 2007 were likely average or slightly below average. Two aerial surveys flown specifically for coho salmon assessment in 2007 showed good escapement at Clearwater Slough in the Northshore Subdistrict of the Southern District.

Pink Salmon

Returns of pink salmon, usually the dominant species in numbers of commercially harvested salmon in LCI, were considered generally good this year, but the overall harvest of only 287,400 fish (Table 5; Figure 10) was not an accurate reflection of the actual runs. This figure is less than one-fifth of the most recent 10-year average and represents the lowest catch of this species since 1987, the last year that pink salmon were not the most numerous salmon species in the LCI commercial harvest (Appendix A18). Despite the numerous and fairly liberal openings to target reasonably strong natural stocks this season, spotty tender service in remote areas, low prices, and lack of available buyers combined to keep pink salmon catches lower than potentially possible. Harvests this season were comprised of both naturally produced fish as well as fish returning to the only remaining pink salmon hatchery facility in LCI at Port Graham. The strongest natural pink salmon returns occurred in Bruin Bay and Ursus Cove Subdistricts in the Kamishak Bay District, but no effort directed at this species occurred in these waters. The suspension of operations at Tutka Hatchery in the Southern District, LCI's oldest hatchery, meant no hatchery-produced pink salmon returning to that facility for the second consecutive season.

The majority of the pink salmon catch this season was taken in the Outer District, where the commercial seine harvest totaled approximately 147,400 pinks (Table 5; Appendix A18), representing just over half of the recent 10-year district-wide average. The majority of this district's catch came from Port Dick Subdistrict, totaling 91,000 pink salmon, while directed effort in Rocky Bay and incidental harvest in East Nuka Bay produced a combined total of approximately 57,000 pink salmon (Table 5).

In the Southern District, which normally dominates LCI pink salmon catches because of the hatchery facilities, the pink salmon return to Port Graham Hatchery was weaker than expected, with an overall return estimate of about 123,000 fish (Table 9). Approximately 96% of the hatchery's run was taken for hatchery cost recovery, while an additional 5,000 pink salmon (4%) were estimated as escapement into tiny Duncan Slough, adjacent to the hatchery complex. No fish were collected for broodstock at Port Graham Hatchery in 2007.

In the Kamishak Bay District on the west side of LCI, the pink salmon harvest of 11,500 fish (Table 5; Appendix A18) was entirely considered incidental harvest during directed efforts targeting sockeye salmon for both common property and hatchery cost recovery at Kirschner and

Chenik lakes. Pink salmon escapements to all monitored systems within the management area were sufficient to achieve or exceed SEG's (Appendix A24).

Chum Salmon

After a seven-year string of relatively strong returns, chum salmon were a disappointment in the 2007 LCI commercial salmon season. The chum salmon harvest of less than 1,800 fish (Table 6, Appendix A21) was the lowest catch on record for the species in LCI. For the first time in many seasons, several areas of Kamishak Bay District on the west side of LCI were closed to commercial fishing in order to protect chum salmon for escapement purposes. Escapements into most Kamishak Bay chum systems were sufficient to achieve goals (Appendix A25), with the exception of McNeil River, where the escapement fell short of its established goal range for the thirteenth time in the last 18 years (but only by 200 fish). Elsewhere in the management area, Outer District chum salmon returns were considered weak, and no directed openings were allowed.

2007 EXVESSEL VALUE

The estimated exvessel value of the 2007 commercial salmon harvest in LCI, not including any postseason adjustments in price paid to fishermen, was approximately $1.64 million (Table 7; Appendix A2), making it approximately 13% less than the average during the past decade. Purse seine gear in the common property fishery, which normally generates the majority of the catch and value, accounted for about $1.13 million or slightly less than 70% of the overall exvessel total (Table 7), while set gillnets accounted for $277,000 or 17%. An estimated $217,000, or about 13% of the entire exvessel value of the LCI salmon fishery, was utilized for hatchery cost recovery purposes, while the remainder (~1%) consisted of coho salmon entered into the Seward Silver Salmon Derby and subsequently sold by organizers of that event. Estimated average salmon prices paid to fishermen in 2007, not including any postseason adjustments, were as follows: Chinook–$2.62/pound; sockeye–$0.91/pound; coho–$0.60/pound; pink–$0.10/pound; and chum–$0.25/pound (Table 10; Appendix A3). Prices for Chinook and coho salmon increased over the previous season, while prices for the remaining species fell slightly.

2007 DISTRICT INSEASON MANAGEMENT SUMMARIES

Southern District

Set Gillnet Fishery

An Area H commercial set gillnet permit is valid for fishing in any part of Cook Inlet (Upper or Lower), but there are only five beach areas in LCI, all located along the south shore of Kachemak Bay in the Southern District, where set gillnets may be used during open fishing periods (Figure 2). The limited area provides only enough productive fishing sites to accommodate approximately 25 set net permits.

The 2007 LCI all-species set gillnet harvest totaled 32,400 fish, representing only about 57% of the recent 10-year average (Appendix A7) and a third consecutive poor all-species total for this gear group. The sockeye salmon catch of nearly 29,000 fish, however, was the highest since 2003 and was equal to the average over the past two decades. For comparison, salmon species composition in 2007, with sockeye at 89%, coho at 5%, and chum at 4%, was considerably different than the average over the past decade, when typical salmon species composition in the commercial set gillnet fishery was 61% sockeye, 28% pink, 6% chum, 3% coho, and 2%

Chinook salmon. The catch of Chinook salmon, at only 439 fish, was far less than the recent 10-year average of 1,000 and was the lowest harvest in over 25 years. Highest Chinook salmon catches in the set gillnet fishery occurred in Halibut Cove Subdistrict, site of a Chinook salmon enhancement project directed primarily at a recreational fishery in Halibut Cove Lagoon.

Based on the weak preseason forecast for sockeye salmon returning to English Bay Lakes, the commercial set gillnet fishery in the Port Graham Subdistrict, including both the English Bay and Port Graham Sections, was kept closed at the start of the set gillnet season (early June) to protect fish for escapement, but the run proved stronger than anticipated. Once achievement of the SEG was projected, and local residents were given an opportunity to harvest fish for subsistence needs, waters of Port Graham Subdistrict were opened to commercial fishing at the beginning of July. Despite the late start, commercial set gillnetters in this subdistrict still managed to harvest about 4,300 sockeye salmon for the season (Table 3), while the final estimated escapement of 16,500 (Table 3; Appendix A23) slightly exceeded the desired inriver goal of 7,300 to 15,000 sockeye salmon. Local subsistence fishermen from the village of Port Graham reported catching less than 600 sockeye salmon for subsistence needs (though catch reports were considered incomplete), while harvest figures for residents of Nanwalek were unavailable at the time of publication. This situation was similar to the 2000, 2001, and 2004-2006 seasons, when complete fishing closures or severe restrictions were implemented due to weak sockeye salmon returns.

After the English Bay Lakes sockeye salmon return was over, waters of Port Graham Subdistrict remained open to commercial set gillnet fishing for the remainder of the season, even though the Port Graham Hatchery pink salmon forecast suggested that all returning fish would be required to meet hatchery cost recovery and broodstock requirements. Despite the open season, no actual effort or harvest occurred. The hatchery return proved weaker than predicted, the pink salmon cost recovery goal was not met, and no broodstock harvest was attempted for Port Graham Hatchery. Escapement of pink salmon into Port Graham River was above average, slightly exceeding the SEG for that system (Appendix A24).

LCI set gillnet fishing effort in 2007 decreased to the lowest levels seen since 1994 with a total of 16 permits actively fished. This figure is below both the 10- and 20-year averages of 22 permits annually fished (Appendix A1).

Seine Fishery

Sockeye Salmon

The overall 2007 catch of sockeye salmon by all gear types in the Southern District, at 112,700 fish, was the highest for this species since 2003 (Appendix A13) but was still only about 58% of the recent 10-year average. Purse seiners in the common property fishery accounted for about 54% of the sockeye salmon landed in the district in 2007, or approximately 61,200 fish, while an additional 22,600 sockeye salmon (20%) were harvested by purse seine for hatchery cost recovery (Table 1). The relatively poor sockeye salmon catch in 2007 continued a 4-year trend of below average harvests for all gear types. Poor production rates from the district's two major sockeye salmon enhancement projects at Leisure and Hazel lakes are contributing factors to the ongoing low catches, but reasons for this poor production are unclear.

Similar to recent years, waters of Halibut Cove Subdistrict, as well as the outer waters of China Poot Bay and Tutka Bay Subdistricts, were opened to seining five days per week beginning

Monday, June 18, to target enhanced sockeye salmon runs to Leisure and Hazel lakes. Within these subdistricts, however, waters of the China Poot and Hazel Lake Special Harvest Areas (SHA's; Figure 3) were opened only to authorized agents of CIAA at this time, seven days per week, for the express purpose of hatchery cost recovery. Traditionally, the SHA's remain closed to the common property commercial fishery until the preseason revenue goal established for each SHA is achieved.

Preseason combined harvest projections for sockeye salmon runs to the Leisure and Hazel lakes' stocking sites were estimated at nearly 106,000 fish. The actual commercial harvest of adult fish produced as a result of the two enhancement projects was estimated at around 83,800 fish (Figure 9; Appendix A15), comprising less than one-fourth of the entire LCI sockeye salmon harvest. Because of the close geographic proximity of these two projects, the overlapping area of harvest, and the lack of tagging, no definitive assessment of separate runs to each system can be established. In previous seasons, fish returning as a result of these two projects not only contributed to seine catches in China Poot Subdistrict but also to those in adjacent Halibut Cove and Tutka Bay Subdistricts. This season, however, no seine harvest was reported from either of the latter two subdistricts. It was estimated that personal use dip net and sport fishermen harvested another 5,500 sockeye salmon at the head of China Poot Bay based on average catches from the early 1990s. The 2007 total cumulative run from both projects was estimated at slightly less than 90,000 sockeye salmon (Appendix A15), making it the fourth lowest total combined run of sockeye salmon to the two systems since adults began returning to Hazel Lake in 1991 and just over 60% of the average during that time period.

As outlined in the Trail Lakes Hatchery Annual Management Plan (AMP) prior to the season, the CIAA revenue goal necessary to meet operational expenses incurred in LCI sockeye salmon lake stocking projects was set at $120,000 for the third consecutive year. This figure was to be split amongst locations as follows: 64% from combined China Poot and Hazel Lake SHA's, both in the Southern District, and 36% from the Kirschner Lake SHA in the Kamishak Bay District. Cost recovery harvests inside the China Poot and Hazel Lake SHA's (Figure 3) were to proceed at CIAA's discretion as early as possible in the runs since harvests could take place without interference or competition from the fleet at large. A minimum harvest of 18,700 sockeye salmon from the China Poot and Hazel Lake SHA's was necessary to achieve the combined goal of $76,500 for these two areas, assuming a preseason average price of $0.85 per pound and an average weight of 4.81 pounds per fish. As previously described, these SHA's were to remain closed to common property seining until the combined goal established for the two areas was achieved.

Similar to the 2001, 2002, and 2004 seasons, CIAA contracted a small number of individual LCI seiners to conduct cost recovery within the Southern District SHA's. This differed from other recent years, when CIAA contracted the Cook Inlet Seiners Association (CISA) to undertake sockeye salmon cost recovery in LCI, with the latter organization relying on the use of volunteer vessels to undertake hatchery harvest. The first hatchery harvest in the China Poot Subdistrict occurred on July 1 in the China Poot SHA, netting only about 340 fish, which was considered poor based on historical run timing standards and suggested that the return might late or perhaps weaker than forecasted. Up until that time, vessels participating in the common property fishery outside the SHA's were also experiencing rather poor catches, reporting that numbers of fish present in area waters were scattered and not numerous.

Hatchery harvesters reported that traditional "buildups" of sockeye salmon within the China Poot SHA were simply not occurring this season, and as a result harvest efforts in that location over the next three weeks resulted in relatively meager catches, cumulatively totaling only about 2,900 fish. Concentrations of sockeye salmon within the Hazel Lake SHA appeared more promising, but the first catch from that SHA was not reported until July 12, netting slightly more than 4,000 fish. Through July 12, the actual price paid for hatchery cost recovery fish was $0.97 per pound, but a dramatic price reduction was announced at that time, to a new price of $0.67 per pound. Though the early price was greater than the preseason forecasted price, the latter price change ultimately did not significantly alter the preseason projected number of fish necessary to achieve the hatchery revenue goal. Between July 1 and July 20, a total of five hatchery deliveries were reported from the China Poot SHA, while an additional six occurred in the Neptune Bay SHA between July 12 and July 23. The peak daily hatchery harvest of the season, at 7,200 sockeye salmon, came on July 22 from the Neptune Bay SHA, while the final hatchery harvest of the season occurred the next day. This brought the cumulative reported catch in the China Poot and Hazel Lakes SHA's to approximately 22,600 sockeye salmon, totaling 103,300 pounds. These figures translated into a reported total of just over $77,000 revenue for the season, slightly exceeding the goal established for the Southern District SHA's. As a result, the China Poot and Hazel Lakes SHA's were closed to cost recovery harvest on the afternoon of July 24, and waters of both the China Poot and Hazel Lake Sections of China Poot Subdistrict were opened to common property seining seven days per week beginning the next morning. A small portion of the China Poot Section near the mouth of China Poot Creek remained closed to commercial fishing on weekends in deference to the heavy sport/personal use traffic in the vicinity.

As mentioned earlier, common property seine catches in China Poot Subdistrict, outside of the SHA's, were relatively weak during late June, creating pessimism within the fleet. Catches never rose to levels suggested by the preseason forecast, with catches peaking in the China Poot Section during the week of July 16 when 10 vessels took 14,100 sockeye salmon. Catches declined steadily thereafter, ending with a final harvest on August 3. In the Hazel Lake Section, the peak daily harvest occurred on July 25, the day waters of the SHA were opened to common property fishing, with a catch totaling 8,000 sockeye salmon. Effort and harvest fell quickly, with the last harvest in the Hazel Lake Section also coming on August 3. The cumulative common property catch in the two sections totaled 61,200 sockeye salmon (Table 3) taken by 13 seiners. The harvest was split equally between the China Poot and Hazel Lake Sections, which would suggest that the sockeye salmon returns to Leisure and Hazel lakes returns were similar in strength. However, when the hatchery cost recovery harvests were factored in, the Hazel Lake return appeared to be the stronger of the two.

Uncharacteristically, no seine effort for sockeye salmon occurred within adjacent waters of Tutka Bay Subdistrict to the southwest, or Halibut Cove Subdistrict to the northeast, of the China Poot Subdistrict, thus no additional harvest came from these two subdistricts this season.

Because CIAA forecasted a small return of sockeye salmon to the new remote release site for this species at Tutka Lagoon, a Tutka Bay SHA was established and opened to hatchery fishing beginning July 17. Unfortunately, no sockeye salmon were ever documented at the release site this season, thus no effort or harvest resulted.

Pink Salmon

The return of pink salmon to the Port Graham Hatchery was the primary contributor to an overall (all gear/harvest types) Southern District harvest of 128,600 fish (Table 5; Appendix A18), only about 10% of the recent 10-year average. With no pink salmon returning to the Tutka Hatchery for the second consecutive season, the decrease in catches was not surprising. Of the pink salmon harvest in the district, seiners in the common property fishery took only around 8% of the total, while hatchery cost recovery accounted for the remainder.

Because the Tutka Bay SHA had been created in anticipation of a small sockeye salmon return to Tutka Lagoon, common property seining in waters of Tutka Bay Subdistrict was restricted to those waters outside of Tutka Bay proper, primarily to target sockeye salmon returning to the Leisure and Hazel lakes' enhancement sites. However, no seine effort was intentionally directed at pink salmon in the Southern District this season, thus seine harvests of pink salmon consisted solely of fish incidentally harvested during efforts directed at sockeye salmon. Commercial seine catches for the season cumulatively totaled 10,400 pink salmon in the Southern District (Table 1), with about two-thirds taken in the China Poot Section of China Poot Subdistrict and the remainder coming from the Neptune Bay Section.

At Port Graham in the Southern District, a spring 2006 fry release of about 13.9 million pink salmon from Port Graham Hatchery was expected to produce an adult return with a midpoint of just over 277,000 fish this season. With a hatchery broodstock goal of around 200,000 fish, the Port Graham Hatchery Corporation (PGHC) anticipated a harvestable surplus of approximately 77,000 pink salmon. Using an average weight of 3.2 pounds per fish and an average midpoint price of $0.11 per pound, harvest of all available fish would likely be necessary in pursuit of the established hatchery revenue goal of $400,000. Thus, no directed common property effort or harvest was expected.

Since the Port Graham Hatchery pink salmon broodstock goal of 200,000 fish (of hatchery origin) seemed attainable based on the forecast, the capture of wild-stock fish near the mouth of or within nearby Port Graham River, for use as hatchery broodstock, would not be necessary. Nonetheless, a hatchery egg removal schedule for Port Graham River was summarized in the AMP as a contingency. The forecast for the wild stock return to Port Graham River was estimated at approximately 57,000 pink salmon, exceeding the SEG range of 7,000 to 20,000 fish. Although the forecast for the hatchery pink salmon run to Port Graham suggested that the entire return would likely be required to fulfill broodstock and cost recovery requirements, the staff elected to leave the commercial set gillnet fishery in waters of Port Graham open since experience showed that very little effort was likely to occur.

The first ground survey of Port Graham River confirming the presence of pink salmon was completed on July 13, but counts numbered in the single digits, not a surprising figure for this early date based on historical run timing information. As assessment continued, ADF&G aerial and ground surveys in early August showed only a modest escapement of pink salmon into Port Graham River, with no single survey estimate achieving the low end of the SEG range established for this system. However, significantly greater numbers of pink salmon were seen staging in marine waters near the hatchery net pens, located at the source of fresh water for imprinting purposes, and near Duncan Slough, adjacent to the hatchery facility. Such observations annually imply that these fish are primarily of hatchery origin. In order to allow PGHC to initiate cost recovery operations and broodstock collection, waters of the Port Graham

SHA (Figure 5) east of the U.S. Coast Guard navigational buoy were opened to harvest by authorized agents of PGHC on a continuous basis beginning August 8. Restricting PGHC to this relatively small area was felt to provide sufficient protection to natural-stock fish bound for Port Graham River while still allowing the hatchery opportunity to pursue its objectives. Further manipulation of time and area within the SHA would be considered in order to secure escapement and/or hatchery requirements.

The pink salmon return to Port Graham Hatchery appeared to be much weaker than forecasted, thus cost recovery effort levels in the Port Graham SHA were low this season. Only two days of effort occurred, on August 21 and 26, resulting in a cumulative harvest of 118,000 pink salmon (Tables 5 and 9), worth an estimated $30,700 or slightly less than one-fourth of the established revenue goal. Broodstock collection was not undertaken this season, and after accounting for an estimated 5,000 pink salmon, believed to be of hatchery origin, as escapement into tiny Duncan Slough next to the hatchery facility, the cumulative return to the Port Graham Hatchery was estimated at only 123,000 pink salmon (Table 9), or about 44% of the preseason forecast. The natural return of pinks to Port Graham River was also weaker than expected, with a final escapement estimated at 25,600 pink salmon (Table 5; Appendix A24), slightly exceeding the upper end of the established SEG range. No effort occurred in the commercial set gillnet fishery in Port Graham Subdistrict, thus no common property harvest of pink salmon resulted.

Returns of wild pink salmon stocks to other systems in the Southern District, as indicated by ground survey escapement counts, were good to excellent, but no seine openings directed at wild stock pink salmon occurred in the Southern District this season. Resulting pink salmon escapements into all Southern District systems, with the exception of Tutka Creek, fell within or exceeded their established SEG ranges (Table 5; Appendix A24).

Other Species

The Southern District chum salmon harvest in 2007 cumulatively totaled just under 1,600 fish for all gear types (Table 6; Appendix A21), the third lowest total for the district since statehood. Seiners took less than 10% of the total, hatchery fishers accounted for around 1%, and set gillnetters caught the remainder. Set gillnet catches from Tutka Bay Subdistrict dominated the all-gear-types totals (Table 6) at nearly 40% of the district-wide harvest, but seine catches of chum were highest in the China Poot Section of China Poot Subdistrict, undoubtedly as incidental catch during efforts targeting sockeye returning to the Leisure Lake stocking site. Escapements into Southern District chum salmon systems were poor, but escapement at Port Graham River did fall within the SEG range (Appendix A25).

Although minor in total numbers of fish, Southern District Chinook salmon harvests usually consist of incidental catches of adult fish returning to two of three separate enhancement projects. The 2007 Southern District harvest of 466 Chinook salmon by all gear types was the lowest since 1980, representing less than 40% of the recent 10-year average of 1,191 fish (Appendix A12). Seiners took only 6% of the Southern District Chinook salmon total this season (Table 1), estimated to be near or slightly below the normal proportion for this gear type, with set gillnetters harvesting the remainder.

The district-wide coho salmon catch of 3,350 fish by all gear types was the highest since 2003 and was about 10% greater than the recent 10-year average (Appendix A17). Seiners accounted for approximately 51% of the Southern District coho salmon total during efforts directed at sockeye, set gillnetters took 48%, while hatchery fishers accounted for the rest (Table 1). The

majority of coho salmon taken by purse seiners were from the China Poot Section of China Poot Subdistrict.

Kamishak Bay District

Sockeye Salmon

The entire Kamishak Bay District, with the exception of Chenik Subdistrict, opened to salmon seining by regulation on June 1. For the eighth consecutive year, waters of Paint River Subdistrict were included in this district-wide opening because the stocking program at Paint River Lakes was discontinued (except for an experimental, one-time stocking in 2002), and once again few if any sockeye salmon were expected back to that location this season. The weekly fishing schedule for open waters within the district was set at seven days per week for the ninth successive year. This schedule was originally implemented because the complexion of the fishery had evolved after 1994, when fish processors ended the routine practice of stationing a tender(s) in this remote district at the start of each season. As a result, effort and ensuing catches declined as fishermen were forced to devise their own transport of all salmon harvested. Recognizing this shift in effort levels, as well as the harsh weather that typically limits effective fishing activity, the staff reasoned that opening waters of Kamishak Bay District to commercial fishing on a continuous basis would allow seiners opportunity to harvest salmon without unduly jeopardizing spawning escapement requirements. In 2007, the district-wide commercial sockeye salmon harvest totaled over 197,000 fish (Table 3; Appendices A10 and A13), the highest total ever recorded in the district and almost five times greater than the recent 10-year average.

The earliest natural sockeye salmon run to the Kamishak Bay District, at Mikfik Creek in the McNeil River Subdistrict, normally appears in fresh water during the first few days of June. For the second successive season, however, the run displayed distinctly late run timing characteristics, with the first fish of the season observed via aerial survey on June 11, and at only 10 fish, this initial indication suggested that the run was weak as well. Numbers built steadily over the next two weeks, and slightly more than 11,000 sockeye salmon were estimated in fresh water during a survey on June 26, which ultimately proved to be the peak daily survey estimate of the season. Despite the continuous fishing time allowed in McNeil River Subdistrict during June, no effort directed at Mikfik sockeye salmon occurred this season, thus all returning fish entered freshwater. No increase in cumulative escapement was detected after the June 26 survey, thus the final estimated sockeye salmon escapement index was 11,200 fish (Table 3; Appendix A23), falling near the upper end of the established SEG of 6,300 to 12,150 fish. In a curious twist of fish behavior, significant numbers of sockeye salmon remained in waters of McNeil Lagoon (near saltwater) and were documented there on the last chum salmon aerial survey of the season on July 30, well after they had turned into spawning coloration.

After the Mikfik sockeye salmon run, seiners next normally turn their attention to the Chenik and/or Douglas River Subdistricts during the final days of June. Although the stocking program at Chenik Lake had been suspended, and sockeye salmon returns to the system had been minimal in the late 1990s and early 2000s due to the lingering effects of an IHNV outbreak in previous years, surprisingly strong returns from 2003 through 2006 created continuing optimism for 2007. Aerial surveys began to detect fish in salt waters of Chenik Lagoon on June 18, but with an estimate of only 15 sockeye salmon the run was just beginning. Just over a week later on June 27, the estimated figure had jumped dramatically to 9,400 sockeye salmon in salt water. Historical run timing for the Chenik sockeye salmon stock indicated that the run was still in its

earliest stages, thus suggesting a strong return, but documented escapement was still minimal, and waters of Chenik Subdistrict were kept closed while assessment continued.

Similar to the previous two seasons, CIAA once again funded and operated a counting weir at the outlet of Chenik Lake to monitor escapement into fresh water, and the first fish was documented by the crew on July 2. Additionally, ADF&G staff once again deployed a remote video escapement recorder near the outlet of Chenik Lake for the fourth consecutive season. Aerial surveys conducted by ADF&G staff had previously estimated 170 sockeye salmon as escapement into Chenik Lake prior to installation of the counting weir. An aerial survey on July 5 estimated 38,000 sockeye salmon in and around marine waters of Chenik Lagoon, while aerial and weir counts through that date estimated freshwater escapement into the lake at 2,000 fish, achieving the low end of the SEG range of 1,900 – 9,300 sockeye salmon. As a result, waters of Chenik Subdistrict south of 59° 16′ N. latitude were opened to seining on a continuous basis beginning July 5; seining north of this line was kept closed to protect sockeye salmon returning to small Amakdedori Creek, where escapement was not strong. Marker placements around the mouth of Chenik Lake Creek, combined with typically harsh weather conditions in Kamishak Bay, were expected to limit fishing activity and allow adequate numbers of fish into fresh water for escapement.

The first catch from Chenik Subdistrict was reported on July 6, and at over 16,000 sockeye salmon, the run continued to appear quite strong. Near steady fishing effort took place as the run continued to build, and by July 18 the cumulative catch totaled around 87,000 sockeye salmon, while escapement numbered just over 12,000 fish. Since the latter figure slightly exceeded the upper end of the SEG range, markers protecting the mouth of Chenik Lake Creek were rescinded beginning July 20 to allow seiners maximum opportunity to harvest fish surplus to biological requirements. Waters north of 59° 16′ N. latitude in Chenik Subdistrict remained closed to fishing.

Effort targeting Chenik sockeye salmon remained steady through the month of July, with peak daily catches occurring on July 12 and July 22 at approximately 20,000 fish on each of those dates, and the last harvest occurring on July 30. Cumulative catch in Chenik Subdistrict for the season totaled just under 162,000 sockeye salmon (Table 3), the second highest figure for these waters (Appendix A16). Escapement into the lake continued into August, and although the weir was removed on August 6, the remote video escapement recorder project continued to operate through August 14, tallying an additional 701 sockeye salmon. The cumulative escapement into Chenik Lake for the season as estimated by weir, aerial survey, and video was 18,200 sockeye salmon (Table 3, Appendix A23), or almost double the upper end of the SEG range. The overall run of sockeye salmon to Chenik Lake in 2007 totaled nearly 180,000 (Appendix A16), establishing a new record for the system and marking the fifth consecutive year of strong returns to this system.

Only minimal effort directed at sockeye salmon in the Douglas River (Silver Beach) Subdistrict occurred in late June, resulting in a cumulative harvest of 150 fish (Table 3). Apparently the low numbers, combined with the outstanding return to Chenik Lake, discouraged any additional effort in this subdistrict during 2007.

The next sockeye salmon run in Kamishak Bay District was to Kirschner Lake in the Bruin Bay Subdistrict, the site of a traditional sockeye salmon lake stocking project. At this location, where a steep falls at tide line precludes escapement into the lake, a run approaching 26,000 sockeye salmon was predicted. As outlined in the Trail Lakes Hatchery Annual Management Plan (AMP)

prior to the season, the revenue goal necessary to meet operational expenses incurred in all LCI sockeye salmon lake stocking projects was set at $120,000. This amount was to be split between the Southern District SHA's (Leisure/Hazel Lakes; Figure 3) at 64% of the total and the single Kamishak SHA (Kirschner Lake; Figure 4) at 36%, or $43,500. Because CIAA anticipated harvesting the entire return of sockeye salmon to Kirschner Lake for cost recovery purposes in pursuit of the cost recovery goal, no directed common property effort on this stock was expected.

Preseason management strategy for the Bruin Bay Subdistrict, as outlined in the Trail Lakes Hatchery AMP, was to open the Kirschner SHA to hatchery cost recovery fishing on a continuous basis beginning June 18 while simultaneously closing it to common property seining. The intent was to allow opportunity for CIAA to harvest fish for cost recovery without competition from the seine fleet. If the revenue goal was met or could be projected, the SHA was to be closed to cost recovery harvest and opened to commercial seining so the fleet could work the area uninhibited for the remainder of the season.

CIAA had arranged prior to the season for a CISA vessel to conduct cost recovery in Kamishak Bay. Initiation of cost recovery fishing generally requires a substantial buildup of fish in salt water near the Kirschner falls, and 2007 was no exception. The first effort occurred in the Kirschner Lake SHA on July 9 but netted only about 2,200 fish. Because the inseason contract price for Kirschner sockeye salmon, starting at $0.62 per pound, was 55% greater than the preseason projected price, attainment of the revenue goal not only became a distinct possibility if the return came in as forecasted, but also left open the possibility of additional common property harvest. Unfortunately, prices paid for Kirschner Lake cost recovery sockeye salmon dropped dramatically to $0.37 per pound after this initial catch, but after two more harvests on July 26 and July 30, the cumulative catch totaled approximately 27,700 fish (Table 3) and 111,000 pounds, worth just over $43,000. Since this figure virtually achieved the revenue goal, waters of the Kirschner Lake SHA were closed to hatchery fishing on July 31 and subsequently opened to common property seining seven days per week beginning August 1.

Because of the relatively late date and relatively poor fish quality, very little ensuing common property seine effort occurred in waters of the Kirschner Lake SHA, with a final harvest cumulatively totaling just over 7,700 sockeye salmon for the season (Table 3). When combined with the hatchery harvest of 27,700 fish and an estimated 2,000 unharvested fish, the total return to Kirschner Lake was estimated at 37,400 sockeye salmon, or about 44% greater than the preseason prediction for the system. The Kirschner Lake sockeye salmon enhancement project has remained one of LCI's steadiest producers.

Pink Salmon

Preseason pink salmon projections for the Kamishak Bay District in 2007 were moderate, with a cumulative harvestable surplus totaling approximately 105,000 fish forecasted primarily for Ursus Cove and Rocky Cove Subdistricts. Aerial surveys of the district first documented pink salmon in fresh water near the end of July, but the early estimates suggested that the forecast appeared overly conservative. As surveys continued into August, observations revealed that the pink salmon returns to Bruin Bay River in Bruin Bay Subdistrict, Sunday Creek in Rocky Cove Subdistrict, and Brown's Peak Creek in Ursus Cove Subdistrict, were all much stronger than anticipated, providing a substantial harvest opportunity.

Despite continuous openings in the vicinity of major pink salmon systems, the combination of weak markets and a lack of tender service once again discouraged directed effort on Kamishak

Bay pink salmon in 2007. To further encourage seiners to target pink salmon, markers protecting the mouths of Bruin Bay River, Sunday Creek, and Brown's Peak Creek were removed beginning August 10, but the strategy still failed to produce any effort. The cumulative Kamishak Bay District pink harvest for the season totaled 11,500 fish (Table 5; Appendix A18), the majority of which came as incidental catch during efforts directed at the Kirschner Lake sockeye salmon return, with lesser amounts taken during targeted sockeye salmon efforts at Chenik Lake. Escapement at the three major monitored pink salmon systems in the district exceeded the upper ends of their respective SEG ranges (Table 5; Appendix A24), all by relatively significant amounts.

Chum Salmon

For the first time in the past eight seasons, no effort was directed at chum salmon runs in the LCI management area, and this was most obviously apparent in the Kamishak Bay District, which has dominated chum catches during that time period. The final 2007 Kamishak Bay District harvest totaled less than 100 chum (Table 6; Appendix A21), the sixth lowest on record. Chum escapements throughout the district were variable, with several systems failing to achieve their goals for the first time in many years.

Because chum salmon runs to McNeil River have not been strong for nearly 20 years, waters of McNeil River Subdistrict were closed to commercial fishing as a precaution beginning June 28, even though no seiners were known to be present in area waters. Aerial surveys to monitor chum salmon returns in Kamishak Bay began in mid/late June, with the first substantial numbers of the season noted in McNeil River on June 27, considered close to normal by historical run timing standards. Escapement estimates at McNeil River showed only modest increases during the early part of July, with a more substantial increase occurring on July 12, when 13,600 chum salmon were observed in fresh water. This figure ultimately proved to be the season's peak, and postseason analysis of aerial survey data using the standard area under the curve (AUC) method yielded a final estimated escapement index at McNeil River of 13,600 chum salmon, falling short of the lower end of SEG range of 13,800 to 25,800 by less than 200 fish (Appendix A25).

Chum salmon runs to nearly all other Kamishak Bay systems were variable but overall considered weaker than any recent season. In the southern portion of the district, which had been opened to fishing seven days per week at the beginning of the season, aerial surveys to document chum salmon escapement were conducted in early August, well after the majority of those runs had entered freshwater. Final estimates indicated chum salmon runs at Big and Little Kamishak Rivers were modest at best, and no effort or harvest from the southern subdistricts took place during the season. The final escapement estimates of 14,800 chum salmon into Big Kamishak River and 15,600 chum salmon into Little Kamishak River fell within each respective system's SEG range (Table 6; Appendix A25).

Following the same pattern as more southerly systems, central and northern Kamishak Bay chum salmon runs were variable this season. At Bruin Bay River, small numbers of chum salmon first began to appear in fresh water in early July, but no sizeable increase was documented over the course of the month. The peak individual aerial survey of Bruin Bay River occurred on July 17 when an estimated 2,900 chum salmon were documented, yielding a final index of escapement into Bruin Bay River of 3,100 chum (Appendix A25).

Because the run timing for the more northerly chum salmon systems is later than that in southern and central Kamishak areas, aerial evaluation of northern Kamishak systems typically begins in

late July. Those initial surveys revealed very small numbers of fish in fresh waters of Cottonwood Creek and Iniskin River. When subsequent aerial surveys showed continued weakness in run strength to these systems in early August, waters of Cottonwood Bay and Iniskin Bay Subdistricts were closed to fishing by emergency order beginning August 10. Chum salmon returns to streams at the head end of Ursus Cove seemed marginally better, so those waters remained open so as not to discourage potential effort on extremely strong returns of pink salmon at Brown's Peak Creek.

The fishing closures in northern Kamishak Bay effectively deterred any potential fishing effort directed at chum salmon in the remainder of the district. Final harvest figures for the Kamishak Bay District totaled just under 100 chum salmon for the season (Table 6; Appendix A21), the sixth lowest for the Kamishak Bay District on record. Escapement goals were met or exceeded at Big and Little Kamishak Rivers, Ursus Cove systems, and Cottonwood Creek, while falling short at McNeil, Bruin Bay, and Iniskin Rivers (Appendix A25).

Other Species

Chinook salmon harvests in the Kamishak Bay District historically have been insignificant (Appendix A12) and no harvest occurred this season. On the other hand, coho salmon harvests within the district have at times been substantial (Appendix A17), providing fishermen with some lucrative late season catches. Coho salmon assessment in LCI is very limited, but early signs from other areas within LCI suggested that returns were not strong. As a result, no directed effort occurred, and the harvest for coho salmon in the Kamishak Bay District was negligible (Tables 1 and 4).

Outer District

Sockeye Salmon

Outer District sockeye salmon harvests have traditionally focused on natural runs to the Delight and Desire Lakes systems in East Nuka Bay Subdistrict. A lake stocking project in the Port Dick area during the late 1980s provided additional fish for harvest in the early 1990s, but stocking was discontinued after 1989 and a small harvest in 1993 was the last documented catch. Preseason projections, based solely on the long-term average catch, forecasted a harvest of up to 21,000 sockeye salmon for the entire Outer District this year. The actual harvest totaled approximately 32,500 fish (Table 3; Appendix A13), the second highest harvest in the district since 1987 and roughly double the recent 10-year average.

Aerial surveys to assess the Delight and Desire Lake systems in East Nuka Bay began on June 19, and relatively good numbers of fish were observed in freshwater at both locations given the early date. By the next survey one week later, escapements had increased substantially at both locations, with over 7,000 fish seen in fresh water at Desire Lake and 3,800 in the Delight Lake system. Because the figure for Desire Lake represented about 84% of the lower bound of the established SEG range for the system (8,800 to 15,200 sockeye salmon), and because the run was still in its earliest stages, marine waters of East Nuka Subdistrict near Desire Lake Creek, north of the latitude of James Lagoon, were opened to seining beginning June 28 five days per week. Regulatory markers near the mouth of Desire Lake Creek remained in effect during the opening to protect sockeye salmon staging in those waters. Marine waters south of the latitude of James Lagoon in East Nuka Subdistrict were kept closed to seining to protect sockeye salmon returning to Delight Lake since the observed escapement was still considerably below the established SEG

range of 6,000 to 12,600 sockeye salmon. An ADF&G-operated counting weir at the outlet of Delight Lake became operational on July 2 and began to register reasonably good fish counts into the lake immediately.

The initial commercial seine deliveries in East Nuka Subdistrict during the first three days after the opening, at around 2,500 sockeye salmon, suggested that the Desire Lake return might provide reasonably good harvest opportunity through the month of July. However, after deliveries totaling an additional 2,400 sockeye salmon were made on July 3, no deliveries from East Nuka Subdistrict occurred for over one week, suggesting that the run had slowed. Meanwhile, weir counts at Delight Lake showed steadily increasing escapement, and by July 7 the cumulative total had reached about 5,000 sockeye salmon. Unfortunately, aerial surveys during the first half of July were continuously hampered by poor observation conditions, including dark overcast skies and high winds, and waters around Delight Lake Creek remained closed to seining.

The results of an ADF&G aerial survey on July 16 indicated that the cumulative freshwater escapement at Delight Lake approached the upper end of the SEG for the system, and as a result all waters of East Nuka Subdistrict were opened to commercial seining five days per week beginning July 18. Regulatory markers remained in place at the mouths of both Desire and Delight Lake Creeks to allow limited escapement through the duration of the respective returns. Both seine catches and weir counts picked up shortly after the expanded opening, with the latter cumulative figure reaching over 11,000 sockeye salmon through July 23.

A late and uncommon surge of escapement, totaling over 14,000 sockeye salmon, was documented by the Delight Lake weir crew for the single day of July 24. The resulting cumulative season escapement estimate of over 25,000 sockeye far exceeded the SEG range for the system. At nearby Desire Lake, although aerial escapement counts had not increased over the peak of 10,000 fish estimated on June 28, poor observation conditions had continued to hinder surveys, and the staff believed that the closed waters markers near the creek mouth, combined with weekend closures, had likely allowed the cumulative escapement to fall near the upper end of the SEG established for the system. Given these facts, the fishing periods in East Nuka Subdistrict were expanded to seven days per week, and closed waters markers near both Delight and Desire Lakes Creeks were rescinded, beginning July 26 in an effort to allow maximum opportunity for seiners to harvest fish at the tail end of both returns.

Fishing effort in East Nuka Subdistrict continued until mid-August, although numbers of pink salmon in the catches began to increase during the first week of August and were dominating catches by the second week. Final sockeye harvest in these waters totaled 32,500 fish (Table 3), representing the highest catch for the subdistrict since 1999 and the fifth highest since statehood.

Low water levels, and subsequent cessation of upstream salmon migration, are typical conditions observed at Delight Lake following extended periods of warm weather and limited precipitation during the summer. Such conditions were not a factor during 2007, and the final cumulative escapement count at Delight Lake, estimated by a combination of weir and aerial survey, totaled nearly 44,000 sockeye (Table 3, Appendix A23), establishing a new record for that system. At Desire Lake, the peak daily estimate of 10,000 sockeye in fresh water, actually made on two independent surveys, June 28 and July 27, was ultimately used as the final index of escapement estimate (Table 3; Appendix A23). However, given the relatively poor survey conditions experienced through much of the season, the staff felt that the formal estimate was very

conservative and that actual escapement likely fell near or slightly exceeded the upper end of the established SEG of 8,800 to 15,200 sockeye.

A third system of lakes known as Delusion (or Ecstasy or Delectable) Lakes in East Nuka Subdistrict has been monitored for nearly two decades to document the sockeye salmon return there. Located near the head of the East Arm of Nuka Bay, the two-lake system is relatively new, formed during the late 1970s and early 1980s by a receding glacier. A review of charts and maps drawn prior to the mid-1980s substantiated this fact as no lakes are indicated at the site of the present bodies of water. Before the 1980s, no salmon were known to utilize the system, but in approximately 1989, during a routine aerial survey, adult sockeye salmon were documented in the system by the staff for the first time. Each year since then, aerial surveys have revealed sockeye salmon as well as pink salmon in the system. The peak 2007 aerial count of 2,100 sockeye salmon (Table 3) was recorded during an aerial survey on August 13. Little is known of the origins of this return, although the predominant hypothesis suggests that sockeye salmon probably strayed from nearby Desire and/or Delight Lake to colonize this new lake system. ADF&G personnel conducted sampling of sockeye salmon in this system during 1992, 1993, and 1994, with help from University of Alaska students on site. Otoliths and length measurements indicated primarily large 3-ocean fish (6 years old). Additional tissue samples were taken from post-spawning individuals in 1993 and 1994 for inclusion into the genetic baseline data set and future genetic stock identification analysis.

Pink Salmon

Good escapements during the 2005 parent year fostered optimism for significant pink salmon harvest opportunities in the Outer District in 2007, with a projected harvest figure of nearly 666,000 fish, or almost two and one-half times the recent 10-year average of 274,400 pink salmon. The bulk of the harvestable surpluses were expected at Port Dick, with lesser amounts forecasted at Rocky Bay, Windy Bay, and Port Chatham. The actual catch of 147,400 pink salmon (Table 5; Appendix A18) was substantially less than the forecast and the 10-year average but was not necessarily considered indicative of run strengths since other factors influenced harvests.

For the fifth consecutive year, ADF&G announced prior to the season that certain waters in Port Dick Subdistrict would open on a set calendar date, as opposed to a management strategy predicated upon real-time aerial assessment of pink salmon returns and escapements in the Outer District. Based on the forecast, as well as low levels of anticipated effort, waters of the South, Outer, and Taylor Bay Sections of Port Dick Subdistrict were opened to seining on conservative schedule of two 40-hour periods per week, from 6:00 a.m. Monday until 10:00 p.m. Tuesday, and from 6:00 a.m. Thursday until 10:00 p.m. Friday, beginning July 16. This set opening date was intended to encourage effort early in the returns, normally dominated by males, and to promote product quality. The North Section of Port Dick Subdistrict was kept closed to fishing to protect the chum salmon return to Island Creek, which has historically displayed a later run timing than the chum salmon return to Port Dick (head end) Creek, until the return could be adequately assessed.

Aerial surveys in Port Dick began on the day of the opening, but numbers of pink salmon observed staging on the saltwater flats at the head end of the bay were modest at the time, and no increase was noted during a second survey later that week. As expected, estimated numbers in saltwater increased the following week, but not of a magnitude suggested by the forecast, so no

changes in the fishing schedule was announced. By August 8, about the time when the return should have been peaking in salt water, a survey estimated 25,000 pink salmon in saltwater protected by markers at the head end of Port Dick, with an additional 6,000 pink salmon observed outside the markers along the south shore and in deeper waters of the middle of the bay. In view of the anticipated effort levels, the fishing schedule was liberalized to five days per week beginning August 9, though no additional fishing area was opened. Up until this time, no effort had occurred in waters of Port Dick.

Both effort and resultant catches during the first week after the expanded opening were relatively small, but an ADF&G aerial survey on August 13 showed pink salmon returns in Port Dick continuing to build in strength. Based on this fact and the low effort levels, fishing periods in open waters of Port Dick Subdistrict were liberalized to seven days per week beginning August 14. Additionally, regulatory markers protecting stream mouths in the Taylor Bay Section of Port Dick Subdistrict were repealed on that date to allow fishermen maximum opportunity to target relatively strong returns to the small systems there. Other subdistricts, including Windy Bay and Rocky Bay, were also experiencing relatively strong pink salmon returns, and continuous fishing schedules were implemented at both locations, along with a repeal of stream-mouth markers at Rocky River, beginning August 14.

Effort levels and pink salmon catch continued to remain low despite the liberal fishing periods in Port Dick, Windy Bay, and Rocky River Subdistricts, most probably due to extenuating market factors such as tender availability. The cumulative season catch for the four sections making up Port Dick Subdistrict was just under 91,000 pink salmon, while Rocky River Subdistrict produced a catch of 23,500 pinks (Table 5; Appendix A19). No harvest was reported from Windy Bay Subdistrict.

The final escapement estimate of 44,200 pink salmon for Port Dick (head end) Creek fell slightly above the midpoint of the SEG range of 19,000–58,000 fish established for this system (Table 5; Appendix A24). The pink salmon return to Island Creek was stronger, with a final estimate of escapement totaling over 87,000 pink salmon (Table 5; Appendix A24), or about three times the upper end of the SEG range of 7,200–28,300. Interestingly, the nine highest pink salmon escapement totals on record for Island Creek have all occurred after 1995. At Windy Left Creek in Windy Bay Subdistrict, final escapement was estimated at 37,300 pink salmon, while the figure for Windy Right Creek was 18,300 pink salmon, both of which exceeded the SEG's for the respective systems (Table 5; Appendix A24). The final escapement at nearby Rocky River totaled an estimated 190,000 pink salmon, or three and one-half times the upper end of the SEG range for that system (Table 5; Appendix A24).

Surveys documented good numbers of pink salmon in saltwaters adjacent to South Nuka Island Creek this season, and seining was opened five days per week beginning August 9. No effort ensued, and the final escapement was estimated at only 6,600 pink salmon, still within the established SEG of 2,700 to 14,000 (Table 5; Appendix A24). Elsewhere in the Outer District, aerial observations at Port Chatham suggested a relatively weak return, and waters of Port Chatham Subdistrict were never opened to seining. Postseason analysis of ground survey data indicated an estimated cumulative escapement of 14,500 pink salmon into Port Chatham systems (Table 5; Appendix A24), within the SEG range. Desire Lake Creek, with an SEG range of 2,000 to 20,000 pink salmon, experienced a strong pink return, with an escapement estimated at nearly 12,000 fish (Table 5; Appendix A24). The liberal seven-days-per-week seine fishing schedule

that carried over from the earlier sockeye salmon returns in East Nuka Bay Subdistrict produced an incidental harvest of pink salmon totaling approximately 33,000 fish (Table 5).

Chum Salmon

Because chum salmon numbers have remained at relatively low levels in the Outer District since the peak harvest years of the late 1970s and early 1980s, large returns were once again not expected in 2007. The chum salmon returns to systems in the Outer District this season were considered weak, and in a continuing effort to reverse the trend of weak returns and allow stocks maximum protection, no specific commercial openings targeting chum salmon occurred in the Outer District this season. The final harvest of less than 50 chum salmon (Table 6; Appendix A21), all taken incidentally during other directed salmon fisheries in the district, was the lowest since 1996.

Escapements in three of the four monitored chum salmon systems in the Outer District fell within their respective SEG's but none were considered strong. Port Dick (head end) Creek experienced an escapement of approximately 2,800 chum salmon, while Rocky River escapement amounted to only 1,600 chum salmon, the lowest since 1998 (Table 6; Appendix A25). Chum salmon escapement at Island Creek failed to achieve its SEG range of 6,400 to 15,600 fish for the second consecutive season, with a final total of 3,100 fish. At Koyuktolik (Dogfish) Bay systems, with a combined SEG range of 3,300–9,200 chum salmon, the escapement was estimated at 4,900 fish (Table 6; Appendix A25), down slightly from the previous season.

Eastern District

Sockeye Salmon

The Eastern District showed potential for harvestable surpluses of sockeye salmon in Aialik and Resurrection Bay Subdistricts during 2007, with a district-wide preseason projection totaling 107,000 fish. Actual harvest totaled only 23,900 sockeye salmon (Table 3; Appendices A13 and A14), falling well below the preseason forecast and representing only about half of the recent 10-year average. The seine fleet harvested about 65% of the Eastern District sockeye salmon total, exclusively from the Resurrection Bay Subdistrict (Tables 1 and 3), while the remaining 35% was taken as hatchery cost recovery in Resurrection Bay or at the Bear Creek weir for the Bear Lake sockeye salmon enhancement project near Seward.

Sockeye salmon enhancement activities by CIAA at Bear Lake resulted in a projected run ranging up to 112,000 fish assuming optimum survival of various smolt and fry releases. If the forecast proved true, the expected harvestable surplus was about 100,000 fish after accounting for the desired inriver escapement requirements for Bear Lake, established at 5,600 to 13,200 sockeye salmon in the 2007 Trail Lakes Hatchery Annual Management Plan.

In the fall of 2004, the Alaska Board of Fisheries (BOF) passed a proposal that amended the Bear Lake Management Plan. The new section of the plan, implemented for the first time in the 2005 fishery, stipulated that equal shares of the harvestable surplus of sockeye salmon destined for Bear Lake be allocated to the common property seine fleet and to CIAA for hatchery cost recovery. Although new management strategies were required to satisfy this regulation, several measures from previous years' experience were carried over in the fishery. The seine fleet was to begin fishing on the Bear Lake sockeye run at a relatively early date (mid/late May) in Resurrection Bay in order to promote product quality. In addition, fishing would be allowed five

days per week (Monday through Friday), which would theoretically allow sufficient opportunity to harvest sockeye without jeopardizing the desired inriver escapement goal for Bear Lake. Closed waters markers were once again posted at the mouth of the Resurrection River to better define the river's mouth and the fishing boundaries, which had been problematic prior to 1996. Finally, an area of closed waters along the west side of Resurrection Bay between Caines Head and the city of Seward was once again utilized in order to protect enhanced returns of Chinook salmon, which are allocated entirely to the sport fleet and are illegal to retain in the commercial fishery.

Considering the experience gained from the previous year's fishery, plans in 2007 called for common property seining in marine waters to proceed while catches and escapement were continuously monitored, to determine if and when a hatchery-only opening in marine waters was warranted to balance harvests. Weekly fishing periods, and potential hatchery openings in marine waters of Resurrection Bay, would be adjusted inseason, with the goal of achieving an equal harvest total for CIAA and commercial seiners. CIAA was additionally prepared to harvest fish in the fresh water SHA at the Bear Creek weir for cost recovery purposes once achievement of the escapement goal was met or could be projected.

Waters of Resurrection Bay Subdistrict north of the latitude of Caines Head were opened to common property seining by emergency order beginning on Monday, May 21 (Table 8), in keeping with the traditional recent-year opening time of mid to late May. Prior to 1998, these waters were opened on the second Monday in May, but experience demonstrated that sockeye salmon did not begin arriving in Resurrection Bay in appreciable numbers until the end of the month. Despite presumption of an early run timing for this enhanced run (since broodstock utilized for the project had a documented run timing peaking in early June), the first three years of adult runs from 1992 through 1994 actually trickled in over the course of two months. Between 1995 and 2006, with larger numbers of fish returning, the majority of the run appeared in marine waters at the head of Resurrection Bay during the first two weeks of June.

When the area first opened in 2007, fishermen were understandably cautious because recent years' runs had not met preseason expectations. As usual, all effort was concentrated at the head end of Resurrection Bay, but the first landings weren't made until May 28, a full week after the initial opening date. Fish concentrations were meager at the time, but by the end of that week catches showed signs of picking up. Although catch rates increased the following week, which traditionally constitutes the peak fishing time of the season, harvests did not rise to a level suggested by the preseason forecast, causing the concern that the return was either late or extremely weak. Escapement at the Bear Creek weir supported this conclusion since escapement through June 8 totaled less than 400 sockeye salmon. Cumulative commercial salmon catches in Resurrection Bay through this date totaled only about 10,000 sockeye, or only 10% of the preseason harvest forecast of 100,000 sockeye.

In a final effort to determine whether the sockeye salmon return to Bear Lake was simply late and not weak, the commercial fishery was allowed to open as scheduled for a fourth weekly period beginning June 11. Unfortunately, catches that day only served to confirm the apparent weakness of the run, as the cumulative harvest for the season totaled an estimated 12,600 sockeye salmon after that day's reports. Meanwhile, escapement at the Bear Creek weir totaled only 600 sockeye salmon through June 11, representing only about 5% of the desired inriver escapement goal, while CIAA had not yet harvested a single fish for cost recovery purposes. Given these facts, all indicators suggested that the remainder of the sockeye salmon run to Bear

Lake would be required to achieve both escapement and hatchery objectives. In an effort to promote escapement into Bear Lake, and to provide additional opportunity for CIAA to conduct cost recovery on enhanced sockeye salmon returning to Bear Lake, the commercial seine fishery in Resurrection Bay was closed by emergency order on the evening of June 12 (Table 8).

Historical information showed that the sockeye salmon run to Bear Lake would likely continue well into the month of July, thus significant numbers of fish were still expected to enter fresh water and be available for escapement and, potentially, hatchery harvest at the Bear Creek weir. However, the lag time between fish observed in salt water and fish appearing at the weir has traditionally been estimated between a week and 10 days, and without any fishing effort in salt water, real-time assessment of run strength was difficult if not impossible. In yet another effort to determine whether the sockeye salmon run to Bear Lake was truly weak or simply very late, a short 12-hour hatchery-only fishery opening in salt waters of the Bear Lake SHA was allowed on June 15. Catches from this opening, at only 1,600 sockeye salmon, provided the final proof that the run was indeed much weaker than expected.

By June 18, escapement at the Bear Creek weir had increased significantly, with a cumulative total of nearly 6,000 sockeye salmon documented, and the weir crew reported a significant buildup of fish downstream of the weir on June 19. Since historical information implied that numbers of fish appearing at the weir would be peaking later that week, all indications suggested that an escapement near the upper end the desired inriver goal would ultimately be achieved. As a result, and in an effort to allow opportunity for CIAA to harvest surplus sockeye salmon for cost recovery purposes, marine waters of the Bear Lake SHA were opened to hatchery-only seining beginning June 20 until further notice (Table 8).

Only one more attempt at hatchery seining occurred, resulting in a paltry harvest of 120 sockeye salmon on June 20. However, escapement at the weir continued at a rate sufficient to allow simultaneous harvest of fish at that location for cost recovery, and CIAA selectively harvested fish until the end of July, while also allowing smaller numbers into the lake. The peak harvest at the weir occurred between June 27 and July 4, when the daily catch averaged almost 600 sockeye salmon per day. By the conclusion of the run, CIAA had harvested a cumulative salmon total of just under 6,750 sockeye at the weir (Table 3), while escapement into the lake totaled 12,800 sockeye (Table 3; Appendix A23). When these numbers were combined with the common property seine harvest of 15,400 sockeye salmon and hatchery seine catches of 1,700 fish, the total sockeye salmon return to Bear Lake was estimated at approximately 36,700 fish (Table 3), representing only one-third of the preseason forecast and the smallest overall return since 2004.

At Aialik Lake in Aialik Subdistrict, aerial surveys were initiated on June 19, but no sockeye salmon were documented in freshwater until June 28, when 10 fish were seen. Escapement rose significantly over the next week, with over 2,200 sockeye salmon estimated during a survey on July 6. Since this figure fell short of the SEG (3,700–8,000), no openings were announced for waters of Aialik Subdistrict this season. Weather delayed another survey for 10 days, and on July 16 the final aerial survey of the season produced the peak estimate of escapement at Aialik Lake, with a total of nearly 5,400 sockeye salmon (Table 3, Appendix A23), falling near the midpoint of the SEG range.

Pink Salmon

Only a small harvestable surplus of slightly more than 40,000 pink salmon was forecasted in Eastern District waters for 2007, not surprising given the primarily weak returns in most recent years. Because of the expensive nature to adequately assess the small streams there, and also because no directed openings were expected, surveys of Resurrection Bay systems tend to be of a low-priority nature. In 2007, ground surveys of Resurrection Bay streams were scheduled but were subsequently cancelled due to poor weather and conflicts with other, higher priority surveys. Nonetheless, due to the trend of primarily weak but highly variable returns during recent years, no openings for pink salmon were allowed in Resurrection Bay this season and therefore no harvest occurred.

Other Species

Chinook salmon have never played an important role in Eastern District commercial fisheries. Chum salmon, however, have occasionally been an important component of commercial catches in the Eastern District, but catches during the past 10 years have averaged only about 350 fish annually. This season's chum salmon harvest failed to achieve that figure, amounting to fewer than 60 fish (Table 6; Appendix A21), all taken incidentally during the directed sockeye salmon fishery in Resurrection Bay. Due to a pattern of weak Eastern District runs over the past 10–15 years, no directed openings for chum salmon were allowed there this season. As was the case for pink salmon, no escapement surveys were conducted for chum salmon in Resurrection Bay during 2007.

Coho salmon are not normally a commercially important species in the Eastern District but are an integral component of an enhancement project, originating from Bear Lake, which benefits sport fishermen in area waters. Because the Resurrection Bay Salmon Management Plan specifically directs ADF&G to manage coho stocks for recreational use only, coho salmon may not be retained in the commercial fishery. However, all sport caught coho salmon entered into the Seward Silver Salmon Derby are subsequently sold by the city of Seward, organizer of this sport fishing derby, to a commercial processor. Therefore, these catches are considered "commercial harvests" and are listed in the commercial catch tables to document this fact. In 2007, a total of 2,850 coho salmon were entered into the Seward Silver Salmon Derby (Tables 1 and 4). In addition, a portion of the returning adults from the enhancement project are normally harvested at the Bear Creek weir by CIAA as cost recovery for expenses incurred. During years when the salmon market was strong, CIAA customarily sold most hatchery-caught coho salmon to a commercial processor(s). Because market forces now make product quality a central issue, many coho salmon taken at the weir are unmarketable due to excessive fresh water marking. Unfortunately, the coho salmon return to the Bear Lake weir was much weaker than anticipated in 2007, and no fish were harvested by CIAA for sale or donation. Approximately 670 coho salmon were collected for hatchery broodstock, while an additional 400 fish were allowed into Bear Lake as escapement (Table 4). Total commercial catch in the entire Eastern District amounted to the 2,850 coho salmon entered into the sport fishing derby (Table 4; Appendix A17), falling far short of the recent 10-year average of 6,100 fish.

2007 SALMON ENHANCEMENT AND REHABILITATION

INTRODUCTION

Fisheries enhancement has played a major role in LCI salmon production for three decades. Natural adult salmon returns to the LCI area continue to demonstrate wide fluctuations, often the result of environmental impacts such as streambed scour, de-watering, or redd freeze-out on spawning grounds, all of which potentially lower overall survival rates. Since their inception in the mid 1970s, enhancement and rehabilitation projects have made significant contributions to both commercial and sport fishing harvests. These contributions have historically ranged from 24% to 90% of the entire LCI commercial salmon harvest and are expected to remain very important in future years.

Projects initiated by the ADF&G and presently being undertaken by CIAA and/or PGHC provided an estimated 39% (261,000 salmon) of the total 2007 LCI commercial harvest of 662,200 fish. The Leisure/Hazel, Kirschner, and Bear Lakes sockeye salmon enhancement projects produced approximately 39% (143,100 fish) of the total LCI sockeye harvest of 366,200 fish in 2007. Port Graham Hatchery production accounted for 41% (118,000 fish) of the 2007 LCI commercial pink salmon harvest of 287,400 fish.

Using average weights per fish and average prices per pound in LCI, salmon produced by CIAA and PGHC contributed an estimated 37% ($0.61 million) to the $1.64 million total value of the 2007 LCI commercial salmon harvest. About 13% ($0.22 million) of the total exvessel value of the fishery was utilized for hatchery cost recovery purposes (Table 7). A brief description of the current enhancement projects in LCI follows.

TUTKA LAGOON HATCHERY AND REMOTE RELEASE SITE

The Tutka Lagoon Salmon Hatchery/Rearing Facility was constructed in 1976 with an initial production capacity of 10 million salmon eggs, but expansion over time, including major renovation work during the winter of 1993–1994, increased its capacity to approximately 150 million eggs. Pink salmon were the primary species produced at the hatchery, while secondary chum enhancement during earlier years was ultimately discontinued in favor of experimental efforts directed toward sockeye salmon in later years. Although the hatchery had a sockeye salmon egg capacity of 1.8 million eggs, and raceways to accommodate the resulting fry, efforts to incubate and rear sockeye to the smolt stage were plagued by the IHN virus, and the sockeye program was relatively short lived. In 2004, CIAA announced suspension of all Tutka Hatchery operations, essentially ending the annual full-scale pink salmon incubation and release program. The last adult pink salmon return to the facility occurred in 2005, the result of brood collection in 2003 and subsequent fry release in 2004.

In a matter related to the LCI sockeye salmon lake stocking program, CIAA has begun to utilize Tutka Lagoon as a remote release site for sockeye salmon in an effort to develop an adult return to that location. Such a program became necessary when the original sockeye salmon brood source for the LCI lake stocking program, Tustumena Lake in Upper Cook Inlet, became unavailable due to a federal court ruling. In an effort to overcome this obstacle and continue the LCI sockeye program, CIAA applied for and successfully received a permit to collect and incubate eggs from Hidden Lake sockeye salmon, in the Kenai River drainage of Upper Cook Inlet, for use in this project. Plans call for an egg collection from that location for five years from 2006 through 2010, incubation of the eggs and rearing of fry at Trail Lakes Hatchery in Moose

Pass, and release of smolt at Tutka Lagoon. Ultimately CIAA expects to utilize sockeye salmon adults returning to Tutka Lagoon as the source of eggs to supply the LCI lake stocking program that includes Leisure, Hazel, and Kirschner Lakes. In 2007, CIAA released an estimated 144,000 sockeye salmon smolts from Tutka Lagoon as part of this program (Appendix A31).

LEISURE AND HAZEL LAKES SOCKEYE SALMON STOCKING

Leisure (China Poot) Lake, located on the south side of Kachemak Bay across from the Homer Spit, historically was a system barren of sockeye salmon. A study initiated in 1976 involved the evaluation of stocking of hatchery-produced sockeye salmon fry to determine optimum stocking levels prior to and after lake enrichment through fertilization. Because a barrier falls below the lake prevents upstream migration and precludes any adult spawning, it is desirable to harvest all returning adult fish in the terminal harvest area, China Poot Bay. Beginning in 1988, a similar sockeye stocking program was initiated at Hazel Lake, located approximately three miles south of Leisure Lake and emptying into Neptune Bay. Since their inception, these projects have produced over 3.0 million adult sockeye salmon (Appendix A15), making significant contributions to the commercial, personal use, and recreational sockeye salmon harvests in the Southern District.

Because of the close proximity of the two terminal harvest areas, and the absence of a mark/recovery program, adult returns to Leisure and Hazel lakes cannot be separately identified through sampling within the commercial catches and are therefore presented as a combined total. The cumulative total sockeye salmon return to Leisure and Hazel lakes in 2007 was estimated at just under 90,000 fish (Figure 9; Appendix A15), the fourth lowest figure since those two returns have been tallied together beginning in 1991. The cumulative estimated commercial harvest of 83,800 fish produced by the two projects comprised approximately 74% of the Southern District sockeye harvest and about 23% of the total LCI sockeye salmon harvest. The total Southern District sockeye salmon harvest of 112,700 fish was the fourth consecutive below average harvest over the past decade (Appendix A6).

Leisure Lake was stocked with 2.32 million sockeye fry in 2007, about 50% greater than the recent 10-year average of 1.54 million, while Hazel Lake was stocked with 1.41 million sockeye fry, or just over 60% greater than the recent average of 856,000 (Appendix A31).

As previously mentioned, the brood source for the LCI lake stocking programs, from Tustumena Lake, became unavailable to CIAA after 2004. CIAA has initiated a remote sockeye salmon release program from Tutka Lagoon, utilizing sockeye eggs collected from Hidden Lake broodstock in Upper Cook Inlet. Egg collections from this location are expected to continue through 2010, after which time the adult sockeye returning to the Tutka Lagoon release site will be utilized as the permanent brood source to supply not only the Leisure/Hazel releases but the Kirschner Lake sockeye salmon enhancement project in Kamishak Bay as well.

ENGLISH BAY LAKES SOCKEYE SALMON REHABILITATION

The English Bay Lakes system has the only significant stock of sockeye salmon native to the Southern District of LCI. Unfortunately, English Bay sockeye runs declined to their lowest recorded levels in the last half of the 1980s decade. Sockeye escapement estimates between 1985 and 1993 ranged from 2,500 to 8,900 fish; all but one of those years (1993) was well below the 20-year average of 7,800 fish for the years 1973 through 1992. The decline of the English Bay sockeye returns resulted in a very restrictive management strategy for this area, with commercial,

sport, and subsistence fisheries closed during the sockeye run for most years mentioned. Efforts to rehabilitate this depressed stock were initiated by ADF&G with an egg take in 1989 and the subsequent release of 350,000 sockeye salmon fry in 1990 (Appendix A31). Chugach Regional Resources Commission (CRRC), in cooperation with the village of Nanwalek (formerly English Bay) and the Bureau of Indian Affairs (BIA), has since taken over this enhancement project, now known as the Nanwalek Salmon Enhancement Project (NSEP). NSEP has attempted to continue broodstock collection, and egg collection and incubation, fry rearing, fry stocking, and operation of a smolt/adult enumeration weir.

Whereas the escapement figures for English Bay Lakes prior to 1994 were index estimates based on aerial surveys, escapements beginning with the 1994 season have been monitored with a counting weir, operated by CRRC/NSEP. The cumulative total that first year numbered 13,800 sockeye salmon (Appendix A23), up to that time the highest return since 1982 and the first year since 1984 in which the minimum desired goal of 10,000 fish was achieved. In 1995 and 1996, the weir totals were 22,500 and 12,400, respectively, with the former representing the highest figure over the past 20 years.

In the early 1990s, optimum escapement for this system was estimated to be less than the original maximum goal of 20,000 sockeye (Edmundson et al. 1992). A plan to tightly control spawning escapement into the lake by harvesting those fish surplus to the maximum desired goal of 15,000 was adopted by ADF&G staff, representatives of CRRC/NSEP, and village residents from Nanwalek during meetings held over the winter of 1995–1996. This escapement goal remained in place during the years 1996–2001. After the 2001 season, ADF&G conducted an escapement goal review for all salmon systems in the LCI management area and presented the results to the Alaska Board of Fisheries (BOF) at its Anchorage meeting in November 2001. The BOF approved the new sustainable escapement goals (SEG's) proposed by ADF&G, and the new goals were implemented for the first time in 2002. Based on ADF&G's analysis, the new SEG for English Bay Lakes was expressed as a range of 6,000 to 13,500 sockeye salmon. When the sockeye salmon enhancement project's annual broodstock requirements, which are removed from the escapement into the lakes, were added onto the SEG, the desired inriver goal became a range of 7,500 to 15,000 sockeye salmon (midpoint 11,250) for the 2007 season.

Unfortunately, the preseason forecast for sockeye salmon returning to the English Bay Lakes system was only 3,200 fish in 2007. Since this figure was less than the low end of the SEG and the desired inriver goal, waters of Port Graham Subdistrict, including both Port Graham and English Bay Sections, were not allowed to open to commercial set gillnet fishing in early June this season. In addition, the subsistence fishing season in local waters, which initially opened on April 1, was also closed beginning May 30 since all returning adults would likely be required for biological requirements. The poor adult return forecast this year was due to an absence of hatchery-produced smolts, and low overall smolt emigration numbers, in both 2004 and 2005. An egg removal schedule for English Bay Lakes was included in the 2007 Port Graham Hatchery Annual Management Plan as a contingency to allow a limited egg take should the return be stronger than forecast.

The CRRC/NSEP enumeration weir was installed and became operational on May 22, with the first fish passage documented on June 5, considered somewhat late based on historical information. Daily fish passage was variable over the next nine days, a period during which the weir became inoperable for two consecutive days due to high water (estimates based on observations were used for these days). Counts "spiked" on June 15, when over 600 sockeye

salmon passed that day and brought the cumulative escapement total to 2,000 sockeye salmon . Six days later on June 21, the cumulative count had risen to nearly 4,500 sockeye salmon, and on-grounds observations suggested that a sizeable number of sockeye had entered freshwater and were staging downstream of the weir. As a result, ADF&G projected that an escapement within the SEG would be met soon and therefore issued an emergency order opening subsistence set gillnet fishing in waters of Port Graham Subdistrict, including both the Port Graham and English Bay Sections, on the regularly scheduled weekly fishing periods beginning the morning of June 23 (Table 8). Recognizing the greater harvesting potential of the commercial set gillnet fishery, ADF&G elected to keep that fishery closed.

Daily escapement passage remained strong, and through June 28 the cumulative weir counts totaled 11,400 sockeye salmon, slightly greater than the midpoint of the desired inriver range. Once again, on-grounds observation by NSEP personnel estimated as many as 3,000 additional sockeye salmon present in freshwater downstream of the weir. Since the cumulative number of sockeye in freshwater approached, or possibly surpassed, the upper bound of the desired inriver goal, all remaining sockeye salmon could be made available for harvest without jeopardizing escapement requirements. As a result, the commercial set gillnet fishery in waters of Port Graham Subdistrict was opened by emergency order beginning July 2 on the regular schedule of two 48-hour fishing periods per week (Table 8).

The English Bay River counting weir remained in operation through July 11, tallying a cumulative escapement figure of 16,500 sockeye salmon for the season (Table 3; Appendix A23), or just slightly greater than the upper end of the desired inriver goal range. Because the sockeye salmon run was stronger than forecast and the escapement fell just above the desired inriver range, NSEP was authorized to collect a full permitted complement of broodstock from the English Bay Lakes system as outlined in the hatchery's Annual Management Plan, but logistical difficulties resulted in the collection of only 372 sockeye salmon for broodstock purposes, or about one-fourth of the permitted total. A cumulative total of about 0.5 million sockeye salmon eggs was collected and transported directly to Trail Lakes Hatchery in Moose Pass for incubation over the winter of 2007-2008. With no forecast available for the adult sockeye salmon run to English Bay Lakes, it is unclear whether a broodstock collection and sockeye egg take will be allowed in 2008.

The commercial set gillnet fishery in Port Graham Subdistrict remained opened to fishing for the remainder of the regulatory season in 2007, although no effort occurred once the sockeye run was over. Commercial harvest in the subdistrict totaled nearly 4,300 sockeye (Table 3) despite the late start to the season and the limited amount of effort. The 2007 subsistence harvest by residents of Port Graham, annually compiled by ADF&G's Subsistence Division, was estimated at around 550 sockeye, but the division considers this estimate to be incomplete. Harvest figures for the village of Nanwalek were unavailable at the time of publication. Historical subsistence catches in these two villages can be found in Appendices A28 and A29. The cumulative total run of sockeye salmon to English Bay Lakes in 2007, including escapement and commercial catch but excluding subsistence harvest, was estimated at almost 21,000 fish (Table 3).

Since there was no sockeye salmon brood collection from English Bay Lakes in 2006, no fry were available for release back into the lakes in 2007. Historical release figures for this system are found in Appendix A31.

BEAR LAKE SOCKEYE SALMON ENHANCEMENT

Bear Lake, located at the head of Resurrection Bay in the Eastern District, has been the target of sockeye salmon enhancement efforts for nearly two decades. Since 1962, this system has also been the centerpiece of a Division of Sport Fish coho salmon enhancement program, part of which originally included limiting the escapement of sockeye salmon into the lake. As a result, only a small remnant run of naturally spawning sockeye salmon remained at Bear Lake. In an effort to produce increasing numbers of adult sockeye without adversely affecting coho salmon production, as mandated by Board of Fisheries policy, CIAA undertook a sockeye stocking program beginning in 1989 with the release of 2.2 million sockeye salmon fingerlings. Since then, additional releases of fry, fingerlings, and accelerated growth ("zero check") smolts have occurred, ranging from 0.2 to 3.4 million juvenile sockeye salmon each year (Appendix A31).

The first year of enhanced adult sockeye salmon runs in 1992 was discouraging, with a total of less than 2,000 fish, but returns increased during each of the following three seasons. The run in 1996 was almost identical to that of 1995, totaling nearly 53,000 sockeye salmon, but between 1996 and 2004, return totals diminished and were not meeting the system's hypothesized potential. Returns in both 2005 and 2006 displayed considerable improvement, totaling 70,000 and 75,000 sockeye salmon, respectively.

Management objectives in the commercial salmon fishery in Resurrection Bay during 2007 remained the same as those of the previous two seasons, after the Alaska Board of Fisheries passed a proposal in the fall of 2004 allocating equal harvest shares of Bear Lake sockeye salmon to CIAA and the commercial seine user group. Initial plans called for opening the commercial seine fishery in mid/late May, and continuously monitoring catches as well as escapement counts at the Bear Creek weir to determine if a hatchery opening in salt water would be necessary to equalize catches. Additionally, CIAA intended to harvest sockeye salmon that were excess to escapement requirements at the Bear Creek weir.

The harvestable surplus of sockeye salmon bound for Bear Lake was forecasted at 100,000 fish in 2007. The initial commercial seine fishing schedule implemented in waters of Resurrection Bay was similar to the previous season at five days per week beginning May 21. Commercial harvests as well as escapement trends were monitored closely, with the first seine catches and the first fish arriving at the weir both reported on May 28, but numbers were minimal. Commercial catches remained much smaller than expected in early June, when harvest rates traditionally would be starting to increase significantly. By the end of the first full week of June, seine catch figures rose to only 10,000 sockeye salmon, or about 10% of the preseason harvest forecast, and the harvest rate at the time suggested either a very weak or very late run. Meanwhile, escapement counts at the Bear Creek weir were minimal, totaling just over 400 fish.

In an effort to determine if the run was simply late, the commercial fishery was allowed to open for the next regular weekly period on Monday, June 11. Unfortunately, the catches were considered relatively poor once again, and as a result, commercial seining in Resurrection Bay was closed for the season on the evening of June 12 after a cumulative harvest of only 15,400 sockeye salmon (Table 3) taken by 11 seiners. Because escapement at the weir was still far short of the desired goal, no hatchery opening in marine waters of the Bear Lake SHA was called immediately in an effort to bolster fish entry into freshwater. Because of the fish migration lag time between saltwater and the Bear Creek weir, real-time assessment of run strength is difficult if not impossible. Consequently, a short 12-hour hatchery-only opening in marine waters of the

Bear Lake SHA was allowed on June 15, but with a catch of only 1,600 sockeye salmon, results of this opening continued to suggest a weak return.

By June 18, Bear Lake escapement had increased significantly to nearly 6,000 sockeye salmon, representing about 50% of the desired inriver escapement goal, and the weir crew reported a considerable buildup of sockeye salmon downstream of the weir on June 19. Because historical information showed that numbers of fish appearing at the weir would peak later that week, staff projected that an escapement near the upper end of the desired range would be achieved. In response, and in an effort to allow opportunity for CIAA to harvest surplus salmon for cost recovery purposes, hatchery-only seining was allowed on a continuous basis in marine waters of the Bear Lake SHA beginning June 20. Little effort or harvest ensued, however, resulting in a cumulative hatchery seine harvest of just 1,700 sockeye salmon for the season (Table 3). The hatchery catch at the weir totaled just over 6,700 sockeye salmon (Table 3), while the final cumulative escapement was 12,800 sockeye salmon (Table 3; Appendix A23). The 2007 Bear Lake total run (escapement, hatchery, and commercial catch) came in at just under 37,000 sockeye salmon, falling far short of the preseason forecast of approximately 112,000 fish and representing less than half of the previous year's estimated return.

A cumulative total of approximately 3.1 million sockeye salmon fry and smolts were released into Bear Lake/Creek during 2007 (Appendix A34), while 6.1 million sockeye salmon eggs were collected for incubation over the 2007–2008 winter at Trail Lakes Hatchery in Moose Pass. Increased stocking levels in Bear Lake over the past six seasons are expected to increase adult returns commensurately in future years.

2008 COMMERCIAL SALMON FISHERY OUTLOOK

SOCKEYE SALMON

Commercial sockeye salmon harvests in LCI during 2008 could approach 373,000 fish, which is about 25% greater than the recent 10-year average catch of 298,000. Approximately three-fourths of the total sockeye salmon harvest is expected to result from continuing enhancement and lake stocking projects in LCI. Forecasted returns to enhancement sites at Leisure and Hazel lakes in the Southern District during 2008 are expected to increase over the previous four seasons, with a harvest projection of about 77,000 sockeye salmon anticipated at Leisure Lake/China Poot Bay and an additional 53,000 sockeye salmon expected at Hazel Lake/Neptune Bay.

Kirschner Lake in the Kamishak Bay District is expected to produce nearly 27,000 adult sockeye salmon in 2008. This projection is based on actual stocking rates combined with average assumed survival rates over the past decade. Stocking in other Kamishak Bay systems, such as Bruin, Ursus, and Paint River Lakes, has now been discontinued, and no runs are expected back to these systems in 2008. Despite the discontinuation of the stocking program at Chenik Lake in the Kamishak Bay District, the sockeye salmon run to that system, and potential harvest opportunities, remain questionable in 2008. It should be noted that the adult sockeye salmon runs to that site over the past five seasons, all entirely the result of natural production, were unexpectedly the strongest since 1993 and included a record harvest of nearly 162,000 sockeye salmon in 2007. This leaves open the distinct possibility that a reasonably strong return could once again produce a harvestable surplus in 2008.

The 2008 enhanced sockeye salmon run to Bear Lake (sixteenth year of enhanced returns) is expected to produce a harvest of about 107,000 fish after accounting for broodstock and escapement requirements. The management plan now in place, adopted by the Alaska Board of Fisheries at their November 2004 meeting in Anchorage and implemented for the first time in 2005, specifies that the harvestable surplus is to be split equally between CIAA for hatchery cost recovery and the common property seine fleet.

Because of a personnel turnover at Port Graham Hatchery, no preseason forecast was generated for sockeye salmon returning to English Bay Lakes in the Southern District. As a result, very restrictive management measures, including the potential for total closures, will likely be implemented in both the commercial and subsistence set gillnet fisheries of Port Graham Subdistrict until run strength can be adequately assessed. It should be noted that the sockeye salmon return to English Bay Lakes during the past two seasons was stronger than initially forecasted and did allow for limited fishery openings.

Based solely on average historical harvests, natural sockeye salmon run projections for LCI could be expected to contribute up to 88,000 fish to commercial catches in 2008. Although not reaching preseason expectations during all recent years, natural sockeye returns in LCI have nevertheless been generally positive, with a concurrent improvement in both spawning escapements to and harvestable surpluses at most systems. The Southern District is expected to contribute the most to the harvest of non-enhanced stocks, while additional catches could come from the East Nuka Bay systems of Delight and Desire Lakes in the Outer District, Aialik Lake in the Eastern District, and Mikfik and/or Chenik Lakes in the Kamishak Bay District.

PINK SALMON

Harvest of pink salmon in LCI during 2008 could approach 826,000 fish, with natural production expected to provide the entire total for the first time in approximately 30 years. The pink salmon return to Port Graham Hatchery is not expected to produce any harvest in 2008 since the fry release in 2007 consisted of an unquantified number of fish released volitionally upon emergence from incubators (i.e. no feeding or short-term rearing). Tutka Hatchery in the Southern District has suspended all activities, therefore no pink salmon are expected back to that site as a result of hatchery releases.

Natural pink salmon spawning escapement levels into most major LCI systems were considered excellent in 2006, contributing to the harvest projection of 826,000 pink salmon throughout the entire LCI management area (Otis *In prep* b). The bulk of the 2008 predicted surplus is expected to occur at Port Dick in the Outer District, with Rocky Bay, Windy Bay, and Port Chatham holding potential for smaller surpluses. In Kamishak Bay, systems at Bruin Bay and Rocky and Ursus Coves are predicted to produce surpluses, while surpluses in the Southern District could occur at Humpy Creek, Seldovia, and Port Graham in 2008. The pink salmon forecast, however, must be viewed with caution based on the recent history of erratic tender service, weak markets, and a lack of active buyers, and it therefore remains questionable whether the harvest forecast of naturally produced pinks will be realized in 2008.

CHUM SALMON

Based solely on average harvests since 1988, the total LCI commercial chum salmon catch is projected to reach almost 39,000 fish during 2008. Chum salmon runs rebounded prior to 2007, however, resulting in commercial catches that exceeded the 2008 forecast figure during all but two

of the past eight seasons. This suggests that actual harvests during 2008 could be greater than the projection, and based on the recent years' pattern, the greatest potential for harvest opportunities will likely occur in the Kamishak Bay District. The LCI chum salmon harvest will consist exclusively of natural production since chum salmon enhancement is no longer conducted in LCI.

CHINOOK AND COHO SALMON

No formal harvest forecast is prepared for Chinook or coho salmon in LCI. However, average annual harvests since 1980 indicate that about 1,300 Chinook and 14,000 coho salmon can be expected to contribute to LCI commercial harvests in 2008.

The following table shows the projected harvest figures by species in the Lower Cook Inlet management area during 2008:

Species	Harvests of Enhanced Returns	Harvests of Natural Returns	Total Harvest
Chinook	[a]	[a]	1,250[a]
Sockeye	284,700[b]	88,000[c]	372,700
Coho	[a]	[a]	13,850[a]
Pink	0[b]	825,800	825,800
Chum	0	38,600[c]	38,600
Total	**284,700**	**952,400**	**1,252,200**

[a] Commercial harvest forecasts of Chinook and coho salmon represent average harvests since 1980 and are comprised of a combination of naturally-produced fish as well as fish produced from enhancement programs in LCI; no attempt is made to separate the two components.

[b] Includes common property plus cost recovery harvests.

[c] Harvest forecasts for naturally-produced sockeye and chum salmon are simply average commercial harvests since 1980 and 1989, respectively.

2007 SUBSISTENCE AND PERSONAL USE SALMON NET FISHERIES

KACHEMAK BAY PERSONAL USE SET GILLNET FISHERY

The Southern District (Kachemak Bay) fall coho salmon gillnet fishery dates back prior to statehood under varying names, being known as a "personal use" fishery during the years 1986-1990, 1993, and 1995-present, and as a "subsistence" fishery in 1991, 1992, and 1994. Numerous court rulings affected the status of this fishery during the 1980s and early 1990s, causing it to change in status between the two categories. The most recent court action, after the 1994 fishery, reestablished the "subsistence" and "non-subsistence" areas originally created by the Alaska Board of Fisheries (BOF) in 1992, and because most of Kachemak Bay was included in a "non-subsistence" classification, the subsistence fishery and the regulations governing it were no longer valid. The BOF readopted personal use regulations governing this fishery into permanent regulation for the 1995 season and rescinded the subsistence regulations formerly governing the fishery. Those personal use regulations have remained in effect since that time.

The target species in the Kachemak Bay gillnet fishery is coho salmon, with returning fish a mixture of natural stocks primarily bound for the Fox River drainage at the head of Kachemak

Bay and enhanced runs bound for the Nick Dudiak Fishing Lagoon, located on the Homer Spit. A former coho salmon enhancement project at Fox Creek/Caribou Lake, near the head of Kachemak Bay, provided additional fish for harvest in the 1980s and 1990s, but the program was eliminated and no adults from that project returned after 1997. The regulations governing the fishery are found in the Personal Use Coho Salmon Fishery Management Plan (5 AAC 77.549). The BOF last addressed this fishery during its 1998 meeting in Homer. After hearing the staff's concerns regarding the harvest of wild stocks of coho salmon, the BOF adopted a change to the regulatory guideline harvest range (GHR), from a former range of 2,500 to 3,500 coho salmon to a new range of 1,000 to 2,000 coho salmon. The lower GHR was implemented for the first time during the 1999 season. Incorporated into the management plan is a requirement that coho salmon taken during the earlier Seldovia area subsistence salmon fishery are included as part of the personal use guideline.

All regulations from the previous year's fishery remained essentially unchanged for the 2007 personal use fishery. Legal gear was limited to a single set gillnet not exceeding 35 fathoms in length, 45 meshes in depth, and six inches in mesh size. Nets were not allowed more than 500 feet from the mean high water mark, and a net could not be set offshore of another net. A permit from the Homer office was required, with an Alaska resident sport fishing license necessary to obtain a permit. The seasonal limit was 25 salmon per head of household and 10 additional salmon per each dependent. There were two scheduled 48-hour fishing periods each week, from Monday 6:00 a.m. until Wednesday 6:00 a.m. and Thursday 6:00 a.m. until Saturday 6:00 a.m. By regulation the Southern District personal use salmon set gillnet fishery opens August 16. Prior to 1991, little ADF&G management interaction occurred and the fishery often proceeded until the regulatory closing date of September 15, regardless of the harvest level. Between 1991 and 2006, years of intensive management for the GHR, fishing time allowed in this fishery ranged from 72 to 216 hours.

In 2007, only nine coho salmon were reported during the early August Seldovia subsistence fishery, thus having no impact on the GHR in the later personal use fishery. Prior to the opening on August 16, ADF&G requested voluntary daily reporting from each permit holder during the fishery, as has been the case since 1991. Compared to some recent years, coho salmon harvest rates were considered relatively slow during the first two fishing periods. Catch information voluntarily reported after the first 48-hour fishing period indicated a catch of only 490 coho salmon, and by the end of the second 48-hour period, a total of 644 coho salmon were reported as harvest. Cumulative catch information collected through August 25 (the end of the third fishing period) showed a total of 1,050 coho salmon harvested by 60 permit holders, representing approximately 43% of the 141 permits issued. Based on experience from previous years' fisheries, ADF&G projected that the catch would fall near the middle of the GHR by the end of the fourth fishing period. Therefore, the 2007 Personal Use Coho Salmon Fishery was closed by emergency order effective at 6:00 a.m. Wednesday, August 29, for the remainder of the season after 192 hours of fishing time.

A total of 141 permits were issued for the 2007 fishery (Appendix A26), while 133 permit holders (94%) phoned in their catches or returned their permits. Of the total number issued, 95 permit holders (67%) actively fished, 38 (27%) did not fish at all, and the remaining eight permit holders (6%) did not report or return their permit. Based on returned permits and voluntary catch reports, the harvest was estimated to be 1,431 coho, 641 pink, 113 sockeye, 10 Chinook, and 34

chum salmon (Appendix A26). The 2007 coho salmon total represents the fourth lowest catch in the personal use gillnet fishery over the past 30 years.

The coho salmon harvest total this season approached the midpoint of the 1,000 to 2,000 fish GHR. Contrary to recent years, the area from Fritz Creek to Swift Creek, located along the north shore of Kachemak Bay, received the majority of effort (34%) and produced the highest percentage of coho salmon harvest (62%) in 2007. On average between 1999 and 2006, this area received less than 10% of the active effort and produced only 10% of the overall coho catch each season. Prior to 2006, the majority of coho salmon catches in the personal use fishery came from the east side of the Homer Spit, but effort there this season produced only about 13% of the coho salmon total.

The duration of the 2007 Southern District personal use fishery (192 hours of fishing time) was considerably longer than the 1991–2006 average of 124 hours. While the number of permits issued this season (141) was the highest since 2001, it still fell well short of the 1991–2006 average of 220 permits. The number of actively fished permits (95) was marginally greater than the average over the past seven years yet was also the highest since 2002. The increase in permits issued and actively fished this season is difficult to explain but nonetheless reverses an overall downward trend observed in these parameters over the past seven years.

In an effort to provide additional sport fishing opportunities and continuity with the earlier return of Chinook salmon to the Nick Dudiak Fishing Lagoon on the Homer Spit, the Division of Sport Fish has stocked coho salmon with both early (Ship Creek brood) and late (Bear Lake brood) run timing characteristics since 2001. Adults resulting from the early run release return as early as the third week of July, which roughly coincides with the end of the enhanced Chinook salmon return. The midpoint of the early run coho salmon return is approximately mid-August and closely corresponds with the regulatory opening date of the personal use fishery, while the midpoint of the late run coho salmon return is approximately the end of August. The overlapping run timing windows of the combined early and late coho salmon runs likely tend to increase catch rates in the personal use fishery, particularly during the first 24-hour period.

Due to the abbreviated nature of the personal use fishery since 1991, the staff annually makes a concerted effort prior to the opening to inform the public of the anticipated short duration, which has become common knowledge among experienced local participants. Although this prior knowledge of the brevity of the fishery has at times led to intense competition for desirable fishing sites along the east side of the Homer Spit, the reduced participation in the fishery in recent seasons appears to have tempered this competitive character. Nonetheless, this area continues to remain an extremely popular location to fish, undeniably due to the coho salmon enhancement project at the Nick Dudiak Fishing Lagoon. Since enhancement on the Homer Spit began, the greatest fishing success in the personal use fishery has traditionally occurred in those waters adjacent to the enhancement lagoon, but beginning in 2006 other areas produced total catches approaching or exceeding those of the east side of the Spit.

Prior to enhancement, the Homer Spit was considered only average in terms of harvest productivity. Easy road access and the enhanced coho salmon returns have frequently combined to incite fishermen to clamor for fishing sites on the Homer Spit, a situation which resulted in numerous violations during some previous gillnet fisheries. The last time that Alaska Wildlife Troopers officers issued citations during this fishery was in 1994. Since then, numerous verbal warnings have been issued, and many complaints received via telephone in the Homer ADF&G

office regarding infractions. This year Alaska Wildlife Troopers officers were once again on site for the beginning of the fishery, and as is usually the case, the presence of these uniformed officials generated relatively expedient voluntary compliance. As a result, no formal citations were issued.

The lower GHR implemented in 1999 appears to have succeeded at protecting the majority of naturally produced coho salmon by prompting a fishery closure prior to the peak of those stocks' migration. Although no tagged adult fish returned to the enhancement lagoon this year, tag recovery analysis from catches along the east side of the Spit during the 1999 and 2000 personal use fisheries indicated that approximately 80% of coho caught in that area were of hatchery origin. In years when the coho catches along the east side of the Spit made up the highest percentage of the harvest, this information would logically suggest that relatively small numbers of wild stock fish were presumably taken in the gillnet fishery. In 2007, however, the majority of the catch was reported from the north shore area between Fritz Creek and Swift Creek, and with no tag/recovery data, it is impossible to estimate the catch composition.

Overall run strength of coho salmon returns to Kachemak Bay this year was estimated to be average to slightly below average as indicated by the incidental catch in the commercial fishery. However, commercial coho salmon catches have proven to be an unreliable indicator of overall returns since this species is rarely targeted in that fishery. For example, the coho salmon catch in the commercial fishery for the Southern District this year was over 3,300 fish versus only 1,400 fish for 2004, a year when coho salmon returns to the area were considered excellent. Informal observations conducted in the local sport fishery by Division of Sport Fish staff indicated weaker than expected returns to the enhancement lagoon, considering that stocking levels in 2006 were nearly three times that of a normal year for late run coho salmon. Two aerial surveys of Clearwater Slough, the major coho index stream at the head of Kachemak Bay, were conducted in September to gauge escapements. The peak individual coho salmon count of 2,900 fish, obtained on the season's first survey September 21, was considered outstanding when compared to historical survey estimates.

The 2007 catch of 10 Chinook salmon (Appendix A26) was the third lowest since 1993 and considerably lower than the long term average (1969–2006) of 48 fish. The declining trend observed in the harvest of this species in the personal use fishery over the past several years can clearly be attributed to the discontinuation of the Division of Sport Fish program to stock late run juvenile Chinook salmon after 1999. Consequently, catches of Chinook salmon in this fishery are expected to remain low in future seasons.

Catches in the 2008 personal use fishery are expected to be comparable to the previous nine year period, 1999–2007, but the length of time required to achieve a harvest within the GHR is difficult to forecast, particularly when comparing this year's relatively long fishery (192 hours) to that of some previous years' total of only 72 hours. Additionally, run timing of the earlier returning stocked coho salmon should hypothetically serve to reduce the length of time needed to achieve a harvest within the GHR. This in turn would provide further protection to the wild stock coho salmon bound primarily for the Fox River drainage at the head of Kachemak Bay, which exhibit a slightly later run timing. However, low participation and effort levels in, and thus a longer duration of, the 2008 fishery could easily mitigate the previous statement. As observed in recent years, alternative personal use fisheries elsewhere in Cook Inlet could again impact effort levels in the LCI fishery. Although limited as an inseason management tool, voluntary catch reports will once again be employed to help determine an appropriate closure time in 2008.

Based on experience gained during the past 17 years' fisheries, and especially that of the past nine seasons, management for a harvest within the GHR is considered realistic and likely.

NANWALEK/PORT GRAHAM SUBSISTENCE FISHERY

One of Lower Cook Inlet's two subsistence fisheries during 2007 occurred near the villages of Nanwalek (formerly English Bay) and Port Graham, located approximately 21 nautical miles southwest of Homer on the south side of Kachemak Bay (Figure 2). Gear in this fishery is limited to set gillnets. Most fishing occurs within close proximity to the respective villages, primarily targeting Chinook salmon transiting area waters and sockeye salmon returning to the English Bay Lakes system early in the summer, although participants will occasionally target pink salmon returning to Port Graham and English Bay Rivers later in the summer. Some additional fishing also occurs in Koyuktolik ("Dogfish") Bay, located about seven nautical miles south of English Bay, targeting non-local stocks of Chinook salmon as well as local stocks of chum salmon. Despite being open to fishing for each of the past six seasons, waters of Port Chatham and Windy Bay Subdistricts have not experienced any known effort but do provide additional opportunity for participants to meet subsistence requirements.

The sockeye salmon run to English Bay Lakes was severely depressed for much of the late 1980s and early 1990s, with runs failing to achieve the minimum escapement goal for nine consecutive years between 1985 and 1993 (Appendix A23). More recently, returns have been bolstered in some years as a result of a rehabilitation/enhancement project initiated by ADF&G and subsequently taken over by the Nanwalek Salmon Enhancement Project (NSEP) in conjunction with Chugach Regional Resources Commission (CRRC) and the village of Nanwalek. However, disease outbreaks in the lake-rearing portion of the program, coupled with erratic adult behavior that caused difficulty in capturing broodstock, have plagued the program and led to inconsistent adult returns.

With less than 3,200 adult sockeye salmon forecasted to return to English Bay Lakes in 2007, and a desired inriver return range of 7,500 to 15,000 fish, the commercial set gillnet fishery in waters of Port Graham Subdistrict, including both the Port Graham and English Bay Sections, was kept closed at the start of the commercial season in early June. Additionally, the subsistence set gillnet fishery, which opened in the same waters on April 1, was closed beginning May 30 until the sockeye salmon return could be assessed. Early weir counts from English Bay River suggested a weak run, but as the run progressed towards the latter part of June, it appeared to be stronger than originally predicted. By June 21, increased counts prompted ADF&G to project that an escapement within the desire inriver return range would be achieved. As a result, subsistence salmon set gillnet fishing in waters of Port Graham Subdistrict was reopened on the regular weekly fishing schedule starting the morning of June 23 (Table 8). Because of the increased harvesting power of the commercial set gillnet gear group, that fishery was kept closed until July 2, when staff determined that the upper end of the desired range would most likely be reached or surpassed.

Loss of the subsistence coordinator in 2007 resulted in incomplete data for end-of-year harvest and effort summaries in the Port Graham/Nanwelek subsistence fishery. The preliminary data set compiled by ADF&G's Division of Subsistence indicated that the all-species salmon harvest for the village residents of Port Graham cumulatively totaled less than 800 fish in 2007, the third lowest figure over the past 20 years (Appendix A28). No harvest figures were available for the village of Nanwalek in 2007 at the time of publication, but historical catch and effort figures are

found in Appendix A29. The enumeration weir operated by NSEP at English Bay River monitored sockeye escapement inseason, as has been the case since 1994, with a final estimate of 16,500 fish (Table 3; Appendix A23), falling slightly over the upper end of the desired inriver return range of 7,000–15,000. NSEP collected 372 sockeye salmon broodstock from the 2007 English Bay Lake escapement for use in their enhancement program.

Because of sub-par salmon returns to the Port Graham Subdistrict in some recent seasons, village residents have at times encountered difficulty meeting their subsistence salmon needs when restricted to fishing only in the Port Graham and Koyuktolik Subdistricts. Consequently, a proposal to add the previously mentioned waters of Port Chatham and Windy Bay to those areas open to subsistence fishing was submitted to the Alaska Board of Fisheries (BOF) at their November 2001 meeting. The BOF amended and subsequently adopted the proposal, allowing fishing weekly from 10:00 p.m. Thursday to 10:00 a.m. Wednesday between April 1 and September 30 in waters of Port Graham and Koyuktolik Subdistricts. However, in waters of Port Chatham and Windy Bay Subdistricts, the BOF established identical weekly fishing periods but chose season dates for these two subdistricts from April 1 until August 1 to protect returning coho salmon in those waters. No subsistence fishing effort or harvest has been known to occur in Port Chatham or Windy Bay Subdistricts since these areas were first opened to fishing in 2002.

SELDOVIA AREA SUBSISTENCE SALMON SET GILLNET FISHERY

The set gillnet fishery in waters near Seldovia on the south side of Kachemak Bay in 2007 was the twelfth year of Lower Cook Inlet's newest subsistence salmon fishery. Established by the BOF at their LCI meeting in the fall of 1995, the fishery was designed to primarily target non-local stocks of Chinook salmon as they transited these waters. In considering initial seasons and bag limits, the BOF made attempts to restrict the fishery in an effort to reduce potential interception of enhanced Chinook salmon bound for a popular stocking site in the Seldovia small boat harbor. These enhanced fish were intended to principally benefit sport fishermen and were not considered "customary and traditional" for subsistence purposes.

Regulations in the fishery included a "split" season, the first occurring from April 1 through May 30 and the second occurring during the first two weeks of August. A guideline harvest limit of 200 Chinook salmon was established for the early season fishery, while the annual possession limit was set at 20 Chinook per household. During the April/May season, fishing was allowed during two 48-hour periods each week, while in August the fishery was only open during the first two weekends of the month. Waters open to fishing included those along the eastern shore of Seldovia Bay as well as a short stretch of water outside of Seldovia Bay proper just west of Point Naskowhak (also called the "outside beach"). Gear was limited to set gillnets not exceeding 35 fathoms in length, 45 meshes in depth, and six inches (stretched) mesh size, identical to gear regulations governing the nearby Port Graham/English Bay subsistence fishery. A permit issued by ADF&G was required prior to fishing, and catches were to be recorded on the permit and also reported to ADF&G's Homer office inseason so that cumulative harvest totals could be monitored.

A total of 15 permits were issued for the early season, while four permits were issued for the August season. Because most participants in this fishery ignore the requirement to call in their catches during the open season, inseason harvests are typically underreported. At the close of the early season, 12 of the 15 permits were returned to ADF&G as required by regulation, and catches were determined from records on each permit. For the early season, five of 15 permit

holders (33%) actively fished, seven (47%) did not fish, and three permit holders (20%) failed to return his/her permit (Appendix A30). The reported salmon catch for the early season totaled only 19 Chinook salmon (Appendix A30), while in the late season, three actively fished permits of the four permits issued reported a harvest of 140 salmon, dominated by pink salmon at 57% of the catch.

The 2007 early season Seldovia subsistence harvest of only 19 Chinook salmon was the second lowest catch since the fishery was established (Appendix A30). Uncharacteristically, very few other salmon species were reported caught during the early season. The low Chinook catch is likely due in part to the low number of participants who actually fished, with only five permit holders actively fishing in 2007, compared to a seasonal average of 11 permits fished during the past decade. Reasons for the low numbers of sockeye salmon harvested in the early season are unclear but continue a trend observed during the past three seasons. The record catch for both species in the Seldovia subsistence fishery occurred in 2000 when 189 Chinook and 249 sockeye salmon were harvested (Appendix A30).

The harvest in the 2008 Seldovia early season subsistence fishery is difficult to predict given the low participation in the previous three years. If the number of actively fishing permit holders increases next year to pre-2005 levels, then harvests could increase commensurately.

2007 COMMERCIAL HERRING FISHERY

INTRODUCTION

Similar to the salmon fishery, commercial Pacific herring *Clupea pallasi* fishing in LCI has historically occurred in four of the five management districts, with the Barren Islands District the sole area where commercial herring fishing has not occurred (Figure 1). LCI herring fishing first began in the Southern District in 1914 with the development of a gillnet fishery within Kachemak Bay. Eight saltries, including six near Halibut Cove, were operating during the peak of the fishery. A purse seine fishery in Kachemak Bay began in 1923, but after three successive years of average annual harvests approaching 8,000 short tons (st; 1 short ton = 2,000 pounds), herring populations, and hence the fishery, collapsed.

The next LCI herring fishery began in 1939 and was centered in the Resurrection Bay and Day Harbor areas of the Eastern District (Figure 1). Product from this purse seine fishery was used exclusively for oil and meal reduction. Although the fishery continued through 1959, peak harvests occurred from 1944 to 1946, averaging 16,000 st each of those years. After this time period, stocks sharply declined, apparently due to over-exploitation.

HISTORY AND DEVELOPMENT OF THE HERRING SAC ROE FISHERY

Introduction

Japanese market demand for salted herring roe resulted in the development of a sac roe fishery in the 1960s. The relatively high prices paid to fishermen caused rapid expansion of the fishing fleet and harvest, and efforts to manage the resource frequently encountered difficulty keeping pace with this strong market demand and growth. In order to decrease the risk of a stock collapse and to sustain the fishery, ADF&G established conservative management strategies and guideline harvest levels. Following a period of suspected over-exploitation, herring stocks throughout LCI generally declined after 1973. Concern over the declining trend led the Alaska

Board of Fish and Game, prior to the start of the 1974 season, to establish a quota of 4,000 st for all of LCI.

Historically the only allowable gear type in the LCI herring sac roe fishery has been purse seine. The limited entry permit system for sac roe herring seining in Cook Inlet was implemented in 1977, and at the present time 74 permanent and two interim-use permits are issued for the management area.

Outer/Eastern Districts

During the early years of sac roe herring fishing in LCI, seining occurred primarily in the Outer and Eastern Districts (Figure 1), with the majority of effort and harvest once again concentrated in Resurrection Bay of the Eastern District. The first major harvest occurred in 1969, when 760 st of herring were taken in the Eastern District. The catch increased dramatically in 1970 to a record high of 2,100 st in this district, but the stocks, and resultant harvests, declined over the next three seasons. The Alaska Board of Fish and Game allocated 1,000 st from the total LCI quota of 4,000 st to each of the Outer and Eastern Districts beginning with the 1974 season. However, stock abundance continued to decline and these quotas were never achieved. As a result, the Outer and Eastern Districts were closed to herring fishing from 1975 to 1984.

In 1985, the sac roe fishery was allowed to resume in the Outer and Eastern Districts on a very conservative basis, even though no noticeable change in spawning biomass had been observed. Because of the stocks' reduced abundance and extreme vulnerability to fishing, guideline harvest levels were set at 150 to 200 st for each of the four fishing areas created within these two districts. Fishing effort in 1985 was minimal and the majority of the harvest (216 st) once again was taken in Resurrection Bay. Only limited and sporadic harvests occurred in these two districts after 1985, with the majority of both the herring catch and the observed biomass comprised of fish age 4 and younger.

Despite considerable opportunity for exploratory fishing on a daily basis in the Outer and Eastern Districts during 1991 and 1992, the predominance of juvenile herring and the history of marginally acceptable roe recoveries from fish caught in these areas contributed to a lack of interest by fishermen and processors. These conditions prevailed from 1993 through 2001 and, consequently, the Outer and Eastern Districts were not opened to purse seining in any season during that 9-year period. At their November 2001 meeting, the Alaska Board of Fisheries (BOF) closed these districts to commercial herring fishing by regulation and simultaneously adopted a management plan containing seven specific criteria that must be addressed prior to allowing any commercial herring fishing in the Outer and/or Eastern Districts. Thus, no harvest or effort occurred in the Outer and Eastern Districts during the 2007 season.

Southern District

Sac roe herring seining in the Southern District began in the early 1960s, but catches were sporadic and relatively insignificant until 1969. That year, over 550 st were taken, followed the next season by a district record high harvest of 2,700 st. Commercial harvests continued during the 1970s, albeit at much lower levels, but observed low abundance of herring during the past 25 years has virtually precluded commercial openings in the Southern District. The only exception occurred in 1989, when six vessels in a single 2.5-hour opening harvested 170 st of herring (Appendix B1) averaging 8.9% roe recovery.

Similar to the Outer and Eastern Districts, the BOF expressed concern for the herring stock in the Southern District and responded at their November 2001 meeting by closing the Southern District to commercial fishing by regulation, including it in the previously mentioned management plan adopted for the Outer and Eastern Districts. Under the new plan, the BOF must address seven specific management considerations prior to allowing a commercial herring fishery in this district.

Kamishak Bay District

Since 1973, the majority of LCI sac roe herring harvest and effort has occurred within the Kamishak Bay District (Figures 1 and 6). Historical commercial harvests ranged from a low of 240 st taken in 1973 to a high of 6,100 st taken in 1987, with estimated exvessel values ranging from $70,000 to $9.30 million. After the initial harvest in 1973, Kamishak Bay herring catches increased dramatically over the next three years, peaking at 4,800 st in 1976 (Appendix B3). Harvests dropped sharply during the ensuing three seasons, and by the end of the decade the stock had declined to a point that the Kamishak Bay fishery was closed entirely beginning with the 1980 season.

Although the Kamishak Bay District herring season remained relatively constant during the 1970s, roughly from late April through June, a significant management change occurred during this time. From 1973 through 1977, the fishery was essentially “open season until closed”, but in 1978 it was changed to “closed season until opened by emergency order” (Appendix B3). This change required more active assessment of the herring stock by ADF&G in order to determine appropriate opening times and harvest levels.

The Kamishak Bay herring stock appeared to respond positively and rebuild rather quickly following the 5-year closure that began in 1980. The fishery was reopened in 1985, with a resulting harvest of 1,100 st that season (Appendix B3). Beginning in 1985, the commercial fishery in Kamishak Bay District was regulated to achieve a 10% to 20% exploitation rate mandated by the Board of Fisheries. From 1985 through 1989, harvests averaged about 3,900 st, with a peak catch of 6,100 st in 1987 (Appendix B1). By 1989, fishing efficiency had increased to a level where intensive regulatory management was required to maintain harvests within guideline levels, to direct the fishery at herring aggregations with high quality roe, and to protect younger age herring from harvest.

Management of the Kamishak Bay District between 1990 and 1997 stabilized the average harvest at roughly 40% of the 1987 record high catch. However, “hindcast” biomass estimates generated by an age-structured-assessment (ASA) model show that stocks were declining steadily throughout the decade (Figure 12; Appendix B4), and by 1998 the cumulative commercial herring catch in the Kamishak Bay District totaled only 300 st despite several extended district-wide openings. The fishery was closed beginning with the 1999 season due to low abundance levels and has remained closed since.

The initial Kamishak Bay District Herring Management Plan (KBDHMP) was formally adopted into regulation beginning with the 1993 season. Highlights of the original plan included a minimum biomass threshold of 8,000 st, a maximum exploitation rate of 20% (scaled depending on the forecasted biomass), and a management strategy intended to limit the harvest of herring age 5 and younger. In addition, because the spawning stock of Kamishak Bay herring is believed to reside in waters of north Shelikof Strait in the Kodiak Management Area for at least a part of

the year, the KBDHMP dictated that 10% of the allowable harvest of Kamishak Bay herring be allocated to the Shelikof food/bait fishery.

At the November 2001 BOF meeting, ADF&G staff proposed amendments to the KBDHMP in order to make it more conservative. The two key components of the new plan included a reduction in the maximum exploitation rate allowed in the fishery, from a former level of 20% of the forecasted herring biomass to a new level of 15%, and a reduction in the biomass threshold (the minimum volume necessary in order to allow a fishery) from 8,000 st to 6,000 st. The staff reasoned that the decreased exploitation rate, although equating to a smaller annual harvest for the fleet, would help to preclude the extended closures that have plagued the Kamishak Bay commercial herring fishery since its inception. The new threshold level was the result of a biomass threshold analysis conducted by the LCI research staff (Hammarstrom and Otis 2001). After careful review, the BOF unanimously adopted the amended KBDHMP into regulation.

2007 HERRING SEASON OVERVIEW

Assessment Methods

The primary method of herring biomass assessment in LCI is the aerial survey. Aerial surveys are conducted annually throughout the herring spawning season in the Kamishak Bay and Southern Districts, from late April through early June, to determine relative abundance and distribution of herring. Because a commercial herring fishery has not occurred in the Outer and Eastern Districts in many years, and is not likely to occur in the near future, aerial surveys of these areas are no longer conducted. Additionally, the size of the area and the characteristically poor spring weather in the Gulf of Alaska precludes surveys on a regular basis and makes aerial biomass estimation in these districts impractical and expensive. Data collection methods in the Kamishak Bay and Southern Districts are consistent between seasons, with numbers and distribution of herring schools, location and extent of spawning events and milt, and visibility factors affecting survey results recorded on index maps for each survey. Three standard conversion factors are used to estimate herring biomass based on each 538 ft^2 (50 m^2) of school surface area sighted and the following water depth parameters: 1) 1.52 st for water depths of 16 ft or less; 2) 2.56 st for water depths between 16 and 26 ft; and 3) 2.83 st for water depths greater than 26 ft (Lebida and Whitmore 1985).

Due to invariably poor weather and water clarity, aerial surveys rarely provide reliable estimates of total herring biomass returning to Kamishak District Bay waters (Otis et al. 1998). As a result, an age-structured-assessment (ASA) model has been used for the past 14 years to forecast herring abundance for Kamishak Bay, as well as to “hindcast” previous years’ total abundance. This dynamic model incorporates a variety of heterogeneous data sources including: a time series of commercial catch age composition; total run age composition; and aerial survey biomass estimates from years with adequate survey conditions and coverage. The model simultaneously minimizes the differences between expected and observed return data for each of its components, updates hindcasts of previous years’ abundance, and returns a forecasted estimate of the following year’s return.

Another tool ADF&G annually utilizes to aid in herring assessment in the Kamishak Bay District, and opportunistically in the Southern District, is a chartered commercial seine vessel. In years when no commercial fishery occurs, ADF&G is unable to utilize the fleet to collect samples for age composition analysis. By chartering a commercial purse seine vessel, samples and other related information can be collected and used to further aid in understanding the

dynamics of the herring stocks. As long as sufficient funding is available, separate sampling charters are conducted to sample different portions of the spawning migration (early and late). In years when a fishery occurs (traditionally in the early part of the migration), a single "late season" sampling charter is employed to obtain a more complete picture of the overall return. Hydroacoustic observations and water temperature/depth parameters are concurrently accumulated during the charters. The information gathered during these sampling efforts provides age class data that: 1) allows the staff to generate an age composition estimate of the overall biomass observed by aerial surveyors throughout the entire duration of the spawning migration; and 2) facilitates the evaluation of the relative strength of recruiting year classes. This is critical in generating the annual herring forecast. The charters further serve to informally verify the relative magnitude of herring biomass observed by aerial surveyors.

Kamishak Bay District 2007 Season Summary

Aerial survey coverage and observation conditions to assess the Kamishak Bay herring stock in 2007 were considered fair. A total of 10 surveys were completed in the Kamishak Bay District between April 25 and June 20, a timeframe that included several five to 11 day "gaps" in coverage, or periods during which no surveys were flown due to poor weather. Based on historical observations, the arrival of herring in 2007 was considerably later than normal in the district for the third consecutive season, with fish first documented during a survey on May 11 when a cumulative total of 3 st were estimated throughout the district. The highest daily biomass estimation during the seasonal surveying period was made on June 3, with a cumulative estimate of 774 st made on that date, the majority of which were observed in Iniskin and Oil Bays.

Only two sightings of spawning activity occurred during surveillance flights in 2007. Both sightings occurred on May 21 and totaled approximately 0.2 miles in length. Due to the often sporadic schedule of surveillance flights, however, correlation between documented spawning and herring abundance has traditionally not been attempted. Therefore, the infrequency of spawn sightings this year certainly substantiates the low abundances observed but is not in itself considered indicative of a weak herring return.

Survey coverage in 2007 resulted in a cumulative total of 1,237 st of herring observed by ADF&G surveyors in the Kamishak Bay District this season, which was more than 2004's record low of 900 st but still the second lowest observed total in the past 18 seasons. The last seven consecutive years of disappointingly low aerial survey abundance indices indicate the lack of a significant herring recruitment event in Kamishak Bay during any recent season. This contrasts with other North Gulf of Alaska herring populations, such as those in the Kodiak management area, which have experienced population growth due to strong recruitment events in recent years.

One hypothesis for the lack of recruitment in Kamishak Bay originates from the relatively poor condition of the fish observed recently, characterized by low average weights-at-age, which can lead to higher than normal mortality. Furthermore, the presence of *Ichthyophonus*, a protozoan pathogen that has been linked to population declines of Atlantic herring, may also be contributing to the suppression of the stock, although the observed incidence in 2007 (20-32%) was considerably lower than that documented in 2005 (37-52%) but greater than that found in 2006 (10-18%). Another theory speculates that herring may not always return to their birthplace to spawn. This premise is based on the concept that, upon first achieving sexual maturity, the younger herring may simply follow older repeat spawners in a given school back to a spawning area, even if that area is not where the younger fish were originally spawned.

Relatively poor weather hindered the ability of two ADF&G spring vessel charters to survey effectively and collect age composition samples during the periods 9–17 May and 21–28 May. The early sampling period coincided with the arrival of the first fish on the grounds, which was about two weeks later than the traditional timing of the commercial fishery. The second charter collected age composition samples during the latter portion of the return in 2007. During the 17 days spent in the district, the contracted vessel collected over 1,900 fish for age/weight/length (AWL) analysis. Unfortunately, information and samples collected from the two charters corroborated the overall low abundance of the population observed by ADF&G aerial surveyors, while additionally confirming the low recruitment of new fish.

Based on hindcast estimates, herring biomass steadily declined in Kamishak Bay between 1985 and 2001 and has now stabilized at a very low level over the past seven years. The ASA model estimated the total 2007 return at 1,864 st (Table 11; Figure 12; Appendix B4), a 5% increase over the 2006 hindcast estimate of 1,775 st but still the second lowest figure in the past two decades. Recruitment into the spawning population did occur in 2007, but the magnitude of this recruitment was not as great as was hoped. Postseason data analysis of test fishing samples indicate that the overall return this season was dominated by fish age 4, age 5, and age 6 at 19%, 16% and 14% of the biomass by weight, respectively (Table 11; Figure 13).

Southern District 2007 Season Summary

A total of eight aerial surveys for herring in the Southern District were flown between May 4 and June 6 in 2007, all conducted under fair to good conditions. The 2007 run biomass, estimated as the simple sum of all daily biomass estimates, totaled 379 st, which was the lowest figure since 1998 when approximately 178 st were estimated. The number of surveys conducted this season continued a slightly increasing trend over the four to five annually flown between 2003 and 2005, yet the biomass figure for 2007 was significantly lower than the totals in any of those seasons except for 2004, when 397 st were observed. Nonetheless, the observed total in 2007 continued to follow an overall pattern of low herring abundances in the Southern District during the past 25 years. The peak 2007 individual biomass survey occurred on the next to last survey of the season, May 30, when 143 st were estimated. Peak surveys in areas where herring historically have been observed were as follows: Mallard Bay, 87 st on May 30; Glacier Spit/Halibut Cove, 20 st on May 4; west side Homer Spit, 5 st on May 22; and east side of the Homer spit and in Mud Bay, 41 st on May 18. As has been the persistent trend over the past 25 years, low abundance levels in the Southern District, combined with the regulatory management plan mentioned previously, precluded any commercial fishing during the 2007 season.

Outer/Eastern District 2007 Season Summary

As in previous recent seasons, no herring assessment occurred in the Outer and Eastern Districts during 2007. Unlike the Southern and Kamishak Bay Districts, historical samples from the Outer and Eastern Districts have contained up to 14% age-2 (sexually immature) herring. Formal sampling has not occurred in recent years and was very limited in previous years. However, two small, informal samples of herring from two separate schools observed aerially in Day Harbor (Eastern District, late June) and Port Dick (Outer District, early July) were obtained by handline jigging during the 2000 season. Scales were not collected for age composition analysis, but the size of all fish caught suggested that they were age-2 juveniles. No discernible shift to older age herring has ever been observed in this area, suggesting the possibility that the Outer and Eastern Districts may be feeding and rearing grounds for juvenile fish from another area.

2008 HERRING SEASON OUTLOOK

Kamishak Bay District

The forecasted herring biomass generated by the ASA model for 2008 in the Kamishak Bay District is 2,069 st (Table 11; Figure 12; Otis *In prep* a). This total falls below the KBDHMP regulatory threshold of 6,000 st for which a commercial harvest can be considered. Additionally, over one-half of the predicted return by weight in 2008 should be comprised of fish age 5 and younger, with the single age-5 year class projected to make up nearly one-quarter of the overall return (Table 11; Figure 13). Since the KBDHMP directs ADF&G to limit the harvest of fish age 5 and younger, and because the forecasted abundance falls below threshold, the sac roe fishery in the Kamishak Bay District will remain closed for the 2008 season. The resource, and hence the commercial fishery, is best served by protecting the remaining spawning population in order to rebuild it to a harvestable level.

Without a commercial fishery in 2008, ADF&G's ability to collect age composition information will be greatly reduced. ADF&G expects to once again obtain samples using a chartered commercial seine vessel throughout the duration of the 2008 run, with sufficient funding expected for both an early and a late season charter. ADF&G will also attempt to conduct comprehensive aerial surveys throughout the spawning season, from mid-April to early June, as conditions permit.

Other Districts

Based on the persistent trend of low herring abundance in the Southern District and a historical preponderance of juvenile herring in the Outer and Eastern Districts, as well as the stipulations contained within the Eastern, Outer, and Southern Districts Management Plan, the commercial herring fishery in these areas will remain closed during 2008. Monitoring of the Southern District herring stocks will occur as in the past through the use of aerial surveys, possibly in conjunction with test fish sampling conducted on an opportunistic basis.

RECENT HERRING RESEARCH IN LOWER COOK INLET

Two additional research projects were recently completed, and another begun, to better understand Kamishak Bay herring stock structure and its relationship to other North Gulf of Alaska herring stocks. The KBDHMP dictates that 10% of the allowable harvest for Kamishak Bay be allocated to the Shelikof food/bait fishery because it appears these two stocks mix during part of the year around the north end of Shelikof Strait[1],. The extent to which these stocks intermix is poorly understood, however, and the ramifications of their mixing complicate the assessment and management of each stock. Therefore, in 2001 ADF&G successfully applied for a grant from the Exxon Valdez Oil Spill Trustee Council (EVOS-TC) to investigate the feasibility of using two relatively new stock identification techniques, fatty acid composition of heart tissue and elemental composition of otoliths, to distinguish among several Alaska herring stocks. Representative samples were collected from Sitka, Prince William Sound, Kamishak, Kodiak, and Togiak spawning aggregations during the spring of 2001. Chemical analysis of

[1] As documented in an unpublished 1988 report produced for the Alaska Department of Fish and Game, Division of Commercial Fisheries, by B. A. Johnson, C. Burkey, and D. Gaudet entitled *Stock identification of Pacific herring in the bait fishery in Shelikof Strait, Alaska, 1985-86*.

those samples was completed during 2002. Results showed that fatty acid composition of heart tissue has the potential to become a reliable stock identification biomarker. Using discriminate analysis, 157 of the 163 samples taken were correctly identified to their original herring stock. Unfortunately, stocks within the North Gulf of Alaska could not be reliably distinguished using the elemental composition of otoliths (Otis and Heintz 2003).

The second research project undertaken by ADF&G also stems from an alternative funding source. In 2002, the National Marine Fisheries Service funded an ADF&G project to synthesize all of the historical Kamishak Bay herring stock assessment and commercial fishery data into a geo-referenced database. Much of this historical information, dating back to 1973, previously existed only in hard copy form on aerial survey field maps. ADF&G captured those data into electronic maps, making them available for a variety of more in-depth analyses. Otis and Spahn (2003) reported on the results of this project, and the completed database[2] is available at ADF&G Division of Commercial Fisheries office in Homer, Alaska. The latest research project is a follow-up to the promising pilot study (Otis and Heintz 2003) that demonstrated the ability to discriminate Alaska's herring stocks at relatively fine spatial scales (> 100 km) based on the fatty acid composition of heart tissue. Also funded by the EVOS-TC, this project will attempt to assess the temporal stability and biological variability of stock discrimination criteria derived from fatty acid analysis of herring cardiac tissues. Samples were collected during the spring and/or fall/winter of 2005, 2006, and 2007 from putative herring stocks in Sitka, PWS, Kamishak, Kodiak, Dutch Harbor, Togiak, and Kuskokwim Bay. Along with heart tissue for fatty acid analysis, ADF&G also collected otoliths and fin clips for further microchemistry and genetic analysis, respectively. Additional funding has been secured from the EVOS-TC to process the otolith samples using a laser-ablation, inductively-coupled plasma mass-spectrometer (LA-ICPMS), a far more precise instrument than was used in the otolith pilot study. Chemical analysis of the heart tissues and otoliths will be completed during the winter of 2007-2008. The results derived from each method will be compared in order to evaluate their efficacy as stock identification tools for herring. Results should allow managers to better define ecologically significant stock boundaries, which would likely affect how commercially exploited herring populations are assessed and managed. The outcome of this study will be published in a peer-reviewed report and may lead to evaluation of fishery management plans for affected areas.

2007 ALASKA BOARD OF FISHERIES MEETING

REGULATORY ACTIONS

The Alaska Board of Fisheries (BOF) met between November 13 and 15, 2007, in Homer to consider changes to existing regulations governing LCI fisheries. One proposal had potential to directly impact personal use salmon fishing in the LCI area, three sport fishing proposals had potential to indirectly affect commercial and/or hatchery salmon fishing, and none were proposed for commercial herring fishing or for subsistence salmon fishing. Two proposals originated from members of the general public, while two were submitted by organizations (Cook Inlet Aquaculture Association and the Seward Fish and Game Advisory Committee). A brief summary, including the nature of the proposals, authors, and BOF resultant action on each, appears in Table 12.

[2] ADF&G, Division of Commercial Fisheries, Homer Alaska. Kamishak Bay Data Synthesis, Version 1.0, produced December 13, 2002, available on CD-ROM.

The first proposal (#15) sought to prohibit personal use set gillnets within one thousand yards of the Nick Dudiak Fishing Lagoon, an increase from the current closed area of two hundred yards. The primarily allocative argument put forth in the proposal's written justification was that personal use nets take too many coho salmon returning to the Nick Dudiak Lagoon sport fishery. An additional comment voiced concern about instances of operators using boats to drive coho away from the mouth of the lagoon towards the personal use nets located outside the 200 yard prohibited area. During public testimony, the proposal's author stated that his main concern was with the herding of coho salmon, while the personal use net catch of hatchery-produced fish was secondary. Several issues were discussed during a relatively short deliberation, including: federal funding for the coho stocking program; potential for increased personal use harvest of wild stocks; and salmon "herding" regulations. Responding to a question from one of the BOF members, ADF&G staff stated that since the majority of coho salmon returning to the Nick Dudiak Lagoon are harvested by sport fishermen, the department does not perceive any danger of losing federal funds under current personal use regulations or harvest levels. Some concern was voiced about the potential for increased harvest of natural coho salmon stocks in the personal use fishery. While the regulatory personal use guideline harvest range is considered safe for the wild stocks, monitoring of wild coho numbers is ineffective for active inseason management. With some research, department of law determined that there are no current regulations prohibiting the herding of fish by boat for personal use or sport fisheries. The BOF decided that since the main issue seemed to be herding, regulations prohibiting herding would likely be considered on a state level at a future meeting. As a result, proposal #15 failed by a vote of one in favor and six opposed.

The second proposal (#16) was submitted by Cook Inlet Aquaculture Association (CIAA) and sought to prohibit sport fishing for salmon within 100 yards of the hatchery net pens located in Tutka Bay Lagoon. CIAA was concerned that sport fishing activity on and around the pens may disturb broodstock maturing in the pens, resulting in poor gamete quality and reduced survival of broodstock. During public testimony, concerns about the issues of vandalism and liability were also expressed. Deliberations were relatively short but issues included: whether 100 yards around the pens would effectively close off the entire lagoon to fishing; an amendment to make the regulations effective whenever the net pens were in place rather than for a fixed time period; and an amendment to include "all" sport fishing in the language rather than just sport fishing for "salmon". Consensus among BOF members determined that 100 yards around the net pens would still allow for sport fishing opportunity in the remainder of the lagoon while adequately protecting ripening broodstock in the pens. While the option of disallowing all fishing within 100 yards was discussed, it was pointed out that such wording could interfere with collection of broodstock as well as hatchery cost recovery fishing. As a result, an amendment prohibiting only sport fishing within 100 yards of the net pens while in place was approved, and the amended proposal passed unanimously.

The third proposal (#17) sought to prohibit both sport and personal use harvest of sockeye salmon inside the entire Tutka Bay Lagoon. The intent of this proposal was to allow CIAA adequate room to conduct efficient, conflict free cost recovery and broodstock collection within the lagoon. Because of the action taken on the previous proposal, BOF members felt that the regulation as amended in proposal #16 provided adequate protection to the net pens, while still allowing for sport fishing opportunity in the lagoon, thus no action occurred on proposal #17.

The fourth proposal (#21), submitted by the Seward Fish and Game Advisory Committee, sought to open a sockeye salmon sport fishery in the Resurrection River near Seward. A lack of fresh water salmon fishing opportunity in the Resurrection Bay drainages was cited as the primary justification for this proposal. During public testimony, BOF members heard some potential advantages to having a sockeye salmon sport fishery in the Resurrection River, including: providing opportunity for people to participate in a 'sport' fishery rather than a 'consumptive' fishery (i.e. snagging in saltwater); and decreasing the number of enforcement issues dealing with poaching in the Resurrection River. Supporters of the proposal predicted that, once sockeye salmon fishing was legalized in the designated area, poaching would be greatly reduced in other parts of the system and the sport fishermen legally fishing might be able to 'police' the river for potential poachers. One issue raised during committee discussions was that the majority of sockeye salmon returning to the Resurrection River are CIAA-produced fish. Most of CIAA's cost recovery, and all of their broodstock collection, occurs upstream of the area proposed for the new sport fishery. Regulations adopted at the 2004 BOF meeting modified the Bear Lake Sockeye Salmon Management Plan and mandate that the harvestable surplus of sockeye salmon returning to Bear Lake be managed to provide an equal allocation between CIAA and the commercial seine fishery. Concern was expressed that adding a new fishery in between the commercial seiners in salt water and CIAA upstream would significantly complicate ADF&G's ability to manage for the regulatory allocation, especially since the impact of the new sport fishery on upstream escapement is difficult to predict or determine. In the end, the BOF decided that these issues could be resolved by adequate communication between CIAA and ADF&G staff. The proposal passed unanimously.

LCI ESCAPEMENT GOAL REVIEW

As part of the standard order of business during each BOF meeting, ADF&G staff at the November 2007 meeting presented a brief review of LCI salmon escapement goals. The existing goals for all species were adopted at the 2001 BOF meeting, while three additional changes were made during the escapement goal review process at the 2004 Board Meeting. The 2007 meeting provided an appropriate forum to present escapement information collected during the most recent three seasons and make new recommendations, if appropriate.

Under the ADF&G Salmon Escapement Goal Policy, adopted in 1992, escapement goals were categorized as biological escapement goals (BEG's), optimal escapement goals (OEG's), or inriver goals. At that time, all LCI goals were considered BEG's. During 2000 and 2001, the BOF adopted **5 AAC 39.222. POLICY FOR THE MANAGEMENT OF SUSTAINABLE SALMON FISHERIES** and **5 AAC 39.223. POLICY FOR STATEWIDE SALMON ESCAPEMENT GOALS**. Under these new policies, sustainable escapement goals (SEG's) were added to BEG's, OEG's, and inriver goals. BEG's require reliable salmon escapement estimates, as well as total annual returns, whereas SEG's suggest a level of escapement, indicated by an index or an escapement estimate, that is known to provide for sustained yield over a five to 10 year period. The latter is used in situations where a BEG cannot be estimated due to the absence of stock specific catch estimate. Because nearly all LCI escapement estimates are actually indices of abundance rather than estimates of total spawner abundance, staff determined that SEG's were much more appropriately applied to LCI salmon streams than BEG's, and the BOF formally adopted this as policy in 2001.

A more thorough and detailed discussion of the escapement goal review and analysis is presented in ADF&G Fishery Manuscript No. 07-04 (Otis and Szarzi, 2007). Because the recently revised escapement goals were met about 90% of the time during the last three seasons, and they provided a harvestable surplus in most cases, the Division of Commercial Fisheries only had one recommendation for a change in escapement goals. Staff recommended increasing the goal for McNeil River chum salmon to 24,000-48,000 fish, effectively restoring the previous, long-standing goal. Justification for this change was provided by a radio-telemetry study and retrospective analysis of historical escapements that suggested larger escapements may encourage upstream migration and spawning (past McNeil Falls), which could result in significantly higher survival rates and production. Additionally, the radio-telemetry study determined that the average stream life of chum salmon in McNeil River, at 13.8 days, is considerably less than the previous stream life estimate of 17.5 days historically used for all LCI chum stocks. This new stream life factor was incorporated in rescaling the historical escapement goal to the recommended 24-48,000 fish.

ACKNOWLEDGMENTS

2007 DIVISION OF COMMERCIAL FISHERIES STAFF

The finfish operations for the Division of Commercial Fisheries in Lower Cook Inlet employed five permanent full-time employees and seven permanent/seasonal employees in various area management and research programs during the 2007 season. Appreciation is extended to all personnel for a successful program during 2007.

Permanent Employees during the 2007 season:

Lee Hammarstrom	Area Finfish Management Biologist
Ethan Ford	Fishery Biologist I
Edward O. “Ted” Otis	LCI Finfish Research Project Leader
Marnee Beverage	Program Technician
Mark Hottmann	Boat Officer III

Seasonal Employees:

Sigfus T. “Tom” Sigurdsson	Fish & Wildlife Technician III
Carla Armstrong	Fish & Wildlife Technician III
Robert “Bo” Fusco	Fish & Wildlife Technician III
Colby Sander	Fish & Wildlife Technician II
Joe Loboy	Fish & Wildlife Technician II
Sid Wolford	Vessel Technician II
Carolyn Bunker	Administrative Clerk II

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TABLES AND FIGURES

Table 1.–Commercial, hatchery, and derby salmon catches in numbers of fish by species, district, and gear type, Lower Cook Inlet, 2007.

District Harvest Type Gear Type	Chinook	Sockeye	Coho	Pink	Chum	Total
Southern						
Commercial						
Set gillnet	439	28,870	1,616	0	1,437	32,362
Purse seine	27	61,193	1,710	10,394	127	73,451
Hatchery						
Purse seine	0	22,609	25	118,157	20	140,811
Total	***466***	***112,672***	***3,351***	***128,551***	***1,584***	***246,624***
Outer						
Commercial						
Purse seine	***1***	***32,461***	***113***	***147,409***	***49***	***180,033***
Eastern						
Commercial:						
Purse seine	0	15,407	0	0	53	15,460
Hatchery:						
Purse seine	0	1,716	0	0	0	1,716
Weir	0	6,741	0	0	0	6,741
Derby[a]						
Hook & Line			2,850			2,850
Total	***0***	***23,864***	***2,850***	***0***	***53***	***26,767***
Kamishak Bay						
Commercial						
Purse seine	0	169,509	4	4,959	37	174,509
Hatchery						
Purse seine	0	27,719	1	6,492	54	34,266
Total	***0***	***197,228***	***5***	***11,451***	***91***	***208,775***
LCI Total	**467**	**366,225**	**6,319**	**287,411**	**1,777**	**662,199**
Percent	0.07%	55.30%	0.95%	43.40%	0.27%	100.00%
1987–2006 Avg.	1,422	273,709	12,602	1,322,110	60,488	1,670,330

Note: Figures for 2007 do not include a very small number of fish caught during commercial fishing periods but not sold (i.e. retained for personal use).

[a] Derby catches are fish entered into the Seward Silver Salmon Derby that are subsequently sold to a commercial processor, therefore these catches are considered part of the LCI "commercial harvest."

Table 2.–Commercial Chinook salmon catches and escapements in numbers of fish by subdistrict or section, Lower Cook Inlet, 2007.

Subdistrict/System	Catch	Escapement[a]	Total Run
SOUTHERN DISTRICT			
Halibut Cove (set gillnet)	244		244
China Poot Bay (seine)	24		24
Neptune Bay (seine)	3		3
Tutka/Kasitsna Bays (set gillnet)	122		122
Barabara Creek (set gillnet)	17		17
Seldovia Bay (set gillnet)	56		56
SOUTHERN DISTRICT TOTAL	***466***		***466***
OUTER DISTRICT			
East Arm Nuka Bay	1		1
OUTER DISTRICT TOTAL	***1***		***1***
EASTERN DISTRICT TOTAL	***0***		***0***
KAMISHAK BAY DISTRICT TOTAL	***0***		***0***
TOTAL LOWER COOK INLET	***466***		***466***

Note: Figures for 2007 do not include a very small number of fish caught during commercial fishing periods but not sold (i.e. retained for personal use).

[a] Chinook escapement in Lower Cook Inlet is very limited; no escapement surveys are conducted.

Table 3.–Commercial sockeye salmon catches (including hatchery cost recovery) and escapements in numbers of fish by subdistrict or section, Lower Cook Inlet, 2007.

Subdistrict/System	Catch	Escapement[a]	Total Run
SOUTHERN DISTRICT			
Humpy Creek		21	21
Halibut Cove (set gillnet)	2,998		2,998
China Poot Bay			
Common Property (seine)	30,675		
Hatchery Cost Recovery (seine)	2,878		
China Poot Creek		536[b]	
Total			34,089
Neptune Bay			
Common Property (seine)	30,518		
Hatchery Cost Recovery (seine)	19,708		
Total Catch			50,226
Tutka/Kasitsna Bays (set gillnet)	8,272		8,272
Barabara Creek (set gillnet)	4,141		4,141
Seldovia Bay (set gillnet)	9,189	10	9,199
Port Graham (hatchery) / P.G. River	23	2	25
English Bay Section			
Common Property (set gillnet)	4,270		
English Bay Lakes Escapement		16,115[c]	
Hatchery Broodstock		372	
Total			20,757
SOUTHERN DISTRICT TOTAL	***112,672***	***17,056***	***129,728***
OUTER DISTRICT			
Windy Bay			
Windy Left Creek		6	
Windy Right Creek		3	
Total			9
Port Dick			
Outer Section	10		
Port Dick (head end) Creek		15	
Island Creek		1	
Total			26
East Nuka Bay	32,451		
Delight Lake		43,963[d]	
Desire Lake		10,000	
Delusion Lake		2,100	
Total			88,514
OUTER DISTRICT TOTAL	***32,461***	***56,088***	***88,549***

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Table 3.–Page 2 of 2.

Subdistrict/System	Catch	Escapement[a]	Total Run
EASTERN DISTRICT			
Aialik Bay / Aialik Lake		5,370	5,370
Resurrection Bay North			
Common Property (seine)	15,407		
Hatchery (seine)	1,716		
Hatchery (weir–sold)	6,470		
Hatchery (weir–donated)	271		
Bear Lake Escapement		8,421[e]	
Hatchery Broodstock		4,420[f]	
Total Run			36,705
EASTERN DISTRICT TOTAL	***23,864***	***18,211***	***42,075***
KAMISHAK BAY DISTRICT			
Kirschner Lake			
Common Property (seine)	7,725		
Hatchery Cost Recovery (seine)	27,719		
Unharvested Fish		2,000[b]	
Total Run			37,444
Bruin Bay/ Bruin Bay River		25	25
Chenik Lake	161,630		
Amakdedori Creek		3,830	
Chenik Creek/Lake		18,230[g]	
Total			183,690
Paint River / Paint River mouth		4[b]	4
McNeil Cove / Mikfik Lake & Creek		11,190	11,190
Kamishak Bay / Big Kamishak River		130	130
Douglas River / Silver Beach			
Common Property (seine)	154		
Douglas Clearwater Tributary		790	
Total			944
KAMISHAK BAY DISTRICT TOTAL	***197,228***	***36,199***	***233,427***
TOTAL LOWER COOK INLET	***366,225***	***127,554***	***493,779***

Note: Figures for 2007 do not include a very small number of fish caught during commercial fishing periods but not sold (i.e. retained for personal use).

[a] Escapement estimates derived from limited aerial surveys; numbers represent unexpanded aerial live counts unless otherwise noted.

[b] No freshwater escapement, prevented by barrier falls.

[c] Weir counts for English Bay Lakes include 16,307 sockeye actually counted, plus an estimated 180 sockeye that entered the lake system during periods when the weir was not operational (high water), minus the broodstock harvest of 372 fish (taken from lake escapement).

[d] Delight Lake escapement estimate derived from a combination of weir and aerial counts.

[e] Weir counts for Bear Lake sockeye include 12,841 sockeye actually counted, minus the broodstock harvest of 4,420 fish (taken from lake escapement).

[f] Hatchery broodstock figure for Bear Lake sockeye includes 155 mortalities.

[g] Chenik Lake escapement estimate derived from a combination of weir, video, and aerial counts.

Table 4.–Commercial coho salmon catches (including hatchery cost recovery and sport derby sold to commercial processors) and escapements in numbers of fish by subdistrict or section, Lower Cook Inlet, 2007.

Subdistrict/System	Catch	Escapement[a]	Total Run
SOUTHERN DISTRICT			
Northshore Subdistrict			
Clearwater Slough		2,900	
Clay Creek		150	
Total			3,050
Halibut Cove (set gillnet)	414		414
China Poot Bay (seine)	1,288		1,288
Neptune Bay (CP & hatchery seine)	430[b]		430
Tutka/Kasitsna Bays (set gillnet)	843		843
Barabara Creek (set gillnet)	178		178
Seldovia Bay (set gillnet)	178		178
Port Graham Section (hatchery seine)	17		17
English Bay Section (set gillnet)	3		3
SOUTHERN DISTRICT TOTAL	***3,351***	***3,050***	***6,401***
OUTER DISTRICT			
Port Dick (Outer Section)	59		59
East Arm Nuka Bay (McCarty Fiord)	54		54
OUTER DISTRICT TOTAL	***113***		***113***
EASTERN DISTRICT			
Resurrection Bay North			
Sport Derby[c]	2,850		
Bear Lake Escapement (weir)		386	
Hatchery Broodstock		672[d]	
Total			3,908
EASTERN DISTRICT TOTAL	***2,850***	***1,058***	***3,908***

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Table 4.–Page 2 of 2.

Subdistrict/System	Catch	Escapement[a]	Total Run
KAMISHAK BAY DISTRICT			
Kirschner Lake (CP & hatchery seine)	2[e]		
Chenik Lake (seine)	3		
Total			5
KAMISHAK BAY DISTRICT TOTAL	***5***		***5***
TOTAL LOWER COOK INLET	***6,319***	***4,108***	***10,427***

Note: Figures for 2007 do not include a small number of fish caught during commercial fishing periods but not sold (i.e. retained for personal use).

[a] Coho escapement estimates in Lower Cook Inlet are very limited; unless otherwise noted, escapement figures represent unexpanded peak aerial live counts.

[b] Coho catch in Neptune Bay consisted of 422 fish taken by common property seiners and 8 fish taken during hatchery cost recovery operations.

[c] Fish entered into the Seward Silver Salmon Derby are subsequently sold to a commercial processor and are therefore considered "commercial harvest."

[d] Bear Lake broodstock total includes 632 coho actually spawned and 40 mortalities (fish collected for broodstock but not utilized).

[e] Coho catch at Kirschner Lake consisted of 1 fish taken by common property seiners and 1 fish taken during hatchery cost recovery operations.

Table 5.–Commercial pink salmon catches (including hatchery cost recovery) and escapements in numbers of fish by subdistrict or section, Lower Cook Inlet, 2007.

Subdistrict/System	Catch	Escapement[a]	Total Run
SOUTHERN DISTRICT			
Humpy Creek		53,989	53,989
China Poot Bay			
Common Property (seine)	6,827		
Hatchery Cost Recovery	6		
China Poot Creek		6,235	
Total			13,068
Neptune Bay			
Common Property (seine)	3,567		
Hatchery Cost Recovery	189		
Total Catch			3,756
Tutka/Kasitsna Bays (Tutka Lagoon Cr)		5,664	5,664
Barabara Creek		25,168	25,168
Seldovia Bay / River		69,405	69,405
Port Graham			
Hatchery Cost Recovery	117,962		
Port Graham River		25,595	
Port Graham Left Hand Creek		40	
Duncan Slough		5,000[b]	
Total			148,597
SOUTHERN DISTRICT TOTAL	***128,551***	***191,096***	***319,647***
OUTER DISTRICT			
Dogfish Bay		4,085	4,085
Port Chatham		14,451	14,451
Windy Bay			
Windy Right Creek		18,339	
Windy Left Creek		37,297	
Total			55,636
Rocky Bay			
Comm. Prop. (seine)/Rocky River	23,494	189,992	
Scurvy Creek		3,043	
Total			216,529
Port Dick			
Outer Section	65,378		
South Section	12,651		
Taylor Bay Section	12,653		
Port Dick (head end) Creek		44,170	
Slide Creek		30,085	
Middle Creek		6,078	
Island Creek		87,235	
Taylor Bay Creeks		16,246	
Total			274,496

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Table 5.–Page 2 of 2.

Subdistrict/System	Catch	Escapement[a]	Total Run
OUTER DISTRICT (cont'd)			
Nuka Island / South Nuka Island Creek		6,645	6,645
East Arm Nuka Bay (McCarty Fiord)	33,233		
Delight Lake		1,200	
Desire Lake		11,820	
Delusion Lake		350	
Total			46,603
OUTER DISTRICT TOTAL	***147,409***	***471,036***	***618,445***
EASTERN DISTRICT TOTAL	***0***	[c]	***0***
KAMISHAK BAY DISTRICT			
Iniskin Bay			
Sugarloaf Creek		1,367	
North Head Creek		9,020	
Total			10,387
Ursus Cove / Brown's Peak Creek		249,383	249,383
Rocky Cove / Sunday Creek		394,797	394,797
Kirschner Lake Section			
Common Property (seine)	3,326		
Hatchery (seine)	6,492		
Total			9,818
Bruin Bay / Bruin Bay River		350,420	350,420
Chenik Lake	1,633		1,633
Kamishak Bay			
Little Kamishak River		5,060	
Strike Creek		2,860	
Total			7,920
KAMISHAK BAY DISTRICT TOTAL	***11,451***	***1,012,907***	***1,024,358***
TOTAL LOWER COOK INLET	***287,411***	***1,675,039***	***1,962,450***

Note: Figures for 2007 do not include a very small number of fish caught during commercial fishing periods but not sold (i.e. retained for personal use).

[a] Escapement estimates are derived from periodic ground or aerial surveys with stream life factors applied, unless otherwise noted.

[b] Duncan Slough pink escapement estimated by Port Graham Hatchery personnel.

[c] No escapement surveys conducted in Eastern District in 2007 due to high water and scheduling conflicts.

Table 6.–Commercial chum salmon catches and escapements in numbers of fish by subdistrict or section, Lower Cook Inlet, 2007.

Subdistrict/System	Catch	Escapement[a]	Total Run
SOUTHERN DISTRICT			
Humpy Creek		1,406	1,406
Halibut Cove (set gillnet)	20		20
China Poot Bay (C.P & hatchery seine)	83[b]		83
Neptune Bay (C.P. seine)	45		45
Tutka/Kasitsna Bays			
Common Property (set gillnet)	619		
Tutka Creek		10	
Total			629
Barabara Creek (set gillnet)	239		239
Seldovia Bay (set gillnet) & River	549	2,695	3,244
Port Graham/Port Graham River			
Hatchery (seine)	19		
Port Graham River		1,882	
Port Graham Left Hand Creek		146	
Total			2,047
English Bay (set gillnet)	10		10
SOUTHERN DISTRICT TOTAL	***1,584***	***6,139***	***7,723***
OUTER DISTRICT			
Dogfish Bay		4,919	4,919
Port Chatham		658	658
Windy Bay			
Windy Right Creek		580	
Windy Left Creek		165	
Total			745
Rocky Bay & River	8	1,600	1,608
Port Dick			
Outer Section	24		
Port Dick (head end) Creek		2,753	
Slide Creek		1,369	
Island Creek		3,092	
Total			7,238
Nuka Island/Petrof River		70	70
East Arm Nuka Bay (McCarty Fiord)	17		17
OUTER DISTRICT TOTAL	***49***	***15,206***	***15,255***

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Table 6.–Page 2 of 2.

Subdistrict/System	Catch	Escapement[a]	Total Run
EASTERN DISTRICT			
Resurrection Bay North (seine)	53	[c]	
EASTERN DISTRICT TOTAL	***53***		***53***
KAMISHAK BAY DISTRICT			
Iniskin Bay			
Iniskin River		5,340	
Sugarloaf Creek		385	
North Head Creek		946	
Total			6,671
Cottonwood Bay / Creek		12,522	12,522
Ursus Cove			
Ursus Lagoon Right Creek		10,930	
Ursus Cove Lagoon Creek		9,967	
Total			20,897
Kirschner Lake Section			
Common Property (seine)	31		
Hatchery (seine)	54		
Total			85
Bruin Bay / River		3,055	3,055
Chenik Lake (seine)	6		6
McNeil River		13,590	13,590
Kamishak Bay / Reef			
Big Kamishak River		14,787	
Little Kamishak River		15,569	
Strike Creek		434	
Total			30,790
Douglas River / Silver Beach			
Douglas (Reef) River		1,694	
Douglas Beach Creek		1,650	
Total			3,344
KAMISHAK BAY DISTRICT TOTAL	***91***	***90,869***	***90,960***
TOTAL LOWER COOK INLET	***1,777***	***112,214***	***113,991***

[a] Escapement estimates are derived from periodic ground or aerial surveys with stream life factors applied, unless otherwise noted.

[b] Chum catch in China Poot Bay consisted of 82 fish taken by common property seiners and 1 fish taken during hatchery cost recovery operations.

[c] No escapement surveys conducted in Eastern District in 2007 due to high water and scheduling conflicts.

Table 7.–Exvessel value of the commercial salmon catch in numbers of dollars by species, gear type, and harvest type, Lower Cook Inlet, 2007.

	Chinook	Sockeye	Coho	Pink	Chum	Total
COMMON PROPERTY–PURSE SEINE						
No. of Fish	28	278,570	1,827	162,762	266	443,453
Pounds	435	1,228,402	10,224	518,833	1,772	1,759,666
Price/lb.	$0.70	$0.88	$0.50	$0.11	$0.25	
Value	$305	$1,068,136	$5,114	$56,274	$444	$1,130,273
COMMON PROPERTY–SET GILLNET[a]						
No. of Fish	439	28,870	1,616		1,437	1,437
Pounds	7,323	173,589	10,270		10,032	10,032
Price/lb.	$2.73	$1.44	$0.46		$0.25	
Value	$20,016	$249,541	$4,713		$2,509	$276,779
HATCHERY–PURSE SEINE & WEIR						
No. of Fish		58,785	26	124,649	74	183,534
Pounds		253,803	192	405,271	568	659,834
Price/lb.		$0.73[b]	$0.18[b]	$0.08	$0.21	
Value		$184,305	$35	$32,422	$119	$216,881
SPORT FISHING DERBY[c]**–HOOK & LINE**						
No. of Fish			2,850			2,850
Pounds			21,375			21,375
Price/lb.			$0.72			
Value			$15,390			$15,390
TOTAL ALL GEARS						
No. of Fish	467	366,225	6,319	287,411	1,777	662,199
Pounds	7,758	1,655,794	42,061	924,104	12,372	2,642,089
Price/lb.	$2.62	$0.91[b]	$0.60[b]	$0.10	$0.25	
Value	$20,321	$1,501,982	$25,252	$88,696	$3,072	$1,639,323

Note: Exvessel value is calculated from average prices, which are determined only by fish ticket information and may not reflect retroactive or postseason adjustments.

[a] 2007 set gillnet totals do not include a very small number of fish not sold but retained for personal use.

[b] Average price per pound for hatchery cost recovery sockeye and coho salmon, and average price for the all gears' total, reflect only those fish actually sold and do not include hatchery fish that were donated.

[c] Fish entered into the Seward Silver Salmon Derby are subsequently sold to a commercial processor and are therefore considered "commercial harvest".

Table 8.–Emergency orders issued for the commercial, personal use, and subsistence salmon fisheries in Lower Cook Inlet, 2007.

E.O. Number/ Issue Date	DESCRIPTION
	Opens those waters of Resurrection Bay in the Eastern District north of the latitude of Caines Head to commercial salmon seine fishing on a weekly schedule of five days per week, from Monday 6:00 a.m. until Friday 10:00 p.m., effective Monday, May 21, 2007, until further notice. Based on the provisions of this emergency order, all waters along the west shore of Resurrection Bay west of a line from the old military dock pilings north of Caines Head to a regulatory marker near the Seward Airport will remain closed to all seining.
2-F-H-001-07 May 16	In addition, this emergency order designates and establishes a Special Harvest Area (SHA) for Cook Inlet Aquaculture Association (CIAA) in the Resurrection Bay North Subdistrict in the Eastern District of the Lower Cook Inlet (LCI) management area. The Bear Lake SHA includes those marine waters of Resurrection Bay north of the latitude of Caines Head, as well as those fresh waters of Bear Creek, Salmon Creek, and Resurrection River downstream of, and including, the Bear Creek weir. This emergency order opens only the fresh waters of the Bear Lake SHA to the harvest and sale of salmon seven days per week by authorized agents of CIAA, effective at 6:00 a.m. Monday, May 21, 2007, until further notice. Marine waters of the Bear Lake SHA remain closed to hatchery fishing until further notice.
	Establishes a seven-day-per-week fishing schedule in the Kamishak Bay District commercial salmon seine fishery, which opens by regulation on June 1, 2007. Waters of Chenik Subdistrict within the Kamishak Bay District will remain closed to commercial salmon seining until further notice based on the provisions of this emergency order.
2-F-H-002-07 May 25	This emergency order also closes the Port Graham Subdistrict, including both the Port Graham and English Bay Sections, in the Southern District to commercial salmon set gillnet fishing until further notice. In addition, this emergency order opens Halibut Cove, Tutka Bay, Barabara Creek, and Seldovia Bay Subdistricts in the Southern District to commercial salmon set gillnet fishing effective at 6:00 a.m. Friday, June 1, 2007. The weekly fishing period in the Southern District commercial set gillnet fishery is two 48-hour periods per week, from 6:00 a.m. Monday until 6:00 a.m. Wednesday, and from 6:00 a.m. Thursday until 6:00 a.m. Saturday, as set forth in regulation. However, set gillnet fishermen should note that, because of the effective starting time and date of this emergency order (6:00 a.m. Friday, June 1), the first fishing period will last only 24 hours and will close at 6:00 a.m. Saturday, June 2.
2-F-H-003-07 May 25	Closes all waters of Port Graham Subdistrict, including both the Port Graham and English Bay Sections, to subsistence salmon set gillnet fishing, effective at 10:00 a.m. Wednesday, May 30, 2007, until further notice. The closure time represents the end of a regular weekly fishing period for this subsistence fishery.

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Table 8.–Page 2 of 6.

E.O. Number/ Issue Date	DESCRIPTION
2-F-H-004-07 June 12	Closes waters of Resurrection Bay in the Eastern District to commercial salmon seine fishing, effective at 10:00 p.m. Tuesday, June 12, 2007, until further notice.
2-F-H-005-07 June 14	Opens marine waters of the Bear Lake Special Harvest Area (SHA; see ***Lower Cook Inlet Emergency Order #1-07***) to the harvest and sale of salmon by authorized agents of CIAA for a twelve-hour period, from 6:00 a.m. until 6:00 p.m. Friday, June 15, 2007.
2-F-H-006-07 June 15	Designates and establishes Special Harvest Areas (SHA's) for Cook Inlet Aquaculture Association (CIAA) in China Poot and Bruin Bay Subdistricts of the Lower Cook Inlet (LCI) management area. This emergency order closes the Kirschner Lake SHA to the common property salmon seine fishery, while concurrently opening waters of the Kirschner Lake SHA in the Kamishak Bay District and the China Poot and Hazel Lake SHA's in the Southern District, to the harvest of salmon seven days per week by authorized agents of CIAA, effective at 6:00 a.m. Monday, June 18, 2007, until further notice. This emergency order also opens portions of the China Poot, Tutka Bay, and Halibut Cove Subdistricts, all within the Southern District, to commercial salmon seining five days per week, from Monday 6:00 a.m. until Saturday 6:00 a.m., effective 6:00 a.m. Monday, June 18, 2007, until further notice. In the China Poot Subdistrict, commercial seining shall be allowed five days per week only in those waters outside (offshore) of a line beginning at a marker on the west shore of Neptune Bay at approximately 59° 32.84' N. latitude, 151° 24.90' W. longitude, then to Lancashire Rock, then to the navigational light on Gull Island, then to Moosehead Point, effective June 18. In the Halibut Cove Subdistrict, seining shall be allowed only in waters outside of Halibut Cove Lagoon beginning June 18 on a five-days-per-week basis; waters within Halibut Cove Lagoon will remain closed to commercial fishing. In the Tutka Bay Subdistrict, commercial seining is restricted to those waters seaward of a line extending from the "rock quarry" on the north side of the bay at approximately 59° 30.23' N. latitude, 151° 28.23' W. longitude, to a point on the west shore of Little Tutka Bay at approximately 59° 28.63' N. latitude, 151° 30.37' W. longitude, five days per week, effective 6:00 a.m. Monday, June 18, 2007. This emergency order also repeals the regulatory closed waters markers near the HEA power lines in China Poot Bay, and establishes temporary closed waters at the head of China Poot Bay to provide a Dungeness crab sanctuary.
2-F-H-007-07 June 19	Opens marine waters of the Bear Lake Special Harvest Area (SHA; see ***Lower Cook Inlet Emergency Order #1-07***) to the harvest and sale of salmon by authorized agents of CIAA, effective at 6:00 a.m. Wednesday, June 20, 2007, until further notice.

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Table 8.–Page 3 of 6.

E.O. Number/ Issue Date	DESCRIPTION
2-F-H-008-07 June 22	Reopens all waters of Port Graham Subdistrict, including both the Port Graham and English Bay Sections, to subsistence salmon set gillnet fishing, effective at 6:00 a.m. Saturday, June 23, 2007, until further notice. This emergency order does not change the established weekly fishing period in Port Graham Subdistrict, which remains on the regulatory schedule of 10:00 p.m. Thursday to 10:00 a.m. Wednesday.
2-F-H-009-07 June 26	Opens those waters of East Nuka Subdistrict in the Outer District north of the latitude of the entrance to James Lagoon at approximately 59° 33.50' N. latitude to commercial salmon seining five days per week, from 6:00 a.m. Monday until 10:00 p.m. Friday, effective at 6:00 a.m. Thursday, June 28, 2007, until further notice. The closed waters markers at the mouth of Desire Lake Creek **WILL BE** in effect for this opening, and fishing is not allowed up to the stream mouth. Waters of East Nuka Subdistrict south of the latitude of James Lagoon remain closed to commercial salmon fishing, therefore fishing is prohibited in the vicinity of Delight Lake Creek. Fishing is also prohibited north of the regulatory markers near the former Parks Service tent camp in East Nuka Bay. In addition, this emergency order closes waters of McNeil River and Paint River Subdistricts in the Kamishak Bay District to commercial salmon seining effective at 6:00 a.m. Thursday, June 28, 2007, until further notice.
2-F-H-010-07 June 29	Opens waters of the Port Graham Subdistrict, including both the Port Graham and English Bay Sections, in the Southern District to commercial salmon set gillnet fishing, effective at 6:00 a.m. Monday, July 2, 2007, until further notice. Fishing time for these waters, set in regulation at two 48-hour periods per week, from 6:00 a.m. Monday until 6:00 a.m. Wednesday, and from 6:00 a.m. Thursday until 6:00 a.m. Saturday, is not altered by this emergency order.
2-F-H-011-07 July 5	Opens waters of Chenik Subdistrict in the Kamishak Bay District south of 59° 16′ N. latitude to commercial salmon, effective at 6:00 a.m. Friday, July 6, 2007, until further notice. The weekly fishing period in waters of Kamishak Bay District was previously established at seven days per week (see ***LCI Emergency Order #2-F-H-002-07***) and remains unchanged for waters affected by this emergency order. Waters north of 59° 16′ N. latitude in Chenik Subdistrict will remain closed to fishing. Regulatory markers near the mouth of Chenik Creek remain in effect for this opening, and fishing is therefore prohibited in waters of Chenik Lagoon. In addition, this emergency order extends fishing time for commercial set gillnet fishing in Halibut Cove Subdistrict of the Southern District to five days per week, from 6:00 a.m. Monday until 6:00 a.m. Saturday, effective at 6:00 a.m. Monday, July 9, 2007, until further notice.
2-F-H-012-07 July 13	Opens waters of the South, Outer, and Taylor Bay Sections of Port Dick Subdistrict, or statistical reporting areas 232-06, 232-07, and 232-08, in the Outer District, to commercial salmon seining on a schedule of two 40-hour periods per week, from 6:00 a.m. Monday until 10:00 p.m. Tuesday, and from 6:00 a.m. Thursday until 10:00 p.m.

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E.O. Number/ Issue Date	DESCRIPTION
2-F-H-012-07 July 13 (continued)	Friday, effective at 6:00 a.m. Monday, July 16, 2007, until further notice. All normal regulatory markers and closed waters in all subdistricts, including those in Taylor Bay and Tacoma Cove, will be in effect for this opening. Additionally, waters of the North Section of Port Dick Subdistrict, or statistical reporting area 232-09, will remain closed to fishing.
2-F-H-013-07 July 17	Opens all waters of East Nuka Subdistrict in the Outer District to commercial salmon seining five days per week, from Monday 6:00 a.m. until Friday 10:00 p.m., effective at 6:00 a.m. Wednesday, July 18, 2007, until further notice. All regulatory closed waters markers remain in effect for this opening, and fishing is therefore NOT allowed up to any stream mouths in East Nuka Bay or inside McCarty Lagoon. Fishing also remains prohibited north of the regulatory markers near the former Parks Service tent camp.
2-F-H-014-07 July 17	Designates and establishes a Special Harvest Area (SHA) for the Cook Inlet Aquaculture Association (CIAA) in Tutka Bay Subdistrict within the Southern District of Lower Cook Inlet. The Tutka Bay SHA consists of all marine waters of Tutka Bay Subdistrict southeast of the Homer Electric Association powerline crossing, including waters of Tutka Lagoon. This emergency order also opens the Tutka Bay SHA to the harvest and sale of sockeye salmon seven days per week by authorized agents of CIAA, effective at 12:00 noon Tuesday, July 17, 2007, until further notice. Some of the collected fish will be utilized for broodstock to supply the Lower Cook Inlet lake stocking program, while fish surplus to this purpose may be sold to obtain revenue for recovery of operational expenses associated with the Lower Cook Inlet lake stocking program.
2-F-H-015-07 July 19	Rescinds regulatory markers near the mouth of Chenik Lake Creek in Chenik Subdistrict of Kamishak Bay District, and commercial salmon seine fishing is therefore allowed in waters of Chenik Lagoon, effective at 12:00 noon Friday, July 20, 2007, until further notice. The weekly fishing period in waters affected by this emergency order, previously established at seven days per week (see ***LCI Emergency Order #2-F-H-002-07***), remains the same and is not altered by the provisions of this emergency order.
2-F-H-016-07 July 24	Closes waters of the China Poot and Hazel Lakes Special Harvest Areas (see ***LCI E.O. #2-F-H-006-07***) in the Southern District to salmon hatchery cost recovery harvest by Cook Inlet Aquaculture Association effective immediately. In addition, this emergency order opens waters of China Poot Subdistrict, including both the China Poot and Hazel Lake Sections, to commercial salmon seining **west** (or offshore) of the regulatory markers located near the HEA power lines in China Poot Bay on a **seven-day-per-week basis**, effective at 6:00 a.m. Wednesday, July 25, 2007, until further notice. Waters of China Poot Bay **east** (or inshore) of these markers will be open to commercial seining **five days per week**, from Monday 6:00 a.m. until Saturday 6:00 a.m., also effective at 6:00 a.m. Wednesday, July 25, 2007, until further notice. The regulatory markers designating the Dungeness crab sanctuary in the north arm of

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E.O. Number/ Issue Date	DESCRIPTION
2-F-H-016-07 July 24 (continued)	China Poot Bay remain in effect for these openings. At China Poot Creek, the regulatory markers near the creek mouth will be in effect during the Monday through Saturday opening. At Neptune Bay, no markers will be in effect and fishing is allowed up to the Wosnesenski River mouth.
2-F-H-017-07 July 25	Extends the weekly fishing period for commercial salmon seining in waters of East Nuka Subdistrict in the Outer District of Lower Cook Inlet to seven days per week, effective at 6:00 a.m. Thursday, July 26, 2007, until further notice. In addition, provisions of this emergency order repeal the regulatory closed waters markers near the mouths of Desire Lake Creek and Delight Lake Creek in East Nuka Subdistrict, effective at 6:00 a.m. Thursday, July 26, 2007, until further notice. As a result, commercial salmon seine fishing will be allowed up to the stream mouths at both aforementioned creeks and inside waters of McCarty Lagoon during open commercial fishing periods (see ***LCI Emergency Orders #2-F-H-009-*** and ***-013-07***) beginning July 26. Commercial salmon fishing is still prohibited inside the freshwater lagoon at Delight Lake Creek and in waters north of regulatory markers near the former Parks Service tent camp in East Nuka Bay.
2-F-H-018-07 July 31	Closes waters of the Kirschner Lake Special Harvest Area (SHA) in the Kamishak Bay District (see ***LCI Emergency Order #2-F-H-006-07*)** to hatchery cost recovery harvest, effective immediately, and also opens all waters of Bruin Bay Subdistrict, including the Kirschner Lake SHA, to commercial salmon seining effective at 6:00 a.m. Wednesday, August 1, 2007, until further notice. The weekly fishing period in those waters of Bruin Bay Subdistrict previously open to commercial salmon seining, established at seven days per week by ***LCI Emergency Order #2-F-H-002-07***, remains in effect and also applies to waters of the Kirschner Lake SHA included in this emergency order.
2-F-H-019-07 August 7	Designates and establishes a Special Harvest Area (SHA) for the Port Graham Hatchery Corporation (PGHC) in the Port Graham Subdistrict within the Southern District of Lower Cook Inlet. The Port Graham SHA consists of all marine waters of the Port Graham Subdistrict east of 151° 53.08' W. longitude, and south and west of a line extending from the southernmost tip of Passage Island to the Coast Guard navigational buoy at approximately 59° 21.45' N. latitude, 151° 50.05' W. longitude, then southeast to a point on the mainland at approximately 59° 20.83' N. latitude, 151° 48.53' W. longitude. This area is located along the south shore of Port Graham from Passage Island to (and including) Duncan Slough. This emergency order also opens those waters of the Port Graham SHA east of the longitude of the U.S. Coast Guard navigational buoy at approximately 151° 50.05' W. longitude to the harvest of salmon seven days per week by authorized agents of Port Graham Hatchery Corporation (PGHC), effective at 6:00 a.m. Wednesday, August 8, 2007, until further notice. Pink salmon harvested during this opening may be utilized for both hatchery broodstock and hatchery cost recovery. Revenue obtained from the sale of these fish will be used for recovery of operational expenses associated with the Port Graham Hatchery pink salmon enhancement program in Lower Cook Inlet.

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Table 8.–Page 6 of 6.

E.O. Number/ Issue Date	DESCRIPTION
2-F-H-020-07 August 8	Expands the weekly commercial salmon seine fishing period in waters of the South, Outer, and Taylor Bay Sections of Port Dick Subdistrict, or statistical reporting areas 232-06, 232-07, and 232-08, in the Outer District, to five days per week, from 6:00 a.m. Monday until 10:00 p.m. Friday, effective at 6:00 a.m. Thursday, August 9, 2007, until further notice. In addition, this emergency order opens those waters of Nuka Island Subdistrict south of the latitude of the southwestern-most point of Westdahl Cove at approximately 59° 19.00' N. latitude and east of the longitude of the entrance to Tonsina Bay at approximately 150° 52.87' W. longitude to commercial salmon seining on the same five-days-per-week fishing schedule, also effective at 6:00 a.m. Thursday, August 9, 2007, until further notice. All normal regulatory markers and closed waters in all subdistricts and sections will be in effect for this opening, while waters of the North Section of Port Dick Subdistrict, or statistical reporting area 232-09, remain closed to fishing.
2-F-H-021-07 August 9	Closes waters of Iniskin Bay and Cottonwood Bay Subdistricts in Kamishak Bay District to commercial salmon seining, effective at 6:00 a.m. Friday, August 10, 2007, until further notice. In addition, provisions of this emergency order repeal the regulatory closed waters markers protecting the mouths of Bruin Bay River, Sunday Creek, and Brown's Peak Creek, all in Kamishak Bay District, also effective at 6:00 a.m. Friday, August 10, 2007. Beginning at that time, commercial salmon seining is allowed up to the stream mouths at all three aforementioned locations.
2-F-H-022-07 August 13	Opens waters of Windy Bay and Rocky Bay Subdistricts in the Outer District of Lower Cook Inlet to commercial salmon seining seven days per week, effective at 6:00 a.m. Tuesday, August 14, 2007, until further notice. Provisions of this emergency order repeal the regulatory closed waters markers near the mouth of Rocky River, therefore commercial salmon seining is allowed up to the stream mouth at that location seven days per week, also effective at 6:00 a.m. Tuesday, August 14, 2007, until further notice. All normal regulatory markers and closed waters in Windy Bay Subdistrict remain in effect. This emergency order also extends the weekly fishing period in waters of the South, Outer, and Taylor Bay Sections of Port Dick Subdistrict, or statistical reporting areas 232-06, 232-07, and 232-08, also in the Outer District, to the same schedule of seven days per week as that in Windy Bay and Rocky Bay Subdistricts, effective at 6:00 a.m. Tuesday, August 14, 2007, until further notice. Finally, this emergency order repeals the regulatory closed waters markers located in the Taylor Bay Section of Port Dick Subdistrict, effective at 6:00 a.m. Tuesday, August 14, 2007, therefore commercial salmon seining is allowed up to the stream mouths in Taylor Bay beginning August 14.
2-F-H-022-07 August 27	Closes the Southern District (Kachemak Bay) personal use set gillnet fishery for coho salmon, effective at 6:00 a.m. Wednesday, August 29, for the remainder of the 2007 season.

Table 9.–Total estimated return of adult pink salmon to the Port Graham Hatchery in the Southern District of Lower Cook Inlet, and estimated pink salmon escapement into nearby Port Graham River, 2007**.**

COMMERCIAL HARVEST	
Port Graham Section (stat area 241-20)	
Purse Seine	0
Set Gillnet	0
Hatchery Cost Recovery	117,962
Tutka Commercial Harvest	*117,962*
BROODSTOCK	
Port Graham Hatchery Broodstock	0
OTHER	
Duncan Slough Escapement[a]	5,000[a]
Estimated Total Hatchery Return	***122,962***
ESCAPEMENT	
Port Graham River	25,595

[a] Fish entering Duncan Slough are assumed to be hatchery fish, numbers are estimated by Port Graham Hatchery personnel.

Table 10.–Commercial salmon catch (in numbers and pounds of fish) and effort (in number of permits fished and number of landings) by district, Lower Cook Inlet, 2007.

DISTRICT	# of Permits Fished	Landings	Chinook		Sockeye		Coho		Pink		Chum	
			Number	Pounds	Number	Pounds	Number	Pounds	Number	Pounds	Number	Pounds
Eastern (231)	13	129	0	0	23,864	116,636	2,850	21,375	0	0	53	406
Outer (232)	5	31	1	11	32,461	193,326	113	807	147,409	467,963	49	324
Southern (241)	31	380	466	7,747	112,672	594,664	3,351	19,847	128,551	417,643	1,584	10,951
Kamishak Bay (249)	5	27	0	0	197,228	751,168	5	32	11,451	38,498	91	691
LCI Grand Total	**38**	**566**	**467**	**7,758**	**366,225**	**1,655,794**	**6,319**	**42,061**	**287,411**	**924,104**	**1,777**	**12,372**
Avg. Wt.				16.61		4.52		6.66		3.22		6.96
Avg. Price				$2.62		$0.91[a]		$0.60[a]		$0.10		$0.25

Note: Figures for 2007 do not include a very small number of fish caught during commercial fishing periods but not sold (i.e. retained for personal use).

[a] Average price per pound reflects only those fish actually sold and does not include hatchery fish that were donated.

Table 11.–Total biomass estimates and commercial catch of Pacific herring *Clupea pallasi* in short tons by age class, Kamishak Bay District, Lower Cook Inlet, 2007, and 2008 forecast.

Age	2007 Est. Spawning Biomass	Percent by Weight	2007 Commercial Harvest[a]	Percent by Weight	2007 Total Biomass	Percent by Weight	2008 Forecast Biomass	Percent by Weight
1								
2								
3	219.0	11.8	--	--	219.0	11.8	235.4	11.4
4	346.5	18.6	--	--	346.5	18.6	382.8	18.5
5	301.2	16.2	--	--	301.2	16.2	495.8	24.0
6	265.1	14.2	--	--	265.1	14.2	313.7	15.2
7	213.1	11.4	--	--	213.1	11.4	217.7	10.5
8	220.9	11.9	--	--	220.9	11.9	146.4	7.1
9	90.3	4.8	--	--	90.3	4.8	138.8	6.7
10	71.6	3.8	--	--	71.6	3.8	41.8	2.0
11	75.6	4.1	--	--	75.6	4.1	45.4	2.2
12	32.7	1.8	--	--	32.7	1.8	32.4	1.6
13+	27.6	1.5	--	--	27.6	1.5	19.0	0.9
TOTALS	1,863.6	100.0	--	--	1,863.6	100.0	2,069.2	100.0

[a] Due to the low forecasted biomass, the commercial herring fishery in Kamishak Bay was not opened in 2007.

Table 12.–Proposed regulatory changes for the Lower Cook Inlet commercial and personal use salmon fisheries, or proposed changes that could impact commercial or hatchery fishing, and resultant actions taken, at the Alaska Board of Fisheries meeting held in Homer, November, 2007.

PROPOSAL NUMBER	PROPOSED BY	DESCRIPTION	BOARD ACTION	BOARD VOTE
15	Nick C. Varney	**5 AAC 77.549. (b) (2).** Prohibit personal use set gillnet fishing within 1,000 yards northwest of Nick Dudiak Fishing Lagoon outlet.	Failed (see text)	1 – 6
16	Cook Inlet Aquaculture Association	**5 AAC 58.022. (b) (2) (E).** Prohibit sport fishing for salmon within 100 yards of hatchery net pens in Tutka Bay Lagoon.	Amended and adopted (see text)	7 – 0
17	Leroy Cabana	**5 AAC 58.022.** Prohibit sport and personal use harvest of sockeye salmon in waters of Tutka Bay Lagoon.	No Action (see text)	No Vote
21	Seward Fish & Game Advisory Committee	**5 AAC 56.122 (a) (9) (D).** Allow sport fishing for salmon in freshwater of Resurrection River downstream of Sterling Highway and Nash Road from June 16 – December 31.	Adopted (see text)	7 – 0

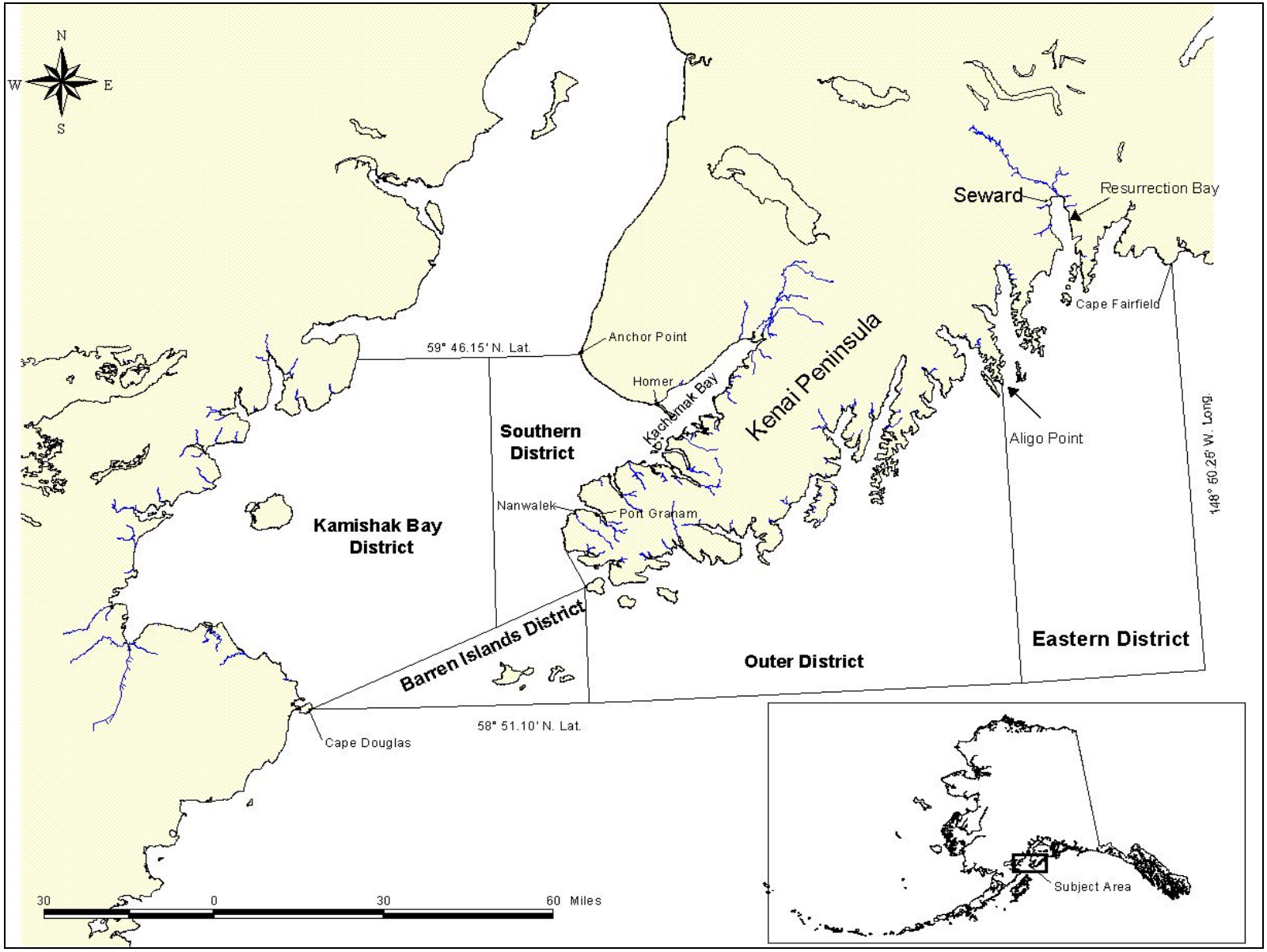

Figure 1.–Lower Cook Inlet management area for commercial salmon and herring fisheries.

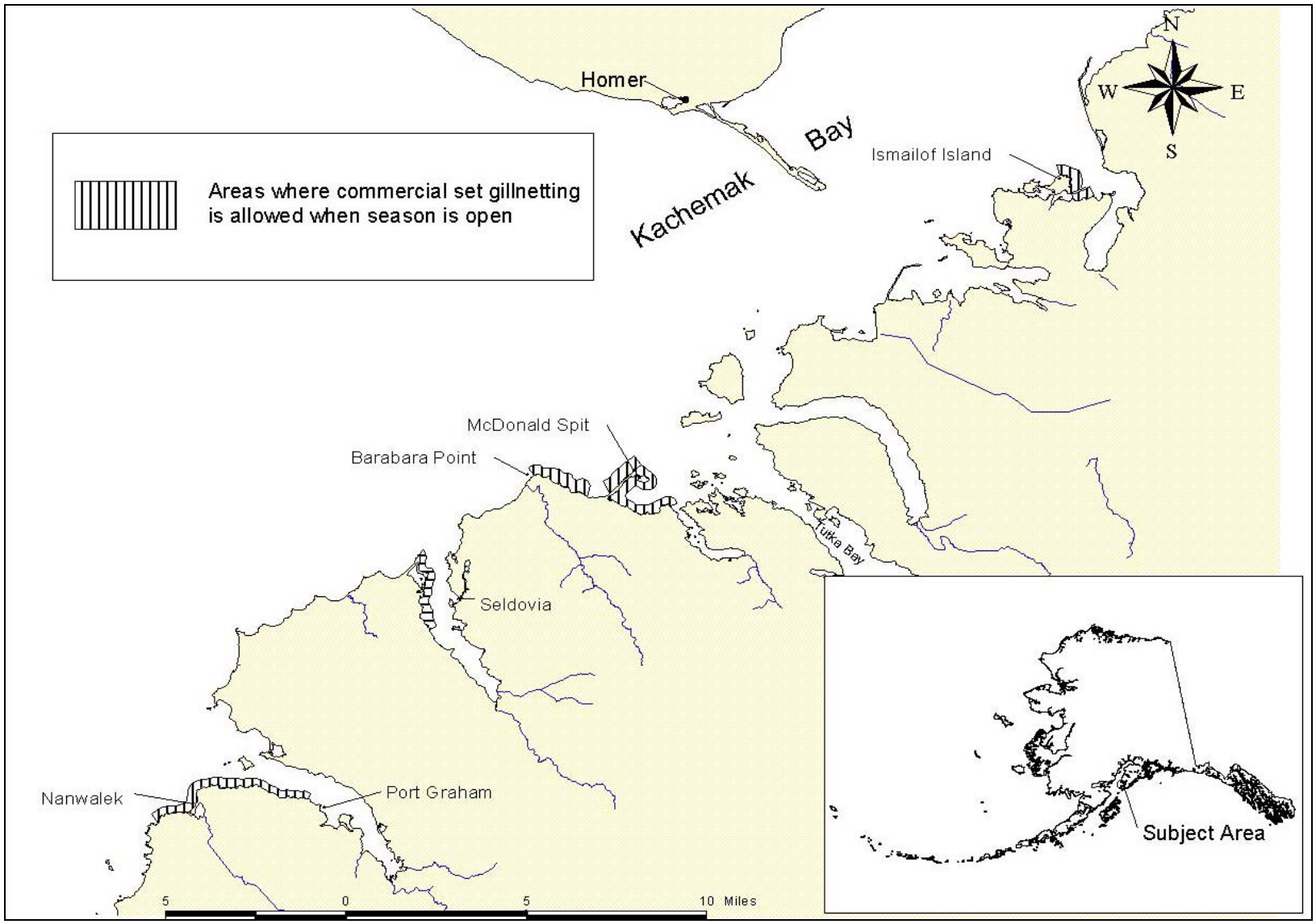

Figure 2.–Commercial set gillnet locations in the Southern District of Lower Cook Inlet.

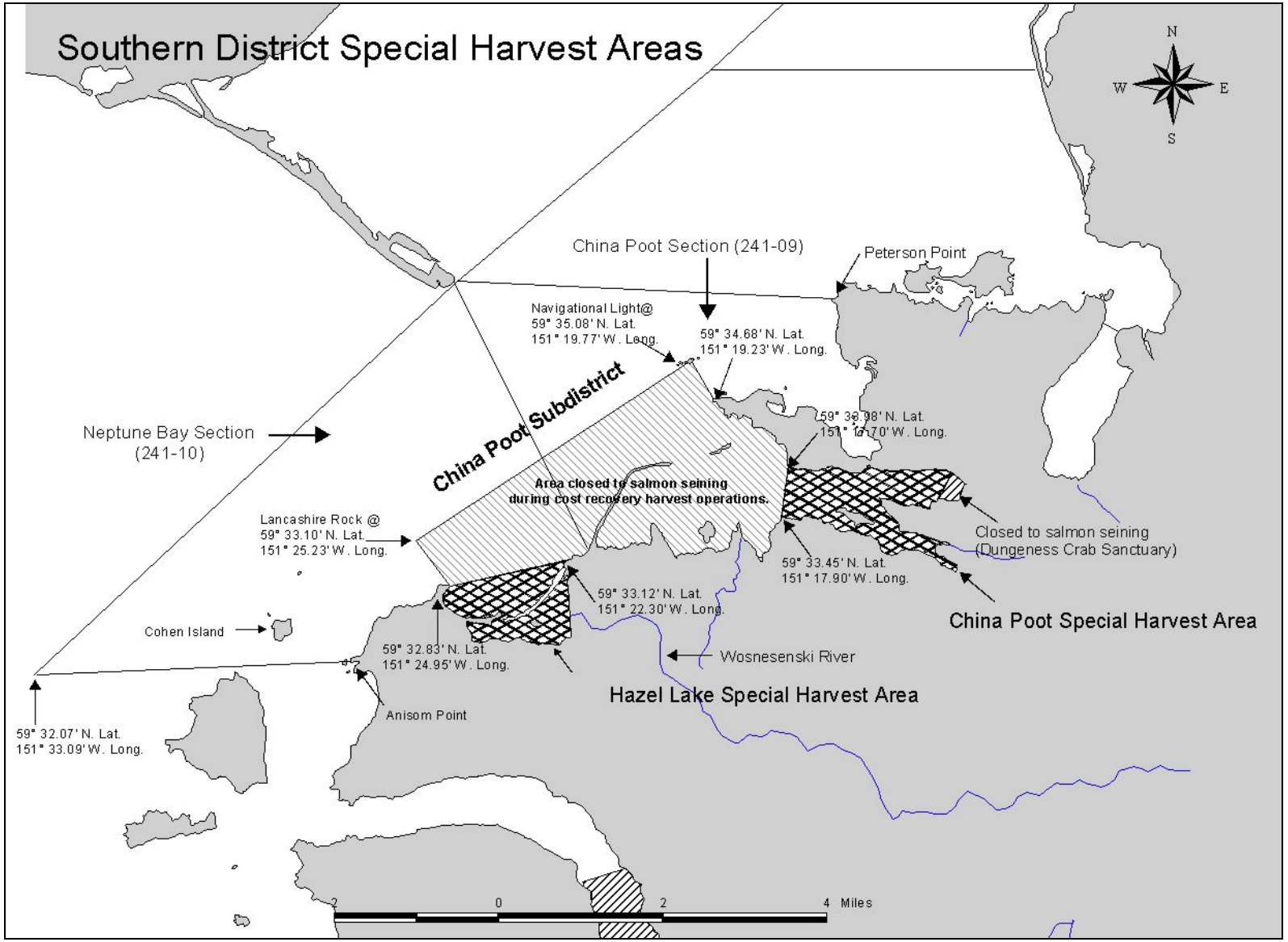

Figure 3.–China Poot and Hazel Lake Special Harvest Areas for salmon hatchery cost recovery in the Southern District of Lower Cook Inlet.

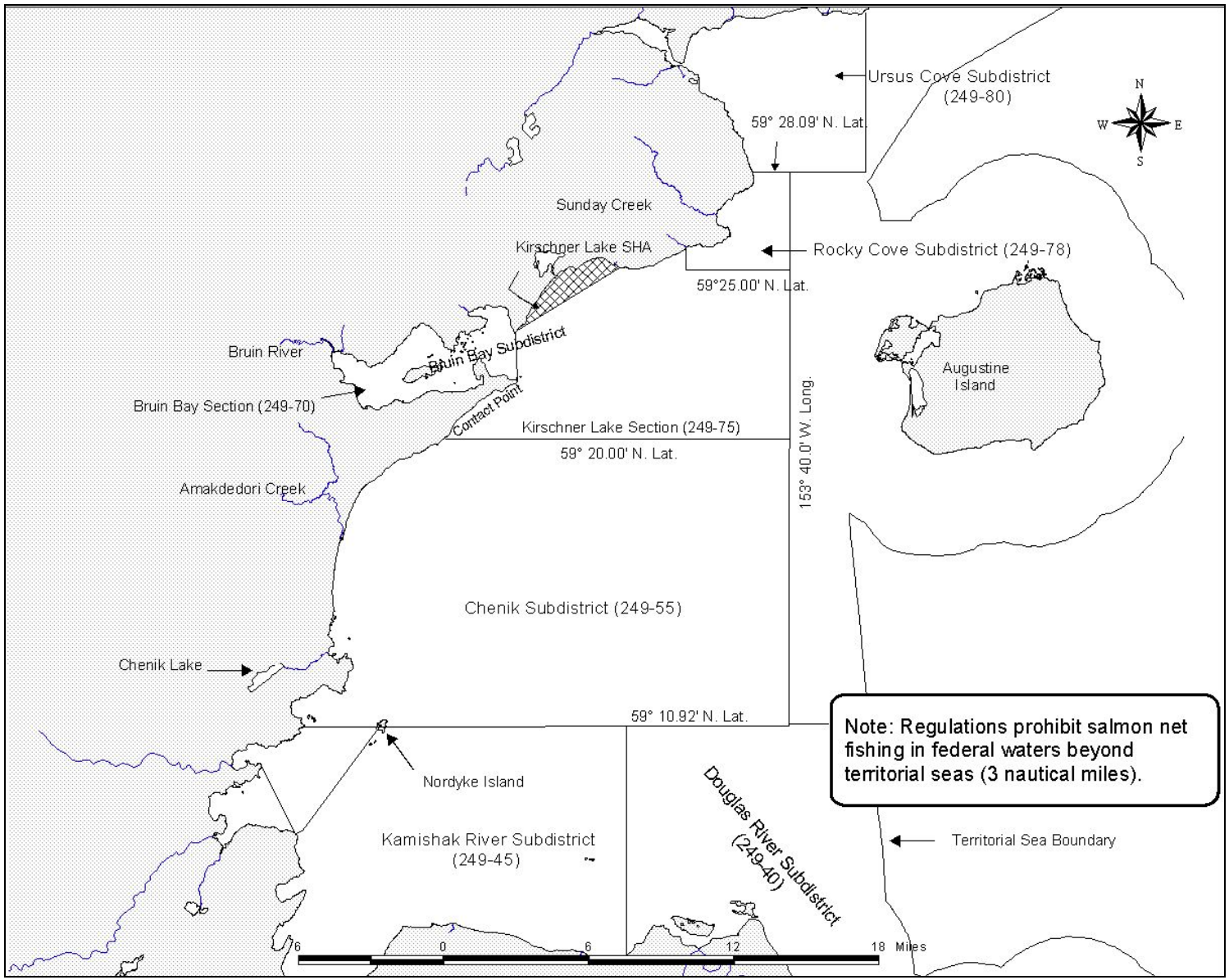

Figure 4.–Kirschner Lake Special Harvest Area for salmon hatchery cost recovery in Kamishak Bay District of Lower Cook Inlet.

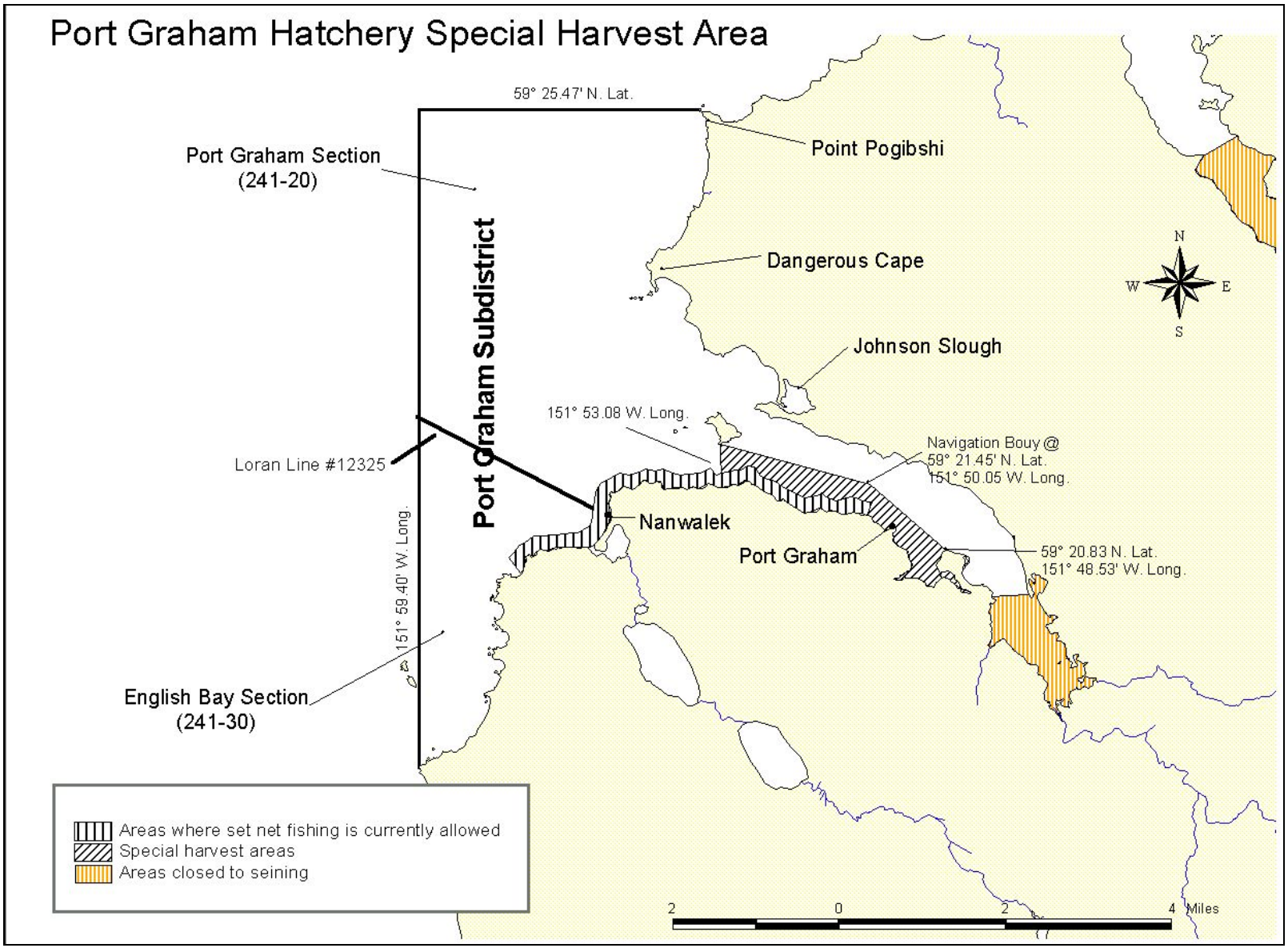

Figure 5.–Port Graham Special Harvest Area for salmon hatchery cost recovery in the Southern District of Lower Cook Inlet.

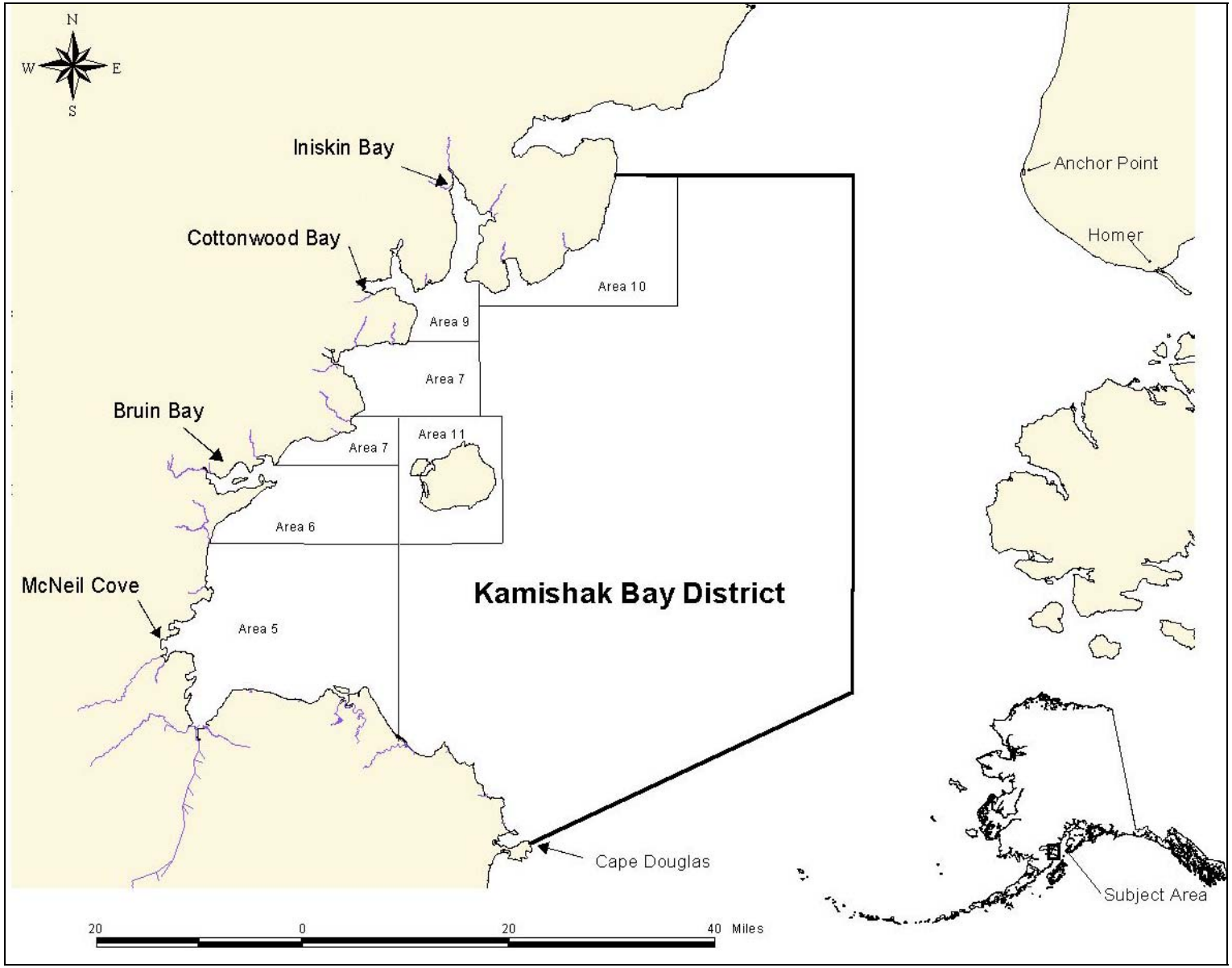

Figure 6.–Commercial herring fishing areas for management purposes in Kamishak Bay District of Lower Cook Inlet.

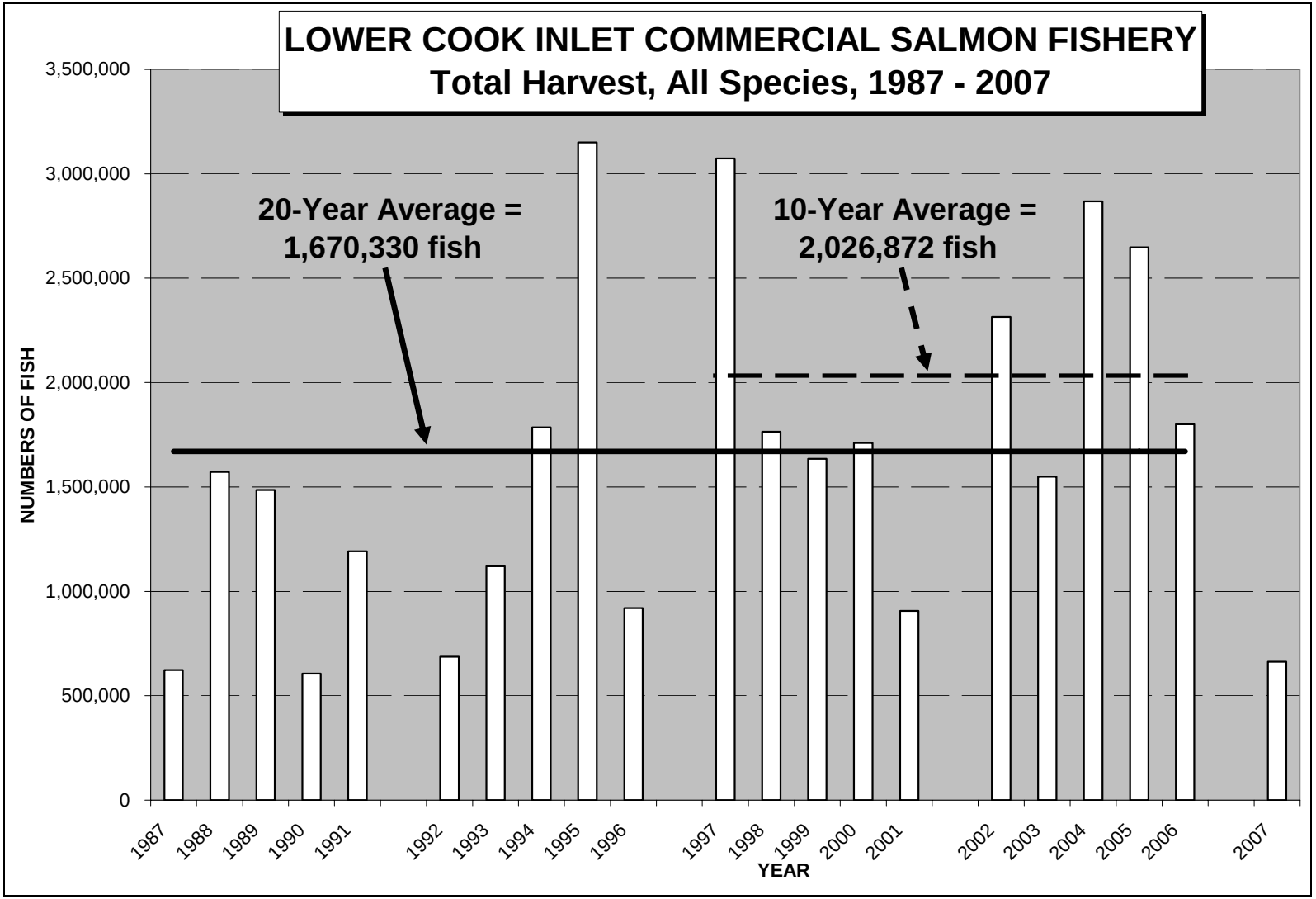

Figure 7.–Total commercial salmon catch, Lower Cook Inlet, 1987–2007.

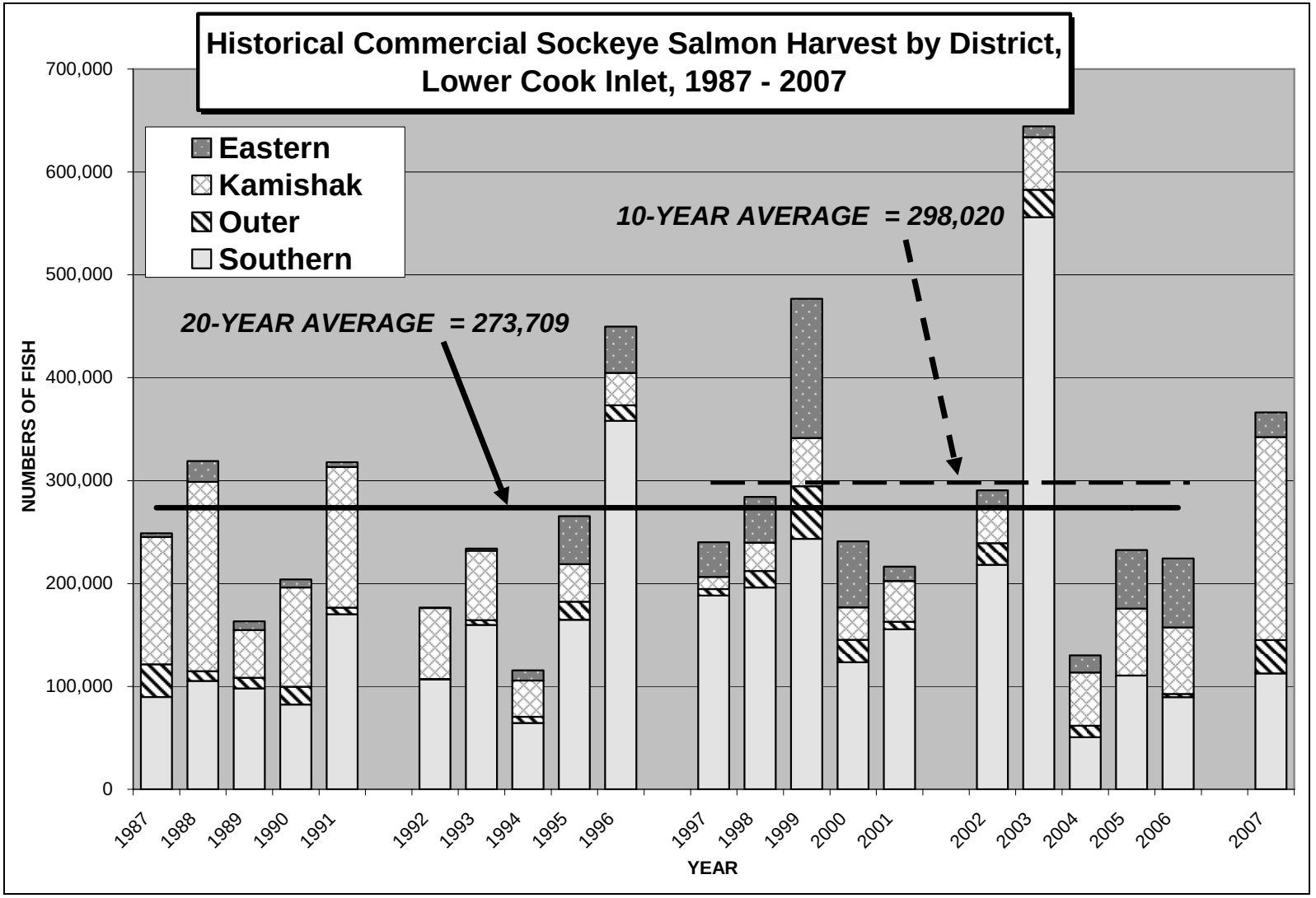

Figure 8.–Commercial sockeye salmon catch by district, Lower Cook Inlet, 1987–2007.

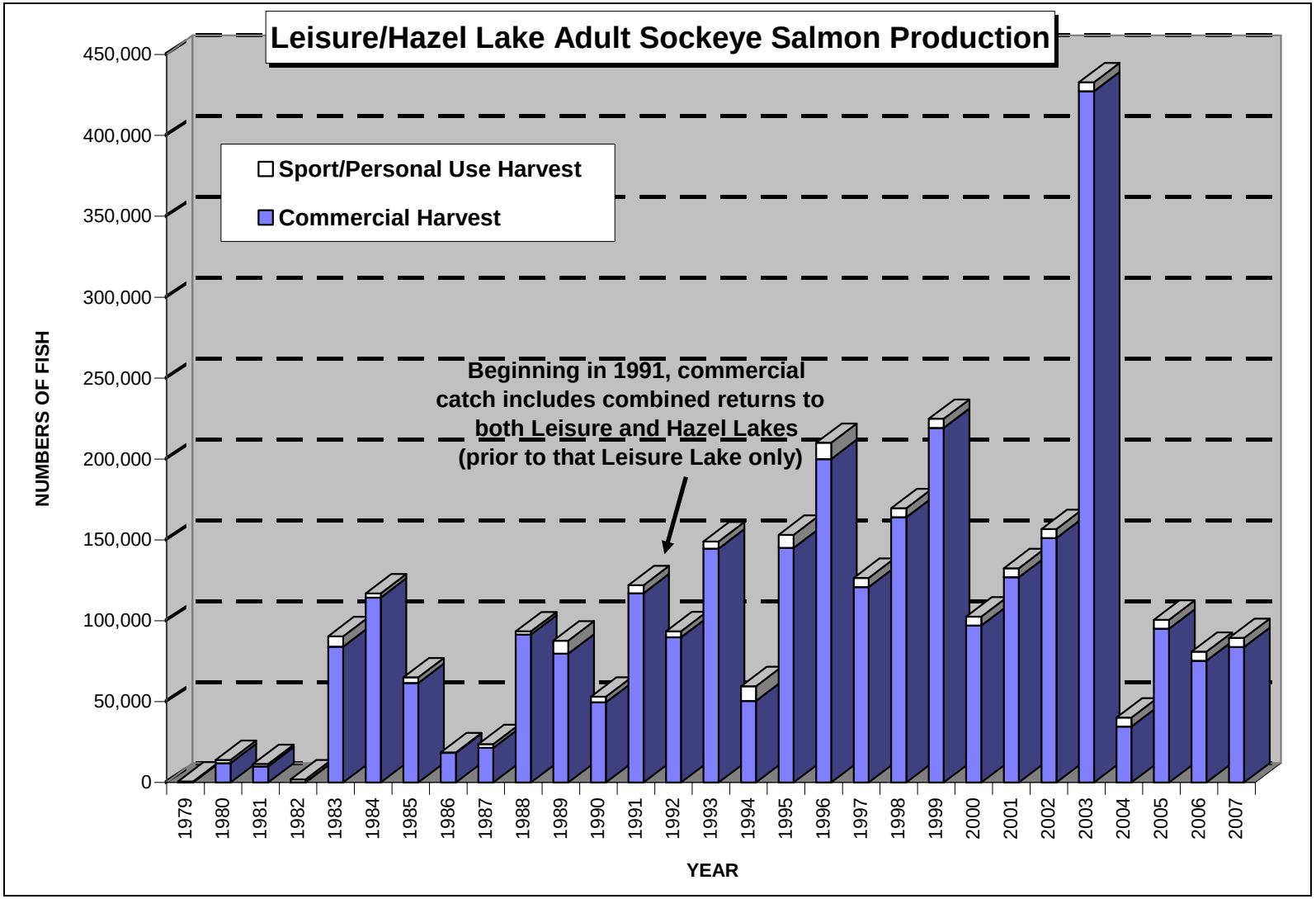

Figure 9.–Sockeye salmon returns to Leisure and Hazel Lakes in the Southern District of Lower Cook Inlet, 1979–2007.

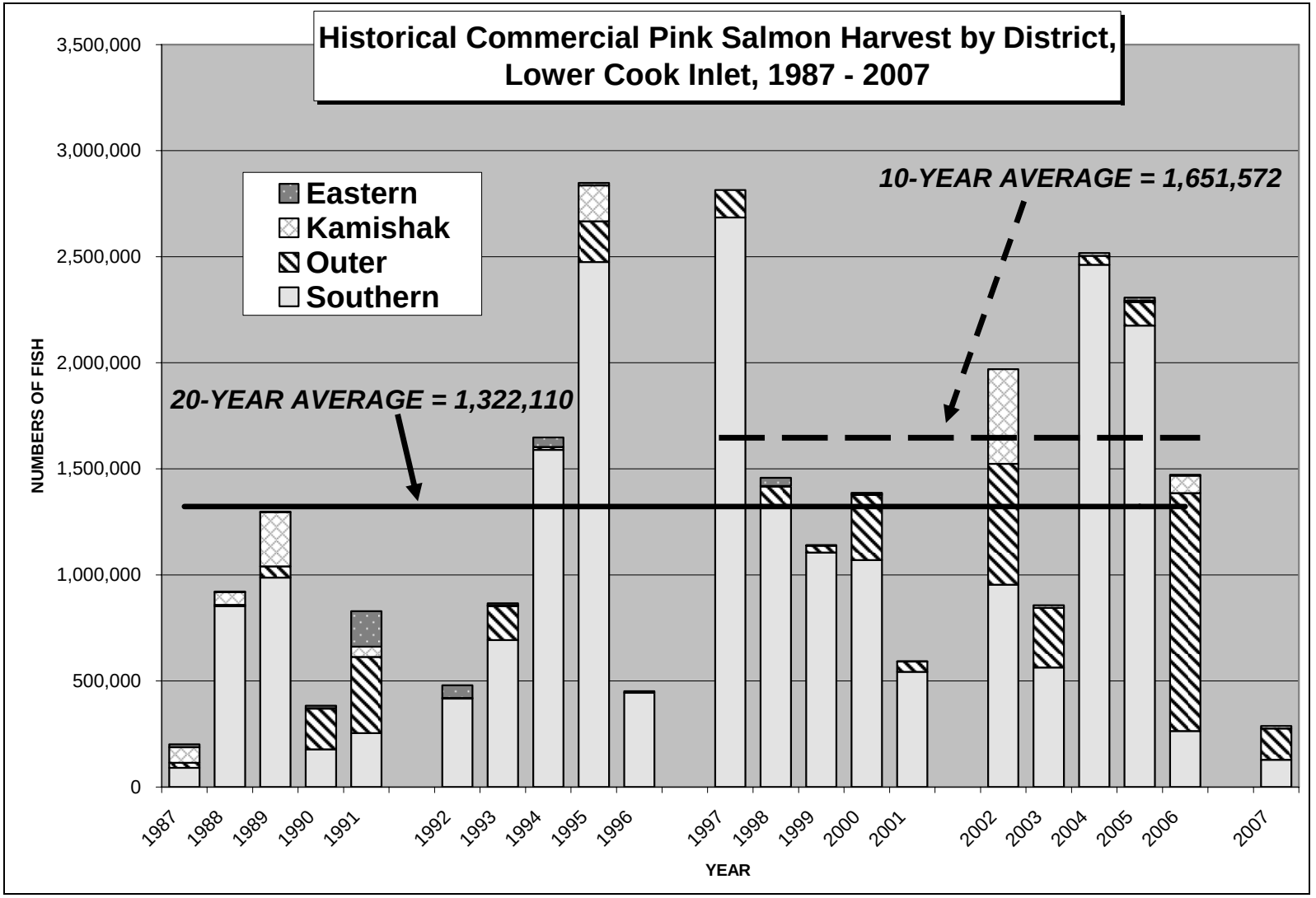

Figure 10.–Commercial pink salmon catch by district, Lower Cook Inlet, 1987–2007.

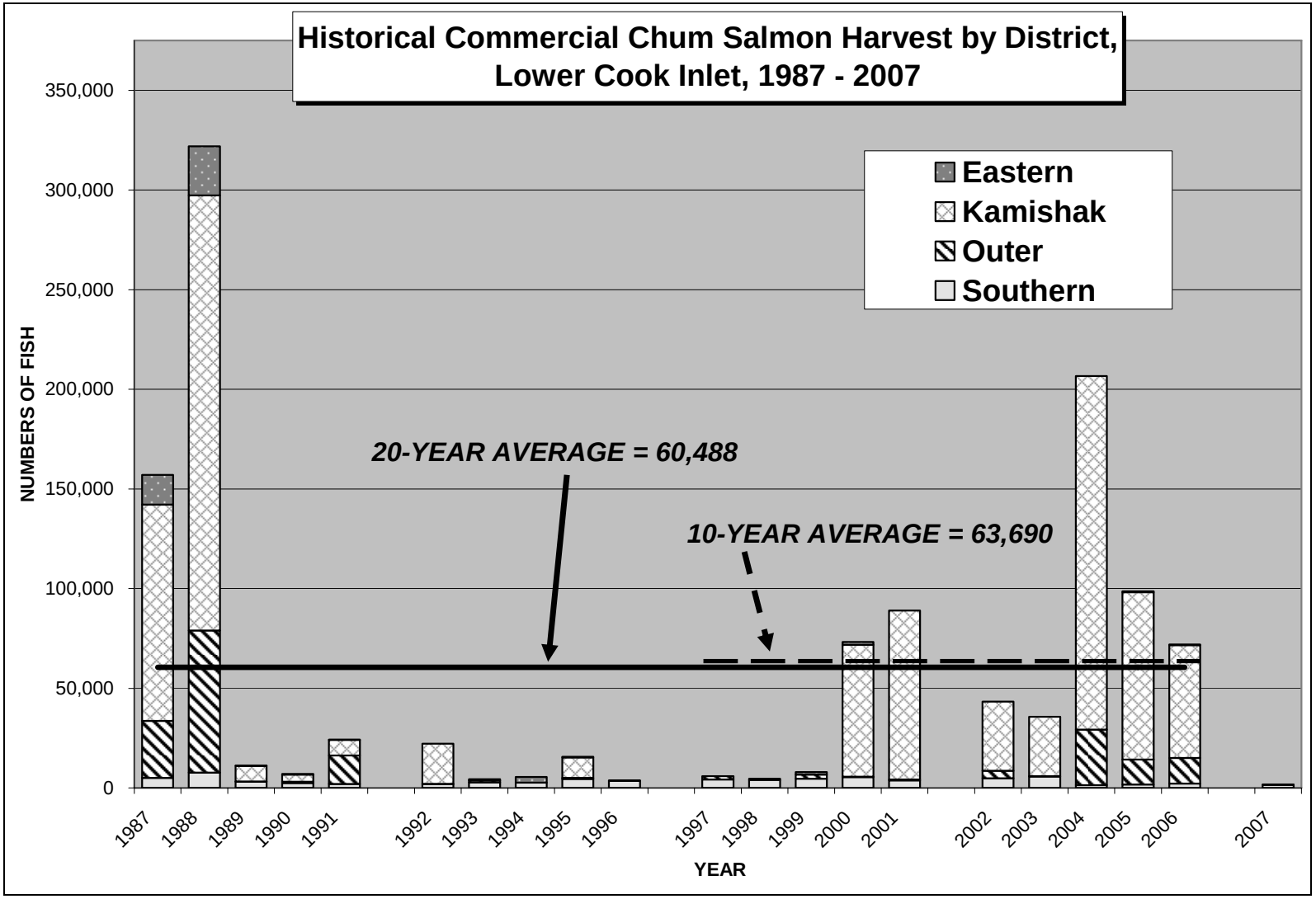

Figure 11.–Commercial chum salmon catch by district, Lower Cook Inlet, 1987–2007.

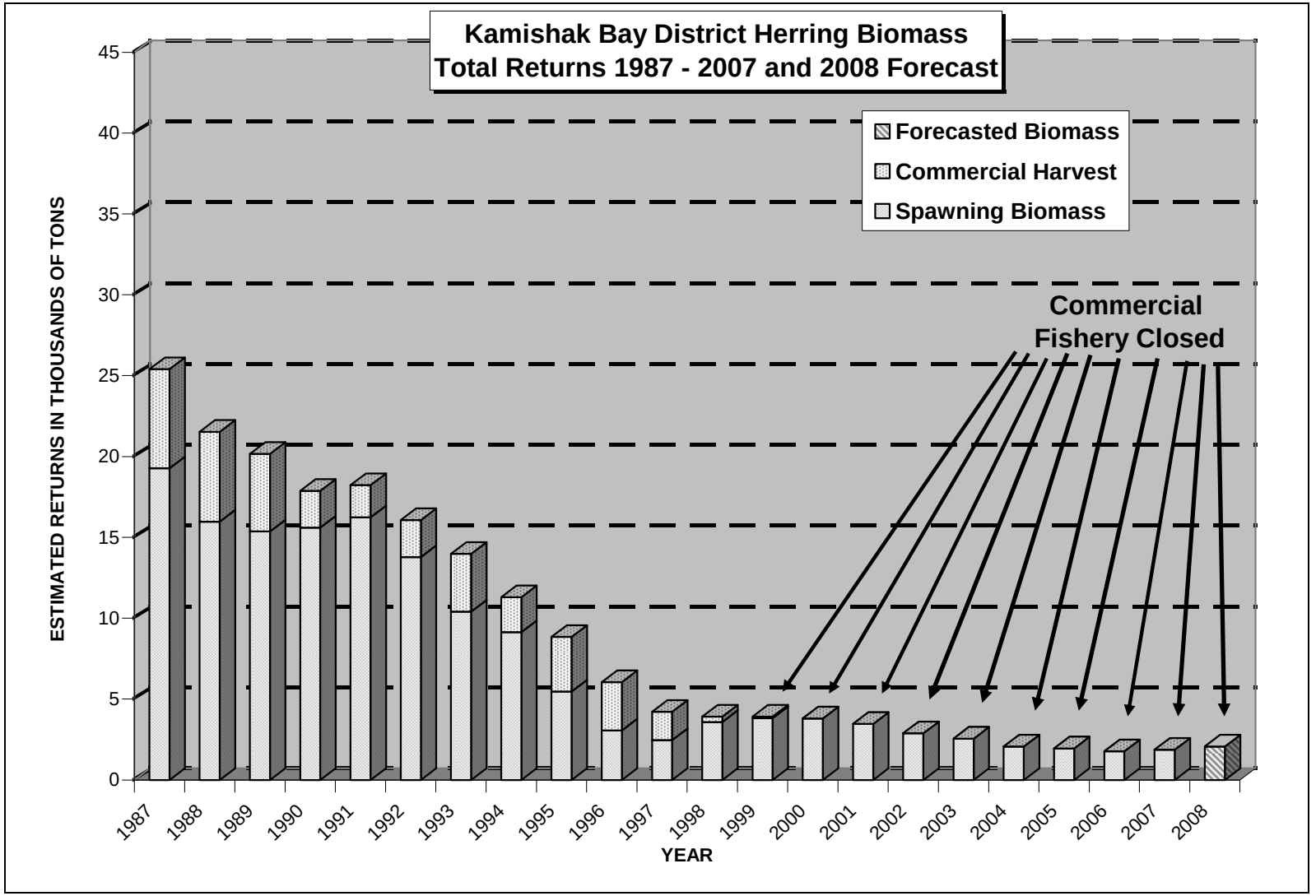

Figure 12.–Biomass estimates and commercial harvests of Pacific herring *Clupea pallasi* in the sac roe seine fishery, Kamishak Bay District, Lower Cook Inlet, 1987–2007, and 2008 projection.

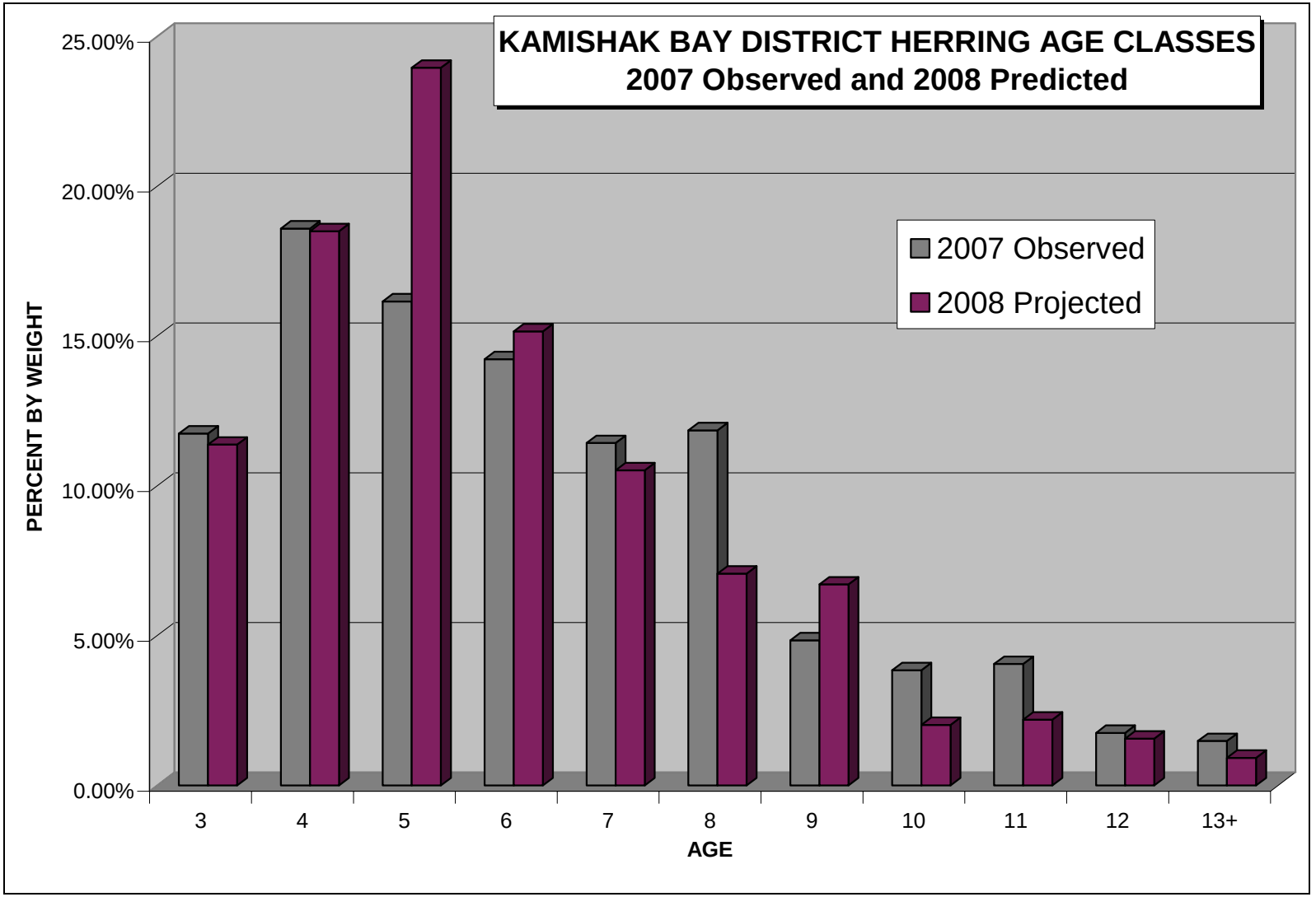

Figure 13.–Herring age composition from samples collected in Kamishak Bay District, Lower Cook Inlet, 2007, and 2008 forecast.

APPENDIX A:
HISTORICAL SALMON TABLES

Appendix A1.–Salmon fishing permits issued and fished, by gear type, Lower Cook Inlet, 1987–2007.

Year	Seines				Set Net Permits Fished
	Permanent Permits	Interim Permits	Total Issued	Actively Fished	
1987	79	0	79	66	29
1988	79	0	79	71	27
1989	83	0	83	64	23
1990	82	1	83	71	20
1991	82	1	83	68	20
1992	82	1	83	63	21
1993	82	1	83	51	17
1994	82	1	83	32	16
1995	83	1	84	49	23
1996	84	1	85	34	24
1997	84	1	85	23	25
1998	84	2	85	41	24
1999	84	2	86	45	20
2000	84	2	86	36	24
2001	84	2	86	25	18
2002	84	2	86	25	24
2003	84	2	86	27	24
2004	84	2	86	24	19
2005	84	2	86	29	17
2006	84	2	86	24	22
2007	84	2	86	19	16
1987–2006 Avg.	83	1	84	43	22
1997–2006 Avg.	84	2	86	30	22

Source: ADF&G fish ticket database *Unpublished*. Commercial Fisheries Entry Commission License Statistics, 1974-2007, Juneau.

Appendix A2.–Exvessel value of the commercial salmon harvest in thousands of dollars by species, Lower Cook Inlet, 1987–2007.

Year	Chinook	Sockeye	Coho	Pink	Chum	Total
1987	27	1,951	118	295	598	2,989
1988	32	3,812	127	2,237	2,548	8,756
1989	33	1,213	59	1,660	39	3,004
1990	29	1,287	28	306	31	1,681
1991[a]	19	1,115	36	275	48	1,493
1992[a]	30	1,152	19	212	53	1,466
1993[a]	27	802	41	287	7	1,164
1994[a]	18	496	93	745	9	1,361
1995[a]	48	1,381	62	1,245	24	2,760
1996[a]	26	2,113	42	100	5	2,286
1997[a]	23	1,066	36	1,286	10	2,421
1998[a]	20	1,224	37	712	9	2,002
1999[a]	51	2,459	23	470	20	3,023
2000[a]	31	1,112	19	431	192	1,786
2001[a]	24	627	15	277	295	1,238
2002[a]	24	817	18	441	58	1,359
2003[a]	15	1,965	18	154	40	2,192
2004[a]	32	503	40	352	339	1,266
2005[a]	14	848	27	542	196	1,627
2006[a]	19	1,018	124	576	185	1,922
2007[a]	20	1,502	25	89	3	1,639
20 Year Avg.	27	1,348	49	630	235	2,290
1987–1996 Avg.	29	1,532	63	736	336	2,696
1997–2006 Avg.	25	1,164	36	524	134	1,884
2007 % of Total	1.22%	91.64%	1.53%	5.43%	0.18%	100.00%

Source: Values obtained by using the formula: (average price per lb.) x (average weight per fish) x (catch) = Exvessel value; average prices are determined only from fish ticket information and may not reflect retroactive or postseason adjustments.

[a] Includes hatchery cost recovery.

Appendix A3.–Average salmon price in dollars per pound by species, Lower Cook Inlet, 1987–2007.

Year	Chinook	Sockeye	Coho	Pink	Chum
1987	1.25	1.60	1.00	0.42	0.46
1988	1.25	2.50	1.80	0.80	0.84
1989	1.25	1.60	0.70	0.40	0.40
1990	1.35	1.55	0.60	0.30	0.50
1991	1.12	0.83	0.29	0.13	0.27
1992	1.29	1.47	0.43	0.14	0.27
1993	1.02	0.80	0.51	0.12	0.28
1994	0.95	1.06	0.62	0.15	0.25
1995	1.17	1.11	0.47	0.15	0.24
1996	1.33	0.91	0.40	0.08	0.18
1997	1.29	0.93[a]	0.50[a]	0.15	0.23
1998	1.45	0.96[a]	0.36[a]	0.16	0.27
1999	1.96	1.22[a]	0.45[a]	0.16	0.32
2000	1.86	0.87[a]	0.60[a]	0.12	0.28
2001	1.76	0.62[a]	0.41[a]	0.15	0.28
2002	1.11	0.55[a]	0.33[a]	0.07	0.16
2003	1.03	0.60[a]	0.28[a]	0.06	0.16
2004	1.56	0.77[a]	0.47[a]	0.04	0.20
2005	1.54	0.86[a]	0.53[a]	0.07	0.23
2006	2.25	1.01[a]	0.54[a]	0.11	0.31
2007	2.62	0.91[a]	0.60	0.10	0.25
20-Year Avg.	1.39	1.09	0.56	0.19	0.31
1987–1996 Avg.	1.20	1.34	0.68	0.27	0.37
1997–2006 Avg.	1.58	0.84	0.44	0.11	0.24

Note: Average prices are determined only from fish ticket information and may not reflect retroactive or postseason adjustments.

[a] Average price for sockeye and coho include only those fish actually sold and therefore does not include fish retained for personal use or hatchery cost recovery fish that were donated.

Appendix A4.–Salmon average weight in pounds per fish by species in the commercial fishery, Lower Cook Inlet, 1987–2007.

Year	Chinook	Sockeye	Coho	Pink	Chum
1987	18.1	4.9	8.2	3.5	8.3
1988	15.3	4.8	8.9	3.0	9.4
1989	14.1	4.6	7.0	3.1	8.6
1990	13.8	4.1	7.1	2.8	8.9
1991	12.3	4.2	6.6	2.6	7.5
1992	12.3	4.4	7.7	3.2	8.8
1993	12.0	4.4	6.0	2.7	6.2
1994	15.0	4.1	10.2	3.0	6.4
1995	17.8	4.7	7.4	2.9	6.4
1996	16.9	5.2	7.6	2.9	8.0
1997	13.9	4.9	7.8	3.1	7.6
1998	13.1	4.6	8.5	3.1	7.4
1999	14.8	4.7	6.6	2.5	7.9
2000	14.7	5.3	8.2	2.5	9.3
2001	13.6	4.9	7.5	3.1	9.4
2002	14.0	5.2	7.8	3.4	8.3
2003	12.6	5.1	6.8	3.2	7.2
2004	12.4	5.0	7.5	3.4	8.2
2005	14.5	4.3	6.7	3.4	8.6
2006	13.5	4.5	7.4	3.6	8.3
2007	16.6	4.5	6.7	3.2	7.0
20-Year Avg.	14.2	4.7	7.6	3.0	8.0
1987–1996 Avg.	14.8	4.5	7.7	3.0	7.8
1997–2006 Avg.	13.7	4.8	7.5	3.1	8.2

Source: Values obtained from ADF&G fish ticket database *Unpublished.*

Appendix A5.–Commercial salmon catch for all gear and harvest types in numbers of fish by species, Lower Cook Inlet, 1987–2007.

Year	Chinook	Sockeye	Coho	Pink	Chum	Total
1987	1,179	248,848	14,354	201,429	157,018	622,828
1988	1,694	319,008	7,946	921,296	321,911	1,571,855
1989	1,893	163,271	12,089	1,296,926	11,305	1,485,484
1990	1,560	203,895	9,297	383,670	6,951	605,373
1991	1,419	317,947	19,047	828,709	24,232	1,191,354
1992	1,891	176,644	5,902	479,768	22,203	686,408
1993	2,168	233,834	13,477	866,774	4,367	1,120,620
1994	1,231	115,418	14,673	1,647,929	5,469	1,784,720
1995	2,303	265,423	17,709	2,848,464	15,636	3,149,535
1996	1,181	449,685	13,572	451,506	3,764	919,708
1997	1,261	240,173	11,004	2,814,431	5,908	3,072,777
1998	1,071	284,029	16,653	1,457,819	4,647	1,764,219
1999	1,764	476,779	8,033	1,140,488	7,941	1,635,005
2000	1,188	240,932	8,203	1,387,307	73,254	1,710,884
2001	988	216,271	6,667	592,931	88,969	905,826
2002	1,553	290,654	8,329	1,970,061	43,259	2,313,856
2003	1,180	644,257	11,302	856,711	35,686	1,549,136
2004[a]	1,658	130,083	12,426	2,517,555	206,679	2,868,401
2005[a]	622	232,678	9,126	2,306,842	98,602	2,647,870
2006[a]	639	224,345	32,230	1,471,578	71,954	1,800,746
2007[a]	467	366,225	6,319	287,411	1,777	662,199
20-Year Avg.	1,422	273,709	12,602	1,322,110	60,488	1,670,330
1987–1996 Avg.	1,652	249,397	12,807	992,647	57,286	1,313,789
1997–2006 Avg.	1,192	298,020	12,397	1,651,572	63,690	2,026,872
2007 % of Total	0.07%	55.30%	0.95%	43.40%	0.27%	100.00%

Source: ADF&G fish ticket database *Unpublished.*

[a] 2004–2007 totals do not include a very small number of fish retained for personal use.

Appendix A6.–Commercial salmon catch for all gear and harvest types in numbers of fish by species in the Southern District, Lower Cook Inlet, 1987–2007.

Year	Chinook	Sockeye	Coho	Pink	Chum	Total
1987	1,158	89,662	2,163	90,522	5,030	188,535
1988	1,655	105,302	2,987	852,382	7,742	970,068
1989	1,889	98,052	6,667	987,488	3,141	1,097,237
1990	1,546	82,412	1,552	178,087	2,433	266,030
1991	1,399	170,224	9,415	253,962	1,962	436,962
1992	1,852	106,793	1,277	417,021	1,885	528,828
1993	2,162	159,747	4,431	692,794	2,788	861,922
1994	1,230	64,531	1,373	1,589,709	2,631	1,659,474
1995	2,289	164,798	5,161	2,475,312	4,530	2,652,090
1996	1,180	358,163	9,543	444,236	3,511	816,633
1997	1,261	188,402	5,597	2,685,764	4,260	2,885,284
1998	1,070	196,262	2,243	1,315,042	3,956	1,518,534
1999	1,760	243,444	2,757	1,105,267	4,624	1,357,852
2000	1,184	123,574	768	1,070,065	5,340	1,200,931
2001	986	155,411	2,706	542,975	3,789	705,867
2002	1,553	218,203	3,769	953,960	4,803	1,182,288
2003	1,179	556,037	5,408	563,043	5,730	1,131,397
2004[a]	1,656	50,699	1,431	2,461,950	1,372	2,517,108
2005[a]	621	110,739	2,722	2,175,386	1,750	2,291,218
2006[a]	636	89,522	3,036	263,749	2,182	359,125
2007[a]	466	112,672	3,351	128,551	1,584	246,624
20-Year Avg.	1,413	166,599	3,750	1,055,936	3,673	1,231,371
1987–1996 Avg.	1,636	139,968	4,457	798,151	3,565	947,778
1997–2006 Avg.	1,191	193,229	3,044	1,313,720	3,781	1,514,964
2007 % of Total	0.19%	45.69%	1.36%	52.12%	0.64%	100.00%

Source: ADF&G fish ticket database *Unpublished*.

[a] 2004–2007 totals do not include a very small number of fish retained for personal use.

Appendix A7.–Commercial set gillnet catch of salmon in numbers of fish by species in the Southern District, Lower Cook Inlet, 1987–2007.

Year	Chinook	Sockeye	Coho	Pink	Chum	Total
1987	653	28,209	2,025	9,224	2,419	42,530
1988	1,145	14,758	2,819	29,268	4,423	52,413
1989	1,281	13,970	4,792	16,210	1,877	38,130
1990	1,361	15,863	1,046	12,646	1,938	32,854
1991	842	20,525	5,011	3,954	1,577	31,909
1992	1,288	17,002	848	15,958	1,687	36,783
1993	1,089	14,791	3,088	12,008	2,591	33,567
1994	1,103	14,004	1,073	23,621	2,419	42,220
1995	2,078	19,406	3,564	41,654	3,958	70,660
1996	1,054	69,338	5,779	14,813	2,792	93,776
1997	1,135	59,401	4,475	64,162	4,166	133,339
1998	952	26,131	1,057	24,403	3,754	56,297
1999	1,491	27,646	1,374	5,348	4,313	40,194
2000	1,019	26,503	621	21,845	5,214	55,202
2001	865	28,503	1,811	13,393	3,487	48,059
2002	1,513	46,812	2,393	6,741	4,681	62,140
2003	878	81,722	2,291	7,325	4,998	97,214
2004[a]	1,400	16,087	1,164	834	1,234	20,719
2005[a]	525	15,669	1,905	341	1,326	19,766
2006[a]	580	14,219	2,426	12,289	2,019	31,533
2007[a]	439	28,870	1,616	0	1,437	32,362
20-Year Avg.	1,113	28,528	2,478	16,802	3,045	51,965
1987–1996 Avg.	1,189	22,787	3,005	17,936	2,568	47,484
1997–2006 Avg.	1,036	34,269	1,952	15,668	3,521	56,446
2007 % of Total	1.36%	89.21%	4.99%	0.00%	4.44%	100.00%

Source: ADF&G fish ticket database *Unpublished*.

[a] 2004–2007 totals do not include a very small number of fish retained for personal use.

Appendix **A8.–**Commercial salmon catch for all gear and harvest types in numbers of fish by species in the Outer District, Lower Cook Inlet, 1987–2007.

Year	Chinook	Sockeye	Coho	Pink	Chum	Total
1987	14	31,845	2,481	23,890	28,663	86,893
1988	5	9,501	2	6,094	71,202	86,804
1989	1	10,286	72	52,677	43	63,079
1990	2	17,404	74	191,320	614	209,414
1991	2	6,408	12	359,664	14,337	380,423
1992	0	572	1	146	181	900
1993	2	4,613	119	159,159	970	164,863
1994	0	5,930	993	13,200	32	20,155
1995	12	17,642	1,272	192,098	474	211,498
1996	0	14,999	96	7,199	3	22,297
1997	0	6,255	63	128,373	1,575	136,266
1998	0	15,991	45	102,172	611	118,819
1999	3	51,117	1,482	32,484	2,062	87,148
2000	2	21,623	20	306,555	302	328,502
2001	0	7,339	5	48,559	408	56,311
2002	0	21,154	74	569,955	3,810	594,993
2003	1	26,615	4	281,663	137	308,420
2004	2	11,082	13	42,636	27,911	81,644
2005	0	1	3	110,195	12,524	122,723
2006	3	3,198	1,139	1,121,892	12,883	1,139,115
2007	1	32,461	113	147,409	49	180,033
20-Year Avg.	2	14,179	399	187,497	8,937	211,013
1987–1996 Avg.	4	11,920	512	100,545	11,652	124,633
1997–2006 Avg.	1	16,438	285	274,448	6,222	297,394
2007 % of Total	0.00%	18.03%	0.06%	81.88%	0.03%	100.00%

Source: ADF&G fish ticket database *Unpublished*.

Appendix A9.–Commercial salmon catch for all gear and harvest types in numbers of fish by species in the Eastern District, Lower Cook Inlet, 1987–2007.

Year	Chinook	Sockeye	Coho	Pink	Chum	Total
1986	0	3,055	770	40,243	3,757	47,825
1987	0	3,687	1,631	14,333	14,913	34,564
1988	1	20,253	486	1,740	24,668	47,148
1989	0	8,538	5,346	92	312	14,288
1990	0	7,682	7,645	11,815	307	27,449
1991	1	4,703	7,283	167,250	80	179,317
1992	0	432	3,136	60,007	86	63,661
1993	0	1,824	8,924	10,616	9	21,373
1994	1	9,661	10,410	44,987	2,792	67,851
1995	0	46,556	5,192	12,000	330	64,078
1996	0	44,919	3,932	36	223	49,110
1997	0	33,783	5,344	1	66	39,194
1998	1	44,274	14,365	38,829	51	97,520
1999	1	135,305	3,794	1,930	1,232	142,262
2000	1	64,099	7,408	4,473	1,540	77,521
2001	0	13,809	3,947	0	6	17,762
2002	0	17,376	4,432	0	5	21,813
2003	0	10,352	5,886	0	19	16,257
2004	0	16,645	5,615	0	1	22,261
2005[a]	0	56,951	6,309	13,500	385	77,145
2006	0	67,048	3,786	3,460	270	74,564
2007	0	23,834	2,850	0	53	26,767
20-Year Avg.	0	30,395	5,744	19,253	2,365	57,757
1987–1996 Avg.	0	14,826	5,399	32,288	4,372	56,884
1997–2006 Avg.	0	45,964	6,089	6,219	358	58,630
2007 % of Total	0.00%	89.15%	10.65%	0.00%	0.20%	100.00%

Source: ADF&G fish ticket database *Unpublished*.

[a] 2005 totals do not include a very small number of fish retained for personal use.

Appendix **A10.–**Commercial salmon catch for all gear and harvest types in numbers of fish by species in the Kamishak Bay District, Lower Cook Inlet, 1987–2007.

Year	Chinook	Sockeye	Coho	Pink	Chum	Total
1987	7	123,654	8,079	72,684	108,412	312,836
1988	33	183,952	4,471	61,080	218,299	467,835
1989	3	46,395	4	256,669	7,809	310,880
1990	12	96,397	26	2,448	3,597	102,480
1991	17	136,612	2,337	47,833	7,853	194,652
1992	39	68,847	1,488	2,594	20,051	93,019
1993	4	67,650	3	4,205	600	72,462
1994	0	35,296	1,897	33	14	37,240
1995	2	36,427	6,084	169,054	10,302	221,869
1996	1	31,604	1	35	27	31,668
1997	0	11,733	0	293	7	12,033
1998	0	27,502	0	1,776	29	29,307
1999	0	46,913	0	807	23	47,743
2000	1	31,636	7	6,214	66,072	103,930
2001	2	39,712	9	1,397	84,766	125,886
2002	0	33,921	54	446,146	34,641	514,762
2003	0	51,253	4	12,005	29,800	93,062
2004	0	51,657	5,367	12,969	177,395	247,388
2005	1	64,987	92	7,761	83,943	156,784
2006	0	64,577	24,269	82,477	56,619	227,942
2007	0	197,228	5	11,451	91	208,775
20-Year Avg.	6	62,536	2,710	59,424	45,513	170,189
1987–1996 Avg.	12	82,683	2,439	61,664	37,696	184,494
1997–2006 Avg.	0	42,389	2,980	57,185	53,330	155,884
2007 % of Total	0.00%	94.47%	0.00%	5.48%	0.04%	100.00%

Source: ADF&G fish ticket database *Unpublished.*

Appendix A11.–Total commercial salmon catch for all gear and harvest types in numbers of fish by district, Lower Cook Inlet, 1987–2007.

Year	Southern	Outer	Kamishak	Eastern	Total
1987	188,535	86,893	312,836	34,564	622,828
1988	970,068	86,804	467,835	47,148	1,571,855
1989	1,097,237	63,079	310,880	14,288	1,485,484
1990	266,030	209,414	102,480	27,449	605,373
1991	436,962	380,423	194,652	179,317	1,191,354
1992	528,828	900	93,019	63,661	686,408
1993	861,922	164,863	72,462	21,373	1,120,620
1994	1,659,474	20,155	37,240	67,851	1,784,720
1995	2,652,090	211,498	221,869	64,078	3,149,535
1996	816,633	22,297	31,668	49,110	919,708
1997	2,885,284	136,266	12,033	39,194	3,072,777
1998	1,518,573	118,819	29,307	97,520	1,764,219
1999	1,357,852	87,148	47,743	142,262	1,635,005
2000	1,200,931	328,502	103,930	78,227	1,711,590
2001	705,867	56,311	125,886	17,762	905,826
2002	1,182,288	594,993	514,762	21,813	2,313,856
2003	1,131,397	308,420	93,062	16,257	1,549,136
2004	2,517,108[a]	81,644	247,388	22,261	2,868,401
2005	2,291,218[a]	122,723	156,784	77,145[a]	2,647,870
2006	359,152[a]	1,139,115	227,942	74,564	1,800,746
2007	246,624[a]	180,033	208,775	26,767	662,199
20-Year Avg.	1,231,371	211,013	170,189	57,757	1,670,330
1987–1996 Avg.	947,778	124,633	184,494	56,884	1,313,789
1997–2006 Avg.	1,514,964	297,394	155,884	58,630	2,026,872
2007 % of Total	37.24%	27.19%	31.53%	4.04%	100.00%

Source: ADF&G fish ticket database *Unpublished*.

[a] 2004–2007 totals do not include a very small number of fish retained for personal use.

Appendix A12.–Commercial Chinook salmon catch for all gear and harvest types in numbers of fish by district, Lower Cook Inlet, 1987–2007.

Year	Southern	Outer	Kamishak	Eastern	Total
1987	1,158	14	7	0	1,179
1988	1,655	5	33	1	1,694
1989	1,889	1	3	0	1,893
1990	1,546	2	12	0	1,560
1991	1,399	2	17	1	1,419
1992	1,852	0	39	0	1,891
1993	2,162	2	4	0	2,168
1994	1,230	0	0	1	1,231
1995	2,289	12	2	0	2,303
1996	1,180	0	1	0	1,181
1997	1,261	0	0	0	1,261
1998	1,070	0	0	1	1,071
1999	1,760	3	0	1	1,764
2000	1,184	2	1	1	1,188
2001	986	0	2	0	988
2002	1,553	0	0	0	1,553
2003	1,179	1	0	0	1,180
2004	1,656[a]	2	0	0	1,658
2005	621[a]	0	1	0	622
2006	636[a]	3	0	0	639
2007	466[a]	1	0	0	467
20-Year Avg.	1,413	2	6	0	1,422
1987–1996 Avg.	1,636	4	12	0	1,652
1997–2006 Avg.	1,191	1	0	0	1,192
2007 % of Total	99.79%	0.21%	0.00%	0.00%	100.00%

Source: ADF&G fish ticket database *Unpublished*.

[a] 2004–2007 totals do not include a very small number of fish retained for personal use.

Appendix A13.–Commercial sockeye salmon catch for all gear and harvest types in numbers of fish by district, Lower Cook Inlet, 1987–2007.

Year	Southern	Outer	Kamishak	Eastern	Total
1987	89,662	31,845	123,654	3,687	248,848
1988	105,302	9,501	183,952	20,253	319,008
1989	98,052	10,286	46,395	8,538	163,271
1990	82,412	17,404	96,397	7,682	203,895
1991	170,224	6,408	136,612	4,703	317,947
1992	106,793	572	68,847	432	176,644
1993	159,747	4,613	67,650	1,824	233,834
1994	64,531	5,930	35,296	9,661	115,418
1995	164,798	17,642	36,427	46,556	265,423
1996	358,163	14,999	31,604	44,919	449,685
1997	188,402	6,255	11,733	33,783	240,173
1998	196,262	15,991	27,502	44,274	284,029
1999	243,444	51,117	46,913	135,305	476,779
2000	123,574	21,623	31,636	64,099	240,932
2001	155,411	7,339	39,712	13,809	216,271
2002	218,203	21,154	33,921	17,376	290,654
2003	556,037	26,615	51,253	10,352	644,257
2004	50,699[a]	11,082	51,657	16,645	130,083
2005	110,739[a]	1	64,987	56,951[a]	232,678
2006	89,522[a]	3,198	64,577	67,048	224,345
2007	112,672[a]	32,461	197,228	23,864	366,225
20-Year Avg.	166,599	14,179	62,536	30,395	273,709
1987–1996 Avg.	139,968	11,920	82,683	14,826	249,397
1997–2006 Avg.	193,229	16,438	42,389	45,964	298,020
2007 % of Total	30.77%	8.86%	53.85%	6.52%	100.00%

Source: ADF&G fish ticket database *Unpublished*.

[a] 2004–2007 totals do not include a very small number of fish retained for personal use.

Appendix A14.–Commercial sockeye salmon catch for all gear and harvest types in thousands of fish by subdistrict, Lower Cook Inlet, 1959–2007.

Location	1959	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971
Resurrection Bay	0	0.1	0	0	0	0	0	0	0	74.5	99.4	1.8	2.2
Aialik Bay	1.3	0.2	4.3	2.6	0.5	0	0	0	0	0	0	3.1	0
East Nuka Bay	8.3	6.7	8.2	5.1	0.5	0	2.0	0	2.2	1.5	0	1.0	1.6
Port Dick	0	0	0	0	0	0	0	0	0	0	0	0	0
Halibut Cove & Lagoon	1.3	1.4	0.8	2.0	1.1	0.7	1.4	1.5	1.9	2.7	1.7	1.3	1.3
Tutka/Barabara	1.1	1.7	3.0	5.2	2.9	9.0	5.2	6.0	11.8	6.3	5.6	6.0	10.0
Seldovia Bay	0.4	1.2	1.2	1.7	1.2	2.1	0.9	1.0	2.2	1.9	1.1	1.2	1.5
Port Graham Bay	6.6	7.8	5.2	6.8	7.8	5.5	3.5	2.7	10.4	7.7	4.3	3.7	5.6
Kamishak/Douglas	0	0	0	0	0	0	0	0	0	0	0	0	0
McNeil (Mikfik)	0	0.7	0	0	0	1.9	0.2	0	0	0	8.9	2.8	0
Paint River	0	0	0	0	0	0	0	0	0	0	0	0	0
Chenik Lake	0	0	0	0	0	0	0	0	0.2	0	1.9	0	0
Bruin/Kirschner	0	0	0	0	0	0	0	0	0	0	0	0	0
Miscellaneous	2.6	4.9	0.1	1.9	1.1	1.5	0.8	4.1	0.3	0.6	0.1	0	0
Totals	21.6	24.7	22.8	25.3	15.1	20.7	14.0	15.3	29.0	95.2	122.8	20.9	22.2

Location	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984
Resurrection Bay	0.1	0	0	0	0	0	0	0	0	0.6	0	0	3.4
Aialik Bay	0.3	3.1	0.2	0.6	0	5.8	0	0	0.1	8.7	3.0	25.9	50.8
East Nuka Bay	26.1	1.1	0.1	0	18.9	31.1	10.6	24.4	21.5	17.2	66.3	16.8	29.2
Port Dick	0	0	0	0	0	0	0	0	0	0	0	0	0
Halibut Cove & Lagoon	3.7	2.1	3.0	3.4	5.1	3.6	12.9	5.3	11.5	11.2	1.2	77.7	116.6
Tutka/Barabara	14.8	8.1	10.8	12.6	14.2	21.3	92.1	15.6	13.2	41.0	15.8	35.9	26.7
Seldovia Bay	2.3	2.2	2.3	2.1	2.1	3.0	5.6	2.6	1.6	5.3	5.0	6.7	4.9
Port Graham Bay	10.5	11.7	10.9	9.2	13.6	16.6	30.5	12.9	16.5	20.3	21.5	13.4	12.5
Kamishak/Douglas	0	0	0	0	0.2	5.3	4.6	0.5	0	4.9	0	2.8	0
McNeil (Mikfik)	0	0	0	0	3.8	2.1	0	1.2	3.9	0	17.8	5.8	10.7
Paint River	0	0	0	0	0	0	0	0	0	0	0	0	0
Chenik Lake	0	0	0	0	0	0	0	0	0	0	0.3	2.7	13.9
Bruin/Kirschner	0	0	0	0	0	0	0	0	0	0	0	0	0
Miscellaneous	0.1	0.8	0.1	0.2	0.3	2.8	0.1	1.9	1.1	1.1	0.4	0	0.3
Totals	57.9	29.1	27.4	28.1	58.2	101.6	156.4	64.4	69.4	110.3	131.3	187.6	269.0

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Location	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
Resurrection Bay	0.3	0	0.2	0	0	0	0	0	1.7	9.0	44.6	43.9	31.7
Aialik Bay	24.1	3.0	3.5	20.2	8.5	7.7	4.7	0.4	0.2	0.6	2.0	1.0	2.1
East Nuka Bay	91.8	48.4	31.8	9.5	10.3	5.7	1.8	0	3.5	5.9	17.6	15.0	6.2
Port Dick	0	0	0	0	0	11.7	4.6	0.6	1.0	0	0	0	0
Halibut Cove & Lagoon	63.2	15.2	69.1	24.9	46.6	20.3	36.0	14.7	19.0	12.2	9.0	75.3	12.3
China Poot[a]				63.6	35.8	49.9	116.7	76.0	127.6	38.7	133.4	225.2	116.1
Tutka/Barabara	14.9	16.3	14.7	12.9	13.4	7.9	13.4	12.9	8.4	11.0	15.4	27.8	14.4
Seldovia Bay	2.6	3.2	3.5	2.5	1.8	4.3	4.0	3.3	4.4	2.7	4.2	11.9	12.5
Port Graham Bay	3.5	2.0	2.4	1.4	0	0	0	0	0	0	2.6	17.9	33.1
Kamishak/Douglas	0.7	7.6	2.3	5	0	0.1	7.0	9.9	1.3	3.4	2.7	0	2.6
McNeil (Mikfik)	67.0	27.5	21.4	14.6	7.0	9.1	12.9	4.0	0.9	0	0.1	0	0.2
Paint River	0	0	0	0	0	0	0.4	0	0	0	0	0	0
Chenik Lake	10.6	111.3	98.5	164.2	38.9	70.3	60.4	14.4	24.6	0	0	0	0
Bruin/Kirschner	0	0	0	0	0.2	14.5	55.9	40.5	39.7	31.9	33.6	31.6	9.0
Miscellaneous	0	0.4	1.6	0.2	0.8	2.4	0.1	0	1.5	0	0.2	0	0
Totals	278.7	234.9	248.8	319.0	163.3	203.9	317.9	176.6	233.8	115.4	265.4	449.7	240.2

Location	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Resurrection Bay	35.0	135.2	64.1	13.8	16.2	10.4	16.6	56.7	62.4	23.9
Aialik Bay	8.6	0.1	T	0	1.2	0	0	0.3	4.6	0.0
East Nuka Bay	16.0	51.1	21.6	7.3	21.2	26.6	11.1	0	3.1	32.5
Port Dick	0	0	T	T	0	0	T	T	0.1	T
Halibut Cove & Lagoon	62.3	42.9	24.3	5.8	27.5	74.2	2.7	7.6	1.9	3.0
China Poot[a]	100.2	170.6	78.3	117.7	126.5	366.2	33.4	90.6	73.8	83.8
Tutka/Barabara	9.8	22.9	12.4	23.0	19.4	33.4	7.2	9.2	7.6	12.4
Seldovia Bay	6.0	6.3	6.4	9.0	9.5	13.8	4.9	3.4	6.4	9.2
Port Graham Bay	17.9	0.7	2.1	0	35.3	68.5	2.6	0	0	4.3
Kamishak/Douglas	0	0	T	0.5	1.4	0.8	2.1	2.9	1.0	0.2
McNeil (Mikfik)	0	7.2	0	0.3	0	0	0	0	1.3	0
Paint River	0	0	0	0	0	0	0	0	0	0
Chenik Lake	0	0	0	0	0	0	33.2	47.0	11.8	161.6
Bruin/Kirschner	27.5	39.8	31.6	38.9	32.5	50.4	16.4	15.0	50.4	35.4
Miscellaneous	0.7	0	T	0	0	0	T	0.1	T	0
Totals	284.0	476.8	240.9	216.3	290.7	644.3	130.1	232.8	224.3	366.2

Source: ADF&G fish ticket database *Unpublished*.

Note: "T" denotes trace, less than 50 fish caught.

[a] China Poot Subdistrict, which includes China Poot, Peterson, and Neptune Bays, was part of Halibut Cove Subdistrict prior to 1988.

Appendix A15.–Harvest of sockeye salmon returning to China Poot and Neptune Bays in the Southern District of Lower Cook Inlet, by user group, 1979–2007.

Return Year	Sport Harvest	Personal Use Harvest	Commercial Harvest	Unharvested Fish	Total Return
1979	650	0	[a]	0	650
1980	1,000	1,000	12,000	0	14,000
1981	1,500	0	10,000	0	11,500
1982	450	1,320	200	1,430	3,400
1983	480	5,910	84,020	10	90,420
1984	500	2,000	114,360	500	117,360
1985	500	3,000	61,500	920	65,920
1986	100	150	18,350	200	18,800
1987	200	2,000	21,500	0	23,700
1988	500	1,500	91,469	470	93,939
1989	1,000	7,000	79,714	0	87,714
1990	500	3,000	49,587	0	53,087
1991	1,000	4,000	117,000[b]	0	122,000
1992	300	3,500	89,791[b]	0	93,591
1993	400	4,000	144,677[b]	0	149,077
1994	500	8,500	50,527[b]	0	59,527
1995	1,000	7,000	145,392[b]	450	153,842
1996	1,000	9,000	200,000[b]	441	210,441
1997	650[c]	4,900[d]	120,900[b]	1,130	127,620
1998	650[c]	4,900[d]	164,000[b]	380	170,542
1999	650[c]	4,900[d]	219,300[b]	522	225,983
2000	650[c]	4,900[d]	97,100[b]	256	102,906
2001	650[c]	4,900[d]	126,900[b]	57	132,507
2002	650[c]	4,900[d]	151,100[b]	51	156,701
2003	650[c]	4,900[d]	427,327[b]	121	432,998
2004	650[c]	4,900[d]	34,612[b]	448	40,610
2005	650[c]	4,900[d]	95,070[b]	1	100,621
2006	650[c]	4,900[d]	75,303[b]	820	81,673
2007	650[c]	4,900[d]	83,802[b]	501	89,853
1987–2006 Average	645	4,928	125,051	257	130,881

Note: Through 1990, "Commercial Harvest" and "Total Return" include returns only to Leisure Lake in China Poot Bay; after 1990, these figures include combined returns to both Leisure Lake in China Poot Bay and Hazel Lake in Neptune Bay.

[a] No data.

[b] Portions of the commercial sockeye harvest in China Poot, Halibut Cove, and/or Tutka Bay Subdistricts were attributed to the Leisure and/or Hazel Lake returns.

[c] The final "Sport Harvest" figures for 1997–2007 represent the estimated previous 10-year average.

[d] The final "Personal Use Harvest" figures for 1997–2007 represent the statewide sport fish harvest survey average for the years 1990–1995.

Appendix A16.–Commercial catch and escapement of sockeye salmon at Chenik Lake in the Kamishak Bay District of Lower Cook Inlet, 1976–2007.

Return Year	Commercial Harvest	Escapement[a]	Total Return
1976	[b]	900	900
1977	[b]	200	200
1978	[b]	100	100
1979	[b]	[c]	[c]
1980	[b]	3,500	3,500
1981	[b]	2,500	2,500
1982	[b]	8,000	8,000
1983	2,800	11,000	13,800
1984	16,500	13,000	29,500
1985	10,500	3,500	14,000
1986	111,000	7,000	118,000
1987	102,000	10,000	112,000
1988	164,200	9,000	173,200
1989	38,905	12,000	50,905
1990	70,347	17,000	87,347
1991	60,397	10,189	70,586
1992	13,793	9,269	23,062
1993	24,567	4,000	28,567
1994	0[d]	808	808
1995	0[d]	1,086	1,086
1996	0[d]	2,990	2,990
1997	0[d]	2,338	2,338
1998	0[d]	1,880	1,880
1999	0[d]	2,850	2,850
2000	0[d]	4,800	4,800
2001	0[d]	250	250
2002	0[d]	4,650	4,650
2003	0[e]	13,825	13,825
2004	33,177	17,000	50,177
2005	47,013	14,507[f]	61,520
2006	11,783	13,868[f]	25,651
2007	161,630	18,230[f]	179,860
1987-2006 Avg.	28,309	7,616	35,925

[a] Estimated from aerial surveys between 1976–1990 and 1998-present, weir counts between 1991–1997, unless otherwise noted.
[b] Closed to fishing.
[c] No data.
[d] Due to low returns, the Chenik Subdistrict was kept closed to fishing for the entire season.
[e] Due to the previous decade of low returns to Chenik Lake, the Chenik Subdistrict was kept closed to all fishing to protect fish for escapement.
[f] Estimated from a combination of weir, video counts, and/or aerial counts.

Appendix A17.–Commercial coho salmon catch for all gear and harvest types in numbers of fish by district, Lower Cook Inlet, 1987–2007.

Year	Southern	Outer	Kamishak	Eastern	Total
1987	2,163	2,481	8,079	1,631	14,354
1988	2,987	2	4,471	486	7,946
1989	6,667	72	4	5,346	12,089
1990	1,552	74	26	7,645	9,297
1991	9,415	12	2,337	7,283	19,047
1992	1,277	1	1,488	3,136	5,902
1993	4,431	119	3	8,924	13,477
1994	1,373	993	1,897	10,410	14,673
1995	5,161	1,272	6,084	5,192	17,709
1996	9,543	96	1	3,932	13,572
1997	5,597	63	0	5,344	11,004
1998	2,243	45	0	14,365	16,653
1999	2,757	1,482	0	3,794	8,033
2000	768	20	7	7,408	8,203
2001	2,706	5	9	3,947	6,667
2002	3,769	74	54	4,432	8,329
2003	5,408	4	4	5,886	11,302
2004	1,441[a]	13	5,367	5,615	12,436
2005	2,722[a]	3	92	6,309	9,126
2006	3,036[a]	1,139	24,269	3,786	32,230
2007	3,351[a]	113	5	2,850	6,319
20-Year Avg.	3,750	399	2,710	5,744	12,602
1987–1996 Avg.	4,457	512	2,439	5,399	12,807
1997–2006 Avg.	3,044	285	2,980	6,089	12,397
2007 % of Total	53.03%	1.79%	0.08%	45.10%	100.00%

Source: ADF&G fish ticket database *Unpublished*.

[a] 2004–2007 totals do not include a very small number of fish retained for personal use.

Appendix A18.–Commercial pink salmon catch for all gear and harvest types in numbers of fish by district, Lower Cook Inlet, 1987–2007.

Year	Southern	Outer	Kamishak	Eastern	Total
1987	90,522	23,890	72,684	14,333	201,429
1988	852,382	6,094	61,080	1,740	921,296
1989	987,488	52,677	256,669	92	1,296,926
1990	178,087	191,320	2,448	11,815	383,670
1991	253,962	359,664	47,833	167,250	828,709
1992	417,021	146	2,594	60,007	479,768
1993	692,794	159,159	4,205	10,616	866,774
1994	1,589,709	13,200	33	44,987	1,647,929
1995	2,475,312	192,098	169,054	12,000	2,848,464
1996	444,236	7,199	36	35	451,506
1997	2,685,764	128,373	293	1	2,814,431
1998	1,315,042	102,172	1,776	38,829	1,457,819
1999	1,105,267	32,484	807	1,930	1,140,488
2000	1,070,065	306,555	6,214	4,473	1,387,307
2001	542,975	48,559	1,397	0	592,931
2002	953,960	569,955	446,146	0	1,970,061
2003	563,043	281,663	12,005	0	856,711
2004	2,461,950[a]	42,636	12,969	0	2,517,555
2005	2,175,386[a]	110,195	7,761	13,500	2,306,842
2006	263,749[a]	1,121,892	82,477	3,460	1,471,578
2007	128,551[a]	147,409	11,451	0	287,411
20-Year Avg.	1,055,936	187,497	59,424	19,253	1,322,110
1987–1996 Avg.	798,151	100,545	61,664	32,288	992,647
1997–2006 Avg.	1,313,720	274,448	57,185	6,219	1,651,572
2007 % of Total	44.73%	51.29%	3.98%	0.00%	100.00%

Source: ADF&G fish ticket database *Unpublished*.

[a] 2004 – 2007 totals do not include a very small number of fish retained for personal use.

Appendix A19.–Commercial pink salmon catch for all gear and harvest types in thousands of fish by subdistrict during odd-numbered years, Lower Cook Inlet, 1959–2007.

LOCATION	1959	1961	1963	1965	1967	1969	1971	1973	1975	1977
Humpy Creek	13.2	34.5	20.6	6.7	6.9	0.6	0	37.3	242.1	26.4
Halibut Cove & Lagoon	ND	33.4	36.9	7.1	33.4	0	11.4	7.2	97.2	16.3
Tutka/Barabara	14.4	106.8	37.7	44.6	31.6	32.9	3.9	20.0	89.2	21.9
Seldovia Bay	4.9	15.1	1.6	19.2	11.7	28.8	27.4	19.4	429.6	47.6
Port Graham Bay	5.3	1.0	2.7	12.4	5.1	2.0	1.0	13.9	18.3	44.8
Dogfish Bay	1.6	0	0	0.1	2.3	0	10.4	0.3	0	5.0
Port Chatham	1.2	0	0.8	0	0	0	26.3	20.6	16.0	1.4
Windy Bay	3.1	2.2	0	5.4	0	0	57.3	68.5	18.1	173.2
Rocky Bay	2.3	0	1.4	0.1	0	0	0.1	0.2	0	11.6
Port Dick Bay	28.2	92.9	19.0	15.3	259.9	51.5	94.6	96.6	90.3	881.7
Nuka Island	33.3	2.0	0.3	0	0.1	0	25.0	5.2	31.4	40.6
E. Nuka Bay	ND	ND	ND	ND	ND	ND	94.6	T	0	8.7
Resurrection Bay	8.4	0	0	0	1.2	0	0	0	0	0
Bruin Bay	0	0	12.3	0.9	2.1	0	11.7	0	0	6.2
Rocky/Ursus Coves	3.7	2.7	44.2	0	13.0	52.8	16.4	7.9	0	0
Iniskin/Cottonwood	1.5	3.3	21.8	0	0.1	26.0	0	4.7	0	0.1
Miscellaneous	3.6	9.5	4.3	3.8	8.1	7.8	12.8	5.6	31.1	8.4
Total	124.7	303.4	203.6	115.6	375.5	202.4	392.9	307.4	1,063.3	1,293.9

LOCATION	1979	1981	1983	1985	1987	1989	1991	1993	1995	1997
Humpy Creek	277.0	239.9	8.1	5.6	0	91.4	0	0.2	13.7	0
Halibut Cove & Lagoon	27.1	11.1	18.8	5.9	30.5	254.4	91.1	100.2	1.9	2.6
China Poot[a]	[a]	[a]	[a]	[a]	[a]	8.5	135.7	50.6	12.9	14.5
Tutka/Barabara	416.8	1,026.6	616.0	491.2	56.5	632.1	117.6	539.4	2,428.5	2,511.2
Seldovia Bay	140.8	126.4	43.3	3.8	1.2	1.1	0.3	2.4	8.2	12.3
Port Graham Bay	124.7	45.9	4.1	12.5	2.3	0	0	0	10.2	145.1
Dogfish Bay	7.4	22.9	0.2	0	0	0	0	0	0	0
Port Chatham	174.4	47.6	3.3	7.0	0	9.7	7.5	14.7	17.6	0
Windy Bay	552.7	82.9	0	4.8	0	0	49.1	43.4	111.2	93.2
Rocky Bay	122.2	16.5	1.3	0	0	0	0	0	27.5	0
Port Dick Bay	964.8	1,140.9	140.0	455.6	3.0	0	289.7	26.6	0	0.6
Nuka Island	87.2	244.9	30.2	9.6	0	0	10.6	51.9	6.0	33.3
E. Nuka Bay	0.9	121.0	18.1	141.2	20.9	43.0	T	13.8	21.4	1.3
Resurrection Bay	0	32.6	27.1	74.6	11.8	0	0	0.7	0	0
Bruin Bay	40.3	51.9	0.3	0	1.2	202.8	45.1	0.1	104.8	0.3
Rocky/Ursus Coves	14.4	14.1	0	0	69.4	53.8	0	0	58.0	0
Iniskin/Cottonwood	0.2	0	0.3	0	0.2	0	0	0	0	0
Miscellaneous	40.0	54.0	16.5	17.9	4.4	0.1	82.0	22.8	26.6	0
Total	2,990.9	3,279.2	927.6	1,229.7	201.4	1,296.9	828.7	866.8	2,848.5	2,814.4

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LOCATION	1999	2001	2003	2005	2007
Humpy Creek	0	0	0	0.0	0.0
Halibut Cove & Lagoon	3.4	0.2	6.5	0.8	0.0
China Poot[a]	19.6	4.8	41.3	26.6	10.6
Tutka/Barabara	1,080.8	533.1	511.8	1,637.0	0.0
Seldovia Bay	1.5	4.9	2.7	0.3	0.0
Port Graham Bay	0	0	0.7	510.9	118.0
Dogfish Bay	0	0	0	0.0	0.0
Port Chatham	0	0	0	0.0	0.0
Windy Bay	0	9.4	119.8	24.0	0.0
Rocky Bay	0	0	0	5.2	23.5
Port Dick Bay	0	16.7	137.4	81.0	90.7
Nuka Island	0	0	0	0.0	0.0
E. Nuka Bay	32.5	22.4	24.5	0.0	33.2
Resurrection Bay	0	0	0	0.4	0.0
Bruin Bay	0.8	0	12.0	3.0	9.8
Rocky/Ursus Coves	0	0.1	0	0.0	0.0
Iniskin/Cottonwood	0	0	0	4.7	0.0
Miscellaneous	1.9	1.3	0	13.1	1.6
Total	1,140.5	592.9	856.7	2,307.1	287.4

Source: ADF&G fish ticket database *Unpublished*.

Note: "T" denotes trace, less than 50 fish harvested

[a] China Poot Subdistrict, which includes China Poot, Neptune, and Peterson Bays, was part of Halibut Cove Subdistrict prior to 1988.

Appendix A20.–Commercial pink salmon catch for all gear and harvest types in thousands of fish by subdistrict during even-numbered years, Lower Cook Inlet, 1960–2006**.**

Location	1960	1962	1964	1966	1968	1970	1972	1974	1976	1978
Humpy Creek	51.0	73.9	53.5	24.6	2.6	85.2	1.7	33.3	3.3	16.3
Halibut Cove & Lagoon	20.7	35.5	28.9	16.0	41.3	28.9	0.4	2.2	69.8	27.8
Tutka/Barabara	87.6	279.5	100.9	53.5	26.9	43.9	5.2	5.5	18.0	167.9
Seldovia Bay	42.6	142.8	37.4	44.1	23.6	29.0	0.2	3.5	3.0	35.8
Port Graham Bay	7.1	18.1	38.4	5.1	23.0	19.6	1.1	4.5	3.9	4.0
Dogfish Bay	1.8	1.4	0.1	7.1	0	9.8	0.3	0	0	0.3
Port Chatham	15.7	102.2	67.1	6.7	10.0	1.9	0	0	0	0
Windy Bay	29.2	85.5	68.6	20.1	3.4	0.8	0	0	0	0
Rocky Bay	17.0	225.9	53.2	0	10.8	36.8	0	0	0	0
Port Dick Bay	257.4	1,118.3	526.3	296.8	55.0	336.5	0	0.6	0	63.6
Nuka Island	26.6	129.8	23.8	0	90.2	48.4	0	0	0	0
E. Nuka Bay	ND	ND	ND	ND	ND	ND	0.3	T	0.1	3.3
Resurrection Bay	5.8	0.1	0.3	0	37.4	40.2	18.2	0	35.4	29.7
Bruin Bay	2.6	0	0	0	126.2	10.2	0	0	0	0
Rocky/Ursus Coves	6.6	3.2	13.5	2.9	18.0	7.5	0	0	0	0.1
Iniskin/Cottonwood	2.1	3.2	4.3	0	9.9	3.5	0	0	0.1	0.1
Miscellaneous	37.8	28.9	39.1	102.3	107.1	14.0	1.3	1.0	2.8	3.4
Total	611.6	2,248.3	1,055.4	579.2	585.4	716.2	28.7	50.6	136.4	352.6

Location	1980	1982	1984	1986	1988	1990	1992	1994	1996	1998
Humpy Creek	48.6	4.9	53.5	116.7	0	0	0	0	0	0
Halibut Cove & Lagoon	4.7	1.0	10.9	14.0	106.8	91.0	58.4	105.6	2.3	2.4
China Poot[a]	[a]	[a]	[a]	[a]	5.4	46.1	35.7	24.2	8.2	3.3
Tutka/Barabara	312.5	184.9	262.0	400.2	723.9	37.4	320.9	1,454.5	428.2	1,300.6
Seldovia Bay	81.7	70.3	2.2	2.8	5.5	3.6	1.9	5.4	4.1	7.4
Port Graham Bay	30.5	35.4	8.0	8.8	10.7	0	0	0	1.5	0.6
Dogfish Bay	4.7	1.7	0.1	0	0	0	0	0	0	0
Port Chatham	1.8	12.6	0	0	0	22.1	0	0	0	9.4
Windy Bay	0	0	0	0	0	0	0	0	0	0
Rocky Bay	1.4	0	0	0	0	0	0	0	0	35.0
Port Dick Bay	133.3	44.0	84.6	304.0	5.9	169.1	0.1	1.6	0	2.4
Nuka Island	0	0	0	0	0	0	0	0	0	41.1
E. Nuka Bay	12.4	8.7	4.4	97.8	0.1	0.2	0	11.6	7.2	14.2
Resurrection Bay	155.8	137.4	122.3	36.5	0.5	0	0	T	T	0
Bruin Bay	100.6	13.3	125.2	349.7	5.0	0.4	1.9	T	T	1.8
Rocky/Ursus Coves	0	20.2	8.5	71.1	49.9	0	0.3	0	0	0
Iniskin/Cottonwood	0.1	0.4	0.4	0.2	1.3	0	T	0	0	0
Miscellaneous	1.6	16.8	18.5	6.5	6.3	13.8	60.6	45.0	0	39.6
Total	889.7	551.6	700.6	1,408.3	921.3	383.7	479.8	1,647.9	451.5	1,457.8

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Location	2000	2002	2004	2006
Humpy Creek	0	0	0	0
Halibut Cove & Lagoon	0.5	0.3	T	0
China Poot[a]	4.0	4.7	1.5	3.4
Tutka/Barabara	1,055.4	709.0	1,176.8	12.3
Seldovia Bay	10.2	1.3	0.1	0
Port Graham Bay	0	238.7	1,283.5	248.0
Dogfish Bay	0	0	0	0
Port Chatham	0	0	0	0
Windy Bay	0	0	0	26.7
Rocky Bay	0	0	0	0
Port Dick Bay	306.6	454.1	41.6	1,093.7
Nuka Island	0	0.0	0	0
E. Nuka Bay	0.3	115.9	1.1	1.4
Resurrection Bay	0.4	0	0	0
Bruin Bay	5.5	333.7	1.5	52.8
Rocky/Ursus Coves	0	110.1	4.5	11.2
Iniskin/Cottonwood Bays	0	0.1	6.4	13.1
Miscellaneous	4.4	2.2	0.6	9.0
Total	1,387.3	1,970.1	2,517.5	1,471.6

Source: ADF&G fish ticket database *Unpublished*.

Note: "T" denotes trace, less than 50 fish harvested

[a] China Poot Subdistrict, which includes China Poot, Neptune, and Peterson Bays, was part of Halibut Cove Subdistrict prior to 1988.

Appendix A21.–Commercial chum salmon catch for all gear and harvest types in numbers of fish by district, Lower Cook Inlet, 1987–2007.

Year	Southern	Outer	Kamishak	Eastern	Total
1987	5,030	28,663	108,412	14,913	157,018
1988	7,742	71,202	218,299	24,668	321,911
1989	3,141	43	7,809	312	11,305
1990	2,433	614	3,597	307	6,951
1991	1,962	14,337	7,853	80	24,232
1992	1,885	181	20,051	86	22,203
1993	2,788	970	600	9	4,367
1994	2,631	32	14	2,792	5,469
1995	4,530	474	10,302	330	15,636
1996	3,511	3	27	223	3,764
1997	4,260	1,575	7	66	5,908
1998	3,956	611	29	51	4,647
1999	4,624	2,062	23	1,232	7,941
2000	5,340	302	66,072	1,540	73,254
2001	3,789	408	84,766	6	88,969
2002	4,803	3,810	34,641	5	43,259
2003	5,730	137	29,800	19	35,686
2004	1,372[a]	27,911	177,395	1	206,679
2005	1,750[a]	12,524	83,943	385	98,602
2006	2,182[a]	12,883	56,619	270[a]	71,954
2007	1,584	49	91	53	1,777
20-Year Avg.	3,673	8,937	45,513	2,365	60,488
1987–1996 Avg.	3,565	11,652	37,696	4,372	57,286
1997–2006 Avg.	3,781	6,222	53,330	358	63,690
2007 % of Total	89.14%	2.76%	5.12%	2.98%	100.00%

Source: ADF&G fish ticket database *Unpublished*.

[a] 2004 – 2006 totals do not include a very small number of fish retained for personal use.

Appendix A22.–Commercial chum salmon catch for all gear and harvest types in thousands of fish by subdistrict, Lower Cook Inlet, 1959–2007**.**

Location	1959	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969
Tutka Bay	0.1	2.4	1.8	2.9	2.4	5.6	1.1	3.9	4.0	1.3	0.7
Port Graham	2.3	1.8	0.5	4.0	3.8	2.1	0.9	5.3	3.0	2.3	1.3
Dogfish Bay	4.9	0.4	0.1	0	0.2	0	0	7.0	15.3	0.1	0
Port Chatham	1.0	2.5	0	2.8	4.3	5.2	0	17.8	0	1.0	0
Rocky/Windy Bays	14.9	6.4	2.2	8.5	0.3	33.8	8.1	1.7	0	0.5	0
Port Dick	42.4	51.0	36.8	112.0	110.8	227.4	14.2	60.9	36.0	10.9	5.4
E. Nuka Bay	1.7	8.4	1.7	0.5	1.5	0	0	0	1.5	6.9	0
Resurrection Bay	0.1	0.5	0	0	0	0	0	0	0.1	0.7	0
Douglas River	0.2	0	0	0	0	0	0	0	0	0	0
Kamishak River	0	0	0	0	0	0	0	0	0	3.7	0.4
McNeil River	0	0.4	0	0	0	2.7	0.9	0	0.4	8.3	4.4
Bruin Bay	0	0.3	0.5	0	0.1	0	0.4	0	1.0	7.5	0
Ursus/Rocky Coves	8.5	8.6	1.8	1.1	2.8	1.2	0	4.0	2.9	1.0	3.6
Cottonwood/Iniskin	12.1	33.4	10.2	41.7	10.9	38.4	0	0	19.0	25.5	44.4
Miscellaneous	22.6	0	0	5.8	1.4	6.9	2.5	28.5	2.2	5.4	1.0
Totals	110.8	116.1	55.6	179.3	138.5	323.3	28.1	129.1	85.4	75.1	61.2

Location	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980
Tutka Bay	1.6	0.5	1.3	0.8	1.4	2.0	0.9	0.8	2.6	2.7	1.8
Port Graham	4.8	2.0	3.2	2.6	1.0	2.2	0.5	5.0	2.4	4.3	2.5
Dogfish Bay	50.9	114.5	41.1	0.4	0	0	0	9.4	0	8.5	2.1
Port Chatham	0.1	2.4	0	0.4	0	0.6	0	0.1	0	1.7	1.3
Rocky/Windy Bays	39.4	1.4	0	0.9	0	0.3	0	17.7	0	76.7	2.1
Port Dick	41.2	0.7	0	33.4	8.1	6.8	0	25.6	10.3	79.0	19.0
E. Nuka Bay	5.9	0.1	2.3	40.8	3.9	3.6	0.4	17.4	0.4	14.7	7.8
Resurrection Bay	0.6	0.4	0.7	0	0	0	0	0	0.1	0	0.7
Douglas River	0	0	0	0	0	0.1	7.1	4.0	2.9	0.7	10.0
Kamishak River	0	0	2.4	0	1.8	0	10.5	0	23.9	17.8	2.8
McNeil River	1.9	0	2.3	0	2.0	0	16.9	38.5	4.9	6.5	6.3
Bruin Bay	12.8	1.6	1.8	0	0.7	0	0	0	0	4.0	11.0
Ursus/Rocky Coves	8.9	10.3	0.2	5.7	0	2.0	2.8	7.8	1.9	0.5	0.3
Cottonwood/Iniskin	71.9	14.5	19.7	29.9	0	2.8	11.5	15.3	14.9	0.2	5.4
Miscellaneous	2.4	0.2	0.5	0.6	0.3	1.2	0.2	4.2	9.2	1.2	0.4
Totals	242.4	148.6	75.5	115.5	19.2	21.6	50.8	145.8	73.5	218.5	73.5

Location	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
Tutka Bay	7.9	8.3	9.9	3.4	3.2	3.9	3.9	4.7	2.5	1.5	0.8
Port Graham	11.2	7.4	1.7	3.6	1.3	0.8	0.4	1.2	0	0	0
Dogfish Bay	71.8	15.6	2.8	1.1	0	0	0	0	0	0	0
Port Chatham	59.5	14.1	2.1	0	1.3	0	0	0	0	0.1	0.1
Rocky/Windy Bays	7.4	0	3.2	0	0	0	0	0	0	0	0.5
Port Dick	95.8	32.5	18.0	1.9	9.6	10.4	27.1	64.4	0	0.5	13.7
E. Nuka Bay	3.8	0.9	0.8	0.2	0.8	1.3	1.6	6.8	0	T	T
Resurrection Bay	2.4	7.7	6.9	3.0	3.0	3.5	13.9	23.9	0	0	0
Douglas River	46.7	37.1	27.2	9.2	8.0	11.6	23.7	24.8	0	0.1	3.0
Kamishak River	8.6	9.2	23.9	16.2	0.1	0.1	24.6	26.7	0	T	0.7
McNeil River	11.6	32.6	67.9	12.0	0	13.7	32.9	104.0	0.1	0.1	0.1
Bruin Bay	1.7	1.3	2.6	5.9	0	5.4	0.1	2.8	4.4	1.6	2.6
Ursus/Rocky Coves	1.5	7.2	0	3.7	0	22.1	17.2	20.7	3.4	0	0
Cottonwood/Iniskin	3.5	21.6	21.4	23.0	0	8.8	9.7	39.2	0	0	1.0
Miscellaneous	2.7	2.5	3.9	9.3	3.3	1.1	1.9	2.7	0.9	3.0	1.7
Totals	336.1	198.0	192.3	92.5	30.6	82.7	157.0	321.9	11.3	7.0	24.2

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Location	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
Tutka Bay	0.6	0.9	0.8	1.6	1.0	1.1	0.9	1.5	1.8	1.4	2.7
Port Graham	0	0	0	0.7	0.7	2.0	0.8	0	T	0	0.4
Dogfish Bay	0	0	0	0	0	0	0	0	0	0	0
Port Chatham	0	0.1	0	T	0	0	0.1	0	0	0	0
Rocky/Windy Bays	0	0.1	0	0.4	0	1.6	0.3	0	0	0.3	0
Port Dick	0.2	0.7	T	0	0	0	0.1	0	0.1	0.1	3.8
E. Nuka Bay	0	T	T	0.1	T	T	T	2.1	0.2	T	0.1
Resurrection Bay	0	0	2.5	0.3	0.2	0	0	0	1.5	T	T
Douglas River	12.5	T	T	0.7	0	0	0	0	19.9	10.3	7.0
Kamishak River	1.5	0	0	0.1	0	0	0	0	43.7	73.0	5.1
McNeil River	2.0	0.4	0	0	0	T	0	0	0	T	0
Bruin Bay	0.8	T	0	4.9	T	T	T	T	2.4	0	2.0
Ursus/Rocky Coves	2.7	0	0	2.2	0	0	0	0	0	1.5	3.4
Cottonwood/Iniskin	0.2	0	0	2.3	0	0	0	0	0	0	17.0
Miscellaneous	1.6	2.1	2.1	2.3	1.9	1.2	2.3	4.4	3.6	2.4	1.8
Totals	22.2	4.4	5.5	15.6	3.8	5.9	4.6	7.9	73.3	89.0	43.3

Location	2003	2004	2005	2006	2007
Tutka Bay	2.6	0.7	0.8	0.7	0.6
Port Graham	0.1	0.2	0	0	T
Dogfish Bay	0	0	0	0	0
Port Chatham	0	0	0	0	0
Rocky/Windy Bays	0.1	0	5.6	0.9	T
Port Dick	T	27.8	5.3	11.9	T
E. Nuka Bay	T	0.1	0	T	T
Resurrection Bay	T	T	0.1	T	0.1
Douglas River	T	6.7	2.8	15.2	0
Kamishak River	0	0	0	0	0
McNeil River	0	0	0	0	0
Bruin Bay	0.1	7.0	7.0	1.9	0.1
Ursus/Rocky Coves	0	1.8	0	3.3	0
Cottonwood/Iniskin	29.7	161.9	74.1	36.2	0
Miscellaneous	3.1	0.5	2.9	1.8	0.9
Totals	35.7	206.7	98.6	72.0	1.8

Source: ADF&G fish ticket database *Unpublished*.

Note: "T" denotes trace, less than 50 fish harvested.

Appendix A23.–Estimated sockeye salmon escapements in thousands of fish for the major spawning systems of Lower Cook Inlet, 1987–2007.

Year	English Bay Lake	Delight Lake	Desire Lake	Delusion Lake	Bear Lake[a,b]	Aialik Lake	Mikfik Lake	Chenik Lake	Amakdedori Creek	Kamishak Rivers	Total
1987	7.0	10.5	13.4	no data	0.3	9.2	9.0	10.0	1.1	[c]	60.5
1988	2.5	1.2	9.0	no data	0.1	13.0	10.1	9.0	0.4	0.5	45.8
1989	4.5	7.7	9.0	2.0	0.1	6.5	11.5	12.0[b]	1.2	0.5	55.0
1990	3.3	5.2	9.5	0.3	0.1	5.7	8.8	17.0	1.8	0.2	51.9
1991	7.0	4.1	8.2	0.3	0.7	3.7	9.7	10.2[b]	1.9	0.7	46.5
1992	6.4	5.9	11.9	1.0	1.9	2.5	7.8	9.3[b]	1.9	4.9	53.5
1993	8.9	5.6	11.0	1.3	5.0	3.0	6.4	4.0[b]	2.0	4.1	51.3
1994	13.8[b]	5.6	10.5	1.3	8.6	7.3	9.5	0.8[b]	0.8	[c]	58.2
1995	22.5[b]	15.8	15.8	1.5	8.3	2.6	10.1	1.1[b]	2.4	[c]	80.1
1996	12.4[b]	7.7	9.4	0.7	8.0	3.5	10.5	3.0[b]	2.9	1.8	55.9
1997	15.4[b]	27.8[b]	14.7[b]	1.4	7.9	11.4	8.5	2.3[b]	1.5	[c]	90.9
1998	15.4[b]	9.2[b]	7.9	1.1	8.4	4.9	12.6	1.9	4.1	[c]	64.2
1999	15.8[b]	17.0[d]	14.6	1.1	7.8	3.8	15.7	2.9	8.8	2.2	89.7
2000	12.6[b]	12.3	4.0	2.1	11.9	4.3	10.9	4.8	3.3	1.5	67.7
2001	10.5[b]	10.1	5.5	2.8	12.8	5.1	5.4	0.3	2.7	2.5	57.7
2002	16.9[b]	19.6[b]	16.0	3.6	12.5	6.1	16.7	4.7	3.2	3.3	102.6
2003	20.0[b]	7.5[d]	8.4	2.0	13.2	5.4	12.8	13.8	11.8	2.6	97.5
2004	16.7[b]	7.3[d]	10.7	1.0	11.9	10.1	14.0	17.0	7.2	0.8	96.7
2005	8.2[b]	15.2[d]	4.8	1.1	13.4	5.3	6.0	14.5[d]	1.7	3.9	74.1
2006	15.5[b]	10.9[d]	18.6	1.0	12.4	4.8	17.7	13.9[d]	0.3	[c]	95.1
2007	16.5[b]	44.0[d]	10.0	2.1	12.8	5.4	11.2	18.2[d]	3.8	0.1	124.2
20-year Average	11.7	10.3	10.6	1.4	7.3	5.9	10.5	7.6	3.1	2.1	70.5
1987–1996 Average	8.8	6.9	10.8	1.1	3.3	5.7	8.9	7.6	1.6	1.8	56.6
1997–2006 Average	14.6	13.7	10.5	1.7	11.2	6.1	12.0	7.6	4.5	2.4	84.3
Sustainable Esc. Goal[e]	6.0 –13.5	5.95 –12.55	8.8 –15.2	[f]	0.7 –8.3	3.7 –8.0	6.3 –12.15	1.88 –9.3	1.25 –2.6	[f]	34.58 –81.6

Note: Unless otherwise noted, estimated escapements are either peak aerial survey counts or adjusted aerial survey counts based on survey conditions and time of surveys.

[a] Escapement limited by Bear Lake Management Plan since 1971.

[b] Weir counts.

[c] Insufficient survey data to generate escapement estimate.

[d] Combination of weir plus video and/or aerial counts.

[e] New sustainable escapement goals (SEG's) implemented for the first time beginning with the 2002 season.

[f] No formal escapement goal established.

Appendix A24.–Estimated pink salmon escapements in thousands of fish for the major spawning systems of Lower Cook Inlet, 1960–2007.

	YEAR										
Location	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970
Humpy Creek	10.0	22.6	56.0	34.7	18.5	28.0	30.0	25.0	24.7	5.4	55.2
China Poot Creek	9.0	2.0	26.0	---	---	---	---	2.5	6.0	0.2	1.5
Tutka Lagoon Creek	15.0	15.0	30.0	10.0	20.0	20.0	12.0	7.0	7.9	6.5	6.5
Barabara Creek	2.0	0.1	1.5	0.1	---	---	5.0	---	2.0	0.9	0.4
Seldovia River	25.0	25.0	50.0	13.0	60.0	30.0	86.0	55.0	53.2	60.0	23.0
Port Graham River	15.0	5.0	50.0	2.0	16.0	1.5	24.0	2.0	24.4	4.0	16.6
Dogfish Lagoon	2.0	---	3.0	---	---	---	---	---	---	---	---
Port Chatham Creeks	4.0	7.0	7.0	---	---	---	10.0	---	---	---	3.0
Windy Right Creek	8.0	10.0	12.5	4.9	6.2	2.0	7.0	6.0	2.8	3.2	2.1
Windy Left Creek	8.0	5.0	12.5	4.5	7.7	10.0	7.0	6.0	6.9	23.0	13.0
Rocky River	130.0	2.0	200.0	12.0	80.0	0.3	44.0	1.0	43.1	1.0	32.0
Port Dick Creek[a]	35.0	14.0	40.0	16.0	31.5	50.0	35.0	20.0	29.0	12.0	34.5
Island Creek	23.2	2.0	15.0	3.6	30.0	0.5	7.0	0.5	4.3	0.1	5.5
South Nuka Island Creek	20.0	2.0	22.0	0.1	10.0	---	10.0	---	10.0	3.0	11.0
Desire Lake Creek	---	---	18.0	---	1.3	---	---	---	---	---	---
James Lagoon	---	---	---	---	---	---	---	---	---	---	---
Aialik Lagoon	---	---	25.0	0.3	---	---	2.0	---	---	---	---
Bear Creek	1.4	---	3.1	---	6.4	---	---	---	3.1	---	---
Salmon Creek	---	---	---	---	---	---	---	---	---	---	---
Thumb Cove	---	---	---	---	---	---	---	---	---	---	---
Humpy Cove	---	---	---	---	---	---	---	---	---	---	---
Tonsina Creek	---	---	---	---	---	---		---	2.9	0.1	---
Big Kamishak River	---	---	100.0	75.0	75.0	---	13.0	---	---	---	---
Little Kamishak River	---	---	100.0	24.0	---	---	28.0	3.5	---	0.5	2.0
Amakdedori Creek	60.0	---	80.0	---	10.0	---	8.0	---	---	1.0	13.0
Bruin Bay River	18.0	---	300.0	25.0	---	---	20.0	0.5	---	5.0	40.0
Sunday Creek	1.5	---	5.0	2.0	---	---	20.0	---	---	1.0	2.0
Brown's Peak Creek	---	---	25.0	10.0	20.0	10.0	11.0	---	---	2.0	---
Totals	387.1	111.7	1,181.6	237.2	392.6	152.3	379.0	129.0	220.3	128.9	261.3

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Location	YEAR										
	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981
Humpy Creek	45.0	13.8	36.9	17.4	64.0	27.2	86.0	46.1	200.0	64.4	115.0
China Poot Creek	2.1	1.0	6.0	5.2	21.6	2.0	3.9	11.2	20.6	12.3	5.0
Tutka Lagoon Creek	16.7	1.5	6.5	2.6	17.6	11.5	14.0	15.0	10.6	17.3	21.1
Barabara Creek	4.0	0.6	---	0.2	22.7	0.2	5.7	1.4	10.0	5.8	16.8
Seldovia River	31.1	5.8	14.5	13.7	36.2	25.6	35.7	24.6	43.7	65.5	62.7
Port Graham River	13.2	2.4	7.0	2.8	27.3	6.5	20.6	6.7	32.7	40.2	18.4
Dogfish Lagoon	0.3	---	1.0	---	2.3	---	8.1	0.6	7.3	0.3	2.6
Port Chatham Creeks	15.5	1.0	5.0	0.2	7.7	---	14.2	0.3	20.8	7.7	11.2
Windy Right Creek	13.0	0.1	4.6	0.1	18.7	0.2	11.1	0.3	10.4	3.3	4.7
Windy Left Creek	35.4	0.4	12.9	0.1	9.7	0.2	47.3	1.1	74.8	10.9	31.3
Rocky River	1.6	8.2	2.0	1.5	4.4	2.7	36.7	8.2	85.0	6.4	25.0
Port Dick Creek[a]	97.8	10.0	26.4	1.5	62.8	12.7	109.3	44.9	116.0	56.1	106.0
Island Creek	0.1	1.7	0.5	0.5	0.1	---	0.6	0.4	0.6	2.2	25.0
South Nuka Island Creek	14.0	0.3	16.0	---	28.0	---	12.0	---	15.0	0.3	16.0
Desire Lake Creek	30.0	0.3	3.0	---	0.4	0.6	0.8	1.0	3.0	16.0	5.0
James Lagoon	---	---	---	---	---	---	---	---	---	4.6	14.0
Aialik Lagoon	---	---	---	0.1	---	0.4	---	---	---	---	---
Bear Creek	---	0.5	---	4.9	---	10.0	---	7.8	---	13.3	0.4
Salmon Creek	---	---	---	---	---	16.9	---	11.0	---	15.5	0.1
Thumb Cove	---	---	---	1.1	---	2.0	---	2.0	---	1.2	1.0
Humpy Cove	---	---	---	0.6	---	1.4	---	0.9	---	5.7	0.4
Tonsina Creek	---	---	---	1.4	---	5.7	---	1.5	---	0.7	0.2
Big Kamishak River	---	---	15.0	1.0	---	8.0	---	12.0	10.0	2.0	---
Little Kamishak River	---	---	13.0	---	---	6.0	---	0.4	3.5	0.6	---
Amakdedori Creek	---	0.2	3.0	1.0	5.0	---	---	0.9	6.0	3.8	1.5
Bruin Bay River	22.0	2.5	2.0	0.6	20.0	13.5	60.0	33.0	200.0	400.0	95.0
Sunday Creek	43.0	2.0	5.0	0.1	20.0	0.3	9.0	0.2	12.0	5.2	14.2
Brown's Peak Creek	8.0	1.2	3.2	0.1	10.0	1.2	13.0	0.9	15.0	2.3	17.7
Totals	392.8	53.5	183.5	56.7	378.5	154.8	488.0	232.4	897.0	763.6	610.3

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Location	YEAR										
	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992
Humpy Creek	31.9	104.0	84.2	117.0	49.7	26.6	21.4	93.0	27.0	17.4	14.9
China Poot Creek	3.1	14.1	8.4	1.9	11.5	3.1	3.9	8.5	4.2	2.6	4.1
Tutka Lagoon Creek	18.5	12.9	10.5	14.0	13.4	4.8	11.2	11.9	38.5	16.8	26.7
Barabara Creek	2.1	14.8	1.0	1.6	1.8	0.3	0.7	4.5	3.9	10.9	2.2
Seldovia River	38.4	27.9	14.2	22.8	28.2	7.6	16.9	26.2	27.8	30.0	14.7
Port Graham River	28.9	4.6	10.9	26.3	17.5	3.8	7.9	19.1	20.1	29.0	5.4
Dogfish Lagoon	2.6	1.0	0.6	0.2	0.4	1.2	0.3	0.2	7.1	9.3	[c]
Port Chatham Creeks	2.0	3.5	7.8	8.9	11.5	10.2	21.0	31.7	27.8	23.8	4.3
Windy Right Creek	4.7	4.3	3.4	5.4	2.5	2.0	1.3	6.6	7.1	20.7	3.9
Windy Left Creek	4.4	11.9	2.5	8.9	2.2	5.6	3.4	25.2	7.5	34.5	8.2
Rocky River	6.6	16.6	9.0	12.1	12.0	4.5	5.4	10.3	18.0	26.1	25.4
Port Dick Creek[a]	19.9	64.1	44.6	65.3	41.6	4.5	12.0	55.4	41.7	54.2	6.9
Island Creek	15.0	15.3	35.0	27.9	16.6	0.1	7.2	6.7	25.0	24.4	12.5
South Nuka Island Creek	0.4	22.2	0.6	3.6	7.0	2.8	1.2	7.3	13.3	16.4	6.1
Desire Lake Creek	12.0	8.5	23.0	62.5	32.0	11.0	2.5	47.0	1.0	1.3	0.4
James Lagoon	6.0	5.1	4.0	9.0	6.6	1.1	1.7	4.9	3.8	4.4	0.4
Aialik Lagoon	5.0	3.0	4.0	9.4	6.0	1.5	0.7	0.8	---	---	[d]
Bear Creek	7.9	0.8	7.7	4.1	14.0	3.5	0.2	1.7	4.4	15.4[b]	2.3
Salmon Creek	21.0	0.5	10.2	2.1	8.3	1.7	0.1	1.6	---	[b]	5.3
Thumb Cove	7.9	4.9	4.2	14.5	4.0	2.7	0.3	4.2	---	3.4	0.4
Humpy Cove	4.0	2.0	2.5	5.0	0.9	0.3	0.4	1.0	3.8	---	[c]
Tonsina Creek	7.5	5.4	6.0	48.2	11.2	3.4	0.1	0.5	1.2	0.3	[c]
Big Kamishak River	5.0	---	---	---	5.0	---	1.0	---	---	---	[c]
Little Kamishak River	2.2	---	0.1	1.6	2.0	---	0.5	---	---	0.9	[c]
Amakdedori Creek	6.3	0.2	---	1.0	6.0	0.4	1.0	2.0	0.1	0.7	3.2
Bruin Bay River	75.0	4.0	110.0	3.5	1,200.0	24.0	29.0	350.0	19.0	74.9	3.2
Sunday Creek	12.0	4.7	12.0	11.4	109.0	29.7	18.0	103.0	2.8	20.9	2.9
Brown's Peak Creek	3.5	1.7	6.8	7.0	28.0	40.2	17.0	120.0	1.0	16.7	5.0
Totals	353.8	358.0	423.2	495.2	1,648.9	196.6	186.3	943.3	306.1	455.0	158.4

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Location	YEAR										
	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
Humpy Creek	36.0	14.1	89.3	9.0	78.3	17.5	12.8	22.4	30.5	37.1	90.9
China Poot Creek	1.6	5.7	2.0	2.8	2.8	5.7	0.7	7.5	6.6	6.5	6.7
Tutka Lagoon Creek	27.4	14.5	15.9	3.5	45.0	17.5	27.9	19.0	4.5	15.9	30.9
Barabara Creek	11.9	4.5	10.8	2.4	12.5	2.8	3.9	5.6	2.3	3.2	5.1
Seldovia River	43.4	24.4	48.5	17.8	39.1	31.5	12.2	53.5	12.3	26.9	35.1
Port Graham River	12.8	7.6	10.0	7.0	12.5	12.6	9.7	15.6	10.3	58.5	14.9
Dogfish Lagoon	0.3	1.3	13.3	2.3	20.0	6.7	12.4	11.1	2.0	1.3	5.2
Port Chatham Creeks	22.2	3.3	14.0	8.6	42.7	22.2	10.7	16.7	17.9	18.1	35.0
Windy Right Creek	13.6	2.2	11.4	9.9	13.9	19.5	5.2	23.0	10.3	14.4	23.3
Windy Left Creek	25.9	3.0	31.6	2.5	64.6	12.9	24.0	20.1	61.8	28.9	82.8
Rocky River	70.0	17.1	56.3	80.1	48.1	165.0	17.2	131.6	73.0	112.5	287.4
Port Dick Creek[a]	37.0	18.1	6.6	23.2	36.9	59.1	8.5	124.4[d]	44.7	108.0	107.7
Island Creek	12.1	28.3	10.6	40.1	71.1	83.6	8.6	70.8	81.8	44.1	118.6
South Nuka Island Creek	34.3	1.4	6.2	6.8	9.3	14.0	2.4	13.6	20.7	14.8	41.4
Desire Lake Creek	19.3	---	---	---	6.2	6.2	6.8	21.1	67.5	78.4	34.8
James Lagoon	3.3	0.8	0.6	---	---	---	---	3.9	2.3	3.1	---
Aialik Lagoon	---	---	1.1	---	---	0.4	0.9	---	---	---	---
Bear Creek	6.6[b]	34.8[b]	38.6[b]	8.0[b]	6.3[b]	13.2[b]	7.8[b]	35.6[b]	3.0[b]	2.7[b]	4.4[b]
Salmon Creek	[b]	[b]	[b]	[b]	[b]	[b]	[b]	[b]	[b]	[b]	[b]
Thumb Cove	5.5	10.8	9.3	9.5	4.7	21.0	9.2	8.5	3.1	3.7	5.1
Humpy Cove	0.9	2.2	1.8	3.4	2.2	1.2	4.0	1.7	0.3	1.8	2.6
Tonsina Creek	3.2	7.0	0.5	0.4	0.4	2.3	0.5	6.6	2.8	6.9	5.2
Big Kamishak River	---	---	---	16.7	---	2.0	5.7	14.9	---	---	---
Little Kamishak River	---	---	---	---	---	---	4.2	13.0	---	3.4	---
Amakdedori Creek	1.7	0.7	4.5	---	1.7	---	---	---	6.0	0.9	---
Bruin Bay River	86.4	5.9	307.3	27.5	162.7	134.9	2.9	176.7	18.5	1,598.5	138.7
Sunday Creek	57.8	3.1	95.9	2.8	52.5	24.0	5.3	39.8	26.2	81.9	346.7
Brown's Peak Creek	41.6	1.3	96.7	2.4	42.3	7.9	2.6	9.8	19.2	27.5	285.0
Totals	574.8	212.1	882.8	286.7	775.8	683.7	205.9	865.0	527.6	2,299.0	1,707.5

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Location	YEAR 2004	2005	2006	2007	1960–2006 Average	Sustainable Escapement Goal[e]
Humpy Creek	28.9	93.8	48.4	54.0	47.3	21.65–85.55
China Poot Creek	3.3	9.2	7.2	6.2	6.3	2.9–8.2
Tutka Lagoon Creek	17.8	133.6	25.8	5.7	18.4	11.6–18.9
Barabara Creek	5.4	14.4	3.6	25.2	4.9	1.9–9.0
Seldovia River	56.8	98.6	70.0	69.4	35.4	19.05–38.95
Port Graham River	44.0	69.1	31.2	25.6	17.6	7.0–19.85
Dogfish Lagoon	3.2	22.3	8.0	4.1	4.7	---
Port Chatham Creeks	26.4	44.4	24.2	14.5	14.3	7.8–21.0
Windy Right Creek	12.0	22.2	17.1	18.3	8.3	3.35–10.95
Windy Left Creek	23.3	72.0	65.2	37.3	20.4	3.65–29.95
Rocky River	53.8	198.7	67.8	190.0	47.9	9.35–54.25
Port Dick Creek[a]	13.3	122.2	51.5	44.2	45.4	18.55–58.3
Island Creek	33.6	26.4	107.7	87.2	22.8	7.2–28.3
South Nuka Island Creek	6.4	11.2	5.1	6.6	10.9	2.7–14.25
Desire Lake Creek	24.3	46.0	74.8	11.8	19.6	1.9–20.2
James Lagoon	---	---	---	---	4.2	---
Aialik Lagoon	---	0.8	---	---	3.6	---
Bear Creek	1.2[b]	34.5[b]	9.0[b]	---	9.1	2.95–8.45
Salmon Creek	[b]	[b]	[b]	---	7.3	1.9–13.25
Thumb Cove	4.3	8.7	5.2	---	5.6	2.35–8.85
Humpy Cove	1.0	14.6	1.9	---	2.4	0.9–3.2
Tonsina Creek	3.5	9.9	6.5	---	4.9	0.5–5.85
Big Kamishak River	---	---	---	---	21.3	---
Little Kamishak River	3.0	---	77.0	5.1	13.2	---
Amakdedori Creek	---	---	---	---	7.7	---
Bruin Bay River	66.5	98.3	515.1	350.4	150.9	18.65–155.75
Sunday Creek	31.5	116.2	70.0	394.8	33.9	4.85–28.85
Brown's Peak Creek	18.1	61.0	35.7	249.4	25.0	2.45–18.8
Totals	481.6	1,328.1	1,328.1	1,599.8	525.0	153.15–660.65

Note: Escapement estimates are derived from periodic ground surveys with stream life factors applied, or from periodic aerial surveys. Aerial survey estimates after 1990 incorporate stream life factors; prior to 1990, aerial estimates are peak aerial survey counts adjusted for survey conditions and time of surveys.

[a] Escapement figures for Port Dick Creek include escapements for High Tech and Well Flagged Creeks beginning in 1998.

[b] Escapement figure for Bear Creek represents the combined escapement for Bear and Salmon Creeks.

[c] Insufficient data for escapement estimates.

[d] Port Dick Creek counts derived from aerial data in 2000. Other methods also used to generate escapement estimates that season included ground surveys (91,795) and weir counts (142,450).

[e] New sustainable escapement goals (SEG's) implemented for the first time beginning with the 2002 season.

Appendix A25.–Estimated chum salmon escapements in thousands of fish for the major spawning systems of Lower Cook Inlet, 1987–2007.

Year	Port Graham	Dogfish Lagoon	Rocky River	Pt. Dick Head	Island Creek	Big Kamishak	Little Kamishak	McNeil River	Bruin Bay	Ursus Cove	Cotton-wood	Iniskin Bay	Total
1987	1.5	2.0	0.2	6.1	13.2	12.0	18.0	26.0	10.0	9.9	17.0	9.1	125.0
1988	3.0	8.6	0.3	9.0	7.8	15.0	13.0	49.0	7.0	9.4	16.0	9.5	147.6
1989	1.3	1.8	1.2	3.3	4.8	30.0	12.0	34.0	8.0	6.3	8.0	5.9	116.6
1990	2.6	1.0	0.8	1.1	2.3	2.5	7.9	8.0	4.0	3.8	4.3	8.4	46.7
1991	1.1	3.1	---	7.4	17.3	8.7	8.4	10.0	6.0	1.3	7.7	8.3	79.3
1992	1.4	0.8	1.7	5.4	6.7	4.5	7.1	19.2	8.5	1.7	6.1	3.4	66.5
1993	2.5	5.4	0.1	2.5	3.6	9.1	6.3	17.4	6.0	7.7	12.0	8.0	78.8
1994	5.2	11.3	1.9	3.5	8.8	---	9.0	15.0	6.1	6.2	10.2	18.9	96.1
1995	3.8	4.2	5.1	3.3	7.7	[a]	[a]	14.4	6.6	11.1	15.4	22.7	90.9
1996	3.7	6.7	2.0	2.3	6.9	11.1	4.4	16.1	14.9	7.6	16.1	7.8	99.6
1997	4.1	12.7	1.1	1.9	5.2	---	---	27.5	8.8	6.2	5.6	15.4	88.5
1998	5.1	9.8	0.7	1.8	3.4	7.1	9.7	23.5	9.4	4.6	2.3	18.6	96.0
1999	6.6	18.8	5.4	2.9	16.4	11.6	8.9	13.5	10.3	21.0	12.0	23.3	150.7
2000	11.4	19.6	4.2	3.4	12.1	45.3	26.9	18.6	13.6	41.7	24.1	23.6	244.5
2001	6.0	6.1	3.0	1.8	6.3	36.3	27.2	17.0	21.8	37.7	15.9	13.8	192.9
2002	5.3	10.1	5.7	12.3	15.3	17.4	16.4	11.3	9.9	17.1	42.2	28.5	191.6
2003	2.9	13.3	5.5	5.6	16.3	16.4	22.2	23.3	13.1	30.4	72.8	18.7	240.5
2004	1.2	3.6	17.2	8.6	15.1	57.9	45.3	11.2	15.9	16.0	16.3	22.0	230.3
2005	0.7	2.7	6.1	4.8	20.7	25.7	12.1	17.4	21.2	12.2	17.9	16.5	158.0
2006	2.2	5.4	11.2	2.8	5.6	58.2	42.9	28.2	7.0	15.7	13.2	15.6	208.1
2007	1.9	4.9	1.6	2.8	3.1	14.8	15.6	13.6	3.1	20.9	12.5	5.3	100.0
20-Year Avg.	3.6	7.3	3.9	4.5	9.8	21.7	16.5	20.0	10.4	13.4	16.8	14.9	142.8
1987–1996 Avg.	2.6	4.5	1.5	4.4	7.9	11.6	9.6	20.9	7.7	6.5	11.3	10.2	98.7
1997–2006 Avg.	4.6	10.3	6.0	4.6	11.6	30.7	23.5	19.1	13.1	20.3	22.2	19.6	185.5
Sustainable Esc. Goal[b]	1.45–4.8	3.35–9.15	1.2–5.4	1.9–4.45	6.4–15.6	9.35–24.0	6.55–23.8	13.75–25.75	6.0 –10.25	6.05–9.85	5.75–12.0	7.85– 13.7	69.6 –158.75

Note: Escapement estimates are derived from periodic ground surveys with stream life factors applied, or from periodic aerial surveys. Aerial survey estimates after 1990 incorporate stream life factors; prior to 1990, aerial estimates are peak aerial survey counts adjusted for survey conditions and time of surveys.

[a] Insufficient data to generate escapement estimates.

[b] New sustainable escapement goals (SEG's) implemented for the first time beginning with the 2002 season.

Appendix A26.–Personal use/subsistence set gillnet salmon catches, in numbers of fish by species, and effort, Southern District (excluding the Port Graham/Nanwalek subsistence fishery and the Seldovia subsistence fishery), Lower Cook Inlet, 1969–2007.

Year	Permits Issued	Permits Returned		Permits		Harvest by Species						
		Number	%	Did Fish	Not Fished	Chinook	Sockeye	Coho	Pink	Chum	Other	Total
1969	47	44	93.6	35	9	0	9	752	38	0	17	816
1970	78	73	93.6	55	18	0	12	1,179	143	13	39	1,386
1971	112	95	84.8	53	42	2	16	1,549	44	7	20	1,638
1972	135	105	77.8	64	41	1	11	975	48	69	19	1,123
1973	143	128	89.5	82	46	0	18	1,304	84	40	9	1,455
1974	148	118	79.7	52	66	0	16	376	43	77	27	539
1975	292	276	94.5	221	55	4	47	1,960	632	61	95	2,799
1976	242	221	91.3	138	83	16	46	1,962	1,513	56	75	3,668
1977	197	179	90.9	137	42	12	46	2,216	639	119	84	3,116
1978	311	264	84.9	151	113	4	35	2,482	595	34	89	3,239
1979	437	401	91.8	238	163	6	37	2,118	2,251	41	130	4,583
1980	533	494	92.7	299	195	43	32	3,491	1,021	25	153[a]	4,765
1981	384	374	97.4	274	100	25	64	4,314	732	89	100	5,324
1982	395	378	95.7	307	71	39	46	7,303	955	123	8	8,474
1983	360	328	91.1	210	118	4	21	2,525	330	40	2	2,922
1984	390	346	88.7	219	127	4	25	3,666	821	87	25	4,628
1985	316	302	95.6	205	97	5	43	3,372	166	35	3	3,624
1986	338	310	91.7	247	63	7	68	3,831	3,132	56	0	7,094
1987	361	338	93.6	249	89	5	50	3,977	279	61	0	4,372
1988	438	404	92.2	287	117	14	60	4,877	1,422	75	0	6,448
1989	466	452	97.0	332	120	41	156	7,215	882	53	49	8,396
1990	578	543	93.9	420	123	12	200	8,323	1,846	69	0	10,450
1991	472	459	97.2	295	164	8	47	4,931	366	23	0	5,375
1992	365	350	95.9	239	111	5	63	2,277	643	21	0	3,009
1993	326	317	97.2	215	102	6	44	1,992	463	18	0	2,523
1994	286	284	99.3	224	60	66	80	4,097	1,178	18	0	5,439
1995	235	232	98.7	178	54	118	108	2,916	343	7	0	3,492
1996	299	293	98.0	213	80	302	102	3,347	1,022	24	0	4,797
1997	276	264	95.7	185	79	383	191	1,814	252	12	0	2,652
1998	227	214	94.3	142	72	135	20	1,461	167	5	0	1,788
1999	146	141	96.6	111	30	276	119	1,803	168	3	0	2,369
2000	213	206	96.7	151	55	104	28	2,064	304	4	0	2,504
2001	154	148	96.1	112	34	86	27	1,579	150	16	0	1,858
2002	122	113	92.6	93	20	61	33	1,521	251	12	0	1,878
2003	104	96	92.3	72	24	17	57	1,071	170	9	0	1,324
2004	91	83	91.2	65	18	7	56	1,554	172	16	0	1,805
2005	108	96	88.9	69	27	8	57	833	296	13	0	1,207
2006	89	82	92.1	62	20	15	41	1,295	221	5	0	1,577
2007	141	133	94.3	95	38	10	113	1,431	641	34	0	2,229
69–06 Avg.	269	252	93.5	177	75	48	57	2,755	624	39	22	3,546
97–06 Avg.	153	144	94.3	106	38	109	63	1,500	216	10	0	1,897

Note: Figures after 1991 include information from both returned permits and inseason oral reports.

[a] Steelhead trout *Oncorhynchus mykiss*.

Appendix A27.–Summary of personal use/subsistence salmon gillnet fishermen in the Southern District of Lower Cook Inlet (excluding the Port Graham/Nanwalek subsistence fishery and the Seldovia subsistence fishery) by area of residence, 1987–2007.

	Homer/ Fritz Cr.		Anchorage Area[a]		Halibut Cove		Anchor Pt./ Ninilchik		Seldovia		Pt. Graham/ Nanwalek		Kenai/ Soldotna		Other		Total Permits
Year	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	Issued
1987	284	78.7	25	6.9	3	0.8	37	10.2	7	1.9	0	0.0	2	0.6	3	0.8	361
1988	338	77.2	36	8.2	5	1.1	43	9.8	6	1.4	0	0.0	10	2.3	0	0.0	438
1989	348	74.7	36	7.7	5	1.1	51	10.9	8	1.7	0	0.0	6	1.3	12	2.6	466
1990	441	76.3	36	6.2	5	0.9	65	11.2	12	2.1	0	0.0	6	1.0	13	2.2	578
1991	384	81.4	27	5.7	8	1.7	41	8.7	6	1.3	0	0.0	4	0.8	2	0.4	472
1992	302	82.7	21	5.8	5	1.4	32	8.8	3	0.8	0	0.0	1	0.3	1	0.3	365
1993	242	74.2	25	7.7	5	1.5	44	13.5	3	0.9	0	0.0	5	1.5	2	0.6	326
1994	235	82.2	20	7.0	4	1.4	21	7.3	1	0.3	0	0.0	1	0.3	4	1.4	286
1995	191	81.3	15	6.4	7	3.0	20	8.5	1	0.4	0	0.0	0	0.0	1	0.4	235
1996	241	80.6	16	5.4	7	2.3	26	8.7	3	1.0	1	0.3	2	0.7	3	1.0	299
1997	232	84.1	13	4.7	3	1.1	20	7.2	4	1.4	0	0.0	1	0.4	3	1.1	276
1998	175	77.1	18	7.9	2	0.9	24	10.6	5	2.2	0	0.0	2	0.9	1	0.4	227
1999	96	65.8	18	12.3	1	0.7	23	15.8	3	2.1	0	0.0	4	2.7	1	0.7	146
2000	168	78.9	15	7.0	2	0.9	21	9.9	4	1.9	0	0.0	1	0.5	2	0.9	213
2001	109	70.8	10	6.5	3	1.9	20	13.0	5	3.2	0	0.0	4	2.6	3	1.9	154
2002	85	69.7	7	5.7	3	2.5	14	11.5	6	4.9	0	0.0	6	4.9	1	0.8	122
2003	74	71.2	9	8.7	2	1.9	11	10.6	4	3.8	0	0.0	4	3.8	0	0.0	104
2004	70	76.9	9	9.9	2	2.2	7	7.7	2	2.2	0	0.0	1	1.1	0	0.0	91
2005	80	74.1	12	11.1	2	1.9	8	7.4	1	0.9	0	0.0	3	2.8	2	1.9	108
2006	74	83.1	6	6.7	1	1.1	4	4.5	0	0.0	0	0.0	2	2.2	2	2.2	89
2007	116	82.3	11	7.8	3	2.1	7	5.0	0	0.0	0	0.0	1	0.7	3	2.1	141
20-Year Avg.	208	77.9	19	7.0	4	1.4	27	9.9	4	1.6	0	0.0	3	1.2	3	1.0	268
1987–1996 Avg.	301	78.6	26	6.7	5	1.4	38	9.9	5	1.3	0	0.0	4	1.0	4	1.1	383
1997–2006 Avg.	116	76.1	12	7.7	2	1.4	15	9.9	3	2.2	0	0.0	3	1.8	1	0.9	153

[a] After 1989, "Anchorage Area" includes Mat-Su Valley, Eagle River, Chugiak, and/or Fort Richardson.

Appendix A28.–Subsistence and sport salmon catch in numbers of fish by species for the village of Port Graham, Lower Cook Inlet, 1987–2007.

Year	Salmon Harvest						Dolly Varden	Households Reporting
	Chinook	Sockeye	Coho	Pink	Chum	Total		
1987	20	219	575	230	70	1,114	20	33
1988	96	411	459	542	75	1,583	18	27
1989	51	94	460	640	58	1,303	159	20
1990	211	524	803	1,013	102	2,653	666	32
1991	155	58	541	1,494	185	2,433	257	33
1992	129	98	475	745	178	1,625	398	36
1993	253	154	346	997	135	1,885	214	31
1994	273	260	859	866	461	2,719	1,133	42
1995	486	379	369	786	376	2,396	66	49[a]
1996	255	684	341	312	251	1,843	161	48
1997	202	324	203	497	152	1,378	57	25
1998	164	271	243	459	240	1,377	20	16
1999	383	360	427	150	214	1,534	64	21
2000	241	784	252	355	483	2,115		35
2001	104	176	57	20	32	389		15
2002	250	417	90	150	74	981		23
2003	321	1,991	425	266	150	3,153	87	16
2004	283	572	514	363	130	1,862		50[b]
2005	265	192	51	349	52	909		46
2006	192	31	1	26	24	274	207	14
2007[c]	92	552	0	74	63	781	12	24
1987–2006 Average	217	401	375	513	172	1,677	235	31

Source: ADF&G, Division of Subsistence, data files; gear types include set gillnet, rod/reel, and handline.

[a] Salmon totals and permits include 3 reports from non-residents of Port Graham Village.
[b] ADF&G Division of Subsistence estimate.
[c] Harvest reports for 2007 incomplete.

Appendix A29.–Subsistence and sport salmon catch in numbers of fish by species for the village of Nanwalek (formerly English Bay), Lower Cook Inlet, 1987–2007.

Year	Salmon Harvest						Dolly Varden	Households Reporting
	Chinook	Sockeye	Coho	Pink	Chum	Total		
1986	2	373	302	825	1	1,503	144	17
1987	1	682	339	484	44	1,550	20	22
1988	8	610	385	1,214	35	2,252	70	21
1989	0	63	695	855	16	1,629	523	24
1990	54	638	614	1,947	49	3,302	2,833	28
1991	8	630	1,512	3,093	36	5,279	848	30
1992	71	437	675	676	58	1,917	1,331	35
1993	24	994	567	1666	122	3,373	577	25
1994	27	570	511	1113	43	2,264	473	28
1995	99	1,416	169	487	0	2,171	465	38
1996	55	1,060	598	437	25	2,175	221	27
1997	0	1	0	14	1	16	0	1
1998	5	18	0	0	0	23	31	3
1999	102	2,755	1,320	1,873	890	6,940	631	32
2000	18	3,880	1,579	1,251	471	7,199		32
2001	29	909	1,238	1,434	196	3,806		34
2002	96	10,203	967	1,681	414	13,441	230	56
2003	144	3,221	513	1,306	381	5,565	102	35
2004	52	2,968	842	1,277	95	5,234	291	24
2005	27	1,934	1,142	1,259	128	4,490	605	23
2006	111	2,215	1,179	2,038	207	5,750	679	39
2007[a]	[a]	[a]	[a]	[a]	[a]	[a]	[a]	[a]
1987–2006 Average	47	1,761	742	1,205	161	3,916	552	28

Source: ADF&G, Division of Subsistence, data files; gear types include set gillnet, rod/reel, and handline.

[a] Harvest figures for 2007 unavailable.

Appendix A30.–Salmon set gillnet catch in numbers of fish by species and permit/effort information for the Seldovia area subsistence fishery, Lower Cook Inlet, 1996–2007.

	Number of Permits				Number of Salmon Harvested					
YEAR	Issued	Returned	Fished	Not Fished	Chinook	Sockeye	Coho	Pink	Chum	Total
Early Season: April–May[a]										
1996	41	41	13	28	51	7	0	0	0	58
1997	19	16	12	4	44	19	0	0	0	63
1998	20	19	10	9	132	61	0	8	0	201
1999	16	15	12	3	150	130	0	0	38	318
2000	28	21	17	4	189	249	0	0	14	452
2001	19	17	14	3	134	124	0	0	0	258
2002	20	18	12	6	123	222	0	0	3	348
2003	19	13	10	3	67	210	0	1	54	332
2004	13	10	9	1	91	63	0	0	15	169
2005	15	13	4	9	46	0	0	0	0	46
2006	15	12	6	6	12	10	0	1	0	23
2007	15	12	5	7	19	27	0	0	0	46
Average	20	17	11	7	88	94	0	1	10	193
Late Season: August[b]										
1996	4	3	1	2	0	1	0	0	0	1
1997	1	1	0	1	0	0	0	0	0	0
1998	3	2	1	1	0	0	0	0	0	0
1999	0									
2000	0									
2001	0									
2002	1	1	1	0	0	9	13	31	6	59
2003	1	1	1	0	0	10	1	12	1	24
2004	1	1	1	0	0	0	4	0	0	4
2005	3	2	2	0	0	70	13	93	12	188
2006	2	2	1	1	0	0	0	21	0	21
2007	4	4	3	1	0	24	9	80	27	140
Average	2	2	1	1	0	13	4	26	5	49

[a] Early season dates in 1996 and 1997 were from April 1–May 20; subsequent years were from April 1–May 30.

[b] Late season dates are restricted to the first two weekends in August.

Appendix A31.–ADF&G, CIAA, and/or CRRC salmon stocking projects and releases of salmon fry, fingerling, and smolt, in millions of fish, Lower Cook Inlet, 1987–2007 (currently active projects highlighted in gray).

	Juvenile Sockeye Salmon															
YEAR	Leisure Lake	Hazel Lake	Tutka Bay	English Bay Lakes	Port Graham Hatchery	Chenik Lake	Paint River Lakes Upper	Paint River Lakes Lower	Paint River Lakes Elusivak	Kirschner Lake	Bruin Lake	Ursus Lake	Port Dick Lake	Bear Lake	Grouse Lake	Total Sockeye
1987	2.022	---	---	---	---	1.000	---	---	---	0.867	---	---	0.705	---	---	4.594
1988	2.100	0.783	---	---	---	2.600	1.100	0.552	0.521	0.521	---	---	0.222	---	---	8.399
1989	2.000	1.000	---	---	---	3.500	1.000	0.500	0.500	0.250	---	---	0.430	2.200	---	11.380
1990	1.750	1.250	---	0.350	---	3.250	1.000	0.500	0.500	0.250	0.500	---	---	2.400	---	11.750
1991	2.000	1.300	---	0.241	---	2.200	0.500	0.250	---	0.250	0.250	---	---	1.619	---	8.610
1992	2.000	1.000	---	0.290	---	2.750	0.500	0.250	---	0.250	0.250	0.250	---	2.370	---	9.910
1993	2.000	1.000	---	0.581	---	1.400	0.500	0.250	---	0.250	0.250	0.250	---	1.813	---	8.294
1994	0	0	---	0.800	---	0	0	0	---	0.300	0	0	---	0.170	0.570	1.327
1995	1.632	1.061	---	0	---	1.129	0.337	0.251	---	0.251	0.251	0.252	---	0.360	0.793	6.287
1996	1.490	1.030	---	0.155	---	0.951	0.500	0	---	0.250	0.250	0.250	---	0.864	0	5.657
1997	2.000	1.000	---	0.199	---	0	---	---	---	0.250	---	---	---	0.788	1.966	6.203
1998	2.005	1.302	---	0	---	---	---	---	---	0.250	---	---	---	0.265	1.288	5.610
1999	0.265	0.453	---	1.149[a]	---	---	---	---	---	0.173	---	---	---	1.380	0	3.420
2000	1.708	1.248	---	1.006[b]	---	---	---	---	---	0.248	---	---	---	1.794	---	6.004
2001	0.089	0	---	0	---	---	---	---	---	0	---	---	---	0.145	---	0.234
2002	2.249	1.280	---	0	---	---	0.500[c]	---	---	0.302	---	---	---	2.407	---	6.738
2003	2.240	1.547	---	0.695	---	---	---	---	---	0.298	---	---	---	1.801	---	6.581
2004	2.002	0.351	---	0.050	0.110	---	---	---	---	0.251	---	---	---	3.012	---	5.776
2005	2.252	1.558	0.096	0.203	0	---	---	---	---	0.316	---	---	---	3.422	---	7.846
2006	0.680	0	0.255	0	0.455	---	---	---	---	0	---	---	---	3.393	---	4.750
2007	2.315	1.411	0.144	0	0	---	---	---	---	0.253	---	---	---	3.056	---	7.179
’87–06 Average	1.618	0.899	0.176	0.336	0.177	1.707	0.540	0.255	0.507	0.276	0.250	0.200	0.452	1.671	0.762	6.493
’97–06 Average	1.536	0.865	0.176	0.330	0.177		0.500			0.207				1.841	1.122	5.366

-continued-

Appendix A31.–Page 2 of 2.

YEAR	Juvenile Pink Salmon					Juvenile Chinook Salmon						Juvenile Coho Salmon					
	Tutka Bay Hatchery	Halibut Cove Lagoon	Homer Spit	Port Graham Hatchery	Total Pink Salmon	Seldovia Bay	Halibut Cove Lagoon	Homer Spit		Resurrection Bay[d]	Total Chinook	Caribou Lake	Seldovia Bay[e]	Homer Spit		Resurrection Bay[d]	Total Coho
								Early	Late					Early	Late		
1987	20.500	3.000	0.295	---	23.795	0.084	0.094	0.104	---	0.096	0.378	0.150	0.045	---	---	0.604	0.799
1988	12.000	3.000	0.300	---	15.300	0.084	0.094	0.104	---	0.205	0.487	0.150	0.045	---	0.060	0.530	0.785
1989	30.100	6.000	0.332	---	36.432	0.108	0.115	0.104	---	0.307	0.634	0.182	0.080	---	0.143	0.339	0.744
1990	23.600	6.000	0.303	---	29.903	0.099	0.112	0.212	---	0.329	0.752	0.180	0.050	---	0.123	1.540	1.893
1991	23.600	6.000	0.303	0.255	30.158	0.091	0.092	0.191	---	0.466	0.840	0.180	0.050	---	0.100	0.599	0.929
1992	23.600	6.000	0.300	1.800	31.700	0.113	0.117	0.226	0.126	0.370	0.952	0.150	---	---	0.100	0.265	0.515
1993	43.000	6.000	---	0	49.000	0.107	0.100	0.212	0.100	0.290	0.818	0.150	---	---	0.116	0.843	1.109
1994	61.000	---	---	1.295	62.295	0.106	0.107	0.192	0.157	0.270	0.832	0.064	---	---	0.156	0.560	0.780
1995	63.000	---	---	0.358	63.358	0.113	0.036	0.228	0.124	0.315	0.816	---	---	---	0.110	0.701	0.811
1996	105.000	---	---	6.470	111.470	0.109	0.103	0.101	0.121	0.415	0.849	---	---	---	0.150	0.676	0.826
1997	89.000	---	---	0.910	89.910	0.092	0.078	0.216	0.105	0.521	1.012	---	---	---	0.120	0.807	0.927
1998	90.000	---	---	0	90.000	0.079	0.073	0.137	0.120	0.307	0.716	---	---	---	0.148	0.726	0.874
1999	60.132	---	---	4.617	64.749	0.074	0.079	0.163	0.059	0.174	0.549	---	---	---	0.137	0.529	0.666
2000	65.120	---	---	1.144	66.264	0.068	0.083	0.220	---	0.322	0.693	---	---	---	0.122	0.618	0.740
2001	99.336	---	---	27.299	126.635	0.103	0.107	0.208	---	0.228	0.646	---	---	0.125	0.100	0.681	0.906
2002	100.000	---	---	6.604	106.604	0.083	0.106	0.190	---	0.194	0.573	---	---	0.096	0.121	0.770	0.987
2003	67.967	---	---	57.158	125.125	0.108	0.107	0.206	---	0.220	0.641	---	---	0.223	0.103	0.903	1.229
2004	47.964	---	---	36.283	84.247	0.089	0.104	0.169	---	0.216	0.578	---	---	0.130	0.113	0.955	1.198
2005	---	---	---	26.568	26.568	0.115	0.113	0.221	---	0.312	0.761	---	---	0.126	0.091	1.153	1.370
2006	---	---	---	13.864	13.864	0.114	0.118	0.224	---	0.303	0.759	---	0.114	0.125	0.324	0.971	1.534
2007	---	---	---	[f]	[f]	0.054	0.055	0.227	---	0.118	0.454	---	0.097	0.127	0.101	1.022	1.347
’87–06 Average	56.940	5.143	0.306	11.539	62.369	0.097	0.097	0.181	0.114	0.294	0.714	0.151	0.064	0.138	0.128	0.738	0.981
’97–06 Average	77.440	---	---	17.445	79.397	0.093	0.097	0.195	0.095	0.280	0.693	---	0.114	0.138	0.138	0.811	1.043

[a] Sockeye release at English Bay consisted of 918,000 fry released in November 1999 and 231,000 fry held over winter for release in spring 2000.
[b] Sockeye release at English Bay consisted of 906,000 fry released in summer 2000 and an estimated 100,000 fry held over winter for release in spring 2001.
[c] Fall fry (“pre-smolt”) release.
[d] Chinook and coho salmon releases in Resurrection Bay are each a cumulative total for all locations.
[e] Coho releases in Seldovia Bay were from Seldovia Lake between 1985 and 1991 and from Seldovia (Fish Creek) Reservoir beginning in 2006.
[f] Pinks were released volitionally from Port Graham Hatchery upon emergence in 2007 but were not enumerated.

APPENDIX B:
HISTORICAL HERRING TABLES

Appendix B1.–Catch of Pacific herring *Clupea pallasi* in short tons and effort in number of permits by district in the commercial sac roe seine fishery, Lower Cook Inlet, 1987–2007.

	Southern		Kamishak		Eastern		Outer		Total	
Year	Tons	Permits	Tons	Permits	Tons	Permits	Tons	Permits	Tons	Permits
1986	---	---	1,959	54	167	4	28	3	2,154	57
1987	---	---	6,132	63	584	4	202	9	6,918	69
1988	---	---	5,548	75	0	0	0	0	5,548	75
1989	170	6	4,801	75	0	0	0	0	4,971	75
1990	---	---	2,264	75	---	---	---	---	2,264	75
1991	---	---	1,992	58	0	0	0	0	1,992	58
1992	---	---	2,282	56	0	0	0	0	2,282	56
1993	---	---	3,570	60	---	---	---	---	3,570	60
1994	---	---	2,167	61	---	---	---	---	2,167	61
1995	---	---	3,378	60	---	---	---	---	3,378	60
1996	---	---	2,984	62	---	---	---	---	2,984	62
1997	---	---	1,746[a]	45[a]	---	---	---	---	1,746	45
1998	---	---	331[a]	20[a]	---	---	---	---	331	20
1999	---	---	100[b]	1[b]	---	---	---	---	100	1
2000	---	---	---	---	---	---	---	---	---	---
2001	---	---	---	---	---	---	---	---	---	---
2002	---	---	---	---	---	---	---	---	---	---
2003	---	---	---	---	---	---	---	---	---	---
2004	---	---	---	---	---	---	---	---	---	---
2005	---	---	---	---	---	---	---	---	---	---
2006	---	---	---	---	---	---	---	---	---	---
2007	---	---	---	---	---	---	---	---	---	---
20-Year Average	170	6	2,869	55	117	1	40	2	2,942	60
1987–1996 Average	170	6	3,512	65	117	1	40	2	3,607	65
1997–2006 Average	---	---	726	22	---	---	---	---	726	22

Source: ADF&G fish ticket database *Unpublished*. Commercial Fisheries Entry Commission License Statistics, 1974-2007, Juneau.

[a] Includes both commercial harvest and ADF&G test fish harvest.
[b] Commercial fishery closed, ADF&G test fish harvest only.

Appendix B2.–Preseason estimates of biomass and projected commercial sac roe seine harvests, and actual harvests, for Pacific herring *Clupea pallasi* in short tons, average roe recovery, numbers of permits making landings, and exvessel value in millions of dollars, Kamishak Bay District, Lower Cook Inlet, 1987–2007.

Year	Preseason		Actual Commercial Harvest (st)[a]	Average Roe %	No. of Permits w/Landings	Exvessel Value[b] ($ millions)
	Forecasted Biomass (st)	Projected Harvest (st)[a]				
1987	[c]	3,833	6,132	11.3	63	8.40
1988	[c]	5,190	5,548	11.1	74	9.30
1989	37,785	5,000	4,801	9.5	74	3.50[e]
1990	28,658	2,292	2,264	10.8	75	1.80
1991	17,256	1,554	1,992	11.3	58	1.30
1992	16,431	1,479	2,282	9.7	56	1.40
1993	28,805	2,592	3,570	10.2	60	2.20
1994	25,300	3,421	2,167	10.6	61	1.50
1995	21,998	2,970	3,378	9.8	60	4.00
1996	20,925	2,250	2,984	10.1	62	6.00[e]
1997	25,300	3,420	1,746	9.3	45	0.40
1998	19,800	1,780	331	8.5	20	0.07
1999	[f]	---	- CLOSED[g] -	---	---	---
2000	6,330	---	- CLOSED -	---	---	---
2001	11,352	---	- CLOSED -	---	---	---
2002	9,020	---	- CLOSED -	---	---	---
2003	4,771	---	- CLOSED -	---	---	---
2004	3,554	---	- CLOSED -	---	---	---
2005	3,058	---	- CLOSED -	---	---	---
2006	2,650	---	- CLOSED -	---	---	---
2007	2,286	---	- CLOSED -	---	---	---
1987-2006 Average	16,647	2,982	3,100	10.2	59	3.32

[a] Kamishak Bay allocation only, does not include Shelikof Strait food/bait allocation.
[b] Exvessel values exclude any postseason retroactive adjustments (except where noted).
[c] Prior to 1989, preseason forecasts of biomass were not generated.
[d] Prior to 1987, preseason harvest projections were not generated.
[e] Includes retroactive adjustment.
[f] 1999 preseason biomass calculated as a range of 6,000 to 13,000 st.
[g] ADF&G test fishing harvested 100 st.

Appendix B3.–Summary of herring sac roe seine fishery openings and commercial harvests in the Kamishak Bay District of Lower Cook Inlet, 1969–2007.

Year	Dates of Openings	Total Hours Open	Harvest (short tons)	Catch Rate (short tons/ hour open)	Number of Permits w/Landings
1969–1973	No closed periods				
1974	1/1–5/20		2,114		26
1975	1/1–6/6	(Closed Iniskin Bay 5/17)	4,119		40
1976	1/1–5/21	(Closed Iniskin Bay 5/17; reopened Kamishak 6/2)	4,824		66
1977	1/1–5/31	(Closed Kamishak Dist. 5/12; reopened 5/14–5/17; reopened 5/29–5/31)	2,908		57
1978[a]	4/16–5/31	96	402	4.2	44
1979	5/12–5/15	72	415	5.8	36
1980–1984	CLOSED	0	0		
1985	4/20–6/15	1,350 (56.2 days)	1,132	0.8	23
1986	4/20–6/13	1,303 (54.3 days)	1,959	1.5	54
1987	4/21–4/23	65	6,132	94.3	63
1988	4/22–4/29	42	5,548	132.1	74
1989	4/17–4/30	24.5	4,801	196.0	74
1990	4/22–4/23	8	2,264	283.0	75
1991	4/26	1	1,992	1,992.0	58
1992	4/24	0.5	2,282	4,564.0	56
1993	4/21	0.75	3,570	4,760.0	60
1994	4/25	0.5	778	1,556.0	35
	4/29	1.0	1,338	1,338.0	53
1995	4/27	0.5	1,685	3,370.0	45
	4/28	1.0	1,693	1,693.0	44
1996	4/24	0.5	2,984	5,968.0	62
1997	4/25[b]	0.5	0	0	0
	4/29	1.5	1,580	1,053.3	42
	4/30	8.0	61	7.6	[c]
	5/1	12.0	51	4.3	4
	5/22[d]	[d]	54	[d]	---
1998	4/21	0.5	160	320.0	12
	4/22	2.0	136	68.0	11
	5/14[d]	[d]	10	[d]	---
	5/22[d]	[d]	23	[d]	---
1999–2007	CLOSED	0	100[e]		

[a] Management by emergency order began.
[b] Despite the open fishing period, the entire fleet collectively agreed not to fish due to ongoing price negotiations with processors.
[c] To comply with **AS 16.05.815 CONFIDENTIAL NATURE OF CERTAIN REPORTS AND RECORDS**, effort data has been masked where fewer than 4 vessels fished in a given area.
[d] ADF&G test fish harvest.
[e] ADF&G test fish harvest in 1999.

Appendix B4.–Estimates of Pacific herring *Clupea pallasi* total biomass in short tons using two different methods, actual commercial sac roe seine harvest in short tons, and percent exploitation, Kamishak Bay District, Lower Cook Inlet, 1987–2007.

Year	Aerial Survey Total Biomass Estimate (st)[a]	ASA Model Total Biomass Estimate (st)[b,c]	Actual Commercial Harvest (st)	Estimated Exploitation Rate (%)[b]
1987	35,332	25,406	6,132	28.0
1988	29,548	21,526	5,548	30.7
1989	35,701	20,163	4,801	28.3
1990	19,664	17,872	2,264	14.7
1991	18,163[d]	18,228	1,992	12.7
1992	24,077	16,071	2,282	16.5
1993	32,439	13,982	3,570	29.1
1994	25,344[d]	11,304	2,167	21.4
1995	25,115	8,841	3,378	41.5
1996	27,640	6,047	2,984	53.9
1997	---	4,209	1,746	45.2
1998	---	3,916	331	8.7
1999	---	3,921	- CLOSED[e] -	---
2000	---	3,802	- CLOSED -	---
2001	---	3,461	- CLOSED -	---
2002	---	2,892	- CLOSED -	---
2003	---	2,555	- CLOSED -	---
2004	---	2,063	- CLOSED -	---
2005	---	1,949	- CLOSED -	---
2006	---	1,775	- CLOSED -	---
2007	---	1,864	- CLOSED -	---
1987–2006 Average	27,184	9,499	3,100	17.8

Source: Otis 2004; Otis and Cope 2004; Yuen 1994.

[a] Diverse methods have been used to generate historical aerial survey biomass estimates; after 1989, see LCI herring forecast report or statewide herring forecast document to determine specific method for individual year.

[b] Figures are based on the best available data at the time of publishing and are subject to change; therefore all figures herein supersede those previously reported.

[c] ASA model integrates heterogeneous data sources and simultaneously minimizes differences between observed and expected return data to forecast the following year's biomass as well as hindcast previous years' biomass.

[d] Due to poor aerial survey conditions, biomass was calculated from the preseason estimate of abundance, adjusted to match observed age composition samples in the commercial catch.

[e] ADF&G test fishing harvested 100 st.

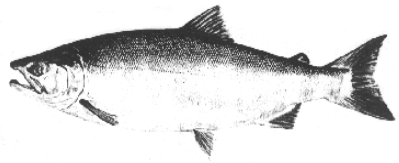
APPENDIX C:
2007 LOWER COOK INLET SALMON OUTLOOK AND MANAGEMENT STRATEGY

Appendix C1.–Lower Cook Inlet 2007 outlook for commercial salmon fishing.

ALASKA DEPARTMENT OF FISH AND GAME
DIVISION OF COMMERCIAL FISHERIES
NEWS RELEASE

Denby S. Lloyd, Commissioner

John Hilsinger, Director



Contact:
Lee Hammarstrom
Area Finfish Management Biologist
Phone: (907) 235-8191
FAX: (907) 235-2448

Homer Area Office
3298 Douglas Place
Homer, AK 99603

Date Issued: 4/27/07
Time: 9:00 a.m.

2007 LOWER COOK INLET COMMERCIAL SALMON FISHERY OUTLOOK AND MANAGEMENT STRATEGY

In anticipation of the upcoming commercial salmon season, the Alaska Department of Fish and Game has completed its annual salmon forecast and outlook for the Lower Cook Inlet (LCI) management area. This news release is intended to provide basic information for fishermen and processors as they prepare for the 2007 season. Salmon management strategies in LCI are designed to insure continued health of the resource through adequate spawning escapements while providing for an orderly harvest of identifiable surpluses.

Because salmon enhancement plays a major role in LCI fisheries, hatchery cost recovery has become an integral component of the management strategy. Cost recovery revenue goals for the various hatchery Special Harvest Areas (SHA's) have now been (or soon will be) finalized, and management schemes to attain them will be published in the Annual Management Plans (AMP's) for Trail Lakes and Port Graham Hatcheries. Rough outlines of the expected management strategies for the SHA's can be found under ***GENERAL INFORMATION*** beginning on page 3.

The overall 2007 LCI commercial all-species salmon harvest, in numbers of fish, is predicted to total about 1.45 million, or about 80% of the actual harvest taken during 2006. However, it should be noted that this figure represents only the potential harvestable surplus, with no consideration given to market conditions, tender availability, and other similar influences on fishing activity. Enhancement efforts and resulting production are expected to contribute just over two-thirds of the area-wide commercial sockeye salmon harvests this season, while hatchery pink production is projected to contribute less than 10% to LCI harvests. Hatchery cost recovery is anticipated to account for a significant portion of the sockeye salmon harvests. The following table summarizes the projected harvest by species:

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	Natural	Enhanced	Total
CHINOOK	[a]	[a]	1,300[a]
SOCKEYE	82,900[b]	250,700[c]	366,600
COHO	[a]	[a]	14,100[a]
PINK	988,000	77,300[c]	1,065,300
CHUM	40,600[b]	0	40,600
Total	1,111,500	328,000	1,454,900

[a] Commercial harvest forecasts of chinook and coho salmon represent average harvests since 1980 and are comprised of a combination of naturally-produced fish as well as fish produced from enhancement programs in LCI; no attempt is made to separate the two components.
[b] Forecasts for naturally-produced sockeye and chum salmon are simply average annual commercial harvests since 1980 and 1989 (respectively).
[c] Includes common property plus cost recovery harvests.

The preceding numbers include the following natural and enhanced components:

ENHANCED RUNS

SOCKEYE SALMON		PINK SALMON	
Kirschner Lake	25,900	Tutka Hatchery	0
Leisure Lake	81,900	Port Graham Hatchery	77,300
Hazel Lake	23,600		
Tutka Lagoon	8,200	TOTAL	77,300
Port Graham Hatchery	4,500		
Bear Lake	100,000		
English Bay Lakes	0[a]		
TOTAL	250,700		

NATURAL RUNS

SOCKEYE SALMON[b]		PINK SALMON	
Southern District[c]	42,000	Southern District	177,200
Outer District	20,700	Outer District	665,800
Eastern District	6,900	Eastern District	40,300
Kamishak Bay District	13,300	Kamishak Bay District	104,700
TOTAL	82,900	TOTAL	988,000

[a] Low level return is not expected to produce any harvestable surplus.
[b] Numbers for natural sockeye harvests are not forecasts but simply represent 1980-2006 average commercial catches.
[c] Incidental harvest of fish not originating from the Southern District.

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SUMMARY BY SPECIES

Sockeye Salmon

The forecasted 2007 LCI sockeye salmon harvest of 367,000 fish is approximately 63% greater than the 2006 catch of 224,000 but is only 14% greater than the most recent 10-year average catch of 321,000. The combined harvests (including cost recovery) of adult runs to enhancement projects at Leisure and Hazel Lakes in the Southern District are expected to total approximately 106,000 sockeyes, or just over one-fourth of the area-wide projected sockeye harvest. At English Bay Lakes, where returns have contributed to Southern District commercial harvests in some recent years, no commercial sockeye harvest is expected due to another weak return. At Bear Lake in Resurrection Bay of the Eastern District, CIAA has forecasted a harvest of about 100,000 sockeyes. The management guidelines utilized last season are once again in place for the Resurrection Bay sockeye salmon fishery in 2007, with highlights found under ***GENERAL INFORMATION***. Kirschner Lake on the west side of Cook Inlet in the Kamishak Bay District, another enhanced sockeye system, is expected to produce an adult return approaching 26,000 fish. After four successive seasons of relatively strong runs, as well as targeted commercial harvests during the past three years, the sockeye run to Chenik Lake in the Kamishak Bay District is questionable but could once again produce harvest opportunities in 2007. Other lake systems in the Outer, Eastern, and Kamishak Bay Districts, plus incidental harvest of fish not originating from the Southern District, in combination could provide up to 83,000 sockeyes from natural production.

Pink Salmon

Harvestable surpluses of pink salmon in LCI during 2007 are anticipated to total slightly more than 1.0 million fish, and for the second consecutive season the majority of the catch should result from natural production. Natural pink salmon spawning escapement levels into most major systems were good in 2005, contributing to a harvest projection of 988,000 naturally produced pinks throughout the entire LCI management area. Outer District systems are expected to have the greatest potential for harvest with a combined total of over 665,000 pinks, returning primarily to Port Dick, while systems at Rocky Bay, Windy Bay, and Port Chatham hold potential for lesser amounts. Ursus and Rocky Coves in the Kamishak Bay District are also predicted to contribute reasonable harvest potential, with a cumulative projected total of about 105,000 pinks in that district. In the Southern District, surpluses could potentially occur at Humpy Creek and Seldovia Bay. At Port Graham Hatchery in the Southern District, the pink return is projected to produce a harvest of only about 77,000 fish, and as has been the case for several seasons, all of the fish returning to this facility will likely be required to recoup operating expenses and/or used as broodstock.

Chum Salmon

Based only on average catches since 1989, the total LCI commercial chum salmon harvest could be expected to total as much as 41,000 fish during 2007. However, chum salmon returns to LCI in recent years have been strong, and the resurgence of commercial harvests during the past seven consecutive seasons resulted in the highest totals for this species since 1988. Such encouraging signs suggest that the potential for a chum harvest greater than the forecast is possible in 2007. This season's chum harvest will again consist exclusively of natural production since chum salmon enhancement has been discontinued in LCI.

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GENERAL INFORMATION

1) In 2004, the Alaska Board of Fisheries adopted new management guidelines directing ADF&G to manage waters of Resurrection Bay to achieve an equal harvest allocation between commercial seiners and Cook Inlet Aquaculture Association (CIAA). As a result, waters of Resurrection Bay north of the latitude of Caines Head will initially open to commercial salmon seining on Monday, May 21, on a schedule of five days per week, from 6:00 a.m. Monday until 10:00 p.m. Friday. Commercial seine catches, as well as escapement at the Bear Creek weir, will be continuously monitored to determine if and when a hatchery opening in marine waters is justified. Weekly fishing periods, and potential hatchery openings in marine waters of Resurrection Bay, will be adjusted inseason, with the goal of achieving an equal harvest total for CIAA and commercial seiners. Because the management strategy represents a radical departure from practices prior to 2005, the times and durations of openings in Resurrection Bay cannot be predicted with any certainty and are expected to be highly variable based on catch and effort for each group. Additionally, management considerations must take into account the Bear Lake desired inriver return goal of 12,000 sockeyes. The forecasted harvestable surplus for Bear Lake in 2007 is approximately 100,000 sockeyes. Accurate and timely catch reporting and escapement counts will be critical in order to achieve the intent of the regulations, and both seiners and processors are advised that a lack of this information could result in overly restrictive management actions. Closed waters during the open season will be the same as during the past nine seasons for seine groups fishing in marine waters and will include those waters along the west shore of Resurrection Bay west of a line from the old military dock pilings north of Caines Head to a regulatory marker near the Seward airport. Seiners participating in the Resurrection Bay sockeye fishery are advised to frequently check the LCI web page, call the Homer office commercial fishery recording, or otherwise take the necessary steps to remain informed of the status of fishery openings and closures. Seiners are also reminded that, by regulation, Chinook and coho salmon may not be taken in waters of Resurrection Bay.

2) The Kamishak Bay District commercial salmon seine season opens by regulation on Friday, June 1. At that time, all areas with the exception of the Chenik Subdistrict will open by emergency order on a fishing schedule of seven days per week. The hatchery Special Harvest Area (SHA) at Kirschner Lake will close to commercial seining and remain open only to fishing for hatchery cost recovery by authorized agents of Cook Inlet Aquaculture Association (CIAA) beginning on June 18. This SHA normally remains closed only until the established revenue goal is achieved, but this season CIAA expects to require the entire projected return (26,000 sockeyes) for cost recovery based on anticipated prices. However, should the return prove stronger than forecasted, the Kirschner SHA will be closed to CIAA and opened to common property seining upon attainment of the revenue goal. At Kirschner Lake, no escapement is necessary and all returning fish will be available for harvest. Additional and more detailed information concerning hatchery cost recovery and SHA management can be found in the 2007 Trail Lakes Hatchery Annual Management Plan (AMP), which should be available prior to the fishing season.

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Fishermen are advised that fishery openings in Chenik Subdistrict will be based upon observed inseason sockeye salmon run strength and estimated escapement. Similar to the last four seasons, the Paint River Subdistrict will open to fishing on June 1 and likely remain open for the entire month of June. Beginning at the end of June or first of July, both the McNeil River and Paint River Subdistricts will be closed in order to afford maximum protection to chums returning to McNeil River and, potentially, sockeyes returning to Chenik Lake. The 7 day per week fishing schedule for open areas in the Kamishak Bay District could be restricted on relatively short notice inseason based on effort levels and escapement rates.

3) In the Southern District, the China Poot and Hazel Lake hatchery revenue goals for sockeye salmon will be combined, and to help expedite achievement of cost recovery goals, a buffer zone outside the special harvest areas is once again expected to remain closed to all seining. Waters in China Poot Subdistrict outside of the buffer zone will open to seining by emergency order at 6:00 a.m. Monday, June 19, on a 5-day-per-week basis. The China Poot and Hazel Lake SHA's will remain closed to commercial fishing and open to hatchery cost recovery harvests by CIAA until the preseason revenue goal is achieved or until the harvest termination date (if used) has lapsed. As in recent years, a Dungeness crab sanctuary at the head of China Poot Bay will remain closed to all seining for the duration of the season. Additional and more detailed information concerning hatchery cost recovery and SHA management can be found in the 2006 Trail Lakes Hatchery Annual Management Plan (AMP), which should be completed prior to the fishing season.

   As announced by CIAA in 2004, operations at Tutka Bay Hatchery have been suspended, and no further hatchery produced pink salmon returns will occur. As a result, the Department will begin managing for achievement of the sustainable escapement goal (SEG) of 6,500 to 17,000 pinks into Tutka Creek. The management strategy to attain this objective will include the "offshore" seine restriction that has been used in past years beginning June 19. Escapement into Tutka Creek will be monitored inseason, and if achievement of the escapement goal can be projected, the time and/or area seine restrictions in Tutka Bay Subdistrict could be liberalized to harvest identifiable surpluses of pink salmon.

4) Provided aerial surveys indicate adequate sockeye salmon run strengths, the Nuka Bay Subdistrict in the Outer District could open to commercial salmon seining by emergency order in late June or early July. An opening in Aialik Subdistrict, possibly including Aialik Lagoon, in the Eastern District also could be allowed in late June if the run appears strong. However, sockeye returns to the Aialik system have been marginal during the past several seasons.

5) Because of another extremely weak forecasted return of sockeyes to English Bay Lakes this season, the Port Graham Subdistrict will not open to commercial set gillnet fishing at the beginning of June. Additionally, the subsistence set gillnet fishery in the same waters will also be closed near the end of May or the first of June. The overall adult return is predicted to total about 4,600 sockeyes, falling below the low end of the SEG range of 6,000 to 13,500. Should the return prove stronger than projected, an opening of the subsistence fishery would be considered. The staff intends to closely monitor the escapement counts at the English Bay weir to assess run strength and determine potential inseason modifications to fishing schedules in the aforementioned fisheries. Because of the weak forecast, the availability of broodstock for the English Bay Lakes enhancement project is in question.

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Assuming that the commercial set gillnet fishery in Port Graham Subdistrict remains closed for the duration of the sockeye salmon return to English Bay Lakes, and given the weak forecasted return of pink salmon to the Port Graham Hatchery, the commercial set gillnet fishery in Port Graham Subdistrict will likely remain closed for the entire 2007 season to protect pinks returning to the hatchery facility. The Port Graham Hatchery pink salmon revenue goal has been established at $200,000 this season, and all returning pink salmon will likely be required to meet broodstock and cost recovery requirements. Therefore, the potential for a targeted common property set gillnet or seine fishery in waters of Port Graham Subdistrict is very low. Specific information regarding the pink salmon return to Port Graham Hatchery can be found in the 2007 Port Graham Hatchery AMP.

6) In the Outer District, waters of the Outer, South, and Taylor Bay Sections of Port Dick Subdistrict, or statistical reporting areas 232-06, 232-07, and 232-08, will open to commercial seining for pink salmon beginning Monday, July 16, on a schedule of two 40-hour periods per week, from Monday 6:00 a.m. until Tuesday 10:00 p.m. and from Thursday 6:00 a.m. until Friday 10:00 p.m. Modifications to areas open to seining and weekly fishing periods could occur on short notice inseason depending on run strength, amount and efficiency of the effort, and the observed escapement rates. Closed waters in Taylor Bay, Tacoma Cove, and Sunday Harbor, as defined in the Commercial Fishing Regulations **5 AAC 21.350. CLOSED WATERS (f) (3), (4)** will remain in effect in this subdistrict. The projected return to Port Dick is relatively strong this season, with a harvest forecast totaling about 335,000 pinks.

   Elsewhere in the Outer District, other areas will be opened to commercial seining for pink salmon by emergency order based on inseason assessment of run strengths. Areas open to seining and weekly fishing periods will be modified inseason depending on run strength, efficiency of the fleet, and the observed escapement rates. Preseason forecasts for pink salmon suggest that harvestable surpluses in the Outer District could occur in the Rocky, Windy, and Port Chatham Subdistricts, but actual openings will be determined by inseason run strength assessment.

   Seiners should take note that waters of Windy Bay and Port Chatham Subdistricts will be open to ***subsistence set gillnet fishing*** on a weekly fishing schedule of 132 hours per week, from Thursday 10:00 p.m. until Wednesday 10:00 a.m., up until August 1 (closed to subsistence fishing after August 1). Should these waters be simultaneously opened to commercial fishing, seiners are cautioned to remain alert for subsistence set gillnet gear in order to avoid potential gear conflicts.

7) Because of a regulatory change adopted by the Alaska Board of Fisheries at their November 2004 meeting, ADF&G has been directed to open commercial set gillnetting in the Southern District by emergency order on or after June 1. As a result, commercial set gillnetting in the Halibut Cove, Tutka Bay, Barabara Creek, and Seldovia Bay Subdistricts will open by Emergency Order beginning at ***6:00 a.m. FRIDAY, JUNE 1***, on the regular schedule of two 48-hour periods per week. Fishermen should note that, because the fishery opens on a Friday, ***the first open fishing period will last only 24 hours***. As stated previously, commercial set gillnetting in Port Graham Subdistrict, including both the English Bay and Port Graham Sections, will remain closed at the start of the season.

8) CFEC set gillnet permit holders are reminded that they **MUST REGISTER WITH ADF&G PRIOR TO FISHING IN WATERS OF COOK INLET**. Registrations can be completed in person at ADF&G offices in Homer, Soldotna, or Anchorage. Alternatively, set gillnet registration

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forms for "Greater Cook Inlet", of which the Southern District is a part, are available on the ADF&G web site at: *http://www.cf.adfg.state.ak.us/region2/finfish/salmon/uci/gcireg07.pdf*. These forms may be printed out, completed, and then mailed to the Department's Homer, Soldotna, or Anchorage offices. At the time of registration, a valid CFEC permit number for the current fishing year must be known and entered onto the registration form. The permit holder need not be present at the time of registration. Mailing address for the Homer office is:

ADF&G
Div. of Commercial Fisheries
3298 Douglas Place
Homer, AK 99603

9) Seiners are reminded that latitudes and longitudes for LCI announcements and emergency orders will be published in **DEGREES AND TENTHS OF MINUTES**. This conforms to established standards in the latest commercial salmon fishing regulations booklet.

10) The Homer ADF&G office will again be utilizing specific radio frequencies during 2007. Marine VHF channel 10 will be used to issue emergency order announcements and informational updates concerning the LCI area. In addition, the same information will be broadcast on SSB frequency 2512 kHz. Announcements are also relayed to public radio station KBBI. A 24-hour telephone recording in the Homer office may be reached by dialing (907) 235-7307 to obtain the most current information on the status of the fishery. ***This recording will be updated whenever any new information becomes available or management action affecting the LCI fishery is taken***.

For the fifth consecutive season, announcements will be published in real time at the following web site:
http://csfish.adfg.state.ak.us/newsrelease/select.php?year=2007&dist=HOM&species=400&submit=Go
Each time a new announcement is issued, it will be made available to and can be viewed (along with other fishing area announcements) at this site. Fishermen should note this Internet address as another source of LCI commercial salmon fisheries information.

For the third consecutive season, members of the public can view the preliminary inseason LCI catches on the internet as they become available. The web address for these catches is: *http://csfish.adfg.state.ak.us/mariner/lci/lcicatchxarea.php*. Whenever possible, the public is encouraged to frequently check this site for updated LCI catch information.

11) The Homer ADF&G staff once again emphasizes the importance of fish ticket catch reporting, especially the accuracy of the location/area of the catch. Such reporting has remained reasonably good during recent seasons, and continued cooperation from fishermen and processors is essential to effective management in LCI. Salmon management programs rely heavily on accurate and timely catch reporting in order to effect practical decisions, which ultimately benefit both the resource and the user groups. Fish ticket data are used by the staff to evaluate inseason run strength, attribute catches to various streams, evaluate enhancement projects, measure long-term production, establish and modify escapement goals, and generate forecasts.

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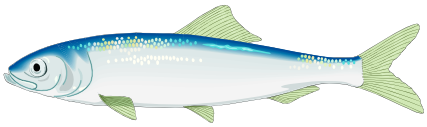
Charts of the LCI fishing district and subdistrict boundaries, complete with a statistical numbering scheme identifying distinct bays and specific fishing areas, are available at the Homer ADF&G office. Fishermen, dock foremen, and tendermen are requested to accurately record the sub-statistical area on the fish ticket at the time of delivery, *showing where the catch actually occurred*. Additionally, including the name of the nearest bay or headland on the fish ticket will significantly improve catch records. *Please DO NOT merely record the location of the tender vessel where the catch was delivered*. If the catch from a particular delivery is from more than one area, please include each sub-statistical area on the fish ticket and provide the estimated catch from each area. If there are any questions concerning fish tickets and/or catch reporting, please do not hesitate to call the Homer ADF&G office at (907) 235-8191.

The ADF&G staff in Homer wishes to extend its appreciation to fishermen and processors for their past support and cooperation in the management of Lower Cook Inlet salmon fisheries, and we look forward to a successful season in 2007.

APPENDIX D:
2007 LOWER COOK INLET
HERRING FISHERY INFORMATION

Appendix D1.–2007 Lower Cook Inlet herring fishery information.

ALASKA DEPARTMENT OF FISH AND GAME
COMMERCIAL FISHERIES
NEWS RELEASE



McKie Campbell, Commissioner

Denby Lloyd, Director
Division of Commercial Fisheries
Juneau

Contact: Lee Hammarstrom,
Ted Otis, Mark Dickson
Div. of Commercial Fisheries Staff
Telephone (907) 235-8191

2007 Herring Announcement No. 1
Issued at Homer, Alaska
September 8, 2006

2007 Lower Cook Inlet Herring Fishery Information

This notice provides information to fishermen and processors on the 2007 Kamishak Bay District herring season. The commercial sac-roe herring fishery in Kamishak Bay will not open in 2007 because the preliminary forecasted return is less than the established regulatory threshold of 6,000 short tons (st) necessary to consider allowing commercial exploitation. Post-season analysis of abundance and age composition data collected in 2006 is ongoing, and more detailed information regarding stock status will be available later this fall. This news is being released now as an early notification to Kamishak Bay herring fishermen and processors, and also to report Kamishak Bay herring stock status to potential participants of the upcoming Kodiak Management Area food/bait fishery. Because Kodiak and Kamishak herring stocks mix, regulations require that Kodiak food/bait harvest guidelines take into account the status of Kamishak herring stocks.

The Kamishak Bay District Herring Management Plan (KBDHMP) specifies that the spawning biomass must exceed a threshold of 6,000 st before a commercial sac roe harvest can be considered for Kamishak Bay. Preliminary estimates from the age-structured-analysis (ASA) model used to generate the annual Kamishak herring forecast show a projected biomass of around 2,286 st in 2007, continuing a declining trend observed over the past few seasons. Additionally, over 50% of the forecasted biomass by weight is predicted to be fish age-5 and younger. Since the KBDHMP stipulates that commercial harvests must target older, repeat spawners in order to protect recruit-class herring that represent the future of the population and the fishery, closure of the Kamishak fishery should allow increased opportunity for the herring stock to rebuild.

Aerial survey coverage to assess the Kamishak Bay herring stock in 2006 was considered poor, while overall observation conditions were considered fair. Several 10- to 17-day "gaps" in coverage, or periods during which no surveys were flown due to poor weather, occurred in 2006. This poor

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coverage resulted in a cumulative total of less than 1,415 st of herring observed by Department surveyors in the Kamishak Bay District this season, the second lowest volume in the past 17 years. The last six consecutive years of disappointingly low aerial survey abundance indices indicate the lack of a significant recruitment event in Kamishak Bay during any recent season. This contrasts with other North Gulf of Alaska herring populations, particularly Kodiak area stocks, which have generally experienced population growth due to strong recruitment events in recent years. One hypothesis for the lack of recruitment in Kamishak Bay originates from the relatively poor condition of the fish observed recently, characterized by low average weights-at-age, which can lead to higher than normal mortality. Another contributing factor may be disease. In 2005, a surprisingly high percentage (37-52%) of herring collected in Kamishak Bay in mid-May was positive for *Ichthyophonus*, a protozoan pathogen that has been linked to population declines of Atlantic herring. Only 10-18% of herring sampled in 2006 were positive for *Ichthyophonus*. While it is uncertain what role this pathogen played in the recent trend of poor recruitment and survival, its reduced prevalence in 2006 samples is encouraging.

Poor weather hindered the ability of Department's two spring vessel charters to survey effectively and collect age composition samples during the periods 2 - 8 May and 15 - 23 May. The early sampling period coincided with the arrival of the first fish on the grounds, which in turn corresponds to the traditional timing of the commercial fishery, while the second charter collected age composition samples during the latter portion of the return in 2006. Unfortunately, data from the two charters corroborated the overall low abundance of the population observed by Department aerial surveyors. Information and samples collected during the Department's two charters indicated that the Kamishak herring population is comprised mainly of young, recruit-aged herring, albeit in low abundance. Comprehensive results from the post-season data analysis will be available later this fall.