Fishery Management Report No. 07-22

2006 Bristol Bay Area Annual Management Report

by

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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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by
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The Division of Sport Fish Fishery Management Reports series was established in 1989 for the publication of an overview of Division of Sport Fish management activities and goals in a specific geographic area. Since 2005, the Division of Commercial Fisheries has also used the Fishery Management Report series. Fishery Management Reports are intended for fishery and other technical professionals, as well as lay persons. Fishery Management Reports are available through the Alaska State Library and on the Internet: http://www.sf.adfg.state.ak.us/statewide/divreports/html/intersearch.cfm. This publication has undergone regional peer review.

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ABSTRACT

The 2006 Bristol Bay Management Report is the forty-fifth consecutive annual volume reporting on management activities of the Alaska Department of Fish and Game, Division of Commercial Fisheries staff in Bristol Bay. The report emphasizes a descriptive account of the information, decisions, and rationale used to manage the Bristol Bay commercial salmon (sockeye *Oncorhynchus nerka*, Chinook *O. tshawytscha*, chum *O. keta*, pink *O. gorbuscha*, and coho *O. kisutch*) and Pacific herring *Clupea pallasi* fisheries, and outlines basic management objectives and procedures. We have included all information deemed necessary to fully explain the rationale behind management decisions formulated in 2006. All narrative and data tabulations in this volume are combined in two sections, salmon followed by herring, to aid in the use of this document as a reference source. The extensive set of tables has been updated to record previously unlisted data for easy reference. Fisheries data in this report supersedes information in previous reports. Corrections or comments should be directed to the Anchorage office. Attention: Editor Paul Salomone, Egegik and Ugashik Area Management Biologist, 333 Raspberry Rd, Anchorage AK, 99518.

Key words: Bristol Bay, management, commercial fisheries, Pacific herring, *Clupea pallasi*, sockeye salmon, *Oncorhynchus nerka*, Chinook salmon, *O. tshawytscha*, chum salmon, *O. keta*, coho salmon, *O. kisutch*, pink salmon, *O. gorbuscha*, Naknek, Kvichak, Egegik, Ugashik, Wood, Nushagak, Igushik, Togiak.

INTRODUCTION

MANAGEMENT AREA DESCRIPTION

The Bristol Bay management area includes all coastal and inland waters east of a line from Cape Newenham to Cape Menshikof (Figure 1). The area includes eight major river systems: Naknek, Kvichak, Egegik, Ugashik, Wood, Nushagak, Igushik, and Togiak. Collectively, these rivers are home to the largest commercial sockeye salmon fishery in the world. Sockeye salmon *Oncorhynchus nerka* are by far the most abundant salmon species that return to Bristol Bay each year, but Chinook *O. tshawytscha*, chum *O. keta*, coho *O. kisutch*, and (in even-years) pink salmon *O. gorbuscha* returns are important to the fisheries as well. The Bristol Bay area is divided into five management districts (Naknek-Kvichak, Egegik, Ugashik, Nushagak, and Togiak) that correspond to the major river drainages. The management objective for each river is to achieve desired escapement goals for the major salmon species while harvesting all fish in excess of the established requirement through orderly fisheries. In addition, regulatory management plans have been adopted for individual species in certain districts.

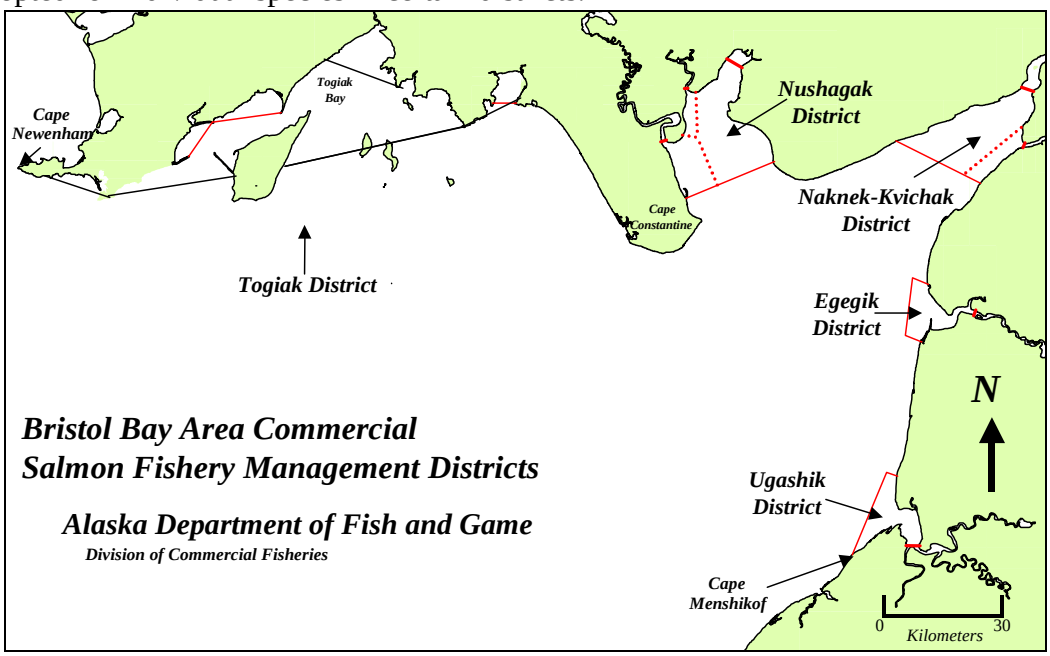

Figure 1.–Bristol Bay area commercial fisheries salmon management districts.

OVERVIEW OF BRISTOL BAY SALMON FISHERIES

The five species of pacific salmon found in Bristol Bay are the focus of major commercial, subsistence, and sport fisheries. Annual commercial catches for the most recent 20-year span (1986–2005) average nearly 24 million sockeye salmon, 70,000 Chinook, 922,000 chum, 103,000 coho, and 261,000 (even-years only) pink salmon (Appendices A3–A7). Since 1986, the value of the commercial salmon harvest in Bristol Bay has averaged $128 million, with sockeye salmon being the most valuable, worth an average $125 million (Appendix A25). Subsistence catches are comprised primarily of sockeye salmon and average approximately 150,000 salmon (Appendix A27). Sport fisheries harvest all species of salmon, with most effort directed toward Chinook and coho stocks. Approximately 40,000 salmon are harvested annually by sport fishermen in Bristol Bay.

Management of the commercial fishery in Bristol Bay is focused on discrete stocks with harvests directed at terminal areas around the mouths of major river systems. Each stock is managed to achieve a spawning escapement goal based on sustained yield. Escapement goals are achieved by regulating fishing time and area by emergency order (EO) and/or adjusting weekly fishing schedules. Legal gear for the commercial salmon fishery includes both drift (150 fathoms) and set (50 fathoms) gillnets. However, the Alaska Board of Fisheries (BOF) passed a regulation in 2003 allowing for two drift permit holders to concurrently fish from the same vessel and jointly operate up to 200 fathoms of drift gillnet gear. This regulation does not apply in special harvest areas. Drift gillnet permits were the most numerous at 1,859 in Bristol Bay (Area T), of those 1,567 fished in 2006. There were a total of 985 set gillnet permits in Bristol Bay, of those 760 made deliveries in 2006 (Appendix A2).

2006 COMMERCIAL SALMON FISHERY

RUN STRENGTH INDICATORS

Fishery managers in Bristol Bay have several early indicators of sockeye run size, including: the preseason forecast, the False Pass test fishery, an offshore test fishery operating from Port Moller, individual district test fishery programs, and the early performance of the commercial fishery. Evaluated individually, each of these pieces of information may not give a correct assessment of run size. Collectively, they form patterns such as weak year classes, discrepancies from the forecast, or differences in run timing that can be important to successful management of the commercial fishery.

PRESEASON FORECASTS

Total inshore sockeye salmon production for Bristol Bay in 2006 was forecast to be slightly more than 32.7 million (Table 1). The Bristol Bay sockeye harvest was predicted to reach approximately 23.7 million fish. Runs were expected to exceed spawning escapement goals for all river systems in Bristol Bay.

The forecast for the sockeye salmon run to Bristol Bay in 2006 was the sum of individual predictions for nine river systems (Kvichak, Alagnak, Naknek, Egegik, Ugashik, Wood, Igushik, Nushagak-Mulchatna, and Togiak) and four age classes (ages 1.2, 1.3, 2.2, and 2.3, plus ages 0.3 and 1.4 for Nushagak) (Table 2). Adult escapement and return data from brood years 1975–2002 were used in the analyses.

Predictions for each age class returning to a river system were calculated from models based on the relationship between adult returns and spawners or siblings from previous years. Tested models included simple linear regression, multiple regression, and 5-year averages. In addition, univariate and multivariate time series analysis models were examined. The models chosen were those with statistically significant parameters having the greatest past reliability (accuracy and precision) based on mean absolute deviation, mean absolute percent error, and mean percent error between forecasts and actual returns for the years 2003 through 2005.

SOUTH UNIMAK/SHUMAGIN ISLAND FISHERY

These fisheries were managed under a guideline harvest (quota) specified in 5 AAC 09.365, the South Unimak/Shumagin Islands June Fishery Management Plan initially adopted in 1974 by the BOF. The original intent was to prevent overharvest of sockeye runs bound for river systems in Bristol Bay. In 2001, the BOF reviewed the management plan and concluded that because the fishery was based on the interception of stocks bound for Bristol Bay and the Arctic-Yukon-Kuskokwim region, it should be restricted to window periods of fishing time. These window periods were as follows: from June 10 to June 24 such that: commercial fishing periods may occur only from 6:00 a.m. to 10:00 p.m. and may not be open for more than (A) 3 days in any 7-day period, (B) 16-hours per day; (C) 48-hours in any 7-day period; (D) two consecutive 16-hour fishing periods in any 7-day period. The BOF removed the previous regulations that were based on a chum cap and a percentage of the Bristol Bay preseason sockeye salmon forecast.

The management plan was again brought before the BOF for review in January 2003. At that time, the BOF restructured the management plan. The South Unimak/Shumagin Island June Fishery Management Plan (5AAC.09.365) states: (a) "The South Unimak and Shumagin Islands fishery harvest both sockeye salmon and chum salmon in a mixed stock fishery during the month of June. The sockeye salmon are predominantly of Bristol Bay and Alaska Peninsula origin. The chum salmon are bound for a number of areas, including Japan, Russia, the Arctic-Yukon-Kuskokwim, Bristol Bay, the Alaska Peninsula, and Southcentral Alaska. These salmon stocks have historically been harvested along the south Alaska Peninsula during the month of June. This management plan is intended to be consistent with the Policy for the Management of Sustainable Salmon Fisheries (5AAC 39.222) and the Policy for the Mixed Stock Salmon Fisheries (5AAC 39.220)." The BOF removed references to interception of Bristol Bay and Arctic-Yukon-Kuskokwim stocks and liberalized the fishing schedule: "(d) Beginning June 7, the commissioner may open, by emergency order, commercial fishing periods for purse seine, drift gillnet, and set gillnet gear in the South Unimak and Shumagin Islands fisheries as follows: (1) commercial fishing periods will begin at 6:00 a.m. and run 88 hours, until 10:00 p.m. three days later; commercial fishing will be closed for 32 hours and reopen at 6:00 a.m. 2 days later (2) notwithstanding (1) of this subsection, the final commercial fishing period will end at 10:00 p.m. on June 29."

Preliminary catch information for 2006 indicates that the Shumagin Island fishery landed 441,000 sockeye, and the South Unimak fishery landed 491,000 sockeye (Appendix A26). The South Unimak sockeye harvest was 73% of the 10-year average and the chum catch was 58% of the 10-year average. However, in the Shumagin Island fishery, sockeye catch was 19% higher than the 10-year average and the chum harvest was 23% higher than the 10-year average. This translates to an overall sockeye harvest that was 10% lower than the 10-year average and a chum harvest that was 10% lower than the 10-year average.

PORT MOLLER TEST FISHERY

From 1967–1985 the Alaska Department of Fish and Game (ADF&G) operated a test fishery program based near the community of Port Moller. A large vessel fished specific coordinates on transect lines perpendicular to the migration path of sockeye salmon returning to Bristol Bay. Collected data was used to estimate strength, timing, age, and size composition of the run. Although the forecasting performance of the project was often inaccurate, the project was very popular with salmon processors because it gave an additional indication of run size, which influenced production capacity and the price paid to fishermen. The project did not operate in 1986, but through voluntary funding from industry and support from ADF&G and the Fisheries Research Institute (FRI), the Port Moller test fish project operated from 1987 through 2003. In 2004–2006, the FRI contribution to the project was replaced by the Bristol Bay Science and Research Institute (BBSRI), which performed the bulk of daily inseason analysis.

GENETICS

Over the last 8 years, ADF&G has built and tested a genetic baseline capable of identifying stock compositions of mixed-fishery samples from within Bristol Bay. The genetics program has two primary objectives: 1) Provide managers with an advanced estimate of stock compositions of fish returning to Bristol Bay through the Port Moller test fishery; 2) Provide researchers with stock composition estimates by year within fishing districts for potential use in the development of brood tables. It is important to note that multiple-years of data will need to be collected before within- and between-year variation can be assessed. Only after that analysis has been completed can migration patterns among fishing districts be examined.

Genetics sampling was added to the Port Moller test fishing project starting in 2004 and continuing through 2006. The intent was to use inseason genetic analysis to identify components of the annual run in time to assist management decisions for individual stocks. ADF&G genetics staff has the ability to complete analysis and deliver results in 3–5 days depending on several factors (timing of airline flights, weather on the fishing grounds). The travel time for fish from Port Moller to Bristol Bay is approximately 7 days also depending on several factors (water temperature, wind, etc). Therefore results from genetic sampling should be available prior to the arrival of a group of fish that were sampled. While it is still uncertain how the Port Moller genetics data will be integrated into the day to day management of Bristol Bay fisheries, the project is generating useful information.

ECONOMICS AND MARKET PRODUCTION

In 2006, the exvessel value of the inshore commercial salmon harvest was estimated at $93.1 million. The 1996 to 2005 average exvessel value of Bristol Bay commercial salmon fisheries was about $79.2 million (Appendix A25).

During the 2006 season, 8 companies canned, 29 companies froze and 4 companies cured salmon in Bristol Bay. In addition, 21 companies exported fish by air (Table 26). A total of 33 processors/buyers reported that they processed fish from Bristol Bay in 2006.

RUN AND HARVEST PERFORMANCE BY SPECIES

The combined commercial salmon harvest in Bristol Bay totaled approximately 31.0 million fish in 2006, exceeding the 20-year average of 24.9 million salmon (Appendix A8).

Spring weather conditions in 2006 were the coldest and had a more extended break-up since the 1999 season. While the herring fishery was certainly impacted, freshwater (river) and ocean temperatures were colder as well which likely contributed to late run timing in the east side districts.

A striking contrast in 2006 was the difference in run timing between west side districts and those on the eastern side. Run timing on the west side, which was driven primarily by an unprecedented large run into the Wood River was near normal, protracted, and very strong. Run timing on the east side was late, average-sized, and protracted. This disparity in run timing was conducive to orderly harvest of the larger than expected run and allowed processors to keep pace with harvest. In 2005, processor imposed limits were prevalent and the harvest was near 24 million sockeye. In 2006, harvest was near 29 million sockeye and few if any processors placed limits on fishers. Some processors increased capacity over 2005 and this also contributed to the ability of industry to keep pace with harvest levels.

Another notable occurrence in 2006 was the large numbers of smaller than average sockeye in all age classes. These small fish influenced the overall average round weight of the harvest to the extent that it was near the lower end of the historic range (Appendix A23).

Sockeye Salmon

The 2006 inshore sockeye run of 43.0 million fish was 26% greater than the preseason forecast of 32.7 million (Table 1). Actual runs were above forecast in all districts, except Egegik.

Sockeye salmon dominated the inshore commercial harvest, and totaled 28.6 million fish (Table 4). Sockeye escapement goals were met or exceeded in all systems where spawning requirements have been defined. The Alagnak River experienced another strong run this year with an escapement of 1.8 million and a total inshore run of 2.9 million.

Chinook Salmon

Chinook salmon harvests in 2006 were above the recent 20-year averages in Nushagak and Togiak districts and below the recent 20-year averages in Naknek and Egegik districts. The 2006 bay-wide commercial harvest of 106,000 Chinook was above the 20-year average of 68,000. This was driven by a harvest of 84,000 in the Nushagak, 66% above the 20-year average, and 16,000 in Togiak, 54% above the 20-year average (Appendix A4).

Chum Salmon

In 2006, the inshore commercial harvest of 2.7 million chum salmon was nearly double the 2005 catch of 1.4 million and almost three times the 20-year average of 922,000 (Appendix A5). Chum salmon catches were above average in all districts except Egegik.

Pink Salmon

Bristol Bay has a dominant even-year pink salmon cycle. The 2006 fishing season resulted in the largest harvest of pink salmon since 1992 (Appendix A6). The 142,000 fish caught represent only 60% of the 20-year average but almost three times the recent 10-year average of 53,000.

Coho Salmon

The 2006 bay-wide commercial harvest of coho salmon totaled 76,000 and was 15% greater than the 10-year average of 67,000 fish (Appendix A7). Effort for coho salmon was low, resulting in a small harvest. However, all indications suggest an average to above average run in 2006 for all districts.

SEASON SUMMARY BY DISTRICT

Naknek/Kvichak District

The 2006 forecast for the Naknek/Kvichak District was for a total run just under 12.0 million sockeye, 5.2 million for escapement and 6.9 million for harvest (Table 1). The forecast by river system was 1.9 million to the Kvichak River, 2.8 million to the Alagnak River and 7.2 million to the Naknek River (Table 2). The escapement goals by river system are as follows: minimum 2.0 million for the Kvichak River, 185,000 for the Alagnak River and a range of 800,000 to 1.4 million for the Naknek River. The total inshore run for 2006 was nearly 14.0 million sockeye salmon. Commercial catch was just over 7.1 million sockeye, 32% was harvested in the Naknek River Special Harvest Area (NRSHA). The contribution of catch from the Kvichak and Alagnak Rivers prior to July 10 was minimal due to steps taken from the start of the season.

The department does not forecast Chinook, chum, or coho salmon for systems in the Naknek/Kvichak District. The commercial harvest of Chinook salmon has remained relatively low due to the current mesh size restrictions that have been implemented since the early 1990s and how the NRSHA is managed. Mesh restrictions are set by EO that prohibit gillnets with mesh size larger than 5.5 inches until July 21 (Table 8). In addition to mesh restrictions, commercial fishing in the NRSHA is regulated by pulsing commercial periods through part of the flood and into the ebb tide. This allows unfished escapement for all salmon species for a portion of each tide.

During the 2003 December Alaska Board of Fisheries meeting in Anchorage, several regulation changes were adopted concerning the Naknek/Kvichak District. The Kvichak River sockeye salmon stock was elevated from a stock of yield concern to a stock of management concern due to recent chronic inability to meet escapement goals. With this action came the stipulation that if the Kvichak River run is forecast to be less than 30% above the minimum biological escapement goal (BEG), fishing will begin in the special harvest areas of Naknek, Egegik and Ugashik Rivers (5 AAC 06.360 (h)). In addition to stock status, the BOF also changed the allocation plan for the Naknek/Kvichak District: when fishing in the NRSHA the allocation of fish will be split 84% for drift gillnet and 16% for set gillnet (5 AAC 06.360 (c)).

In December, 2004, an emergency petition was submitted to the BOF to create an inriver set gillnet fishery in the Alagnak River due to recent large escapements. The BOF accepted the petition and met in March, 2005 to discuss a special set gillnet fishery in the lower Alagnak River. Because of restrictions in the commercial fishery to protect Kvichak stocks, above normal runs to the Alagnak River have occurred for the past 6 years (Appendix A12). The petition asked the BOF to create a special set gillnet fishery in the Alagnak River in an attempt to harvest surplus sockeye salmon when the Naknek/Kvichak District is closed. The BOF also accepted a petition for placing an Optimal Escapement Goal (OEG) on the Kvichak River with a range of 1.5 to 2.0 million sockeye (lowering the current minimum of goal 2.0 million). The BOF passed the inriver set gillnet fishery with restrictions described in 5AAC 06.373, the Alagnak River Sockeye Salmon Special Harvest Area Management Plan (ARSHA), however, the OEG proposal failed.

At the March, 2006 BOF meeting, the BOF voted to allow drift gillnet gear in the ARSHA fishery. Drift gillnet gear was allowed during 2006 under the following guidelines: alternate periods between the two gear groups for the first four tides, after which, if the harvest from either gear group is greater than 50 percent of the other gear group, the gear group with the higher harvest may fish additional periods.

As described previously, the 2006 total run forecast for the Kvichak River was below the minimum 2.6 million required to open the Naknek/Kvichak District (5 AAC 06.360(h)). Because the Kvichak forecast was less than 30% above the minimum BEG of 2 million, the Naknek/Kvichak District remained closed on the normal opening date of June 1. Commercial fishing would occur only in the NRSHA and ARSHA when inseason indications of sufficient run strength existed. In addition to the restrictions in the Naknek/Kvichak District, the Egegik and Ugashik districts were opened with only their reduced areas available for commercial fishing, as per regulation, on June 1.

The escapement monitoring projects, i.e., counting towers for the Naknek, Kvichak, and Alagnak Rivers were all operational during the 2006 season. The Naknek River tower began counting on June 20, the Kvichak River on June 21, and the Alagnak River on June 27 (Table 20). Escapement objectives were met or exceeded in all three systems, which was the second time since 1999. Sockeye passage rates at the Naknek River tower were slow from the beginning. The cumulative escapement through June 24 for the Naknek River was 1,770; the projected cumulative for the same time period was 15,000 sockeye. Test fishing in the Naknek Section began June 19, with 21 sets harvesting a total of 89 sockeye (Table 5). The largest set harvested 17 sockeye, producing an index of 45. The next sample date was June 22 with five drifts for an average index of 190. Test fishing continued for the next 3 days with increasing indices. On June 24, indices near the Naknek River mouth were increasing as were test sets throughout the section. With an increase in sockeye abundance in the Naknek Section the NRSHA opened for the first time at 12:30 p.m. June 25 to set gillnet gear only.

The district test fish boat fished the morning tide on June 26 in the Naknek Section, from 2:00 a.m. until 10:00 a.m. Twelve sets produced an average index of 100. Escapement at the Naknek Tower was increasing. The midnight to 10:00 a.m. cumulative count for June 26 on the Naknek River was 34,000 sockeye, bringing the cumulative to 56,400. With a movement of fish into the Naknek River and an estimated catch of nearly 80,000 sockeye during the June 25 set gillnet fishery, two drift gillnet periods were announced. The NRSHA opened for a 4.5 hour period during the afternoon flood on June 27 and for 6.5 hours on the morning tide June 28. While escapement to the Naknek River increased, escapement to Kvichak and Alagnak rivers remained low. The plan for the NRSHA was to continue fishing each tide; the gear group fishing was determined based on the allocation split of 84% for drift and 16% for set gillnet. Sockeye escapement continued on the Naknek River even with the commercial fishery occurring on each tide, however, passage rates dropped after the initial push of 142,000 sockeye on June 26. Daily escapements after June 26 were in the 50,000 to 60,000 range daily until July 3 when they increased to over 100,000.

The movement of sockeye up the Kvichak River remained below projected levels until July 2 when 88,000 passed the Kvichak tower. However, the actual cumulative count remained below the projected cumulative until July 6 when nearly 300,000 sockeye passed the tower. An aerial survey on July 6 estimated 380,000 fish in the river which was close to the projected 350,000 sockeye by the inriver test fish project (Table 23). Increased escapements were also occurring in the Alagnak River from 32,000 on July 4 to over 200,000 on July 5. With continued escapement up the Alagnak River the first drift gillnet period in the ARSHA was scheduled for 11:30 a.m. on Friday, July 7 and the second period began at 12:30 a.m. on Saturday, July 8. Only 9 drift boats fished the first ARSHA opening and fewer fished the early morning period. There were 12 deliveries from two periods for a combined harvest of 10,100 sockeye. The next nine periods

were restricted to set gillnet gear only, however by July 10 the Naknek/Kvichak District opened and effort shifted to the Naknek and Kvichak Sections. The special harvest areas were left open to set gillnet gear until fishers were able to set up lines and anchors in the main district. All inriver fisheries closed at 7:30 pm. July 12.

The daily escapements to the Kvichak River continued at rates greater than projected. Through July 8, the actual cumulative escapement past the Kvichak tower was over 1.2 million sockeye, while the projected cumulative escapement for the same time period was only 1.0 million. The midnight to 10:00 a.m. count at the Kvichak tower for July 9 was 105,000 bringing the cumulative escapement to 1.3 million. An aerial survey of the Kvichak River estimated 700,000 fish inriver and above the commercial district; which brought the estimated cumulative total to nearly 2.0 million sockeye salmon. With the minimum escapement for the Kvichak River nearly assured the Naknek Section of the Naknek/Kvichak District opened to drift gillnet gear at 10:30 a.m. July 10, and the entire district opened to drift gillnet gear at 12:30 a.m. July 11. The Naknek/Kvichak District opened to set gillnet gear at 10:00 a.m. July 10, opened to continuous fishing beginning 7:30 p.m. July 12, and remained open until 9:00 a.m. July 28. The drift gillnet fleet fished continuously from 9:00 a.m. Monday, July 17 until 9:00 a.m. Friday, July 28. Beginning 9:00 a.m. Monday, July 24 the Naknek/Kvichak District went to the fall schedule of 9:00 a.m. Monday to 9:00 a.m. Friday until September 29.

Total sockeye salmon harvest was slightly more than 7.15 million (Appendix A3). The reported commercial harvest of 2,300 Chinook was above the recent 10-year average harvest of 1,700 (Appendix A4). The chum salmon harvest totaled 395,000 fish, and was nearly five times the 10-year average of 85,000 (Appendix A5). There was a reported commercial harvest of slightly less than 2,500 coho salmon in the Naknek/Kvichak District, a decrease from the 2005 harvest of 3,300 (Appendix A7).

Egegik District

The 2006 run exhibited later than average run timing. With an approximate total of 8.9 million sockeye salmon to the Egegik District the 2006 run ranks as the twelfth largest since 1986, and was approximately 4% below the forecast of 9.3 million. Sockeye salmon runs to the Egegik District during the past 4 comparable cycle years, dating back to 1986, have ranged from 4.6 to 12.6 million fish with an average of 8.2 million. The 2006 run was 9% above the average for recent cycle years (Appendix A13). The most recent 20-year average (1986–2005) for the Egegik run was 9.4 million sockeye. The harvest of 7.4 million was the eleventh largest commercial catch for the same 20-year period. An escapement of approximately 1.47 million fish was achieved, which was above the upper end of the BEG of 800 thousand to 1.4 million (Appendix A1).

The projected Egegik District harvest of 8.2 million sockeye was 35% of the predicted total Bristol Bay harvest (Table 1). Drift gillnet participation peaked on June 27 with 387 permits registered to fish within the Egegik District (Table 9). At the beginning of the EO period (June 17), 106 drift permits were registered to fish in Egegik and 546 drift permits were registered bay-wide.

Because of a low 2006 preseason forecast for the Kvichak River, commercial salmon fishing began in the Egegik River Special Harvest Area (ERSHA), and was opened on June 1, but no landings occurred until June 12 (Table 11). Catches were low until June 26 when a harvest of approximately 220,000 sockeye salmon brought the cumulative harvest to approximately

262,000. Catches from June 13 to 16 were among the lowest on record for those dates, so the fishery was allowed to close as scheduled at 9:00 a.m. on June 17. Inriver test fishery indices remained low so only subsistence fishing was allowed until June 21 while escapement was allowed to build. On June 21 fishing was opened for 4 hours to drift gillnet fishers and 7.5 hours for set gillnet fishers on the evening tide and then for a another 5 hours for drift and 8 hours for set gillnet fishers on the morning tide of June 23. Cumulative harvest through June 23 was approximately 45,000 sockeye compared to a historic average of approximately 255,000. The district was closed June 24 and 25. Test fishery indices showed an increase on June 25, so a 5 hour drift and 8 hour set gillnet fishery were scheduled on the morning tide of June 26. Approximately 220,000 sockeye were harvested during this period.

Daily inriver test fishing, which provides estimates of sockeye salmon passage into the lower portions of the Egegik River, began on June 15 at the established sites just upstream of Wolverine Creek (Table 24). The Egegik River counting tower, which provides daily estimates of sockeye salmon passage into Becharof Lake, had its first full day of counts on June 19 (Table 20).

Harvest through June 26 totaled slightly above 261,000 sockeye salmon; or less than 2% of the preseason forecast for the district. The tower escapement counts continued to climb slowly with an approximate escapement of 90,000 through this date. This level of escapement was a day behind the 1990s average escapement run timing and approximately 4 days behind the average escapement run timing of 2000–2005. The average proportion of the run having passed the tower by this date was 11% using the 1990s run timing and 8% using the 2000-2005 run timing.

Inriver test fish indices increased during the day on June 26 so commercial fishing was scheduled for June 27; a 3-hour period on the morning tide and 5 hours on the evening tide for the drift gillnet group and 8 hours on the evening tide for the set gillnet group. Escapement and test fish indices continued a general upward trend through June 29 with a cumulative escapement past the counting tower of approximately 300,000. This level of escapement was about a day ahead of the 1990s run timing and still about 4 days behind the 2000-2005 run timing. Cumulative harvest was approximately 1.02 million salmon.

On June 30, daily escapement counts dropped to less than 20,000 fish and stayed under 30,000 until July 3. Cumulative escapement through July 3 was 421,000, slightly ahead of the 1990s run timing but 2 to 3 days behind the 2000–2005 run timing. Indices from the inriver test fishery were at a seasonal low indicating a lower volume of fish entering the river. With escapements at half the lower end of the escapement goal and with historic proportions indicating the run was somewhere near the midpoint the district was again rested for the morning tide on July 4 to allow some additional fish into the escapement.

On the morning of July 4, inriver test fishing indices jumped to a seasonal high indicating a significant escapement of fish into the river. Over the course of the next 4 days, almost 700,000 fish passed the tower site; a significant portion probably came from the unfished morning tide on July 4. The lower end of the escapement goal range of 800,000 was passed July 6 with a daily passage of 238,000. Realizing that a strong escapement event had occurred, significant amounts of fishing time for both gear groups was allowed between July 4 and July 12 to guard against another large escapement. This strategy was effective in that escapement dropped at the tower site while catches remained fairly stable (Tables 11 and 24). During a fishing period scheduled

for the afternoon tide on July 4 fishers harvested approximately 300,000 fish. This was the first of 12 consecutive days where the harvest averaged almost 400,000 fish per day.

As the run continued, fishing was allowed for both gear types on a daily basis. On July 9, the Kvichak River was projected to reach the lower end of its BEG of 2 million sockeye salmon. By regulation, this allowed the commercial fishing boundaries in the Egegik District to expand from the ERSHA to include the full district on the morning of July 10. Fishing continued in the full district until the end of the season. The fall fishing schedule of 9:00 a.m. Mondays to 9:00 a.m. to Fridays went into effect beginning at 9:00 a.m. Monday July 17.

The preliminary age composition of the 2006 Egegik District sockeye run is shown in the table below.

Age Group	Catch	Escapement	Total
1.2	13.6%	29.2%	16.1%
2.2	19.0%	23.8%	19.8%
1.3	14.9%	6.1%	13.5%
2.3	51.8%	34.9%	49.0%
Other	0.7%	6.0%	1.6%
Totals	100%	100%	100%

Most of the sockeye salmon (62.5%) were 3-ocean fish, age 1.3 and 2.3, and came from the 2000 and 2001 escapements of 1.03 million and 969,000 respectively. This follows the strong 2-ocean component seen in 2005. Commercial fishers harvested approximately 83% of the Egegik inshore sockeye run, slightly less than the recent 20-year average exploitation rate of 85%. Peak harvest dates were July 5 and 6 when approximately 686,000 and 530,000 sockeye were landed. Peak tower counts also occurred July 5 and 6, when over 238,000 and 180,000 sockeye were counted, respectively. During the EO period from June 16 to July 17 in 2006, a total of 231 hours were fished by the drift gillnet group and 252.5 hours were fished by the set gillnet gear group, 38.5% and 42% respectively, of the 600 available hours. This compares to 255.5 hours for both gear groups in 2005. By the end of the EO period, drift and set gillnet fishers had harvest allocations of 84% and 16%, respectively (Appendix A9). The allocation specified in regulation is 86% drift gillnet and 14% set gillnet.

The commercial harvest of other salmon species in the Egegik District was approximately 189,125 fish, or about 2.5% of the total harvest. The Chinook harvest was approximately 918 fish, 33% below the 20-year average of 1,200 (Appendix A4). The district chum harvest of approximately 161,000 fish was almost twice the recent 20-year average of 83,000 (Appendix A5). 710 pink salmon were reported in the harvest, compared to recent 20-year averages (even year only) of approximately 2,000 (Appendix A6). The coho salmon harvest of approximately 26,800 fish was 13% below the recent 20-year average of 31,000 (Appendix A7).

Aerial surveys were conducted in the Egegik and King Salmon River systems to provide escapement indices for Chinook, chum, and coho salmon. Resulting counts were 276 Chinook, and 957 chum salmon. Chinook escapement indices were below average in streams surveyed. However, because of the lack of carcasses and lack of bears that could have scavenged them, timing of surveys may have been before peak spawning. It is also possible that high water may have washed carcasses out before surveys were flown. Turbid water caused most of the surveys

to be classified as poor. The Chinook salmon index was 71% below the 20-year average while the chum salmon index was 48% below average. The Chinook salmon index was the lowest in the last 10 years and the chum index was the third lowest in 10 years.

Coho surveys were flown in late September and 21,000 fish were observed in the various tributary streams of Becharof Lake. This is the fourth highest number ever observed during coho escapement surveys of the Egegik system. Survey conditions were poor to very poor, turbid water, rain and wind being the cause of very poor ratings.

In summary, the 2006 sockeye salmon harvest at Egegik ranked eleventh out of the last 20 years and 13% lower than the latest 20-year average of approximately 8.4 million fish. The run was approximately 4% below forecast. The fishery harvested approximately 83% of the run into the district compared to the 20-year average of 85%. The midpoint of the escapement was July 5, which coincides with the 20-year average. However, an escapement from a single tide had a significant influence on the timing and would suggest the run was earlier than it actually was in 2006. Thirteen processors purchased fish in the Egegik District this season.

Ugashik District

The 2006 inshore sockeye salmon run to the Ugashik District was approximately 3.43 million fish, or 3% more than the forecast of 3.34 million (Table 1) and ranked eleventh in the most recent 20-year period. The commercial sockeye catch of approximately 2.43 million fish was the tenth largest harvest for the same period. The sockeye escapement to the Ugashik River was approximately 979,000 fish, or 15% over the midpoint of the BEG range of 0.5 to 1.2 million. Comparable inshore returns over the last four cycles, dating back to 1986, have ranged from 1.65 to 6.02 million fish with an average of 3.70 million, making the 2006 run 7% below the average for the last 4 cycle years (Appendix A14).

The district was opened to a 4 days per week fishing schedule on June 1 by EO. Initial landings occurred in the district on June 12 (Table 12) when a handful of sockeye and chum salmon were delivered. As per regulation, allowing no more than 48 hours of fishing time between June 17 and June 22, commercial periods were scheduled for 12-hours on June 19, 20, 21, and 22. The cumulative harvest through June 22 was approximately 29,000 sockeye salmon. This compares to the 20-year average cumulative harvest of 14,500 for the same date.

The preseason forecast for the Ugashik District suggested a potential harvest of 2.5 million sockeye salmon. Accordingly, commercial fishers were advised that fishing time after June 22 would depend on inriver test fishing results, tower escapement levels, and fishery performance. With this advisory, 11 vessels with drift gillnet permits were registered for the Ugashik District on June 24 (Table 9).

Inriver test fishing, which operates about 3 miles upstream of Ugashik Village, started on June 21 and provided a daily estimate of sockeye passage into the lower part of the Ugashik River. The counting tower project, operating about 24 miles upstream of Ugashik Village, started counting on June 30. The first tower count was on June 30 and totaled 1,440 fish (Table 20). Inriver test fishing indices were low so the district was rested June 23 to June 27 when subsistence fishing was allowed for 24 hours from 6:00 p.m. June 28 to 6:00 p.m. June 29. Small fleet size was used as a basis for scheduling commercial fishing periods from June 30 through July 5, with the exception of July 3 when no commercial fishing was allowed. While escapements stayed fairly low, harvest was above average indicating fish were likely milling in

the commercial district before moving into the river. Through July 5 cumulative harvest was 338,000, which is above the 20-year average of 154,000. Escapement through July 5 was approximately 46,000 and 2 to 3 days behind expected levels. A pulse of over 150,000 fish entered the river and migrated past the counting tower from July 5 to July 7 putting escapement several days ahead of expected levels.

Inriver test fishing data was difficult to interpret during this time period. Weather and mechanical issues caused several tides or days to be missed during the period of July 7 to July 13, the middle of the run historically. Further complicating matters was that the fish seemed to take from 3 to 4 days to move from the lower reaches of the river to the counting tower, which was likely influenced by cooler water temperatures in 2006. Historically, fish take approximately 2 days to travel the distance from the test fishing project to the tower site.

Another issue that affected the test fishery information was a large component of age 1.2 fish, which were some of the smallest ever recorded. It is believed that this allowed a significant number of fish in this age class to slip through the nets in the test fishery which under represented the true abundance.

July 9 marked the beginning of 3 days passage at the tower that totaled 457,000 sockeye. The lower end of the escapement goal range (500,000) was surpassed on July 10 when passage for the day at the tower was 285,000 sockeye. Cumulative harvest through July 10 was 1.01 million fish.

Fearing that a significant number of fish had escaped the commercial district, the Ugashik River Special Harvest Area (URSHA) was opened to both set and drift gillnet gear groups from July 11 until July 14. Fishing time in the main district was liberalized. The large pulse did not materialize and the URSHA was closed after the evening tide on July 14. Cumulative harvest through July 14 was 1.6 million fish. Cumulative escapement through July 14 was 740,000. The district was rested on July 16 to allow some movement of fish into the escapement that had not been filtered by commercial nets.

The fall fishing schedule was implemented July 17 and fishing was allowed 9:00 a.m. Monday to 9:00 a.m. Friday.

Strong sockeye landings continued through the end of July and began to taper off in early August with a final catch of approximately 2.4 million (Table 12). The final Ugashik River sockeye escapement count was 979,000 fish when the project ended on July 26. Additionally, about 24,000 sockeye were counted during aerial surveys of the Dog Salmon River (Appendix A14). This number was the highest ever observed in that system and may be the result of displacement from the King Salmon River (see Environmental Conditions).

By the end of the emergency order period, set gillnet fishers had caught approximately 12% of the sockeye harvest and drift gillnet fishers took 88% (Appendix A9). The allocation specified in regulation is 90% drift gillnet and 10% set gillnet. Between June 23 and July 17, set gillnetters fished a total of 127.5 hours, or 11 hours less fishing time than they had in 2005, while drift gillnetters fished a total of 134.5 hours, or 24.5 hours more fishing time than in 2005.

The peak escapement counts at the counting towers occurred July 9, 10 and 11, when 93,000, 285,000 and 78,000 sockeye passed the towers.

The age preliminary composition of the 2006 Ugashik District sockeye salmon run is shown in the table below.

Age Group	Catch	Escapement	Total
1.2	49.7%	72.4%	56.4%
2.2	7.2%	3.2%	6.0%
1.3	35.6%	19.6%	30.9%
2.3	6.1%	0.8%	4.5%
Other	2.3%	3.9%	2.2%
Totals	100%	100%	100%

Commercial harvest of other salmon species was approximately 135,000 fish or 5% of the district's total harvest. The harvest of 2,600 Chinook salmon was 50% above the recent 20-year average of 1,736 (Appendix A4). Chinook escapement is assessed by aerial surveys in the Dog Salmon and King Salmon rivers, the major tributaries of the Ugashik River, and the biggest producers of these species in the district.

The chum salmon harvest of approximately 129,000 fish was 119% above the 20-year average of 59,000 (Appendix A5). The coho salmon harvest of approximately 3,087 fish was well below the 20-year average of 19,000 but there was very little directed commercial effort for Ugashik coho salmon in 2006 (Appendix A7). The coho salmon escapement index of 12,800 for the Upper and Lower Ugashik Lakes is near the top of the range. The timing of this survey was before peak with a mix of coho salmon schooled up below creek mouths and in the creeks.

No pink salmon were reported in the harvest in 2006, historic pink salmon harvest figures are presented in Appendix A6.

The Ugashik District fishery harvested approximately 71% of the sockeye run into the district; the 20-year average exploitation rate is 71%. Peak catch occurred on July 13 when 221,000 sockeye were harvested. The midpoint of the escapement was July 10, slightly early compared to the 20-year average of July 13. The peak day of escapement was also July 10 when over 285,000 sockeye passed the counting tower. Similar to Egegik, this high count influenced the run timing and does not reflect the general lateness of the run in the Ugashik District in 2006. Ten buyers operated in the district during the season (Table 27).

Environmental Conditions

An unusual event occurred in the Mother Goose Lake Drainage during the spring or early summer of 2005. A lahar took place on Mt. Chiginigak, a semi-active volcano which is the headwater area of Volcano and Indecision Creeks. These creeks provide water to Mother Goose Lake, which in turn is the source for the King Salmon River, a tributary that empties into Ugashik Bay.

A lahar is a volcanically influenced runoff event, and while the mechanics or timing in this case are not clear, the effects were dramatic. Sometime in the spring or early summer of 2005, an event took place on or within Mt. Chiginigak that caused the snow on and within the summit crater to melt and runoff into the Mother Goose Drainage and an unnamed tributary on the Pacific side of the Alaska Range. This runoff is extremely acidic in nature and was of a large enough volume to lower the pH of Mother Goose Lake and the King Salmon River to between 3.0 and 3.5. This condition persisted through most of the summer and into the fall and prevented salmon and other anadromous fish from migrating into the upper reaches of the system. Chinook

and chum salmon were observed during aerial survey flights in two tributaries in the lower reaches of the King Salmon River, Pumice, and Old Creeks, but no fish were observed in the King Salmon River mainstem or Painter Creek, a tributary with a confluence just below Mother Goose Lake, or in Volcano or Indecision Creeks. Painter Creek is a major spawning area for Chinook salmon in the Ugashik system.

Long-term ramifications from this event could be significant. At least two and possibly three age classes of salmon were impacted, depending on the timing of the event. The juvenile classes of 2004, which hatched in the spring of 2005, and the 2005 return were definitely affected, but depending on the timing of the lahar, the outgoing age class of the 2003 spawning event (smolts) could have outmigrated before the river was impacted by the acidic runoff. If the runoff ceases or diminishes over the winter, then while impacted, the watershed would become more habitable for all species. If the pH continues to stay low, the ability of the system to support aquatic life will be diminished.

In the spring of 2006 a spot check was conducted by Jon Kent, owner of the Painter Creek lodge, using litmus paper to check the pre-breakup pH of the system. The results showed that the condition had persisted over the winter of 2005–2006. Aerial surveys flown in early August did not reveal any fish in the upper reaches of King Salmon river but showed the lower two tributaries (Pumice and Old Creeks) to be well populated with king, chum and a few sockeye salmon. A single small fish of unknown species was observed in Painter Creek. USGS personnel did a more thorough examination in mid August and found that the pH was still low but not as low as in the summer of 2005.

Significant rainfall occurred during August of 2006 and during an aerial survey for coho salmon in September, salmon were observed in Painter Creek and the mainstem King Salmon River. Jon Kent confirmed the presence of chum salmon in Painter Creek in late August. Whether these observations indicate that conditions have abated or if the seasonal flush of rain was enough to temporarily dilute the acidic water remains to be seen but the fact that fish did make it part way up the system is encouraging.

It is unknown at this time how long the acidic water will be produced and drain into the King Salmon River/ Mother Goose Lake complex and there is no way to remedy the situation. Staff from the Volcano Observatory Group, the USFWS Alaska Peninsula National Wildlife Refuge, and ADF&G will continue to monitor the river and document impacts to the watershed through time.

Nushagak District

The 2006 Nushagak District total inshore sockeye salmon run was approximately 16 million fish, 112% over the preseason forecast of 7.5 million fish (Table 1). Commercial sockeye harvest, in the Nushagak District, reached 11 million, 95% above the preseason projected harvest of 5.65 million sockeye. Total sockeye escapement in the district's three major river systems was 4.8 million or 150% over the combined midrange escapement goal of 1.88 million. Chinook salmon escapement into the Nushagak River was 125,000, 67% above the 75,000 inriver goal. Harvest was 84,000 Chinook in the Nushagak District.

Peak Chinook salmon production in the early 1980's resulted in record commercial harvests and growth of the sport fishery. Declining run sizes and the question of how to share the burden of conservation among users precipitated the development of a management plan for Nushagak

Chinook salmon. Since the plan was adopted in 1992, the Nushagak-Mulchatna Chinook Salmon Management Plan (NMCSMP) has governed management of the Nushagak Chinook salmon fisheries (5 AAC 06.361). The plan was amended in 1995, 1997, and 2003.

The purpose of this management plan is to ensure an adequate spawning escapement of Chinook salmon into the Nushagak River system. The plan directs the department to manage the commercial fishery for an inriver goal of 75,000 Chinook salmon past the sonar site at Portage Creek. The inriver goal provides: (1) a biological escapement goal of 65,000 spawners, (2) a reasonable opportunity for inriver subsistence harvest and (3) a guideline sport harvest of 5,000 fish. The plan addresses poor run scenarios by specifying management actions to be taken in commercial, sport, and subsistence fisheries, depending on the severity of the conservation concern. Management decisions are heavily dependent upon the estimates of inriver Chinook salmon escapement provided by the sonar project located near Portage Creek on the lower Nushagak River.

Trends in age composition of Chinook spawning escapements in 1995 and 1996 raised concerns about the quality of Chinook escapements in the Nushagak River. The proportion of large (age-5 through age-7) fish was less than desired, and the age composition of the escapement during the first half of the run differed substantially from that of the escapement during the second half of the run. In the early portion of the run, male Chinook salmon of the younger age classes comprised the majority of the run, while the older age classes became prevalent in the latter portion of the run. Differences in age composition between escapement and total run, and between early and late-season escapement can result from size-selective harvests. To address this concern, the department adopted a strategy of allowing unfished pulses of Chinook into the Nushagak River before opening a commercial period. Allowing untargeted fish into the river was intended to lessen the effects of selectivity in the commercial fishery while allowing fish with a natural age distribution to enter the river. In November 1997, additional language, directing the department to allow pulses of Chinook salmon into the Nushagak River that were not exposed to commercial fishing gear, was added to the NMCSMP.

The department adjusts commercial fishing time and area to harvest Chinook salmon surplus to the inriver goal. Management decisions are based on the preseason forecast and inseason indicators of run strength, including commercial harvest performance, subsistence harvest rates and inriver passage rates estimated by the sonar project. During the last 2 years managers have used directed Chinook openings early in June to harvest fish when a surplus appears to be available. Because these openings occur usually during the first third of the run it allows for the harvest of more parts of the run at a lower level but also has the potential for complicating management if the second half of the run is significantly weaker than the first half. When a surplus is forecasted, early commercial openings provide for more time between openings allowing unfished pulses of fish to move through the district, better quality of fish in the harvest, and harvest spread over a larger portion of the run.

The 2006 Nushagak District Chinook salmon forecast was 221,000 fish. With an inriver goal of 75,000 fish, and average sport and subsistence harvest of 6,000 fish below the counting station, 140,000 Chinook would theoretically be available for commercial harvest. In 2003, a new strategy was adopted to address concerns about incidental Nushagak sockeye catch in directed Chinook openings. This strategy focused on having directed Chinook openings as early and as often as escapement and the management plan would allow. In 2006, managers worked with the Nushagak Advisory Committee and other stakeholders to decide on the fishing schedule

preseason. The preset schedule allowed stakeholders to plan ahead and provided more certainty for marketing purposes. At the same time managers could suspend the schedule if escapement was less than expected. The preseason schedule allowed for five openings based on the preseason forecast and subsequent openings based on escapement.

The sonar project at Portage Creek was operational on June 8. Daily Chinook counts started off above expectations and continued to be high for the first 5 days of counts. Based on the agreed upon schedule openings began on June 1. A 10-hour directed Chinook opening resulted in the harvest of 2 Chinook salmon from two deliveries, there were more fish caught, but most were not sold and not reported. In 2005, the Chinook fishery opened on June 1 and resulted in a harvest of 689 Chinook but the 2006 spring was much cooler and later than spring in 2005. The preseason plan set directed Chinook openings for June 1, 4, 6, 8, and 11. Openings after the 11th would be based on escapement and were likely to be on June 13, 15, and 18. Duration of openings was dependent on effort, harvest and subsistence information, but the first opening was set at 10 hours.

Participants at the preseason meeting agreed that all set net openings would be 12 hours and drift openings would close at the same time as the set net openings closed. This ensured the closure would occur part way through the flood tide, allowing the drift fleet to ride the flood tide back to town and not arrive in town at low tide when access to the dock or harbor could be blocked.

The second Chinook opening, on June 4, resulted in a harvest of 385 fish from 23 deliveries. It wasn't until the 4th opening on June 8 that there was a significant harvest. On June 8, there were 86 deliveries for 3,527 Chinook, and on June 11, 112 deliveries for 3,992 Chinook. A storm blew through on the weekend of June 9–11 and escapement spiked with 16,000 fish passing the sonar project in 3 days. With escapement ahead of projections, additional openings were warranted. On June 13, there was an 8-hour opening, but the storm over the weekend had moved most of the fish through the district and reported harvest was only 264 Chinook from 81 deliveries.

Cumulative escapement was far ahead of expectations and we continued to stick with the preseason plan for openings on June 15 and 18. Both of these openings were productive with 5,800 and 6,700 Chinook harvested, 31 and 29 fish per delivery respectively. The daily escapement was slow after the storm the previous weekend and the cumulative escapement began to converge with the expected escapement for early run timing. Although managers were confident in run strength because of the strong early push of Chinook into the river and the late cold spring making it unlikely the run was early and weak. Managers used a cautious approach and waited until June 22 to have another directed Chinook opening. This 3-hour opening resulted in a harvest of 19,700 Chinook from 438 deliveries. The nine directed Chinook openings harvested 40,000 Chinook. An additional 13,000 Chinook were harvested in the first unrestricted mesh opening when many participants still used Chinook gear. The season harvest for Chinook was approximately 84,000 and the final Chinook escapement was 124,683.

The preseason forecast for the inshore sockeye run to the Nushagak District totaled 7.5 million fish (Table 1), which was 15% higher than the 20-year average run of 6.5 million sockeye (Appendix A16). Strength of the forecasted Wood River run (4.7 million) was 25% above the 1986–2005 average run, while the Nushagak River sockeye run (2.0 million) was expected to be 23% greater than the 20-year average actual run. The forecasted run to Igushik River (0.84 million) was only 73% of 1986–2005 average run of 1.15 million (Appendix A16).

The sonar project for the Nushagak River was operational on June 8, and the counting project on the Wood River was in operation on June 18. On the morning of June 23, with information on the large Chinook harvest from the previous day's opening and increasing sockeye escapement, it was announced that the next opening would likely be restricted to 5.5 inch or smaller mesh. On June 24, Wood River sockeye escapement started to increase and we announced an opening for 12:30 a.m. Sunday for set gillnets and 8:30 a.m. for drift gillnets with no mesh restriction for either gear type. On Sunday morning, with continued strong sockeye escapement in the Wood River the 12-hour set gillnet period in progress was extended for 6 hours and the 4-hour drift gillnet period was extended for 2 hours. On Sunday morning, with continued strong sockeye escapement in the Wood River the 12-hour set gillnet period in progress was extended for 6 hours and the 4-hour drift gillnet period was extended for 2 hours. On Sunday afternoon, more fishing time was announced for Monday with a 7-hour drift period and a 12-hour set gillnet period. On Monday, June 26, two additional 5-hour drift periods were announced, one for Monday evening and another for Tuesday morning while set gillnet fishing was extended again for 12 hours. On the morning of Tuesday, June 27, with continued strong escapement and good harvests, commercial fishing with set gillnets in the Nushagak Section was extended until further notice. Commercial fishing with drift gillnets was extended for 7 and then 24 hours.

Fishing with drift gillnets was extended several times until the morning of June 30. At this point, a schedule of 21-hour openings with 4-hour closures on the flood tide was adopted. This allowed some unfiltered fish to get through at least part of the district and was meant to increase the quality of the escapement. Quality of the escapement, both in age composition and net marked percentage, was the primary concern and thus the reason for the 4-hour break in fishing. Escapement continued at an unprecedented rate with 17 consecutive days of 100,000 plus escapement into the Wood River (from June 25 through July 11). The harvest also was very steady averaging over 500,000 fish per day for the same period. On Wednesday, July 12, the entire Nushagak District was opened to fishing with drift gillnets until further notice. At the time, the escapement in the Wood River had already exceeded 3.5 million and the Igushik River escapement was over the lower end goal of 150,000 and escapement was strong.

Commercial fishing began in the Igushik Section of the Nushagak District on June 23, with set gillnets only. In recent years, with extended fishing time in the Nushagak Section, Igushik fish stocks have been subject to an uncertain degree of harvest during Nushagak Section drift gillnet openings. This could have played a part in some recent years of poor escapement to the Igushik River. Therefore, managers have taken a conservative approach to fishing in the Igushik Section. Fishing first started with an 8 hours per day set gillnet opening and then increased in time as more escapement and harvest information became available and finally drift gillnet fishing was allowed.

In 2006, fishing went from 8 hours a day set gillnet openings to 24 hours a day on July 1. This change was made after a daily escapement of 12,000 sockeye on June 30 that brought the cumulative escapement to 21,000. Managers opened drift gillnet fishing for 6 hours on July 10 and 11. The strong run continued in the Nushagak Section and the transfer period to the Naknek Kvichak and Egegik Districts was waived. Because of these factors, it was thought that little effort would be drawn to the Igushik Section in 6 hours so fishing was extended until further notice on July 12 when the escapement was 160,000.

Final harvest percentages in the Nushagak District were 87% drift, 11% Nushagak Section set, and 2% Igushik Section set. Sockeye salmon escapement into the Igushik River was 305,000

although this estimate is believed to be low considering that escapement on the last day of counting was over 10,000 fish. Nushagak sockeye salmon escapement was 548,000 or 99% of the mid-range goal of 550,000. Wood River sockeye salmon escapement was 4.08 million, 270% more than the mid-range goal of 1.1 million. Total sockeye salmon harvest in the Nushagak District was 11 million. This surpassed the previous record harvest of 7.4 million set in 1981. The total run of 16 million surpassed the previous record run of 12.8 million set in 1980.

The Nushagak Coho Salmon Management Plan (5 AAC 06.368) established spawning and inriver escapement goals and provides guidance to the department in managing sport, subsistence, and commercial fisheries that harvest coho salmon. The plan directs the department to manage the commercial fishery in the Nushagak District to achieve an inriver escapement goal of 100,000 coho salmon in the Nushagak River. The inriver goal provides for a biological escapement goal of 90,000 spawners and 10,000 additional fish for upriver sport and subsistence harvests. Unfortunately, the department no longer operates the sonar camp on the Nushagak River for coho enumeration. Because there is no escapement information, managers have used a conservative schedule of 36 hours of fishing per week. This was worked into three 12-hour periods for the 2006 season. Coho harvest was 44,000, approximately 30% more than the average harvest over the last 20 years.

Togiak District

The 2006 inshore sockeye run of approximately 938,000 fish was the sixth largest run to the Togiak District in the last 20 years (Appendix A17) and exceeded the preseason forecast by 150% (Table 1). District sockeye harvest was approximately 626,000 salmon, the sixth largest since 1986. Escapement into Togiak Lake was 312,000, well above the BEG range of 100,000-200,000 salmon.

The Togiak District is managed differently than other districts in Bristol Bay. This district uses a fixed fishing schedule of 3 days per week in the Kulukak Section, 4 days per week in Togiak River Section, and 5 days per week in the Osviak, Matogak, and Cape Peirce Sections. The Togiak District Salmon Management Plan (TDSMP) adopted by the Alaska Board of Fisheries in January, 1996 added 36 hours to the weekly schedule for the Togiak River Section between July 1 and July 16. This schedule is adjusted by emergency order, as necessary, to achieve desired escapement objectives. In addition, the TDSMP restricts the transfer into the Togiak District by prohibiting permit holders that fished in any other district from fishing in the Togiak District until July 24. Conversely, it prohibits permit holders that have fished in the Togiak District from fishing in any other Bristol Bay district until July 24.

The 2006 inshore run to the Togiak River was forecasted at 590,000 sockeye salmon (Table 1), of which 78% were projected to be 3-ocean fish and the remaining 22% were predicted to be 2-ocean fish (Table 2). With a midpoint escapement goal of 150,000 sockeye for Togiak Lake, approximately 440,000 sockeye would potentially be available for harvest in the Togiak River Section. Smaller sockeye runs to other drainages in the district (primarily the Kulukak River) occur, but these are not included in the preseason forecast because age composition and escapement data are not complete. Unofficially, a contribution of 53,500 sockeye to the district harvest was projected from drainages other than the Togiak River.

A formal forecast is not issued for Chinook salmon in the Togiak District. Recently, Chinook run strengths district-wide have declined from a high of almost 52,000 in 1985, to a low of less

than 18,000 in 2002 (Appendix A20). Chinook escapements in the Togiak River drainage fell short of the escapement goal (10,000) from 1986 through 1992. The Chinook escapement goal was reached from 1993 to 1995 with extensive commercial fishing closures and mesh size restrictions. In 1996, with only minor reductions in the weekly fishing schedule, Chinook escapement again fell short of the goal. The Chinook escapement goal in the Togiak River has been achieved consistently since that time. Reducing the weekly schedule to 48 hours per week in late June seems to provide a good balance between commercial fishing time and closures that allow Chinook escapement to be achieved.

Management strategy for Chinook salmon the last 9 years has been to reduce the weekly fishing schedule in sections of the Togiak District during the last two weeks of June. The Kulukak Section was reduced to 48 hours of fishing time to decrease the exploitation of Chinook salmon. In the Togiak River Section, regularly scheduled periods were reduced by 24 hours. The western sections, Cape Peirce, Osviak, and Matogak, remained open for the regularly scheduled periods.

Commercial fishing opened in the district with a regular weekly schedule on June 1. However, first landings of the 2006 season were made on June 19 (Table 14). Coincidentally, the reduced schedule was first applied the week of June 19. Commercial harvest and effort for this week was below average with 639 Chinook salmon.

The fishery was reopened on June 26 and was reduced using a split schedule. Cumulative catch after the last delivery on Wednesday, June 28 was 2,137 Chinook salmon. Fishing reopened on Friday, June 30 and closed late Saturday July 1. Total Chinook catch for this period was 1,838 fish. Midnight June 30, marked the end of active management for Chinook salmon. Fishing continued Saturday, July 1 with the focus on sockeye salmon management.

Total Chinook harvest for the Togiak River Section was 15,125 fish (Table 15), with an additional 1,154 caught in the remainder of the Togiak District (Tables 16, 17, and 18). The total number of Chinook salmon caught in the Togiak District was 78% higher than the 10-year average. Unfortunately, weather, high water, and pilot availability issues prevented aerial surveys to assess escapement in all but the Osviak, Matogak, and Quigmy rivers, where a total of 1,670 Chinook salmon were counted. Figures are not yet available for sport or subsistence harvests. District-wide escapement is not available due to partial escapement data (Appendix A20). Total run size cannot be determined in the absence of complete escapement data.

Commercial fishing for sockeye opened with regularly scheduled fishing periods on June 1. First deliveries of the season occurred on June 19. Although directed sockeye fishing does not begin until July 1, effort largely focuses on their harvest for the entire season. By the end of June, district sockeye harvest was 35,000 fish, slightly ahead of expected levels.

As mentioned above, the last two weekly fishing periods in June for the Togiak River and Kulukak Sections were reduced for Chinook conservation. Although regularly scheduled fishing periods in the Kulukak Section have been reduced starting July 1 in the past, the department responded to local requests to keep the Kulukak Section open for an extra day for the first week of July. Reductions of 48 hours for conservation of Kulukak River sockeye have become common practice in recent years due to a shift in effort to the Kulukak Section and conservation concerns for the Kulukak River sockeye stock. The Kulukak Section reverted to the reduced schedule until the end of July but returned to the full schedule on August 1 for the remainder of the season.

Operation of the Togiak counting towers began on July 3 with a count of 3,000 sockeye. Commercial fishing reopened on July 3 as scheduled. The Kulukak Section remained on the full schedule. Permit holders were advised to be attentive early each week for potential changes in the fishing schedule for the Togiak Section. Both cumulative catch and escapement were stronger than expected for this time. Therefore, the Togiak fleet fished the normal schedule closing on July 9. At that time, cumulative escapement past the towers was 24,594 sockeye (Table 21). Cumulative harvest was 195,000 with the majority caught in the preceding week.

When fishing commenced on Monday July 10, the Kulukak Section was reduced to 48 hours and the Togiak Section was on "stand-by". By the afternoon of July 14, escapement past the towers on the Togiak River was over 63,000 sockeye and catch was reported to be over 232,000 sockeye. With escapement ahead of schedule, the Togiak River Section was extended to 9:00 a.m. Monday, July 17 when the next week's fishing schedule would begin.

For the week of July 17, the Kulukak Section was reduced to 48 hours and the Togiak Section was once again on "stand-by". By July 20, escapement was well ahead of the expected cumulative escapement curve with a cumulative count of over 97,000 sockeye. Catch in the district was strong at almost 380,000 sockeye. With escapement guaranteed to fall within the BEG range, fishing was extended to close 9:00 a.m. Sunday, July 23, the maximum allowable extension.

By regulation, the Togiak District opens to all Bristol Bay CFEC salmon permit holders on July 24. Although there seemed to be a lot of interest in fishing there, deliveries did not increase. There are no requirements for registration after July 24 so increased effort is difficult to assess**.**

Fishing reopened on July 24 in all sections; however, the Togiak Section was once again placed on "stand-by". Although the schedule for the Kulukak River Section reverted to the full schedule for the remainder of the season, the last deliveries from the Kulukak Section were made July 26 due to lack of tender service in the area. The season total for the Kulukak Section was approximately 52,000 sockeye (Table 16). By Wednesday, July 26, escapement past the Togiak counting tower was over 163,000. With escapement at the middle of the BEG range, the fishing period in the Togiak River Section was extended to 9:00 a.m. Sunday, July 30, the maximum allowable extension.

For the week of July 31, the Togiak Section was once again extended to 9:00 a.m. Sunday, August 6, the maximum allowable extension. By August 3, escapement was over 275,000 sockeye. Catch in the district was strong with almost 573,000 sockeye. Counting towers ceased operations August 5 after counting a season total of 312,000 sockeye.

On Monday, August 7, the district opened on the full schedule that would dictate the remainder of the season. The last deliveries were made on August 9. The 2006 sockeye harvest in the Togiak District was nearly 626,000 sockeye, 130% of the expected pre season forecast harvest.

There was no directed coho fishery in the Togiak District this year. Final operations reports from processors indicated that there were 452 coho salmon caught by the last day of fishing, August 9 (Table 15). Due to poor survey conditions and flight availability problems, the Togiak District was not surveyed to assess coho escapement in 2006.

The 2006 sockeye harvest in the Togiak District was 625,696, the sixth highest in the past 20 years (Appendix A3); even without complete escapement information, the total sockeye salmon run also ranked 6th among the last 20 years (Appendix A17).

Commercial Chinook harvest was 150% of the 20-year average, while harvest of chum and coho were 189% and 3% respectively of the 10-year averages (Appendices A20, A21, and A22). Few aerial surveys to assess escapement in the Togiak District were performed, due to weather, high water, and pilot availability. No sockeye surveys were flown in the Togiak District, therefore total assessed escapement in the Togiak River was over 312,000 sockeye. Aerial spawning ground surveys for Chinook salmon were also not conducted in the Togiak River drainage. Coho salmon escapement surveys were only conducted on the Kulukak River where over 3,000 fish were observed.

2006 SUBSISTENCE SALMON FISHERY

In spite of numerous social, economic, and technological changes, Bristol Bay residents continue to depend on salmon and other fish species as an important source of food. Residents have historically relied on fish to provide nourishment and sustenance. Subsistence harvests still provide important nutritional, economic, social, and cultural benefits to most Bristol Bay households. All five species of salmon are utilized for subsistence purposes in Bristol Bay, but the most popular are sockeye, Chinook, and coho. Many residents continue to preserve large quantities of fish through traditional methods such as drying and smoking, and fish are also frozen, canned, salted, pickled, fermented, and eaten fresh.

Final information about subsistence salmon harvests for the Bristol Bay area for 2006 was not available when this report was published. This information will be included in future annual management reports. Tables in this report include final subsistence harvest data for 2005 that were not available for the 2005 annual management report.

REGULATIONS

Permits are required to harvest salmon for subsistence purposes in Bristol Bay. Since 1990, under state regulations, all Alaska State residents have been eligible to participate in subsistence salmon fishing in all Bristol Bay drainages, except the Lake Clark area. Only gillnets were recognized as legal subsistence gear, however, in 2006 in the Togiak District, spear fishing was also allowed. In the Bristol Bay area, gillnet lengths were limited to 10 fathoms in the Naknek, Egegik, and Ugashik rivers, Dillingham beaches, and within the Nushagak commercial fishing district during openings regulated by EO. Up to 25 fathoms could be used in the remaining areas, except that nets were limited to 5 fathoms in the special “redfish” harvest areas in the Naknek District.

In Dillingham and the Naknek, Egegik, and Ugashik rivers, subsistence fishing is permitted in all commercial districts during commercial openings. In addition, all commercial districts were open for subsistence fishing in May and October, from Monday to Friday. In the late 1990s and early 2000s, declining Chinook and coho stocks resulted in longer commercial closures and some residents had difficulty obtaining fish for home use. Recent years, beginning in 2004 have seen improvements in abundance of all species. The Nushagak commercial district, starting in 1988, has been opened for subsistence fishing by EO during extended commercial closures.

The Alaska Department of Fish and Game issues Bristol Bay subsistence salmon permits to any Alaska resident who requests one. In 2001, the superintendent of Lake Clark National Park and Preserve, announced that the National Park Service (NPS) was prohibiting subsistence fishing with nets in the park and preserve, including all of Lake Clark, except by federally qualified residents. This prohibition was a new enforcement action of a NPS regulation and applied to

anyone who was not a permanent resident of Iliamna, Lime Village, Newhalen, Nondalton, Pedro Bay, or Port Alsworth, or who did not have a Section 13.44 subsistence use permit issued by the park superintendent. The department informs Bristol Bay subsistence salmon permit applicants that they need to take this NPS closure into account if they intend to subsistence fish in waters of the park and preserve.

INSEASON MANAGEMENT

By regulation (5AAC 01.310) subsistence fishing for salmon is open in all Bristol Bay commercial fishing districts as follows: from May 1 to May 31 and from October 1 to October 30 subsistence fishing for salmon is open from 9:00 a.m. Monday to 9:00 a.m. Friday (96 consecutive hours), in the Naknek, Egegik, and Ugashik Rivers, beginning 9:00 a.m. June 23 until 9:00 a.m. July 17, subsistence fishing for salmon is allowed 9:00 a.m. Tuesday to 9:00 a.m. Wednesday and 9:00 a.m. Saturday to 9:00 a.m. Sunday (two 24-hour periods or 48 hours per week). In addition, subsistence fishing for salmon is allowed during commercial fishing periods in all districts. In the Naknek River a special area reserved for individuals aged 60 years or older is available for subsistence fishing under the two 24-hour period per week schedule outlined above. Regulations differ in the Nushagak commercial district; open areas are delineated by ADF&G boundary markers in selected locations (see 5 AAC01.310(d)) beginning 9:00 a.m. July 2 until 9:00 a.m. July 17 salmon may be taken for subsistence purposes from 9:00 a.m. Monday until 9:00 a.m. Tuesday (24 hours), 9:00 a.m. Wednesday until 9:00 a.m. Thursday (24 hours) and 9:00 a.m. Friday until 9:00 a.m. Saturday (24 hours) or a total of 72 hours per week. The department may also provide additional subsistence opportunity by EO. Additional opportunity provided in 2006 is listed by district below.

The Nushagak commercial fishing district was opened to subsistence salmon fishing from 8:00 p.m. June 1 until 1:00 a.m. June 4; from 11:00 pm. June 4 until 6:00 a.m. June 6; from 11:00 p.m. June 6 until 9:00 a.m. June 8; from 3:00 a.m. June 9 until 1:00 a.m. June 11; from 9:00 p.m. June 11 until 11:00 p.m. June 12; from 9:00 p.m. June 13 to 11:00 p.m. June 14; from 9:00 p.m. June 15 until 1:00 a.m. June 18; from 11:00 p.m. June 18 until 4:00 a.m. June 20; and from 4:00 a.m. June 20 until 6:00 a.m. June 25 (except that in the Igushik Section, subsistence fishing closed at 8:00 p.m. on June 23; and in the Nushagak Section, subsistence fishing closed at 8:00 p.m. on June 24). Subsistence fishing opportunities were available in the commercial fishing district in correspondence with commercial fishing openings for the remainder of the season.

The Togiak commercial fishing district was opened to additional subsistence salmon fishing from 4:00 p.m. June 22 until 9:00 p.m. June 25. Subsistence fishing opportunities were available in the commercial fishing district in correspondence with commercial fishing openings for the remainder of the season.

The Naknek River and the Naknek Section of the Naknek/Kvichak District was opened for additional subsistence salmon fishing for three 24-hour periods per week from 9:00 a.m. Saturdays to 9:00 a.m. Sundays, from 9:00 a.m. Tuesdays to 9:00 a.m. Wednesdays, and from 9:00 a.m. Thursdays to 9:00 a.m. Fridays, effective 9:00 a.m. Thursday June 27 until Monday July 17. Subsistence fishing opportunities were available in the commercial fishing district in correspondence with commercial fishing openings for the remainder of the season.

In the Egegik District, the department had been informed that some Egegik residents were having difficulty obtaining subsistence fishing locations within the district when the commercial

fishery was open. As a result, additional subsistence fishing time was allowed from 4:00 p.m. June 16 until 4:00 p.m. June 17, which was subsequently extended until 3:00 p.m. June 20. Another opening was allowed from 6:00 p.m. June 23 until 6:00 p.m. June 24. Subsistence fishing opportunities were available in the commercial fishing district in correspondence with commercial fishing openings for the remainder of the season.

In the Ugashik District, additional subsistence salmon fishing time was allowed from 6:00 p.m. June 23 until 6:00 p.m. June 25. Another subsistence opening occurred from 6:00 p.m. Wednesday June 28 until 6:00 p.m. Thursday June 29. Subsistence fishing opportunities were available in the commercial fishing district in correspondence with commercial fishing openings for the remainder of the season.

PERMIT SYSTEM AND ANNUAL SUBSISTENCE HARVEST

A permit system was gradually introduced throughout the Bristol Bay region in the late 1960s to document the harvest of salmon for subsistence. Much of the increase in the number of permits issued during these years reflects: 1) a greater compliance with the permitting and reporting requirements, 2) an increased level of effort expended by the department in making permits available (including a local system of vendors), contacting individuals, and reminding them to return the harvest forms, and 3) a growing regional population. Most fishermen are obtaining permits and reporting their catches, and overall permit returns have averaged between 85% and 90% annually. However, fish removed for home use from commercial catches are not included in most reported subsistence harvest totals. Also, fish caught later in the season, such as coho and spawning salmon are probably not documented as consistently as Chinook and sockeye.

As noted, final subsistence harvest estimates for 2006 were not available when this report was published. Appendix A27, A28, and A29 provide harvest estimates by district and species for the 21-year period from 1985 through 2005 plus the recent 5-year average harvests prior to 2005.

2006 BRISTOL BAY HERRING FISHERY

This report reviews stock assessment activities, provides an overview of the Togiak District herring fishery from 1978 to 2005 and summarizes the 2006 season.

The Bristol Bay area includes all waters south of a line, extending west from Cape Newenham, east of the International Date Line in the Bering Sea and north of a line extending west from Cape Menshikof. The Bristol Bay area is divided into three herring fishing districts. The Bay District; including all waters east of the longitude of Cape Constantine, the Togiak District; including all waters between the longitude of Cape Newenham and the longitude of Cape Constantine, and the General District; including all waters west of the longitude of Cape Newenham. Togiak District spans approximately 192 km (Figure 2). Togiak village lies at the center of the district, 108 km west of Dillingham.

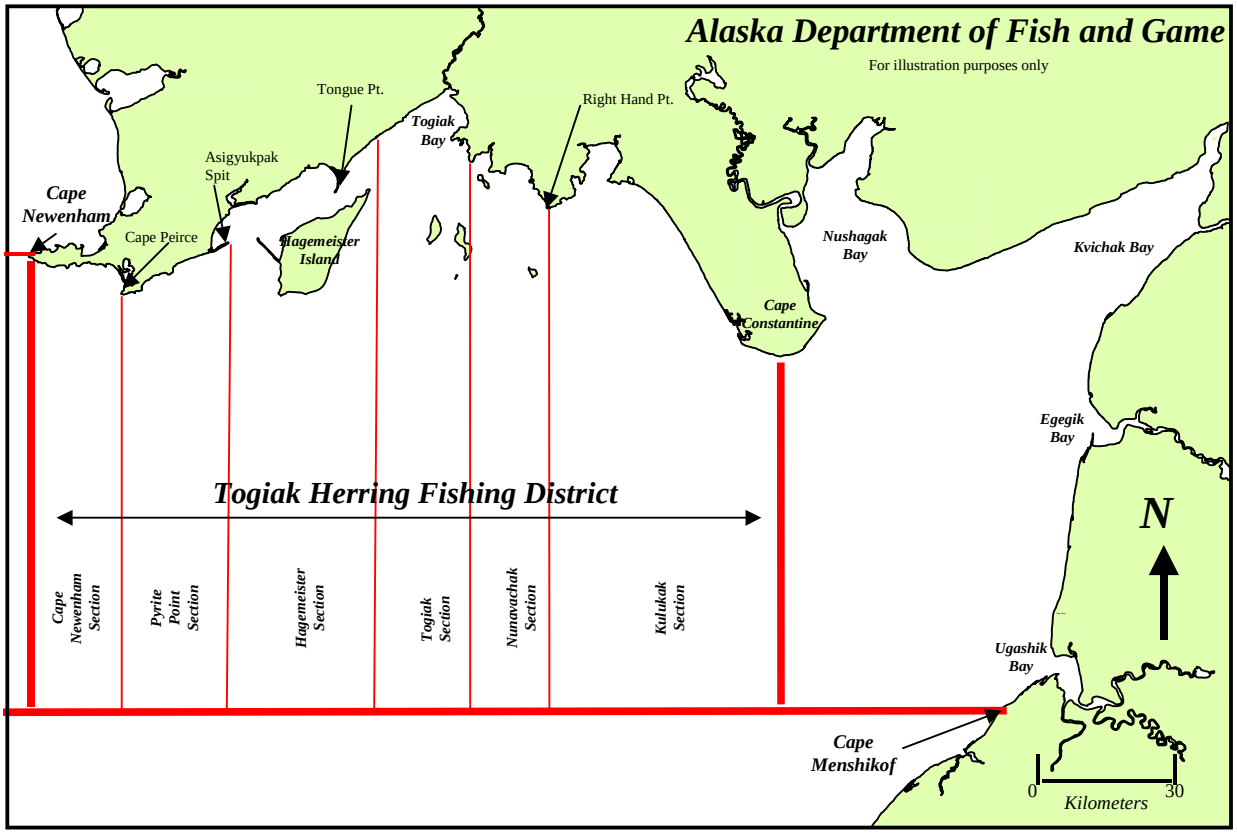

Figure 2.–Togiak Herring District, Bristol Bay.

Pacific herring (*Clupea pallasii*) have been documented throughout Bristol Bay, but the major concentration returns to the Togiak area each spring to spawn and is the focus of herring sac roe and spawn-on-kelp fisheries. In the Togiak District, herring are commercially harvested for sac roe using gillnets and purse seines while herring spawn on rockweed kelp *(Fucus spp.)* is harvested by hand.

The herring sac roe fishery began in the Togiak District in 1967, followed by the first fishery for spawn on kelp in 1968. Effort and harvest levels remained low for the first 10 years of the fishery. Increased interest, favorable market conditions, and additional incentives provided by the Fishery Conservation and Management Act of 1976 (the 200 mile limit) resulted in a rapid expansion of the Togiak herring fishery in 1977.

The Togiak herring fishery is the largest in Alaska. From 1986 to 2005, sac roe harvests averaged approximately 20,000 tons, worth an average of $6.8 million annually (Appendices B2 and B6). Spawn-on-kelp harvests have occurred in only 4 of the last 10 years, it seems unlikely that there will be a market for spawn-on-kelp and the harvests and value of the past are no longer an indicator of any future harvest or value. In 2006, sac roe harvests brought $2.62 million to permit holders, the third lowest value since 2000. No spawn-on-kelp fishery occurred in 2006.

STOCK ASSESSMENT

Since 1978, the department has conducted aerial surveys throughout the herring spawning migration to estimate abundance, timing and distribution of Pacific herring in the Togiak District. Surveys are conducted regularly from mid-April through May each year. Once herring

are observed, surveys are conducted daily, weather permitting, until commercial fishing is completed.

Fundamental aerial survey techniques used in Togiak have remained largely unchanged since 1978 and are described in Lebida and Whitmore (1985). Herring school surface area is estimated through a handheld tube with a measured grid and a known focal length from a known altitude. Standard conversion factors of 1.52 tons (water depths of 16 ft or less), 2.58 tons (water depths between 16 and 26 ft) and 2.83 tons (water depths greater than 26 ft) per 538 ft^2 of surface area is applied to herring school surface areas to estimate the total biomass observed during each flight. Over the last 3 years, the department has been converting aerial survey data collection to use Geographic Information Systems (GIS) performing "real-time" data entry and analysis.

Volunteer test fisheries, originally implemented by the department to estimate roe quality, provide samples for age, size, and sex composition analysis. Samples are also collected from commercial harvest for age composition and size analysis. After the season, results are sometimes used to revise biomass estimates.

The status of the Togiak herring population is considered relatively stable. Annual biomass estimates range from 83,000 tons in 1991 to 193,800 tons estimated in 1993 (Appendix B5). Abundance was estimated to be high in the late 1970's, declined in mid 1980's and remained relatively low and stable through 1991. Biomass levels from 1992 to 1994 increased to levels between 150,000 and 200,000 tons and estimates since 1995 range from 121,000 to 157,000 tons estimated after the 1999 season.

From 1986 to 2006, herring were generally first observed in the district in late April or early May, but were observed entering near shore areas as early as April 19 and as late as June 3. Biomass typically increases rapidly and peaks within 1 to 7 days of the first observation. In recent years, it has been difficult to get good surveys during the peak of the harvest; in 2002, the peak survey occurred after the fishery was completed. The herring run appears to be more protracted with lower peak biomass estimates but more herring around for a longer period. Except for 3 years, spawn was first observed any time within 3 days of the first herring observation. Spawning trends differ slightly from those observed for biomass, spawning in all but 2 years accelerated rapidly, peaked from 1 to 4 days after the first occurrence of spawn, spawning continued for a month generally but in less intense spot spawns. Small "spot" spawns have been observed as late as June 14.

Herring ages 2 through 20 have been observed in the Togiak District but herring generally recruit into the fishery at age 5. Herring abundance is related to year class survival. Two major recruitment events have occurred since the State began monitoring the biomass in 1978. The 1977 and 1978 year classes recruited into the fishery in 1982 and 1983 and comprised a substantial component of the biomass until the early 1990s. Other lesser recruitment events have occurred since that time with the most recent being in 1996 and 1997 appearing as age-9 and age-10 herring in the 2006 season.

SAC ROE HERRING FISHERY OVERVIEW

Fishing and Industry Participation

Unlike most herring fisheries in Alaska, the Togiak sac roe fishery is not a limited entry fishery. Gillnets, purse seines and hand purse seines are legal gear. Since fishing effort is not limited, effort levels can vary substantially each year. Herring market conditions are one of the leading

factors influencing effort in a given year, but other factors also influence fleet size. Since the majority of herring permit holders in Togiak participate in other fisheries like Bristol Bay salmon, the health of the salmon market and markets for other fish indirectly affect effort in the herring fishery. Herring prices paid to permit holders the prior year and run timing also affect effort. In the last 5 years, processors have developed cooperative fleets for the purse seine fishery. Processors in conjunction with the coop members exclude entrants into the fishery. This is beginning to happen in the gillnet fleet as well.

Fishing effort in the sac roe fishery increased through the late 1980s, decreased early in the 1990s, then increased again to a peak in 1996 and has declined since 1997 (Appendix B1). Gillnet effort increased to 320 vessels in 1989, declined to a low of 75 vessels in 1993, and then peaked in 1996 with 461 vessels and has since declined to a low in 2006 of 49. Purse seine effort increased steadily from 1978 through 1989, when 310 vessels were observed. From 1990 to 1997, the purse seine fleet has fluctuated between 200 and 300 vessels, and has declined to less than 100 vessels since 1998. In 2006, the total number of purse seines was 28, an all-time low.

Reduction in fleet size has led to the development of cooperative seine fisheries that focus on fish with high quality roe rather than on quantity. Reduced fleet size has led to changes in the way the fishery is managed; because fishing is less aggressive, managers can allow 12 hour openings leading to increased selectivity and smaller sets.

Industry participation in the fishery peaked between 1979 and 1982, when 33 processors participated in the herring fishery. From 1987 through 1997, 16 to 22 companies have purchased herring or spawn-on-kelp in Togiak. Over the past 6 years, industry participation has steadily declined to a low in 2004 of 6 companies. Processing capacity on the grounds has also declined from a high of 4,850 tons per day in 1996 to a low in 2003 of 1,920 tons per day.

Gear Specifications

The Alaska Board of Fisheries has reduced gear to limit harvesting capacity and control problems with waste. Prior to 1989, gillnet length was restricted to 150 fathoms. Each permit holder was restricted to the use of one legal limit of gear, but up to 300 fathoms could be operated from a fishing vessel. Under these gear allowances, lost and abandoned nets accounted for substantial amounts of waste during some years. In 1989, the BOF reduced the legal compliment of gillnet gear to a maximum of 100 fathoms in length per permit holder, restricted the operation from one vessel to 100 fathoms, and granted ADF&G the authority to reduce length to 50 fathoms inseason. The BOF transposed this regulation in 1992 when it restricted herring gillnet length to 50 fathoms but granted ADF&G the ability to allow up to 100 fathoms of gear by emergency order. This change enabled ADF&G to maintain an orderly fishery, helping ensure roe quality and minimizing potential waste. Gillnet depth remains unrestricted.

In October of 1989, the BOF reduced purse seines to 100 fathoms in length and 16 fathoms in depth. In 1995, the BOF further restricted purse seine depth to 625 meshes, of which 600 could be no larger than 1.5 inches. Depth was reduced in 1995 to control harvesting capacity. Adjustments in allowable gear have appeared to control waste and preserve order in the fishery without a substantial reduction in harvesting capacity.

Harvest and Management Performance

The commercial sac roe and spawn-on-kelp harvests in the Togiak District have been regulated by emergency order since 1981. From 1981 through 1987, informal policies directed the

department to ensure that minimum threshold biomass levels were observed before opening the herring fishery, and to manage the fishery so that exploitation did not exceed 20%. In 1988, the BOF incorporated the threshold and exploitation rate policies into the Bering Sea Herring Fishery Management Plan (5 AAC 27.060) for Togiak and other Bering Sea fisheries. Herring biomass in Togiak has been estimated at levels well above threshold requirements since 1981.

Average annual exploitation rates for the last 20 years was slightly under 20% but for the last 10 years has been 18.4% (Appendix B2). Annual exploitation ranged from 32% to 13.5% and has not exceeded 20% since 1998. Although the sac roe, spawn-on-kelp and Dutch Harbor food and bait fisheries take Togiak herring, only sac roe harvests were used in calculating exploitation rates from 1981 to 1983. Estimates of herring biomass equivalent to spawn-on-kelp harvests and harvests in the Dutch Harbor fishery were not included when calculating exploitation rates until 1984 and 1988.

Herring purse seine and gillnet sac roe harvests are managed for allocation guidelines set forth in the Bristol Bay Herring Management Plan (BBHMP) (5 AAC 27.865). This plan states that, before opening the sac roe fishery, 1,500 short tons must be set aside for the spawn-on-kelp fishery, and 7% of the remaining available harvest is allocated to the Dutch Harbor food and bait fishery. After the spawn-on-kelp and the Dutch Harbor harvests are subtracted, the remaining harvestable surplus is allocated to the Togiak sac roe fishery: 30% of the harvestable surplus to the gillnet fleet, and 70% to the purse seine fleet. From 1988 through 2000, these percentages were set at 25% gillnet, 75% purse seine. The BOF modified these allocation percentages to the current ratio in 2001. To achieve gillnet and purse seine ratios, the Department adjusts fishing time and area for each gear type.

The management plan was modified again by the BOF in December 2003. The BOF allowed the inseason allocation management to be uncoupled after each gear type had harvested 80% of its allocation. The other change allowed up to 50% of the spawn-on-kelp allocation to be reallocated to the sac roe fishery if it was not harvested in a spawn-on-kelp fishery.

The BOF and the industry have directed the department to give product quality and fishery value an equal priority with exploitation objectives. Management Guidelines for Commercial Herring Sac Roe Fisheries (5 AAC 27.059) state the department may manage sac roe fisheries to enhance product value by opening areas in which sampling has demonstrated high herring roe content and large herring size, and to minimize harvest of recruit size herring. The BBHMP also states that the primary objective in the sac roe fishery is to prosecute an orderly, manageable fishery while striving for the highest level of product quality and a minimum of waste. Given these regulations and comments from industry, the department considers maximizing quality and value primary objectives in the Togiak fishery.

In 1992, over 20,000 tons of herring were harvested by purse seines in one 20-minute period. This magnitude of harvest from a single opening, combined with a limited processing capacity, resulted in holding times up to 7 days, and large-scale deterioration of flesh and roe quality. The poor product quality resulting from the 1992 harvest and increasing market demands for high quality roe, compelled the department to recognize quality problems associated with extended holding times of 3 days or longer. Limiting individual harvests to less than 3 days of processing capabilities became a management objective after 1992.

From 1992 until 2000, the department limited harvests by carefully controlling the open area and duration of each purse seine opening. Since 2000, the fishery has been somewhat more self-

regulating in that processors have smaller fleets and are more restrictive about how long they will hold herring before processing. The reduced processing capacity makes it impossible for the whole quota to be processed in less than 10 days.

Although controlling harvest used to be the major concern for managers, the last 5 years have been quite different from the derby style openings of the early 1990's. The seine fleet is now divided into processor controlled cooperative fleets that harvest just enough herring to keep the processing lines full from day to day. This has allowed managers to open large areas of the district for up to 16 hours at a time without concern over having more fish harvested than processing capacity can handle in a short time. This is true for most of the fishery, but as the quota is approached, managers do have to guard against a large grab.

Cooperative seine fleets allow the participants to maximize the value of the fishery by reducing operating costs and allowing processors to control harvest, enforce a maximum set size and be highly selective in the fish they choose to harvest. This has led to higher inseason estimates of roe quality; postseason estimates have not necessarily increased however.

SPAWN-ON-KELP FISHERY OVERVIEW

Similar to the sac roe fishery, the spawn-on-kelp harvest in the Togiak District has been regulated by emergency order since 1981. Since 1984, the spawn-on-kelp fishery has been managed under guidelines provided in the Togiak District Herring Spawn on Kelp Management Plan (5 AAC 27.834). The plan essentially provides this fishery an allocation of 350,000 lbs. of product, roughly equivalent to 1,500 tons of herring. The plan also directs the department to 1) rotate harvest areas (Figure 3) on a 2 to 3 year basis; 2) ensure product quality; and 3) include the herring equivalent to the spawn-on-kelp harvest when calculating exploitation.

Fishing effort in the spawn-on-kelp fishery increased steadily since its inception, and peaked at 532 participants in 1991 (Appendix B4). The fishery became limited to interim use and permanent permit holders in 1990. Following the 1991 season, the BOF limited the role of non-permit holders in the spawn-on-kelp fishery to assisting with transporting kelp after the period closure. By 1993, most permits issued for this fishery became permanent, stabilizing the number of permits at approximately 300.

From 1986 to 2006, the fishery was opened for all years except 1985, 1997, 1998, 2000, 2001, and 2004–2006. Actual harvests exceeded the 350,000 lb. guideline harvest level by more than 10% in 6 years and fell short by more than 10% in 4 years (Appendix B7). For the other years in which a fishery occurred, actual harvests were within 10% of the guideline. The 2 to 3 year rotation schedule for kelp harvest areas was adhered to in all years except 1987. In 1987, area K-9 was opened after harvest in area K-10 fell short of the harvest guideline. The western half of area K-9 was opened the previous year.

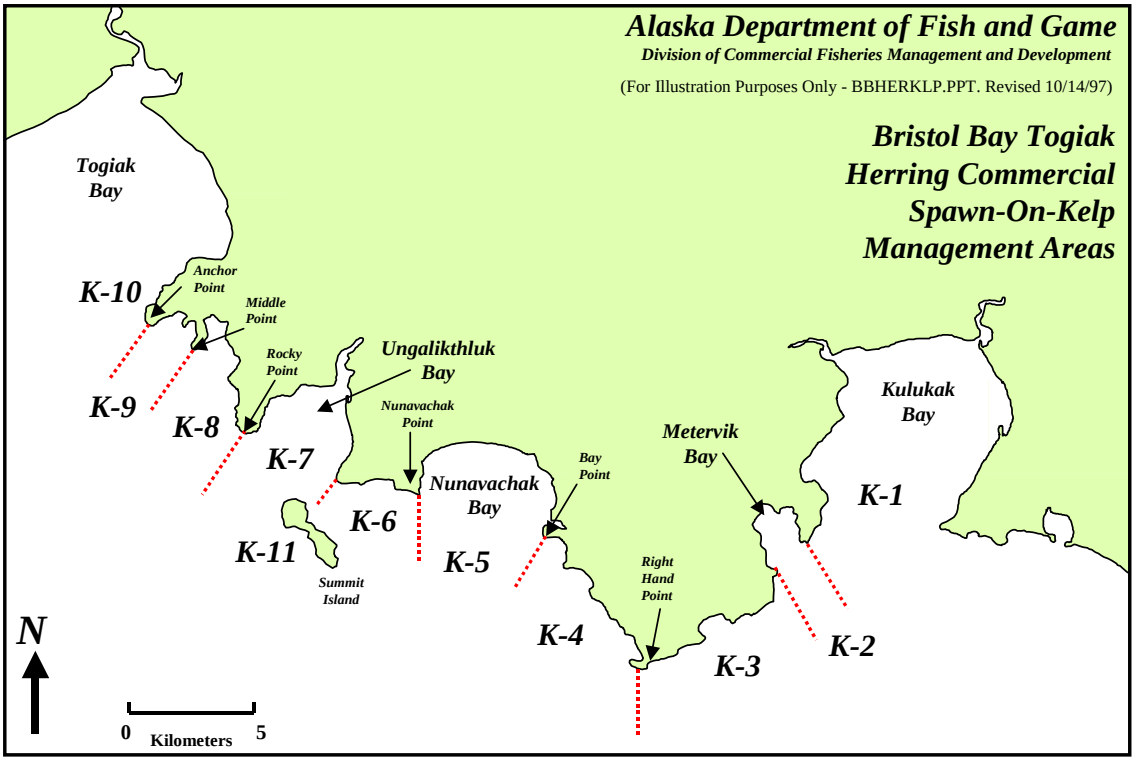

Figure 3.–Spawn-on-kelp management areas (K-1 through K-11), Togiak District, Bristol Bay.

To ensure product quality the department, industry representatives and permit holders collect spawn-on-kelp samples to display at a public meeting each season, usually after the peak of herring spawning has occurred. Management decisions are based on comments from industry and users regarding sample quality.

2006 SEASON SUMMARY

Biomass Estimation

Aerial surveys of the Togiak District began April 19, 2006. Herring were first reported in the district on the afternoon of May 1, when a processor reported fish observed by sonar. On May 3, a pilot transiting the district observed herring a mile offshore from Rocky Point. ADF&G personnel observed herring on May 10, when 8,000 tons were observed primarily between Hagemeister and High Islands. ADF&G staff documented 84,000 tons of herring during a survey on May 11, and 124,000 tons on May 13. Survey conditions were generally fair until May 18 when poor weather made surveys futile. A postseason survey occurred on May 26 and documented 51,000 tons of herring still on the grounds.

Age Composition

Approximately 5,718 herring were sampled for age, size and sex information from May 9–19, 2006. Samples were collected from the commercial purse seine fishery, commercial gillnet fishery, and test purse seine sets. Length frequency analysis, based on the last 5 years of age at length information, was used to differentiate between age classes.

A sample size of 4,231 was collected from the commercial purse seine fishery. Age 4–5 herring comprised 14% of the sample, age 6–7 herring comprised 15% of the sample, age 8–9 comprised

36% of the sample and age 10+ fish comprised 34% of the sample. Samples collected from the commercial purse seine fishery averaged 388g. Sex composition was divided 49.6% male and 50.4% female.

A total of 765 fish were sampled from the commercial gillnet fishery. Age 4–5 herring comprised 3% of the sample, age 6–7 herring comprised 8% of the sample, age 8–9 comprised 49% of the sample and age 10+ herring comprised 40% of the sample. Average weight of herring sampled from the commercial gillnet harvest was 411g. Sex composition was divided 48.6% male and 51.4% female.

A sample of 722 fish was collected from the purse seine test fishery. Age 4–5 herring comprised 27% of the sample, age 6–7 herring comprised 18% of the sample, age 8–9 comprised 31% of the sample, and age 10+ fish comprised 24% of the sample. Samples collected from test purse seine sets averaged 312g. The sex ratio was divided 44.3% male and 55.7% female.

During the commercial purse seine fishery ages 8, 9 and 10+year old fish were the predominant age classes comprising 70% of the catch.

Fishery Overview

The Togiak District herring fisheries are managed in accordance with the **BRISTOL BAY HERRING MANAGEMENT PLAN** (**5 AAC 27.865**), which was modified by the Alaska Board of Fisheries in December 2003. The plan specifies a maximum allowable exploitation rate of 20% and allocates the harvestable surplus among all the fisheries harvesting the Togiak herring stock. The 2006 preseason forecasted biomass was 129,976 tons (Appendix B5). The projected harvest guideline for each fishery was as follows: 1,500 tons herring equivalent or 350,000 lbs. of product for the spawn-on-kelp fishery; 1,715 tons for the Dutch Harbor food and bait fishery; and the remaining 22,780 tons to the sac roe fishery. The management plan specifies that the department will manage the sac roe fishery so that 70% of the removal is taken by purse seines (15,946 tons in 2006) and 30% of the removal is taken by gillnets (6,834 tons in 2006). In 2006, there was no spawn-on-kelp harvest so half of the unharvested 1,500-ton spawn-on-kelp allocation was reallocated to the Togiak sac roe fishery as follows: 70% (525 tons) to the purse seine fishery and 30% (225 tons) to the gillnet fishery. Therefore, the total purse seine quota was 16,471 tons and the total gillnet quota was 7,059 tons for a combined total of 23,530 tons.

The **BRISTOL BAY HERRING MANAGEMENT PLAN** and other regulations direct the department to conduct an orderly, manageable fishery and strive for the highest level of product quality with a minimum of waste. In recent years the seine fleet has been comprised of processor-organized cooperatives. For the 2006 season, management staff again planned to allow long-duration seine openings over a large area of the district and to let the processors limit harvest for their individual fleets based on processing capacity. Input from the fleet and industry indicated that this would slow the "race for fish" and allow for improved quality and value.

During the winter of 2005–2006, climatic conditions were colder than the recent average; there was a moderate amount of snowfall in southwestern Alaska in March and April and the ground still had significant amounts of snow on it at the time of the first herring survey on April 19. The Bering Sea ice pack had receded north of Cape Newenham by April 24; some ice still persisted in the Togiak Herring District, especially west of Tongue Point. Ice was still present there when fishing began May 12. Water temperatures in the Bering Sea and in Togiak Bay were colder

than recent history as well. On grounds temperatures did not get above 0° C until May 4, but then warmed quickly to 2.5° C by May 7.

To predict spawning timing for Togiak herring, the department used a temperature model based on sea surface temperatures from Unimak Pass. These temperatures predicted the first spawn would be May 3, with the first harvest occurring May 5. Continued cold temperatures through April kept near shore waters from warming and confounded another model that uses April mean air temperatures from Cape Newenham. The prediction from that model indicated first harvest would be approximately May 6.

Department staff polled processing companies preseason to assess processing capacity for the 2006 season and to inquire about additional concerns or issues. The poll indicated that one less company would be participating in the 2006 Togiak herring fishery and processing capacity was estimated to be 2,125 tons per day (Table 33). However, after registration the projected processing capacity was only 2,060 tons. Although there were no major concerns preseason, department staff held a teleconference on March 17 to discuss the upcoming season with processing companies and permit holders. There were some questions about the size of the gillnet fleet and allocation, but the conference took less than 15 minutes.

Company registration for processors intending to buy herring and/or spawn-on-kelp product in the Togiak District began on April 19 by fax. Six of the seven companies that registered for the sac roe fishery planned to buy both seine and gillnet fish, one company registered to buy seine caught fish only.

Purse Seine Summary

Test fishing with gillnets and purse seines began on the afternoon of May 10; none of the sampled herring had marketable quality roe. Test fishing continued on May 11, samples from 7 different sets were checked throughout the day. In the morning the samples had low mature roe percentages, but by evening two sets from the Middle Bay area had mature roe percentages of 10.1% and 11.7%. With some herring of commercial quality present by late evening and a documented biomass of 84,000 tons of herring on the grounds a commercial purse seine opening was announced beginning the morning of May 12 (Table 29).

The first purse seine opening was 14-hours on May 12, in the area from Right Hand Point to Cape Newenham with the exception of Togiak Bay (Table 30). The period resulted in 29 deliveries and a harvest of 3,339 tons of herring with an average mature roe percentage of 10.3%. The second seine opening was announced for 8:00 a.m. on May 13, also 14 hours. At this time the gillnet fleet had still not found marketable quality fish and therefore had not had an opening. This immediately brought up the question of allocation.

The Alaska Board of Fisheries has instructed the department to manage the Togiak Herring Fishery in season to achieve a harvest of 30% by the gillnet fleet and 70% by the purse seine fleet. This in season allocation is designed to prevent either gear type from being disadvantaged. In the past, this clause has been invoked after a gear type has been held back from fishing at full capacity, at some point in the season, because of processing capacity issues. It could also be argued that users of a gear type are disadvantaged when potential permit holders are denied markets prior to the season and subsequently, a fleet doesn't have sufficient harvesting power to maintain their specified harvest percentage. The situation this year was different in that processing capacity and harvesting power were not factors in the initial inability of the gillnet

fleet to maintain their harvest percentage. This year, early in the fishery, high quality herring were not available for gillnet harvest in near-shore areas.

The department's interpretation of the management plan was that disparity between allocated harvest percentages and actual harvest was due to lack of quality fish in near-shore areas, thus the gillnet fleet was not being disadvantaged and it was appropriate to continue fishing the seine fleet. This situation changed somewhat on Sunday, May 14 and more dramatically on Monday, May 15. On Sunday, May 14, the gillnet fleet did find marketable quality fish and began fishing in the afternoon. Meanwhile the seine fleet was fishing their third 14-hour period of the season.

On Monday morning, each company reported harvest information from the fishing on Sunday. Gillnet harvest for Sunday was only 423 tons; a long way from the 30% of the total harvest so far and not enough to stress fleet processing capacity. However, harvest for early Monday was reportedly very good and it was possible that processing capacity would be strained by the end of the day. The department had indicated on Sunday night that a seine opening on Monday was likely. The seine opening on Monday was limited to 4 hours, down from the 14 hours of the previous three periods. This opening provided some time to harvest seine fish but at the same time the period was much reduced so that processing capacity would not be overwhelmed by a large seine harvest combined with the unknown but expected large gillnet harvest.

The seine harvest on Monday, May 15 was 507 tons for a total seine harvest of 8,652 tons for the first four openings. After harvest information was received Tuesday morning, for Monday's harvest, it was apparent the processing capacity was now an issue. With the gillnet fleet constrained by processing capacity and behind their allocated harvest percentage it was appropriate to not fish the seine fleet on Tuesday, May 16. This break in the seine harvest allowed industry to devote all processing capacity to gillnet caught fish.

By the morning of May 17, the harvest percentages were within a percent of the allocation and it was again appropriate to have a seine opening. Purse seine period 5 was a 12-hour period from 10:00 a.m. until 10:00 p.m. It resulted in a harvest of 1,672 tons from 37 deliveries. Seine fishing occurred again on Thursday, May 18. Purse seine period 6 was also 12 hours and was later extended for another 2 hours. It resulted in a harvest of 2,391 tons of herring from 51 deliveries. On Friday morning, when harvest information was reported, we still had incomplete information at announcement time. The total gillnet harvest was over 80% of the preseason quota and the seine harvest was projected to be over 80% of the quota. Based on the management plan, the in season management of allocation could be uncoupled at 80% and 750 tons from the unharvested spawn-on-kelp quota could be reallocated to the sac roe fishery. The Friday morning announcement included the reallocation information, and uncoupling of gear types; the seine fleet had started fishing at 7:00 a.m.

Weather on Friday rapidly deteriorated and by noon fishing was impossible. Seine harvest for Friday was only 250 tons. Weather on Saturday was also poor but moderated enough by afternoon that fishing was possible. The Saturday, May 20 harvest was 1,270 tons leaving approximately 2,200 tons of unharvested quota. Seine fishing began at 10:00 a.m. on Sunday, May 21. The weather continued to improve during the day but mid-period reports indicated that more time for the seine fleet would be appropriate. The seine opening was extended from 3:00 p.m. until 8:00 p.m. with consideration for an additional extension at 6:30 p.m. Mid-period reports prior to the 6:30 announcement indicated that conditions were improving and more fish were being harvested. Additionally, some companies reported a potential to increase the amount

they could harvest. The amount of fish already harvested in the period was estimated at over 1,200 tons and with two and a half hours remaining after the 6:30 p.m. announcement, the projected total harvest for the period was approaching 2,200 tons. The seine period was allowed to close as scheduled at 8:00 p.m. and it was announced that it would be the last seine period for the 2006 herring fishery.

Total purse seine harvest for the 2006 Togiak sac roe herring fishery was 15,812 tons from 235 delivers and 113 hours of fishing time (Table 31). Average weight of seine-harvested herring was 378 grams and the average mature roe percent was 10.32%. There was 500 tons of herring dead loss documented in Nunavachak Bay on May 21. Harvest and deadloss combined equaled 16,312 tons of herring (99% of the increased quota).

Gillnet Summary

Gillnet test fishing began May 10, and continued through May 14. Quality of fish was low until May 13. On the afternoon of May 13 there were some good quality fish caught in test sets but there were also some lesser quality fish caught. A 6-hour opening was announced for the afternoon of Saturday, May 13 (Table 30). The legal limit of gear was kept at 50 fathoms and permit holders were advised to check their catch frequently for quality. Mid-period reports indicated that fish quality was below acceptable limits and the period closed as scheduled. Test fishing began again on the morning of May 14 and by noon, reports indicated high quality fish were present in Kulukak Bay. Gillnet fishing reopened at 2:00 p.m. with 50 fathoms of gear. Fish quality and volume stayed high and at 6:30 p.m. the opening was extended and the gear limit was increased to 100 fathoms.

Gillnet fishing continued with extensions until 8:00 p.m. on May 19. The open area was primarily between Kulukak Bay and Right Hand Point, but at times it was expanded to include some area west of Right Hand Point that would allow fishing during strong south or southeast winds. By the morning of May 19, gillnet and seine fleets had harvested 80% of their respective preseason quotas and as stated above, the in season allocation was uncoupled and half of the spawn-on-kelp quota was reallocated to the sac roe fishery. Poor weather on May 19 prevented fishing after noon. Weather improved on Saturday, May 20 and the gillnet fleet fished for 8 hours.

On the morning of Sunday, May 21 there were only 307 tons remaining on the gillnet quota. A 4-hour opening was announced for Sunday afternoon. Mid-period reports indicated that most if not the entire remaining quota would be harvested by the time the period closed as scheduled. The 2006 gillnet fishery closed at 3:00 p.m. May 21.

Final harvest numbers for the gillnet fleet were 7,041 tons from 760 deliveries in 144 hours of fishing. Average fish size was 432 grams and the average mature roe content was 10.64%. Total harvest was 99.7% of the adjusted quota with 18 tons unharvested.

Spawn on Kelp

No companies registered to buy herring spawn on kelp in 2006, therefore there were no openings and no commercial harvest.

EXPLOITATION

The 2006 herring fisheries were managed for a maximum exploitation rate of 20% of the preseason biomass estimate. Combining the sac roe harvest (22,853 tons with an average weight of 395 grams and an average roe percentage of 10.43%), documented dead loss of 500 tons, and

test fish harvest (582 tons) resulted in an exploitation of 23,935 tons. The Dutch Harbor food and bait fishery harvested 953 tons of herring (Appendix B2). Therefore, the total harvest for 2006 was 24,906 giving an exploitation rate of 19.2% (Appendix B2).

EXVESSEL VALUE

Projected exvessel value of the 2006 Togiak herring fishery is approximately $2.6 million. This is based on grounds price estimate of $110 per ton for seine caught fish and $125 per ton for gillnet caught fish and does not include any postseason adjustments. A value of $2.6 million is 10% lower than the 2005 value of $2.9 million (Appendix B6).

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TABLES

Table 1.–Comparison of inshore sockeye salmon forecast versus actual run, escapement goals versus actual escapements, and projected versus actual commercial catch, by river system and district, in thousands of fish, Bristol Bay, 2006.

District and River System[a]		Inshore Run			Escapement		Inshore Catch		
		Forecast	Actual	Percent Deviation[b]	Range	Actual	Projected Harvest	Actual	Percent Deviation[b]
NAKNEK-KVICHAK DISTRICT									
Kvichak River		1,940	5,804	-0.67	2,000-10,000	3,068	0	2,736	-1.00
Branch River		2,860	2,851	0.00	170-200	1,774	860	1,078	-0.20
Naknek River		7,180	5,292	0.36	800-1,400	1,953	6,080	3,339	0.82
	Total	11,980	13,949	-0.14	6,970-11,600	6,795	6,940	7,153	-0.03
EGEGIK DISTRICT		9,300	8,856	0.05	800-1,400	1,465	8,200	7,390	0.11
UGASHIK DISTRICT		3,340	3,430	-0.03	500-1,200	1,003	2,490	2,427	0.03
NUSHAGAK DISTRICT									
Wood River		4,670	11,393	-0.59	700-1,500	4,008	3,570	7,385	-0.51
Igushik River		840	1,859	-0.55	150-300	305	620	1,554	-0.60
Nushagak-Mulchatna		2,010	2,672	-0.25	340-760	548	1,460	2,123	-0.31
	Total	7,520	15,924	-0.53	1,190-2,560	4,861	5,650	11,062	-0.49
TOGIAK DISTRICT		590	886	-0.34	100-200	312	440	574	-0.23
TOTAL BRISTOL BAY		**32,730**	**43,044**	**-0.26**	**9,560-16,960**	**14,4360**	**23,720**	**28,606**	**-0.17**

[a] The Bristol Bay inshore forecast does not include several minor river systems, including the Snake River drainage in Nushagak District, and the Kulukak, Osviak, Matogak and Slug River system in Togiak District. Catches, escapements, and total runs for these smaller systems are not included in this table so that forecast efficacy may be gauged. Totals may not equal column sums due to rounding.

[b] Percent deviation = (forecast - actual)/actual.

Table 2.–Inshore forecast of sockeye salmon returns by age class, river system and district, in thousands of fish, Bristol Bay, 2006.

District and	2-Ocean			3-Ocean			
River System	**1.2 (2001)**	**2.2 (2000)**	**Total**	**1.3 (2000)**	**2.3 (1999)**	**Total**	**Total[a]**
NAKNEK-KVICHAK DISTRICT							
Kvichak River	780	420	1,200	500	240	740	1,940
Branch River	840	260	1,100	1,640	120	1,760	2,860
Naknek River	610	790	1,400	5,020	760	5,780	7,180
Total	2,230	1,470	3,700	7,160	1,120	8,280	11,980
EGEGIK DISTRICT	2,720	3,570	6,290	740	2,270	3,010	9,300
UGASHIK DISTRICT	1,350	700	2,050	1,020	270	1,290	3,340
NUSHAGAK DISTRICT							
Wood River	2,050	40	2,090	2,470	110	2,580	4,670
Igushik River	140	20	160	620	60	680	840
Nushagak River	280	20	300	1,390	30	1,420	1,720
Total	2,470	80	2,550	4,480	200	4,680	7,230
TOGIAK DISTRICT	90	40	130	360	10	370	500
TOTAL BRISTOL BAY[a]							
Number	**8,860**	**5,860**	**14,720**	**13,760**	**3,870**	**17,630**	**32,350**
Percent	27	18	46	43	12	54	100

[a] Sockeye salmon of several minor age classes are expected to contribute an additional 1–2% to the total return.

Table 3.–Inshore run of sockeye salmon by age class, river system and district, in thousands of fish, Bristol Bay, 2006.

District and River System[a]		1.2	2.2	2-Ocean	1.3	2.3	3-Ocean	1.4	Total
NAKNEK-KVICHAK DISTRICT									
Kvichak River									
	Number	2,593	968	3,561	1,820	404	2,224	0	5,804
	Percent	44.7	16.7	61.4	31.4	7.0	38.3	0.0	99.7
Branch River									
	Number	1,638	50	1,688	987	130	1,117	28	2,852
	Percent	57.4	1.8	59.2	34.6	4.6	39.2	0.2	98.4
Naknek River									
	Number	1,384	449	1,833	2,841	526	3,367	76	5,293
	Percent	26.1	8.5	34.6	53.7	9.9	63.6	1.4	98.2
Total	Number	5,615	1,467	7,082	5,648	1,060	6,708	104	13,949
	Percent	40.3	10.5	50.8	40.5	7.6	48.1	0.7	99.6
EGEGIK DISTRICT									
	Number	1,429	1,755	3,184	1,192	4,341	5,533	20	8,856
	Percent	16.1	19.8	36.0	13.5	49.0	62.5	0.2	98.4
UGASHIK DISTRICT									
	Number	1,934	206	2,140	1,060	156	1,216	22	3,430
	Percent	56.4	6.0	62.4	30.9	4.5	35.5	0.6	98.5
NUSHAGAK DISTRICT									
Wood River									
	Number	5,661	591	6,252	4,527	552	5,079	58	11,393
	Percent	49.7	5.2	54.9	39.7	4.8	44.6	0.5	99.5
Igushik River									
	Number	315	12	327	1,401	116	1,517	5	1,859
	Percent	16.9	0.6	17.6	75.4	6.2	81.6	0.3	99.2
Nushagak River									
	Number	181	9	190	1,975	42	2,017	393	2,672
	Percent	6.8	0.3	7.1	73.9	1.6	75.5	14.7	82.6
Total	Number	6,157	612	6,769	7,903	710	8,613	456	15,924
	Percent	38.7	3.8	42.5	49.6	4.5	54.1	2.9	96.6
TOGIAK DISTRICT[b]									
	Number	236	88	324	401	149	550	5	886
	Percent	26.6	9.9	36.6	45.3	16.8	62.1	0.6	98.6
TOTAL BRISTOL BAY[c,d]									
	Number	**15,371**	**4,128**	**19,499**	**16,204**	**6,416**	**22,620**	**607**	**43,044**
	Percent	**35.7**	**9.6**	**45.3**	**37.6**	**14.9**	**52.5**	**1.4**	**97.8**

[a] The inshore run data does not include the South Peninsula catch of Bristol Bay sockeye or immature high seas bycatch.

[b] Does not include rivers other than Togiak River.

[c] Totals include minor age classes not listed in this table however, minor rivers and creeks are not included.

[d] Totals may not equal column sums due to rounding.

Table 4.–Inshore commercial catch and escapement of sockeye salmon, in numbers of fish, Bristol Bay, 2006.

District and River System		Catch	Escapement	Total Run
NAKNEK-KVICHAK DISTRICT				
Kvichak River		2,736,218	3,068,226	5,804,444
Alagnak River		1,078,017	1,773,966	2,851,983
Naknek River		3,339,332	1,953,228	5,292,560
	Total	7,153,567	6,795,420	13,948,987
EGEGIK DISTRICT		7,390,521	1,465,158	8,855,679
UGASHIK DISTRICT		2,426,650	1,003,158[a]	3,429,808
NUSHAGAK DISTRICT				
Wood River		7,384,842	4,008,102	11,392,944
Igushik River		1,553,514	305,268	1,858,782
Nushagak-Mulchatna		2,123,308	548,410	2,671,718
	Total	11,061,664	4,861,780	15,923,444
TOGIAK DISTRICT				
Togiak Lake			312,126	312,126
Togiak River/Tributaries		574,093	[c]	574,093
Kulukak System		51,603	[c]	51,603
Other Systems [b]		0	[c]	0
	Total	625,696	312,126	937,822
TOTAL BRISTOL BAY		**28,606,495**	**14,437,642**	**43,044,137**

[a] Includes Ugashik River Tower and aerial survey estimates from King Salmon and Dog Salmon rivers.

[b] Other Systems escapement includes Negukthlik, Ungalikthluk, Osviak, Matogak, Quigmy, and Slug Rivers.

[c] Weather and high water prevented any aerial surveys for sockeye this year.

Table 5.–Summary of sockeye salmon test fishing indices in the Naknek/Kvichak District, by index area and date, Bristol Bay, 2006.

Date	Naknek R. Mouth	Pederson Point	Cutbank & Graveyard	Gravel Spit	Half Moon Bay	Middle Naknek	Johnston Hill	Division Buoy	Ships Anchorage	Middle Bluff
6/19	7					7	15	20		
6/22	189									
6/23	355									
6/24	355					300	13	144		
6/25										
6/26	129					171		189	47	
6/29	300					200		179	4	
7/01	156					292	107			
7/01										421
7/02	102	450						264		311
7/02										118
7/04		205	240	473						
7/08					133				510	

Note: All indices expressed in numbers of fish/100 fathoms/hour to the nearest index point. Blank cells represent no data.

Table 6.–Summary of sockeye salmon test fishing indices in the Ugashik District, by index area and date, Bristol Bay, 2006.

Index Area	July 6
Cape Grieg (Nearshore)	
4 miles North of Smoky Point (Nearshore)	
2 miles North of Smoky Point (Outer line)	
Smoky Point Bar North Side (Inshore)	
6 miles South of South Spit	
Three Miles South of South Spit (Nearshore)	640
1.5 miles south of South Spit	
South Spit (Mid Channel)	1,120
Dago Creek Mouth	
Pilot Point	
Between Pilot Point and Muddy Point	
South Spit	514
Inner South Channel	
Below inner district boundary line west side	
Below inner district boundary line east side	
Above inner district boundary line east side	
Above inner district boundary line west side	
Between Dog Salmon and King Salmon Rivers	
Mouth of Dog Salmon River	

Note: All indices expressed in number of fish/100 fathom hours to the nearest full index point. Blank cells represent no data.

Table 7.–Summary of sockeye salmon test fishing indices in the Nushagak District, by index area and date, Bristol Bay, 2006.

Date	Hanson Point	Across Hanson Pt.	Tule Point	Picnic Point	Grassy Island	Nushagak Point	Pile Driver	Upper W. Marker	Coffee Point	Kanakanak Bluff
6/19	541	525	1,727	0	0					
	506	706	987							
6/20	0	8,971	0	0	0					
	524	4,827	359							
6/21	677	2,202	4,085	1,657	2,054					
	1,231	1,644	482							
6/22	0	629	1,277	0	750					
	2,707	1,013	2,574							
6/22	1,064	984	5,200	0	236					
	1,096	494	7,500							
6/23	9,744	4,167	4,962	0	175					
	11,795	2,323	4,918							
6/23	909	3,051	8,244	0	2,487					
	1,304	1,850	8,832							
6/19	0	0	0	0	0					
	0	0	0							
6/20	0	0	0	0	0					
	220	571	669							
6/21	0	432	432	0	0					
	499	214	215							
6/22	485	308	151	472	0					
	0	152	1,007							
6/23	447	775	2,513	157	952					
	155	451	1,360							
6/24	3,281	3,741	2,597	813	10,459					
	3,978	3,597	6,866							
6/24	526	167	773	4,195	6,510					
	179	1,729	5,196							
6/25	3,423	7,403	2,989	405	0					
	4,615	2,164	3,737							
6/25	1,007	588	10,791	592	566				0	
	205	1,459	9,565							
6/26	1,649	8,626	6,761	594	0					
	4,043	5,245	10,037							
6/26	3,088	203	5,724	0	0					
	1,400	420	6,000							
6/27	657	1,888	2,968	0	0					
	2,268	4,167	5,094							
6/28	1,272	614	2,887	0	0					
	2,867	2,193	8,542	0	0					
6/29	2,098	977	2,075	0	0					
	4,783	0	10,036	0	0					

Note: All indices expressed in number of fish/100 fathoms-hours to the nearest full index point. Indices listed first for each station were recorded using 5 1/8 inch mesh gear, second with 4 3/4 inch gear. Blank cells represent no data.

Table 8.–Commercial fishing emergency orders, by district and stat area, Bristol Bay, 2006.

Number[a]	Start Date	Start Time		End Date	End Time	Effective Time
Naknek/Kvichak District						
Drift Net						
AKN.01	June 1	9:00 a.m.	to	July 24	9:00 a.m.	[b]
AKN.56	July 11	12:30 a.m.	to	July 11	9:00 a.m.	8.5-hours
AKN.56	July 11	12:30 p.m.	to	July 11	6:30 p.m.	6.0-hours
AKN.61	July 12	1:00 a.m.	to	July 12	10:00 a.m.	9.0-hours
AKN.61	July 12	12:30 p.m.	to	July 12	7:30 p.m.	7.0-hours
AKN.64	July 12	9:00 a.m.				[c]
AKN.65	July 13	3:00 a.m.	to	July 13	11:00 a.m.	8.0-hours
AKN.65	July 13	2:30 p.m.	to	July 13	9:00 p.m.	6.5-hours
AKN.68	July 14	3:30 a.m.	to	July 14	11:30 a.m.	8.0-hours
AKN.68	July 14	3:30 p.m.	to	July 14	10:00 p.m.	6.5-hours
AKN.71	July 15	5:00 a.m.	to	July 15	12:00 p.m.	7.0-hours
AKN.71	July 15	5:00 p.m.	to	July 15	11:00 p.m.	6.0-hours
AKN.74	July 15	5:00 a.m.	to	July 15	12:00 p.m.	7.0-hours
AKN.74	July 15	5:00 p.m.	to	July 15	11:00 p.m.	6.0-hours
AKN.82	July 17	8:00 a.m.	to	July 17	3:00 p.m.	7.0-hours
AKN.74	July 16	8:00 p.m.	to	July 17	12:00 a.m.	4.0-hours[d]
AKN.76	July 21	9:00 a.m.	to	July 24	9:00 a.m.	72.0-hours
Set Net						
AKN.01	June 01	9:00 a.m.	to	July 25	9:00 a.m.	[b]
AKN.53	July 10	10:00 a.m.	to	July 10	6:30 p.m.	8.5-hours
AKN.56	July 11	12:30 a.m.	to	July 11	6:30 p.m.	18.0-hours
AKN.61	July 12	1:00 a.m.	to	July 12	7:30 p.m.	18.0-hours
AKN.65	July 12	7:30 p.m.	to	July 17	9:00 a.m.	109.5-hours[d,e]
AKN.76	July 21	9:00 a.m.	to	July 24	9:00 a.m.	72.0-hours
Naknek Section						
Drift Net						
AKN.53	July 10	10:30 a.m.	to	July 10	5:30 p.m.	7.0-hours
AKN.74	July 16	5:00 a.m.	to	July 16	12:30 p.m.	7.5-hours
AKN.74	July 16	6:00 p.m.	to	July 16	8:00 p.m.	2.0-hours
Naknek River Special Harvest Area						
Drift Net						
AKN.16	June 27	3:00 p.m.	to	June 27	7:30 p.m.	4.5-hours
AKN.16	June 28	4:00 a.m.	to	June 28	10:30 a.m.	6.5-hours
AKN.19	June 28	4:00 p.m.	to	June 28	8:30 p.m.	4.5-hours
AKN.19	June 29	4:30 a.m.	to	June 29	11:30 a.m.	7.0-hours
AKN.23	June 30	5:00 a.m.	to	June 30	12:00 p.m.	7.0-hours
AKN.26	June 30	5:30 p.m.	to	June 30	11:00 p.m.	5.5-hours
AKN.26	July 01	5:30 a.m.	to	July 01	1:00 p.m.	7.5-hours
AKN.29	July 01	6:30 p.m.	to	July 01	11:30 p.m.	5.0-hours
AKN.29	July 02	6:00 a.m.	to	July 02	1:00 p.m.	7.0-hours
AKN.32	July 03	6:30 a.m.	to	July 03	2:00 p.m.	7.5-hours
AKN.32	July 03	8:00 p.m.	to	July 04	2:30 a.m.	6.5-hours
AKN.34	July 04	7:30 a.m.	to	July 04	2:30 p.m.	7.0-hours
AKN.34	July 04	8:30 p.m.	to	July 05	3:30 a.m.	7.0-hours

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Table 8.–Page 2 of 7.

Number[a]	Start Date	Start Time		End Date	End Time	Effective Time
AKN.37	July 05	8:00 a.m.	to	July 05	3:30 p.m.	7.5-hours
AKN.40	July 06	9:00 a.m.	to	July 06	3:30 p.m.	6.5-hours
AKN.40	July 06	10:30 p.m.	to	July 07	5:30 a.m.	7.0-hours
AKN.44	July 07	10:00 a.m.	to	July 07	4:30 p.m.	6.5-hours
AKN.44	July 07	11:30 p.m.	to	July 08	7:30 a.m.	8.0-hours
AKN.48	July 08	10:00 a.m.	to	July 08	5:00 p.m.	7.0-hours
AKN.50	July 09	11:00 a.m.	to	July 09	5:30 p.m.	6.5-hours
AKN.50	July 10	12:30 a.m.	to	July 10	8:30 a.m.	8.0-hours
Set Net						
AKN.11	June 25	12:30 p.m.	to	June 25	6:30 p.m.	6.0-hours
AKN.23	June 29	4:30 p.m.	to	June 29	11:30 p.m.	7.0-hours
AKN.32	July 02	7:00 p.m.	to	July 03	3:00 a.m.	8.0-hours
AKN.37	July 05	9:00 p.m.	to	July 06	5:00 a.m.	8.0-hours
AKN.48	July 08	11:00 p.m.	to	July 09	9:00 a.m.	10.0-hours
AKN.50	July 10	11:30 a.m.	to	July 10	6:30 p.m.	7.0-hours
AKN.53	July 10	10:00 a.m.	to	July 10	11:30 a.m.	1.5-hours[f]
AKN.56	July 11	12:30 a.m.	to	July 11	6:30 p.m.	18.0-hours
AKN.61	July 12	1:00 a.m.	to	July 12	7:30 p.m.	18.0-hours
Alagnak River Special Harvest Area						
Drift Net						
AKN.41	July 07	11:30 a.m.	to	July 07	2:30 p.m.	3.0-hours
AKN.41	July 08	12:30 a.m.	to	July 08	5:30 a.m.	5.0-hours
Alagnak River Special Harvest Area						
Set Net						
AKN.45	July 08	12:00 p.m.	to	July 08	4:00 p.m.	4.0-hours
AKN.45	July 09	1:00 a.m.	to	July 09	7:00 a.m.	6.0-hours
AKN.45	July 09	1:00 p.m.	to	July 09	5:00 p.m.	4.0-hours
AKN.51	July 10	2:00 a.m.	to	July 10	8:00 a.m.	6.0-hours
AKN.51	July 10	1:30 p.m.	to	July 10	5:30 p.m.	4.0-hours
AKN.57	July 11	2:30 a.m.	to	July 11	8:30 a.m.	6.0-hours
AKN.57	July 11	2:30 p.m.	to	July 11	6:30 p.m.	4.0-hours
AKN.62	July 12	3:30 a.m.	to	July 12	9:30 a.m.	2.0-hours
AKN.62	July 12	3:30 p.m.	to	July 12	7:30 p.m.	4.5-hours
AKN.54	July 10	10:30 a.m.	to	July 10	4:30 p.m.	6.0-hours
AKN.58	July 10	10:00 p.m.	to	July 11	5:00 a.m.	7.0-hours
AKN.58	July 11	10:00 a.m.	to	July 11	5:30 p.m.	7.5-hours
AKN.63	July 11	5:30 p.m.	to	July 11	10:00 p.m.	4.5-hours[e]
AKN.63	July 12	5:00 a.m.	to	July 12	8:00 a.m.	3.0-hours
AKN.63	July 12	12:00 p.m.	to	July 12	6:00 p.m.	6.0-hours
AKN.66	July 12	6:00 p.m.	to	July 12	9:30 p.m.	3.5-hours[e]
AKN.66	July 13	9:00 a.m.	to	July 13	9:00 p.m.	12.0-hours
AKN.69	July 14	10:00 a.m.	to	July 14	10:00 p.m.	12.0-hours
AKN.72	July 15	10:30 a.m.	to	July 15	10:30 p.m.	12.0-hours
AKN.75	July 16	3:00 a.m.	to	July 16	8:00 a.m.	5.0-hours
AKN.75	July 16	3:15 p.m.	to	July 16	7:15 p.m.	4.0-hours

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Table 8.–Page 3 of 7.

Number[a]	Start Date	Start Time		End Date	End Time	Effective Time
Egegik District						
Drift Net						
AKN.54	July 10	10:30 a.m.	to	July 10	4:30 p.m.	6.0-hours
AKN.58	July 10	10:00 p.m.	to	July 11	5:00 a.m.	7.0-hours
AKN.58	July 11	10:00 a.m.	to	July 11	5:30 p.m.	7.5-hours
AKN.63	July 11	5:30 p.m.	to	July 11	10:00 p.m.	4.5-hours[e]
AKN.63	July 12	5:00 a.m.	to	July 12	8:00 a.m.	3.0-hours
AKN.63	July 12	12:00 p.m.	to	July 12	6:00 p.m.	6.0-hours
AKN.66	July 12	6:00 p.m.	to	July 12	9:30 p.m.	3.5-hours[e]
AKN.66	July 13	9:00 a.m.	to	July 13	9:00 p.m.	12.0-hours
AKN.69	July 14	10:00 a.m.	to	July 14	10:00 p.m.	12.0-hours
AKN.72	July 15	10:30 a.m.	to	July 15	10:30 p.m.	12.0-hours
AKN.75	July 16	3:00 a.m.	to	July 16	8:00 a.m.	5.0-hours
AKN.75	July 16	3:15 p.m.	to	July 16	7:15 p.m.	4.0-hours
Set Net						
AKN.54	July 10	10:30 a.m.	to	July 10	6:30 p.m.	8.0-hours[g]
AKN.58	July 10	10:30 p.m.	to	July 11	6:00 p.m.	19.5-hours
AKN.63	July 11	6:00 p.m.	to	July 11	10:00 p.m.	4.0-hours[e]
AKN.63	July 12	12:00 p.m.	to	July 12	8:00 p.m.	8.0-hours
AKN.66	July 13	1:00 a.m.	to	July 13	9:00 p.m.	20.0-hours
AKN.69	July 14	2:00 a.m.	to	July 14	10:00 p.m.	20.0-hours
AKN.72	July 15	2:30 a.m.	to	July 15	10:30 p.m.	20.0-hours
AKN.75	July 16	3:15 p.m.	to	July 16	11:15 p.m.	8.0-hours
Egegik Special Harvest Area						
Drift Net						
AKN.01	June 01	12:00 a.m.	to	June 16	9:00 a.m.	weekly schedule
AKN.09	June 21	8:00 p.m.	to	June 22	12:00 a.m.	4.0-hours
AKN.10	June 23	9:00 a.m.	to	June 23	2:00 p.m.	5.0-hours
AKN.15	June 26	12:30 p.m.	to	June 26	5:30 p.m.	5.0-hours
AKN.17	June 27	1:30 a.m.	to	June 27	4:30 a.m.	3.0-hours
AKN.17	June 27	1:00 p.m.	to	June 27	6:00 p.m.	5.0-hours
AKN.20	June 28	11:30 a.m.	to	June 28	8:30 p.m.	9.0-hours
AKN.21	June 29	4:00 a.m.	to	June 29	8:00 a.m.	4.0-hours
AKN.21	June 29	3:30 p.m.	to	June 29	8:30 p.m.	5.0-hours
AKN.24	June 30	4:00 p.m.	to	June 30	10:00 p.m.	6.0-hours
AKN.27	July 01	9:00 a.m.	to	July 01	12:00 p.m.	3.0-hours
AKN.27	July 01	3:00 p.m.	to	July 01	7:00 p.m.	4.0-hours
AKN.30	July 02	7:00 p.m.	to	July 02	11:00 p.m.	4.0-hours
AKN.33	July 03	4:30 a.m.	to	July 03	8:30 a.m.	4.0-hours
AKN.33	July 03	6:30 p.m.	to	July 03	11:30 p.m.	5.0-hours
AKN.35	July 04	8:30 p.m.	to	July 05	12:30 a.m.	4.0-hours
AKN.35	July 05	7:30 a.m.	to	July 05	11:30 a.m.	4.0-hours
AKN.38	July 05	6:30 p.m.	to	July 06	1:00 a.m.	6.5-hours
AKN.38	July 06	8:00 a.m.	to	July 06	2:00 p.m.	6.0-hours
AKN.42	July 06	7:30 p.m.	to	July 07	2:00 a.m.	6.5-hours
AKN.42	July 07	8:30 a.m.	to	July 07	2:30 p.m.	6.0-hours
AKN.46	July 07	8:30 p.m.	to	July 08	2:30 a.m.	6.0-hours
AKN.46	July 08	9:00 a.m.	to	July 08	3:00 p.m.	6.0-hours

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Number[a]	Start Date	Start Time		End Date	End Time	Effective Time
AKN.52	July 08	10:00 p.m.	to	July 09	3:00 a.m.	5.0-hours
AKN.52	July 09	10:30 a.m.	to	July 09	3:30 p.m.	5.0-hours
AKN.54	July 09	9:30 p.m.	to	July 10	4:00 a.m.	6.5-hours
Egegik Special Harvest Area						
Set Net						
AKN.01	June 01	12:00 a.m.	to	June 16	9:00 a.m.	weekly schedule
AKN.09	June 21	7:30 p.m.	to	June 22	3:30 a.m.	8.0-hours
AKN.10	June 23	8:30 a.m.	to	June 23	4:30 p.m.	8.0-hours
AKN.15	June 26	12:00 p.m.	to	June 26	8:00 p.m.	8.0-hours
AKN.17	June 27	12:30 p.m.	to	June 27	8:30 p.m.	8.0-hours
AKN.20	June 28	11:30 a.m.	to	June 28	8:30 p.m.	9.0-hours
AKN.21	June 29	3:00 p.m.	to	June 29	11:00 p.m.	8.0-hours
AKN.24	June 30	3:30 p.m.	to	June 30	11:30 p.m.	8.0-hours
AKN.30	July 02	5:00 p.m.	to	July 02	1:00 a.m.	8.0-hours
AKN.33	July 03	6:00 p.m.	to	July 04	2:00 a.m.	8.0-hours
AKN.35	July 04	6:30 p.m.	to	July 05	2:30 a.m.	8.0-hours
AKN.35	July 05	5:00 a.m.	to	July 05	1:00 p.m.	8.0-hours
AKN.38	July 06	6:45 a.m.	to	July 06	2:45 p.m.	8.0-hours
AKN.42	July 07	7:30 a.m.	to	July 07	3:30 p.m.	8.0-hours
AKN.52	July 08	9:30 p.m.	to	July 09	5:30 a.m.	8.0-hours
AKN.52	July 09	9:30 a.m.	to	July 09	5:30 p.m.	8.0-hours
Ugashik District						
Drift Net						
AKN.25	June 30	1:00 p.m.	to	June 30	11:00 p.m.	10.0-hours
AKN.28	July 01	1:00 a.m.	to	July 02	1:00 a.m.	24.0-hours
AKN.31	July 02	5:00 p.m.	to	July 02	10:00 p.m.	5.0-hours
AKN.36	July 04	7:30 p.m.	to	July 04	11:30 p.m.	4.0-hours
AKN.39	July 05	4:30 p.m.	to	July 05	9:30 p.m.	5.0-hours
AKN.43	July 06	6:30 p.m.	to	July 07	12:00 a.m.	5.5-hours
AKN.43	July 07	6:00 a.m.	to	July 07	10:00 a.m.	4.0-hours
AKN.47	July 07	7:00 p.m.	to	July 08	1:00 a.m.	6.0-hours
AKN.47	July 08	8:00 a.m.	to	July 08	2:00 p.m.	6.0-hours
AKN.49	July 08	8:00 p.m.	to	July 09	12:00a.m.	4.0-hours
AKN.49	July 09	9:00 a.m.	to	July 09	4:00 p.m.	7.0-hours
AKN.55	July 09	9:00 p.m.	to	July 10	1:00 a.m.	4.0-hours
AKN.55	July 10	9:30 a.m.	to	July 10	4:30 p.m.	7.0-hours
AKN.59	July 10	10:00 p.m.	to	July 11	8:00 a.m.	10.0-hours
AKN.60	July 11	12:30 p.m.	to	July 11	7:30 p.m.	8.0-hours
AKN.67	July 12	7:30 p.m.	to	July 12	8:00 p.m.	3.0-hours
AKN.67	July 13	12:30 p.m.	to	July 13	10:30 p.m.	10.0-hours
AKN.70	July 14	1:30 p.m.	to	July 14	9:30 p.m.	8.0-hours
AKN.73	July 15	4:00 p.m.	to	July 15	8:00 p.m.	4.0-hours[d]
Set Net						
AKN.25	June 30	1:00 p.m.	to	June 30	11:00 p.m.	10.0-hours
AKN.28	July 01	1:00 a.m.	to	July 02	1:00 a.m.	24.0-hours
AKN.31	July 02	3:00 p.m.	to	July 03	11:00 p.m.	8.0-hours
AKN.36	July 04	4:00 p.m.	to	July 05	12:00 a.m.	8.0-hours
AKN.43	July 06	5:30 p.m.	to	July 07	1:30 a.m.	7.0-hours

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Table 8.–Page 5 of 7.

Number[a]	Start Date	Start Time		End Date	End Time	Effective Time
AKN.49	July 09	9:00 a.m.	to	July 09	7:00 p.m.	10.0-hours
AKN.55	July 10	9:30 a.m.	to	July 10	6:30 p.m.	9.0-hours
AKN.59	July 10	10:30 p.m.	to	July 11	12:30 p.m.	14.0-hours
AKN.60	July 11	12:30 p.m.	to	July 11	8:00 p.m.	7.5-hours[e]
AKN.60	July 12	11:30 a.m.		July 12	9:30 p.m.	10.0-hours
AKN.67	July 13	12:30 p.m.	to	July 13	10:30 p.m.	10.0-hours
AKN.70	July 16	5:30 a.m.	to	July 16	3:30 p.m.	10.0-hours
AKN.84	July 17	6:00 a.m.	to	July 17	2:00 p.m.	8.0-hours
AKN.70	July 14	1:30 p.m.	to	July 14	9:30 p.m.	8.0-hours
Ugashik River Special Harvest Area						
Drift Net						
AKN.02	June 01	12:00 a.m.	to	June 16	12:00 a.m.	weekly schedule
AKN.02	June 19	3:30 a.m.	to	June 19	3:30 p.m.	12.0-hours
AKN.02	June 20	4:30 a.m.	to	June 20	4:30 p.m.	12.0-hours
AKN.02	June 21	5:00 a.m.	to	June 21	5:00 p.m.	12.0-hours
AKN.02	June 22	5:30 a.m.	to	June 22	5:30 a.m.	12.0-hours
AKN.60	July 11	12:30 p.m.	to	July 11	8:00 p.m.	7.5-hours
AKN.60	July 12	11:30 a.m.	to	July 12	7:30 p.m.	8.0-hours
AKN.67	July 12	7:30 p.m.	to	July 12	10:30 p.m.	3.0-hours
AKN.67	July 13	12:30 p.m.	to	July 13	10:30 p.m.	10.0-hours
AKN.70	July 14	1:30 p.m.	to	July 14	9:30 p.m.	8.0-hours
Ugashik River Special Harvest Area						
Set Net						
AKN.02	June 01	12:00 a.m.	to	June 16	12:00 a.m.	weekly schedule
AKN.02	June 19	3:30 a.m.	to	June 19	3:30 p.m.	12.0-hours
AKN.02	June 20	4:30 a.m.	to	June 20	4:30 p.m.	12.0-hours
AKN.02	June 21	5:00 a.m.	to	June 21	5:00 p.m.	12.0-hours
AKN.02	June 22	5:30 a.m.	to	June 22	5:30 a.m.	12.0-hours
AKN.60	July 11	12:30 p.m.	to	July 12	9:30 p.m.	33.5-hours
AKN.60	July 12	11:30 a.m.		July 12	9:30 p.m.	10.0-hours
AKN.67	July 13	12:30 p.m.	to	July 13	10:30 p.m.	10.0-hours
AKN.70	July 14	1:30 p.m.	to	July 14	9:30 p.m.	8.0-hours
Nushagak District						
Nushagak Section						
Drift Net						
DLG.01	June 01	7:00 a.m.	to	June 01	5:00 p.m.	10.0-hours[h,i]
DLG.03	June 04	9:00 a.m.	to	June 04	7:00 p.m.	10.0-hours[h,i]
DLG.05	June 06	10:30 a.m.	to	June 06	8:30 p.m.	10.0-hours[h,i]
DLG.07	June 08	2:00 p.m.	to	June 08	10:00 p.m.	8.0-hours[h,i]
DLG.09	June 11	7:00 a.m.	to	June 11	1:00 p.m.	6.0-hours[h,i]
DLG.11	June 13	6:00 a.m.	to	June 13	2:00 p.m.	8.0-hours[h,i]
DLG.13	June 15	7:30 a.m.	to	June 15	3:30 p.m.	8.0-hours[h,i]
DLG 17	June 18	3:00 p.m.	to	June 18	6:00 p.m.	3.0-hours[h,i]
DLG.21	June 22	7:00 p.m.	to	June 22	10:00 p.m.	3.0-hours[h,i]
DLG.28	June 25	8:30 a.m.	to	June 25	12:30 p.m.	4.0-hours
DLG.29	June 25	12:30 p.m.	to	June 25	2:30 p.m.	2.0-hours[e]
DLG.30	June 26	5:00 a.m.	to	June 26	12:00 p.m.	7.0-hours

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Table 8.–Page 6 of 7.

Number[a]	Start Date	Start Time		End Date	End Time	Effective Time
DLG.31	June 26	6:00 p.m.	to	June 26	11:00 p.m.	5.0-hours
DLG.31	June 27	4:30 a.m.	to	June 27	9:30 a.m.	5.0-hours
DLG.32	June 27	9:30 a.m.	to	June 27	4:30 p.m.	7.0-hours [e]
DLG.33	June 27	4:30 p.m.	to	June 28	4:30 p.m.	24.0-hours [e]
DLG.34	June 28	4:30 p.m.	to	June 29	4:30 p.m.	24.0-hours [e]
DLG.35	June 29	4:30 p.m.	to	June 30	3:00 a.m.	10.5-hours
DLG.35	June 30	7:00 a.m.	to	July 01	4:00 a.m.	21.0-hours
DLG.36	July 01	8:00 a.m.	to	July 02	5:00 a.m.	21.0-hours
DLG.38	July 02	9:00 a.m.	to	July 03	5:00 a.m.	20.0-hours
DLG.39	July 03	5:00 a.m.	to	July 03	6:00 p.m.	13.0-hours [e]
DLG.39	July 03	10:00 p.m.	to	July 04	6:00 p.m.	20.0-hours
DLG.40	July 04	10:00 p.m.	to	July 05	7:00 p.m.	21.0-hours
DLG.41	July 05	11:00 p.m.	to	July 06	8:00 p.m.	21.0-hours
DLG.42	July 06	11:00 a.m.	to	July 07	7:00 p.m.	20.0-hours
DLG.42	July 07	11:00 a.m.	to	July 08	8:00 a.m.	21.0-hours
DLG.43	July 08	12:00 p.m.	to	July 09	9:00 a.m.	21.0-hours
DLG.45	July 09	1:00 p.m.	to	July 10	9:30 a.m.	20.5-hours
DLG.46	July 10	1:30 p.m.	to	July 11	10:30 a.m.	21.0-hours
DLG.47	July 11	2:30 p.m.	to	July 12	11:30 a.m.	21.0-hours
DLG.49	July 12	4:00 p.m.				[j]
DLG.52				July 28	9:00 a.m.	[k]
DLG.52	July 30	8:00 a.m.				[l]
Set Net						
DLG.01	June 01	5:00 a.m.	to	June 01	5:00 p.m.	12.0-hours [h,i]
DLG.03	June 04	7:00 a.m.	to	June 04	7:00 p.m.	12.0-hours [h,i]
DLG.05	June 06	8:30 a.m.	to	June 06	8:30 p.m.	12.0-hours [h,i]
DLG.07	June 08	10:00 a.m.	to	June 08	10:00 p.m.	12.0-hours [h,i]
DLG.09	June 11	1:00 a.m.	to	June 11	1:00 p.m.	12.0-hours [h,i]
DLG.11	June 13	2:00 a.m.	to	June 13	2:00 p.m.	12.0-hours [h,i]
DLG 13	June 15	3:30 a.m.	to	June 15	3:30 p.m.	12.0-hours [h,i]
DLG.17	June 18	6:00 a.m.	to	June 18	6:00 p.m.	12.0-hours [h,i]
DLG.21	June 22	10:00 a.m.	to	June 22	10:00 p.m.	12.0-hours [h,i]
DLG.28	June 25	12:30 a.m.	to	June 25	12:30 p.m.	12.0-hours
DLG.29	June 25	12:30 p.m.	to	June 25	6:30 p.m.	6.0-hours [e]
DLG.30	June 26	1:30 a.m.	to	June 26	9:30 p.m.	20.0-hours
DLG.31	June 26	9:30 p.m.	to	June 27	9:30 a.m.	12.0-hours [e]
DLG.31	June 27	2:30 p.m.	to	June 28	10:30 a.m.	20.0-hours
DLG.32	July 27	10:30 a.m.				[e,j]
Igushik Section						
Drift Net						
DLG.01	June 01	7:00 a.m.	to	June 01	5:00 p.m.	10.0-hours [h]
DLG.03	June 04	9:00 a.m.	to	June 04	7:00 p.m.	10.0-hours [h]
DLG.05	June 06	10:30 a.m.	to	June 06	8:30 p.m.	10.0-hours [h]
DLG.07	June 08	2:00 p.m.	to	June 08	10:00 p.m.	8.0-hours [h]
DLG.09	June 11	7:00 a.m.	to	June 11	1:00 p.m.	6.0-hours [h]
DLG.11	June 13	6:00 a.m.	to	June 13	2:00p.m.	8.0-hours [h]
DLG.13	June 15	7:30 a.m.	to	June 15	3:30 p.m.	8.0-hours [h]
DLG 17	June 18	3:00 p.m.	to	June 18	6:00 p.m.	3.0-hours [h]

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Table 8.–Page 7 of 7.

Number[a]	Start Date	Start Time		End Date	End Time	Effective time
DLG.21	June 22	7:00 p.m.	to	June 22	10:00 p.m.	3.0-hours [h]
DLG.47	July 10	2:30 p.m.	to	July 10	8:30 p.m.	6.0-hours
DLG.48	July 11	3:30 p.m.	to	July 11	9:30 p.m.	6.0-hours
Igushik Section						
Set Net						
DLG.01	June 01	5:00 a.m.	to	June 01	5:00 p.m.	12.0-hours [h]
DLG.03	June 03	7:00 a.m.	to	June 03	7:00 p.m.	12.0-hours [h]
DLG.05	June 06	8:30 a.m.	to	June 06	8:30 p.m.	12.0-hours [h]
DLG.07	June 08	10:00 a.m.	to	June 08	10:00 p.m.	12.0-hours [h]
DLG.09	June 11	1:00 a.m.	to	June 11	1:00 p.m.	12.0-hours [h]
DLG.11	June 13	2:00 a.m.	to	June 13	2:00 p.m.	12.0-hours [h]
DLG 13	June 15	3:30 a.m.	to	June 15	3:30 p.m.	12.0-hours [h]
DLG.17	June 18	6:00 a.m.	to	June 18	6:00 p.m.	12.0-hours [h]
DLG.21	June 22	10:00 a.m.	to	June 22	10:00 p.m.	12.0-hours [h]
DLG.24	June 23	11:30 p.m.	to	June 24	7:30 a.m.	8.0-hours [b]
DLG.28	June 25	12:00 p.m.	to	June 25	8:00 p.m.	8.0-hours
DLG.30	June 26	1:30 p.m.	to	June 26	9:30 p.m.	8.0-hours
DLG.31	June 27	2:30 p.m.	to	June 27	10:30 p.m.	8.0-hours
DLG.33	June 28	3:30 p.m.	to	June 28	11:30 p.m.	8.0-hours
DLG.34	June 29	4:30 p.m.	to	June 30	12:30 a.m.	8.0-hours
DLG.35	July 01	5:00 a.m.	to	July 01	1:00 p.m.	8.0-hours
DLG.38	July 01	1:00 p.m.				[e,j]
Togiak District						
Drift and Set Net						
DLG.15	June 19	9:00 a.m.	to	June 22	9:00 a.m.	72.0-hours [b,m]
DLG.25	June 26	9:00 a.m.	to	June 28	9:00 a.m.	48.0-hours [b,m]
DLG.25	June 30	9:00 a.m.	to	July 01	9:00 p.m.	36.0-hours [b,m]
DLG.44	July 10	9:00 a.m.	to	July 12	9:00 a.m.	48.0-hours [m]
DLG.50	July 15	9:00 a.m.	to	July 17	9:00 a.m.	48.0-hours [e]
DLG.50	July 17	9:00 a.m.	to	July 19	9:00 a.m.	48.0-hours [m]
DLG.51	July 22	9:00 a.m.	to	July 23	9:00 a.m.	24.0-hours [e]
DLG.51	July 24	9:00 a.m.	to	July 26	9:00 a.m.	48.0-hours [m]
DLG.53	July 29	9:00 a.m.	to	July 30	9:00 a.m.	24.0-hours [e]
DLG54.	Aug 05	9:00 a.m.	to	Aug 06	9:00 a.m.	24.0-hours [e]

[a] Prefix code on emergency orders indicate where the announcement originated. ("AKN" for King Salmon field office and "DLG" for the Dillingham field office).

[b] Gillnet mesh size is restricted to 5.5 inches or less.

[c] The 48 hour waiting period waived effective 9:00 a.m. July 12.

[d] Weekly schedule 9:00 a.m. Monday until 9:00 a.m. Friday.

[e] Extends current fishing period.

[f] Removal of running lines not required.

[g] The 48-hour waiting period waved effective 10:30 a.m. July 10.

[h] gillnet mesh is restricted to 7.5 inches or larger.

[i] Includes the Chinook area.

[j] Opens commercial fishing until further notice.

[k] Supercedes EO 2F-T-49-06.

[l] Weekly schedule 8:00 a.m. to 8:00 p.m. Sunday, Tuesday and Thursday until further notice.

[m] Reduced weekly fishing schedule in sections of the Togiak District.

Table 9.–Daily district registration of drift gillnet permit holders by district, Bristol Bay, 2006.

Date	Naknek-Kvichak	Egegik	Ugashik	Nushagak	Togiak	Total
6/19	32	106	51	346	11	546
6/20	41	110	68	348	14	581
6/21	54	178	65	369	17	683
6/22	72	255	49	394	24	794
6/23	87	290	11	414	24	826
6/24	113	323	11	451	25	923
6/25	156	349	9	581	26	1,121
6/26[a]						
6/27	256	387	8	627	37	1,315
6/28	345	372	8	647	40	1,412
6/29	362	373	10	655	41	1,441
6/30	371	364	13	669	42	1,459
7/01	378	362	21	670	42	1,473
7/02	373	355	29	673	43	1,473
7/03	344	345	37	681	44	1,451
7/04	344	337	60	687	44	1,472
7/05	335	353	77	686	44	1,495
7/06	329	350	93	685	47	1,504
7/07	325	343	103	658	47	1,476
7/08	326	331	121	662	48	1,488
7/09	329	331	157	660	48	1,525
7/10	333	320	164	617	48	1,482
7/11	340	317	153	608	48	1,466
7/12	557	285	148	513	52	1,555
7/13	635	258	147	465	54	1,559
7/14	640	259	152	462	54	1,567
7/15[a]						
7/16	638	294	133	440	54	1,559
7/17[a]						
Average	**312**	**306**	**73**	**564**	**39**	**1,294**

[a] Registration information not available.

Table 10.–Commercial salmon catch by date and species, in numbers of fish, Naknek-Kvichak District, Bristol Bay, 2006.

	Hours Fished		Deliveries							
Date	**Drift**	**Set**	**Drift**	**Set**	**Sockeye**	**Chinook**	**Chum**	**Pink**	**Coho**	**Total**
6/19 [a,b]										
6/20										
6/21										
6/22 [a,b]										
6/23 [a,b]										
6/24 [a,b]										
6/25 [a,c]		6.0	267	267	70,223	90	632	0	0	70,945
6/26										
6/27 [c]	4.5		349	0	44,837	55	1,344	0	0	46,236
6/28 [c]	6.5/4.5		584	0	86,402	95	2,031	0	0	88,528
6/29 [a,c]	7.0	7.0	344	265	108,054	40	1,474	0	0	109,568
6/30 [c]	7.0/5.5		679	0	200,126	86	2,008	0	0	202,220
7/01 [a,c]	7.5/5.0		692	0	118,345	53	1,756	0	0	120,154
7/02 [a,c]	7.0	8.0	353	373	110,510	39	1,306	0	0	111,855
7/03 [a,c]	7.5/6.5		502	0	130,224	40	1,446	0	0	131,710
7/04 [a,c]	7.0/7.0		594	0	300,512	50	2,159	0	0	302,721
7/05 [c]	7.5	8.0	523	430	165,771	33	970	0	0	166,774
7/06 [c]	6.5/7.0		315	0	198,677	20	1,122	0	0	199,819
7/07 [c,d]	6.5/8.0/3.0		605	0	230,815	48	2,402	0	0	233,265
7/08 [a,c,d]	7.0/5.0	4.0	625	41	317,208	109	5,175	0	0	322,492
7/09 [a,c,d]	6.5	10/6/4	279	494	170,235	35	1,018	0	0	171,288
7/10 [c,d,e]	8.0	8.5/6/4	558	311	277,551	55	3,196	0	0	280,802
7/11 [c,d,e]	8.5/6.0	18/6/4	552	464	644,958	138	22,433	0	0	667,529
7/12 [c,d,e]	9.0/7.0	18/2/4.5	819	496	704,531	167	43,061	0	0	747,759
7/13 [e]	8.0/6.5	24.0	837	323	792,461	110	33,966	0	0	826,537
7/14 [e]	8.0/6.5	24.0	828	309	592,861	69	27,968	0	0	620,898
7/15 [e]	7.0/6.0	24.0	803	282	287,723	91	17,311	0	1	305,126
7/16 [e]	6.5/7.0	24.0	227	198	56,334	18	3,781	0	2	60,135
7/17 [e]	15.0	24.0	422	180	462,601	68	38,529	0	1	501,199
7/18	15.0	24.0	456	163	206,292	97	18,930	0	0	225,319
7/19 [e]	24.0	24.0	200	129	85,701	67	13,092	0	0	98,860
7/20 [e]	24.0	24.0	188	127	147,521	88	17,560	0	0	165,169
7/21 [e]	24.0	24.0	175	95	129,409	58	13,747	0	2	143,216
7/22	24.0	9.0	232	92	225,418	101	35,815	1	3	261,338
7/23 [e]	24.0	24.0	229	96	123,983	64	25,017	8	4	149,076
7/24 [e]	24.0	24.0	135	110	60,032	94	17,165	2	20	77,313
7/25 [e]	24.0	15.0	128	114	38,050	82	15,223	6	21	53,382
7/26 [e]	24.0	24.0	54	102	29,847	65	10,421	301	220	40,854
7/27 [e]	24.0	24.0	48	90	18,113	29	7,019	167	95	25,423
7/28 [e]	9.0	9.0	16	9	5,075	10	2,162	0	0	7,247
7/31 [e]	15.0	15.0	10	12	1,008	4	432	1,088	60	2,592
8/01 [e]	24.0	24.0	4	38	3,219	13	1,380	2,968	190	7,770
8/02 [e]	24.0	24.0	3	42	2,115	6	906	4,149	258	7,434
8/03 [e]	24.0	24.0	5	29	1,970	4	844	5,189	123	8,130
8/04 [e]	9.0	9.0	0	4	235	1	101	53	8	398
8/05										
8/06										
8/07 [e]	15.0	15.0	0	3	34	0	15	261	49	359

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Table 10.–Page 2 of 2.

	Hours Fished		Deliveries							
Date	**Drift**	**Set**	**Drift**	**Set**	**Sockeye**	**Chinook**	**Chum**	**Pink**	**Coho**	**Total**
8/08[e]	24.0	24.0	1	26	577	0	247	3,893	678	5,395
8/09[e]	24.0	24.0	0	12	163	1	70	2,057	350	2,641
8/10[e]	24.0	24.0	1	7	109	1	47	613	158	928
8/08[e]	24.0	24.0	1	26	577	0	247	3,893	678	5,395
8/11[e]	9.0	9.0	0	8	105	0	45	731	265	1,146
8/12										
8/13										
8/14[e]	15.0	15.0	0	2	4	0	0	116	37	157
8/15[e]	24.0	24.0	0	12	62	0	2	905	377	1,346
8/16[e]	24.0	24.0	0	12	39	0	3	690	313	1,045
8/17[e]	24.0	24.0	0	8	43	0	3	639	513	1,198
8/18[e,b]	9.0	9.0	0	1						
8/19										
8/20										
8/21[e,b]	15.0	15.0	0	1						
8/22[e]	24.0	24.0	0	7	5	0	2	119	321	447
8/23[e]	24.0	24.0	0	7	16	0	0	89	237	342
8/24	24.0	24.0	0	7	2	0	0	57	205	264
8/25 [e,b]	9.0	9.0	0	3						
8/26										
8/27										
8/28										
8/29 [e,b]	24.0	24.0	0	3						
Total					**7,153,750**	**2,294**	**395,341**	**24,127**	**4,753**	**7,580,265**

[a] Fishery was open in the Naknek River Special Harvest Area (NRSHA).

[b] Less than 4 permit holders fished, harvest confidential.

[c] District test fish.

[d] Fishery was open in the Alagnak River Special Harvest Area and NRSHA.

[e] Fishery was opened in the Naknek/Kvichak District.

Table 11.–Commercial salmon catch by date and species, in numbers of fish, Egegik District, Bristol Bay, 2006.

	Hours Fished[a]		Deliveries[b]							
Date	**Drift**	**Set**	**Drift**	**Set**	**Sockeye**	**Chinook**	**Chum**	**Pink**	**Coho**	**Total**
6/12	15	15	0	7	155	0	15	0	0	170
6/13	24	24	2	9	245	0	25	0	0	270
6/14	9	9	0	0						0
6/15	15	15	18	25	2,423	9	242	0	0	2,674
6/16	9	9	4	5	533	4	44	0	0	581
6/17										
6/18										
6/19										
6/20										
6/21	4	4.5	190	88	24,108	37	1,521	0	0	25,666
6/22		3.5	0	30	1,580	25	88	0	0	1,693
6/23	5	8	163	126	12,894	55	1,045	2	6	14,002
6/24										
6/25										
6/26	5	8	369	225	220,141	63	2,873	0	0	223,077
6/27	8	8	524	173	130,335	48	3,652	0	0	134,035
6/28	9	9	346	161	110,280	79	1,600	0	2	111,961
6/29	9	8	622	189	278,143	42	3,655	0	0	281,840
6/30	6	8	327	201	221,054	75	2,152	0	0	223,281
7/1	7		657		416,167	41	3,683	0	0	419,891
7/2	4	7	255	206	53,016	45	1,125	0	0	54,186
7/3	9	7	449	179	210,560	30	3,374	0	0	213,964
7/4	3.5	7.5	197	266	299,927	24	2,089	0	0	302,040
7/5	10	10.5	684	284	686,537	33	4,770	0	0	691,340
7/6	11	8	629	195	527,013	58	6,517	0	0	533,588
7/7	11.5	8	574	161	266,925	29	3,492	0	0	270,446
7/8	10.5	8	564	133	424,618	23	5,786	0	0	430,427
7/9	10.5	8	603	311	490,598	18	9,436	0	0	500,052
7/10	10	9.5	559	176	401,654	28	4,984	0	0	406,666
7/11	16.5	22	506	220	302,577	38	9,689	0	0	312,304
7/12	12.5	8	309	150	257,330	14	8,790	0	0	266,134
7/13	12	20	193	164	279,553	10	4,676	0	0	284,239
7/14	12	20	200	208	384,074	13	8,372	0	0	392,459
7/15	12	20	287	213	377,465	11	8,170	0	0	385,646
7/16	9	8	304	111	153,001	7	7,049	0	0	160,057
7/17	15	15	164	96	153,065	3	6,193	17	0	159,278
7/18	24	24	185	113	170,321	17	7,044	0	0	177,382
7/19	24	24	157	84	180,050	2	9,482	0	0	189,534
7/20	24	24	126	74	132,241	4	6,931	0	0	139,176
7/21	9	9	31	18	22,166	8	1,289	0	0	23,463
7/22										
7/23										
7/24	15	15	45	57	64,865	8	7,629	0	0	72,502
7/25	24	24	69	65	58,026	5	4,904	0	142	63,077
7/26	24	24	35	57	30,655	0	1,910	0	146	32,711

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Table 11.–Page 2 of 2.

	Hours Fished[a]		Deliveries[b]							
Date	**Drift**	**Set**	**Drift**	**Set**	**Sockeye**	**Chinook**	**Chum**	**Pink**	**Coho**	**Total**
7/27	24	24	34	45	25,404	2	3,508	0	337	29,251
7/28	9	9	10	9	5,330	0	814	0	126	6,270
7/29										
7/30										
7/31	15	15	16	14	6,060	0	982	0	633	7,675
8/1	24	24	5	1	434	1	57	0	57	549
8/2	24	24	4	5	4135	0		0	66	4,201
8/3	24	24	6	3	2080	3	31	88	269	2,471
8/4	9	9	0	0						0
8/5										
8/6										
8/7	15	15	7	1	354	1	239	93	672	1,359
8/8	24	24	7	4	418	0	169	72	1,304	1,963
8/9	24	24	12	4	781	3	259	197	2,270	3,510
8/10	24	24	5	1	301	2	125	45	858	1,331
8/11	9	9	0	0						0
8/12										
8/13										
8/14	15	15	3	3	134	0	92	6	1,087	1,319
8/15[c]	24	24				0		0	31	31
8/16	24	24	10	7	311	0	83	47	3,818	4,259
8/17	24	24	5	6	131	0	9	33	2,148	2,321
8/18	9	9	3	2	69	0	3	14	443	529
8/19										
8/20										
8/21	15	15	11	6	127	0	24	39	2,976	3,166
8/22	24	24	8	5	37	0	1	1	2,332	2,371
8/23	24	24	7	5	35	0		10	2,467	2,512
8/24	24	24	10	6	15	0	13	6	2,367	2,401
8/25	9	9	0	0						0
8/26										
8/27										
8/28	15	15	9	6	36	0	5	10	1,422	1,473
8/29	24	24	6	2	35	0	1	30	806	872
8/30	24	24								0
8/31	24	24								0
9/1	9	9								0
TOTAL					**7,390,521**	**918**	**160,712**	**710**	**26,785**	**7,579,646**

[a] For hours fished: first number is drift, second number is set gillnet, one number both gear groups equal time.

[b] Number of deliveries.

[c] Less than 4 permits, records are confidential.

Table 12.–Commercial salmon catch by date and species, in numbers of fish, Ugashik District, Bristol Bay, 2006.

	Hours Fished [a]		Deliveries [b]							
Date	Drift	Set	Drift	Set	Sockeye	Chinook	Chum	Pink	Coho	Total
6/9	9	9								
6/10										
6/11										
6/12	15	15	1		6		9			
6/13	24	24	10		91	51	76			218
6/14	24	24	12		288	147	189			624
6/15	24	24	14		490	206	216			912
6/16	9	9	0	0						
6/17										
6/18										
6/19	12	12	39	1	1,793	219	536			2,548
6/20	12	12	71		7,035	405	1,165			8,605
6/21	12	12	54	2	6,733	216	1,256			8,205
6/22	12	12	40	3	12,890	195	1,899			14,984
6/23										
6/24										
6/25										
6/26										
6/27										
6/28										
6/29										
6/30	10	10	2	35	11,734	79	1,013			12,826
7/1	23	23	36	49	63,134	177	4,009			67,320
7/2	6	9	38	66	70,596	48	3,179			73,823
7/3										
7/4	4	8	12	61	32,082	29	1,743			33,854
7/5	5	-	89		110,881	10	3,489			114,380
7/6	5.5	6.5	44	76	96,009	14	4,023			100,046
7/7	9	1.5	178	1	136,295	11	5,801			142,107
7/8	7	-	226		172,659	60	7,791			180,510
7/9	7	10	249	80	149,649	121	5,114			154,884
7/10	10	10.5	181	48	82,346	52	2,922			85,320
7/11	15.5	20	201	44	114,648	73	4,518			119,239
7/12	11	10	74	52	106,392	54	3,115			109,561
7/13	10	10	149	70	223,161	42	10,732			233,935
7/14	8	8	112	9	117,879	19	3,614			121,512
7/15	4	-	141		88,901	16	4,828			93,745
7/16										
7/17	15	15	79	28	65,921	39	3,293			69,253
7/18	24	24	72	28	91,410	25	5,050			96,485
7/19	24	24	67	37	112,169	58	6,996			119,223
7/20	24	24	85	48	147,501	49	8,730			156,280
7/21	9	9	55	27	58,763	20	3,749			62,532
7/22										
7/23										
7/24	15	15	71	28	65,630	51	5,366			71,047
7/25	24	24	51	32	55,340	28	4,803			60,171
7/26	24	24	70	24	90,245	28	8,898		103	99,274
7/27	24	24	66	26	68,806	22	6,391		72	75,291
7/28	9	9	16	5	15,699	14	1,237		0	16,950
7/29										
7/30										
7/31	15	15	6	6	7,532	6	688			8,226

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Table 12.–Page 2 of 2.

	Hours Fished [a]		Deliveries [b]							
Date	**Drift**	**Set**	**Drift**	**Set**	**Sockeye**	**Chinook**	**Chum**	**Pink**	**Coho**	**Total**
8/1	24	24	14	12	17,927	3	1,353			19,283
8/2	24	24	17	5	15,687	10	1,091			16,788
8/3	24	24	9	5	6,886	3	289			7,178
8/4	9	9	2	3	1,440		18			1,458
8/5										
8/6										
8/7	15	15								
8/8	24	24								
8/9	24	24								
8/10	24	24								
8/11	9	9								
8/12										
8/13										
8/14[c]	15	15								
8/15[c]	24	24								
8/16[c]	24	24								
8/17[c]	24	24								
8/18[c]	9	9								
8/19										
8/20										
8/21	15	15								
8/22[c]	24	24								
8/23[c]	24	24								
8/24[c]	24	24								
8/25	9	9								
8/26										
8/27										
8/28	15	15								
8/29[c]	24	24								
8/30[c]	24	24								
8/31	24	24								
9/1	9	9								
9/2										
9/3										
9/4	15	15								
9/5[c]	24	24								
9/6	24	24								
9/7[c]	24	24								
9/8	9	9								
9/9										
9/10										
9/11	15	15								
9/12[c]	24	24								
9/13	24	24								
9/14[c]	24	24								
9/15	9	9								
9/16										
9/17										
9/18	15	15								
9/19	24	24								
9/20[c]	24	24								
Total					**2,426,648**	**2,600**	**129,189**	**0**	**3,087**	**2,561,524**

Note: Blank cells represent days with no data.

[a] First number drift, second number set gillnet, one number represents both gear groups equal time.

[b] Number of deliveries.

[c] Less than 4 permits, records are confidential.

Table 13.–Commercial salmon catch by date and species, in numbers of fish, Nushagak District, Bristol Bay, 2006.

	Hours Fished[a]		Deliveries							
Date	Nushagak	Igushik	Drift	Set	Sockeye	Chinook	Chum	Pink	Coho	Total
6/1	10/12	10/12[b]								
6/2										
6/3										
6/4	10/12	10/12	23	0	0	375	15	0	0	390
6/5										
6/6	10/12	10/12	50	0	0	447	43	0	0	490
6/7										
6/8	8/12	8/12	74	0	0	3,571	143	0	0	3,714
6/9										
6/10										
6/11	6/12	6/12	112	0	22	3,944	538	0	0	4,504
6/13	8/12	8/12	78	1	18	260	124	0	0	402
6/14										
6/15	8/12	8/12	184	0	383	5,912	3,713	0	0	10,008
6/16										
6/17										
6/18	3/12	3/12	210	20	1,367	6,654	6,117	0	0	14,138
6/19										
6/20										
6/21										
6/22	3/12	3/12	269	173	25,568	19,340	9,847	2	0	54,757
6/23										
6/24	0/0[c]	0/8	0	23	1,233	116	1	0	0	1,350
6/25	6/18	0/8	436	395	392,137	10,718	123,571	52	0	526,478
6/26	12/22.5	0/8	834	427	497,037	6,076	116,266	5	0	619,384
6/27	19.5/9.5	0/8	788	330	602,427	4,518	86,744	3	0	693,692
6/28	24/24	0/8	865	298	600,230	2,355	62,877	2	0	665,464
6/29	24/24	0/7.5	841	310	543,540	1,867	65,599	19	2	611,027
6/30	20/24	0/.5	789	270	539,863	1,300	59,661	9	0	600,833
7/1	20/24	0/19	741	272	415,572	1,136	46,818	17	2	463,545
7/2	20/24	0/24	908	359	792,704	1,855	71,787	42	1	866,389
7/3	20/24	0/24	932	360	575,904	1,808	52,443	37	2	630,194
7/4	20/24	0/24	1,009	370	767,404	1,615	54,364	47	0	823,430
7/5	20/24	0/24	1,052	406	680,664	1,419	51,220	52	0	733,355
7/6	21/24	0/24	992	397	606,200	1,735	45,965	89	4	653,993
7/7	20/24	0/24	827	444	722,078	1,629	45,418	92	2	769,219
7/8	21/24	0/24	773	326	645,353	1,435	42,989	74	12	689,863
7/9	20/24	0/24	738	334	402,139	648	32,690	99	5	435,581
7/10	20/24	6/24	668	295	398,526	670	29,401	62	2	428,661
7/11	20/24	6/24	567	255	323,025	640	25,842	55	9	349,571
7/12	19.5/24	8/24	468	254	202,009	470	17,777	95	7	220,358
7/13	24/24	24/24	424	220	357,792	292	23,673	32	9	381,798
7/14	24/24	24/24	360	199	312,508	194	22,652	52	64	335,470
7/15	24/24	24/24	297	166	184,613	125	14,475	114	103	199,430
7/16	24/24	24/24	219	142	123,659	107	8,128	159	375	132,428
7/17	24/24	24/24	195	129	109,719	78	5,835	186	341	116,159
7/18	24/24	24/24	99	122	55,345	45	4,008	412	115	59,925
7/19	24/24	24/24	108	100	47,596	71	5,164	391	281	53,503
7/20	24/24	24/24	68	95	32,558	55	2,935	914	449	36,911
7/21	24/24	24/24	56	95	28,815	62	4,043	2,244	647	35,811

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Table 13.–Page 2 of 2.

	Hours Fished[a]		Deliveries							
Date	**Nushagak**	**Igushik**	**Drift**	**Set**	**Sockeye**	**Chinook**	**Chum**	**Pink**	**Coho**	**Total**
7/22	24/24	24/24	44	83	28,544	58	3,610	2,916	1,409	36,537
7/23	24/24	24/24	23	69	13,705	22	1,789	2,383	1,354	19,253
7/24	24/24	24/24	23	74	13,675	23	573	4,688	2,479	21,438
7/25	24/24	24/24	14	52	8,323	24	832	4,210	1,167	14,556
7/26	24/24	24/24	7	26	5,473	8	886	2,608	1,794	10,769
7/27	24/24	24/24	6	11	2,296	0	153	2,793	250	5,492
7/28	9/9	9/9	0	4	635	0	6	962	106	1,709
7/29										
7/30	12/12	12/12	12	5	346	1	82	2,214	1,864	4,507
8/1	12/12	12/12	17	8	264	0	25	5,788	2,964	9,041
8/2										
8/3	12/12	12/12	14	7	196	0	7	3,636	3,044	6,883
8/4										
8/5										
8/6	12/12	12/12	21	3	63	0	12	291	2,112	2,478
8/7										
8/8	12/12	12/12	25	4	33	0	12	433	6,160	6,638
8/9										
8/10	12/12	12/12	25	4	40	0	5	388	7,701	8,134
8/11										
8/12										
8/13	12/12	12/12	22	1	3	0	1	127	5,850	5,981
8/14										
8/15	12/12	12/12	15	2	20	0	2	1	840	863
8/16										
8/17	12/12	12/12	4	0	0	0	0	0	1,226	1,226
8/18	12/12	12/12	4	0	4	0	0	0	30	34
8/19	12/12	12/12	11	1	4	0	1	0	908	913
8/20	12/12	12/12	8	1	30	0	1	1	591	623
Total	**926/1031**	**599/952**	**17,350**	**7,942**	**11,061,662**	**83,679**	**1,150,883**	**38,796**	**44,281**	**12,379,301**

Note: Blank cells represent days with no data.

[a] For hours fished: first number is drift, second number is set gillnet.

[b] Less than 4 permits, records are confidential.

[c] The Nushagak Section closed.

Table 14.–Commercial salmon catch by date and species, in numbers of fish, Togiak District, Bristol Bay, 2006.

Date[a]	Sockeye	Chinook	Chum	Pink	Coho	Total
6/19	636	158	908	4	0	1,706
6/20	1,085	334	2,060	9	0	3,488
6/21	1,470	300	2,080	25	0	3,875
6/22	746	144	786	4	0	1,680
6/26	6,007	983	8,003	52	1	15,046
6/27	11,103	1,117	11,242	113	0	23,575
6/28	3,988	264	3,243	35	0	7,530
6/30	10,171	1,090	6,809	60	1	18,131
7/1	11,337	747	6,734	74	1	18,893
7/3	15,757	1,315	11,948	71	0	29,091
7/4	25,842	1,286	14,342	154	0	41,624
7/5	19,954	1,011	11,134	134	0	32,233
7/6	16,865	815	7,815	124	0	25,619
7/7	13,357	743	5,029	125	1	19,255
7/8	15,768	256	3,738	62	0	19,824
7/10	19,585	747	7,308	207	0	27,847
7/11	26,413	807	12,410	343	0	39,973
7/12	21,433	607	11,773	337	0	34,150
7/13	17,937	409	10,826	275	0	29,447
7/14	15,076	361	5,289	428	1	21,155
7/15	21,300	355	5,205	470	1	27,331
7/16	14,997	193	2,138	231	1	17,560
7/17	27,455	339	5,101	611	0	33,506
7/18	33,128	375	9,970	1,754	0	45,227
7/19	32,528	264	13,757	2,271	0	48,820
7/20	31,634	270	11,087	4,252	1	47,244
7/21	26,018	240	5,579	3,310	5	35,152
7/22	22,514	185	4,041	2,886	1	29,627
7/23	7,775	46	1,151	1,243	0	10,215
7/24	15,498	98	4,298	5,419	3	25,316
7/25	28,818	139	5,810	9,688	4	44,459
7/26	18,767	103	3,572	7,630	2	30,074
7/27	19,823	56	2,098	11,243	13	33,233
7/28	12,403	25	1,079	5,352	5	18,864
7/29	5,376	15	784	4,143	7	10,325
7/30	2,773	3	574	1,540	0	4,890
7/31	14,016	28	1,764	9,312	15	25,135
8/1	15,660	28	1,274	4,662	22	21,646
8/2	4,502	6	255	1,611	6	6,380
8/3 [b]						
8/4	6,225	9	459	289	15	6,997
8/5	4,823	3	358	0	220	5,404
8/6	897	2	61	0	0	960
8/8 [b]						
8/9 [b]						
Total	**625,696**	**16,279**	**224,062**	**81,156**	**453**	**947,646**

[a] See Table 8 for inseason adjustments to the regular weekly fishing schedule.

[b] Information confidential, less than 4 permit holders involved in fishery.

Table 15.–Commercial salmon catch by date and species, in numbers of fish, Togiak Section Bristol Bay, 2006.

	Deliveries							
Date	**Drift**	**Set**	**Sockeye**	**Chinook**	**Chum**	**Pink**	**Coho**	**Total**
6/19	4	13	334	79	474	4	0	891
6/20	8	23	793	248	1,564	9	0	2,614
6/21	6	20	945	190	1,436	20	0	2,591
6/22	6	8	646	125	704	4	0	1,479
6/26	26	38	3,576	846	5,232	32	1	9,687
6/27	41	60	6,342	1,014	8,572	66	0	15,994
6/28	11	27	2,276	222	2,279	22	0	4,799
6/30	42	71	10,171	1,090	6,809	60	1	18,131
7/1	43	78	11,337	747	6,734	74	1	18,893
7/3	43	65	10,822	1,136	7,103	71	0	19,132
7/4	56	106	16,051	1,132	9,263	136	0	26,582
7/5	49	94	12,039	907	8,965	116	0	22,027
7/6	59	99	15,445	806	7,783	124	0	24,158
7/7	46	106	13,357	743	5,029	125	1	19,255
7/8	23	86	15,768	256	3,738	62	0	19,824
7/10	52	76	15,855	705	6,199	207	0	22,966
7/11	70	113	21,722	745	10,067	343	0	32,877
7/12	84	131	21,433	607	11,773	337	0	34,150
7/13	58	128	17,937	409	10,826	275	0	29,447
7/14	50	104	15,076	361	5,289	428	1	21,155
7/15	48	87	21,300	355	5,205	470	1	27,331
7/16	13	80	14,997	193	2,138	231	1	17,560
7/17	48	120	27,455	339	5,101	611	0	33,506
7/18	64	117	33,128	375	9,970	1,754	0	45,227
7/19	73	117	32,528	264	13,757	2,271	0	48,820
7/20	70	145	31,634	270	11,087	4,252	1	47,244
7/21	51	124	26,018	240	5,579	3,310	5	35,152
7/22	47	100	22,514	185	4,041	2,886	1	29,627
7/23	11	27	7,775	46	1,151	1,243	0	10,215
7/24	50	68	15,498	98	4,298	5,419	3	25,316
7/25	77	90	21,966	118	4,269	8,606	4	34,963
7/26	61	84	16,621	96	3,095	7,074	1	26,887
7/27	58	73	19,823	56	2,098	11,243	13	33,233
7/28	25	55	12,403	25	1,079	5,352	5	18,864
7/29	13	29	5,376	15	784	4,143	7	10,325
7/30	6	3	2,773	3	574	1,540	0	4,890
7/31	37	34	14,016	28	1,764	9,312	15	25,135
8/1	33	47	15,660	28	1,274	4,662	22	21,646
8/2	8	13	4,502	6	255	1,611	6	6,380
8/3 [a]	3							
8/4	11	11	6,225	9	459	289	15	6,997
8/5	7	6	4,823	3	358	0	220	5,404
8/6	1	3	897	2	61	0	0	960
8/8 [a]	3							
8/9 [a]	3							
Total	**1,598**	**2,879**	**574,093**	**15,125**	**198,406**	**79,397**	**452**	**867,473**

[a] Less than 4 permits, records are confidential.

Table 16.–Commercial salmon catch by date and species, in numbers of fish, Kulukak Section, Bristol Bay, 2006.

	Deliveries							
Date[a]	**Drift**	**Set**	**Sockeye**	**Chinook**	**Chum**	**Pink**	**Coho**	**Total**
6/19		6	302	79	434	0	0	815
6/20		6	292	86	496	0	0	874
6/21		8	525	110	644	5	0	1,284
6/22[b]								
6/26	3	28	2,431	137	2,771	20	0	5,359
6/27	4	37	4,761	103	2,670	47	0	7,581
6/28	3	12	1,712	42	964	13	0	2,731
7/3	18	37	4,935	179	4,845	0	0	9,959
7/4	26	41	9,791	154	5,079	18	0	15,042
7/5	16	39	7,915	104	2,169	18	0	10,206
7/6[b]								
7/10	6	13	3,730	42	1,109	0	0	4,881
7/11	15	26	4,691	62	2,343	0	0	7,096
7/25	12	6	6,852	21	1,541	1,082	0	9,496
7/26	12	5	2,146	7	477	556	1	3,187
Total	**115**	**268**	**51,603**	**1,154**	**25,656**	**1,759**	**1**	**80,173**

[a] Kulukak Section is open 3 days per week by regulation. See Table 8 for inseason adjustments to the weekly fishing schedule.

[b] Less than 4 permits, records are confidential.

Table 17.–Commercial salmon catch by date and species, in numbers of fish, Matogak Section, Bristol Bay, 2006.

Date[a]	Sockeye	Chinook	Chum	Pink	Coho	Total
No Commercial Fishing Effort Occurred						
Total						

[a] Matogak Section is open 5 days per week by regulation. See Table 8 for inseason adjustments to the weekly fishing schedule.

Table 18.–Commercial salmon catch by date and species, in numbers of fish, Osviak Section, Bristol Bay, 2006.

Date[a]	Sockeye	Chinook	Chum	Pink	Coho	Total
No Commercial Fishing Effort Occurred						
Total						

[a] Osviak Section is open 5 days per week by regulation. See Table 8 for inseason adjustments to the weekly fishing schedule.

Table 19.–Commercial salmon catch by district and species, in number of fish, Bristol Bay, 2006.

District and River System	Sockeye	Chinook	Chum	Pink	Coho	Total
NAKNEK-KVICHAK DISTRICT						
Kvichak River	2,736,218					
Branch River	1,078,017					
Naknek River	3,339,332					
Total	7,153,567	2,294	395,341	24,127	4,753	7,580,082
EGEGIK DISTRICT	7,390,521	918	160,712	710	26,785	7,579,646
UGASHIK DISTRICT	2,426,650	2,600	129,189	0	3,087	2,561,526
NUSHAGAK DISTRICT						
Wood River	7,384,842					
Igushik River	1,553,514					
Nushagak River	2,123,308					
Total	11,061,664	83,679	1,150,880	38,796	44,281	12,379,300
TOGIAK DISTRICT						
Togiak Section	574,093	15,125	198,406	79,397	452	867,473
Kulukak Section	51,603	1,154	25,656	1,759	1	80,173
Matogak Section	0	0	0	0	0	0
Osviak Section	0	0	0	0	0	0
Total	625,696	16,279	224,062	81,156	453	947,646
TOTAL BRISTOL BAY	**28,658,098**	**105,770**	**2,060,184**	**144,789**	**79,359**	**31,048,200**

Note: Species other than sockeye are not apportioned to individual rivers.

Table 20.–Daily sockeye salmon escapement tower counts by river system, east side Bristol Bay, 2006.

	Kvichak River		Naknek River		Alagnak River		Egegik River		Ugashik River	
Date	**Daily**	**Cum.**	**Daily**	**Cum.**	**Daily**	**Cum.**	**Daily**	**Cum.**	**Daily**	**Cum.**
6/18							222	222		
6/19							2,790	3,012		
6/20			498	498			2,484	5,496		
6/21	12	12	474	972			744	6,240		
6/22	84	96	420	1,392			1,812	8,052		
6/23	126	222	342	1,734			11,856	19,908		
6/24	240	462	36	1,770			18,702	38,610		
6/25	276	738	19,854	21,624			14,628	53,238		
6/26	300	1,038	142,212	163,836			35,454	88,692		
6/27	294	1,332	79,962	243,798	1,290	1,290	47,676	136,368		
6/28	1,164	2,496	54,582	298,380	2,028	3,318	69,396	205,764		
6/29	7,080	9,576	52,746	351,126	16,950	20,268	94,068	299,832		
6/30	14,142	23,718	63,114	414,240	13,434	33,702	18,378	318,210	1,440	1,440
7/01	43,728	67,446	54,558	468,798	36,456	70,158	22,104	340,314	3,966	5,406
7/02	87,942	155,388	37,530	506,328	57,564	127,722	28,584	368,898	798	6,204
7/03	126,306	281,694	107,706	614,034	28,590	156,312	52,626	421,524	1,242	7,446
7/04	66,600	348,294	131,850	745,884	32,628	188,940	134,520	556,044	2,346	9,792
7/05	110,376	458,670	116,004	861,888	204,744	393,684	180,486	736,530	36,270	46,062
7/06	295,092	753,762	153,540	1,015,428	103,278	496,962	238,176	974,706	83,988	130,050
7/07	252,084	1,005,846	146,946	1,162,374	133,908	630,870	144,966	1,119,672	33,636	163,686
7/08	209,712	1,215,558	191,370	1,353,744	202,812	833,682	83,130	1,202,802	9,894	173,580
7/09	339,624	1,555,182	160,596	1,514,340	220,068	1,053,750	133,056	1,335,858	93,390	266,970
7/10	322,632	1,877,814	37,494	1,551,834	152,640	1,206,390	58,296	1,394,154	285,300	552,270
7/11	275,478	2,153,292	42,336	1,594,170	29,262	1,235,652	34,260	1,428,414	78,342	630,612
7/12	173,874	2,327,166	37,842	1,632,012	94,356	1,330,008	6,672	1,435,086	44,164	674,776
7/13	140,334	2,467,500	99,408	1,731,420	62,784	1,392,792	5,364	1,440,450	28,290	703,066
7/14	68,142	2,535,642	115,944	1,847,364	89,430	1,482,222	6,552	1,447,002	37,314	740,380
7/15	140,250	2,675,892	49,866	1,897,230	132,192	1,614,414	18,156	1,465,158	15,732	756,112
7/16	156,150	2,832,042	29,220	1,926,450	112,920	1,727,334			18,594	774,706
7/17	103,500	2,935,542	13,758	1,940,208	35,646	1,762,980			41,304	816,010
7/18	38,190	2,973,732	13,020	1,953,228	10,986	1,773,966			48,240	864,250
7/19	22,572	2,996,304				1,773,966			23,472	887,722
7/20	19,260	3,015,564				1,773,966			11,202	898,924
7/21	15,486	3,031,050				1,773,966			9,852	908,776
7/22	11,502	3,042,552				1,773,966			9,528	918,304
7/23	12,576	3,055,128							16,110	934,414
7/24	13,098	3,068,226							18,708	953,122
7/25									15,252	968,374
7/26									10,344	978,718

Note: Blank cells represent days when no data was collected.

Table 21.–Daily sockeye salmon escapement tower counts by river system, west side Bristol Bay, 2006.

	Wood River		Igushik River		Nuyakuk River		Togiak River	
Date	**Daily**	**Cum.**	**Daily**	**Cum.**	**Daily**	**Cum.**	**Daily**	**Cum.**
6/18	1,566	1,566						
6/19	1,110	2,676						
6/20	588	3,264						
6/21	3,420	6,684	0	0				
6/22	22,602	29,286	0	0				
6/23	29,250	58,536	0	0				
6/24	74,262	132,798	0	0				
6/25	195,294	328,092	18	18				
6/26	193,800	521,892	324	342	96	96		
6/27	361,050	882,942	450	792	570	666		
6/28	229,272	1,112,214	2,370	3,162	474	1,140		
6/29	150,300	1,262,514	6,054	9,216	1,212	2,352		
6/30	219,834	1,482,348	12,546	21,762	1,986	4,338		
7/01	264,324	1,746,672	12,708	34,470	10,590	14,928		
7/02	218,352	1,965,024	14,208	48,678	11,694	26,622		
7/03	193,236	2,158,260	18,054	66,732	19,944	46,566	3,000	3,000
7/04	176,844	2,335,104	9,720	76,452	18,138	64,704	5,730	8,730
7/05	200,070	2,535,174	5,232	81,684	11,460	76,164	3,654	12,384
7/06	198,450	2,733,624	6,756	88,440	14,226	90,390	2,562	14,946
7/07	158,706	2,892,330	8,022	96,462	7,554	97,944	3,648	18,594
7/08	235,248	3,127,578	12,678	109,140	3,840	101,784	2,244	20,838
7/09	198,876	3,326,454	16,674	125,814	3,450	105,234	3,756	24,594
7/10	132,306	3,458,760	19,626	145,440	6,402	111,636	5,646	30,240
7/11	123,360	3,582,120	13,836	159,276	2,670	114,306	4,356	34,596
7/12	75,432	3,657,552	14,124	173,400	4,896	119,202	9,402	43,998
7/13	42,726	3,700,278	20,460	193,860	11,994	131,196	10,086	54,084
7/14	76,782	3,777,060	18,372	212,232	8,154	139,350	9,720	63,804
7/15	90,474	3,867,534	17,748	229,980	5,880	145,230	4,440	68,244
7/16	50,172	3,917,706	13,218	243,198	3,372	148,602	6,732	74,976
7/17	42,228	3,959,934	20,178	263,376	1,452	150,054	7,710	82,686
7/18	42,630	4,002,564	18,258	281,634	966	151,020	5,874	88,560
7/19	5,538[a]	4,008,102	13,224	294,858	2,850	153,870	6,708	95,268
7/20			10,410[a]	305,268	3,768	157,638	11,964	107,232
7/21					3,894	161,532	7,200	114,432
7/22					3,348	164,880	6,720	121,152
7/23					2,952	167,832	6,564	127,716
7/24					2,928	170,760	10,524	138,240
7/25							11,712	149,952
7/26							13,236	163,188
7/27							16,530	179,718
7/28							13,152	192,870
7/29							13,134	206,004
7/30							13,902	219,906

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Table 21.–Page 2 of 2.

Date	Wood River		Igushik River		Nuyakuk River		Togiak River	
	Daily	Cum.	Daily	Cum.	Daily	Cum.	Daily	Cum.
7/31							11,406	231,312
8/01							17,556	248,868
8/02							18,234	267,102
8/03							8,886	275,988
8/04							10,482	286,470
8/05							25,656	312,126

Note: Blank cells represent days when no data was collected.

[a] Denotes a partial count.

Table 22.–Final daily and cumulative escapement estimates by species, Nushagak River sonar project, Bristol Bay, 2006.

	Sockeye		Chinook		Chum		Pink		Coho		Total	
Date	**Daily**	**Cum.**	**Daily**	**Cum.**	**Daily**	**Cum.**	**Daily**	**Cum.**	**Daily**	**Cum.**	**Daily**	**Cum.**
6/8	0	0	947	947	2,204	2,204	0	0	0	0	3,151	3,151
6/9	0	0	3,873	4,820	3,789	5,993	0	0	0	0	7,662	10,813
6/10	199	199	7,128	11,949	12,977	18,970	0	0	0	0	20,304	31,117
6/11	235	434	5,688	17,637	18,762	37,732	0	0	0	0	24,685	55,802
6/12	0	434	2,847	20,484	11,870	49,602	0	0	0	0	14,717	70,519
6/13	0	434	1,260	21,744	3,972	53,573	0	0	0	0	5,232	75,751
6/14	0	434	589	22,332	4,697	58,271	0	0	0	0	5,286	81,037
6/15	0	434	479	22,811	3,720	61,990	0	0	0	0	4,198	85,235
6/16	200	634	215	23,026	3,450	65,440	0	0	0	0	3,865	89,101
6/17	64	698	479	23,505	1,946	67,386	0	0	0	0	2,489	91,589
6/18	311	1,009	2,049	25,554	29,019	96,405	0	0	0	0	31,379	122,968
6/19	264	1,273	1,145	26,699	14,648	111,053	0	0	0	0	16,057	139,025
6/20	153	1,426	457	27,156	4,165	115,218	0	0	0	0	4,775	143,800
6/21	261	1,687	292	27,447	19,906	135,123	0	0	0	0	20,458	164,258
6/22	4,226	5,913	3,940	31,387	35,805	170,928	0	0	0	0	43,971	208,229
6/23	9,321	15,234	4,040	35,428	40,878	211,807	0	0	0	0	54,239	262,468
6/24	8,879	24,113	3,527	38,955	17,186	228,993	0	0	0	0	29,592	292,060
6/25	41,885	65,998	9,803	48,758	59,927	288,920	0	0	0	0	111,616	403,676
6/26	62,776	128,774	6,285	55,044	44,735	333,655	0	0	0	0	113,796	517,472
6/27	102,798	231,572	6,365	61,409	85,437	419,092	0	0	0	0	194,601	712,073
6/28	42,421	273,993	4,849	66,258	36,610	455,702	0	0	0	0	83,879	795,952
6/29	19,830	293,823	3,066	69,324	18,622	474,324	0	0	0	0	41,519	837,471
6/30	11,320	305,143	4,595	73,919	25,451	499,775	0	0	0	0	41,366	878,837
7/1	19,042	324,185	8,044	81,963	28,610	528,384	0	0	0	0	55,695	934,533
7/2	20,561	344,746	4,921	86,884	29,379	557,763	0	0	0	0	54,861	989,393
7/3	17,382	362,128	5,279	92,163	35,158	592,922	0	0	0	0	57,819	1,047,212
7/4	16,982	379,110	3,668	95,831	14,938	607,860	0	0	0	0	35,589	1,082,801
7/5	10,898	390,009	3,076	98,907	10,500	618,359	0	0	0	0	24,474	1,107,275

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Table 22.–Page 2 of 2.

	Sockeye		Chinook		Chum		Pink		Coho		Total	
Date	**Daily**	**Cum.**	**Daily**	**Cum.**	**Daily**	**Cum.**	**Daily**	**Cum.**	**Daily**	**Cum.**	**Daily**	**Cum.**
7/6	15,433	405,441	2,654	101,561	6,779	625,138	0	0	0	0	24,866	1,132,140
7/7	13,560	419,002	1,569	103,129	2,453	627,591	0	0	0	0	17,582	1,149,722
7/8	21,961	440,963	3,504	106,634	3,683	631,274	0	0	0	0	29,148	1,178,870
7/9	27,059	468,022	3,899	110,532	4,511	635,785	0	0	0	0	35,469	1,214,339
7/10	13,955	481,977	1,702	112,234	1,106	636,891	0	0	0	0	16,763	1,231,102
7/11	9,662	491,639	2,652	114,886	4,636	641,527	0	0	0	0	16,950	1,248,052
7/12	9,418	501,058	1,715	116,601	2,836	644,363	0	0	0	0	13,970	1,262,022
7/13	6,440	507,498	2,198	118,800	2,620	646,983	0	0	0	0	11,259	1,273,280
7/14	9,745	517,243	2,130	120,929	2,518	649,501	0	0	442	442	14,834	1,288,115
7/15	12,003	529,246	1,662	122,592	4,741	654,241	0	0	0	442	18,406	1,306,521
7/16	10,362	539,608	1,138	123,730	3,651	657,893	0	0	0	442	15,151	1,321,672
7/17	8,802	548,410	953	124,683	3,110	661,002	0	0	0	442	12,864	1,334,537

Table 23.–Comparison of daily sockeye salmon escapement estimates by tower count, aerial survey and river test fishing enumeration methods, Kvichak River, Bristol Bay, 2006.

	Tower Count		Aerial Survey	River Test Fishing				
				Fish per	Index Points		Cumulative	Estimated
Date	Daily	Cum.	Total	Index Pt.[a]	Daily	Cum.	Escapement	River Fish[b]
6/20	0	-						
6/21	12	12					-	
6/22	84	96		36	0	0	-	
6/23	126	222		36	4	4	150	
6/24	240	462		36	3	7	264	
6/25	276	738		36	0	7	264	
6/26	300	1,038		36	0	7	264	
6/27	294	1,332		36	123	130	4,679	
6/28	1,164	2,496		19	218	348	6,614	4,000
6/29	7,080	9,576		28	334	683	19,111	9,000
6/30	14,142	23,718		38	575	1,258	47,787	25,000
7/01	43,728	67,446		76	583	1,841	139,916	75,000
7/02	87,942	155,388		124	453	2,294	284,432	125,000
7/03	126,306	281,694		127	1,950	4,244	538,998	250,000
7/04	66,600	348,294		73	4,946	9,190	670,852	300,000
7/05	110,376	458,670		73	2,657	11,847	864,838	400,000
7/06	295,092	753,762	380,000	88	729	12,576	1,106,698	350,000
7/07	252,084	1,005,846	600,000	93	3,146	15,722	1,462,120	450,000
7/08	209,712	1,215,558	650,000	92	1,966	17,687	1,627,244	400,000
7/09	339,624	1,555,182	710,000	103	1,334	19,021	1,959,183	400,000
7/10	322,632	1,877,814		111	1,056	20,077	2,228,543	350,000
7/11	275,478	2,153,292		118	1,141	21,218	2,503,772	350,000
7/12	173,874	2,327,166		113	1,253	22,471	2,539,249	200,000
7/13	140,334	2,467,500						
7/14	68,142	2,535,642						
7/15	140,250	2,675,892						
7/16	156,150	2,832,042						
7/17	103,500	2,935,542						
7/18	38,190	2,973,732						
7/19	22,572	2,996,304						
7/20	19,260	3,015,564						
7/21	15,486	3,031,050						
7/22	11,502	3,007,806						

Note: Blank cells represent days when no data was collected.

[a] The mean FPI of 36, based on median FPI's from 2001-2005, was used through 27 June. Thereafter, FPI's were based on lag-time relationships.

[b] Estimated river fish (ERF) was based on the river test fish cumulative escapement estimate less the cumulative tower count. On occasion, staff adjusted the ERF based on aerial surveys, catchability, etc.

Table 24.–Comparison of daily sockeye salmon escapement estimates by tower count, aerial survey and river test fishing enumeration methods, Egegik River, Bristol Bay, 2006.

	Tower Count		Aerial Survey	River Test Fishing				
				Fish per	Index Points		Cumulative	Estimated
Date	Daily	Cum.	Total	Index Pt.[a]	Daily	Cum.	Escapement	River Fish[b]
6/14								
6/15				70	84	84	5,894	
6/16				70	34	118	8,294	
6/17			3,240	70	32	150	10,505	
6/18	222	222		70	44.	194	13,547	5,000
6/19	2,790	3,012		70	23	216	15,129	2,000
6/20	2,484	5,496	28,140	70	42	259	18,103	10,000
6/21	744	6,240		30	210	469	14,065	7,500
6/22	1,812	8,052		27	109	578	15,600	7,500
6/23	11,856	19,908	11,000	35	147	725	25,380	5,000
6/24	18,702	38,610		69	53	778	53,658	15,000
6/25	14,628	53,238	8500	85	436	1,214	103,156	50,000
6/26	35,454	88,692		81	1,159	2,373	192,216	100,000
6/27	47,676	136,368		53	1,146	3,519	186,503	50,000
6/28	69,396	205,764	61,380	57	954	4,473	254,978	50,000
6/29	94,068	299,832		73	185	4,659	340,084	40,000
6/30	18,378	318,210	3,000	71	573	5,231	371,422	50,000
7/01	22,104	340,314		84	661	5,892	494,922	150,000
7/02	28,584	368,898		63	1,546	7,438	468,607	90,000
7/03	52,626	421,524	91,000	65	87	7,526	489,167	60,000
7/04	134,520	556,044		78	2,189	9,714	757,707	200,000
7/05	180,486	736,530		88	874	10,588	931,770	200,000
7/06	238,176	974,706	183,000	104	296	10,885	1,132,017	150,000
7/07	144,966	1,119,672		108	137	11,021	1,190,308	75,000
7/08	83,130	1,202,802		112	140	11,162	1,250,127	50,000
7/09	133,056	1,335,858		126	571	11,732	1,478,291	150,000
7/10	58,296	1,394,154		126	521	12,254	1,543,993	150,000
7/11	34,260	1,428,414		119	168	12,422	1,478,243	50,000
7/12	6,672	1,435,086		116	156	12,579	1,459,107	20,000
7/13	5,364	1,440,450						
7/14	6,552	1,447,002						
7/15	18,156	1,465,158						
7/16			9,000					

Note: Blank cells represent days when no data was collected.

[a] A mean FPI of 70, based on median FPI's from 2001-2005, was used through 20 June. Thereafter, FPI's were based on lag-time relationships.

[b] Estimated river fish (ERF) was based on the river test fish cumulative escapement estimate less the cumulative tower count. On occasion, staff adjusted the ERF based on aerial surveys, catchability, etc.

Table 25.–Comparison of daily sockeye salmon escapement estimates by tower count, aerial survey and river test fishing enumeration methods, Ugashik River, Bristol Bay, 2006.

	Tower Count		Aerial Survey	River Test Fishing				
				Fish per	Index Points		Cumulative	Estimated
Date	Daily	Cum.	Total	Index Pt.[a]	Daily	Cum.	Escapement	River Fish[b]
6/21								
6/22								
6/23				35	26	26	922	
6/24				35	15	42	1,463	
6/25				35	7	49	1,717	
6/26				35	29	78	2,717	
6/27				35	32	110	3,839	
6/28			0	35	55	165	5,767	
6/29				35	71	236	8,255	
6/30	1,440	1,440	0	35	70	305	10,692	
7/01	3,966	5,406		23	70	376	8,643	3,000
7/02	798	6,204		20	42	418	8,361	1,000
7/03	1,242	7,446	1,200	20	87	505	10,094	3,000
7/04	2,346	9,792		24	269	773	18,563	3,000
7/05	36,270	46,062		75	496	1,269	95,176	50,000
7/06	83,988	130,050	1,000	144	322	1,591	229,164	100,000
7/07	33,636	163,686		109	846	2,438	265,691	100,000
7/08	9,894	173,580		80	994	3,431	274,518	100,000
7/09	93,390	266,970		99	758	4,190	414,780	150,000
7/10	285,300	552,270		163	881	5,071	826,567	275,000
7/11	78,342	630,612		132	445	5,516	728,058	100,000
7/12	44,164	674,776		123	306	5,822	716,073	40,000
7/13	28,290	703,066		124	152	5,974	740,795	35,000
7/14	37,314	740,380		126	327	6,301	793,916	40,000
7/15	15,732	756,112		123	457	6,758	831,192	70,000
7/16	18,594	774,706	3,000	111	1,092	7,850	871,302	100,000
7/17	41,304	816,010		111	424	8,274	918,363	100,000
7/18	48,240	864,250						
7/19	23,472	887,722						
7/20	11,202	898,924						
7/21	9,852	908,776						
7/22	9,528	918,304						
7/23	16,110	934,414						
7/24	18,708	953,122						
7/25	15,252	968,374						
7/26	10,344	978,718						

Note: Blank cells represent days when no data was collected.

[a] The mean FPI of 35, based on median FPI's from 2001-20005 was used. Thereafter, FPI's were based on lag-time relationships.

[b] Estimated river fish (ERF) was based on the river test fish cumulative escapement estimate less the cumulative tower count. On occasion, staff adjusted the ERF based on aerial surveys, catchability, etc.

Table 26.–Commercial salmon processors and buyers operating in Bristol Bay, 2006.

	Name of Operator/Buyer[a]	Base of Operations	District[b]	Method[c]	Export
1	Alaska General Seafoods	Kenmore, WA	K,E	C,EF,F	AIR
2	Anthony Wood	King Salmon, AK	K	EF,F	AIR
3	Baywatch Seafoods, LLC	Woodinville, WA	K,E,U,N,T	C,EF,F	SEA,AIR
4	Betty Bonin Blue Bird	Naknek, AK	K	EF	AIR
5	Coffee Point Seafoods of WA, LLC	S. Seattle, WA	E	F	SEA
6	Copper River Seafoods	Anchorage, AK	N	EF	AIR
7	Dancing Salmon Company, LLC	Dillingham, AK	N	EF,F	AIR
8	DBA F/V Three Winds	Dillingham, AK	N	EF	AIR
9	Diamond Lodge Smokehouse	King Salmon, AK	K	S	N/A
10	Ekuk Fisheries	Seattle, WA	N	F	SEA
11	Favco Inc.	Anchorage, AK	N	EF	AIR
12	Friedman Family Fisheries, Inc.	Baltimore, MD	N	F	SEA
13	F/V Stina Ocean Run Seafoods	Seattle, WA	N	EF	AIR
14	Great Ruby Fish Company	Anchorage, AK	K	EF,F	SEA,AIR
15	Icicle Seafoods, Inc.	Seattle, WA	K,E,U,N	C,F, EF	SEA, AIR
16	Kim J. Hubert	Eagle River, AK	T	EF	N/A
17	Lady Marion Seafoods	Anchorage, AK	E	EF,F	AIR
18	Leader Creek Fisheries, LLC	Seattle, WA	K,E,U,N	EF,F	SEA, AIR
19	Nick Tarabochia	Gig Harbor, WA	N	EF,F	SEA, AIR
20	Northern Wild Reds	Coleroin, NC	N	EF,F	SEA
21	NorQuest Seafoods, Inc.	Seattle, WA	K,E,U,N	F	SEA
22	Ocean Beauty Seafoods, Inc.	Seattle, WA	K,E,U,N,T	C,EF,F	SEA,AIR
23	Paul Friis-Mikkelsen	Dillingham, AK	N	F	SEA
24	Pederson Point	Seattle, WA	K,E,N	F	SEA
25	Peter Pan Seafoods, Inc.	Seattle, WA	K,E,U,N	C,EF,F,S	SEA,AIR
26	Robert Lebovic	Asheville, NC	N	F	SEA
27	Simple Gifts	Duluth, MN	N	F	SEA
28	Snopac Products, Inc.	Seattle, WA	K,E,U	F	SEA
29	Togiak Fisheries	Seattle, WA	T	F	SEA
30	Trident Seafoods	Seattle, WA	K,E,U,N	C,F, EF	SEA,AIR
31	Ugashik Wild Salmon	Ugashik, AK	U	C	AIR
32	Wild Alaska Salmon Products	Big Lake, AK	N	F, EF	AIR
33	Yard Arm Knot Fisheries, LLC	Seattle, WA	K,E,U,N	C,F	SEA

Canning=8; Freezing= 29; Fresh=23; Curing=4; Air Export=21; Sea Export=24

[a] Indicates operators with a processing facility in a district or operators from other areas buying fish and/or providing support service for fishers in districts away from the facility.

[b] K=Naknek-Kvichak; E=Egegik; U=Ugashik; N=Nushagak; T=Togiak

[c] Type of processing: C=canned; EF=export fresh; F=frozen; S=cured.

Table 27.–Mean round weight, price per pound, and total exvessel value of the commercial salmon catch, Bristol Bay, 2006.

Species	Total Catch (lbs.)	Mean Weight (lbs.)	Mean Price ($/lb.)	Exvessel Value ($)
Sockeye	164,709,081	5.68	0.55	90,232,743
Chinook	1,802,359	17.04	0.74	1,330,129
Chum	12,236,711	7.67	0.11	1,350,052
Pink	538,819	3.72	0.03	18,510
Coho	509,563	6.42	0.35	177,981
Total	**179,796,533**			**93,109,415**

Note: Weighted averages used.

Table 28.–Subsistence salmon harvest by species, in numbers of fish, by district and location fished, Bristol Bay, 2005.

Area and River System	Permits Issued [b]	Estimated Number of Salmon Harvested					
		Sockeye	Chinook	Chum	Pink	Coho	Total
NAKNEK-KVICHAK DISTRICT	462	69,211	1,047	546	275	1,224	72,302
Naknek River	268	20,947	887	205	132	742	22,912
Kvichak River/Iliamna Lake:	194	48,263	160	341	143	482	49,390
Alagnak (Branch) River	0	0	0	0	0	0	0
Igiugig	5	903	2	0	14	1	920
Iliamna (community)	2	987	0	0	0	0	987
Iliamna Lake	19	1,367	0	0	0	0	1,367
Kokhanok	34	17,520	29	322	125	392	18,387
Kvichak River	4	366	0	0	0	18	384
Lake Clark: General	29	2,798	0	0	0	0	2,798
Levelock	12	1,028	127	19	4	70	1,248
Newhalen River	44	14,282	0	0	0	0	14,282
Nondalton Village	22	4,307	3	1	0	2	4,312
Pedro Bay	18	4,312	0	0	0	0	4,312
Port Alsworth	4	264	0	0	0	0	264
Six Mile Lake	1	130	0	0	0	0	130
EGEGIK DISTRICT	45	2,267	81	231	2	526	3,106
UGASHIK DISTRICT	22	818	27	18	2	249	1,114
NUSHAGAK DISTRICT	502	23,916	12,529	5,006	793	5,596	47,841
Wood River	112	3,845	1,718	220	28	720	6,531
Lower Nushagak River	29	1,092	1,402	186	6	360	3,046
Upper Nushagak River	81	7,439	4,471	3,452	538	1,134	17,035
Dillingham Beaches	210	7,647	4,202	872	158	2,657	15,536
Nushagak Bay Commercial	43	1,909	599	255	62	443	3,267
Igushik/Snake River	24	1,545	137	13	0	194	1,888
Nushagak, Site Unspecified	3	440	0	7	1	89	537
TOGIAK DISTRICT	45	2,299	1,528	301	26	295	4,448
TOTAL BRISTOL BAY	1,076	98,511	15,212	6,102	1,098	7,889	128,811

Note: 2006 numbers were not available at the time of publication.

[a] Harvests are extrapolated for all permits issued, based on those returned and on the area fished as recorded on the permit. Due to rounding, the sum of columns and rows may not equal the estimated total. Of 1,100 permits issued for the management area, 940 were returned (85.5%).

[b] Sum of sites may exceed district totals, and sum of districts may exceed area total, because permittees may use more than one site.

Table 29.–Daily observed estimates (tons) of herring by index area, Togiak District, 2006.

Date	Start Time	Survey Rating[b]	Miles of Spawn	Estimated Biomass by Index Area [a]													Daily Total
				NUS	KUK	MET	NVK	UGL	TOG	TNG	MTG	OSK	PYR	CPN	HAG	WAL	
4/19	09:45	2.8															
4/24	09:45	3.2															
4/27	10:05	2.6															
5/01	13:25	3.2															
5/03	09:40	2.6															
5/04	11:30	2.7															
5/08	08:05	2.9															
5/09	13:40	3.1					195	8									203
5/10	08:00	2.8			3	2,644									4,466	997	8,110
5/11	13:45	2.7		34	24,738	216	110	248	29,023	20,369	5,107	244			3,658		83,746
5/12	19:00	[c]	5.6														
5/13	17:15	3.3	4.2	2,669	11,827	638	3,778	1,875	29,444	15,104	50,887	7,722	612		155		124,713
5/14	17:45	4.0[c]	4.0														
5/15	11:00	4.0[c]	1.8														
5/17	13:15	4.0[c]	1.5														
5/26	13:50	3.0	0.7	2,243	13,749	5,021	1,170	400	22,982	4,042	817	1,129			24		51,577
Total linear miles of spawn			**17.8**										**Peak biomass estimate**				**124,711**

Note: Blank cells represent days when no herring were observed.

[a] Index areas: NUS - Nushagak Peninsula; KUK - Kulukak; MET - Metervik; NUK - Nunavachak; UGL - Ungalikthluk/Togiak; TOG - Togiak; TNG - Tongue Pt; MTG - Matogak; HAG - Hagemeister; OSK - Osvisak; PYT - Pyrite Point; CPN - Cape Newenham.

[b] Average survey rating for all sections surveyed: 1= Excellent, 2 = Good, 3 = Fair, 4 = Poor, 5 = Unsatisfactory.

[c] Vessel count and spawn survey only.

Table 30.–Emergency order (EO) commercial fishing periods for herring sac roe and spawn-on-kelp, Togiak District, 2006.

EO #	Area[a]		Date and Time					Duration
Herring Sac Roe Gillnet								
DLG-03	Egg Island Section		5/13	4:00 p.m.	to	5/13	10:00 p.m.	6 hrs.
DLG-06	Egg Island Section		5/14	2:00 p.m.	to	5/14	8:00 p.m.	6 hrs.
DLG-07	Egg Island Section increased legal gear from 50 to 100 fathoms	extension	5/14	8:00 p.m.	to	5/15	10:00 a.m.	14 hrs.
DLG-08	Egg Island Section	extension	5/15	10:00 a.m.	to	5/15	2:00 p.m.	4 hrs.
DLG-09	Mid Nunavachak Bay to Right Hand Pt. and Egg Island Section	extension	5/15	2:00 p.m.	to	5/15	8:00 p.m.	6 hrs.
DLG-11	Mid Nunavachak Bay to Right Hand Pt. and Egg Island Section	extension	5/15	8:00 p.m.	to	5/16	10:00 a.m.	14 hrs.
DLG-12	Mid Nunavachak Bay to Right Hand Pt. and Egg Island Section	extension	5/16	10:00 a.m.	to	5/16	4:00 p.m.	6 hrs.
DLG-13	Mid Nunavachak Bay to Right Hand Pt. and Egg Island Section	extension	5/16	4:00 p.m.	to	5/16	10:00 p.m.	6 hrs.
DLG-14	Mid Nunavachak Bay to Right Hand Pt. and Egg Island Section	extension	5/16	10:00 p.m.	to	5/17	10:00 a.m.	12 hrs.
DLG-15	Mid Nunavachak Bay to Right Hand Pt. and Egg Island Section	extension	5/17	10:00 a.m.	to	5/17	2:00 p.m.	4 hrs.
DLG-17	Mid Nunavachak Bay to Right Hand Pt. and Egg Island Section	extension	5/17	2:00 p.m.	to	5/17	8:00 p.m.	6 hrs.
DLG-18	Egg Island Section	extension	5/17	7:30 p.m.	to	5/17	11:00 p.m.	3.5 hrs.
DLG-18	Mid Nunavachak Bay to Right Hand Pt. and Egg Island Section	extension	5/17	11:00 p.m.	to	5/18	10:00 a.m.	11 hrs.
DLG-20	Egg Island Section	extension	5/18	10:00 a.m.	to	5/18	8:00 p.m.	8 hrs.
DLG-22	Mid Nunavachak Bay to Right Hand Pt. and Egg Island Section	extension	5/18	8:00 p.m.	to	5/19	10:00 a.m.	14 hrs.
DLG-25	Mid Nunavachak Bay to Right Hand Pt. and Egg Island Section	extension	5/19	10:00 a.m.	to	5/19	8:00 p.m.	10 hrs.
DLG-27	Egg Island Section		5/20	12:00 p.m.	to	5/20	8:00 p.m.	8 hrs.
DLG-29	Egg Island Section	extension	5/20	8:00 p.m.	to	5/21	12:00 a.m.	4 hrs.
DLG-31	Egg Island Section		5/21	11:00 a.m.	to	5/21	3:00 p.m.	4 hrs.
Herring Sac Roe Purse Seine								
DLG-01	Right Hand Pt. to Anchor Pt., Togiak Reef to Cape Newenham		5/12	8:00 a.m.	to	5/12	10:00 p.m.	14 hrs.
DLG-02	Right Hand Pt. to Anchor Pt., Togiak Reef to Cape Newenham		5/13	8:00 a.m.	to	5/13	10:00 p.m.	14 hrs.
DLG-04	Togiak Reef to Cape Newenham		5/14	8:00 a.m.	to	5/14	10:00 p.m.	14 hrs.
DLG-04	Mid-Nunavachak Bay to Anchor Pt.		5/14	8:00 a.m.	to	5/14	2:00 p.m.	6 hrs.
DLG-05	Right Hand Pt. to Anchor Pt.		5/14	2:00 p.m.	to	5/14	10:00 p.m.	8 hrs.
DLG-10	Mid-Nunavachak Bay to Anchor Pt., Togiak Reef to Cape Newenham		5/15	3:00 p.m.	to	5/15	7:00 p.m.	4 hrs.
DLG-16	Mid-Nunavachak Bay to Anchor Pt., Togiak Reef to Cape Newenham		5/17	10:00 a.m.	to	5/17	10:00 p.m.	12 hrs.
DLG-19	Mid Nunavachak Bay to Right Hand Pt.		5/17	7:30 p.m.	to	5/17	10:00 p.m.	2.5 hrs.
DLG-21	Right Hand Pt. to Anchor Pt., Togiak Reef to Cape Newenham		5/18	10:00 a.m.	to	5/18	10:00 p.m.	12 hrs.
DLG-23	Right Hand Pt. to Anchor Pt., Togiak Reef to Cape Newenham	extension	5/18	10:00 p.m.	to	5/19	12:00 a.m.	2 hrs.
DLG-24	Mid-Nunavachak Bay to Anchor Pt., Togiak Reef to Cape Newenham		5/19	7:00 a.m.	to	5/19	10:00 p.m.	15 hrs.
DLG-26	Right Hand Pt. to Anchor Pt., Togiak Reef to Cape Newenham		5/20	7:00 a.m.	to	5/20	2:00 p.m.	7 hrs.
DLG-28	Right Hand Pt. to Anchor Pt., Togiak Reef to Cape Newenham	extension	5/20	2:00 p.m.	to	5/20	7:00 p.m.	5 hrs.
DLG-30	Right Hand Pt. to Anchor Pt., Togiak Reef to Cape Newenham	extension	5/20	7:00 p.m.	to	5/20	11:00 p.m.	4 hrs.
DLG-32	Right Hand Pt. to Anchor Pt., Togiak Reef to Cape Newenham		5/21	10:00 a.m.	to	5/21	3:00 p.m.	5 hrs.
DLG-33	Right Hand Pt. to Anchor Pt., Togiak Reef to Cape Newenham	extension	5/21	3:00 p.m.	to	5/21	8:00 p.m.	5 hrs.
Herring Spawn on Kelp[b]								

[a] Area descriptions are approximate. Precise boundaries are described in Emergency Orders.

[b] There was no market for spawn on kelp therefore, a fishery did not occur.

Table 31.–Commercial herring harvest (tons) by fishing section, gear type, and date Togiak District, Bristol Bay, 2006.

			Kulukak		Nunavachak		Togiak		Hagemeister		Pyrite Point		Cape Newenham		Total	
Date	Duration	Periods	Tons	Roe %	Tons	Roe %	Tons	Roe %	Tons	Roe %	Tons	Roe %	Tons	Roe %	Tons	Roe %
12-May	14:00	1			1552.6	9.2	1635.8	9.2	103.5	9.5	0.0	0.0	0.0	0.0	3,292	9.2
13-May	14:00	2			1855.2	9.1	95.6	7.8	548.5	9.7	0.0	0.0	0.0	0.0	2,499	9.2
14-May	14:00	3			1013.3	10.0	107.4	9.5	1,169.4	9.2	0.0	0.0	0.0	0.0	2,290	9.6
15-May	4:00	4			740.0	10.0 [b]	0.0	0.0	263.0	9.4	0.0	0.0	0.0	0.0	1,003	10.3
17-May	12:00	5			30.9	8.4	34.4	11.0	1,515.7	9.1	172.8	9.9	0.0	0.0	1,754	9.3
18-May	14:00	6			110.0	9.0	949.9	8.6	1,396.7	8.4	0.0	0.0	0.0	0.0	2,457	8.5
19-May	15:00	7			171.1	8.9	69.9	8.8	129.2	8.4	0.0	0.0	0.0	0.0	370	8.7
20-May	16:00	8			60.6	9.0	0.0	0.0	896.2	8.8	0.0	0.0	0.0	0.0	957	8.8
21-May	10:00	9			0.0	0.0	0.0	0.0	1,617.3	9.2	0.0	0.0	0.0	0.0	1,617	9.2
22-May									582.3	9.3 [a]					582	9.3
Subtotal	113:00:00				5,533.7	9.3 [b]	2893.0	9.0	8,222.0	9.0 [a]	172.8	9.9	0.0	0.0	16,821	9.2
13-May	6:00	1	230.5	9.5											231	9.5
14-May	10:00	2	767.9	10.6											768	10.6
15-May	24:00	3	1,407.4	10.5	0	0.0									1,407	10.5
16-May	24:00	4	974.3	10.8	0	0.0									974	10.8
17-May	24:00	5	1332.2	10.4	0	0.0									1,332	10.4
18-May	24:00	6	1077.0	11.0	0	0.0									1,077	11.0
19-May	20:00	7	545.3	11.3	0	0.0									545	11.3
20-May	8:00	8	530.1	11.7											530	11.7
21-May	4:00	9	266.9	11.2											267	11.2
Subtotal	144:00:00		7,131.6	10.8	0.0	0.0									7,132	10.8
12-May					1,552.6	9.2	1,635.8	9.2	103.5	9.5	0.0	0.0	0.0	0.0	3,292	9.2
13-May			230.5	9.5	1,855.2	9.1	95.6	7.8	548.5	9.7	0.0	0.0	0.0	0.0	2,730	9.2
14-May			767.9	10.6	1,013.3	10.0	107.4	9.5	1,169.4	9.2	0.0	0.0	0.0	0.0	3,058	9.8
15-May			1,407.4	10.5	740.0	10.0 [b]	0.0	0.0	263.0	9.4	0.0	0.0	0.0	0.0	2,410	10.5
16-May			974.3	10.8	30.9	8.4	0.0	0.0	0.0	0.0	172.8	9.9	0.0	0.0	1,178	11.2
17-May			1,332.2	10.4	110.0	9.0	34.4	11.0	1,515.7	9.1	0.0	0.0	0.0	0.0	2,992	9.7

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Table 31.–Page 2 of 2.

Date	Duration	Periods	Kulukak		Nunavachak		Togiak		Hagemeister		Pyrite Point		Cape Newenham		Total	
			Tons	Roe %	Tons	Roe %	Tons	Roe %	Tons	Roe %	Tons	Roe %	Tons	Roe %	Tons	Roe %
18-May			1,077.0	11.0	171.1	8.9	949.9	8.6	1,396.7	8.4	0.0	0.0	0.0	0.0	595	9.3
19-May			545.3	11.3	60.6	9.0	69.9	8.8	129.2	8.4	0.0	0.0	0.0	0.0	805	10.4
20-May			530.1	11.7	0.0	0.0	0.0	0.0	896.2	8.8	0.0	0.0	0.0	0.0	1,426	9.9
21-May			266.9	11.2	0.0	0.0	0.0	0.0	1,617.3	9.2	0.0	0.0	0.0	0.0	1,884	9.5
22-May									582.3	9.3 [a]					582	9.3
Total			**7,131.6**	**10.8**	**5,533.7**	**9.3** [b]	**2893.0**	**9.0**	**8,222.0**	**9.0** [a]	**172.8**	**9.9**	**0.0**	**0.0**	**23,953**	**9.7**

Note: Blank cells represent no data due to area closures

[a] Includes test fish harvest which is conducted during closed commercial periods.

[b] Includes 500 tons documented waste.

Table 32.–Herring total run and commercial catch by year class, Togiak District, 2006.

Year Class	Age	Total Run (tons)	Total Run %	Harvest[a] (tons)	Harvest[a] %	Escapement (tons)	Escapement %
1986	20	0	0.0	0	0.0	0	0.0
1987	19	0	0.0	0	0.0	0	0.0
1988	18	308	0.2	21	0.2	287	0.2
1989	17	623	0.4	31	0.3	592	0.4
1990	16	1,041	0.6	87	0.5	922	0.6
1991	15	1,985	1.2	146	1.0	1,818	1.2
1992	14	3,818	1.9	298	1.9	3,442	2.3
1993	13	3,126	1.7	222	1.6	2,833	1.9
1994	12	10,575	6.0	921	6.2	9,343	6.1
1995	11	5,280	3.6	417	2.7	4,725	3.1
1996	10	26,925	16.4	2,561	17.1	23,260	15.3
1997	9	44,216	26.7	4,024	25.9	37,948	24.9
1998	8	39,080	25.9	3,802	22.9	33,084	21.7
1999	7	8,154	5.4	937	5.5	6,923	4.5
2000	6	7,714	2.8	848	3.9	6,762	4.4
2001	5	17,055	5.4	1,876	7.8	14,799	9.7
2002	4	6,335	1.8	613	2.3	5,563	3.7
2003	3	54	0.0	19	0.1	35	0.0
2004	2	0	0.0	0	0.0	0	0.0
Total		**176,288**	**100.0**	**16,821**	**100.0**	**152,335**	**100.0**

[a] Does not include harvest in the Dutch Harbor food and bait fishery, but does include harvest from test fishery.

Table 33.–Commercial herring sac roe and spawn-on-kelp buyers in Togiak District, 2006.

	Operator/Buyer[a]	Base of Operation	Product Purchased: Sac Roe Gillnet	Product Purchased: Sac Roe Purse Seine	Product Purchased: Spawn-on-Kelp
1	Trident Seafoods	S/P Naknek, P/V Alaska Packer	X	X	
2	Icicle Seafoods	P/Vs Arctic Star, Bering Star, Discovery Star	X	X	
3	Y.A.K. Inc.	S/P Red Salmon Cannery	X	X	
4	Norquest Seafoods, Inc.	P/V Aleutian Falcon/Pribilof	X	X	
5	Snopac Products Inc.	P/V Snopac Innovator	X	X	
6	Peter Pan Seafoods, Inc.	P/V Steller Sea	X	X	
7	Togiak Fisheries	S/P Pedersen Pt., S/P Togiak Fish - Togiak		X	

[a] Operators that registered in the Togiak District.

APPENDIX A. SALMON

Appendix A1.–Escapement goals and actual counts of sockeye salmon by river system, in thousands of fish, Bristol Bay, 1986–2006.

	Kvichak River			Naknek River[a]		
	Range			Range		
Year	Lower	Upper	Actual	Lower	Upper	Actual
1986	4,000	6,000	1,179	800	1,400	1,978
1987	4,000	6,000	6,066	800	1,400	1,062
1988	4,000	6,000	4,065	800	1,400	1,038
1989	6,000	10,000	8,318	800	1,400	1,612
1990	6,000	10,000	6,970	800	1,400	2,093
1991	4,000	8,000	4,223	800	1,400	3,579
1992	4,000	8,000	4,726	800	1,400	1,607
1993	4,000	8,000	4,025	800	1,400	1,536
1994	6,000	10,000	8,338	800	1,400	991
1995	6,000	10,000	10,039	800	1,400	1,111
1996	4,000	6,000	1,451	800	1,400	1,078
1997	4,000	6,000	1,504	800	1,400	1,026
1998	2,000	10,000	2,296	800	1,400	1,202
1999	6,000	10,000	6,197	800	1,400	1,625
2000	6,000	10,000	1,828	800	1,400	1,375
2001	2,000	10,000	1,095	800	2,000	1,830
2002	2,000	10,000	704	800	2,000	1,264
2003	2,000	10,000	1,687	800	2,000	1,831
2004	2,000	10,000	5,500	800	2,000	1,939
2005	2,000	10,000	2,320	800	2,000	2745
20-Year Av.	4,300	8,800	4,127	800	1,526	1,626
1986-1995 Av.	5,000	8,400	5,795	800	1,400	1,661
1996-2005 Av.	3,600	9,200	2,458	800	1,667	1,592
2006	2,000	10,000	3,068	800	2,000	1,953

	Egegik River			Ugashik River		
	Range			Range		
Year	Lower	Upper	Actual	Lower	Upper	Actual
1986	800	1,200	1,151	500	900	1,001
1987	800	1,200	1,273	500	900	669
1988	800	1,200	1,599	500	900	643
1989	800	1,200	1,610	500	900	1,681
1990	800	1,200	2,191	500	900	730
1991	800	1,200	2,787	500	900	2,457
1992	800	1,200	1,945	500	900	2,174
1993	800	1,200	1,517	500	900	1,390
1994	800	1,200	1,897	500	900	1,081
1995	800	1,400	1,282	500	1,200	1,304
1996	800	1,400	1,076	500	1,200	668
1997	800	1,400	1,104	500	1,200	618
1998	800	1,400	1,111	500	1,200	891
1999	800	1,400	1,728	500	1,200	1,652
2000	800	1,400	1,032	500	1,200	620
2001	800	1,400	969	500	1,200	834
2002	800	1,400	1,036	500	1,200	892
2003	800	1400	1,152	500	1,200	759
2004	800	1,400	1,290	500	1,200	776
2005	800	1,400	1,622	500	1,200	779
20-Year Av.	800	1,300	1,469	500	1,050	1,081
1986-1995 Av.	800	1,200	1,725	500	900	1,313
1996-2005 Av.	800	1,400	1,212	500	1,200	849
2006	800	1,400	1.465	500	1,200	978

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	Wood River			Igushik River		
	Range			Range		
Year	Lower	Upper	Actual	Lower	Upper	Actual
1986	700	1,200	819	150	250	309
1987	800	1,200	1,337	140	250	169
1988	800	1,200	867	140	250	170
1989	800	1,200	1,186	150	250	462
1990	700	1,200	1,069	150	250	366
1991	700	1,200	1,160	150	250	756
1992	700	1,200	1,286	150	250	305
1993	700	1,200	1,176	150	250	406
1994	700	1,200	1,472	150	250	446
1995	700	1,200	1,475	150	250	473
1996	700	1,200	1,650	150	250	401
1997	700	1,200	1,512	150	250	128
1998	700	1,200	1,756	150	250	216
1999	700	1,200	1,512	150	250	446
2000	700	1,200	1,300	150	250	413
2001	700	1,500	1,459	150	300	410
2002	700	1,500	1,284	150	300	123
2003	700	1,500	1,460	150	300	194
2004	700	1,500	1,543	150	300	110
2005	700	1,500	1,497	150	300	366
20-Year Av.	715	1,260	1,341	149	260	333
1986-1995 Av.	730	1,200	1,185	148	250	386
1996-2005 Av.	700	1,320	1,497	150	270	281
2006	700	1,500	4,008	150	300	305

	Nushagak River [b]			Togiak River		
	Range			Range		
Year	Lower [c]	Upper	Actual	Lower	Upper	Actual
1986	300	700	822	140	250	168
1987	300	700	163	100	200	250
1988	300	700	483	100	200	277
1989	300	700	513	100	200	84
1990	340	760	680	140	250	142
1991	340	760	493	140	250	255
1992	340	760	695	140	250	199
1993	340	760	715	140	250	177
1994	340	760	509	140	250	155
1995	340	760	281	140	250	186
1996	340	760	504	140	250	157
1997	340	760	373	100	200	132
1998	340	760	459	100	200	154
1999	235	760	393	100	200	156
2000	340	760	404	100	200	312
2001	340	760	804	100	200	297
2002	340	760	316	100	200	162
2003	340	760	581	100	200	232
2004	340	760	492	100	200	129
2005	340	760	1,096	100	200	149
20-Year Av.	325	745	539	118	223	189
1986-1995 Av.	320	730	535	128	235	189
1996-2005 Av.	330	760	542	108	210	188
2006	340	760	541	100	200	312

[a] An “Optimal Escapement Goal” of up to 2.0 million sockeye set by the BOF in 2001, when fishing in the Naknek River Special Harvest Area.

[b] Actual escapement through 1988 is Nuyakuk River tower count, from 1989–present is based on sonar count at Portage Creek.

[c] The "Optimal Escapement Goal" of 235,000 sockeye set by the BOF in 1999.

Appendix A2.–Salmon entry permit registration by gear and residency, Bristol Bay, 1986–2006.

	Drift Net[a]						Set Net[a]						Total
Year	Resident	Non-Resident	Drift Total	Permits Fished	% Fished	Interim Use	Resident	Non-Resident	Set Total	Permits Fished	% Fished	Interim Use	Drift Set
1986	1,060	778	1,838	1,823	99%	95	739	223	962	869	90%	22	2,707
1987	1,044	793	1,837	1,824	99%	91	736	224	960	899	94%	18	2,736
1988	1,033	806	1,839	1,837	100%	90	731	227	958	922	96%	17	2,761
1989	1,036	831	1,867	1,855	99%	91	785	240	1,025	971	95%	18	2,838
1990	1,039	839	1,878	1,869	100%	93	783	243	1,026	971	95%	15	2,849
1991	1,019	862	1,881	1,873	100%	88	771	253	1,024	950	93%	12	2,831
1992	997	886	1,883	1,879	100%	86	774	251	1,025	968	94%	8	2,851
1993	982	904	1,886	1,875	99%	81	763	259	1,022	965	94%	8	2,851
1994	970	917	1,887	1,865	99%	77	760	259	1,019	939	92%	7	2,826
1995	967	921	1,888	1,882	100%	75	762	257	1,019	967	95%	8	2,855
1996	966	925	1,891	1,884	100%	70	760	257	1,017	941	93%	6	2,832
1997	959	940	1,899	1,875	99%	67	757	262	1,019	921	90%	7	2,820
1998	954	945	1,899	1,858	98%	55	756	259	1,015	901	89%	6	2,800
1999	937	961	1,898	1,847	97%	52	748	266	1,014	925	91%	6	2,823
2000	945	945	1,890	1,823	96%	38	735	277	1,012	921	91%	6	2,811
2001	958	925	1,883	1,566	83%	24	729	281	1,010	834	83%	2	2,717
2002	945	933	1,878	1,183	63%	16	717	289	1,006	680	68%	2	2,558
2003	923	944	1,867	1,389	74%	7	713	288	1,001	714	71%	1	2,581
2004	912	948	1,860	1,426	77%	3	703	286	989	761	77%	1	2,849
2005	895	967	1,862	1,526	82%	3	688	300	988	760	77%	1	2,850
20 Year Av.	977	899	1,876	1,748	93%	60	746	260	1,006	889	88%	9	2,787
1986-1995 Av.	1,015	854	1,868	1,858	99%	87	760	244	1,004	942	94%	13	2,811
1996-2005 Av.	939	943	1,883	1,638	87%	34	731	277	1,007	836	83%	4	2,764
2006	893	966	1,859	1,567	84%	1	683	302	985	760	77%	0	2,844

Note: Limited Entry went into effect in 1974. Interim-use permits are included in the totals.

[a] Allowable gear per license/permit is measured in fathoms, 150 for drift and 50 for setnet.

Appendix A3.–Sockeye salmon commercial catch by district, in numbers of fish, Bristol Bay, 1986-2006.

Year	Naknek-Kvichak	Egegik	Ugashik	Nushagak	Togiak	Total
1986	2,892,171	4,852,935	5,002,949	2,719,313	308,688	15,776,056
1987	4,986,002	5,356,669	2,128,652	3,254,720	342,732	16,068,775
1988	3,480,836	6,456,598	1,523,520	1,706,716	822,126	13,989,796
1989	13,809,956	8,901,994	3,146,239	2,788,194	88,923	28,735,306
1990	17,272,367	10,333,858	2,118,796	3,521,467	197,589	33,444,077
1991	10,475,206	6,797,166	2,945,742	5,053,845	549,221	25,821,180
1992	9,395,948	15,646,575	3,320,966	2,789,741	726,446	31,879,676
1993	8,907,872	21,600,603	4,176,952	5,236,932	539,933	40,462,292
1994	16,327,858	10,750,213	4,352,797	3,393,139	400,039	35,224,046
1995	20,279,581	14,426,007	4,509,418	4,445,900	605,328	44,266,234
1996	8,215,028	10,809,115	4,411,055	5,693,563	462,897	29,591,658
1997	589,311	7,517,389	1,402,690	2,506,818	142,569	12,158,777
1998	2,595,439	3,528,845	730,274	2,990,597	190,427	10,035,582
1999	9,452,972	7,388,080	2,256,007	6,175,419	385,411	25,657,889
2000	4,727,061	7,029,397	1,538,790	6,367,208	794,996	20,457,452
2001	5,280,538	2,872,662	480,509	4,734,800	810,096	14,178,605
2002	1,418,938	4,610,374	1,573,234	2,839,424	233,743	10,675,713
2003	3,348,504	2,291,502	1,748,934	6,665,965	706,008	14,760,913
2004	4,715,070	10,209,227	3,139,229	6,104,048	437,234	26,261,802[a]
2005	6,728,469	8,015,950	2,216,635	7,096,031	465,094	24,522,179
20-Year Av.	7,744,956	8,469,758	2,636,169	4,304,192	460,475	23,698,400
1986-1995 Av.	10,782,780	10,512,262	3,322,603	3,490,997	458,103	28,566,744
1996-2005 Av.	4,707,133	6,427,254	1,949,736	5,117,387	462,848	18,830,057
2006	7,153,750	7,473,555	2,426,648	11,061,662	625,696	28,606,465

[a] Total includes General District catch of 1,65,994.

Appendix A4.–Chinook salmon commercial catch by district, in numbers of fish, Bristol Bay, 1986–2006.

Year	Naknek-Kvichak	Egegik	Ugashik	Nushagak	Togiak	Total
1986	3,188	1,883	2,982	65,783	19,880	93,716
1987	5,175	2,959	4,065	45,983	17,217	75,399
1988	6,538	3,103	3,444	16,648	15,614	45,347
1989	6,611	2,034	2,112	17,637	11,366	39,760
1990	5,068	1,144	1,839	14,812	11,130	33,993
1991	3,584	510	589	19,718	6,039	30,440
1992	5,724	694	2,146	47,563	12,640	68,767
1993	7,468	1,464	2,811	62,971	10,851	85,565
1994	6,015	1,243	3,685	119,478	10,484	140,905
1995	5,084	760	1,551	79,942	11,981	99,318
1996	4,195	980	588	72,011	8,602	86,376
1997	3,128	2,143	1,096	64,160	6,066	76,593
1998	2,449	760	346	117,065	14,131	134,751
1999	1,295	712	1,638	10,893	11,919	26,457
2000	1,027	1,061	893	12,055	7,858	22,894
2001	904	950	989	11,568	9,937	24,348
2002	969	268	612	39,473	2,801	44,123
2003	567	131	409	42,615	3,231	46,953
2004	1,360	1,589	863	96,534	9,310	114,280[a]
2005	1,377	485	1,815	62,308	10,605	76,590
20-Year Av.	3,586	1,244	1,724	50,961	10,583	68,329
1986-1995 Av.	5,446	1,579	2,522	49,054	12,720	71,321
1996-2005 Av.	1,727	908	925	52,868	8,446	65,337
2006	2,255	918	2,600	83,679	16,279	105,731

[a] Total includes General District catch of 4,624.

Appendix A5.–Chum salmon commercial catch by district, in numbers of fish, Bristol Bay, 1986–2006.

Year	Naknek-Kvichak	Egegik	Ugashik	Nushagak	Togiak	Total
1986	262,925	94,666	111,112	488,375	270,057	1,227,135
1987	446,908	145,259	101,074	416,476	419,425	1,529,142
1988	295,572	237,888	94,545	371,199	470,495	1,469,699
1989	310,869	136,185	84,673	523,910	203,171	1,258,808
1990	422,276	122,843	31,798	375,361	102,861	1,055,139
1991	443,189	75,892	60,299	463,780	246,589	1,289,749
1992	167,168	121,472	57,170	398,691	176,123	920,624
1993	43,684	70,628	73,402	505,799	144,869	838,382
1994	219,118	62,961	52,127	328,260	232,559	895,025
1995	236,472	68,325	62,801	390,158	221,126	978,882
1996	97,574	85,151	106,168	331,414	206,226	826,533
1997	8,628	59,139	16,903	185,635	47,285	317,590
1998	82,281	29,405	8,088	208,551	67,345	395,670
1999	259,922	74,890	68,004	170,795	111,677	685,288
2000	68,218	38,777	36,349	114,454	140,175	397,973
2001	16,472	33,579	43,394	526,602	211,701	831,748
2002	19,180	23,516	35,792	276,777	112,987	468,252
2003	34,481	37,116	52,908	740,311	68,154	932,970
2004	29,972	75,061	49,358	458,902	94,025	732,481[a]
2005	204,777	62,029	39,513	966,050	124,694	1,397,063
20-Year Av.	183,484	82,739	59,274	412,075	183,577	922,408
1986-1995 Av.	284,818	113,612	72,900	426,201	248,728	1,146,259
1996-2005 Av.	82,151	51,866	45,648	397,949	118,427	698,557
2006	395,326	160,712	129,189	1,811,883	224,062	2,721,172

[a] Total includes General District catch of 25,163.

Appendix A6.–Pink salmon commercial catch by district, in numbers of fish, Bristol Bay, 1986–2006.

Year	Naknek-Kvichak	Egegik	Ugashik	Nushagak	Togiak	Total
1986	106,919	2,749	98	267,117	24,404	401,287
1987	5	0	30	2	20	57
1988	648,569	4,485	218	243,923	58,394	955,589
1989	75	6	29	156	172	438
1990	421,690	11,593	361	54,127	8,746	496,517
1991	102	15	2	69	117	305
1992	214,228	694	525	190,102	93,989	499,538
1993	86	2	2	83	240	413
1994	11,537	145	21	8,652	69,552	89,907
1995	55	1	1	120	294	471
1996	4,590	22	21	2,681	30,308	37,622
1997	35	2	2	46	23	108
1998	11,317	674	247	6,787	6,406	25,431
1999	11	0	3	52	2	68
2000	19,659	32	4	38,309	695	58,699
2001	23	0	0	308	97	428
2002	10	1	1	204	311	527
2003	24	0	0	188	32	244
2004	7,749	0	187	26,150	18,293	52,379[a]
2005	32	0	1	554	2,108	2,695
20-Year Av.	144,627	2,040	168	83,805	31,110	261,750
1986-1995 Av.	280,589	3,933	245	152,784	51,017	488,568
1996-2005 Av.	10,972	175	96	16,557	25,113	52,913
2006	21,444	710	0	38,796	81,156	141,910

Note: Averages include even numbered years only.

[a] Total includes General District catch of 1.

Appendix A7.–Coho salmon commercial catch by district, in numbers of fish, Bristol Bay, 1986–2006.

Year	Naknek-Kvichak	Egegik	Ugashik	Nushagak	Togiak	Total
1986	5,824	33,607	25,770	68,568	48,306	182,075
1987	5,274	30,789	14,785	13,263	1,292	65,403
1988	29,988	48,981	52,355	52,706	18,668	202,698
1989	22,668	49,175	33,942	77,077	56,972	239,834
1990	16,091	43,897	32,906	7,733	2,690	103,317
1991	17,527	47,486	42,622	5,574	4,531	117,740
1992	18,553	47,780	35,794	84,077	5,328	191,532
1993	1,779	41,603	2,387	14,345	12,615	72,729
1994	5,877	48,436	19,250	5,615	96,062	175,240
1995	1,105	21,833	13,454	4,181	8,871	49,444
1996	3,601	38,156	13,163	11,401	58,978	125,299
1997	718	35,470	7,156	4,110	2,970	50,424
1998	1,587	29,856	13,007	22,703	58,688	125,841
1999	303	11,464	2,289	2,836	2,653	19,545
2000	952	13,166	1,269	112,819	2,758	130,964
2001	3	12,603	976	3,218	284	17,084
2002	0	7,099	464	93	754	8,410
2003	42	40,577	994	583	1,047	43,243
2004	2,142	2,324	4,744	47,706	15,463	72,379
2005	3,314	20,611	8,162	42,456	8	74,551
20-Year Av.	6,867	31,246	16,274	29,053	19,947	103,388
1986-1995 Av.	12,469	41,359	27,327	33,314	25,534	140,001
1996-2005 Av.	1,266	21,133	5,222	24,793	14,360	66,774
2006	2,470	26,785	3,087	43,263	453	76,058

Appendix A8.–Total salmon commercial catch by district, in numbers of fish, Bristol Bay, 1986–2006.

Year	Naknek-Kvichak	Egegik	Ugashik	Nushagak	Togiak	Total
1986	3,271,027	4,985,840	5,142,911	3,609,156	671,335	17,680,269
1987	5,443,364	5,535,676	2,248,606	3,730,444	780,686	17,738,776
1988	4,461,503	6,751,055	1,674,082	2,391,192	1,385,297	16,663,129
1989	14,150,179	9,089,394	3,266,995	3,406,974	360,604	30,274,146
1990	18,137,492	10,513,335	2,185,700	3,973,500	323,016	35,133,043
1991	10,939,608	6,921,069	3,049,254	5,542,986	806,497	27,259,414
1992	9,801,621	15,817,215	3,416,601	3,510,174	1,014,526	33,560,137
1993	8,960,889	21,714,300	4,255,554	5,820,130	708,508	41,459,381
1994	16,570,405	10,862,998	4,427,880	3,855,144	808,696	36,525,123
1995	20,522,297	14,516,926	4,587,225	4,920,301	847,600	45,394,349
1996	8,324,988	10,933,424	4,530,995	6,111,070	767,011	30,667,488
1997	601,820	7,614,143	1,427,847	2,760,769	198,913	12,603,492
1998	2,693,073	3,589,540	751,962	3,345,703	336,997	10,717,275
1999	9,714,503	7,475,146	2,327,941	6,359,995	511,662	26,389,247
2000	4,816,917	7,082,433	1,577,305	6,644,845	946,482	21,067,982
2001	5,297,940	2,919,794	525,868	5,276,496	1,032,115	15,052,213
2002	1,439,097	4,641,258	1,610,103	3,155,971	350,596	11,197,025
2003	3,383,618	2,369,326	1,803,245	7,449,662	778,472	15,784,323
2004	4,756,293	10,288,201	3,194,381	6,733,340	574,325	27,233,322[a]
2005	6,937,969	8,099,075	2,266,126	8,167,399	602,509	26,073,078
20-Year Av.	8,011,230	8,586,007	2,713,529	4,838,263	690,292	24,923,661
1986-1995 Av.	11,225,839	10,670,781	3,425,481	4,076,000	770,677	30,168,777
1996-2005 Av.	4,796,622	6,501,234	2,001,577	5,600,525	609,908	19,678,545
2006	7,580,265	7,579,646	2,561,524	12,379,301	947,646	31,048,382

[a] Total includes General District catch.

Appendix A9.–Commercial sockeye salmon catch, in percent, by gear type and district, Bristol Bay, 1986–2006.

Year	Naknek-Kvichak			NRSHA [a]		Egegik		Ugashik		Nushagak			WRSHA [b]		Togiak		Total	
	Drift	Setnet Sec.		Drift	Set	Drift	Set	Drift	Set	Drift	Setnet Sec.		Drift	Set	Drift	Set	Drift	Set
		Nak.	Kvi.								Nush.	Igushik						
1986	70	30				89	11	94	6	76	24				68	32	90	10
1987	86	14				91	9	93	7	80	20				66	34	90	10
1988	86	14				90	10	91	9	75	25				64	36	85	15
1989	89	11				90	10	87	13	58	42				55	45	87	13
1990	88	12				91	9	91	9	67	33				67	33	86	14
1991	89	11				91	9	89	11	76	24				64	36	86	14
1992	89	11				91	9	90	10	65	35				62	38	87	13
1993	84	16				93	7	90	10	72	28				54	46	86	14
1994	90	10				92	8	94	6	68	32				52	48	88	12
1995	89	11				90	10	95	5	68	32				52	48	87	13
1996	83	17				90	10	95	5	81	19				52	55	88	12
1997	73	27				87	13	88	12	70	30				37	63	87	13
1998	84	8	8			86	14	85	15	72	24	4	76	24	43	57	86	14
1999	85	8	7			85	15	89	11	70	24	6	78	22	53	47	82	18
2000	84	11	5			84	16	87	13	77	17	6	68	32	57	43	80	20
2001	82	16	2	74 [c]	26 [c]	86	14	80	20	77	18	5			66	34	80	20
2002				64 [c]	36 [c]	85	15	88	12	77	22	1	67	33	62	38	79	21
2003	91	9	0	65 [c]	35 [c]	81	19	89	11	83	15	2			63	37	79	21
2004	79	11	10	88	12	86	14	88	12	84	15	1			55	45	79	21
2005				81	19	82	18	87	13	84	14	2			56	44	66	34
20-Year Av.	85	14	5	73	27	88	12	90	10	73	25	4	72	28	57	43	85	15
1986-1995 Av.	86	14				90	10	95	5	75	26				52	52	88	13
1996-2005 Av.	83	13	5	74	26	85	15	88	12	78	20	3	72	28	54	46	81	19
2006	86	8	5	81	19	84	16	88	12	87	11	2			53	47	85	15
Allocation [d]	84	8	8	84	16	86	14	90	10	74	20	6	74	26	n.a.	n.a.	n.a.	n.a.

[a] NRSHA allocation plan enacted in December 2003.

[b] Wood River Special Harvest Area (WRSHA), Nushagak District.

[c] Naknek River Special Harvest Area (NRSHA) prior to allocation plan, fishing periods were alternated between gear types.

[d] BOF enacted allocation plan in 1998, reviewed in December 2003. Historical data prior to 1998 is based on post-season numbers. Inseason numbers are presented for 1998-present, as they were used to make management decisions regarding allocation.

Appendix A10.–Sockeye salmon escapement by district, in numbers of fish, Bristol Bay, 1986–2006.

Year	Naknek-Kvichak[a]	Egegik[b]	Ugashik[c]	Nushagak[d]	Togiak[e]	Total
1986	3,387,147	1,151,750	1,015,582	2,134,490	271,184	7,960,153
1987	7,281,896	1,273,553	686,894	1,895,961	316,076	11,454,380
1988	5,297,708	1,599,161	654,412	1,524,704	340,712	9,416,697
1989	9,676,244	1,611,566	1,713,281	2,189,501	125,080	15,315,672
1990	9,231,358	2,191,582	749,478	2,144,444	278,202	14,595,064
1991	8,078,885	2,786,925	2,482,001	2,419,488	320,713	16,088,012
1992	6,557,157	1,945,632	2,194,927	2,286,278	266,956	13,250,950
1993	5,908,799	1,517,000	1,413,454	2,296,789	242,475	11,378,517
1994	9,571,245	1,894,977	1,095,068	2,449,616	233,632	15,244,538
1995	11,365,573	1,282,508	1,321,108	2,254,231	240,266	16,463,686
1996	2,835,426	1,075,596	692,167	2,553,995[f]	212,524	7,369,708
1997	2,747,511	1,104,004	656,641	2,021,529	171,373	6,701,058
1998	3,750,246	1,110,932	924,853	2,441,666	214,626	8,442,323
1999	8,303,878	1,727,772	1,662,042	2,269,861[f]	231,196	14,194,749
2000	3,654,568	1,032,138	638,420	2,116,842[f]	390,080	7,832,048
2001	3,194,708	968,872	866,368	2,679,432[f]	338,616[g]	9,016,868
2002	2,303,463	1,036,092	905,584	1,722,519[f]	199,507	6,167,165
2003	5,627,974	1,152,120	790,202	2,241,556[f]	261,851[g]	10,041,943
2004	12,836,100	1,290,144	815,104	2,144,690[f]	154,681[g]	17,240,719
2005	9,283,980	1,621,734	799,612	2,958,527[f]	155,778[g]	14,819,631
20-Year Av.	6,544,693	1,468,703	1,103,860	2,237,306	248,276	11,649,694
1986-1995 Av.	7,635,601	1,725,465	1,332,621	2,159,550	263,530	13,116,767
1996-2005 Av.	5,453,785	1,211,940	875,099	2,315,062	233,023	10,182,621
2006	6,795,420	1,465,158	1,003,158	4,861,780[f]	312,126	14,437,642

[a] Includes counts from Kvichak tower, Branch aerial survey and Naknek tower.

[b] Includes Egegik River. May include King Salmon River and Shosky Creek; see table 14 for specific counts.

[c] Includes Ugashik River. Also includes Mother Goose River and Dog Salmon River system in 1984-2006.

[d] Includes Wood, Igushik, Nuyakuk, Nushagak-Mulchatna and Snake Rivers.

[e] Includes Togiak River, Lake tributaries, Kulukak system and other miscellaneous river systems.

[f] Snake River not surveyed.

[g] Only partial and/ or late survey of Togiak streams in 2001, 2003-2006.

Appendix A11.–Inshore commercial catch and escapement of sockeye salmon in the Naknek-Kvichak District by river system, in numbers of fish, Bristol Bay, 1986–2006.

		Escapement				
Year	**Catch**	**Kvichak[a]**	**Alagnak [b]**	**Naknek[a]**	**Total**	**Total Run**
1986	2,892,171	1,179,322	230,180	1,977,645	3,387,147	6,279,318
1987	4,986,002	6,065,880	154,210	1,061,806	7,281,896	12,267,898
1988	3,480,836	4,065,216	194,630	1,037,862	5,297,708	8,778,544
1989	13,809,956	8,317,500	196,760	1,161,984	9,676,244	23,486,200
1990	17,272,224	6,970,020	168,760	2,092,578	9,231,358	26,503,582
1991	10,475,206	4,222,788	277,589	3,578,508	8,078,885	18,554,091
1992	9,395,948	4,725,864	224,643	1,606,650	6,557,157	15,953,105
1993	8,907,876	4,025,166	347,975	1,535,658	5,908,799	14,816,675
1994	16,327,858	8,337,840	242,595	990,810	9,571,245	25,899,103
1995	20,279,581	10,038,720	215,713	1,111,140	11,365,573	31,645,154
1996	8,211,983	1,450,578	306,750	1,078,098	2,835,426	11,047,409
1997	589,311	1,503,732	218,115	1,025,664	2,747,511	3,336,822
1998	2,595,439	2,296,074	252,200	1,202,172	3,750,446	6,345,885
1999	9,452,972	6,196,914	481,600	1,625,364	8,303,878	17,756,850
2000	4,727,061	1,827,780	451,300	1,375,488	3,654,568	8,381,629
2001	5,280,538	1,095,348	267,000	1,830,360	3,192,708	8,473,246
2002	1,418,938	703,884	335,661	1,263,918	2,303,463	3,722,401
2003	3,348,453	1,686,804	3,676,146[a]	1,831,170	7,194,120	10,542,573
2004	4,715,070	5,500,134	5,396,592[a]	1,939,374	12,836,100	17,551,170
2005	6,706,386	2,320,422	4,219,026[a]	2,744,622	9,284,070	15,990,456
20 Year Av.	7,743,690	4,126,499	584,975	1,603,544	6,622,915	14,366,606
1986-1995 Av.	10,782,766	5,794,832	1,015,971	1,615,464	7,635,601	18,418,367
1996-2005 Av.	4,704,615	2,458,167	1,338,558	1,591,623	5,610,229	10,314,844
2006	7,153,750	3,068,226	1,773,966[a]	1,953,228	6,795,420	13,949,170

[a] Tower count.

[b] Aerial survey estimates.

Appendix A12.–Inshore sockeye salmon total run by river system Naknek-Kvichak District, in thousands of fish, Bristol Bay, 1986–2006.

	Kvichak		Alagnak		Naknek		
Year	Number	%	Number	%	Number	%	Total Run [a]
1986	1,966	31.3	399	6[b]	3,913	62	6,278
1987	9,593	78.2	297	2[b]	2,378	19	12,268
1988	6,720	76.5	320	4[b]	1,739	20	8,779
1989	19,774	84.2	534	2[b]	3,179	14	23,487
1990	17,521	66	555	2[b]	8,427	32	26,503
1991	8,032	43	604	3[b]	9,918	53	18,554
1992	10,445	65	487	3[b]	5,021	31	15,953
1993	9,313	63	817	6[b]	4,687	32	14,817
1994	22,232	86	634	2[b]	3,033	12	25,899
1995	27,431	87	651	2[b]	3,564	11	31,646
1996	3,458	31	706	6[b]	6,860	62	11,024
1997	1,683	50	244	7[b]	1,409	42	3,336
1998	3,412	54	388	6[b]	2,546	40	6,346
1999	12,947	73	1,070	6[b]	3,740	21	17,757
2000	2,862	34	731	9[b]	4,789	57	8,382
2001	1,426	17	409	5[b]	6,639	78	8,474
2002	704	19	336	9[b]	2,671	72	3,711
2003	1,721	19	2,110	24	5,096	57	8,927
2004	7,332	42	6,510	37	3,721	21	17,563
2005	2,951	18	5,436	33	8,005	49	16,392
20 Year Av.	8,576	52	1,162	9	4,567	39	14,305
1986-1995 Av.	13,303	68	530	3	4,586	29	18,418
1996-2005 Av.	3,850	36	1,794	14	4,548	50	10,191
2006	5,804	42	2,854	20	5,292	38	13,950

[a] Due to rounding of river system total runs, district total run may not equal the sum of the rows.

[b] Total run is based on aerial survey estimate, not tower counts.

Appendix A13.–Inshore commercial catch and escapement of sockeye salmon in the Egegik District by river system, 1986–2006.

		Escapement			
Year	**Catch**	**Egegik[a]**	**Shosky Cr.[b]**	**King Salmon River[b]**	**Total Run**
1986	4,852,935	1,151,320		430	6,004,685
1987	5,356,669	1,272,978		575	6,630,222
1988	6,456,598	1,599,096	65		8,055,759
1989	8,901,994	1,610,916	50	600	10,513,560
1990	10,371,762	2,191,362		220	12,563,344
1991	6,797,166	2,786,880		45	9,584,091
1992	15,646,575	1,945,332		300	17,592,207
1993	21,600,858	1,516,980	20		23,117,858
1994	10,750,213	1,894,932	15	30	12,645,190
1995	14,425,979	1,281,678		830	15,708,487
1996	10,809,115	1,075,596			11,884,711
1997	7,517,389	1,103,964		40	8,621,393
1998	3,528,845	1,110,882		50	4,639,777
1999	7,388,080	1,727,772		625	9,116,477
2000	7,050,899	1,032,138			8,083,037
2001	2,872,662	968,862	10		3,841,534
2002	4,610,374	1,036,092			5,646,466
2003	2,291,502	1,152,030		90	3,443,622
2004	10,209,227	1,290,144			11,499,371
2005	8,015,950	1,621,584	0		9,625,584
20-Year Av.	8,472,740	1,468,527	32	320	9,940,869
1986-1995 Av.	10,516,075	1,725,147	38	379	12,241,540
1996-2005 Av.	6,429,404	1,211,906	10	201	7,640,197
2006	7,390,521	1,465,158	0	0	8,855,679

Note: Blank cells represent no data.

[a] Tower count.

[b] Aerial survey index count.

Appendix A14.–Inshore commercial catch and escapement of sockeye salmon in the Ugashik District, by river system, 1986–2006.

		Escapement			
Year	Catch	Ugashik[a] River	King Salmon[b] River	Dog Salmon[b] River	Total Run
1986	5,002,949	1,001,492	4,310	9,780	6,018,531
1987	2,128,652	668,964	15,855	2,075	2,815,546
1988	1,523,520	642,972	8,360	3,080	2,177,932
1989	3,146,239	1,681,296	25,480	6,505	4,859,520
1990	2,149,009	730,038	11,340	8,100	2,898,487
1991	2,945,742	2,457,306	12,195	12,500	5,427,743
1992	3,320,966	2,173,692	13,425	7,810	5,515,893
1993	4,176,900	1,389,534	22,570	1,350	5,590,354
1994	4,352,797	1,080,858	8,885	5,325	5,447,865
1995	4,509,446	1,304,058	7,650	9,400	5,830,554
1996	4,411,055	667,518	7,230	17,419	5,103,222
1997	1,402,690	618,396	27,645	10,600	2,059,331
1998	730,274	890,508	27,425	6,920	1,655,127
1999	2,256,007	1,651,572	6,350	4,120	3,918,049
2000	1,538,790	620,040	12,900	5,480	2,177,210
2001	480,509	833,628	22,940	9,800	1,346,877
2002	1,573,234	892,104	11,460	2,020	2,478,818
2003	1,748,934	758,532	27,620	4,000	2,539,086
2004	3,139,229	776,364	22,850	15,890	3,954,333
2005	2,216,635	779,172	0[c]	20,440	3,001,814
20-Year Av.	2,637,679	1,080,902	15,605	8,131	3,740,815
1986-1995 Av.	3,325,622	1,313,021	13,007	6,593	4,658,243
1996-2005 Av.	1,949,736	848,783	18,491	9,669	2,823,387
2006	2,426,650	978,718	0[c]	24,440	3,429,808

[a] Tower count.

[b] Aerial survey.

[c] No fish observed in King Salmon system-see text for explanation.

Appendix A15.–Inshore commercial catch and escapement of sockeye salmon in the Nushagak District by river system, in numbers of fish, Bristol Bay, 1986–2006.

		Escapement							
Year	**Catch**	**Wood[a]**	**Igushik[a]**	**Nuyakuk[a]**	**Nush/Mul[b]**	**Nushagak[c]**	**Snake[d]**	**Total**	**Total Run**
1986	2,719,313	818,652	307,728	821,898	168,340		16,780	1,143,160	3,862,473
1987	3,254,720	1,337,172	169,236	163,000	225,034	388,034	1,520	1,895,962	5,150,682
1988	1,706,716	866,778	170,454	319,992	163,208	483,200	4,320	1,524,752	3,231,468
1989	2,788,185	1,186,410	461,610			513,421	28,060	2,189,501	4,977,686
1990	3,532,543	1,069,440	365,802			680,368	28,840	2,144,450	5,676,993
1991	5,053,845	1,159,920	756,126			492,522	10,920	2,419,488	7,473,333
1992	2,789,741	1,286,250	304,920			695,108		2,286,278	5,076,019
1993	5,236,557	1,176,126	405,564			715,099		2,296,789	7,533,346
1994	3,393,143	1,471,890	445,920			509,326	22,480	2,449,616	5,842,759
1995	4,445,883	1,482,162	473,382	69,702	211,605	281,307	17,380	2,254,231	6,700,114
1996	5,693,523	1,649,598	400,746	250,692	252,959	503,651		2,553,995	8,247,518
1997	2,506,818	1,512,396	127,704	272,982	100,053	373,035	8,394	2,021,529	4,528,347
1998	2,990,597	1,755,768	215,904	146,250	312,624	458,874	11,120	2,441,666	5,432,263
1999	6,175,419	1,512,426	445,536	81,006	230,893	311,899	[e]	2,269,861	8,445,280
2000	6,367,208	1,300,026	413,316	129,468	274,032	403,500	[e]	2,116,842	8,484,050
2001	4,734,800	1,458,732	409,596	184,044	627,060	811,104	[e]	2,679,432	7,414,232
2002	2,840,031	1,283,682	123,156	68,928	246,753	315,681	[e]	1,722,519	4,562,550
2003	6,665,918	1,459,782	194,088	116,646	463,888	580,534	[e]	2,234,404	8,900,322
2004	6,104,048	1,543,342	109,650	77,406	414,292	491,698	[e]	2,144,690	8,248,738
2005	7,132,342	1,496,550	365,709	251,016	845,252	1,096,268	[e]	2,958,527	10,090,869
20-year Av.	4,306,568	1,341,355	333,307	210,931	324,000	531,823	14,981	2,187,385	6,493,952
1986-1995 Av.	3,492,065	1,185,480	386,074	343,648	192,047	528,709	16,288	2,060,423	5,552,487
1996-2005 Av.	5,121,070	1,497,230	280,541	157,844	376,781	534,624	9,757	2,314,347	7,435,417
2006	11,061,664	4,008,102	305,268	170,760	377,650	548,410	[e]	4,861,780	15,923,444

Note: Blank cells represent years of no data.

[a] Tower count.

[b] Aerial survey estimates for 1985. Escapement estimates for 1987-88, and 1995-2005, were derived from the difference between lower river sonar estimates and Nuyakuk Tower counts. Escapement estimates for 1986 based on the average ratio of Nuyakuk/Nushagak-Mulchatna in years when data was available. In 1987, the counting tower was terminated early due to high water. Tower estimate was expanded using aerial survey data.

[c] Total escapements from 1989 on are determined for the entire Nushagak River drainage using Portage Creek sonar estimates.

[d] Aerial survey estimate 1985-1991, 1994-1995 and 1997; weir count not surveyed in 1992, 1993 or 1996 due to lack of funding.

[e] Snake River escapement is not included this year because staff was unable to conduct aerial surveys.

Appendix A16.–Inshore sockeye salmon total run by river system, in thousands of fish, Nushagak District, 1986–2006.

					Nushagak										
	Wood		Igushik		Nushagak Escapement[a]					Catch					
	Total Run		Total Run		Nuyakuk		Nush-Mul		Sonar[b]	Total	Total Run		Snake[c]		
Year	Number	%	Number	%	Number	%	Number	%	Estimate	Number	Number	%	Number	%	Total Run[d]
1986	1,772	37	877	18	822	83	168	17	990	1,197	2,187	45	17	0	4,853
1987	2,828	55	617	12	163	42	225	58	388	1,317	1,705	33	2	0	5,152
1988	1,749	54	406	13	320	66	163	34	483	590	1,073	33	4	0	3,232
1989	2,519	51	1,214	24					513	704	1,217	24	28	1	4,978
1990	2,610	46	1,280	23					680	1,077	1,757	31	29	1	5,676
1991	3,303	44	2,424	32					493	1,243	1,736	23	11	0	7,474
1992	2,481	49	794	16					695	1,107	1,802	35			5,077
1993	3,725	49	1,580	21					715	1,513	2,228	30			7,533
1994	2,957	51	1,300	22					509	1,034	1,543	26	42	1	5,842
1995	4,022	60	1,902	28	70	25	212	75	281	475	756	11	20	0	6,700
1996	5,007	61	1,481	18	251	50	253	50	504	1,256	1,760	21			8,248
1997	3,365	74	291	6	273	73	100	27	373	491	864	19	8	0	4,528
1998	3,901	72	571	11	146	32	313	68	459	490	949	17	11	0	5,432
1999	5,930	70	1,563	19	81	26	231	74	312	640	952	11			8,445
2000	5,278	62	1,748	21	129	32	274	68	404	1,054	1,458	17			8,484
2001	3,987	54	1,315	18	184	23	627	77	811	1,301	2,112	28			7,414
2002	3,715	81	207	5	69	22	247	78	316	325	641	14			4,563
2003	5,647	63	1,018	11	117	20	464	80	581	1,655	2,236	25			8,901
2004	5,375	65	564	7	77	16	414	84	492	1,801	2,293	28			8,232
2005	4,771	47	1,878	19	251	23	845	77	1,096	2,346	3,442	34			10,091
20-Year Av.	3,747	57	1,152	17	211	38	324	62	555	1,081	1,636	25	17	0	6,543
1986-1995 Av.	2,797	50	1,239	21	344	54	192	46	575	1,026	1,600	29	19	0	5,652
1996-2005 Av	4,698	65	1,064	13	158	32	377	68	535	1,136	1,671	22	10	0	7,434
2006	11,393	72	1,859	12	171	31	378	69	548	2,123	2,671	17			15,923

Note: Blank cells represent years of no data.

[a] Escapement percentages represent the portion of sonar escapement that is accounted for in the Nuyakuk or Nushagak-Mulchatna.

[b] Sonar estimates not available for 1985–1986. Value derived from sum of escapement for the entire Nushagak River.

[c] Snake River escapement is not included from 1999-2005 because staff was unable to conduct aerial surveys.

[d] Due to rounding, the district total runs may not equal the sum of the rows. District total run is the sum of Wood, Igushik, Nushagak, and Snake total run numbers.

Appendix A17.–Inshore commercial catch and escapement of sockeye salmon in the Togiak District by river system, in numbers of fish, Bristol Bay, 1986–2006.

	Catch				Escapement						
					Togiak						
Year	Togiak	Kulukak	Os/Mat[a]	Total	Lake[b]	River[c]	Tributaries[d]	Kulukak[e]	Other[f]	Total	Total Run
1986	191,158	100,466	17,064	308,688	168,384	20,000	15,000	42,800	25,000	271,184	579,872
1987	274,613	45,401	22,718	342,732	249,676	10,400	18,200	37,800		316,076	658,808
1988	673,408	143,112	5,567	822,087	276,612	18,800	13,600	31,700		340,712	1,162,799
1989	68,375	14,116	6,441	88,932	84,480	15,200	4,560	20,840		125,080	214,012
1990	168,688	27,311	1,590	197,589	141,977	17,540	29,605	49,600	39,480	278,202	475,791
1991[g]	522,090	33,425	6,437	549,221	254,683	15,980	7,740	23,940	18,370	320,713	869,934
1992	610,575	108,358	7,513	726,446	199,056	6,060	10,400	26,440	25,000	266,956	993,402
1993	475,799	58,616	5,518	539,933	177,185	4,600	11,330	31,800	17,560	242,475	782,408
1994	321,121	76,781	2,137	400,039	154,752	6,200	13,220	29,740	29,720	233,632	633,671
1995	527,143	76,056	2,129	605,328	185,718	6,520	18,988	14,620	14,420	240,266	845,594
1996	381,539	76,833	1,691	460,063	156,954	18,320	11,900	18,980	6,370	212,524	672,587
1997	91,639	47,979	2,951	142,569	131,682	12,300	8,325	7,950	11,116	171,373	313,942
1998	112,993	75,279	2,155	190,427	153,576	9,780	12,120	12,950	26,200	214,626	405,053
1999	346,749	38,662	0	385,411	155,898	10,800	29,438	12,300	22,760	231,196	616,607
2000	727,384	67,612	0	794,996	311,970	25,200	15,075	22,350	15,485	390,080	1,185,076
2001[h]	798,426	9,762	1,908	810,096	296,676	6,520	150	17,280	17,990	338,616	1,148,712
2002	214,094	19,112	537	233,743	162,402	4,100	12,075	8,500	12,430	199,507	433,250
2003	650,066	55,081	861	706,008	232,302			8,004	21,545	261,851	967,859
2004[h,i]	357,354	80,204	1,095	438,653	129,462	6,100	75		19,044	154,681	593,334
2005[i]	411,320	53,774	0	465,094	149,178	5,580	1,020		3,713	159,491	624,585
20-Year Av.	396,227	60,397	4,416	460,403	188,631	11,579	12,254	23,200	19,188	248,462	708,865
1986-1995 Av.	383,297	68,364	7,711	458,100	189,252	12,130	14,264	30,928	24,221	263,530	721,629
1996-2005 Av.	409,156	52,430	1,120	462,706	188,010	10,967	10,020	13,539	15,665	233,395	696,101
2006[i]	574,093	51,603	0	625,696	312,126					312,126	937,822

Note: Blank cells represent years of no data.

[a] Catches in the Osviak and Matogak sections were combined.

[b] Tower count.

[c] Aerial survey estimate.

[d] Aerial survey estimate includes Gechiak, Pungokepuk, Kemuk, Nayorurun, and Ongivinuck River systems. Aerial survey estimates prior to 1986 also include Ungalikthluk, Negukthluk, Matogak, Osviak, and other miscellaneous river systems when surveyed.

[e] Aerial survey estimate includes Kulukak River and Lake and Tithe Creek ponds.

[f] Aerial survey estimate includes Matogak, Osviak, Slug, Negukthlik, and Ungalikthluk and Quigmy Rivers. Prior to 1986 estimates for these systems were included under tributaries when surveyed.

[g] Catches are based on weekly processor reports. Fish tickets were not coded by section.

[h] Only the Ongivinuk River was surveyed for sockeye escapement in tributaries.

[i] Partial survey.

Appendix A18.–Inshore total run of sockeye salmon by district, in numbers of fish, Bristol Bay, 1986–2006.

Year	Naknek-Kvichak	Egegik	Ugashik	Nushagak	Togiak	Total
1986	6,279,318	6,004,685	6,018,531	4,853,803	579,872	23,736,209
1987	12,267,898	6,630,222	2,815,546	5,150,681	658,808	27,523,155
1988	8,778,544	8,055,759	2,177,932	3,231,420	1,162,799	23,406,454
1989	23,486,200	10,513,560	4,859,520	4,977,686	214,012	44,050,978
1990	26,503,582	12,563,344	2,898,487	5,676,987	475,791	48,118,191
1991	18,554,091	9,584,091	5,427,743	7,473,333	869,934	41,909,192
1992	15,953,105	17,592,207	5,515,893	5,076,019	993,402	45,130,626
1993	14,816,675	23,117,858	5,590,354	7,533,346	782,408	51,840,641
1994	25,899,103	12,645,190	5,447,865	5,842,759	633,671	50,468,588
1995	31,645,154	15,708,487	5,830,554	6,700,114	845,594	60,729,903
1996	11,047,409	11,884,711	5,103,222	8,247,518	672,587	36,955,447
1997	3,336,822	8,621,393	2,059,331	4,527,953	313,942	18,859,441
1998	6,345,885	4,639,777	1,655,127	5,432,143	405,053	18,477,985
1999	17,738,850	9,116,477	3,918,049	8,445,280	616,607	39,835,263
2000	8,381,629	8,083,037	2,177,210	8,484,050	1,185,076	28,311,002
2001	8,473,246	3,841,534	1,346,877	7,414,232	1,148,712	22,224,601
2002	3,722,401	5,646,466	2,478,818	4,562,550	433,250	16,843,485
2003	8,976,427	3,443,622	2,539,136	8,900,322	967,859	24,827,366
2004	15,066,178	11,499,371	3,954,333	8,248,738	591,915	39,360,535
2005	15,984,566	9,625,859	3,001,814	10,090,869	622,965	39,326,073
20-Year Av.	14,162,854	9,940,883	3,740,817	6,543,490	708,713	35,096,757
1986-1995 Av.	18,418,367	12,241,540	4,658,243	5,651,615	721,629	41,691,394
1996-2005 Av.	9,907,341	7,640,225	2,823,392	7,435,366	695,797	28,502,120
2006	13,948,987	8,855,679	3,429,808	15,923,444	886,219	43,044,137

Appendix A19.–Chinook salmon harvest, escapement and total runs in the Nushagak District, in numbers of fish, Bristol Bay, 1986–2006.

	Harvests by Fishery				Inriver	Spawning	
Year	Commercial	Sport	Subsistence	Total	Abundance[a]	Escapement[b]	Total Run
1986	65,783	5,353	12,600	83,736	43,434	33,291	117,027
1987	45,983	4,425	12,200	62,608	84,309	75,924	138,532
1988	16,648	2,818	10,079	29,545	56,905	50,945	80,490
1989	17,637	3,614	8,122	29,373	78,302	72,600	101,973
1990	14,812	3,486	12,407	30,705	63,955	55,931	86,636
1991	19,718	5,551	13,627	38,896	104,351	94,733	133,629
1992	47,563	4,755	13,588	65,906	82,848	74,094	140,000
1993	62,976	5,900	17,709	86,585	97,812	86,705	173,290
1994	119,480	10,627	15,490	45,597	95,954	83,102	228,699
1995	79,943	4,951	13,701	98,595	85,622	77,018	175,613
1996	72,011	5,391	15,941	93,343	52,127	42,227	135,570
1997	64,156	3,497	15,318	82,971		82,000	164,971
1998	117,079	5,827	12,258	135,164	117,495	108,037	243,201
1999	10,893	4,237	10,057	25,187	62,331	54,703	79,890
2000	12,055	6,017	9,470	27,542	56,374	47,674	75,216
2001	11,568	5,899	26,939	44,406	99,155	83,272	127,678
2002	39,473	3,693	11,281	54,447	87,141	79,790	134,237
2003	42,615	5,590	18,686	66,891	80,028	68,606	135,497
2004	100,601	6,813	15,610	123,024	116,400	105,442	228,466
2005	62,308	8,565	12,392	83,265	172,559	161,528	244,793
20-Year Av.	51,165	5,350	13,874	70,389	86,163	76,881	147,270
1986-1995 Av.	49,054	5,148	12,952	67,155	79,349	70,434	137,589
1996-2005 Av.	53,276	5,553	14,795	73,624	93,734	83,328	156,952
2006	83,679	6,112[c]	16,982[c]	106,773	124,683	112,269	219,042

Note: Blank cells represent no data.

[a] Inriver abundance estimated by sonar below the village of Portage Creek.

[b] Spawning escapement estimated from the following: 1985 - correlation between index counts and total escapement estimates when aerial surveys were complete (results rounded to the nearest thousand fish). 1997 comprehensive aerial surveys. 1986–1996, 1998–2005 - Inriver abundance estimated by sonar minus inriver harvests.

[c] Data unavailable at the time of publication. A 5-year average is reported.

Appendix A20.–Chinook salmon harvest, escapement and total runs in the Togiak District, in numbers of fish, Bristol Bay, 1986–2006.

	Harvests by Fishery				Spawning	Total
Year	Commercial	Sport[a]	Subsistence	Total	Escapement[b]	Run
1986	19,880	525	700	21,105	8,000	29,105
1987	17,217	137	700	18,054	11,000	29,054
1988	15,606	0	429	16,035	10,000	26,035
1989	11,366	234	551	12,151	10,540	22,691
1990	11,130	172	480	11,782	9,107	20,889
1991	6,039	284	470	6,793	12,667	19,460
1992	12,640	271	1,361	14,272	10,413	24,685
1993	10,851	225	784	11,860	16,035	27,895
1994	10,486	663	904	12,053	19,353	31,406
1995	11,981	581	448	13,010	16,438	29,448
1996	8,602	790	471	9,863	11,476	21,339
1997	6,114	1,165	667	7,946	11,495	19,441
1998	14,131	763	782	15,676	11,666	27,342
1999	11,919	644	1,244	13,807	12,263	26,070
2000	7,858	470	1,116	9,444	16,897	26,341
2001	9,937	1,006	1,612	12,555	15,185	27,740
2002	2,801	76	703	3,580	14,265	17,845
2003	3,231	706	1,208	5,145	5,668[c]	10,813
2004	9,310	1,388	1,094	11,792	15,990	27,782
2005	10,605	1,734	982	13,321	13,521	26,842
20-Year Av.	10,585	592	835	12,012	12,599	24,611
1986-1995 Av.	12,720	309	683	13,712	12,355	26,067
1996-2005 Av.	8,451	874	988	10,313	12,843	23,156
2006	16,279	982[d]	1,120[d]	18,381	1,670[c]	20,051

[a] Sport fish harvest estimate only includes the Togiak River Section.

[b] Spawning escapement estimated from comprehensive aerial surveys. Estimates for 1984–1988 are rounded to the nearest thousand fish.

[c] Partial survey.

[d] Estimate.

Appendix A21.–Inshore commercial catch and escapement of chum salmon in the Nushagak and Togiak Districts, in numbers of fish, 1986–2006.

	Nushagak District			Togiak District		
Year	**Catch**	**Escapement[a]**	**Total Run**	**Catch**	**Escapement[b]**	**Total Run**
1986	488,375	168,275	656,650	270,057		270,057
1987	416,476	147,433	563,909	419,425	361,000	780,425
1988	371,196	186,418	557,614	470,132	412,000	882,132
1989	523,903	377,512	901,415	203,178	143,890	347,068
1990	378,223	329,793	708,016	102,861	67,460	170,321
1991	463,780	287,280	751,060	246,589	149,210	395,799
1992	398,691	302,678	701,369	176,123	120,000	296,123
1993	505,799	217,230	723,029	144,869	98,470	243,339
1994	328,267	378,928	707,195	232,559	229,470	462,029
1995	390,158	212,612	602,770	221,126	163,040	384,166
1996	331,414	225,331	556,745	206,226	117,240	323,466
1997	185,620	61,456	247,076	47,459	106,580	154,039
1998	208,551	299,443	507,994	67,408	102,455	169,863
1999	170,795	242,312	413,107	111,677	116,183	227,860
2000	114,454	141,323	255,777	140,175	80,860[c]	221,035
2001	526,602	564,373	1,090,975	211,701	252,610	464,311
2002	276,845	419,969	696,814	112,987	154,360	267,347
2003	740,311	295,413	1,035,724	68,406	39,090[d]	107,496
2004	470,248	283,805	754,053	94,025	103,810	197,835
2005	874,090	448,059	1,322,149	124,694	108,346	233,040
20-Year Av.	408,190	279,482	687,672	183,584	154,004	329,888
1986-1995 Av.	426,487	260,816	687,303	248,692	193,838	423,146
1996-2005 Av.	389,893	298,148	688,041	118,476	118,153	236,629
2006	1,150,880	661,003	1,811,883	224,062	26,900[c,d]	250,962

Note: Blank cells represent no data.

[a] Escapement based on sonar estimates from the Portage Creek site. Estimates for 1985 are rounded to the nearest thousand fish.

[b] Escapement estimates based on aerial surveys. Estimates for 1985-1988 rounded to the nearest thousand fish.

[c] No escapement counts were made for the Togiak River.

[d] Only a partial count was made for the Togiak River.

Appendix A22.–Coho salmon harvest by fishery, escapement and total runs for the Togiak River, in numbers of fish, Bristol Bay, 1986–2006.

	Harvests by Fishery				Spawning	Total
Year	Commercial	Subsistence[a]	Sport	Total	Escapement[b]	Run
1986	28,030	500	2,851	31,381	21,400	52,781
1987	1,284	1,600	183	3,067	16,000	19,067
1988	8,744	792	1,238	10,774	25,770	36,544
1989	35,814	976	416	37,206		
1990	2,296	1,111	367	3,774	21,390	25,164
1991	4,262	1,238	87	5,587	25,260	30,847
1992	3,918	1,231	251	5,400	80,100	85,500
1993	12,613	743	330	13,686		
1994	88,522	910	531	89,963		
1995	8,910	703	408	10,021		
1996	58,369	199	1,382	59,950	64,980	124,930
1997	2,976	260	780	4,016	20,625	24,641
1998	52,783	310	1,020	54,113	25,335	79,448
1999	2,653	217	1,109	3,979	3,855[c]	7,834
2000	2,758	342	840	3,940		
2001	3,218	388	904	4,510		
2002	754	241	1,475	2,470		
2003	961	883	2,086	3,930	6,900[c]	10,830
2004	15,463	204	2,321	17,988		17,988
2005	8	266	1,959	2,233		2,233
20-Year Av.	16,717	656	1,027	18,399	28,329	39,831
1986-1995 Av.	19,439	980	666	21,086	31,653	41,651
1996-2005 Av.	13,994	331	1,388	15,713	24,339	38,272
2006	453	396[d]	1,749[d]	2,598		2,598

Note: Blank cells represent no data.

[a] Subsistence harvest estimated by expanding permit returns; Estimates for 1984–1987 were based on community where permit was issued; 1988–present on community of residence.

[b] Expanded estimates from aerial surveys.

[c] Results of a partial survey.

[d] Estimate.

Appendix A23.–Average round weight (lbs.) of the commercial salmon catch by species, Bristol Bay, 1986–2006.

Year	Sockeye	Chinook	Chum	Pink	Coho
1986	6.0	18.8	6.7	3.5	6.7
1987	6.0	20.5	6.5		7.0
1988	6.2	18.7	7.0	3.6	7.8
1989	5.6	19.1	6.3		7.4
1990	5.7	16.9	6.3	3.8	7.5
1991	5.7	15.9	6.4		7.3
1992	5.7	16.8	6.4	3.7	7.0
1993	6.0	17.4	6.5		6.8
1994	5.5	18.0	6.5	3.7	8.2
1995	5.5	19.8	6.3	3.6	6.7
1996	6.3	18.0	7.3	3.5	6.8
1997	6.0	16.4	7.3	3.4	6.3
1998	5.7	17.7	6.4	3.3	8.4
1999	5.3	14.3	6.7	3.2	6.4
2000	6.1	15.7	6.9	3.7	7.6
2001	6.7	17.4	8.2	2.8	7.1
2002	6.1	18.2	7.1	3.8	6.8
2003	6.3	16.0	6.5	4.0	6.9
2004	5.8	15.4	6.6	4.1	6.8
2005	6.3	16.6	7.1	3.5	6.3
20-Year Av.	5.9	17.4	6.7	3.6	7.1
1986-1995 Av.	5.8	18.2	6.5	3.7	7.2
1996-2005 Av.	6.1	16.6	7.0	3.5	6.9
2006	5.7	17.0	7.7	3.7	6.4

Note: Blank cells represent no data.

Appendix A24.–Average price paid in dollars per pound for salmon, by species, Bristol Bay, 1986–2006.

Year	Sockeye	Chinook	Chum	Pink	Coho
1986	1.42	1.01	0.32	0.15	0.67
1987	1.40	1.17	0.30	0.18	0.72
1988	2.11	1.08	0.47	0.35	1.40
1989	1.25	0.82	0.26	0.32	0.71
1990 [a]	1.09	0.91	0.27	0.29	0.73
1991	0.75	0.67	0.22	0.15	0.60
1992	1.12	0.93	0.26	0.14	0.59
1993	0.67	0.76	0.22	0.25	0.52
1994	0.97	0.64	0.22	0.12	0.71
1995	0.77	0.66	0.20	0.14	0.43
1996	0.81	0.51	0.11	0.05	0.31
1997	0.90	0.52	0.10	0.07	0.50
1998	1.22	0.62	0.10	0.08	0.48
1999	0.84	0.53	0.10	0.09	0.72
2000	0.67	0.46	0.09	0.08	0.41
2001	0.42	0.31	0.11	0.09	0.33
2002	0.49	0.33	0.09	0.06	0.32
2003	0.51	0.32	0.08	0.07	0.27
2004	0.51	0.37	0.09	0.09	0.31
2005	0.62	0.58	0.11	0.02	0.29
20-Year Av.	0.93	0.66	0.19	0.14	0.55
1986-1995 Av.	1.16	0.86	0.27	0.21	0.71
1996-2005 Av.	0.70	0.46	0.10	0.07	0.39
2006	0.55	0.74	0.11	0.03	0.35

Note: Blank cells represent no data. Price does not include all postseason adjustments.

[a] Price paid in Nushagak District. Bristol Bay average unavailable.

Appendix A25.–Estimated exvessel value of the commercial salmon catch by species paid to fishermen, in thousands of dollars, Bristol Bay, 1986–2006.

Year	Sockeye	Chinook	Chum	Pink[a]	Coho	Total
1986	136,298	1,757	2,517	207	823	141,601
1987	134,179	1,774	2,988		326	139,267
1988	185,153	909	4,815	1,205	2,108	194,190
1989	205,654	627	2,028		1,263	209,573
1990	210,057	524	1,740	553	564	213,439
1991	112,114	316	1,758		492	114,680
1992	204,604	1,073	1,526	251	792	208,245
1993	163,089	1,133	1,194		263	165,679
1994	188,918	1,616	1,201	41	1,019	192,796
1995	187,863	1,295	1,262		142	190,562
1996	150,968	754	606	7	336	152,671
1997	65,743	652	198		183	66,777
1998	70,529	1,414	234	7	503	72,688
1999	114,504	207	407		97	115,215
2000	83,940	165	232	16	403	84,756
2001	40,395	132	679		40	41,246
2002	31,899	272	290	0	19	32,479
2003	47,993	249	482		77	48,801
2004	77,897	647	398	19	158	79,119
2005	96,650	738	962		154	98,503
20 Year Av.	125,422	813	1,276	210	488	128,114
1986-1995 Av.	172,793	1,102	2,103	376	779	177,003
1996-2005 Av.	78,052	523	449	10	197	79,226
2006	90,233	1,330	1,350	19	178	93,110

Note: Value paid to fishermen, derived from price per pound times commercial catch. Blank cells represent no data.

[a] Includes even-years only.

Appendix A26.–South Unimak and Shumigan Island preseason sockeye allocation, actual sockeye and chum harvest in thousands of fish, Alaska Peninsula, 1986–2006.

	South Unimak			Shumigan Island			Total		
	Sockeye			Sockeye			Sockeye		
Year	Actual	Quota[a]	Chum	Actual	Quota[a]	Chum	Actual	Quota[a]	Chum
1986	314	907	252	156	200	99	470	1,107	351
1987	652	635	406	141	140	37	793	775	443
1988	474	1,263	465	282	279	62	756	1,542	527
1989	1,348	1,199	408	397	264	48	1,745	1,463	456
1990	1,091	1,087	455	256	240	64	1,347	1,327	519
1991	1,216	1,573	669	333	347	102	1,549	1,920	771
1992	2,047	1,959	324	410	432	102	2,457	2,391	426
1993	2,365	2,375	382	607	524	150	2,972	2,899	532
1994	1,001	2,938	374	460	648	208	1,461	3,586	582
1995	1,451	2,987	342	653	659	195	2,104	3,646	537
1996	572	2,564	129	446	566	228	1,018	3,130	357
1997	1,179	1,840	196	449	406	126	1,628	2,246	322
1998	975	1,529	195	314	336	50	1,289	1,865	245
1999	1,106	1,024	187	269	226	58	1,375	1,250	245
2000	892	1,650	169	359	363	70	1,251	2013	239
2001	271		185	130		149	401		334
2002	356		201	235		178	591		379
2003	336		121	117		161	453		282
2004	532		131	816		357	1,348		488
2005	437		144	567		282	1,004		426
20-yr Av.	931	1,702	287	370	375	136	1,301	2,077	423
1986-1995 Av.	1,196	1,692	408	370	373	107	1,565	2,066	514
1996-2005 Av.	666	1,721	166	370	379	166	1,036	2,101	332
2006	491		96	441		204	932		300

Note: South Unimak includes statistical area 284 in June and July, while Shumigan Islands includes statistical area 282 in June only.

[a] The sockeye quota management system was initiated in 1974, and is based on 8.3 % of the Bristol Bay projected inshore harvest and traditional harvest patterns. This quota system was removed in 2001.

Appendix A27.–Subsistence salmon harvest, by district and species, Bristol Bay, 1986–2006.

Year [a]	Permits Issued	Sockeye	Chinook	Chum	Pink	Coho	Total
NAKNEK KVICHAK DISTRICT							
1986	412	77,283	1,295	695	2,007	650	81,930
1987	407	86,706	1,289	756	490	1,106	90,347
1988	391	88,145	1,057	588	917	813	91,520
1989	411	87,103	970	693	277	1,927	90,970
1990	466	92,326	985	861	1,032	726	95,930
1991	518	97,101	1,152	1,105	191	1,056	100,605
1992	571	94,304	1,444	2,721	1,601	1,152	101,222
1993	560	101,555	2,080	2,476	762	2,025	108,898
1994	555	87,662	1,843	503	460	1,807	92,275
1995	533	75,644	1,431	1,159	383	1,791	80,407
1996	540	81,305	1,574	816	794	1,482	85,971
1997	533	85,248	2,764	478	422	1,457	90,368
1998	567	83,095	2,433	784	1,063	1,592	88,967
1999	528	85,315	1,567	725	210	856	88,674
2000	562	61,817	894	560	845	937	65,053
2001	506	57,250	869	667	383	740	59,909
2002	471	52,805	837	909	1,137	943	56,632
2003	489	61,443	1,221	259	198	812	63,934
2004	481	71,110	1,075	469	1,080	566	74,300
2005	462	69,211	1,047	546	275	1,224	73,302
20 Year Av.	498	79,821	1,391	889	1,094[b]	1,183	84,061
1986-1995 Av.	482	88,783	1,355	1,156	1,203[b]	1,305	93,410
1996-2005 Av.	514	70,860	1,428	621	984[b]	1,061	74,711
2006 [c]	495	62,273	991	568	1,021[b]	870	65,522
EGEGIK DISTRICT							
1986	41	1,052	69	58	21	319	1,519
1987	49	3,350	87	139	2	284	3,862
1988	52	1,405	97	87	54	333	1,976
1989	50	1,636	50	33	1	414	2,134
1990	61	1,105	53	85	39	331	1,613
1991	70	4,549	82	141	32	430	5,234
1992	80	3,322	124	270	51	729	4,496
1993	69	3,633	128	148	15	905	4,829
1994	59	3,208	166	84	153	857	4,468
1995	60	2,818	86	192	100	690	3,886
1996	44	2,321	99	89	85	579	3,173
1997	34	2,438	101	21	5	740	3,304
1998	36	1,795	44	33	52	389	2,314
1999	42	2,434	106	35	2	806	3,384
2000	31	842	16	11	0	262	1,131
2001	57	2,493	111	105	16	928	3,653
2002	53	1,892	65	34	12	356	2,359
2003	62	3,240	84	32	10	297	3,663
2004	46	2,618	169	410	91	1,423	4,711
2005	45	2,267	81	231	2	526	3,106
20 Year Av.	52	2,421	91	112	56[b]	580	3,241
1986-1995 Av.	59	2,608	94	124	64[b]	529	3,402
1996-2005 Av.	45	2,234	88	100	48[b]	631	3,080
2006 [c]	49	2,225	88	137	9[b]	632	3,104

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Year	Permits Issued	Sockeye	Chinook	Chum	Pink	Coho	Total
UGASHIK DISTRICT							
1986	27	1,080	83	48	21	335	1,567
1987	22	892	104	51	29	272	1,348
1988	23	1,400	84	55	35	330	1,904
1989	22	1,309	32	35	2	214	1,592
1990	37	1,578	51	143	120	280	2,172
1991	38	1,403	121	168	42	614	2,348
1992	37	2,348	106	79	8	397	2,938
1993	39	1,766	86	107	24	495	2,478
1994	31	1,587	126	42	38	579	2,372
1995	20	1,513	56	18	6	290	1,883
1996	26	1,247	50	21	7	298	1,623
1997	28	2,785	169	39	23	311	3,327
1998	27	1,241	59	75	82	485	1,942
1999	25	1,365	35	5	0	271	1,675
2000	31	1,927	51	34	1	467	2,481
2001	24	1,197	61	8	2	357	1,624
2002	23	1,294	51	14	2	460	1,821
2003	23	1,113	31	30	0	392	1,567
2004	21	804	64	9	4	234	1,116
2005	22	818	27	18	2	249	1,114
20 Year Av.	27	1,433	72	50	32[b]	366	1,945
1986-1995 Av.	30	1,488	85	75	44[b]	381	2,060
1996-2005 Av.	25	1,379	60	25	19[b]	352	1,829
2006 [c]	24	1,192	47	19	2[b]	360	1,621
NUSHAGAK DISTRICT							
1986	424	49,000	12,600	10,000	5,400	9,400	86,400
1987	474	40,900	12,200	6,000	200	6,200	65,500
1988	441	31,086	10,079	8,234	6,316	5,223	60,938
1989	432	34,535	8,122	5,704	407	8,679	57,447
1990	441	33,003	12,407	7,808	3,183	5,919	62,320
1991	528	33,161	13,627	4,688	292	10,784	62,552
1992	476	30,640	13,588	7,076	3,519	7,103	61,926
1993	500	27,114	17,709	3,257	240	5,038	53,358
1994	523	26,501	15,490	5,055	2,042	5,338	54,426
1995	484	22,793	13,701	2,786	188	3,905	43,373
1996	481	22,935	15,941	4,704	1,573	5,217	50,370
1997	538	25,080	15,318	2,056	218	3,433	46,106
1998	562	25,217	12,258	2,487	1,076	5,316	46,355
1999	548	29,387	10,057	2,409	124	3,993	45,969
2000	541	24,451	9,470	3,463	1,662	5,983	45,029
2001	554	26,939	11,760	3,011	378	5,993	48,080
2002	520	22,777	11,281	5,096	1,179	4,565	44,897
2003	527	25,491	18,686	5,064	403	5,432	55,076
2004	511	17,491	15,610	3,869	1,944	4,240	43,154
2005	502	23,916	12,529	5,006	793	5,596	47,841
20 Year Av.	500	28,621	13,122	4,889	2,789[b]	5,868	54,056
1986-1995 Av.	472	32,873	12,952	6,061	4,092[b]	6,759	60,824
1996-2005 Av.	528	24,368	13,291	3,717	1,487[b]	4,977	47,288
2006 [c]	526	23,511	13,223	4,252	1,595[b]	5,302	47,346

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Year	Permits Issued	Sockeye	Chinook	Chum	Pink	Coho	Total
TOGIAK DISTRICT							
1986	29	2,400	700	800	100	500	4,500
1987	46	3,600	700	1,000		1,600	6,900
1988	29	2,413	429	716	45	792	4,395
1989	40	2,825	551	891	112	976	5,355
1990	37	3,689	480	786	60	1,111	6,126
1991	43	3,517	470	553	27	1,238	5,805
1992	40	3,716	1,361	626	135	1,231	7,069
1993	38	2,139	784	571	8	743	4,245
1994	25	1,777	904	398	77	910	4,066
1995	22	1,318	448	425	0	703	2,894
1996	19	662	471	285	59	199	1,676
1997	31	1,440	667	380	0	260	2,747
1998	42	2,211	782	412	76	310	3,791
1999	76	3,780	1,244	479	84	217	5,804
2000	54	3,013	1,116	569	90	342	5,130
2001	92	4,162	1,612	367	61	388	6,590
2002	36	2,319	703	605	10	241	3,878
2003	92	4,403	1,208	483	451	883	7,428
2004	46	1,795	1,094	383	108	204	3,584
2005	45	2,299	1,528	301	26	295	4,448
20 Year Av.	44	2,729	816	586	56[b]	717	4,929
1986-1995 Av.	38	2,948	698	734	64[b]	1,060	5,506
1996-2005 Av.	51	2,510	934	439	48[b]	375	4,352
2006 [c]	64	3,138	1,147	481	9[b]	412	5,322
TOTAL BRISTOL BAY AREA							
1986	933	130,815	14,747	11,601	7,549	11,204	175,916
1987	998	135,493	14,356	7,895	689	9,453	167,886
1988	936	124,449	11,746	9,680	7,367	7,491	160,733
1989	955	127,408	9,725	7,356	799	12,210	157,498
1990	1,042	131,701	13,976	9,683	4,434	8,367	168,161
1991	1,197	139,731	15,452	6,655	584	14,122	176,544
1992	1,204	134,330	16,623	10,772	5,314	10,612	177,651
1993	1,206	136,207	20,787	6,559	1,049	9,206	173,808
1994	1,193	120,735	18,529	6,082	2,770	9,491	157,607
1995	1,119	104,086	15,722	4,580	677	7,378	132,443
1996	1,110	108,470	18,136	5,915	2,518	7,775	142,813
1997	1,166	116,991	19,159	2,974	668	6,201	145,992
1998	1,234	113,560	15,576	3,792	2,349	8,093	143,368
1999	1,219	122,281	13,009	3,653	420	6,143	145,506
2000	1,219	92,050	11,547	4,637	2,599	7,991	118,824
2001	1,226	92,041	14,412	4,158	839	8,406	119,856
2002	1,093	81,088	12,936	6,658	2,341	6,565	109,587
2003	1,182	95,690	21,231	5,868	1,062	7,816	131,667
2004	1,100	93,819	18,012	5,141	3,225	6,667	126,865
2005	1,076	98,511	15,212	6,102	1,098	7,889	128,811
20 Year Av.	1,120	114,973	15,545	6,488	4,047[b]	8,654	148,077
1986-1995 Av.	1,078	128,496	15,166	8,086	5,487[b]	9,953	164,825
1996-2005 Av.	1,163	101,450	15,923	4,890	2,606[b]	7,355	131,329
2006 [c]	1,149	92,200	15,558	5,427	2,722[b]	7,556	122,602

[a] Permit and harvest estimates prior to 1989 are based on the community where the permit was issued; estimates from 1989 to the present are based on the area fished, as first recorded on the permit.

[b] Includes even years only.

[c] A 5 year average was used as data was not available at the time of publication.

Appendix A28.–Subsistence harvest of sockeye salmon by community, in numbers of fish, Kvichak River drainage, Bristol Bay, 1986–2006.

Year [a,b]	Levelock	Igiugig	Pedro Bay	Kokhanok	Iliamna-Newhalen[c]	Nondalton	Port Alsworth	Other[d] [e]	Total
1986	6,400	1,600	6,700	18,300	17,000	6,600	3,300		59,900
1987	5,700	[f]	7,300	16,500	27,500	11,800	3,200		72,000
1988	3,500	[f]	5,500	14,400	29,800	20,700	3,200	[e]	77,100
1989	5,100	1,200	6,700	13,000	24,700	18,500	2,200	[e]	71,400
1990	4,700	2,200	6,600	12,400	18,800	27,300	3,200	1,400	76,600
1991	1,029	1,712	9,739	17,184	29,094	4,163	2,755	1,110	66,786
1992	4,374	1,056	6,932	11,477	29,633	13,163	2,954	2,559	72,148
1993	4,699	1,397	6,226	18,810	19,067	17,890	3,254	2,780	74,123
1994	1,467	1,201	8,747	15,771	15,553	15,246	3,074	3,284	64,343
1995	3,756	497	5,359	14,412	20,134	4,188	2,892	3,441	54,679
1996	1,120	2,309	5,219	14,011	14,787	11,856	3,263	2,307	54,872
1997	1,062	2,067	5,501	8,722	19,513	17,194	2,348	3,101	59,508
1998	2,454	1,659	3,511	10,418	16,165	13,136	2,678	3,635	53,656
1999	1,276	1,608	5,005	10,725	14,129	17,864	4,282	2,834	57,723
2000	1,467	1,981	1,815	7,175	6,679	11,953	3,200	2,720	36,990
2001	908	779	2,118	9,447	8,132	7,566	1,958	1,901	32,808
2002	625	2,138	2,687	9,847	9,417	5,508	1,201	1,578	33,001
2003	737	1,081	2,135	9,771	13,824	8,016	1,370	1,591	38,495
2004	1,000	1,026	4,803	11,869	21,652	8,789	2,455	1,631	53,225
2005	914	1,017	4,162	16,801	12,010	8,824	2,457	2,078	48,263
20 Year Av.	2,614	1,474	5,338	13,052	18,379	12,513	2,762	2,372	57,881
1986-1995 Av.	4,073	1,358	6,980	15,225	23,128	13,955	3,003	2,429	68,908
1996-2005 Av.	1,156	1,567	3,696	10,879	13,631	11,071	2,521	2,338	46,854
2006 [g]	942	1,337	2,953	10,818	11,952	8,443	2,107	1,917	40,464

Note: Blank cells represent no data.

[a] Harvests are extrapolated for all permits issued, based on those returned. Harvest estimates from 1991 are rounded to the nearest hundred fish.

[b] Harvest estimates prior to 1990 are based on the community where the permit was issued; estimates from 1990 to the present are based on community of residence and include fish caught only in the Kvichak District.

[c] Includes Chekok.

[d] Subsistence harvests by non-Kvichak River watershed residents.

[e] No permits issued. Only residents of the Naknek/Kvichak watershed could obtain subsistence permits.

[f] No permits issued.

[g] A 5 year average was used as current data was not available at the time of publication.

Appendix A29.–Subsistence salmon harvest by community, Nushagak District, Bristol Bay, 1986–2006.

Year[a,b]	Dillingham[c]	Manokotak	Aleknagik	Ekwok	New Stuyahok	Koliganek	Other[d]	Total
1986	31,900	5,500	6,900	7,800	26,400	8,200		86,700
1987	33,500	5,900	3,100	6,400	11,400	4,900		65,200
1988	29,600[e]	5,500	2,400	6,100	11,700	5,700	[f, c]	61,000
1989	31,800[e]	5,800	2,000	4,700	9,700	3,800	[f, c]	57,800
1990	28,860[e]	6,600	2,300	4,900	9,900	8,000	700	61,260
1991	34,399[e]	5,873	3,043	4,532	8,326	5,438	2,163	63,774
1992	31,702[e]	4,317	2,184	5,971	11,325	3,708	2,635	61,842
1993	25,315[e]	3,048	2,593	2,936	12,169	4,180	2,538	52,779
1994	30,145[e]	3,491	2,289	4,343	8,056	4,513	2,322	55,159
1995	24,998[e]	2,453	1,468	2,046	6,911	2,983	2,406	43,265
1996	27,161[e]	3,883	1,733	2,866	8,892	3,319	2,113	49,967
1997	23,255[e]	3,988	1,989	1,797	6,427	4,179	4,598	46,233
1998	24,072[e]	4,069	1,112	3,555	5,419	3,166	4,958	46,351
1999	26,502[e]	3,413	1,532	1,805	4,556	2,772	5,389	45,969
2000	27,931[e]	3,173	1,111	3,946	3,715	2,792	2,362	45,029
2001	26,435[e]	3,700	2,129	2,218	7,294	2,209	4,096	48,080
2002	25,004[e]	3,254	1,517	2,735	6,043	3,098	3,247	44,897
2003	26,955[e]	4,214	2,044	2,291	10,817	5,721	3,034	55,076
2004	23,308[e]	2,052	2,206	1,891	6,714	3,619	3,364	43,154
2005	21,898[e]	1,576	1,795	1,388	9,763	3,422	3,088	47,841
20 Year Av.	27,938	4,175	2,273	3,772	9,134	4,289	3,072	54,039
1986-1995 Av.	30,222	4,848	2,828	4,973	11,589	5,142	2,127	60,878
1996-2005 Av.	25,655	3,503	1,717	2,572	6,679	3,436	3,638	47,200
2006[g]	25,255	2,995	1,800	2,412	7,391	3,477	3,199	47,346

[a] Harvests are extrapolated for all permits issued, based on those returned. Harvest estimates prior to 1991 are rounded to the nearest hundred fish.

[b] Harvest estimates prior to 1990 are based on the community where the permit was issued; estimates from 1990 to the present are based on community of residence and include fish caught only in the Nushagak District.

[c] Includes the village of Portage Creek and Clarks Point.

[d] Subsistence harvests by non-watershed residents.

[e] Includes permits issued in Clarks Point and Ekuk.

[f] No permits issued. Only residents of the Nushagak watershed could obtain subsistence permits.

[g] A 5 year average was used as current data was not available at the time of publication.

APPENDIX B. HERRING

Appendix B1.–Sac roe herring industry participation, fishing effort and harvest, Togiak District, 1986–2006.

Year	Number of Buyers	Daily Processing Capacity[a]	Fishery Dates	Gillnet					Purse Seine					Total Harvest[c]
				Effort[b]	Duration (hours)	Harvest[c]	CPUE	Roe %	Effort[b]	Duration (hours)	Harvest[c]	CPUE	Roe %	
1986	23		5/14-5/15	209	10.0	3,448	1.6	8.8	209	1.0	12,828	61.4	9.9	16,276
1987	18		4/27-5/6	148	36.0	2,685	0.5	8.6	111	5.5	12,845	21.0	8.9	15,530
1988	22		5/17	300	4.0	3,695	3.1	8.3	239	0.5	10,472	87.6	10.9	14,167
1989	19		5/9-5/14	320	5.0	2,844	1.8	7.8	310	3.0	9,415	10.1	8.5	12,259
1990	16	3,100	5/8-5/20	277	66.0	3,072	0.2	9.0	221	3.0	9,158	13.8	9.7	12,230
1991	16	3,350	5/10-5/17	170	14.0	3,182	1.3	8.5	200	3.0	11,788	19.6	10.0	14,970
1992	18	3,700	5/20-5/27	274	25.5	5,030	0.7	8.8	301	0.3	20,778	230.1	9.2	25,808
1993	12	2,500	4/27-5/9	75	144.5	3,564	0.3	10.1	140	33.8	14,392	3.0	9.6	17,956
1994	16	3,300	5/11-5/20	146	76.0	7,462	0.7	12.0	240	4.6	22,853	20.7	9.4	30,315
1995	22	4,350	5/7-5/15	250	33.5	6,995	0.8	12.0	254	12.2	19,737	6.4	10.1	26,732
1996	19	4,850	5/3-5/8	461	18.0	6,863	0.8	11.1	268	2.4	18,008	27.8	9.0	24,871
1997	18	4,200	5/2-5/6	336	24.0	5,164	0.6	11.8	231	6.4	18,649	12.6	9.4	23,813
1998	15	2,475	4/29-5/10	152	46.0	5,952	0.9	12.5	123	16.5	16,824	8.3	9.6	22,776
1999	12	2,400	5/18-5/26	171	28.0	4,858	1.0	11.5	96	4.7	15,020	33.3	9.2	19,878
2000	12	2,100	5/6-5/14	227	67.0	5,464	0.4	10.6	90	15.8	14,957	10.6	10.1	20,421
2001	11	2,255	5/6-5/13	96	84.0	6,481	0.8	10.6	64	26.0	15,849	9.5	9.2	22,330
2002	8	1,920	5/3-5/13	82	102.0	5,216	0.6	10.9	37	57.5	11,833	5.6	9.3[d]	17,049
2003	7	1,920	4/25-5/7	75	142.0	6,505	0.6	10.9	35	110.2	15,158	3.9	8.9[d]	21,663
2004	6	2,150	4/29-5/9	54	162.0	4,980	0.6	10.4	31	78.0	13,888	5.7	9.5	18,868
2005	8	2,330	4/30-5/8	56	149.0	5,841	0.7	11.2	33	83.0	13,869	5.1	9.6	19,711
1986-2005 Av.	15	2,931		194	61.8	4,965	0.9	10.3	162	23.4	14,916	29.8	9.5	19,881
1996-2005 Av.	12	2,660		171	82.2	5,732	0.7	11.2	101	40.0	15,406	12.2	9.5	21,138
2006	7	2,060	5/12-5/21	49	143.9	7,132	1.0	10.8	28	113.0	16,821	5.3	9.2	23,953

Note: Blank cells represent no data.

[a] Number of tons per day based on companies registered.

[b] Peak aerial survey count.

[c] Harvest total does include deadloss and test fish harvest.

[d] Values are lower than inseason assessment due to more stringent post-season market scrutiny compared with previous years.

Appendix B2.–Exploitation of Togiak herring stock, 1986–2006.

Year	Biomass Estimate[a] (short tons)	S-O-K Herring Equivalent	Dutch Harbor Food/Bait	Sac Roe				Total Harvest	Exploitation Rate
				Gillnet	Purse Seine[b]	Waste[c]	Total		
1986	86,310	1,446		3,448	12,828		16,276	17,722	20.5%
1987	64,462	1,309		2,685	12,845		15,530	16,839	26.1%
1988	128,959	1,782	2,004	3,695	10,472		14,167	17,953	13.9%
1989	80,100	2,499	3,081	2,844	9,415		12,259	17,839	22.3%
1990	71,879	1,617	820	3,072	9,158		12,230	14,667	20.4%
1991	55,000	1,310	1,325	3,182	11,788		14,970	17,605	32.0%
1992	129,256	1,482	1,949	5,030	20,778		25,808	29,239	22.6%
1993	164,130	1,481	2,790	3,564	14,392		17,956	22,227	13.5%
1994	148,716	1,134	3,349	7,462	22,853		30,315	34,798	23.4%
1995	149,093	996	1,748	6,995	19,737		26,732	29,476	19.8%
1996	135,585	1,899	2,239	6,863	18,008		24,871	29,009	21.4%
1997	125,000	0	1,950	5,164	18,649	350	23,813	25,763	20.6%
1998	121,000	0	1,994	5,952	16,824	400	22,776	24,770	20.5%
1999	156,183	1,605	2,398	4,858	15,020	221	19,878	23,881	15.3%
2000	130,904	0	2,014	5,464	14,957	100	20,421	22,435	17.1%
2001	119,818	0	1,439	6,481	15,849	219	22,330	23,769	19.8%
2002	120,196	260	2,846	5,216	11,833	40	17,049	20,155	16.8%
2003	126,213	55	1,487	6,505	15,158	380	21,663	23,205	18.4%
2004	143,124	0	1,258	4,980	13,785	103	18,765	20,023	14.0%
2005	156,727	0	1,154	5,841	15,071	784	20,912	22,066	14.1%
1986-2005 Ave.	120,633	944	2,041	4,897	15,284	227	20,181	22,859	20.1%
1996-2005 Ave.	133,475	482	1,937	5,848	15,982	227	21,830	24,249	18.4%
2006	129,976	0	953	7,132	16,321	500	23,953	24,906	19.2%

Note: Blank cells represent no data.

[a] Preseason forecast unless peak biomass estimate inseason exceeded preseason forecast.

[b] Includes test fish harvest.

[c] Estimated waste, also included in purse seine harvest.

Appendix B3.–Age composition of inshore herring, Togiak District, 1986–2006.

	Age Composition (%)[a]							Total[b]
Year	3[c]	4	5	6	7	8	9+	Run (tons)
1986			1.0	2.0	15.0	44.0	38.0	94,770
1987				8.0	10.0	28.0	54.0	88,398
1988		2.0	5.0	1.0	13.0	5.0	74.0	134,718
1989			5.0	11.0	4.0	15.0	65.0	98,965
1990[d]		[d]	[d]	6.0	11.0	3.0	80.0	88,105
1991		7.0	1.0	1.0	16.0	18.0	57.0	83,229
1992[d]		10.0	20.0	1.0	1.0	15.0	53.0	156,957
1993		[d]	6.0	23.0	1.0	1.0	67.0	193,847
1994		[d]	2.0	12.0	28.0	3.0	55.0	185,412
1995		1.0	4.0	7.0	24.0	30.0	35.0	[e]
1996		[d]	3.0	5.0	7.0	21.0	64.0	[e]
1997[d]		7.0	5.0	12.0	11.0	10.0	55.0	144,887
1998		[d]	4.0	5.0	10.0	11.0	70.0	[e]
1999[d]		[d]	1.0	13.0	9.0	12.0	65.0	157,028
2000[d]		[d]	1.0	2.0	17.0	16.0	63.0	[e]
2001		5.0	21.0	5.0	4.0	27.0	39.0	115,155
2002		1.0	25.0	28.0	4.0	5.0	36.0	[e]
2003		[d]	3.0	37.0	25.0	4.0	31.0	[e]
2004		[d]	[d]	3.8	43.7	24.6	27.5	[e]
2005		[d]	[d]	0.8	11.0	41.4	46.4	156,727
2006[d]		1.8	5.4	2.8	5.4	25.9	58.7	176,288

[a] Age composition in 1984–1992 is weighted by aerial survey data and weight at age.

[b] Includes commercial catch, escapement, and documented waste.

[c] Includes age 1, 2 and 3 herring.

[d] Contribution of age class is less than 0.5%.

[e] Age contribution of the commercial purse seine harvest (by weight) was used to represent the total run for the 1995, 1996, 1998, 2000, 2002, 2003 and 2004 fishing seasons. Aerial surveys to determine abundance were hampered by poor weather conditions preventing estimation of total biomass estimate.

Appendix B4.–Herring spawn-on-kelp industry participation, fishing effort, area and harvest, Togiak District, 1986–2006.

Year	Companies	Fishery Dates	Hours	Effort[a]	Area	Total Harvest in pounds	Herring Equivalent (in tons)	Openings	Average Roe %
1986	6	5/18-5/21	21.0	204	K 7, K 8, K 9	374,142	1,446	4	9.7
1987	5	4/29-5/4	6.6	187	K 9, K 10	307,307	1,309	5	8.8
1988	10	5/20	6.0	259	K 4, K 8	489,320	1,782	1	10.3
1989	11	5/14	4.0	487	K 9	559,780	2,499	1	8.3
1990	7	5/11	3.0	481	K 8	413,844	1,617	1	9.5
1991	7	5/13	2.5	532	K 4	348,357	1,310	1	9.7
1992	5	5/23	3.3	386	K 9	363,600	1,482	2	9.1
1993	2	5/1-5/2	7.0	173	K 8	383,000	1,481	2	9.7
1994	3	5/13-5/14	7.5	204	K 5	308,400	1,134	2	10.0
1995	5	5/11-5/14	14.5	188	K 2, K 3	281,600	996	3	10.6
1996	3	5/9-5/10	12.0	200	K 8, K 9	455,800	1,899	2	9.6
1997		no fishery							
1998		no fishery							
1999	1	5/23	8.0	130	K 9	419,563	1,605	2	9.8
2000		no fishery							
2001		no fishery							
2002	1	5/14	2.0	50	K 9	67,793	260	1	9.8
2003	1	5/3-5/4	3.0	35	K 3	[b]	55	1	[b]
2004		no fishery							
2005		no fishery							
1996-2005 Av.	2		6.3	104		239,260	955	2	9.7
2001-2005 Av.	1		2.5	43		40,839	158	1	9.6
2006		no fishery							

[a] 1984–1989 and 1992–1996, number of permits fished based on fish tickets. 1990 and 1991, peak aerial survey count.

[b] Data confidential under Alaska Statute 16.05.815.

Appendix B5.–Aerial survey estimates of herring biomass and spawn deposition, Togiak District, 1986–2006.

	Preseason	Biomass	Spawn Estimates	
Year	Forecast[a]	Estimate	Observations	Miles
1986	86,310	94,770	182	67
1987	61,100	88,398	160	76
1988	54,500	134,718	107	61
1989	80,100	98,965	69	53
1990	56,000	88,105	94	66
1991	55,000	83,229	90	70
1992	60,214	156,957	160	97
1993	148,786	193,847	76	53
1994	142,497	185,412	80	72
1995	149,093	149,093[b]	70	59
1996	135,585	135,585[b]	99	73
1997	125,000	144,887	79	59
1998	121,000	121,000[b]	42	33
1999	90,000	157,028	33	56
2000	130,904	130,904[b]	71	46
2001	119,818	115,155[b]	100	57
2002	120,196	120,196[b]	79	32
2003	126,213	126,213[b]	182	95
2004	143,124	143,124[b]	47	36
2005	96,029	156,727	106	28
1986-2005 Av.	105,073	131,216	96	59
1996-2005 Av.	120,787	135,082	84	51
2006	129,976	124,713	66	18

[a] 1993–2006 forecasts based on Age Structured Analysis. Previous years based on age composition, abundance, average growth and mortality rates.

[b] Peak biomass estimate could not be determined, therefore, preseason forecast was used.

Appendix B6.–Exvessel value of the commercial herring and spawn-on-kelp harvest, in thousands of dollars, Togiak District, 1986–2006.

	Herring			
Year	**Sac Roe**	**Food/Bait**	**Spawn-on-Kelp**	**Total**
1986	8,648	12	187	8,847
1987	8,614	49	166	8,829
1988	14,103	3	346	14,452
1989	4,983	19	448	5,450
1990	6,494	9	360	6,863
1991	6,173	21	383	6,577
1992	8,818	26	254	9,098
1993	5,218	3	268	5,489
1994	9,090	0	212	9,302
1995	16,713	0	362	17,075
1996	14,395	5	510	14,910
1997	4,306	0	[a]	4,306
1998	3,986	0	[a]	3,986
1999	6,211	0	315	6,526
2000	4,000	0	[a]	4,000
2001	3,090	0	[a]	3,090
2002	1,880	0	[b]	1,900
2003	2,797	0	[b]	2,801
2004	2,541	0	[a]	2,541
2005	2,978	0	[a]	2,978
1986-2005 Av.	6,752	7	274	6,951
1996-2005 Av.	4,618	1	212	4,704
2006	2,618	0	[a]	2,618

Note: Exvessel value (value paid to the fishermen) is derived by multiplying price/ton by the commercial harvest. These estimates do not include any postseason adjustments to fishermen from processors and should therefore be treated as minimum estimates.

[a] Fishery not conducted.

[b] Data confidential under Alaska Statute 16.05.815.

Appendix B7.–Guideline and actual harvests of sac roe herring (tons) and spawn-on-kelp (lbs), Togiak District, 1986–2006.

	Gillnet Sac Roe			Purse Seine Sac Roe			Spawn-on-Kelp		
Year	Guideline[a]	Actual	% Difference[b]	Guideline[a]	Actual[c]	% Difference[b]	Guideline[a]	Actual	% Difference[b]
1986		3,448			12,828		350,000	374,142	7
1987		2,685			12,845		350,000	307,307	-12
1988	5,647	3,695	-35	16,943	10,472	-38	350,000	489,320	40
1989	3,376	2,844	-16	10,128	9,415	-7	350,000	559,780	60
1990	2,993	3,072	3	8,980	9,158	2	350,000	413,844	18
1991	3,143	3,182	1	9,429	11,788	25	350,000	348,357	0
1992	5,662	5,030	-11	16,985	20,778	22	350,000	363,600	4
1993	6,570	3,564	-46	19,709	14,392	-27	350,000	383,000	9
1994	6,277	7,462	19	18,832	22,853	21	350,000	308,400	-12
1995	6,582	6,995	6	19,747	19,737	0	350,000	281,600	-20
1996	5,956	6,863	15	17,868	18,008	1	350,000	455,800	30
1997	5,464	5,164	-5	16,391	18,649	14	350,000	[d]	
1998	5,280	5,952	13	15,840	16,824	6	350,000	[d]	
1999	6,914	4,858	-30	20,741	15,020	-28	350,000	419,563	20
2000	5,738	5,464	-5	17,215	14,957	-13	350,000	[d]	
2001	6,268	6,481	3	14,624	15,849	8	350,000	[d]	
2002	6,288	5,216	-17	14,673	11,833	-19	350,000	[e]	-81
2003	6,624	6,505	-2	15,457	15,158	-2	350,000	[e]	-96
2004	7,568	4,980	-34	17,658	13,888	-21	350,000	[d]	
2005	5,667	5,841	3	13,224	15,071	14	350,000	[d]	
1989-2005 Av.	5,669	5,263	-6	15,735	15,493	0	350,000	328,693	-6
1996-2005 Av.	6,177	5,732	-6	16,369	15,526	-4	350,000	239,260	-32
2006	7,059	7,132	1	16,471	16,821	2	350,000	[d]	

[a] Harvest guideline derived from inseason biomass estimate when available, or preseason forecast if weather prevents an estimate. Harvest guidelines were not adopted until 1988.

[b] Actual minus guideline divided by guideline.

[c] Includes deadloss and test fish harvest.

[d] No fishery conducted.

[e] Data confidential under Alaska Statute 16.05.815.

APPENDIX C. 2006 BRISTOL BAY SALMON OUTLOOK

Appendix C1.–Bristol Bay 2006 outlook for commercial salmon fishing.

ALASKA DEPARTMENT OF FISH AND GAME
Division of Commercial Fisheries
King Salmon/Dillingham/Anchorage

April 3, 2006

BRISTOL BAY
2006 OUTLOOK FOR COMMERCIAL
SALMON FISHING

INTRODUCTION

This document is provided as a guide to fishers, processors, and the public. The intent of this document is to provide the reader with information regarding the 2006 Bristol Bay salmon season. Included is a short narrative regarding the general management approach for each of the five major districts and the 2006 salmon forecast as well as a brief summary of regulation changes adopted by the Board of Fisheries (BOF).

Bristol Bay salmon fishing announcements will be broadcast on marine VHF Channel 07A and 2509 MHz. SSB. Current fishing announcements will be aired on the local radio stations – KAKN, KDLG and KRUP. Regular announcement times that may be utilized are 9:00 a.m., 12:00 noon, 3:00 p.m., 6:00 p.m., and 8:00 p.m., unless otherwise stated. If you miss an announcement, we have two telephone information lines. For information on the east-side fisheries (Naknek-Kvichak, Egegik, and Ugashik), dial **246-INFO (4636)**. For west-side fisheries (Nushagak and Togiak) dial **842-5226.** The direct line from the Dillingham boat harbor will be operational in late April and is located on the west end of the harbormaster's house.

Blue and Green permit district registration cards will be available at the Anchorage, King Salmon, and Dillingham offices beginning May 1, and must be picked-up by the permit holder or their authorized agent. As a reminder: a permit holder may take salmon only after a department representative at one of the area offices has accepted their registration card.

Fishers and processors should be aware of the reporting requirements in 5 AAC 06.377 (b) that state **"Each commercial fisherman shall report, on an ADF&G fish ticket, at the time of landing, the number of Chinook and coho salmon taken but not sold."**

During the 2006 season catch, escapement, and announcements will be available at the Commercial Fisheries website:

http:/www.cf.adfg.state.ak.us/region2/finfish/salmon/bbayhome.php

NOTICE TO BRISTOL BAY COMMERCIAL FISHERS FROM THE COMMERCIAL FISHERIES ENTRY COMMMISSION

The Commercial Fisheries Entry Commission would like to remind commercial fishers that licensing activities are no longer available on site in Dillingham or King Salmon. *All commercial fishers must obtain permit cards, vessel*

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licenses, and any permit transfers through the Commission's office in Juneau. Please make sure application forms are filled-out completely including your ADF&G number (if one is called for) and that your application is signed. Mail your completed applications to:

Commercial Fisheries Entry Commission
8800 Glacier Highway #109
Juneau, Alaska 99801-8079

The Commission's staff will make every effort to process applications quickly but applicants should allow two weeks from the date of receipt in Juneau. We encourage you to mail renewal forms and transfer requests to the Juneau Office as soon as possible to avoid the risk of losing fishing time. If you have questions phone (907) 789-6150.

REGULATORY CHANGES

5AAC 06.333. Requirements and specifications for use of 200 fathoms of drift gillnet in Bristol Bay. Permit holders are allowed to fish an additional **50 fathoms of gear (200 fathoms total)** when two permit-holders are fishing at the same time from the same vessel, except in Special Harvest Areas when they are in effect. Both permit holders must be registered for the same district and legal to fish at the time the gear is being deployed. Any vessel fishing 2 permits (i.e. 200 fathoms of gear) must be marked with the ADFG number followed by a D (for dual permits). The D must be the same size as the existing numbers (12" high x 1" wide) as described in 5AAC 06.343 Vessel Identification. If only one permit holder is on board, the D must be covered or removed and normal gear limits apply.

The BOF in March 2006 put in place an inriver fishery for both set and drift gillnet gear during the 2006 season for the Alagnak River Special Harvest Area (ARSHA). Refer to the Naknek/Kvichak District section for how this fishery will be managed.

SALMON OUTLOOKS

BAYWIDE

The forecasted Bristol Bay sockeye salmon run for 2006 is approximately 32.7 million fish. From this total, a commercial harvest of approximately 23.7 million fish is projected (Table 1).

NAKNEK/KVICHAK DISTRICT

The 2006 forecasted run of sockeye salmon to the Naknek/Kvichak District is 11.9 million. The projected harvest is slightly more than 6.9 million sockeye salmon; 6.1 million from the Naknek River and 0.9 million from the Alagnak River. The 2006 projected total run to the Kvichak is 1.9 million which is less then the minimum escapement goal of 2.0 million sockeye salmon. If the run is greater than forecast, the **inseason** point goal would be changed to reflect the inseason total run number. The escapement goal for the Naknek River when fishing inside the Naknek River Special Harvest Area is "Optimal Escapement Goal" (OEG) range of 800 thousand to 2.0 million. The intent of this OEG is to maintain escapement quality of sockeye and other salmon species during large sockeye salmon runs to the Naknek River. This will be accomplished by "windowed" fishing periods around the high tides, minimizing fishing time during low water. The age composition of sockeye salmon run to the Naknek-Kvichak District is expected to be 51% age-1.3, 25% age-1.2, 18% age-2.3, and 5% age-2.2 fish.

The BOF elevated the Kvichak River sockeye salmon from a "Stock of Yield Concern" to a "Stock of Management Concern" during the 2003 meeting. Under the plan if the Kvichak River run is forecasted to be less than 30% above the minimum Biological Escapement Goal (BEG), fishing will begin in the SHA's of the Naknek, Egegik, and Ugashik Rivers (5 AAC 06.360 (h)). The Kvichak forecast is less than the minimum 2.6 million so the season will start off in the NRSHA. The BOF also passed at the 2003 meeting an allocation plan for the NRSHA of 84% drift gillnet gear and 16% set gillnet gear. The department will attempt to achieve the specified allocation percentages, but achievement of escapement goals and harvest of surplus fish are the primary objectives. When the NRSHA is open to commercial fishing the Naknek Section of the Naknek/Kvichak District will open to subsistence fishing by emergency order during specified times.

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The department will not be announcing a set schedule of fishing periods in the NRSHA from June 1 through June 23. The department will monitor subsistence catches inseason for indications of a stronger-than-projected run and the Naknek tower will be operational June 18. During closures, there will be extensive use of district test fish boats. Permit holders should stand by on VHF 07 and SSB 2509 weekdays, beginning June 12, at 12:00 noon for potential fishing periods prior to June 23. Beginning June 23, permit holders should standby daily at standard announcement times of 9:00 a.m., 12:00 noon, 3:00 p.m., 6:00 p.m., and 8:00 p.m., unless otherwise stated for information regarding commercial periods. Permit holders interested in the test fish program for the Naknek/Kvichak District should contact Slim Morstad at (907) 246-3341 beginning April 1. Special attention will be given to Chinook salmon run strength in the Naknek River and effort levels in June. The department will initiate a gillnet mesh size restriction of 5½ inches or less, effective June 1, for the conservation of Chinook salmon.

At the March 2006 BOF meeting, three new regulations passed which are specific to the Naknek/Kvichak District. In the NRSHA, the legal amount of drift gillnet gear that can be fished increased to **75** fathoms. When fishing with set gillnet gear between the 18-foot high water line out 500 feet running lines **MUST BE REMOVED** after each set gillnet fishing period. In the ARSHA, the BOF opened the fishery to both set and drift gillnet gear. The first four periods will be alternated between the gear groups, and if after a total of four openings the total harvest from either gear group is less than 50 percent of the other gear group then the department does not have to provide alternate openings. For drift gillnet permit holders, up to 50 fathoms of gear can be fished with no more than 150 fathoms on board, for set gillnet users 25 fathoms can be fished. In addition, the requirement for the offshore end being no further then 200 feet from shore, has been removed. All set gillnet gear will have to be removed from the water at the end of each period, the distance between set gillnet gear is 150 feet, same as in the NRSHA. Set nets must be fished in substantially a straight line and the regulations will be available before the season. The area open will be the same, defined by regulatory markers approximately 1.5 miles upstream of the confluence of the Alagnak River to the regulatory markers on the downstream side of South Slough. Periods will begin when sockeye become abundant in late June early July, with fishing time beginning on the flood to sometime after high water. Period lengths will be adjusted as the season progresses. Permit holders interested in the fishery must be registered at the time of fishing in the Naknek/Kvichak District.

EGEGIK DISTRICT

A forecasted run of approximately 9.3 million sockeye salmon is expected for the Egegik River in 2006. The BEG range is 800 thousand to 1.4 million sockeye with a mid-point objective of 1.1 million. The expected surplus for harvest is approximately 8.2 million fish. Approximately 38% of the run is expected to be age-2.2, followed by age-1.2 (29%), age-2.3 (24%), and age-1.3 (8%) fish.

The proportion of the sockeye salmon harvest between set gillnets and drift gillnets in 2005 was approximately 18% and 82%, respectively; 4% off the percentages specified in the sockeye salmon allocation plan. In 2006 separate gear openings and extensions are tools that will be used to adjust harvest to attempt to achieve the specified allocation percentages. At the January 2001 BOF meeting, the Board adopted a regulation that directs the department to avoid, "to the extent practicable", continuous fishing with set gillnet gear in the Egegik District. Therefore, set gillnet fishers in Egegik should expect breaks in fishing.

With a weak run predicted for the Kvichak River, fishing in the Egegik District will start in the Egegik River Special Harvest Area (ERSHA). The emergency order period starts on Thursday, June 1, and like the last seven years, a 3-day per week fishing schedule will be in effect through June 16. By emergency order, commercial fishing in the Egegik District will be allowed from 9:00 a.m. Monday to 9:00 a.m. Wednesday and from 9:00 a.m. Thursday to 9:00 a.m. Friday. This schedule will be in effect starting, 12:00 a.m. Thursday, June 1, and run through 9:00 a.m. Friday, June 16.

After June 16, fishing will be scheduled according to sockeye salmon run strength. With another large run predicted, substantial fishing time is likely to occur after June 16. Fishers should take note that some commercial openings could be announced with short notice. Periods may also be adjusted to allocate catches between drift and set gear groups.

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The 2002 parent-year escapement data for coho salmon was collected using aerial surveys, and produced an index count of 7,050 coho salmon, which was 56% above the 1997-2002 average. The commercial harvest in 2002 was 7,500 fish, or 80% below the recent 20-year average of 37,700. Management of the fall coho salmon fishery will be based on fishery performance.

District test fishing for inseason management may be conducted periodically depending on run characteristics. Fishers interested in test fishing in the Egegik District should contact Paul Salomone by calling (907) 267-2229 or 246-3341.

UGASHIK DISTRICT

The forecasted Ugashik sockeye salmon run is 3.34 million fish. With an escapement goal range of 500 thousand to 1.2 million (mid-range objective of 850 thousand), approximately 2.5 million sockeye salmon are potentially available for harvest. Approximately 40% of the run are expected to be age-1.2 fish, 31 % age-1.3, 21% age-2.2, and 8% age-2.3.

The proportion of the sockeye salmon harvest between set gillnets and drift gillnets in 2005 was approximately 13% and 87%, respectively; 3% off the percentages specified in the Ugashik District allocation plan. Separate gear openings and extensions were used to adjust sockeye salmon harvests between gear types; these management actions will be used again this season.

The emergency order (EO) period begins Thursday, June 1. The fishing schedule will be from 9:00 a.m. Monday to 9:00 a.m. Friday starting at 12:00 a.m. Thursday, June 1 and running through 12:00 a.m. Friday June 16. With an expected Kvichak River sockeye salmon exploitation rate of less than 40%, no more than 48 hours of fishing is allowed between June 16 and June 23. The fishing times for this period will be as follows: Monday, June 19, 3:30 a.m. to 3:30 p.m., 12 hours; Tuesday, June 20, 4:30 a.m. to 4:30 p.m., 12-hours; Wednesday, June 21, 5:00 a.m. to 5:00 p.m., 12 hours, and Thursday, June 22, 5:30 a.m. to 5:30 p.m., 12 hours. After June 23, EO fishing periods will be scheduled based on sockeye salmon run strength. Also, through June 28 Ugashik District boundaries will be changed according to 5AAC 06.366 (f) (2). Inriver test fishing will likely begin around June 22. The Ugashik counting towers will be deployed in late June.

Parent-year coho salmon escapement, observed from one aerial survey conducted on September 27, 2001, was estimated at 4,540 coho salmon in selected areas, which was about have the average count for the last ten years. The commercial harvest of 460 coho salmon in 2002 was well below the 20-year average harvest of 25,000. Recent effort levels for the commercial coho salmon fishery have been low, and another small harvest is expected for 2006. Management of the fall coho salmon fishery will be based on fishery performance.

Area T permit holders who fish Cinder River and Port Heiden Sections prior to July 1and deliver their catch in Ugashik District are reminded to report the section of catch on the appropriate fish tickets. Only Inner Port Heiden Section and Cinder River Lagoon have fishing periods available to Area T permit holders in June; outside waters of Cinder River Section are open after August 1. There is a closed waters area southwest of Cape Menshikof as defined by 5 AAC 09.350 (1). Fishers interested in test fishing in Ugashik District should contact Paul Salomone at (907) 267-2229 or 246-3341.

NUSHAGAK DISTRICT

The variable escapement goal adopted for the Nushagak River is contained in the Wood River Special Harvest Area (WRSHA) Management Plan. This plan directs the department to achieve sockeye salmon escapements within the BEG range of 340 thousand to 760 thousand when the preseason forecast is greater than 1 million fish. If the preseason forecast is below 1 million fish, then an OEG minimum of 235 thousand sockeye salmon is in effect when the ratio of Wood River to Nushagak River sockeye salmon is projected to exceed 3:1. The first week of July, the department assesses Nushagak River sockeye salmon run strength through July 1 and adjusts the escapement goal based on that assessment. If the forecasted sockeye salmon runs to the Wood and Nushagak Rivers for 2006, 4.67 million and 2.01 million respectively, materialize, the department projects little if any fishing time in the WRSHA.

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The Nushagak District Commercial Set and Drift Gillnet Sockeye Salmon Fisheries Management and Allocation Plan remains in effect. The allocation plan specifies that 74% of the sockeye salmon harvest in the Nushagak District is to be taken by drift gillnets with the remaining 26% divided geographically between the Nushagak Section set gillnets (20%) and Igushik Section set gillnets (6%). Sockeye salmon taken in the WRSHA are counted separately, but have the same allocation ratio of 74% drift and 26% set gillnet. To attain the specified allocation percentages between gear types, differential fishing time and/or single gear group openings are likely as is primarily ebb fishing for the drift fleet. The calculation period for the sockeye salmon allocation plan ends July 17. No management action directed at allocation will occur after July 17; both gear types will then fish concurrently. The department will attempt to achieve the specified allocation percentages, but achievement of escapement goals and harvest of surplus fish are the primary objectives.

The 2006 forecast for Chinook salmon returning to the Nushagak River is 221 thousand fish (86% age-1.3 and older). Nushagak River Chinook salmon are managed according to the Nushagak/Mulchatna Chinook Salmon Management Plan. This plan directs the commercial fishery to be managed for an inriver goal of 75 thousand Chinook salmon, while the sport fishery is to be managed for a guideline harvest of 5 thousand fish, if the projected inriver escapement is between 65 thousand and 75 thousand fish. Based on the preseason forecast and the inriver goal, 141 thousand Chinook salmon should be available for commercial harvest. A portion of this surplus may be taken in the subsistence fishery (8 thousand to 12 thousand Chinook salmon taken on Dillingham beaches), but there should be ample fish available for directed Chinook openings in 2006. Permit holders should expect the first directed Chinook opening on June 1. Subsequent openings will follow on June 4, June 6, June 8 and June 11. After June 11 we expect to have openings on June 13, June 15 and June 18. The duration of these openings will be based on escapement information, fleet size, and harvest and will not occur if escapement is below historical levels. Nushagak escapement enumeration should begin on June 8 or 9. Openings will be announced as usual, locally on marine VHF channel 7 and broadcast on local radio stations. We will strive to provide 24 hours notice for all directed Chinook openings. For all directed Chinook openings, the Nushagak District will be open to the Chinook line the BOF instituted in 2003 and mesh size will be restricted to 7.5 inches or larger. Permit holders are reminded that either gear type can be closed if the harvest ratio of sockeye to Chinook exceeds 2:1.

The 2006 forecasted run of sockeye salmon for the Nushagak District is 7.52 million fish with distribution by river as follows: Wood River at 4.67 million with a 1.1 million midpoint goal, leaving 3.57 million available for harvest; Igushik River at 840 thousand with a 225 thousand midpoint goal, leaving 615 thousand available for harvest; and the Nushagak River at 2.01 million with the BEG midpoint goal of 550 thousand, leaving 1.46 million available for harvest. Approximately 32% of the forecasted run is age-1.2 sockeye salmon, 1% age-2.2, 60% age-1.3, and 3% age-2.3 fish. Projected harvest for the Nushagak District is 5.65 million sockeye salmon.

Management strategies for 2006 include: 1) multiple directed Chinook salmon openings beginning June 1, 2) Igushik Section sockeye salmon openings are likely beginning in the third week of June and will likely be set gillnet only until escapement dictates otherwise, and 3) although WRSHA openings are not out of the question, fishing should begin in the district in late June with short openings. The management strategy for 2006 is to harvest surplus Chinook salmon prior to large numbers of sockeye arriving to allow early Nushagak sockeye to pass through the district into the river. District openings will be scheduled based on sockeye salmon escapement levels in the Nushagak and Wood Rivers. If the Nushagak sockeye salmon escapement falls below the expected 340 thousand fish curve, then a strong movement of sockeye salmon into the Wood River will precipitate openings in the WRSHA. Commercial openings in the district would follow as allowed by escapement levels in the Nushagak River.

Igushik River sockeye salmon will be managed independently of the Nushagak/Wood sockeye salmon stocks. Subsistence harvest information from Igushik Beach will be our initial indicator of sockeye salmon entry into the Igushik River. When subsistence information indicates increased passage of sockeye salmon into the river, fishing periods for set gillnets will be announced. Drift gillnet openings (8 – 12 hours daily) in the Igushik Section will be added as needed to control sockeye salmon escapement. Igushik sockeye salmon returns can be quite variable relative to forecasted run strength as was the case in 2004. Management will incorporate a readiness to respond with early set gillnet openings, and an attempt to maintain the 6% sockeye harvest allocated to the Igushik Section set gillnet permit holders by only adding drift gillnet openings as needed. If escapement falls below what is necessary to meet the minimum escapement goal of 150 thousand, the department may reduce fishing area in the Nushagak Section to protect Igushik River sockeye.

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In 2006, the coho salmon run to the Nushagak River is expected to be good. The majority of coho salmon that will return in 2006 were produced from 52 thousand spawners in 2002. The parent-year spawning escapement was half the inriver goal of 100 thousand coho salmon, but there was a strong push of escapement after the sonar counters ceased operation so there was probably significantly more spawners than what was documented by the sonar counters. At this time the sonar project is not budgeted to be in operation after July 20, so commercial openings will be announced based on market availability, and indications of run strength from subsistence harvests. It is likely that we will have a conservative weekly schedule of 24-36 hours per week beginning in late July.

TOGIAK DISTRICT

Commercial fisheries in the Togiak District are managed under the Togiak District Salmon Management Plan (TDSMP), which was adopted by the Alaska Board of Fisheries in January 1996. The plan restricts permit holders from fishing in the Togiak District until July 24, if they have fished in any other district in Bristol Bay, and conversely, restricts permit holders from fishing in any other district until July 24, if they have fished in the Togiak District. It also increases the weekly fishing schedule between July 1 and July 16, and restricts mesh size to 5 ½ inches or smaller between June 15 and July 15 for conservation of Chinook salmon.

Chinook salmon run strength in the Togiak River declined between 1994 and 1997, from a total run of 26 thousand fish in 1994 down to 18 thousand fish in 1997. For the last five years of complete surveys, escapement estimates have averaged over 11,300 Chinook salmon and have all exceeded 9,500, within 5% of the 10,000 fish escapement goal. Adequate yearly Chinook escapement can be attributed to reductions in the weekly fishing schedule during late June. Based on the anticipated Chinook run strength, reduction in the weekly fishing schedule is again likely for the 2006 season. These reductions will likely limit commercial fishing to not more than 72 hours of fishing time during each of the last two weeks of June.

The 2006 inshore run of sockeye salmon to the Togiak River is forecasted at 590 thousand fish. With a mid range escapement goal of 150 thousand sockeye salmon past the towers into Togiak Lake, approximately 440 thousand sockeye salmon will be potentially available for commercial harvest. Approximately 22% of the run is expected to be 2-ocean fish and 78% is expected to be 3-ocean fish. The increased weekly fishing schedule in early July, specified in the TDSMP, will likely be utilized for the harvest of sockeye salmon. However, escapement will be monitored with consideration for run timing to assure achievement of the desired escapement goal range.

Coho salmon returns are not formally forecasted in the Togiak District due to lack of sufficient age class information and accurate escapement data. It is difficult to predict the strength of the 2006 run of coho salmon to the Togiak District because information on parent-year escapement in 2002 is unavailable. If a market for coho is present, a very conservative harvest strategy will be utilized due to the lack of information about the returning coho salmon run.

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Table 1.–Spawning escapement goals, and expected harvests of sockeye salmon returning to Bristol Bay River systems in 2006.

Millions of Sockeye Salmon							
	Forecasted Production by Age Class						
District: River	1.2	2.2	1.3	2.3	**Total**	Spawning **Goal**	**Total Harvest**
NAKNEK-KVICHAK:							
Kvichak	0.78	0.42	0.50	0.24	1.94	1.94	0.00
Alagnak	0.84	0.26	1.64	0.12	2.86	2.00	0.86
Naknek	0.61	0.79	5.02	0.76	7.18	1.10	6.08
Total	**2.23**	**1.47**	**7.16**	**1.12**	**11.98**	**5.04**	**6.94**
EGEGIK	**2.72**	**3.57**	**0.74**	**2.27**	**9.30**	**1.10**	**8.20**
UGASHIK	**1.35**	**0.70**	**1.02**	**0.27**	**3.34**	**0.85**	**2.49**
NUSHAGAK							
Wood	2.05	0.04	2.47	0.11	4.67	1.10	3.57
Igushik	0.14	0.02	0.62	0.06	0.84	0.22	0.62
Nushagak	0.28	0.02	1.39	0.03	2.01	0.55	1.46
Total	**2.47**	**0.08**	**4.48**	**0.20**	**7.52**	**1.87**	**5.65**
TOGIAK	**0.09**	**0.04**	**0.36**	**0.10**	**0.59**	**0.15**	**0.44**
BRISTOL BAY	**8.86**	**5.86**	**13.76**	**3.96**	**32.73**	**9.01**	**23.72**

APPENDIX D. 2006 TOGIAK HERRING OUTLOOK

Appendix D1.–2006 Togiak Herring Fishery Information.

Alaska Department of Fish and Game

Commercial Fisheries News Release

McKie Campbell, Commissioner

Division of Commercial Fisheries

Denby Lloyd, Director

February 2, 2006

Contact: Tim Sands, Area Mgmt. Biologist
Division of Commercial Fisheries
Phone: (907) 842-5227

2006 Togiak Herring Outlook
Issued at Dillingham, Alaska

2006 Togiak Herring Fishery Information

This notice is intended to provide information to participants in the 2006 Togiak herring fisheries. The 2006 herring biomass in Togiak District is forecasted to be 129,976 tons, a significant increase from 2005. The 2006 forecast is based on an age-structured-analysis (ASA) model, used for Togiak since 1993. Ages -9 and -10 herring are expected to comprise 68% of the projected biomass (Figure 1), with age 8 making up another 15% of the biomass. Average weight for age -7 and older herring should exceed 300 grams. The forecasted overall average weight of the harvested biomass is 347 grams.

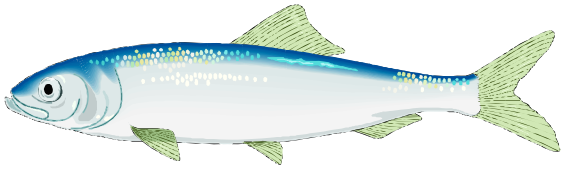
The Bristol Bay Herring Management Plan (BBHMP) (**5 AAC 27.865**) sets a maximum 20% exploitation rate for the Togiak District stock. Based on a forecasted run of 129,976 tons, up to 25,995 tons will be available for harvest in 2006. Harvest allocation, in accordance with the BBHMP will be:

Spawn-on-Kelp	1,500 tons
Dutch Harbor Food and Bait	1,715 tons
Togiak Sac Roe	22,780 tons
Purse Seine (70%)	15,946 tons
Gillnet (30%)	6,834 tons

Regulatory Changes for 2006

The Alaska Board of Fisheries made two changes to the Togiak sac-roe fishery management plan at the meeting in December of 2003. The first change allows the allocations to be uncoupled after each gear group has harvested 80% of its allocation. This may prevent one gear group from being shut down because the other gear group can't harvest its entire quota, as happened to the gillnet fleet in 2002 and the seine fleet in 2004. The other change allows as much as 50% of the unharvested spawn-on-kelp allocation to be reallocated to the sac-roe fishery. This reallocation would happen only after all spawn-on-kelp harvest was complete or if no market is available for spawn-on-kelp product.

Sac Roe Fishery



Management strategies for Togiak fisheries are designed to provide for maximum sustained yield, while affording the greatest economic benefit to fishermen and processors. In 2006, sac roe fisheries will again be managed to maximize product quality

by having long openings so permit holders can make smaller sets and harvest the best fish available. Processors will also have more flexibility to control harvest volume so holding time between harvest and processing is optimal. Available processing capacity will be assessed as companies register for the 2006 season. Daily freezing capacity is expected to be less than last year's capacity. Multiple openings will occur to achieve harvest guidelines and mature roe quality will be maximized through volunteer test fisheries. The department will attempt to maximize overall production from the Togiak sac roe fishery by providing ample opportunity to harvest fish.

Waste resulting from the fisheries will be closely monitored. All participants should secure a market prior to fishing, and verify the quality of the fish they are targeting.

Purse Seine

In recent years the seine fleet has operated in conjunction with the processing industry in cooperative groups. This is likely to be the case again in 2006, therefore fishing time and area will be very liberal, thus allowing purse seine vessels to locate high quality herring, and allowing each cooperative to fill their company's daily processing capacity. This approach should result in fresher, higher quality roe, thereby maximizing product quality and value.

Roe maturity will be used to determine fishing area boundaries. The department will monitor roe maturity on the grounds through extensive test fishing efforts, with the help of volunteer test fishing vessels and processors. Areas considered for a purse seine opening would be those areas with high quality herring documented by the test fishery. Permit holders and industry will be kept informed of the areas being considered for an opening through VHF announcements, and subsequent test fishing may be limited to areas under consideration to minimize travel time and advance notice needs.

ADF&G Operations 2006

Beginning April 17, current fishery information will be available by calling the telephone recorder in Dillingham at **(907) 842-5226**. Recordings will be updated regularly throughout the season, as information becomes available.

The department will conduct regular aerial surveys of Togiak District beginning about April 15, weather permitting. Once fish are observed, the department will base operations from the field office at the Togiak Fisheries Inc. (TFI) shore plant.

The department will monitor marine **VHF channel 7** from Togiak. Fishing announcements and regular fishery updates will be broadcast over this channel and **2509 MHz. SSB**. Reports will be broadcast from Togiak each evening at 6:30 p.m., and at other times as needed. Catch and opening information will be available with some delay at the C.F. website:

http://www.cf.adfg.state.ak.us/

Gillnet

Management of the gillnet fishery will be similar to past years. Ample fishing time and area will be allowed to attempt to take the entire harvest guideline of 6,834 tons, while maintaining the specified 70/30-purse seine/gillnet ratio. Product quality will be a priority throughout the gillnet fishery.

Since 1993, the herring gillnet fishery has been concentrated primarily east of Right Hand Point. This is a direct result of the focus of the test fishery, and the lack of information on roe quality outside the traditional gillnet fishing area. In 1998, department managers made an effort to work with the fleet to sample the biomass and conduct a portion of the fishery in areas west of Right Hand Point. This change was only partially successful that year because of the unusual entry pattern of the herring and lack of residual biomass in the areas west of Right Hand Point.

In 2006, the department will continue attempts to expand the area for gillnet fishing. This will require an active participation from the gillnet fleet to provide test fishing samples from areas west of Right Hand Point. Fishery managers will work with permit holders and industry to increase participation in the test fisheries. Managers will give full consideration for adequate test fishing and travel time to gillnet test fish vessels willing to collect samples in areas west of Right Hand Point. If these samples produce high quality roe, the area for gillnet fishing will be expanded. By testing the biomass outside of the traditional area, managers hope to ease congestion problems and increase product quality.

With decreased participation in the gillnet fishery it will be increasingly important for the gillnet fleet to use all open areas for fishing and for the gillnet fleet to participate in test fishing activities so areas can be opened.

Test Fish Guidelines

Gillnet and Purse Seine

- Verbal approval to test fish must be obtained from ADF&G in Togiak prior to any test fishing activity. Department representatives will assign an area to each test fish volunteer, and a starting and ending time. Approval to test fish is limited to the area and time frame assigned.

- The department representative, upon contact, will assign number of test sets and number of samples per set. Number of sets typically ranges from one to three sets per vessel. Number of samples per set typically ranges from one to two for gillnet sets, and up to four for purse seine sets.

- Samples should weigh approximately 10 to 15kg (25 to 30 lbs), and be placed in a container (trash bag or bucket) labeled with set location, vessel name, time of set and, for gillnets, mesh size.

Spawn-on-Kelp Fishery

This fishery is restricted to individuals that hold a valid limited entry or interim-use permit. Only permit holders are permitted to pick or rake kelp, place the kelp in containers, transport containers, operate skiffs, or perform any other duties associated with the fishery while the fishery is open. At the time the fishery closes, all harvested roe-on-kelp must be in containers. ***Any crewmember participation is limited to after the closure***; after the closure, crewmembers may assist permit holders in transporting containers and operating skiffs. Crewmembers assisting permit holders must possess a valid 2006 crewmember license or other limited entry permit.

The 2006 spawn-on-kelp fishery will be regulated similar to recent year's fisheries. The maximum guideline harvest of 175 tons (350,000 lbs.) remains unchanged. If sufficient spawning is observed throughout the district, a harvest of spawn-on-kelp will be allowed in areas with sufficient spawn deposition and plant cover. If time and weather permit, a public meeting will be held before a harvest is announced, to evaluate product samples from the kelp areas. The time and location of the meeting will be announced on marine VHF 7, with as much notice as possible.

Table 1. Togiak herring fishery dates, hours, and effort, 1984-2005.

Year	Fishery Duration	No. of Openings	No of Hours	Effort (Boats)
Gillnet				
1984	5/18-5/21	4	35	300
1985	5/23-5/25	2	11	302
1986	5/14-5/15	2	10	209
1987	4/27-5/6	5	36	148
1988	17-May	1	4	300
1989	5/9-5/14	2	5	320
1990	5/8-5/20	6	66	277
1991	5/10-5/11	2	14	170
1992	5/20-5/27	6	25.5	274
1993	4/29-5/9	9	144.5	75
1994	5/11-5/20	5	76	146
1995	5/7-5/10	4	33.5	250
1996	5/3-5/6	5	18	461
1997	5/3-5/6	6	24	336
1998	4/29-5/10	8	46	152
1999	5/18-5/26	5	28	171
2000	5/7-5/16	7	67	227
2001	5/6-5/13	8	84	143
2002	5/4-5/13	10	102	81
2003	4/25-5/06	13	142	76
2004	4/30-5/09	10	162	54
2005	4/30-5/08	9	149	57
Purse Seine				
1984	5/3-5/11	4	11	196
1985	5/18-5/21	2	3	155
1986	5/23-5/25	2	1	209
1987	15-May	5	5.5	111
1988	4/27-5/6	1	0.5	239
1989	17-May	2	3	310
1990	5/12-5/13	1	3	221
1991	5/9-5/14	2	3	200
1992	5/10-5/17	1	0.3	301
1993	20-May	2	33.8	140
1994	4/27-5/5	1	4.6	240
1995	5/11-5/18	17	12.2	254
1996	5/5-5/8	5	2.3	268
1997	5/2-5/6	7	6.4	231
1998	4/29-5/10	12	16.5	123
1999	5/18-5/25	9	5.2	96
2000	5/6-5/14	13	15.75	93
2001	5/6-5/13	13	26	80
2002	5/3-5/13	15	57.5	37
2003	4/26-5/07	12	110.17	35
2004	4/29-5/09	12	78	31
2005	4/30-5/06	7	83	34

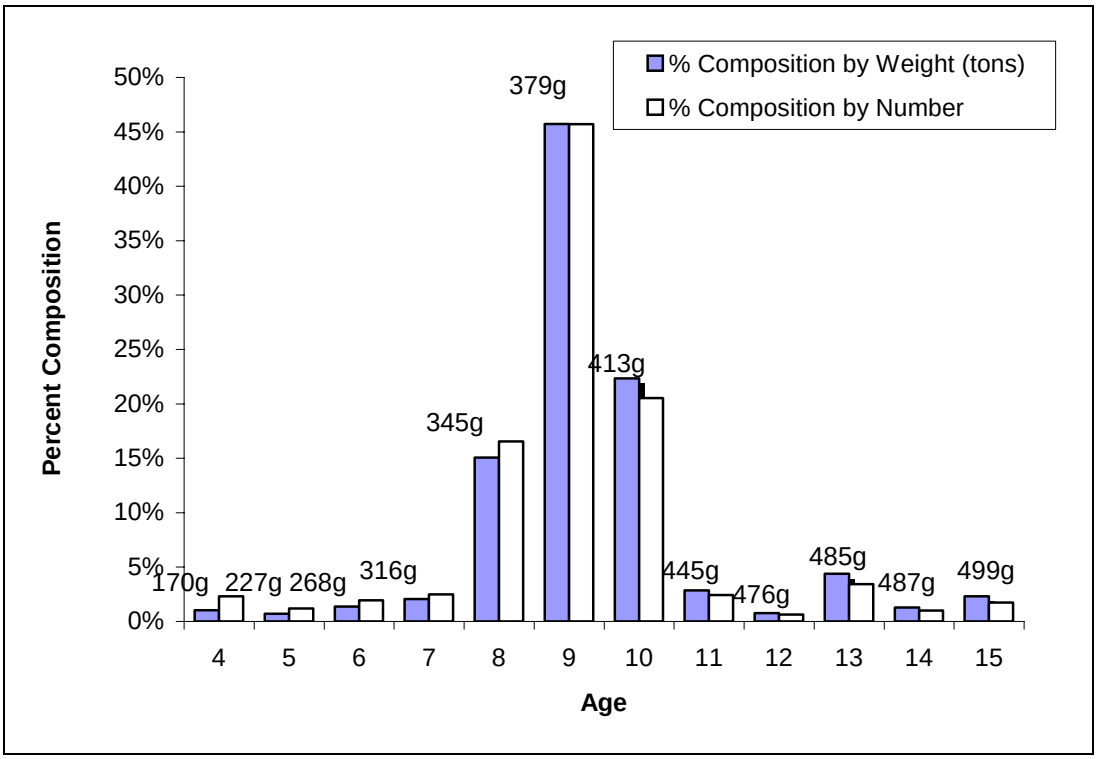


Figure 1. Forecasted age composition by weight and number for the 2006 Togiak herring return. Forecasted average weight (grams) by age is also presented.