Fishery Management Report No. 09-30

2008 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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The Fishery Management Reports series was established in 1989 by the Division of Sport Fish for the publication of an overview of management activities and goals in a specific geographic area, and became a joint divisional series in 2004 with the Division of Commercial Fisheries. 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 2008 Bristol Bay Management Report is the 47th 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 2008. 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 Matt Jones, Westside Assistant Area Management Biologist, 546 Kenny Wren Rd, Dillingham AK, 99576.

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 9 major river systems: Naknek, Kvichak, Alagnak, 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 fishery as well. The Bristol Bay area is divided into 5 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.

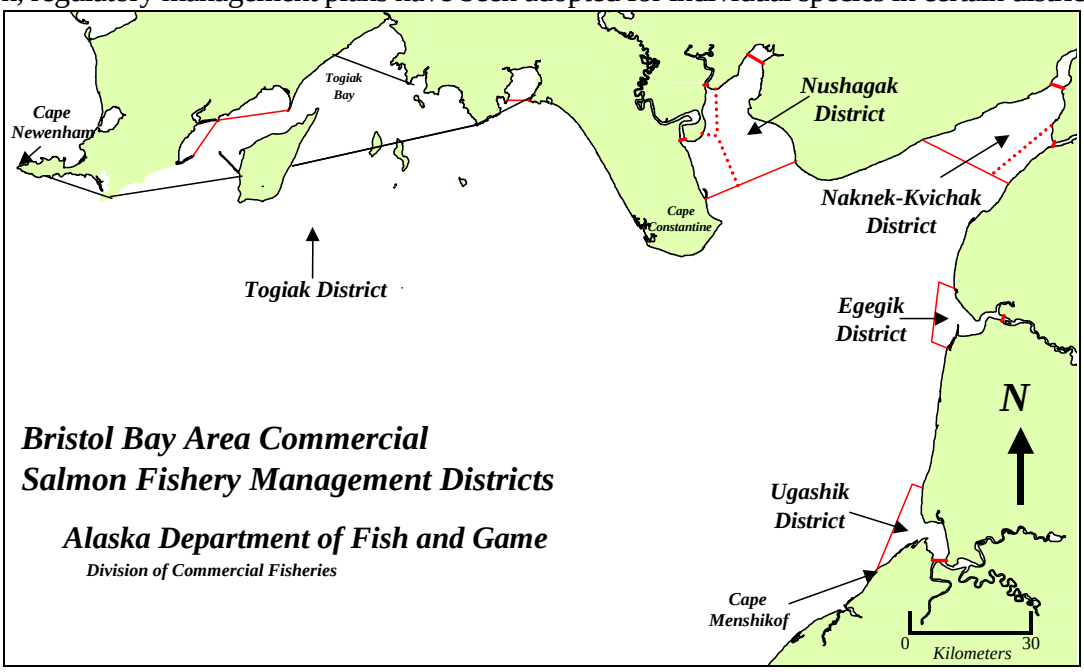

Figure 1.–Bristol Bay area commercial fisheries salmon management districts.

OVERVIEW OF BRISTOL BAY SALMON FISHERIES

The 5 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 (1988–2007) average nearly 24.95 million sockeye salmon, 66,000 Chinook, 957,000 chum, 98,000 coho, and 231,000 (even-years only) pink salmon (Appendices A3–A7). Since 1988, the value of the commercial salmon harvest in Bristol Bay has averaged $124.80 million, with sockeye salmon being the most valuable, worth an average $122.37 million (Appendix A25). Subsistence catches are comprised primarily of sockeye salmon and average approximately 144,000 salmon (Appendix A27). Sport fisheries harvest all species of salmon, with most effort directed toward Chinook and coho stocks.

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 2 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 are the most numerous at 1,863 in Bristol Bay (Area T), and of those, 1,636 fished in 2008. There are a total of 981 set gillnet permits in Bristol Bay, and of those, 835 fished in 2008 (Appendix A2).

2008 COMMERCIAL SALMON FISHERY

RUN STRENGTH INDICATORS

Fishery managers in Bristol Bay have several early indicators of sockeye salmon 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 2008 was forecast to be approximately 40.29 million (Table 1). The Bristol Bay sockeye salmon harvest was predicted to reach nearly 31.35 million fish. Runs were expected to meet spawning escapement goals for all river systems in Bristol Bay.

The forecast for the sockeye salmon run to Bristol Bay in 2008 was the sum of individual predictions for 9 river systems (Kvichak, Alagnak, Naknek, Egegik, Ugashik, Wood, Igushik, Nushagak-Mulchatna, and Togiak) and 4 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 1976–2004 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 and recent 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 2005 through 2007.

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 salmon 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 AM to 10:00 PM 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) 2 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.

Preliminary catch information for 2008 indicates that the Shumagin Island fishery landed 650,000 sockeye salmon, and the South Unimak fishery landed 1.06 million sockeye salmon (Appendix A26). The South Unimak sockeye salmon harvest was 74% above the 10-year average and the chum catch was 80% above the 10-year average. In the Shumagin Island fishery, the sockeye salmon catch was 59% higher than the 10-year average and the chum harvest was 24% lower than the 10-year average. This translates to an overall sockeye salmon harvest that was 77% higher than the 10-year average and a chum harvest that was 27% higher 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 2004–2008, the FRI contribution to the project was replaced by the Bristol Bay Science and Research Institute (BBSRI), which operated the project and performed the bulk of daily inseason analysis.

GENETICS

Over the last 10 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; and 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 continued in 2008. 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 (e.g. timing of airline flights, weather on the fishing grounds, etc.). The travel time for fish from Port Moller to Bristol Bay is approximately 7 days depending on several factors (e.g. water temperature, wind, etc). Therefore, results from genetic sampling should be available before those fish reach the fishing districts of Bristol Bay. 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 2008, the exvessel value of the inshore commercial salmon harvest was estimated at $111.92 million. The 1998 to 2007 average exvessel value of Bristol Bay commercial salmon fisheries was $78.74 million (Appendix A25).

During the 2008 season, 10 companies canned, 28 companies froze, and 3 companies cured salmon in Bristol Bay (Table 25). In addition, 29 companies exported fish by air (Table 25). A total of 39 processors/buyers reported that they processed fish from Bristol Bay in 2008.

RUN AND HARVEST PERFORMANCE BY SPECIES

The combined commercial salmon harvest in Bristol Bay totaled approximately 29.42 million fish in 2008, exceeding the 20-year average of 26.26 million salmon (Appendix A8).

Similar to 2007, spring weather conditions in 2008 were cold through early May, delaying break-up more than recent years. The herring fishery occurred later than average in 2008 due to the colder and later spring. Management suspected that the longer winter might lead to delayed salmon run timing and potentially produce a more compressed run. However, run timing was mixed, with some runs occurring earlier than recent year averages (Egegik and Ugashik). Salmon runs were more compressed than recent year averages in 2008.

Sockeye Salmon

The 2008 inshore sockeye salmon run of approximately 40.45 million fish was nearly equal to the preseason forecast of 40.29 million (Tables 1 and 4). Actual runs were above forecast in all districts except the Ugashik and Nushagak Districts.

Sockeye salmon dominated the inshore commercial harvest, totaling 27.70 million fish (Table 18). Sockeye salmon 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 2.18 million and a total inshore run of approximately 5.90 million sockeye salmon (Table 4).

Chinook Salmon

Chinook salmon harvests in 2008 were below the recent 20-year averages in all districts. The 2008 bay-wide commercial harvest of 24,616 Chinook was well below the 20-year average of 66,000. The small harvest was most dramatic in the Nushagak District, where the harvest was 18,634 of an expected harvest of 85,000 Chinook salmon (Appendix A4).

Chum Salmon

In 2008, the commercial harvest of approximately 1.30 million chum salmon was 36% more than the 20-year average of 957,000. Chum salmon catches were above 20-year averages in all districts (Appendix A5).

Pink Salmon

Bristol Bay has a dominant even-year pink salmon cycle. The 2008 fishing season resulted in the largest harvest since 1992. The total harvest of 277,951 was 20% above the 20-year average and over 6 times the recent 10-year average (Appendix A6).

Coho Salmon

The 2008 bay-wide coho salmon commercial harvest of 114,089 was the largest harvest since 2000 and nearly double the recent 10-year average of 62,000 (Appendix A7).

SEASON SUMMARY BY DISTRICT

Naknek/Kvichak District

The 2008 forecast for the Naknek/Kvichak District projected a total run of 14.65 million sockeye salmon with 4.96 million for escapement and 9.68 million to harvest (Table 1). The forecast by river system was 3.56 million to the Kvichak River, 3.32 million expected return to the Alagnak River, and 7.78 million for the Naknek River (Table 2). The escapement goals by river system are as follows: minimum 2.00 million for the Kvichak River, minimum 320,000 for the Alagnak River and a range of 800,000 to 1.40 million for the Naknek River (Table 1). The total inshore return to the district for 2008 was approximately 17.80 million sockeye salmon (Appendix A11). The commercial catch totaled more than 10.39 million sockeye salmon (Table 9). For the first time since 1995, the Naknek River Special Harvest Area (NRSHA) was not open for any portion of the season.

The runs of Chinook salmon to Bristol Bay are many, however, the Nushagak River is the only system large enough to justify producing a forecast. The department does not forecast Chinook, chum, coho, or pink salmon for systems in the Naknek/Kvichak District. The commercial harvest of Chinook salmon has remained relatively insignificant due to the current mesh size restrictions that have been implemented since the early-90s. Mesh restrictions are set by "Emergency Order" (E.O.) and prohibit gillnets with a mesh size larger than 5.5 inches until July 21 (Table 7).

For the commercial fishery to begin in the Naknek/Kvichak District, the sockeye salmon forecast for the Kvichak River system must exceed 30% of the minimum sustainable escapement goal

(SEG). When the forecast falls below that level, fishing will begin in the special harvest areas of the Naknek, Egegik and Ugashik Rivers (5 AAC 06.360 (h)). Based on the 2008 sockeye salmon forecast for the Kvichak River, these restrictions were not implemented on June 2. However, the drift gillnet fleet was restricted to the Naknek Section when the fishery opened and the set gillnet fleet was allowed to fish the whole district. Fishing time during the first 3 weeks of June was from 9:00 AM Monday to 9:00 AM Friday, beginning 9:00 AM Monday, June 2 and ending 9:00 AM Friday, June 20.

The district opened on June 2. However, the first recorded delivery wasn't until June 16 and there was little interest for the rest of the week (Table 9). There were less than 7,000 sockeye salmon harvested from June 2 to the closure at 9:00 AM Friday, June 20. The department began test fishing in the Naknek Section on June 21 and very few fish were located. The test boat went out on June 22 with similar results. However, by June 24, fish were beginning to show up in different areas of the Naknek Section (Table 5).

The escapement monitoring projects, i.e., towers for the Naknek, Kvichak, and Alagnak Rivers were all operational during the 2008 season. The Naknek River tower began counting on June 19, the Kvichak River on June 20, and the Alagnak River on June 22 (Table 19). For the fourth time since 1999, escapement objectives were met or exceeded in all 3 systems. Sockeye salmon passage was slow to begin due to the late break-up; through June 23 the Naknek River escapement was only 72 sockeye salmon of a projected escapement for the same time period of 12,000. On June 24, 40,548 sockeye salmon passed the Naknek tower (Table 19). Given the increase in escapement, the Naknek/Kvichak District opened at 5:30 AM on June 26 to set gillnet gear for an 8.5-hour period and the drift gillnet fishery opened in the Naknek Section beginning at 6:30 AM for 7.5 hours. Escapement into the Naknek River continued at an above expected rate while in the Kvichak and Alagnak Rivers escapement was far less than desired. Through June 25, only 282 sockeye salmon had passed the Kvichak tower (Table 19); the historical cumulative for the same time period is 7,200. In the Alagnak River few fish had been observed.

Commercial fishing continued on June 27 and 28 for one tide each day in the same area as the June 26 period. Harvests from these 2 periods were 76,938 and 183,455, respectively (Table 9). Escapement to the Naknek River continued at a steady rate, allowing for additional fishing time on June 29th when the set gillnet fishing period was extended an additional 24.5 hours, closing at 4:00 PM Monday, June 30. During the same time period, the drift gillnet fleet was allowed to fish two 7-hour periods. Escapement to the Kvichak and Alagnak Rivers did not mirror the strong Naknek River escapement at this time. Through 6:00 AM Saturday, June 28, only 2,500 sockeye salmon had passed the tower on the Kvichak River and even fewer had passed the Alagnak tower. The Levelock inside test fish project which observes escapement into the lower Kvichak River up to 2 days before they reach the tower had caught only 2 fish from their 8 drifts on June 27 (Table 22). Based on the current escapement to the Kvichak River and the projected inriver estimate from the inriver test fishery, it appeared that a special harvest area fishery was imminent. To keep the district open, the Kvichak River escapement must remain more than one day ahead of the cumulative escapement goal curve, which meant the escapement past the tower would need to be at least 60,000 sockeye salmon by July 1 and climb to nearly 100,000 on July 2. However, there was some positive information for the Kvichak River coming from the results of the genetic stock composition tests from the fish caught in the Port Moller test fishery. Stock composition estimates from Port Moller samples collected June 14–17 indicated that 13% of the samples were of Kvichak origin, June 18-19 samples were 18%, June 20–21 were 18%, and the June 22–23 were 14 % Kvichak origin fish.

Sockeye salmon escapement into the Naknek River continued at a rate far above projected levels with 238,968 on June 29 and 67,056 on June 30 (Table 19). Harvest in the Naknek/Kvichak District remained strong through June 30, bringing the cumulative harvest to 1.13 million sockeye salmon, while the cumulative escapement for all 3 river systems was 487,842. By July 1, the catch allocation was 77% drift gillnet and 23% set gillnet. The Naknek/Kvichak management plan allocates the commercial sockeye salmon harvest to attain an 84% drift gillnet and a 16% set gillnet harvest.

Catch rates continued to increase in the Naknek/Kvichak District with a harvest of 603,608 on July 1 nearly doubling the catch on June 30, and a harvest of approximately 1.04 million sockeye on July 2 (Table 9). To bring the allocation closer, the set gillnet fleet remained idle on the early morning tide of July 3. With these large catches, along with harvest from other districts, nearly all processors had their permit holders on limits or suspended buying fish altogether on July 3. With industry limiting catches in the Naknek/Kvichak District, the allocation plan was no longer a management concern. Restrictions by the industry remained in effect until after July 10, however, most limits were set high enough they had little effect on the fleet. Escapement rates remained above projected levels with more than 2.10 million sockeye salmon past the Naknek tower by July 10, 1.48 million past the Kvichak tower, and 945,504 by the Alagnak tower (Table 19). The department announced on Friday, July 11 that the inseason projected Kvichak River total run would be increased to 6.00 million up from the preseason forecast of 3.56 million. Based on the escapement goal plan for the Kvichak River, which is 50% of the run under 20.00 million, the department announced the new escapement target of 3.00 million sockeye salmon. Considering this goal, the department continued to keep the Kvichak Section closed to drift gillnet gear until 9:00 PM July 14. The district was open continuously to set gillnet gear and for some portion of every tide to drift gillnet gear until August 1. On August 4, the district went on the fall schedule of 9:00 AM Monday to 9:00 AM Friday until September 30, when it closed for the 2008 season.

The Naknek/Kvichak District total harvest was greater than 10.39 million sockeye salmon, the highest catch since 1995 (Appendix A11). The Chinook salmon harvest total was 1,326 (Appendix A4) which is approximately equal to the 10-year average of 1,000. The chum salmon harvest totaled 231,824 fish, which was above the 10-year average of 156,000 (Appendix A5). There was a reported commercial harvest of 6,213 coho salmon in the Naknek/Kvichak District (Appendix A7) and 18,407 pink salmon (Appendix A6).

Egegik District

The 2008 projected Egegik District harvest of 6.92 million sockeye salmon was 22% of the predicted total Bristol Bay harvest of 31.35 million (Table 1).

In 2008, the midpoint of the Egegik District sockeye salmon run was one day earlier than the most recent 20-year (1988–2007) average of July 4. With an inshore total more than 8.71 million sockeye salmon returning to the Egegik District, the 2008 run ranks 12th over the last 20 years (Appendix A18) and was approximately 8% above the forecast of 8.02 million (Table 1). Sockeye salmon runs to the Egegik District during the past 4 comparable cycle years, dating back to 1988, have ranged from 3.44 to 23.12 million fish with a 20-year average of 10.15 million (Appendix A18). The 2008 run was 14% below the 20-year average. The harvest of more than 7.45 million was the 11th largest commercial catch for the same 20-year period

(Appendix A13). The escapement of 1.26 million sockeye was within the SEG range of 800,000 to 1.40 million (Appendix A1).

Daily inriver test fishing, which provides estimates of sockeye salmon passage into the lower Egegik River, began on June 16 at the established sites just upstream of Wolverine Creek (Table 23). The Egegik River counting tower, which provides daily estimates of sockeye salmon passage into Becharof Lake, became operational at midnight on June 19 and finished the day with a passage estimate of 864 sockeye salmon.

The 2008 preseason projection for a Kvichak River run that would provide for the minimum escapement of 2.00 million sockeye salmon allowed commercial salmon fishing to begin in the full Egegik District. The district opened to commercial salmon fishing on June 1. Recently, fishing has been passively managed by use of a 3 day per week schedule early in the season. However, because the 2008 Bristol Bay run was expected to be large, the schedule was expanded to 4 days per week for the first 2 weeks of June (9:00 AM Monday to 9:00 AM Friday).

The 4 day per week schedule was in place until Friday, June 13, with the first landings occurring June 9 (Table 10). The total harvest during this period was 414 salmon. Management of the fishery switched to a tide by tide basis (active management) on June 14. Run assessment information indicated low abundance within the district which remained closed over the weekend of June 14–15.

After a 9-hour period on the morning tide of Monday, June 16, cumulative harvest was 4,840 sockeye salmon, a small harvest indicative of low abundance within the district. Management strategy was to allow fishing every other day for both gear groups while the run continued to develop. This strategy allowed permit holders an opportunity to fish early in the run while minimizing risk to escapement. At the same time, assessment continued on a tide by tide basis with the department prepared to allow more fishing time should abundance increase or less time should indicators suggest a weak run.

The fishery opened for 9-hour periods on June 18, 20 and 22 (Table 7). On June 22, 144,271 sockeye salmon were caught (Table 10) bringing the cumulative catch to 260,720. Escapement through June 22 was 20,436 sockeye salmon, slightly below the long term average (Table 19). Test fishery indices continued to indicate few fish passing into the river above the commercial fishery, which did not support the alternate day fishing strategy. Fishing was closed on June 23-24, allowing escapement to build.

On June 23, an aerial survey of the district revealed approximately 30,000 fish in the Egegik Lagoon. Inriver test fishery indices demonstrated slightly increased passage into the river on June 24. Escapement through that date at the tower was 56,238 sockeye salmon (Table 19), slightly ahead of the historical escapement curve. A 6-hour fishing period was scheduled for the drift gillnet gear group along with a 10-hour period for the set gillnet group beginning at 1:00 AM on June 25. During this opening, 147,229 sockeye salmon were caught (Table 10), bringing the cumulative catch to 407,949 fish. Considering the increase in catch, a 5-hour drift and 8-hour set gillnet period were scheduled on June 26 and 236,411 fish were harvested. During the same period, escapement continued ahead of historical run timing data.

Fishing was allowed again on June 27 while inriver test fishery indices showed a strong increase, resulting in the scheduling of another opening for the daytime tide on June 28. Inriver test fishery indices continued to show strong passage into the river during the day on June 28, in spite

of the morning fishery, resulting in another drift gillnet period on the evening tide. Cumulative escapement through June 28 was 185,988 sockeye salmon (Table 19), which was approximately 1 day ahead of the historical curve. Considering the magnitude of the inriver test fishery indices and a catch allocation favoring the set gillnet gear group, fishing time for the drift gillnet fleet was expanded to 2 tides per day.

Cumulative harvest through June 28 was approximately 1.35 million sockeye salmon. Data from the inriver test fishery indicated that escapement was progressing at a desirable pace and fishing continued for one set and 2 drift gillnet openings per day. Concurrently, abundance in other districts around the Bay began to increase. On July 3, after 2 consecutive days of harvest within the Bay exceeding 2.00 million fish, processing capacity began to be overwhelmed and limits were placed on permit holders by companies in most districts. Also on July 3, inriver test fishery results showed a very strong level of passage into the Egegik River. Peak effort in the drift gillnet fleet also occurred on July 3, with 330 permits registered to fish within the Egegik District (Table 8).

On July 5, the increased test fishery indices observed on July 3 began arriving at the counting tower with an escapement of 235,434 fish counted for the day (Table 19). Cumulative escapement was 923,652 fish, above the lower bound of the escapement range and several days ahead of the historical curve. Cumulative harvest was approximately 4.93 million fish. The combined escapement and harvest figures over the previous 3 days suggested that the run was either early or larger than forecast. On July 6, fishing opportunity was further liberalized to allow fishing 2 tides a day for both gear groups in an effort to slow passage into the river and decrease the rate of escapement.

By July 8, the rate of escapement at the tower had been reduced to less than 20,000 per day and averaged 19,000 per day until the project ended on July 18. However, several factors combined to help control passage into the river: 1) easing of capacity issues (with liberal processor limits on July 11 and none thereafter), 2) expansion of fishing opportunity, and 3) declining abundance within the district.

By July 12, daily catches had dropped to approximately 100,000 fish per day. By the end of the E.O. period on July 17, the run had begun to taper and effort in the district was declining.

According to regulation, the fall fishing schedule of 9:00 AM Monday to 9:00 AM Friday was implemented on July 17, but because of low abundance and effort, fishing was allowed to remain open continuously until 9:00 AM Friday, July 25. After a closure over the weekend of July 26–27, the normal Monday to Friday schedule began at 9:00 AM Monday, July 28.

The 2008 Egegik run was comprised mostly of 2- and 3-ocean fish (Table 3), which came from the 2003 and 2004 escapements of 1.15 and 1.30 million sockeye, respectively (Appendix A10). Permit holders harvested approximately 85% of the Egegik inshore sockeye salmon run in 2008, compared with the recent 20-year average exploitation rate of 83%. Peak harvest dates were July 2 and 3 when approximately 647,417 and 674,342 sockeye salmon were landed (Table 10). Peak tower counts occurred June 29 and July 5, when 135,624 and 235,434 sockeye salmon were counted (Table 19). During the E.O. period from June 16 to July 17 in 2008, a total of 259.5 hours were fished by the drift gillnet group (39.5 hours more than 2007) and 314.5 hours were fished by the set gillnet gear group (51 hours more than in 2007), equating to 43% and 52%, respectively, of the 600 available hours. By the end of the E.O. period, drift and set gillnet

harvest allocations were 85% and 15%, 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 124,458 fish, or about 1.6% of the total. The reported Chinook harvest was 390 fish, below the 20-year average of 1,000 (Appendix A4). The district chum harvest of approximately 93,360 fish was 8% above the recent 20-year average of 87,000 (Appendix A5). Pink salmon harvest was 1,033 fish. Historical pink salmon harvest information is presented in Appendix A6. The coho salmon harvest of 29,675 fish was approximately equal to the recent 20-year average of 30,000 (Appendix A7).

Aerial surveys were conducted in the Egegik and King Salmon River systems on August 8 to provide escapement indices for Chinook and chum salmon. Resulting counts were 227 Chinook and 1,365 chum salmon. Chinook escapement indices were well below average in streams surveyed. Based on carcass distribution and observed presence, the survey was likely conducted prior to peak spawning. The Chinook salmon index was 77% below the 20-year average, while the chum salmon index was roughly 61% below average. The Chinook salmon index was the lowest in the last 20 years and the chum index ranked 17th in the last 20 years.

Aerial surveys for coho assessment were flown over selected index tributaries within the Becharof Lake system on September 24. Approximately 6,100 coho salmon were observed (32% below the latest 20 year average of 9,000).

In summary, the 2008 harvest of 7.45 million sockeye salmon in the Egegik District ranked 11th out of the last 20 years and was 15% lower than the latest 20-year average of approximately 8.66 million fish (Appendix A13). The run was approximately 8% above forecast. The fishery harvested approximately 85% of the run into the district compared to the 20-year average of 83%. The midpoint of the run was July 3, which is 1 day earlier than the 20-year average. Peak effort occurred on July 3 when 330 drift gillnet vessels were registered to fish in the district. Seventeen processors registered to purchase fish in the Egegik District this season.

Ugashik District

The 2008 inshore sockeye salmon run to the Ugashik District of 2.92 million fish ranks 13th in the last 20 years (1988–2007) and was 122% below forecast (Tables 1 and 4). The midpoint of the run was approximately July 8, 3 days earlier than the most recent 20-year average of July 11. The commercial sockeye salmon catch of more than 2.32 million fish was 12% below average and ranked 11th for the same period. Sockeye salmon escapement to the Ugashik River was 596,332 and is within the escapement goal range of 500,000 to 1.20 million (Appendix A1). Comparable inshore returns over the last 4 cycles dating back to 1988 have ranged from approximately 1.35 to 7.63 million fish with an average of 3.85 million, placing the 2008 run 24% below the average for the last 4 cycle years (Appendix A14). Similar to 2007, market conditions in the Ugashik District were particularly tenuous during the 2008 season, with set net fishers being the most affected.

The district was opened to a fishing schedule of 4 days per week on June 1 by E.O. Initial landings occurred on June 16 (Table 11), when a combined total of 1,140 sockeye, chum, and Chinook salmon were delivered. Since the preseason forecast for the Kvichak River allowed all fishing districts to start the season in their full areas, the 4 day per week schedule was continued until June 20, when management of the fishery switched to a tide by tide basis. Cumulative

harvest through June 20 was 13,488 sockeye salmon. This compares to the 20-year average cumulative harvest of approximately 41,000 for that date.

The preseason forecast for the Ugashik District indicated a potential harvest of 5.63 million sockeye salmon (Table 1). Accordingly, permit holders were advised that fishing time after June 20 would depend on inriver test fishing results, tower escapement levels, and fishery performance. Following this advisory, 32 vessels with drift gillnet permits were registered for the Ugashik District on June 20.

Performance of the commercial fishery was well below the recent average through June 20, which resulted in the district opening to subsistence fishing only for a 36-hour period beginning at noon on June 21.

Inriver test fishing, which operates about 3 miles upstream of Ugashik Village, started on June 22 and provided a daily estimate of sockeye salmon passage into the lower part of the Ugashik River (Table 24). The counting tower project, operating about 24 miles upstream of Ugashik Village, started counting at midnight on July 1 and ended the day with an estimated passage of 1,944 fish.

Initial information from the inriver test fishery became available on June 22, passage indices were low, but in view of the large preseason forecast a commercial period was allowed on June 23. Commercial harvest for this period was approximately 25,776 sockeye salmon (Table 11).

On the night of June 24, the inriver test fishery detected an increase in the number of fish moving into the Ugashik River which prompted a 10-hour commercial fishing period on June 26. Harvest from this period was 50,584 fish (Table 11), bringing the cumulative harvest to 89,848 fish. At this point the department implemented an every other day fishing strategy similar to that described above for the Egegik District for the same reason: to allow time to determine run characteristics while allowing some fishing opportunity.

As of June 26, allocation between set gillnet and drift gillnet gear groups stood at 1% and 99%, respectively. In order to balance allocation, a set gillnet only period was announced for June 28 (Table 7). As in 2007, the set gillnet market in the Ugashik District was extremely weak. Given that constraint, it was desirable to allow the set gillnet group more opportunity in an attempt to keep to the allocations specified in regulation. Catch from this set gillnet only period was 3,396 fish (Table 11), bringing the cumulative harvest to 93,244.

The small harvest on June 28 prompted another period for both gear groups on June 29 that resulted in a catch of 67,346 fish (Table 11). However, inriver indices remained low suggesting that harvests were possibly being taken out of milling fish that had not committed to migrating upriver. With below anticipated escapement and low inriver test fish indices, the alternate day strategy was no longer supportable and the fishing pattern was altered to 2 days between periods unless/until some significant signs of fish passage were detected in the test fishery.

On the morning of July 1, the department office in King Salmon received several reports from permit holders in the Ugashik District that a mass of fish was moving into the river. Data from the inriver test fishery provided confirmation and a commercial fishing period was scheduled for both gear groups during the day time tide the following day, July 2. A conservative 5-hour period occurred for the drift gillnet group, with a 10-hour period for the set gillnet group. Harvest from this period was 161,579 fish (Table 11).

Test fishery indices remained high for the evening tide of July 2 and it became apparent that fish were moving into the river in significant numbers. The catch on this day represents the first of 11 consecutive days of harvest averaging 167,000 fish per day (Table 11). Inriver indices remained at fairly high levels over the next several tides. As escapement into the river continued, fishing continued on a single tide per day basis for both gear groups.

During the same period, capacity limitations that had impacted the rest of the Bay were also felt in Ugashik District. In response, fishing opportunity was liberalized on July 6 in order to allow permit holders and their processors the latitude to adjust their schedules to most efficiently use their resources (Table 7). Test fishery indices suggested that sufficient fish had escaped the commercial fleet to surpass the lower end of the escapement goal range and additional opportunity to harvest surplus fish was appropriate. Under limitations in processor capacity, additional escapement was likely.

Another consideration regarding liberal amounts of fishing time was the extremely large escapement realized in 2007; approximately 2.60 million fish escaped which was nearly 1.40 million above the upper end of the escapement goal range (Appendix A10). It is thought that successive large escapements can lower production in some sockeye salmon systems (Clark et al. 2007). Ugashik is one of the smaller lake systems in Bristol Bay and as such may be more vulnerable to impacts to production resulting from large escapements. In 2008, to avoid potentially compounding biological impacts on the system posed by successive large escapements, a management strategy was adopted that was designed to target an escapement near the lower end of the escapement goal range.

Sockeye salmon landings began to taper by July 11 with a final cumulative catch of approximately 2.32 million (Table 11). The final Ugashik River sockeye salmon escapement was 568,632 fish when counting ended on July 22 (Table 19). Additionally, about 27,000 sockeye salmon were observed during post season aerial surveys of the Ugashik system, which included approximately 20,000 sockeye salmon at the outlet to lower Ugashik Lake (Appendix A14).

By regulation, the fall fishing schedule of 9:00 AM Monday to 9:00 AM Friday was implemented on July 17. However, because of low abundance and effort, fishing was allowed to remain open on a continuous basis until 9:00 AM Friday, July 25 (Table 7). After a closure over the weekend of July 26–27, the normal fall Monday to Friday schedule began at 9:00 AM Monday, July 28.

By the end of the emergency order period (July 17), set gillnet permit holders had caught approximately 8% of the sockeye salmon harvest and drift gillnet permit holders had taken 92% (Appendix A9). The allocation specified in regulation is 10% set gillnet and 90% drift gillnet. Between June 23 and July 17, set gillnetters were permitted to fish a total of 317.5 hours, or 95.5 hours more fishing time than in 2007, while drift gillnetters were permitted to fish a total of 273.5 hours, or 92.5 hours more than in 2007.

Commercial harvest of other salmon species was approximately 141,000 or 6% of the district's total harvest. The harvest of 1,172 Chinook salmon was 26% below the recent 20-year average of 1,575 (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 this species in the district. Aerial survey estimates totaled 2,038 Chinook, about 50% of the long term average of 4,073.

The chum salmon harvest of 137,207 fish was almost twice the 20-year average of 69,000 (Appendix A5). The coho salmon harvest of 2,280 fish was well below the 20-year average of 14,000, but there was very little directed commercial effort for Ugashik coho salmon in 2008 (Appendix A7). Aerial surveys to enumerate coho salmon escapement were flown on September 24. Aerial survey estimates totaled 6,240 coho salmon, 26% below the 20-year average of 8,473.

In 2008 a total of 15 pink salmon were reported in the harvest. Historic pink salmon harvest figures are presented in Appendix A6.

In summary, the 2008 Ugashik District fishery harvested approximately 81% of the sockeye salmon run to the district compared to the 20-year average exploitation rate of 68%. Days of peak catch occurred on July 6 and 7 when 200,855 and 215,106 sockeye salmon were harvested (Table 11). The midpoint of the run was July 8, 3 days early compared to the 20-year average of July 11. Days of peak escapement were July 9 and 11 when 104,706 and 89,322 sockeye salmon, respectively, passed the counting tower (Table 19). Peak effort was on July 14 when 254 vessels with drift gillnet permits were registered to fish in the district. During the season 11 buyers operated in the district (Table 25).

Environmental Conditions

An unusual event occurred in the Mother Goose Lake drainage during the spring, or early summer of 2005, which introduced acidic water into the drainage that lowered the pH enough to impact the ability of the system to support aquatic life. ADF&G has monitored the event via aerial surveys (Westing et al. 2006; Salomone et al. 2007; Sands et al. 2008) with impacts continuing into 2008.

Aerial surveys conducted in early August and again in late September 2008, revealed that no salmon had migrated to the upper reaches of the Mother Goose drainage. Mother Goose Lake was an unusual bright green color. Whether the coloration was due to algal growth or mineral content is not certain, but unlike the 2005 to 2007 surveys, plant growth was present in the outlet of Mother Goose Lake.

No salmon were observed in Painter Creek, which formerly hosted a significant portion of the spawning Chinook salmon in the Ugashik District. The area between the confluences of Painter and Old Creeks with the King Salmon River had no live fish; a few carcasses were observed. The lowest 2 tributaries of the King Salmon River, Old and Pumice Creeks, were again well populated with Chinook, chum, and some sockeye salmon. Coho salmon observed were located primarily in Pumice Creek.

Nushagak District

The 2008 Nushagak District total inshore sockeye salmon run was approximately 10.16 million fish, 2% under the preseason forecast of 10.41 million fish (Tables 1 and 4). Commercial sockeye salmon harvest in the Nushagak District reached 6.88 million, 24% below the preseason projected harvest of 8.53 million sockeye salmon. Sockeye salmon escapement in the district's 3 major river systems totaled more than 3.27 million, which was greater than the combined upper escapement goal range of 2.56 million. Chinook salmon escapement into the Nushagak River was 97,330, 29% over the 75,000 inriver goal (Table 21). Nushagak District Chinook Harvest was 18,634 (Appendix A4).

Peak Chinook salmon production in the early 1980s 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 ADF&G 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, ADF&G 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.

ADF&G 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 5 years, managers have used directed Chinook openings early in June to harvest fish when a surplus appears to be available. Fishery openings during the first third of the run allow the harvest to be spread out over more of the run and takes advantage of the better price available early in the season. However, this strategy also has the potential for complicating management if the later portion of the run is substantially weaker than the early portion. When a surplus is forecasted, early commercial openings provide for more time between openings allowing untargeted 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 2008 Nushagak District Chinook salmon forecast was 160,000 fish. With an inriver goal of 75,000 fish and an average sport and subsistence harvest of 6,000 fish below the counting station, 81,000 Chinook would potentially be available for commercial harvest. In 2003, a new

strategy was adopted to address concerns about incidental Nushagak sockeye salmon 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 2008, managers worked with the Nushagak Advisory Committee and other stakeholders to decide on the fishing schedule prior to the season. The preset schedule allowed stakeholders to plan ahead and provided more certainty for marketing purposes. The schedule could be suspended if escapement was less than expected. The preseason schedule allowed for 2 openings based on the preseason forecast and subsequent openings based on escapement.

The sonar project at Portage Creek was operational on June 6. Despite early daily Chinook counts being less than the historical average through June 24, the predetermined schedule of 2 openings on June 5 and June 9 proceeded as planned. The first 12-hour directed Chinook opening resulted in the harvest of 16 Chinook salmon from 3 deliveries (there were more fish caught, but most were not sold or reported). In 2005, the Chinook fishery opened on June 1 and resulted in a harvest of 689 Chinook, however, the 2008 spring was much cooler and later than the spring of 2005. Following the predetermined Chinook openings, additional fishing periods were to be based on escapement and would likely occur on June 13, 15, and 18. Duration of openings was dependent on effort, harvest, and subsistence information. The harvest from the June 9 opening was 496 Chinook from 23 deliveries, a much better harvest than in 2007, but the escapement was falling behind and no more directed Chinook openings were warranted in 2008. Two large days of escapement on June 26 and June 27 brought the total escapement up to the expected level. This increase in escapement coincided with an increase in sockeye salmon escapement and the management focus moved from Chinook to sockeye salmon on June 26.

The preseason forecast for the inshore sockeye salmon run to the Nushagak District totaled 10.41 million fish (Table 1), 41% greater than the 20-year average run of 7.38 million sockeye salmon (Appendix A16). Strength of the forecasted Wood River run (7.10 million) was 62% above the 1988–2007 average run, while the Nushagak River sockeye salmon run (1.93 million) was expected to be 10% greater than the 20-year average run. The forecasted run to Igushik River (1.37 million) was 13% greater than the 1988–2007 average run of 1.24 million (Appendix A16).

On the afternoon of June 25, in response to increasing sockeye salmon escapement in the Wood River, a 6-hour set gillnet period was announced for the Nushagak Section from 6:00 AM until 12:00 PM on June 26 (Table 7). The drift gillnet fleet, which had been placed on short notice beginning June 24, was advised again to not go dry as fishing within a few hours of an announcement was possible. This provided the ability to respond in the event of a sudden increase in escapement. The escapement increased in the Wood River from a daily escapement of 6,858 on June 24, to 23,148 on June 25, and 102,960 on June 26 (Table 20). Given the increase in escapement rate on the Wood River on the evening of June 25 and morning of June 26, additional fishing was warranted. The set gillnet period in progress was extended twice for a total of 5 hours and a 3 hour drift opening was also announced. The opening restricted permit holders to a mesh size that was 5.5 inches or smaller.

Set gillnet fishing was allowed from June 26 through July 2 with only a short break on the evening of June 26 (Table 7). There was a one tide break in the drift fishing schedule between June 27 and July 2. On July 2, a one tide pause in the drift gillnet schedule was considered in order to balance allocation but processor suspensions on the east side of the Bay changed that course of action.

By July 3, all Bristol Bay districts were experiencing processor suspensions or limits. In response to the limits, fishing time was liberalized to provide more opportunity to those permit holders with a market. Fishing was allowed for 5–9 hours every tide except on July 5 and July 9 when periods were extended for additional fishing time (Table 7). This schedule continued until July 12 when fishing was extended for 24 hours and then a short break was taken before fishing was allowed until further notice. Fishing with set gillnets was extended until further notice on July 2.

Despite this liberal fishing schedule, escapement on the Wood River reached more than 1.72 million sockeye salmon (Table 20). Over 700,000 of that escapement occurred after July 8, when processor limits were no longer a factor. During this time, the fleet began leaving for other districts, especially after July 10, as some district transfer periods were waived. With the fleet leaving and escapement still strong, the fishing period on July 12 was extended for 24 hours. After a short break, continuous fishing began early on July 14 (Table 7).

The final escapement to the Nushagak River was 492,546 sockeye salmon and 97,330 Chinook salmon (Table 21). Wood River total escapement was approximately 1.72 million sockeye salmon (Table 20).

Commercial fishing began in the Igushik Section of the Nushagak District on June 20 with set gillnets only (Table 12). This day was chosen in consultation with the processor that was buying fish there; June 20 was the first day they were ready to buy fish. In recent years, with extended fishing time in the Nushagak Section, Igushik fish stocks may have been subject to some degree of harvest during Nushagak Section drift gillnet openings. This may have contributed to poor escapement in the Igushik River in some recent years. Therefore, a conservative approach to fishing in the Igushik Section has been employed. Fishing in the Igushik Section began with 8-hour per day set gillnet openings. By June 29, cumulative escapement in the Igushik River was 45,804 sockeye salmon and fishing with set gillnets was extended until further notice (Tables 7 and 20). In reality, the processor was only able to accommodate two 8-hour periods per day and set gillnets were limited to that amount of fishing time by their market.

Drift gillnet fishing in the Igushik Section was allowed beginning June 29 on a schedule mirroring that of the Nushagak Section. With continued strong escapements, a large set gillnet harvest, and low effort from the drift gillnet fleet in the Igushik Section, drift fishing was extended until further notice early on July 8 (Table 7). The escapement past the Igushik River counting towers through July 7 was 315,222 sockeye salmon and with up to 5 days of fish in the river between the fishing district and the counting towers, the potential escapement was 516,726 (Table 20). The final sockeye escapement for the Igushik system was greater than 1.05 million (Table 4). Thus, over 500,000 fish passed through the fishing district after continuous fishing was allowed with both set and drift gillnets.

The Nushagak Coho Salmon Management Plan (5 AAC 06.368) established spawning and inriver escapement goals. The plan provides guidance to ADF&G 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. The department no longer operates the sonar camp on the Nushagak River for coho salmon enumeration. Thus, a conservative schedule of 45 hours of fishing per week using three

15-hour periods was employed for the 2008 season. This schedule began on July 24 and ran through August 20 (Table 7). After the last major buyer ceased operations, fishing was opened until further notice to allow any small processors to have opportunity and flexibility. Coho harvest was 73,889 fish, approximately 158% more than the average harvest over the last 20 years (Appendix A7). The pink salmon harvest in 2008 was 137,820 (Appendix A6).

Togiak District

The 2008 inshore sockeye salmon run of 856,398 fish was the ninth largest run to the Togiak District in the last 20 years (Appendix A17) and exceeded the preseason forecast by 14% (Table 1). District sockeye harvest was 650,718 salmon, the seventh largest since 1988. Escapement into Togiak Lake was 205,680, within the biological escapement goal (BEG) range of 120,000 to 270,000 salmon (Appendix A1).

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 2008 inshore run to the Togiak River was forecasted at 738,000 sockeye salmon (Table 1), of which 96% were projected to be 3-ocean fish and the remaining 4% were predicted to be 2-ocean fish (Table 2). Approximately 588,000 sockeye would potentially be available for harvest in the Togiak River Section. Smaller sockeye salmon 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 50,000 sockeye salmon 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. Chinook run strengths districtwide have fluctuated from a high of 31,406 in 1994, to a low of 17,845 in 2002 (Appendix A20). The Chinook escapement goal (10,000) has been reached in most years, sometimes with extensive commercial fishing closures and mesh size restrictions. 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 2 weeks of June. This year, the reduction was only necessary the last week of June because early season effort was low. The weekly schedule in the Kulukak River Section was reduced by 24 hours. The Togiak River Section and 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 2. However, first landings of the 2008 season were made on June 18 (Table 14). Commercial harvest and

effort for this week was far below average with 25 Chinook salmon and 9 deliveries reported at the close of fishing on June 20.

The fishery was reopened on June 23 and was reduced by 24 hours in the Kulukak River Section for Chinook conservation (Table 7). Cumulative catch after the last delivery on Thursday, June 30 was 644 Chinook salmon. Midnight June 30 marked the end of active management for Chinook salmon. When fishing continued Tuesday, July 1, the focus was on sockeye salmon management.

Total Chinook harvest for the Togiak River Section was 2,896 fish (Table 14), with an additional 198 caught in the remainder of the Togiak District (Tables 15). The total number of Chinook salmon caught in the Togiak District was 33% of the 10-year average. Unfortunately, weather and pilot availability issues prevented complete aerial surveys to assess escapement. Figures are not yet available for sport or subsistence harvests. Districtwide escapement is not available due to partial escapement data.

Commercial fishing for sockeye salmon opened with regularly scheduled fishing periods on June 2. First deliveries of the season occurred on June 18 (Table 14). Although directed sockeye salmon fishing does not begin until July 1, effort largely focuses on their harvest for the entire season. By the end of June, district sockeye salmon harvest was 12,051 fish, significantly lower than expected levels. A small early season harvest was attributed to a late winter that produced later run timing and to a low fishing effort largely due to high fuel prices.

As mentioned above, the last weekly fishing period in June for the Kulukak River Section was reduced for Chinook conservation. 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 and Chinook salmon stocks. However, the challenges of tender support and travel to the area under high fuel prices, coupled with reductions in fishing time, have kept harvests at or below historical levels.

Commercial fishing reopened on July 1 as scheduled. The Kulukak River Section was reduced to 48 hours, closing for the week on July 2 (Table 7). Operation of the Togiak counting towers began on July 3 with a count of 792 sockeye salmon (Table 20). At this time, the daily catch increased to expected levels, but cumulative harvest remained below expected levels most likely due to little early season participation. A 36-hour extension of fishing in the Togiak River Section was announced for the week of July 7 (Table 7). Cumulative harvest continued to increase, bringing the Togiak River Section total harvest at the close of fishing on July 13 to 190,415. At this time, cumulative escapement past the towers was just below expected levels at 30,714 sockeye salmon (Table 20), but an aerial survey the following day suggested escapement would increase over the next week.

For the week of July 14, the Kulukak River Section was reduced to a 48-hour schedule and the Togiak River Section was extended for the maximum allowable time of 48 hours (Table 7). By the close of fishing on July 20, escapement surpassed the expected cumulative escapement curve with a count of 81,378 sockeye salmon (Table 20). District-wide sockeye salmon harvest peaked during this week with a harvest of 199,115, bringing the cumulative catch to 405,432 on July 20.

Given the prior week of large harvest and escapement in the Togiak District, it was projected that the biological escapement goal (BEG) would be reached. Fishing reopened for the week on July 21 in all sections and the Togiak River Section was extended for the maximum allowable time of

48 hours (Table 7). The Kulukak River Section was reduced for this week but no fishing occurred there due to a lack of tender service in the area. By the end of the week, escapement of sockeye salmon into Togiak Lake was 172,314, within the BEG range of 120,000 to 270,000.

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 noticeably increase from previous levels. There are no requirements for registration after July 24 so increased effort is difficult to assess**.** Additionally, some permit holders are finishing their season while others are still moving into the district.

For the week of July 28, the Kulukak River Section was again closed 24 hours early and the Togiak River Section was once again extended to 9:00 AM Sunday, August 3, the maximum allowable extension (Table 7). This was the last week of the season where a tender was available in the Kulukak River Section and the season concluded there with a total sockeye salmon harvest of 24,470 (Table 15). Counting towers ceased operations August 5 after counting a season total of 205,680 sockeye salmon (Table 20).

On Thursday, August 7, the district opened on the full schedule that would be followed for the remainder of the season, but the last deliveries were made on August 6, when buyers ceased operations. The 2008 sockeye harvest in the Togiak District was 650,718 sockeye salmon, 10% above the preseason forecasted harvest (Tables 1 and 4). The 2008 sockeye salmon harvest in the Togiak District was the seventh largest in the past 20 years (Appendix A3). Although escapement information is incomplete, the total sockeye salmon run ranked 9th among the last 20 years (Appendix A17).

There was no directed coho fishery in the Togiak District this year. Final operations reports from processors indicated that there were 2,032 coho salmon caught by the last day of fishing, August 6 (Table 13). Due to poor survey conditions and flight availability problems, the Togiak District was not surveyed to assess coho escapement in 2008.

The commercial Chinook harvest was 33% of the 10-year average, while harvest of chum and coho were 222% and 26%, 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 and pilot availability. Since no sockeye surveys were flown in the Togiak District, the total assessed escapement was taken from the Togiak Counting Towers at nearly 205,680 sockeye salmon. Aerial spawning ground surveys for Chinook and chum salmon in the Togiak River drainage could not be completed (Appendices A20 and A21).

2008 SUBSISTENCE SALMON FISHERY

Subsistence fishing for salmon and other fish species has taken place in the Bristol Bay area for thousands of years, and continues to be an important source of food for residents of local communities. Subsistence harvests still provide important nutritional, economic, social, and cultural benefits to most Bristol Bay households. All 5 species of Pacific salmon are utilized for subsistence purposes in Bristol Bay, but the most popular are sockeye, Chinook, and coho salmon. 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 2008 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 2007 that were not available for the 2007 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. Prior to 2008, with a few exceptions, only gillnets were recognized as legal subsistence gear. In the Togiak District, spear fishing was also allowed. In portions of Naknek Lake in the Naknek District, spears and dipnets, in addition to gillnets, could be used during designated periods, primarily to harvest spawning sockeye salmon ("redfish"). 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.

At its regulatory meeting in Dillingham in December 2006, the Alaska Board of Fisheries made 3 changes to the subsistence salmon fishing regulations that affected portions of the Bristol Bay area. The first change allowed salmon to be taken with a drift gillnet no more than 10 fathoms in length in the Togiak River between the mouth of the river and upstream approximately 2 miles. The second change allowed spears to be used to take salmon in Lake Clark. The third change allowed beach seines and gillnets to be used to take salmon in Iliamna Lake, Six Mile Lake, and Lake Clark.

In Nushagak, Togiak, Naknek, Egegik, and Ugashik Districts, 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.

For a list of list of emergency orders that pertained to inseason management of the Bristol Bay subsistence salmon fishery in 2008, see Table 7.

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 ADF&G 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 salmon.

Table 27 provides final data for Bristol Bay subsistence salmon harvests in 2007. As noted, final subsistence harvest estimates for 2008 were not available when this report was published. Appendix A27, A28, and A29 provide harvest estimates by district and species for the 20-year period from 1988 through 2007 plus the recent 5-year average harvests prior to 2008.

2008 BRISTOL BAY HERRING FISHERY

This report reviews stock assessment activities, provides an overview of the Togiak District herring fishery from 1978 to 2007 and summarizes the 2008 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 3 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 119 miles (Figure 2). Togiak village lies at the center of the district, 67 miles west of Dillingham.

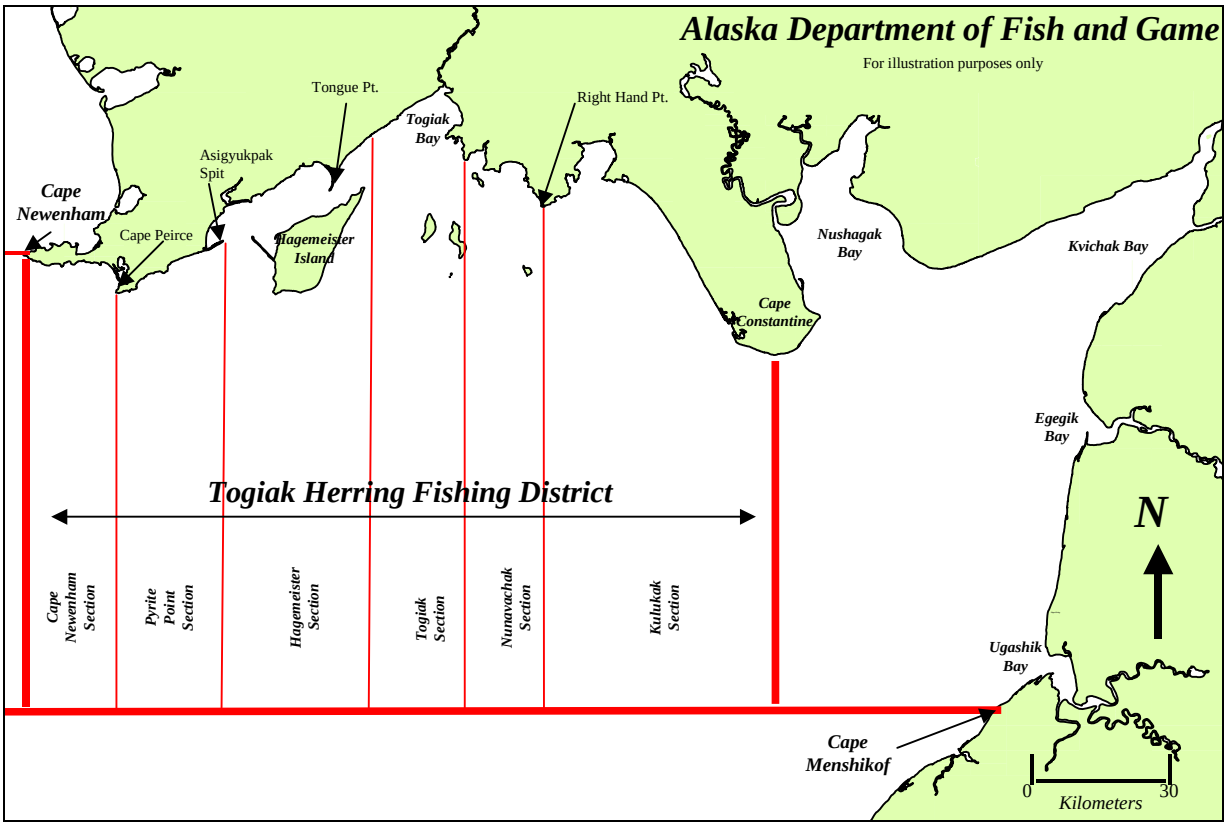

Figure 2.–Togiak Herring District, Bristol Bay.

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 1988 to 2007, sac roe harvests averaged approximately 20,000 tons, worth an average of $6.11 million annually (Appendices B2 and B6). Spawn-on-kelp harvests have occurred in only 3 of the last 10 years. Given current market conditions, historic harvests and value are of limited utility when contemplating future harvest or value. In 2008, sac roe harvests brought $2.60 million to permit holders, 80% of the most recent 10-year average. No spawn-on-kelp fishery occurred in 2008.

STOCK ASSESSMENT

Since 1978, ADF&G 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 4 years, ADF&G has been converting aerial survey data collection to use Geographic Information Systems (GIS) performing "real-time" data entry and analysis.

Volunteer test fishing, originally implemented by ADF&G to estimate roe quality, provides samples for age, size, and sex composition analysis. Additional samples are collected from the 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 have ranged from 83,229 tons in 1991 to 193,847 tons estimated in 1993 (Appendix B5). Abundance was estimated to be high in the late 1970s, declined in mid 1980s and remained relatively low and stable through 1991. Biomass levels from 1992 to 1994 increased from 156,957 to 185,412 tons and estimates since 1995 range from 115,155 to 176,288 tons estimated after the 2006 season.

From 1988 to 2008, 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 with more herring present for a longer period. In general, spawn is 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 and generally continued for a month 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 ADF&G 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 1997, 2001, and 2002, appearing as age-11, -7, and -6 herring, respectively, in the 2008 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 7 years, processors have developed cooperative fleets for the purse seine fishery. Under limited markets, processors choose the makeup of their fishing fleets to maximize their efficiency, thereby influencing the number of participants. More recently, the gillnet fleet has also been organized into a cooperative fleet.

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, but has generally 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 2007 of 25. Purse seine effort increased steadily from 1978 through 1989, when 310 vessels were observed. From 1990 to 1997, the purse seine fleet fluctuated between 200 and 300 vessels, but has declined to less than 100 vessels since 1998. In 2008, the total number of purse seines was 28, up from an all-time low in 2007 of 21.

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. Since fishing is less aggressive, managers can allow extended 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 1988 through 1997, 16 to 22 companies have purchased herring in Togiak (Appendix B1). Over the past 7 years, industry participation has steadily declined to a low in 2007 of 5 companies. In 2008, processor participation increased to 7 companies. Processing capacity on the grounds has also declined from a high of 4,850 tons per day in 1996, to a low in 2007 of 1,420 tons per day, to 1,950 tons per day in 2008.

Gear Specifications

The Alaska Board of Fisheries reduced the legal amount of gear in 1989 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 to ensure roe quality and minimize 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 ADF&G 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 District and other Bering Sea herring fisheries. Herring biomass in the Togiak District has been estimated at levels well above threshold requirements since 1981.

Average annual exploitation rates for the last 20 years was 19.3% but for the last 10 years has been 17.6% (Appendix B2). Annual exploitation has 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 must be 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 and 75% purse seine. The BOF modified these allocation percentages to the current ratio in 2001. To achieve gillnet and purse seine ratios, ADF&G 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. In 2006, the BOF again changed the management plan and allowed the inseason allocation management to be uncoupled when both gear types had harvested 50% of their respective quotas.

Management Guidelines for Commercial Herring Sac Roe Fisheries (5 AAC 27.059) state the department may manage sac roe fisheries to minimize harvest of recruit size herring and to enhance product value by opening areas in which sampling has demonstrated high herring roe content and large herring size. 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 herring 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, coupled with increasing market demands

for high quality roe, compelled ADF&G 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, ADF&G 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 6 years have been quite different from the derby style openings of the early 1990s. 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 72 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 large harvests that could exceed the fishery exploitation rate. However in 2008, with one of the lowest processing capacities in recent history, it was likely that there would be some portion of the quota left unharvested.

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, although postseason estimates have not necessarily increased.

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 ADF&G 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.

The fishery was open from 1986 to 2003, but closed from 1997 to 2001, and has been closed since 2004. 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.

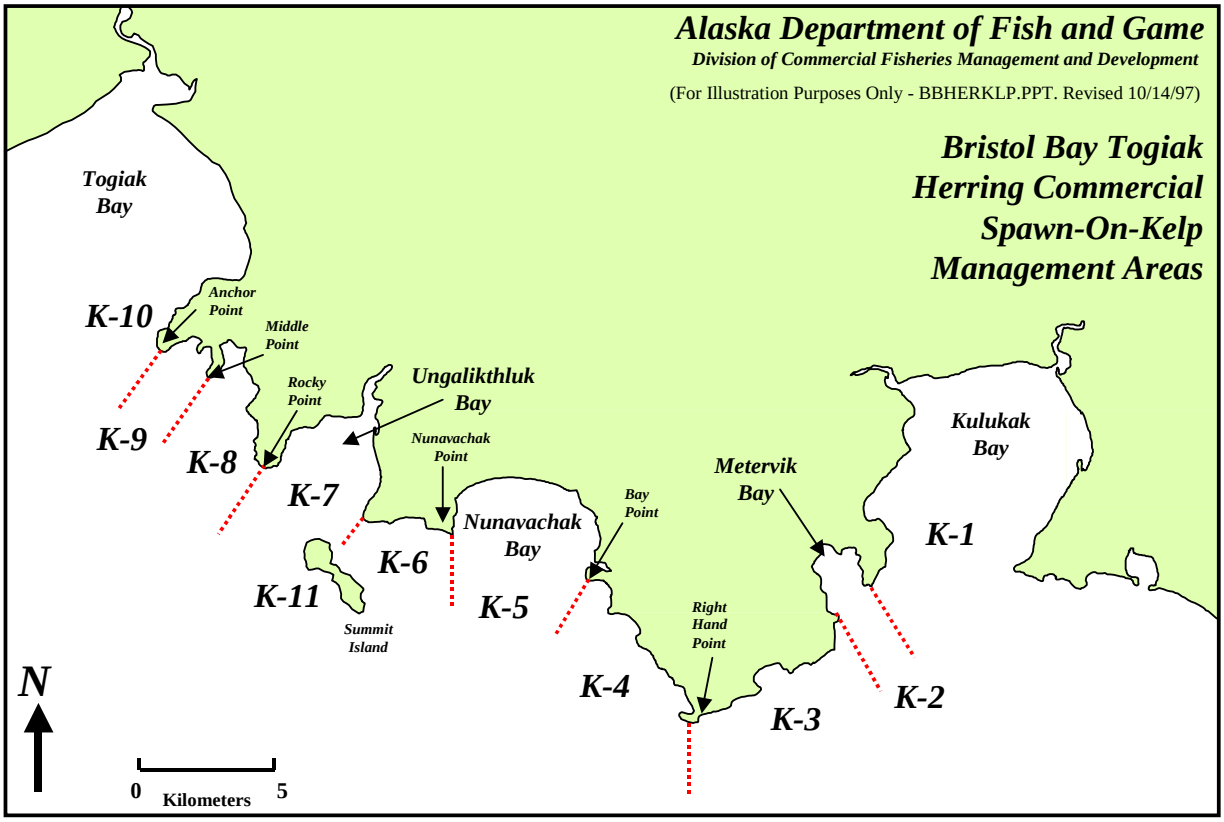

Figure 3.–Spawn-on-kelp management areas (K-1 through K-11), Togiak District, Bristol Bay.

To ensure product quality, ADF&G, 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.

2008 Season Summary

Biomass Estimation

Aerial surveys of the Togiak District began May 5, 2008. Herring were first sighted in the district on the morning of May 15 during a survey by department staff. On May 16, another survey was flown and a dramatic increase in herring biomass relative to the May 15 survey was documented. Department staff documented 53,938 tons of herring on May 18 under poor survey conditions (Table 28). On May 19, a survey to document spawn was conducted and 12.9 miles of spawn was observed. Additional reports of significant spawn were received on May 20 and 21. Another biomass survey conducted on May 22 documented 70,692 tons of herring. A large storm system precluded aerial surveys from May 23 until May 28, when 82,557 tons of herring were documented in the district. Over the course of the season, 48.6 miles of spawn were documented; this did not include spawn reported by spotter pilots on days we did not fly. A postseason survey occurred on June 9 and documented 724 tons of herring still on the grounds. It should be noted that survey effort has decreased significantly the last 2 years because we no longer have a contracted helicopter on the grounds for surveying.

Age Composition

Between May 19 and May 29, 5,120 herring were sampled for age, size, and sex information representing commercial catches between May 18 and May 27, 2008. Samples were collected from the commercial purse seine and commercial gillnet fishery. Weight frequency analysis based on the historical information was used to estimate age class contribution to the fishery inseason.

Approximately 4,430 herring were collected from the commercial purse seine fishery. Age 4-5 herring comprised 10.5% of the sample, age 6-7 herring comprised 31.9% of the sample, age 8-9 comprised 15.9% of the sample, and age 10+ fish were the dominant age classes, comprising 41.5% of the sample. Samples collected from the commercial purse seine fishery averaged 343g. The sex composition of the sample was 51% male and 49% female.

A total of 690 herring were sampled from the commercial gillnet fishery. The sample was comprised of 20.9% age 6-7 herring, 26.5% age 8-9 herring, and 52.2% age 10+ herring, also the dominant age classes in the gillnet fishery. The average weight of herring sampled from the commercial gillnet harvest was 407g and the sex composition was 48% male and 52% female.

Due to the lateness of the fishing season in 2008, no fish were sampled from those collected by test fishing after the commercial fishery closed.

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 2006. 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 2008 preseason forecasted biomass was 130,516 tons (Appendix D1). 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, 1,722 tons for the Dutch Harbor food and bait fishery, and the remaining 22,881 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 (16,017 tons in 2008) and 30% of the removal is taken by gillnets (6,864 tons in 2008).

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 2008 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 2007–2008, climatic conditions were colder than the recent average. There was a long cold spell in southwestern Alaska beginning in February and extending well into April and the sea surface still had ice offshore of Cape Constantine through April. Water temperatures in the Bering Sea and in Togiak Bay were colder than recent history as well.

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 on May 11, with the first harvest occurring on May 11. Air temperature was colder in April than expected, and the sea surface remained ice covered and the temperatures were colder than average.

Department staff polled processing companies preseason to assess processing capacity for the 2008 season and to inquire about additional concerns or issues. The poll indicated that 2 more companies would be participating in the 2008 Togiak herring fishery than participated in the 2007 season. The processing capacity for 2008 was estimated to be 1,950 tons per day (Appendix B1). Although there were no major concerns preseason, department staff held a teleconference on February 25 to discuss the upcoming season with processing companies and permit holders. There was discussion about whether the season should be opened prior to any test fishing as was done in 2007. After the discussion, the general consensus was that opening the fishery and allowing individual companies to test fish at their own pace was preferred.

Purse Seine Summary

The Togiak purse seine fishery opened at 6:00 PM on May 16 for 76 hours with no prior test fishing (Table 29). Due to the small number of boats and processors participating in the fishery, there was no need to have an official test fishery. Instead, all participants could make test sets and determine whether the fish were of marketable quality at their own pace and by their own standards.

The first harvest did not occur until late on May 18 (Table 30). Fishing was extended in 24 or 48 hour blocks until 10:00 PM May 28. Harvest during this time was orderly but was interrupted for most of 3 days by a storm with high winds and rough seas. This storm began on the evening of May 23 and prevented harvest until late on May 25. After the storm, fishing continued and harvest was strong. The size of fish decreased but average fish size stayed above 300 grams and the roe percentage remained good. After the close of fishing on May 28, it was estimated that 97% of the seine quota had been harvested and only 442 tons were left. Since the purse seine fleet has the ability to harvest large amounts of fish in a short period of time, an opening for such a small amount of fish was not warranted and the fishery remained closed for the remainder of the season. The final harvest was 15,602 tons or 97% of the quota.

Gillnet Summary

The Togiak gillnet fishery was opened at 6:00 p.m. May 16 until further notice with no prior test fishing (Table 29). The fleet size has decreased over the last several years and 2008 was the first year with a slight increase in participation. With fewer participants in the fishery it has become more difficult to get individuals willing to test fish and the whole fleet has benefited from the work of a few volunteers. Additionally, rising fuel prices have made it more costly to test fish. The fishery was opened without any test fishing, allowing individuals to work with their companies to determine when fish were of suitable quality. The first harvest in the gillnet fishery was reported late on May 19 (Table 30). Harvest continued at a steady pace through May 23 when a large storm with winds in excess of 50 knots made fishing impossible. Fishing didn't resume until late on May 25. After the harvest of May 26, the gillnet fleet had harvested over 50% of its quota and the allocation was no longer managed inseason. The harvest rate slowed considerably and effort decreased as well. The gillnet fishery closed by regulation at 11:59 p.m., May 31. The final harvest was 4,832 tons or 70% of the quota.

Spawn on Kelp

No companies registered to buy herring spawn-on-kelp in 2008, therefore there were no openings and no commercial harvest.

EXPLOITATION

The 2008 herring fisheries were managed for a maximum exploitation rate of 20% of the preseason biomass estimate. The combined purse seine (15,691 tons with an average weight of 354 grams and an average roe percentage of 9.10%) and gillnet (4,832 tons with an average weight of 439g and an average roe percentage of 11.20%) harvests resulted in an exploitation of 20,523 tons (Appendix B1). If the Dutch Harbor fishery harvest is equal to the quota of 1,722 tons, then the total harvest for 2008 will be an estimated 22,451 tons. Based on the preseason biomass estimate of 130,516 tons, the 2008 exploitation rate would be calculated at approximately 17%.

EXVESSEL VALUE

The projected exvessel value of the 2008 Togiak herring fishery is approximately $2.60 million. This is based on a grounds price estimate of $125 per ton for seine caught fish and $150 per ton for gillnet caught fish and does not include any postseason adjustments.

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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, 2008.

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		3,555	5,637	37	2,000-10,000	2,758	1,555	2,880	46
Alagnak River		3,315	5,909	44	170-200	2,181	1,450	3,728	61
Naknek River		7,775	6,257	-24	800-1,400	2,473	6,675	3,784	-76
	Total	14,645	17,803	18	6,970-11,600	7,411	9,680	10,392	7
EGEGIK DISTRICT		8,019	8,708	8	800-1,400	1,260	6,919	7,448	7
UGASHIK DISTRICT		6,483	2,918	-122	500-1,200	596	5,629	2,322	-142
NUSHAGAK DISTRICT									
Wood River		7,103	5,234	-36	700-1,500	1,725	6,003	3,509	-71
Igushik River		1,371	3,290	58	150-300	1,055	1,146	2,235	49
Nushagak-Mulchatna		1,931	1,636	-18	340-760	493	1,381	1,144	-21
	Total	10,405	10,160	-2	1,190-2,560	3,272	8,530	6,888	-24
TOGIAK DISTRICT		738	856	14	120-270	206	588	651	10
TOTAL BRISTOL BAY		40,290	40,445	0	9,560-16,960	12,745	31,346	27,701	-13

[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 systems 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 = (Actual - Forecast) / Actual.

Table 2.–Inshore forecast of sockeye salmon returns by age class, river system and district, in thousands of fish, Bristol Bay, 2008.

District and	2-Ocean			3-Ocean			
River System	1.2 (2004)	2.2 (2003)	Total	1.3 (2003)	2.3 (2002)	Total	Total
NAKNEK-KVICHAK DISTRICT							
Kvichak River	1,683	577	2,260	1,043	252	1,295	3,555
Alagnak River	2,078	145	2,223	1,024	68	1,092	3,315
Naknek River	391	503	894	6,316	565	6,881	7,775
Total	4,152	1,225	5,377	8,383	885	9,268	14,645
EGEGIK DISTRICT	1,867	1,574	3,441	2,630	1,948	4,578	8,019
UGASHIK DISTRICT	3,349	302	3,651	2,376	456	2,832	6,483
NUSHAGAK DISTRICT							
Wood River	3,238	310	3,548	3,461	94	3,555	7,103
Igushik River	437	23	460	863	48	911	1,371
Nushagak River	282	16	298	1,440	11	1,451	1,931
Total	3,957	349	4,306	5,764	153	5,917	10,405
TOGIAK DISTRICT	8	23	31	647	60	707	738
TOTAL BRISTOL BAY [a]							
Number	13,333	3,473	16,806	19,800	3,502	23,302	40,290
Percent	33	9	42	49	9	58	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, 2008.

District and River System [a]		1.2	2.2	2-Ocean	1.3	2.3	3-Ocean	1.4	Total [b]
NAKNEK-KVICHAK DISTRICT									
Kvichak River									
	Number	4,125	58	4,183	1,425	27	1,452	1	5,637
	Percent	73.2	1.0	74.2	25.3	0.5	25.8	0.0	100.0
Alagnak River									
	Number	885	9	894	4,938	72	5,010	5	5,909
	Percent	15.0	0.2	15.1	83.6	1.2	84.8	0.2	100.1
Naknek River									
	Number	581	234	815	5,153	195	5,348	56	6,257
	Percent	9.3	3.7	13.0	82.4	3.1	85.5	0.9	99.4
Total	Number	5,591	301	5,892	11,516	294	11,810	62	17,803
	Percent	31.4	1.7	33.1	64.7	1.7	66.3	0.3	99.8
EGEGIK DISTRICT									
	Number	2,702	1,983	4,685	3,487	456	3,943	16	8,708
	Percent	31.0	22.8	53.8	40.0	5.2	45.3	0.2	99.3
UGASHIK DISTRICT									
	Number	1,371	149	1,520	1,334	43	1,377	15	2,918
	Percent	47.0	5.1	52.1	45.7	1.5	47.2	0.5	99.8
NUSHAGAK DISTRICT									
Wood River									
	Number	3,508	36	3,544	1,658	30	1,688	0	5,234
	Percent	67.0	0.7	67.7	31.7	0.6	32.3	0.0	100.0
Igushik River									
	Number	822	6	828	2,442	12	2,454	8	3,290
	Percent	25.0	0.2	25.2	74.2	0.4	74.6	0.2	100.0
Nushagak River									
	Number	195	0	195	1,305	18	1,323	61	1,636
	Percent	11.9	0.0	11.9	79.8	1.1	80.9	3.7	96.5
Total	Number	4,525	42	4,567	5,405	60	5,465	69	10,160
	Percent	44.5	0.4	45.0	53.2	0.6	53.8	0.7	99.4
TOGIAK DISTRICT [c]									
	Number	105	8	113	713	18	731	7	856
	Percent	12.3	0.9	13.2	83.3	2.1	85.4	0.8	99.4
TOTAL BRISTOL BAY [d]									
	Number	14,294	2,483	16,777	22,455	871	23,326	169	40,446
	Percent	35.3	6.1	41.5	55.5	2.2	57.7	0.4	99.6

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

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

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

[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, 2008.

District and River System		Catch	Escapement		Total Run
NAKNEK-KVICHAK DISTRICT					
Kvichak River		2,879,516	2,757,912		5,637,428
Alagnak River		3,728,458	2,180,502		5,908,960
Naknek River		3,784,038	2,472,690		6,256,728
	Total	10,392,012	7,411,104		17,803,116
EGEGIK DISTRICT		7,448,175	1,259,568	[a]	8,707,743
UGASHIK DISTRICT		2,322,030	596,332	[b]	2,918,362
NUSHAGAK DISTRICT					
Wood River		3,508,894	1,724,676		5,233,570
Igushik River		2,235,442	1,054,704		3,290,146
Nushagak-Mulchatna		1,143,817	492,546		1,636,363
	Total	6,888,153	3,271,926		10,160,079
TOGIAK DISTRICT					
Togiak Lake			205,680		205,680
Togiak River/Tributaries		626,248		[c]	626,248
Kulukak System		24,470		[c]	24,470
Other Systems [d]		0		[c]	0
	Total	650,718	205,680		856,398
TOTAL BRISTOL BAY		27,701,088	12,744,610		40,445,698

[a] Egegik River Tower count; does not include King Salmon River aerial survey estimate.

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

[c] Includes Negukthlik, Ungalikthluk, Osviak, Matogak, Quigmy, and Slug Rivers.

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

Table 5.–Summary of sockeye salmon test fishing indices in the Naknek/Kvichak District, by index area and date, Bristol Bay, 2008.

Date	Naknek R. Mouth	Pederson Point	Cutbank & Graveyard	Gravel Spit	Half Moon Bay	Middle Naknek	Johnston Hill	Division Buoy	Ships Anchorage	Deadmans Sands
6/21	0							29		
6/22	0					64	29	45	3	
6/24	43		297	3		59	26	122	13	
7/12				124					238	
7/13				330					557	

Note: All indices expressed in numbers of fish/100 fathoms/hour to the nearest index point. Blank cells represent no test fishing at that location and time.

Table 6.–Summary of sockeye salmon test fishing indices in the Nushagak District, by index area and date, Bristol Bay, 2008.

Date	Hanson Point	Across Hanson Pt	Tule Point	Picnic Point	Grassy Island
6/18	0	0	0	0	0
	0	0	0	0	0
6/19	0	0	0	0	0
	0	0	0	0	0
6/19	0	0	0	0	0
	0	0	0	0	
6/20	0	0	0	0	0
	0	100	0	0	
6/20	117	0	333	0	0
	0	180	0	0	
6/21	0	0	0	0	0
	0	0	0	0	
6/21	0	106	0	0	0
	0	0	104	0	
6/22	342	105	249	0	0
	474	117	320	0	
6/22	0	137	513	0	0
	0	0	156	0	
6/23	890	236	520	0	0
	639	638	406	0	
6/23	208	1,154	666	0	0
	96	668	211	0	
6/24	0	1,279	247	300	904
	102	629	469	820	
6/24	589	0	670	0	857
	115	129	592	0	
6/25	0	256			
	487	349			
6/25	890	236			
	639	638			
6/26	2,558	1,121			
	1,651	1,008			
6/27	684	6,214	3,844	0	0
	1,030	2,226	1,440	0	
6/28	1,014	835	1,162	0	0
	697	730	713	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. The first set of indices for each date occurred during AM tide; the second during PM tide. Blank cells represent no test fishing at that location and time. Blank cells indicate no data.

Table 7.–Commercial fishing emergency orders, by district and stat area, Bristol Bay, 2008.

Number [a]	Start Date	Start Time		End Date	End Time	Effective time	
Naknek/Kvichak District							
Drift Net							
AKN.28	June 30	10:30 PM	to	July 01	6:30 AM	8.0-hours	
AKN.70	July 14	9:00 PM	to	July 15	8:00 AM	11.0-hours	
AKN.70	July 15	10:00 AM	to	July 15	7:00 PM	9.0-hours	
AKN.73	July 15	10:00 PM	to	July 16	9:00 AM	11.0-hours	
AKN.73	July 16	11:00 AM	to	July 16	8:00 PM	9.0-hours	
AKN.76	July 16	11:00 PM	to	July 25	9:00 AM	202.0-hours	
AKN.78	July 25	9:00 AM	to	July 28	9:00 AM	72.0-hours	b
Set Net							
AKN.01	June 2	9:00 AM	to	June 20	9:00 AM		b,c
AKN.16	June 26	5:30 AM	to	June 26	2:00 PM	8.5-hours	
AKN.17	June 27	6:00 AM	to	June 27	2:30 PM	8.5-hours	
AKN.22	June 28	6:30 AM	to	June 28	3:00 PM	8.5-hours	
AKN.25	June 29	7:30 AM	to	June 29	3:30 PM	8.0-hours	
AKN.26			to	June 30	4:00 PM	24.5-hours	d
AKN.28			to	July 01	5:00 PM	25.0-hours	d
AKN.30			to	July 02	6:00 PM	8.0-hours	d
AKN.33	July 03	11:30 AM	to	July 03	6:30 PM	7.0-hours	
AKN.36			to	July 04	8:00 PM	25.5-hours	d
AKN.39			to	July 05	9:00 PM	25.0-hours	d
AKN.43			to	July 06	11:00 PM	26.0-hours	d
AKN.48			to	July 08	1:00 AM	26.0-hours	d
AKN.51			to	July 09	3:00 AM	26.0-hours	d
AKN.54			to	July 10	4:00 AM	25.0-hours	d
AKN.57			to	July 11	5:00 AM	25.0-hours	d
AKN.60			to	July 12	6:00 AM	25.0-hours	d
AKN.63			to	July 13	7:00 AM	25.0-hours	d
AKN.66			to	July 14	8:00 AM	25.0-hours	
AKN.69	July 14	8:00 AM					
AKN.78	July 25	9:00 AM	to	July 28	9:00 AM	72.0-hours	
Naknek Section							
Drift Net							
AKN.01	June 2	9:00 AM	to	July 22	9:00 AM		b,c
AKN.16	June 26	6:30 AM	to	June 26	2:00 PM	7.5-hours	
AKN.17	June 27	7:00 AM	to	June 27	2:30 PM	7.5-hours	
AKN.22	June 28	7:30 AM	to	June 28	3:00 PM	7.5-hours	
AKN.25	June 29	8:30 AM	to	June 29	3:30 PM	7.0-hours	
AKN.26	June 29	10:00 PM	to	June 30	5:00 AM	7.0-hours	
AKN.26	June 30	9:00 AM	to	June 30	4:00 PM	7.0-hours	
AKN.28	July 01	10:00 AM	to	July 01	5:00 PM	7.0-hours	
AKN.30	July 01	11:30 PM	to	July 02	8:00 AM	8.5-hours	
AKN.30	July 02	11:00 AM	to	July 02	6:00 PM	7.0-hours	
AKN.33	July 03	12:30 AM	to	July 03	9:30 AM	9.0-hours	
AKN.33	July 03	11:30 AM	to	July 03	6:30 PM	7.0-hours	
AKN.36	July 04	1:00 AM	to	July 04	10:30 AM	9.5-hours	

-continued-

Table 7.–Page 2 of 8.

Number [a]	Start Date	Start Time		End Date	End Time	Effective time
AKN.36	July 04	1:00 PM	to	July 04	8:00 PM	7.0-hours
AKN.39	July 05	2:00 AM	to	July 04	11:00 AM	9.0-hours
AKN.39	July 05	2:00 PM	to	July 05	9:00 PM	7.0-hours
AKN.43	July 06	3:00 AM	to	July 06	12:30 PM	9.5-hours
AKN.43	July 06	3:00 PM	to	July 06	11:00 PM	8.0-hours
AKN.48	July 07	3:30 AM	to	July 07	1:00 PM	9.5-hours
AKN.48	July 07	4:00 PM	to	July 08	1:00 AM	9.0-hours
AKN.51	July 08	4:30 AM	to	July 08	2:30 PM	10.0-hours
AKN.51	July 08	5:30 PM	to	July 09	3:00 AM	9.5-hours
AKN.54	July 09	5:00 AM	to	July 9	3:00 PM	10.0-hours
AKN.54	July 09	6:00 PM	to	July 10	4:00 AM	10.0-hours
AKN.57	July 10	6:00 AM	to	July 10	4:00 PM	10.0-hours
AKN.57	July 10	7:00 PM	to	July 11	5:00 AM	10.0-hours
AKN.60	July 11	7:00 AM	to	July 11	5:00 PM	10.0-hours
AKN.60	July 11	8:00 PM	to	July 12	6:00 AM	10.0-hours
AKN.63	July 12	8:00 AM	to	July 12	6:00 PM	10.0-hours
AKN.63	July 12	8:00 PM	to	July 13	7:00 AM	11.0-hours
AKN.66	July 13	8:00 AM	to	July 13	6:00 PM	10.0-hours
AKN.69	July 13	8:00 PM	to	July 14	8:00 AM	12.0-hours
AKN.69	July 14	9:00 AM	to	July 14	7:00 PM	10.0-hours
Egegik District Drift Net						
AKN.02	June 01	12:00 AM	to	June 16	9:00 AM	[e]
AKN.06	June 16	8:30 AM	to	June 16	5:30 PM	9.0-hours
AKN.07	June 18	9:30 AM	to	June 18	6:30 PM	9.0-hours
AKN.08	June 20	12:00 PM	to	June 20	9:00 PM	9.0-hours
AKN.10	June 22	1:00 PM	to	June 22	7:00 PM	6.0-hours
AKN.13	June 25	1:00 AM	to	June 25	7:00 AM	6.0-hours
AKN.14	June 26	4:30 AM	to	June 26	9:30 AM	5.0-hours
AKN.19	June 27	5:00 AM	to	June 27	10:00 AM	5.0-hours
AKN.20	June 28	5:30 AM	to	June 28	12:00 PM	6.5-hours
AKN.23	June 28	8:00 PM	to	June 29	1:00 AM	5.0-hours
AKN.23	June 29	7:00 AM	to	June 29	12:00 PM	5.0-hours
AKN.27	June 29	9:00 PM	to	June 30	2:00 AM	5.0-hours
AKN.27	June 30	7:30 AM	to	June 30	12:30 PM	5.0-hours
AKN.29	July 01	8:30 AM	to	July 01	1:30 PM	5.0-hours
AKN.31	July 01	10:00 PM	to	July 02	2:00 AM	4.0-hours
AKN.31	July 02	10:00 AM	to	July 02	3:00 PM	5.0-hours
AKN.34	July 02	11:00 PM	to	July 03	5:00 AM	6.0-hours
AKN.34	July 03	10:30 AM	to	July 03	4:30 PM	6.0-hours
AKN.37	July 04	12:00 AM	to	July 04	6:00 AM	6.0-hours
AKN.37	July 04	12:00 PM	to	July 04	6:00 PM	6.0-hours
AKN.41	July 05	1:00 AM	to	July 05	8:00 AM	7.0-hours
AKN.41	July 05	1:00 PM	to	July 04	8:00 PM	7.0-hours
AKN.44	July 06	2:00 AM	to	July 05	9:30 AM	7.5-hours
AKN.44	July 06	2:00 PM	to	July 06	9:30 PM	7.5-hours
AKN.46	July 07	2:30 AM	to	July 07	9:30 AM	7.0-hours
AKN.46	July 07	3:00 PM	to	July 07	10:00 PM	7.0-hours

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Table 7.–Page 3 of 8.

Number [a]	Start Date	Start Time		End Date	End Time	Effective time	
AKN.49	July 08	3:30 AM	to	July 08	9:30 AM	6.0-hours	
AKN.49	July 08	4:00 PM	to	July 08	10:00 PM	6.0-hours	
AKN.52	July 09	5:00 AM	to	July 09	10:00 AM	5.0-hours	
AKN.55	July 09	6:30 PM	to	July 09	11:30 PM	5.0-hours	
AKN.55	July 10	6:30 AM	to	July 09	11:30 AM	5.0-hours	
AKN.58	July 10	6:30 PM	to	July 10	11:30 PM	5.0-hours	
AKN.58	July 11	8:00 AM	to	July 11	1:00 PM	5.0-hours	
AKN.58	July 12	9:00 PM	to	July 13	1:00 AM	4.0-hours	
AKN.58	July 13	8:00 AM	to	July 13	1:00 PM	5.0-hours	
AKN.67	July 13	9:00 PM	to	July 14	4:00 AM	7.0-hours	
AKN.67	July 14	8:00 AM	to	July 14	3:00 PM	7.0-hours	
AKN.71	July 14	9:15 PM	to	July 15	3:15 AM	6.0-hours	
AKN.71	July 15	8:00 AM	to	July 15	3:00 PM	7.0-hours	
AKN.74	July 16	10:00 PM	to	July 16	5:00 AM	7.0-hours	
AKN.74	July 16	10:00 AM	to	July 16	5:00 PM	7.0-hours	
AKN.77				July 25	9:00 AM	207.0-hours	b,d
Set Net							
AKN.02	June 01	12:00 AM	to	June 16	9:00 AM		b
AKN.06	June 16	8:30 AM	to	June 16	5:30 PM	9.0-hours	
AKN.07	June 18	9:30 AM	to	June 18	6:30 PM	9.0-hours	
AKN.08	June 20	12:00 PM	to	June 20	9:00 PM	9.0-hours	
AKN.10	June 22	1:00 PM	to	June 22	10:00 PM	9.0-hours	
AKN.13	June 25	1:00 AM	to	June 25	11:00 AM	10.0-hours	
AKN.14	June 26	4:30 AM	to	June 26	12:30 AM	8.0-hours	
AKN.19	June 27	5:00 AM	to	June 27	1:00 PM	8.0-hours	
AKN.20	June 28	5:30 AM	to	June 28	3:30 PM	10.0-hours	
AKN.23	June 29	6:30 AM	to	June 29	3:30 PM	9.0-hours	
AKN.27	June 30	7:30 AM	to	June 30	3:30 PM	8.0-hours	
AKN.29	July 01	8:30 AM	to	July 01	4:30 PM	8.0-hours	
AKN.31	July 02	9:30 AM	to	July 02	5:30 PM	8.0-hours	
AKN.34	July 03	10:30 AM	to	July 03	6:30 PM	8.0-hours	
AKN.37	July 04	12:00 PM	to	July 04	8:00 PM	8.0-hours	
AKN.41	July 05	1:00 PM	to	July 04	9:00 PM	9.0-hours	
AKN.44	July 06	2:00 PM	to	July 06	9:30 PM	7.5-hours	
AKN.46	July 07	2:30 AM	to	July 07	2:30 PM	12.0-hours	
AKN.49				July 07	11:00 PM	8.5-hours	d
AKN.49	July 08	3:30 AM	to	July 08	11:30 AM	8.0-hours	
AKN.52	July 08	12:00 PM	to	July 09	12:00 AM	6.0-hours	
AKN.52	July 09	3:30 AM	to	July 09	11:30 AM	8.0-hours	
AKN.55	July 09	5:30 PM	to	July 10	1:30 AM	8.0-hours	
AKN.55	July 10	5:00 AM	to	July 09	1:00 PM	8.0-hours	
AKN.58	July 10	6:30 PM	to	July 11	2:30 AM	8.0-hours	
AKN.58	July 11	6:00 AM	to	July 11	2:00 PM	8.0-hours	
AKN.61	July 12	5:15 AM	to	July 12	1:15 PM	8.0-hours	f
AKN.64	July 12	7:45 PM	to	July 13	2:45 AM	7.0-hours	
AKN.64	July 13	7:15 AM	to	July 13	3:15 PM	8.0-hours	
AKN.67	July 13	8:30 PM	to	July 14	4:30 AM	8.0-hours	
AKN.67	July 14	8:00 AM	to	July 14	4:00 PM	8.0-hours	

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Table 7.–Page 4 of 8.

Number [a]	Start Date	Start Time		End Date	End Time	Effective time	
AKN.71	July 14	9:15 PM	to	July 15	5:15 AM	8.0-hours	
AKN.71	July 15	8:00 AM	to	July 15	4:00 PM	8.0-hours	
AKN.74	July 16	10:00 PM	to	July 16	6:00 AM	8.0-hours	
AKN.74	July 16	10:00 AM	to	July 16	6:00 PM	8.0-hours	
AKN.77				July 25	9:00 AM	207.0-hours	b,d
Ugashik District							
Drift Net							
AKN.03	June 2	9:00 AM	to	June 20	9:00 AM		b
AKN.12	June 23	1:30 PM	to	June 23	11:30 PM	10.0-hours	
AKN.15	June 26	2:30 AM	to	June 26	12:30 PM	10.0-hours	
AKN.24	June 29	7:00 AM	to	June 29	12:00 PM	5.0-hours	
AKN.32	July 02	7:00 AM	to	July 02	12:00 PM	5.0-hours	
AKN.35	July 03	12:00 AM	to	July 03	4:00 AM	4.0-hours	
AKN.35	July 03	9:00 AM	to	July 03	7:00 PM	10.0-hours	
AKN.38	July 04	1:00 AM	to	July 04	6:00 AM	5.0-hours	
AKN.38	July 04	11:00 AM	to	July 04	8:00 PM	9.0-hours	
AKN.42	July 05	11:00 AM	to	July 05	11:00 PM	12.0-hours	
AKN.45	July 06	12:00 AM	to	July 06	10:00 PM	22.0-hours	
AKN.47	July 07	1:00 AM	to	July 07	11:00 PM	22.0-hours	
AKN.50	July 08	2:00 AM	to	July 09	12:00 AM	22.0-hours	
AKN.53	July 09	3:00 AM	to	July 10	1:00 AM	22.0-hours	
AKN.56	July 10	4:00 AM	to	July 11	2:00 AM	22.0-hours	
AKN.59	July 11	5:00 AM	to	July 12	3:00 AM	22.0-hours	
AKN.62	July 12	7:00 AM	to	July 13	3:00 AM	20.0-hours	
AKN.65	July 13	7:00 AM	to	July 13	7:00 PM	12.0-hours	
AKN.68	July 14	8:00 AM	to	July 14	8:00 PM	12.0-hours	
AKN.75	July 16	7:30 AM	to	July 25	9:00 AM	209.5-hours	b
Set Net							
AKN.03	June 2	9:00 AM	to	June 20	9:00 AM		b
AKN.12	June 23	1:30 PM	to	June 23	11:30 PM	10.0-hours	
AKN.15	June 26	2:30 AM	to	June 26	12:30 PM	10.0-hours	
AKN.21	June 28	4:00 AM	to	June 28	2:00 PM	10.0-hours	
AKN.24	June 29	5:00 AM	to	June 29	3:00 PM	10.0-hours	
AKN.32	July 02	5:00 AM	to	July 02	3:00 PM	10.0-hours	
AKN.35	July 03	9:00 AM	to	July 03	7:00 PM	10.0-hours	
AKN.38	July 04	10:00 AM	to	July 04	8:00 PM	10.0-hours	
AKN.42	July 05	11:00 AM	to	July 05	11:00 PM	12.0-hours	
AKN.45	July 06	12:00 AM	to	July 06	10:00 PM	22.0-hours	
AKN.47	July 07	1:00 AM	to	July 07	11:00 PM	22.0-hours	
AKN.50	July 08	2:00 AM	to	July 09	12:00 AM	22.0-hours	
AKN.53	July 09	3:00 AM	to	July 10	1:00 AM	22.0-hours	b
AKN.56	July 10	4:00 AM	to	July 11	2:00 AM	22.0-hours	
AKN.59	July 11	5:00 AM	to	July 12	3:00 AM	22.0-hours	
AKN.62	July 12	5:00 AM	to	July 13	3:00 AM	22.0-hours	
AKN.65	July 13	5:30 AM	to	July 14	3:30 AM	22.0-hours	
AKN.68	July 14	6:30 AM	to	July 15	4:30 AM	22.0-hours	
AKN.72	July 15	7:30 AM	to	July 15	7:30 PM	12.0-hours	
AKN.75	July 16	7:30 AM	to	July 25	9:00 AM	209.5-hours	b

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Table 7.–Page 5 of 8.

Number [a]	Start Date	Start Time		End Date	End Time	Effective time	
Nushagak District							
Nushagak Section							
Drift Net							
DLG.02	June 05	3:30 AM	to	June 05	3:30 PM	12.0-hours	g,h
DLG.05	June 09	7:00 AM	to	June 09	7:00 PM	12.0-hours	g,h
DLG.15	June 26	2:00 PM	to	June 26	5:00 PM	3.0-hours	c
DLG.16	June 27	11:00AM	to	June 27	5:00 PM	6.0-hours	
DLG.16	June 28	12:00 AM	to	June 28	6:00 AM	6.0-hours	
DLG.17	June 28	11:00 AM	to	June 28	6:00 PM	7.0-hours	
DLG.17	June 29	12:00 AM	to	June 29	7:00 AM	7.0-hours	
DLG 18	June 29	12:00 PM	to	June 29	5:00 PM	5.0-hours	
DLG.20	June 30	12:30 PM	to	June 30	6:30 PM	6.0-hours	
DLG.21	July 01	1:00 AM	to	July 01	8:00 AM	7.0-hours	
DLG.22	July 01	1:00 PM	to	July 01	6:00 PM	5.0-hours	
DLG.23	July 02	1:00 AM	to	July 02	8:00 AM	7.0-hours	
DLG.24	July 02	2:00 PM	to	July 02	8:00 PM	6.0-hours	
DLG.25	July 03	5:00 AM	to	July 03	11:00 AM	6.0-hours	
DLG.26	July 03	2:00 PM	to	July 03	9:00 PM	7.0-hours	
DLG.26	July 04	3:00 AM	to	July 04	11:00 AM	8.0-hours	
DLG.27	July 04	4:00 PM	to	July 05	12:00 AM	8.0-hours	
DLG.27	July 05	4:00 AM	to	July 05	12:00 PM	8.0-hours	
DLG.28	July 05	12:00 PM	to	July 05	5:00 PM	5.0-hours	d
DLG.28	July 05	9:00 PM	to	July 06	6:00 AM	9.0-hours	
DLG.28	July 06	11:00 AM	to	July 06	8:00 PM	9.0-hours	
DLG.30	July 07	4:00 AM	to	July 07	1:00 PM	9.0-hours	
DLG.31	July 07	5:00 PM	to	July 08	2:00 AM	9.0-hours	
DLG.31	July 08	7:00 AM	to	July 08	3:00 PM	8.0-hours	
DLG.33	July 08	10:00 PM	to	July 09	4:00 AM	6.0-hours	
DLG.33	July 09	8:00 AM	to	July 09	4:00 PM	8.0-hours	
DLG.34	July 09	4:00 PM	to	July 10	12:00 AM	8.0-hours	
DLG.34	July 10	4:00 AM	to	July 10	1:00 PM	9.0-hours	
DLG.35	July 10	6:30 PM	to	July 11	3:30 AM	9.0-hours	
DLG.35	July 11	7:30 AM	to	July 11	3:30 PM	8.0-hours	
DLG.36	July 11	8:30 PM	to	July 12	5:30 AM	9.0-hours	
DLG.36	July 12	10:30 AM	to	July 12	5:30 PM	7.0-hours	
DLG.38	July 12	5:30 PM	to	July 13	5:30 PM	24.0-hours	d
DLG.39	July 14	1:00 AM	to				i
DLG.41				July 23	3:00 PM	15.0-hours	e,j
DLG.41	July 24	3:00 AM	to	July 24	6:00 PM	15.0-hours	j
DLG.43	July 26	5:00 PM	to	July 27	8:00 AM	15.0-hours	j
DLG.43	July 28	7:00 PM	to	July 29	10:00 AM	15.0-hours	j
DLG.43	July 30	9:00 PM	to	July 31	12:00 PM	15.0-hours	j
DLG.45	Aug 02	11:30 PM	to	Aug 03	2:30 PM	15.0-hours	j
DLG.45	Aug 05	1:30 AM	to	Aug 05	4:30 PM	15.0-hours	j
DLG.45	Aug 06	3:30 PM	to	Aug 07	6:30 AM	15.0-hours	j
DLG.46	Aug 09	6:00 AM	to	Aug 09	9:00 PM	15.0-hours	j
DLG.46	Aug 11	8:00 AM	to	Aug 11	11:00 PM	15.0-hours	j
DLG.46	Aug 13	9:00 AM	to	Aug 14	12:00 AM	15.0-hours	j

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Table 7.–Page 6 of 8.

Number [a]	Start Date	Start Time		End Date	End Time	Effective time	
DLG.47	Aug 16	8:00 AM	to	Aug 16	11:00 PM	15.0-hours	j
DLG.47	Aug 18	9:00 AM	to	Aug 19	12:00 AM	15.0-hours	j
DLG.47	Aug 20	7:00 AM	to	Aug 20	10:00 PM	15.0-hours	j
DLG.48	Aug 22	7:00 AM	to				i
Set Net							
DLG.02	June 05	1:30 AM	to	June 05	1:30 PM	12.0-hours	g,h
DLG.05	June 09	5:00 AM	to	June 09	5:00 PM	12.0-hours	g,h
DLG.13	June 26	6:00 AM	to	June 26	12:00 PM	6.0-hours	b
DLG.14	June 26	12:00 PM	to	June 26	3:00 PM	3.0-hours	d
DLG.15	June 26	3:00 PM	to	June 26	5:00 PM	2.0-hours	d
DLG.15	June 27	7:00 AM	to	June 27	3:00 PM	8.0-hours	
DLG 16	June 27	3:00 PM	to	June 28	12:00 PM	21.0-hours	d
DLG.17	June 28	12:00 PM	to	June 29	1:00 PM	25.0-hours	d
DLG.18	June 29	1:00 PM	to	June 29	5:00 PM	4.0-hours	d
DLG.18	June 29	9:30 PM	to	June 30	3:30 PM	18.0-hours	
DLG.20	June 30	3:30 PM	to	July 01	6:30 PM	27.0-hours	d
DLG.23	July 01	6:30 PM	to	July 02	7:30 PM	25.0-hours	d
DLG.24	July 02	7:30 PM	to				i
DLG.41				July 23	3:00 PM	15.0-hours	e
DLG.41	July 24	3:00 AM	to	July 24	6:00 PM	15.0-hours	j
DLG.43	July 26	5:00 PM	to	July 27	8:00 AM	15.0-hours	j
DLG.43	July 28	7:00 PM	to	July 29	10:00 AM	15.0-hours	j
DLG.43	July 30	9:00 PM	to	July 31	12:00 PM	15.0-hours	j
DLG.45	Aug 02	11:30 PM	to	Aug 03	2:30 PM	15.0-hours	j
DLG.45	Aug 05	1:30 AM	to	Aug 05	4:30 PM	15.0-hours	j
DLG.45	Aug 06	3:30 PM	to	Aug 07	6:30 AM	15.0-hours	j
DLG.46	Aug 09	6:00 AM	to	Aug 09	9:00 PM	15.0-hours	j
DLG.46	Aug 11	8:00 AM	to	Aug 11	11:00 PM	15.0-hours	j
DLG.46	Aug 13	9:00 AM	to	Aug 14	12:00 AM	15.0-hours	j
DLG.47	Aug 16	8:00 AM	to	Aug 16	11:00 PM	15.0-hours	j
DLG.47	Aug 18	9:00 AM	to	Aug 19	12:00 AM	15.0-hours	j
DLG.47	Aug 20	7:00 AM	to	Aug 20	10:00 PM	15.0-hours	j
DLG.48	Aug 22	7:00 AM	to				i
Igushik Section							
Drift Net							
DLG.18	June 29	12:00 PM	to	June 29	5:00 PM	5.0-hours	c
DLG.20	June 30	12:30 PM	to	June 30	6:30 PM	6.0-hours	
DLG.21	July 01	1:00 AM	to	July 01	8:00 AM	7.0-hours	
DLG.22	July 01	1:00 PM	to	July 01	6:00 PM	5.0-hours	
DLG.23	July 02	1:00 AM	to	July 02	8:00 AM	7.0-hours	
DLG.24	July 02	2:00 PM	to	July 02	8:00 PM	6.0-hours	
DLG.25	July 03	5:00 AM	to	July 03	11:00 AM	6.0-hours	
DLG 26	July 03	2:00 PM	to	July 03	9:00 PM	7.0-hours	
DLG.26	July 04	3:00 AM	to	July 04	11:00 AM	8.0-hours	
DLG.27	July 04	4:00 PM	to	July 05	12:00 AM	8.0-hours	
DLG.27	July 05	4:00 AM	to	July 05	12:00 PM	8.0-hours	
DLG.28	July 05	12:00 PM	to	July 05	5:00 PM	5.0-hours	d
DLG.28	July 05	9:00 PM	to	July 06	6:00 AM	9.0-hours	
DLG.28	July 06	11:00 AM	to	July 06	8:00 PM	9.0-hours	

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Table 7.–Page 7 of 8.

Number [a]	Start Date	Start Time		End Date	End Time	Effective time	
DLG.30	July 07	4:00 AM	to	July 07	1:00 PM	9.0-hours	
DLG.31	July 07	5:00 PM	to	July 08	2:00 AM	9.0-hours	
DLG.31	July 08	7:00 AM	to	July 08	3:00 PM	8.0-hours	
DLG.32	July 08	2:00 AM	to				i
DLG.41				July 23	3:00 PM	15.0-hours	e
DLG.41	July 24	3:00 AM	to	July 24	6:00 PM	15.0-hours	j
DLG.43	July 26	5:00 PM	to	July 27	8:00 AM	15.0-hours	j
DLG.43	July 28	7:00 PM	to	July 29	10:00 AM	15.0-hours	j
DLG.43	July 30	9:00 PM	to	July 31	12:00 PM	15.0-hours	j
DLG.45	Aug 02	11:30 PM	to	Aug 08	2:30 PM	15.0-hours	j
DLG.45	Aug 05	1:30 AM	to	Aug 05	4:30 PM	15.0-hours	j
DLG.45	Aug 06	3:30 PM	to	Aug 07	6:30 AM	15.0-hours	j
DLG.46	Aug 09	6:00 AM	to	Aug 09	9:00 PM	15.0-hours	j
DLG.46	Aug 11	8:00 AM	to	Aug 11	11:00 PM	15.0-hours	j
DLG.46	Aug 13	9:00 AM	to	Aug 14	12:00 AM	15.0-hours	j
DLG.47	Aug 16	8:00 AM	to	Aug 16	11:00 PM	15.0-hours	j
DLG.47	Aug 18	9:00 AM	to	Aug 19	12:00 AM	15.0-hours	j
DLG.47	Aug 20	7:00 AM	to	Aug 20	10:00 PM	15.0-hours	j
DLG.48	Aug 22	7:00 AM	to				i
Igushik Section							
Set Net							
DLG.06	June 20	2:30 PM	to	June 20	10:30 PM	8.0-hours	c
DLG.06	June 21	3:00 PM	to	June 21	11:00 PM	8.0-hours	
DLG.08	June 22	4:00 PM	to	June 23	12:00 AM	8.0-hours	
DLG.08	June 23	4:30 PM	to	June 24	12:30 AM	8.0-hours	
DLG.10	June 24	5:30 PM	to	June 25	1:30 AM	8.0-hours	
DLG.10	June 25	6:30 PM	to	June 26	2:30 AM	8.0-hours	
DLG 11	June 26	7:30 PM	to	June 27	3:30 AM	8.0-hours	
DLG.15	June 27	7:00 AM	to	June 27	3:00 PM	8.0-hours	
DLG.16	June 28	8:00 AM	to	June 28	4:00 PM	8.0-hours	
DLG.17	June 29	9:30 AM	to	June 29	5:30 PM	8.0-hours	
DLG.18	June 29	5:30 PM	to				i
DLG.41				July 23	3:00 PM	15.0-hours	e
DLG.41	July 24	3:00 AM	to	July 24	6:00 PM	15.0-hours	j
DLG.43	July 26	5:00 PM	to	July 27	8:00 AM	15.0-hours	j
DLG.43	July 28	7:00 PM	to	July 29	10:00 AM	15.0-hours	j
DLG.43	July 30	9:00 PM	to	July 31	12:00 PM	15.0-hours	j
DLG.45	Aug 02	11:30 PM	to	Aug 08	2:30 PM	15.0-hours	j
DLG.45	Aug 05	1:30 AM	to	Aug 05	4:30 PM	15.0-hours	j
DLG.45	Aug 06	3:30 PM	to	Aug 07	6:30 AM	15.0-hours	j
DLG.46	Aug 09	6:00 AM	to	Aug 09	9:00 PM	15.0-hours	j
DLG.46	Aug 11	8:00 AM	to	Aug 11	11:00 PM	15.0-hours	j
DLG.46	Aug 13	9:00 AM	to	Aug 14	12:00 AM	15.0-hours	j
DLG.47	Aug 16	8:00 AM	to	Aug 16	11:00 PM	15.0-hours	j
DLG.47	Aug 18	9:00 AM	to	Aug 19	12:00 AM	15.0-hours	j
DLG.47	Aug 20	7:00 AM	to	Aug 20	10:00 PM	15.0-hours	j
DLG.48	Aug 22	7:00 AM	to				i

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Table 7.–Page 8 of 8.

Number [a]	Start Date	Start Time		End Date	End Time	Effective time	
Togiak District							
Drift and Set Net							
DLG.09	June 25	9:00 AM	to	June 26	9:00 AM	24.0-hours	[k]
DLG.19	July 02	9:00 AM	to	July 03	9:00 AM	24.0-hours	[k]
DLG.29	July 09	9:00 AM	to	July 10	9:00 AM	24.0-hours	[k]
DLG.37	July 12	9:00 PM	to	July 14	9:00 AM	36.0-hours	[d]
DLG.37	July 16	9:00 AM	to	July 17	9:00 AM	24.0-hours	[k]
DLG.40	July 18	9:00 AM	to	July 20	9:00 AM	48.0-hours	[d]
DLG.40	July 23	9:00 AM	to	July 24	9:00 AM	24.0-hours	[k]
DLG.42	July 25	9:00 AM	to	July 27	9:00 AM	48.0-hours	[d]
DLG.42	July 30	9:00 AM	to	July 31	9:00 AM	24.0-hours	[k]
DLG.44	Aug 01	9:00 AM	to	Aug 03	9:00 AM	48.0-hours	[d]

[a] Prefix code on emergency orders indicate where announcement originated. ("AKN" for King Salmon field office and "DLG" for Dillingham field office.)
[b] Weekly schedule: 9:00 AM Monday until 9:00 AM Friday.
[c] Gillnet mesh size is restricted to 5 and 1/2 inches or less.
[d] Extends current fishing period.
[e] The fishing period was recinded.
[f] The 48-hour waiting period waived.
[g] Gillnet mesh size is restricted to 7 and 1/2 inches or larger.
[h] Includes the Chinook Area.
[i] Commercial fishing open until further notice.
[j] Gillnet mesh size is unrestricted.
[k] Reduced the weekly fishing schedule in sections of the Togiak District.

Table 8.–Daily district registration of drift gillnet permit holders by district, Bristol Bay, 2008.

Date	Naknek-Kvichak	Egegik	Ugashik	Nushagak	Togiak	Total
6/22	138	226	31	160	32	587
6/23	150	251	43	185	32	661
6/24	159	270	67	261	35	792
6/25	178	293	74	300	37	882
6/26	287	299	91	314	38	1,029
6/27	351	319	91	441	38	1,240
6/28	362	326	94	468	40	1,290
6/29	373	328	101	469	40	1,311
6/30	382	329	101	467	40	1,319
7/01	382	328	103	470	41	1,324
7/02	382	325	105	468	41	1,321
7/03	395	325	107	437	44	1,308
7/04	410	323	111	389	48	1,281
7/05	430	320	121	362	48	1,281
7/06	459	320	134	360	49	1,322
7/07	484	316	143	361	49	1,353
7/08	483	308	150	361	49	1,351
7/09	490	295	154	359	51	1,349
7/10	491	285	162	358	51	1,347
7/11	495	265	174	348	51	1,333
7/12	492	165	181	323	52	1,213
7/13	498	222	197	309	52	1,278
7/14	529	212	202	294	52	1,289
7/15	543	207	179	289	52	1,270
7/16	608	204	178	289	52	1,331
Average	398	282	124	354	45	1,202

Table 9.–Commercial salmon catch by date and species, in numbers of fish, Naknek-Kvichak District, Bristol Bay, 2008.

Date	Hours fished		Deliveries							
	Drift	Set	Drift	Set	Sockeye	Chinook	Chum	Pink	Coho	Total
6/16 [a,b]	14.0	24.0		2						
6/17 [a,b]	24.0	24.0		3						
6/18 [b]	24.0	15.0	15	13	11	13	82			106
6/19 [b]	24.0	24.0	27	14	4,509	9	140			4,658
6/20 [b]	9.0	24.0	10	4	2,195	1	38	0	0	2,234
6/26 [b]	7.5	8.5	256	122	160,759	13	957	0	0	161,729
6/27 [b]	7.5	8.5	255	122	76,938	14	500	0	0	77,452
6/28 [b]	7.5	8.5	334	82	183,455	8	1,256	0	0	184,719
6/29 [b]	7.0	8.0	377	388	333,099	19	1,808	0	0	334,926
6/30 [b,]	8.0/7.0	24.0	668	398	373,082	43	3,682	0	0	376,807
7/01 [b]	8.5/7.0	24.0	675	522	603,608	90	7,177	0	0	610,875
7/02 [b]	8.5/7.0	18.0	601	556	1,036,382	61	3,169	0	0	1,039,612
7/03 [b]	9.0/7.0	12.5	551	207	606,642	21	1,787	0	0	608,450
7/04 [b]	9.5/7.0	24.0	601	364	631,533	22	1,754	0	0	633,309
7/05 [b]	9.0/7.0	24.0	798	438	508,736	57	2,258	0	0	511,051
7/06 [b]	9.5/8.0	24.0	771	441	718,669	28	4,027	0	0	722,724
7/07 [b]	9.5/8.0	24.0	798	440	691,211	68	5,423	0	0	696,702
7/08 [b]	10.0/9.5	24.0	828	456	601,200	77	4,259	2	0	605,538
7/09 [b]	10.0/10.0	24.0	804	411	724,299	34	5,107	0	0	729,440
7/10 [b]	10.0/10.0	24.0	802	348	619,775	58	6,037	0	0	625,870
7/11 [b]	10.0/10.0	24.0	683	383	325,234	42	3,346	1	0	328,623
7/12 [b]	10.0/10.0	24.0	802	317	441,177	39	5,187	0	0	446,403
7/13 [b]	10.0/10.0	24.0	712	423	562,297	49	8,678	0	0	571,024
7/14 [b]	12.0/10.0	24.0	529	284	118,047	40	4,685	0	0	122,772
7/15	11.0/9.0	24.0	907	288	409,139	116	33,349	2	0	442,606
7/16	11.0/9.0	24.0	565	207	215,981	47	16,617	0	2	232,647
7/17	24.0	24.0	455	141	151,234	56	19,068	5	3	170,366
7/18	24.0	24.0	459	112	121,354	49	19,841	7	0	141,251
7/19	24.0	24.0	329	107	50,058	58	10,288	16	2	60,422
7/20	24.0	24.0	186	94	43,358	39	11,600	9	4	55,010
7/21	24.0	24.0	104	83	29,405	30	9,140	20	121	38,716
7/22	24.0	24.0	114	69	22,254	28	9,682	109	39	32,112
7/23	24.0	24.0	63	49	10,217	21	3,538	314	91	14,181
7/24	24.0	24.0	33	36	7,245	24	3,227	568	101	11,165
7/25	24.0	24.0	11	14	1,767	1	332	45	77	2,222
7/26	24.0	24.0	3	3	403	2	786	352	67	1,610
7/27	24.0	24.0	11	1	1,156	4	2,303	966	300	4,729
7/28	24.0	24.0	6	7	679	4	1,758	1,042	118	3,601

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Table 9.–Page 2 of 2.

	Hours Fished		Deliveries							
Date	Drift	Set	Drift	Set	Sockeye	Chinook	Chum	Pink	Coho	Total
7/29	24.0	24.0	12	14	1,388	16	4,117	5,377	1345	12,243
7/30	24.0	24.0	8	17	1,362	19	2,387	2,759	650	7,177
7/31	24.0	24.0	13	11	777	4	3,276	3,226	737	8,020
8/01	9.0	9.0	9	3	147	0	3,232	1,132	490	5,001
8/04	15.0	15.0	5	3	45	0	2,603	390	240	3,278
8/05	24.0	24.0	4	14	339	0	1,031	928	591	2,889
8/06	24.0	24.0	3	8	183	1	1,094	365	248	1,891
8/07	24.0	24.0	3	6	278	1	669	527	481	1,956
8/08 [a]	9.0	9.0	1	2						
8/11 [a]	15.0	15.0	0	3						
8/12	24.0	24.0	0	6	79	0	4	88	131	302
8/13 [a]	24.0	24.0	0	3						
8/14	24.0	24.0	0	5	27	0	2	46	67	142
Total					10,392,012	1,326	231,824	18,407	6,213	10,649,782

Note: Blank cells represent days with no data.

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

[b] Fishery was restricted to the Naknek Section only for drift gillnet gear.

Table 10.–Commercial salmon catch by date and species, in numbers of fish, Egegik District, Bristol Bay, 2008.

Date	Hours fished		Deliveries		Sockeye	Chinook	Chum	Pink	Coho	Total
	Drift	Set	Drift	Set						
6/09 [a]	15.0	15.0								
6/10	24.0	24.0	3	5	80		0			80
6/11	24.0	24.0		6	141	1	3			145
6/12	24.0	24.0		5	150	1	9			160
6/13	9.0	9.0								
6/16	9.0	9.0	10	44	4,354	6	265			4,625
6/18	9.0	9.0	36	94	36,308	8	878			37,194
6/20	9.0	9.0	142	138	75,300	23	2,625			77,948
6/22	6.0	9.0	226	142	144,271	25	4,373			148,669
6/25	6.0	9.0	237	138	147,229	29	1,415			148,673
6/26	5.0	8.0	273	82	236,411	5	2,287			238,703
6/27	5.0	8.0	313	279	339,822	30	3,412			343,264
6/28	10.5	10.0	425	231	370,044	19	3,376			373,439
6/29	9.0	9.0	572	188	353,387	40	3,037			356,464
6/30	7.0	8.0	557	211	504,187	37	2,666			506,890
7/01	7.0	8.0	344	226	411,789	14	1,753			413,556
7/02	8.0	8.0	566	228	647,417	12	4,026			651,455
7/03	11.0	8.0	559	295	674,342	11	4,070			678,423
7/04	12.0	8.0	477	253	484,691	16	3,397			488,104
7/05	14.0	8.0	594	210	499,618	7	3,532			503,157
7/06	15.0	19.5	578	318	502,637	12	4,258			506,907
7/07	14.0	20.5	519	268	356,671	11	3,138			359,820
7/08	12.0	20.5	585	247	373,028	2	3,738			376,768
7/09	10.0	14.5	458	234	278,260	11	3,163			281,434
7/10	10.0	15.0	542	262	266,204	6	3,304			269,514
7/11	5.0	10.5	250	126	113,808	9	1,621			115,438
7/12	3.0	12.25	68	259	58,592	4	754			59,350
7/13	9.0	14.25	365	263	166,838	11	3,600			170,449
7/14	13.75	15.25	302	268	120,067	16	4,254			124,337
7/15	12.25	15.25	227	185	66,004	9	2,937			68,950
7/16	19.0	20.0	247	62	82,020	2	4,695			86,717
7/17	24.0	24.0	119	109	45,374	1	4,757			50,132
7/18	24.0	24.0	88	94	36,470	1	3,718			40,189
7/19	24.0	24.0	75	79	24,743	2	2,074			26,819
7/20	24.0	24.0	58	45	14,971	0	1,327			16,298
7/21	24.0	24.0	20	40	6,416	2	1,285			7,703
7/22	24.0	24.0	10	27	2,633	2	155			2,790
7/23	24.0	24.0	7	9	1,387	0	77			1,464
7/24	24.0	24.0								-
7/25	9.0	9.0								-
7/28	15.0	15.0	2	5	287	0	215	139	405	1,046
7/29	24.0	24.0	4	9	440	0	411	315	401	1,567
7/30	24.0	24.0	3	6	510	0	669	567	520	2,266

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Table 10.–Page 2 of 2.

Date		Hours fished Drift	Hours fished Set	Deliveries Drift	Deliveries Set	Sockeye	Chinook	Chum	Pink	Coho	Total
7/31	[a]	24.0	24.0								
8/01		9.0	9.0								-
8/04		15.0	15.0	4	8	154	0	562	-	1,626	2,342
8/05		24.0	24.0	5	7	145	0	620	-	772	1,537
8/06		24.0	24.0	4	8	130	0	126	-	1,220	1,476
8/07		24.0	24.0	4	7	99	2	114	12	934	1,193
8/08	[a]	9.0	9.0								
8/11		15.0	15.0	13	7	215	2	217	0	1,942	2,376
8/12		24.0	24.0	7	5	78	0	121	0	1,928	2,127
8/13		24.0	24.0	4	4	37	0	99	0	987	1,123
8/14		24.0	24.0	4	7	76	0	99	0	1,844	2,019
8/15	[a]	9.0	9.0								
8/18		15.0	15.0	3	5	17	0	35	0	2,065	2,117
8/19		24.0	24.0	3	4	22	0	34	0	2386	2,442
8/20		24.0	24.0	3	6	31	0	16	0	1951	1,998
8/21		24.0	24.0	4	4	26	0	19	0	2,187	2,232
8/22	[a]	9.0	9.0								
8/25		15.0	15.0	5	3	13	0	0	0	1,309	1,322
8/26		24.0	24.0	3	3		0	0	0	1,501	1,501
8/27		24.0	24.0	4	3	15	0	0	0	1,520	1,535
8/28		24.0	24.0	4	3	2	0	0	0	1,624	1,626
8/29		9.0	9.0								
9/01		15.0	15.0	2	2	0	0	0	0	1,131	1,131
9/02		24.0	24.0	2	2	0	0	0	0	402	402
9/03	[a]	24.0	24.0								
9/04	[a]	24.0	24.0								
9/05		9.0	9.0								
TOTAL						7,448,175	390	93,360	1,033	29,675	7,572,665

Note: Blank cells represent days with no data.

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

Table 11.–Commercial salmon catch by date and species, in numbers of fish, Ugashik District, Bristol Bay, 2008.

	Hours fished		Deliveries							
Date	Drift	Set	Drift	Set	Sockeye	Chinook	Chum	Pink	Coho	Total
6/16	15.0	15.0	6		1,002	2	136			1,140
6/17	24.0	24.0	18		3,566	20	305			3,891
6/18	24.0	24.0	26	1	3,395	49	251			3,695
6/19	24.0	24.0	24	1	4,352	84	524			4,960
6/20	9.0	9.0	7		1,173	12	92			1,277
6/23	10.0	10.0	59	5	25,776	35	1,395			27,206
6/26	10.0	10.0	85	4	50,584	27	3,117			53,728
6/28		10.0		19	3,396	25	25			3,446
6/29	5.0	10.0	99	23	67,346	32	2,115			69,493
7/02	5.0	10.0	105	56	161,579	16	1,180			162,775
7/03	14.0	10.0	140	45	193,423	9	9,220			202,652
7/04	14.0	10.0	139	50	161,894	16	3,507			165,417
7/05	12.0	12.0	111	3	144,547	18	2,620	2		147,187
7/06	22.0	22.0	192	44	200,855	49	5,087			205,991
7/07	22.0	22.0	171	32	215,106	45	4,250			219,401
7/08	22.0	22.0	177	44	194,216	49	3,797			198,062
7/09	22.0	22.0	178	17	191,482	36	12,838			204,356
7/10	22.0	22.0	184	21	146,703	49	6,598			153,350
7/11	22.0	22.0	184	23	116,826	99	6,544			123,469
7/12	19.0	22.0	205	22	107,289	54	6,403			113,746
7/13	15.0	22.0	215	24	61,993	45	5,967			68,005
7/14	12.0	22.0	201	27	42,454	62	5,183			47,699
7/15		12.0	165	37	5,720	22	212			5,954
7/16	16.5	16.5	107	37	56,178	72	7,542			63,792
7/17	24.0	24.0	123	59	52,101	54	9,836	1		61,992
7/18	24.0	24.0	78	19	33,021	27	9,751	1		42,800
7/19	24.0	24.0	64	15	22,892	29	6,584	2		29,507
7/20	24.0	24.0	39	33	26,562	50	9,814	0		36,426
7/21	24.0	24.0	59	21	9,976	43	4,274	3		14,296
7/22	24.0	24.0	15	18	10,059	21	4,278	0		14,359
7/23	24.0	24.0	9	12	2,639	9	1,510	3		4,160
7/24	24.0	24.0	2	11	2,843	7	1,986	0	3	4,839
7/25	9.0	9.0								
7/28	15.0	15.0	4	3	432	1	69	1	15	518
7/29 [a]	24.0	24.0								
7/30	24.0	24.0								
7/31	24.0	24.0								
8/01	9.0	9.0								
8/04 [a]	15.0	15.0								
8/05 [a]	24.0	24.0								
8/06 [a]	24.0	24.0								
8/07 [a]	24.0	24.0								
8/08 [a]	9.0	9.0								

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Table 11.–Page 2 of 2.

Date	Hours fished		Deliveries		Sockeye	Chinook	Chum	Pink	Coho	Total
	Drift	Set	Drift	Set						
8/11 [a]	15.0	15.0								
8/12 [a]	24.0	24.0								
8/13 [a]	24.0	24.0								
8/14 [a]	24.0	24.0								
8/15 [a]	9.0	9.0								
8/18 [a]	15.0	15.0								
8/19 [a]	24.0	24.0								
8/20 [a]	24.0	24.0								
8/21 [a]	24.0	24.0								
8/22	9.0	9.0								
8/25	15.0	15.0								
8/26	24.0	24.0								
8/27	24.0	24.0								
8/28	24.0	24.0								
8/29	9.0	9.0								
9/01	15.0	15.0								
9/02	24.0	24.0								
9/03	24.0	24.0								
9/04	24.0	24.0								
9/05	9.0	9.0								
Total					2,322,030	1,172	137,207	15	2,280	2,462,704

Note: Blank cells represent days with no data.

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

Table 12.–Commercial salmon catch by date and species, in numbers of fish, Nushagak District, Bristol Bay, 2008.

	Hours fished		Deliveries							
Date	Nushagak	Igushik	Drift	Set	Sockeye	Chinook	Chum	Pink	Coho	Total
6/05	12/12 [a]	12/12 [a]	3	0 [b]						
6/09	12/12 [a]	12/12 [a]	23	0	1	496	15	0	0	512
6/20	0/0	0/8	0	13	894	21	17	0	0	932
6/21	0/0	0/8	0	16	880	58	8	0	0	946
6/22	0/0	0/8	0	30	3,518	566	34	0	0	4,118
6/23	0/0	0/7.5	0	51	9,935	346	146	0	0	10,427
6/24	0/0	0/7	0	45	8,460	145	167	0	0	8,772
6/25	0/0	0/7	0	8	1,957	13	20	0	0	1,990
6/26	3/11	0/7	343	263	168,169	912	34,085	4	0	203,170
6/27	6/17	0/11.5	400	272	222,530	857	40,190	2	0	263,579
6/28	13/24	0/8	752	261	272,164	1,587	40,272	0	0	314,023
6/29	12/19.5	5/14.5	700	316	327,030	1,211	36,060	2	0	364,303
6/30	6/24	6/24	418	438	353,050	1,457	33,040	5	0	387,552
7/01	12/24	12/24	795	388	514,927	1,867	37,882	4	0	554,680
7/02	13/24	13/24	694	550	734,840	1,404	42,394	5	0	778,643
7/03	13/24	13/24	653	450	511,873	591	27,867	4	0	540,335
7/04	16/24	16/24	617	292	293,243	519	16,666	1	23	310,452
7/05	16/24	16/24	511	276	440,233	523	30,378	4	0	471,138
7/06	15/24	15/24	439	344	351,303	752	22,818	6	0	374,879
7/07	16/24	16/24	496	372	327,773	750	19,371	16	0	347,910
7/08	12/24	24/24	531	425	444,778	930	23,076	15	0	468,799
7/09	20/24	24/24	688	508	622,057	786	34,165	13	2	657,023
7/10	14.5/24	24/24	475	450	293,498	460	16,902	48	7	310,915
7/11	15/24	24/24	514	353	192,917	392	14,224	48	2	207,583
7/12	19/24	24/24	384	343	275,665	635	22,866	99	6	299,271
7/13	17.5/24	24/24	333	376	170,177	327	11,261	486	9	182,260
7/14	23/24	24/24	315	293	81,546	309	8,707	1,528	69	92,159
7/15	24/24	24/24	281	264	101,186	288	12,323	3,302	465	117,564
7/16	24/24	24/24	180	197	56,488	151	6,171	2,629	1,174	66,613
7/17	24/24	24/24	73	133	25,575	58	2,484	1,920	1,245	31,282
7/18	24/24	24/24	53	145	25,783	45	2,219	6,611	1,828	36,486
7/19	24/24	24/24	42	134	21,078	50	1,624	16,862	1,427	41,041
7/20	24/24	24/24	29	91	14,832	44	1,837	10,809	6,269	33,791
7/21	24/24	24/24	13	67	4,801	16	577	5,311	2,917	13,622
7/22	24/24	24/24	14	74	6,385	13	536	7,027	1,625	15,586
7/23	15/15	15/15	6	23	2,719	2	186	3,054	522	6,483
7/24	15/15	15/15	12	17	1,475	11	264	13,594	3,583	18,927
7/26	7/7	7/7	5	4	2,922	1	273	6,765	568	10,529
7/27	8/8	8/8	11	0	45	1	29	13,364	4,223	17,662
7/28	5/5	5/5	0	0	0	0	0	0	0	0
7/29	10/10	10/10	9	3	383	5	14	6,496	1,576	8,474
7/30	3/3	3/3	1	2 [b]						
7/31	12/12	12/12	21	4	202	10	93	12,219	3,373	15,897
8/02	.5/.5	.5/.5	0	0	0	0	0	0	0	0

-continued-

Table 12.-Page 2 of 2.

	Hours fished		Deliveries							
Date	Nushagak	Igushik	Drift	Set	Sockeye	Chinook	Chum	Pink	Coho	Total
8/03	14.5/14.5	14.5/14.5	32	4	585	7	169	8,226	7,793	16,780
8/05	15/15	15/15	27	1	168	7	20	8,264	2,428	10,887
8/06	8.5/8.5	8.5/8.5	0	1 [b]						
8/07	6.5/6.5	6.5/6.5	19	0	46	0	12	5,987	2,818	8,863
8/09	15/15	15/15	11	2	11	0	5	962	3,092	4,070
8/11	15/15	15/15	16	2	2	1	0	616	11,756	12,375
8/13	15/15	15/15	15	3	25	0	0	403	5,453	5,881
8/16	15/15	15/15	11	1	0	0	0	241	3,291	3,532
8/18	15/15	15/15	8	1	0	0	0	23	4,188	4,211
8/20	15/15	15/15	6	0	0	0	0	19	1,476	1,495
8/22	17/17	17/17	1	0 [b]						
8/23	24/24 [c]	24/24 [c]	0	0	0	0	0	0	0	0
8/24	24/24	24/24	0	0	0	0	0	0	0	0
8/25	24/24	24/24	0	1 [b]						
8/26	24/24	24/24	0	0	0	0	0	0	0	0
8/27	24/24	24/24	0	1 [b]						
Total	926/1031	599/952	10,980	8,308	6,888,153	18,634	541,469	137,820	73,889	7,659,965

Note: Blank cells represent days with no data.

[a] Includes the Chinook Area.

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

[c] Fishing extended until further notice.

Table 13.–Commercial salmon catch by date and species, in numbers of fish, Togiak District, Bristol Bay, 2008.

Date [a]	Sockeye	Chinook	Chum	Pink	Coho	Total
6/18 [b]						
6/19	353	28	386	2	0	769
6/20 [b]						
6/23	1,333	96	1,672	7	0	3,108
6/24	1,539	49	956	3	0	2,547
6/25	899	47	368	1	0	1,315
6/26	2,136	120	2,125	1	0	4,382
6/27	617	37	325	1	0	980
6/30	4,968	262	11,911	2	0	17,143
7/01	10,375	309	12,658	26	0	23,368
7/02	5,219	113	4,437	8	0	9,777
7/03	10,225	164	7,646	8	0	18,043
7/04	14,411	167	10,647	27	0	25,252
7/05	12,006	107	6,769	11	0	18,893
7/07	15,928	177	13,275	22	0	29,402
7/08	19,810	223	16,597	49	0	36,679
7/09	21,480	115	11,276	28	0	32,899
7/10	27,262	90	10,038	36	0	37,426
7/11	27,637	125	13,575	109	0	41,446
7/12	20,964	37	8,185	31	0	29,217
7/13	8,949	45	2,477	7	0	11,478
7/14	46,631	114	22,040	131	0	68,916
7/15	38,165	103	19,510	222	0	58,000
7/16	25,573	53	7,205	67	0	32,898
7/17	16,133	32	2,114	37	0	18,316
7/18	28,720	43	5,756	62	1	34,582
7/19	29,995	61	7,047	150	1	37,254
7/20	13,898	16	2,847	119	0	16,880
7/21	41,177	41	13,546	1,020	2	55,786
7/22	36,190	66	16,069	3,447	0	55,772
7/23	29,826	54	8,816	3,456	6	42,158
7/24	30,534	33	11,355	12,818	2	54,742
7/25	15,485	33	15,542	14,301	4	45,365
7/26	14,095	22	11,448	14,012	19	39,596
7/27	5,509	5	2,033	4,650	1	12,198
7/28	19,076	22	5,373	9,697	1,107	35,275
7/29	14,113	23	4,731	18,327	48	37,242
7/30	9,296	19	3,437	11,150	47	23,949
7/31	5,843	8	1,908	6,323	50	14,132
8/01	6,723	9	1,497	6,335	66	14,630
8/02	7,420	7	1,283	6,424	140	15,274
8/03	2,249	4	477	1,194	13	3,937
8/04	3,945	8	1,382	3,393	285	9,013
8/05	3,391	1	832	2,710	217	7,151
8/06	414	1	50	252	23	740
Total	650,718	3,094	301,855	120,676	2,032	1,078,375

[a] See Table 7 for inseason adjustments to the regular weekly fishing schedule.

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

Table 14.–Commercial salmon catch by date and species, in numbers of fish, Togiak Section, Bristol Bay, 2008.

Date	Deliveries		Sockeye	Chinook	Chum	Pink	Coho	Total
	Drift	Set						
6/18 [a]								
6/19	1	5	266	20	276	1	0	563
6/20 [a]								
6/23	8	22	760	74	863	6	0	1,703
6/24	1	34	1,108	47	844	3	0	2,002
6/25	2	24	899	47	368	1	0	1,315
6/26	15	29	2,136	120	2,125	1	0	4,382
6/27	4	17	617	37	325	1	0	980
6/30	41	54	3,678	243	10,404	2	0	14,327
7/01	59	82	6,497	247	10,691	20	0	17,455
7/02	21	59	4,918	113	4,389	8	0	9,428
7/03	41	91	10,225	164	7,646	8	0	18,043
7/04	60	97	14,411	167	10,647	27	0	25,252
7/05	38	96	12,006	107	6,769	11	0	18,893
7/07	55	99	12,549	143	9,520	21	0	22,233
7/08	77	115	14,833	189	13,568	38	0	28,628
7/09	68	117	20,637	113	10,964	28	0	31,742
7/10	61	125	27,262	90	10,038	36	0	37,426
7/11	87	135	27,637	125	13,575	109	0	41,446
7/12	22	123	20,964	37	8,185	31	0	29,217
7/13	11	30	8,949	45	2,477	7	0	11,478
7/14	95	156	45,787	108	21,336	131	0	67,362
7/15	77	159	34,345	99	18,008	222	0	52,674
7/16	51	105	25,573	53	7,205	67	0	32,898
7/17	33	74	16,133	32	2,114	37	0	18,316
7/18	66	82	28,720	43	5,756	62	1	34,582
7/19	79	93	29,995	61	7,047	150	1	37,254
7/20	14	30	13,898	16	2,847	119	0	16,880
7/21	85	123	41,177	41	13,546	1,020	2	55,786
7/22	84	140	36,190	66	16,069	3,447	0	55,772
7/23	60	123	29,826	54	8,816	3,456	6	42,158
7/24	119	89	30,534	33	11,355	12,818	2	54,742
7/25	111	74	15,485	33	15,542	14,301	4	45,365
7/26	83	54	14,095	22	11,448	14,012	19	39,596
7/27	27	10	5,509	5	2,033	4,650	1	12,198
7/28	109	51	17,990	21	5,264	9,697	1,107	34,079
7/29	87	73	12,654	21	4,577	18,149	42	35,443
7/30	60	57	7,937	17	3,123	10,137	37	21,251
7/31	44	40	5,843	8	1,908	6,323	50	14,132
8/01	35	38	6,723	9	1,497	6,335	66	14,630
8/02	26	46	7,420	7	1,283	6,424	140	15,274
8/03	9	12	2,249	4	477	1,194	13	3,937
8/04	21	34	3,945	8	1,382	3,393	285	9,013
8/05	23	40	3,391	1	832	2,710	217	7,151
8/06	2	4	414	1	50	252	23	740
Total	2,072	3,064	626,248	2,896	287,230	119,465	2,016	1,037,855

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

Table 15.–Commercial salmon catch by date and species, in numbers of fish, Kulukak Section, Bristol Bay, 2008.

Date[a]	Deliveries		Sockeye	Chinook	Chum	Pink	Coho	Total
	Drift	Set						
6/18[b]								
6/19[b]								
6/23	3	3	573	22	809	1	0	1,405
6/24	1	3	431	2	112	0	0	545
6/30	5	14	1,290	19	1,507	0	0	2,816
7/01	11	23	3,878	62	1,967	6	0	5,913
7/02[b]								
7/07	12	25	3,379	34	3,755	1	0	7,169
7/08	16	19	4,977	34	3,029	11	0	8,051
7/09	3	1	843	2	312	0	0	1,157
7/14	2	3	844	6	704	0	0	1,554
7/15	5	9	3,820	4	1,502	0	0	5,326
7/28[b]								
7/29	3	1	1,459	2	154	178	6	1,799
7/30	7	0	1,359	2	314	1,013	10	2,698
Total	70	104	24,470	198	14,625	1,211	16	40,520

[a] Kulukak Section is open 3 days per week by regulation. See Table 7 for inseason adjustments to the weekly fishing schedule.

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

Table 16.–Commercial salmon catch by date and species, in numbers of fish, Matogak Section, Bristol Bay, 2008.

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 7 for inseason adjustments to the weekly fishing schedule.

Table 17.–Commercial salmon catch by date and species, in numbers of fish, Osviak Section, Bristol Bay, 2008.

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 7 for inseason adjustments to the weekly fishing schedule.

Table 18.–Commercial salmon catch by district and species, in number of fish, Bristol Bay, 2008.

District and River System		Sockeye	Chinook	Chum	Pink	Coho	Total
NAKNEK-KVICHAK DISTRICT							
Kvichak River		2,879,516					
Alagnak River		3,728,458					
Naknek River		3,784,038					
	Total	10,392,012	1,326	231,824	18,407	6,213	10,649,782
EGEGIK DISTRICT		7,448,175	390	93,360	1,033	29,675	7,572,633
UGASHIK DISTRICT		2,322,030	1,172	137,207	15	2,280	2,462,704
NUSHAGAK DISTRICT							
Wood River		3,508,894					
Igushik River		2,235,442					
Nushagak River		1,143,817					
	Total	6,888,153	18,634	541,469	137,820	73,889	7,659,965
TOGIAK DISTRICT							
Togiak Section		626,248	2,896	287,230	119,465	2,016	1,037,855
Kulukak Section		24,470	198	14,625	1,211	16	40,520
Matogak Section		0	0	0	0	0	0
Osviak Section		0	0	0	0	0	0
	Total	650,718	3,094	301,855	120,676	2,032	1,078,375
TOTAL BRISTOL BAY		27,701,088	24,616	1,305,715	277,951	114,089	29,423,459

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

Table 19.–Daily sockeye salmon escapement tower counts by river system, east side Bristol Bay, 2008.

	Kvichak River		Naknek River		Alagnak River		Egegik River		Ugashik River	
Date	Daily	Cum.	Daily	Cum.	Daily	Cum.	Daily	Cum.	Daily	Cum.
6/19			0	0			864	864		
6/20	42	42	0	0			810	1,674		
6/21	36	78	24	24			4,038	5,712		
6/22	36	114	0	24	0	0	14,724	20,436		
6/23	30	144	48	72	0	0	48	20,484		
6/24	132	276	40,548	40,620	6	6	35,754	56,238		
6/25	6	282	27,126	67,746	0	6	14,400	70,638		
6/26	60	342	28,080	95,826	0	6	32,892	103,530		
6/27	1,296	1,638	15,714	111,540	0	6	31,740	135,270		
6/28	6,084	7,722	3,720	115,260	0	6	50,718	185,988		
6/29	2,322	10,044	238,968	354,228	0	6	135,624	321,612		
6/30	36,558	46,602	67,056	421,284	19,950	19,956	90,714	412,326		
7/01	119,400	166,002	41,226	462,510	52,140	72,096	66,414	478,740	1,944	1,944
7/02	105,030	271,032	124,578	587,088	8,166	80,262	47,100	525,840	726	2,670
7/03	60,804	331,836	301,212	888,300	25,680	105,942	65,778	591,618	6,132	8,802
7/04	93,840	425,676	361,512	1,249,812	75,828	181,770	96,600	688,218	16,146	24,948
7/05	132,642	558,318	174,528	1,424,340	122,616	304,386	235,434	923,652	21,540	46,488
7/06	265,296	823,614	66,888	1,491,228	139,338	443,724	55,776	979,428	19,434	65,922
7/07	221,028	1,044,642	213,180	1,704,408	62,682	506,406	67,950	1,047,378	54,690	120,612
7/08	115,488	1,160,130	83,826	1,788,234	35,970	542,376	18,240	1,065,618	71,232	191,844
7/09	121,740	1,281,870	165,024	1,953,258	161,730	704,106	19,266	1,084,884	104,706	296,550
7/10	195,756	1,477,626	144,204	2,097,462	241,398	945,504	40,872	1,125,756	78,336	374,886
7/11	274,878	1,752,504	114,252	2,211,714	264,018	1,209,522	15,456	1,141,212	89,322	464,208
7/12	261,954	2,014,458	60,990	2,272,704	197,448	1,406,970	15,612	1,156,824	28,026	492,234
7/13	172,236	2,186,694	80,532	2,353,236	133,146	1,540,116	57,570	1,214,394	9,630	501,864
7/14	154,908	2,341,602	42,576	2,395,812	178,230	1,718,346	10,218	1,224,612	11,028	512,892
7/15	128,316	2,469,918	19,974	2,415,786	280,074	1,998,420	18,954	1,243,566	1,782	514,674
7/16	119,868	2,589,786	30,042	2,445,828	88,812	2,087,232	7,572	1,251,138	1,524	516,198
7/17	54,786	2,644,572	17,784	2,463,612	21,444	2,108,676	3,672	1,254,810	9,732	525,930
7/18	36,174	2,680,746	9,078	2,472,690	34,194	2,142,870	4,758	1,259,568	11,274	537,204
7/19	34,302	2,715,048			24,816	2,167,686			13,080	550,284
7/20	24,054	2,739,102			6,996	2,174,682			5,592	555,876
7/21	11,490	2,750,592			1,692	2,176,374			4,932	560,808
7/22	7,320	2,757,912			4,128	2,180,502			7,824	568,632

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

Table 20.–Daily sockeye salmon escapement tower counts by river system, westside Bristol Bay, 2008.

	Wood River		Igushik River		Togiak River	
Date	Daily	Cum.	Daily	Cum.	Daily	Cum.
6/19	72	72				
6/20	114	186				
6/21	102	288				
6/22	1,626	1,914				
6/23	3,708	5,622				
6/24	6,858	12,480	0	0		
6/25	23,148	35,628	672	672		
6/26	102,960	138,588	3,894	4,566		
6/27	137,460	276,048	8,910	13,476		
6/28	38,712	314,760	19,746	33,222		
6/29	17,238	331,998	12,582	45,804		
6/30	25,722	357,720	12,546	58,350		
7/01	50,928	408,648	19,788	78,138		
7/02	104,268	512,916	15,384	93,522		
7/03	118,512	631,428	52,320	145,842	792	792
7/04	96,936	728,364	44,472	190,314	1,266	2,058
7/05	88,026	816,390	45,904	236,218	1,806	3,864
7/06	82,518	898,908	41,510	277,728	4,740	8,604
7/07	56,478	955,386	37,494	315,222	3,084	11,688
7/08	70,650	1,026,036	37,464	352,686	1,212	12,900
7/09	118,416	1,144,452	31,548	384,234	3,096	15,996
7/10	113,370	1,257,822	39,666	423,900	4,296	20,292
7/11	92,784	1,350,606	54,186	478,086	3,138	23,430
7/12	84,984	1,435,590	38,640	516,726	2,940	26,370
7/13	85,002	1,520,592	64,812	581,538	4,344	30,714
7/14	80,130	1,600,722	93,210	674,748	3,750	34,464
7/15	29,010	1,629,732	80,844	755,592	4,260	38,724
7/16	34,776	1,664,508	62,034	817,626	11,028	49,752
7/17	23,058	1,687,566	60,216	877,842	8,082	57,834
7/18	21,204	1,708,770	48,606	926,448	5,778	63,612
7/19	15,906	1,724,676	49,242	975,690	6,858	70,470
7/20			33,342	1,009,032	10,908	81,378
7/21			15,468	1,024,500	13,128	94,506
7/22			16,212	1,040,712	7,986	102,492
7/23			13,992	1,054,704	11,856	114,348
7/24					18,522	132,870
7/25					18,096	150,966
7/26					11,484	162,450
7/27					9,864	172,314
7/28					6,564	178,878
7/29					6,384	185,262
7/30					3,738	189,000
7/31					3,168	192,168
8/01					3,522	195,690
8/02					4,812	200,502
8/03					1,716	202,218
8/04					2,034	204,252
8/05					1,428	205,680

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

Table 21.–Final daily and cumulative escapement estimates by species, Nushagak River sonar project, Bristol Bay, 2008.

	Sockeye		Chinook		Chum		Pink		Coho		Total	
Date	Daily	Cum.	Daily	Cum.	Daily	Cum.	Daily	Cum.	Daily	Cum.	Daily	Cum.
6/06	0	0	125	125	109	109	0	0	0	0	234	234
6/07	0	0	93	218	99	208	0	0	0	0	192	426
6/08	0	0	131	349	91	299	0	0	0	0	222	648
6/09	55	55	452	801	375	674	0	0	0	0	882	1,530
6/10	54	109	518	1,319	592	1,266	0	0	0	0	1,164	2,694
6/11	18	127	301	1,620	246	1,512	0	0	0	0	565	3,259
6/12	24	151	404	2,024	387	1,899	0	0	0	0	815	4,074
6/13	58	209	284	2,308	444	2,343	0	0	0	0	786	4,860
6/14	25	234	231	2,539	332	2,675	0	0	0	0	588	5,448
6/15	37	271	147	2,686	332	3,007	0	0	0	0	516	5,964
6/16	123	394	1,757	4,443	616	3,623	0	0	0	0	2,496	8,460
6/17	285	679	2,136	6,579	2,325	5,948	0	0	0	0	4,746	13,206
6/18	383	1,062	1,028	7,607	2,069	8,017	0	0	0	0	3,480	16,686
6/19	669	1,731	285	7,892	294	8,311	0	0	0	0	1,248	17,934
6/20	66	1,797	391	8,283	1,499	9,810	0	0	0	0	1,956	19,890
6/21	80	1,877	244	8,527	2,922	12,732	0	0	0	0	3,246	23,136
6/22	269	2,146	1,521	10,048	9,958	22,690	0	0	0	0	11,748	34,884
6/23	4,070	6,216	1,709	11,757	20,417	43,107	0	0	0	0	26,196	61,080
6/24	3,719	9,935	6,811	18,568	19,955	63,062	0	0	0	0	30,485	91,565
6/25	12,504	22,439	3,932	22,500	17,589	80,651	0	0	0	0	34,025	125,590
6/26	28,247	50,686	16,030	38,530	49,257	129,908	0	0	0	0	93,534	219,124
6/27	58,781	109,467	10,808	49,338	33,058	162,966	0	0	0	0	102,647	321,771
6/28	51,110	160,577	2,512	51,850	27,679	190,645	0	0	0	0	81,301	403,072
6/29	16,208	176,785	2,177	54,027	5,105	195,750	0	0	0	0	23,490	426,562
6/30	6,296	183,081	3,248	57,275	3,236	198,986	0	0	0	0	12,780	439,342
7/01	14,957	198,038	1,372	58,647	13,113	212,099	0	0	0	0	29,442	468,784

-continued-

Table 21.–Page 2 of 2.

	Sockeye		Chinook		Chum		Pink		Coho		Total	
Date	Daily	Cum.	Daily	Cum.	Daily	Cum.	Daily	Cum.	Daily	Cum.	Daily	Cum.
7/02	25,114	223,152	2,939	61,586	26,440	238,539	0	0	0	0	54,493	523,277
7/03	42,357	265,509	4,719	66,305	8,357	246,896	0	0	0	0	55,433	578,710
7/04	37,161	302,670	2,583	68,888	7,128	254,024	0	0	0	0	46,872	625,582
7/05	21,767	324,437	1,230	70,118	2,177	256,201	0	0	0	0	25,174	650,756
7/06	15,383	339,820	3,078	73,196	7,190	263,391	0	0	0	0	25,651	676,407
7/07	14,941	354,761	2,790	75,986	14,807	278,198	0	0	0	0	32,538	708,945
7/08	13,691	368,452	1,142	77,128	2,429	280,627	0	0	0	0	17,262	726,207
7/09	14,147	382,599	2,271	79,399	3,725	284,352	0	0	0	0	20,143	746,350
7/10	20,657	403,256	1,961	81,360	4,538	288,890	0	0	0	0	27,156	773,506
7/11	14,086	417,342	1,591	82,951	2,047	290,937	0	0	0	0	17,724	791,230
7/12	14,984	432,326	2,081	85,032	413	291,350	0	0	0	0	17,478	808,708
7/13	13,602	445,928	3,788	88,820	4,587	295,937	0	0	0	0	21,977	830,685
7/14	16,366	462,294	1,325	90,145	3,802	299,739	0	0	0	0	21,493	852,178
7/15	8,157	470,451	2,289	92,434	5,917	305,656	0	0	0	0	16,363	868,541
7/16	8,766	479,217	2,650	95,084	9,189	314,845	0	0	0	0	20,605	889,146
7/17	8,571	487,788	1,557	96,641	7,486	322,331	0	0	717	717	18,331	907,477
7/18	4,758	492,546	689	97,330	3,969	326,300	0	0	377	1,094	9,793	917,270

Table 22.–Comparison of daily sockeye salmon escapement estimates by tower count, aerial survey, and river test fishing enumeration methods, Kvichak River, Bristol Bay, 2008.

	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	42	42						
6/21	36	78						
6/22	36	114		40	0	0	-	
6/23	30	144		40	0	0	-	
6/24	132	276		40	0	0	-	
6/25	6	282		40	3	3	106	
6/26	60	342		40	74	77	3,064	
6/27	1,296	1,638		54	5	82	4,430	
6/28	6,084	7,722		58	0	82	4,759	
6/29	2,322	10,044		64	2,409	2,491	159,412	150,000
6/30	36,558	46,602		63	4,752	7,243	456,316	300,000
7/01	119,400	166,002	332,478	56	256	7,499	419,947	250,000
7/02	105,030	271,032		52	615	8,114	421,949	150,000
7/03	60,804	331,836		46	4,606	12,720	585,131	250,000
7/04	93,840	425,676		46	4,835	17,555	807,547	400,000
7/05	132,642	558,318		39	4,593	22,149	863,792	300,000
7/06	265,296	823,614		49	2,069	24,218	1,186,670	350,000
7/07	221,028	1,044,642		50	785	25,003	1,250,130	150,000
7/08	115,488	1,160,130		48	2,630	27,632	1,326,347	150,000
7/09	121,740	1,281,870		49	1,441	29,073	1,424,599	150,000
7/10	195,756	1,477,626		53	2,050	31,124	1,649,563	200,000
7/11	274,878	1,752,504		60	1,736	32,860	1,971,580	250,000
7/12	261,954	2,014,458		63	2,146	35,006	2,205,367	200,000
7/13	172,236	2,186,694		64	1,282	36,288	2,322,452	150,000
7/14	154,908	2,341,602		66	1,531	37,819	2,496,054	150,000
7/15	128,316	2,469,918						
7/16	119,868	2,589,786						
7/17	54,786	2,644,572						
7/18	36,174	2,680,746						
7/19	34,302	2,715,048						
7/20	24,054	2,739,102						
7/21	11,490	2,750,592						
7/22	7,320	2,757,912						

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

[a] The FPI used to estimate the daily ERFs prior to using lag time relationships was calculated using an average of the 1989–2007 starting FPIs after lag time relationships "locked in" and the midpoint of the escapement count each year. A trend line was then fit to the daily averages and an FPI was calculated for each day. This method was used until June 28 when FPIs 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 23.–Comparison of daily sockeye salmon escapement estimates by tower count, aerial survey, and river test fishing enumeration methods, Egegik River, Bristol Bay, 2008.

	Tower Count		Aerial Survey	River Test Fishing				
					Index Points		Estimated Cumulative	Estimated
Date	Daily	Cum.	Total	Fish per Index Pt.[a]	Daily	Cum.	Escapement	River Fish[b]
6/16				23	62	62	1,431	
6/17				37	80	143	5,275	
6/18				44	125	268	11,789	11,000
6/19	864	864		50	347	615	30,770	20,000
6/20	810	1,674		54	237	852	46,035	40,000
6/21	4,038	5,712		53	126	978	51,850	45,000
6/22	14,724	20,436		45	383	1,361	61,242	40,000
6/23	48	20,484	30,000	54	74	1,435	77,497	60,000
6/24	35,754	56,238		57	273	1,709	97,385	40,000
6/25	14,400	70,638		48	76	1,784	85,651	20,000
6/26	32,892	103,530		68	6	1,791	121,777	20,000
6/27	31,740	135,270		82		3,021	247,758	120,000
6/28	50,718	185,988		95	771	3,792	360,266	180,000
6/29	135,624	321,612		105	354	4,146	435,338	120,000
6/30	90,714	412,326		107	282	4,428	473,767	70,000
7/01	66,414	478,740		114	352	4,780	544,879	70,000
7/02	47,100	525,840		117	882	5,662	662,444	150,000
7/03	65,778	591,618		127	1,732	7,394	939,073	350,000
7/04	96,600	688,218		120	958	8,352	1,002,216	300,000
7/05	235,434	923,652		128	394	8,746	1,119,515	200,000
7/06	55,776	979,428		120	211	8,957	1,074,884	100,000
7/07	67,950	1,047,378		120	112	9,070	1,088,374	50,000
7/08	18,240	1,065,618		118	29	9,099	1,073,657	20,000
7/09	19,266	1,084,884		118	246	9,345	1,102,711	20,000
7/10	40,872	1,125,756		123	119	9,464	1,164,080	50,000
7/11	15,456	1,141,212		122	162	9,626	1,174,411	30,000
7/12	15,612	1,156,824		121	754	10,380	1,255,975	100,000
7/13	57,570	1,214,394		117	118	10,498	1,228,267	20,000
7/14	10,218	1,224,612						
7/15	18,954	1,243,566						
7/16	7,572	1,251,138						
7/17	3,672	1,254,810						
7/18	4,758	1,259,568						

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

[a] The FPI used to estimate the daily ERFs prior to using lag time relationships was calculated using an average of the 1989–2006 starting FPIs after lag time relationships "locked in" and the midpoint of the escapement count each year. This method was used until June 22 when FPIs 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, Ugashik River, Bristol Bay, 2008.

	Tower Count		Aerial Survey [a]	River Test Fishing				
					Index Points		Estimated Cumulative	
Date	Daily	Cum.	Total	Fish per Index Pt.[b]	Daily	Cum.	Escapement	Estimated River Fish [c]
6/22				26	31	31	811	
6/23				32	59	90	2,879	
6/24				36	75	165	5,940	
6/25				38	53	218	8,285	3,000
6/26				40	79	297	11,871	10,000
6/27				42	49	346	14,530	10,000
6/28				43	17	363	15,591	5,000
6/29				45	20	383	17,228	5,000
6/30				47	49	431	20,277	5,000
7/01	1,944	1,944		47	181	613	28,793	10,000
7/02	726	2,670		83	509	1,121	93,057	90,000
7/03	6,132	8,802		83	851	1,972	163,649	150,000
7/04	16,146	24,948		63	1,631	3,603	226,960	200,000
7/05	21,540	46,488		48	1,425	5,028	241,335	200,000
7/06	19,434	65,922		41	1,531	6,559	268,900	200,000
7/07	54,690	120,612		42	1,051	7,610	319,618	200,000
7/08	71,232	191,844		53	461	8,071	427,760	200,000
7/09	104,706	296,550		59	312	8,383	494,572	200,000
7/10	78,336	374,886		65	424	8,806	572,419	200,000
7/11	89,322	464,208		60	294	9,101	546,038	80,000
7/12	28,026	492,234		60	195	9,296	557,763	60,000
7/13	9,630	501,864		58	137	9,433	547,136	50,000
7/14	11,028	512,892		58	55	9,488	550,302	40,000
7/15	1,782	514,674		55	137	9,625	529,394	20,000
7/16	1,524	516,198		54	175	9,801	529,228	10,000
7/17	9,732	525,930		55	144	9,944	546,935	15,000
7/18	11,274	537,204						
7/19	13,080	550,284						
7/20	5,592	555,876						
7/21	4,932	560,808						
7/22	7,824	568,632						

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

[a] No aerial surveys were conducted this year.

[b] The FPI used to estimate the daily ERFs prior to using lag time relationships was calculated using an average of the 1989–2006 starting FPIs after lag time relationships "locked in" and the midpoint of the escapement count each year. This method was used until July 1 when FPIs were based on lag-time relationships.

[c] 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.–Commercial salmon processors and buyers operating in Bristol Bay, 2008.

	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	Alaska Wild Salmon Gems	Dillingham, AK	N	EF, F	SEA,AIR
3	Alaska Wild Salmon Products	Big Lake AK	N	EF, F	AIR
4	Baywatch Seafoods, LLC	Woodinville, WA	K,E,U,N,T	C,EF,F	SEA,AIR
5	Bloom in Alaska	Juneau, AK	N	EF	AIR
6	Brett Goode	Egegik, AK	E	EF	AIR
7	Coffee Point Seafoods of WA, LLC	S. Seattle, WA	E	F	SEA
8	Diamond Lodge	King Salmon, AK	K	C, F	SEA
9	Ekuk Fisheries	Seattle, WA	N	F	SEA
10	Favco Inc.	Anchorage, AK	N	EF	AIR
11	Friedman Family Fisheries, Inc.	Baltimore, MD	N	F	SEA
12	Great Land Seafoods	Bellevue, WA	K	F	SEA
13	Great Ruby Fish Company	Neknek, AK	K	EF,F	SEA,AIR
14	Icicle Seafoods, Inc.	Seattle, WA	K,E,U,N	C,F, EF,S	SEA,AIR
15	Jesse Lucille	Anchorage, AK	K,E	F	AIR
16	Kathy Ann	Dillingham, AK	N	EF	AIR
17	Leader Creek Fisheries, LLC	Seattle, WA	K,E,U,N	EF,F	SEA,AIR
18	My Girl	Iguigig, AK	K	F	AIR
19	Naknek Family Fisheries	Naknek, AK	K	EF, F	AIR
20	NorQuest Seafoods, Inc.	Seattle, WA	K,E,U,N	F	SEA
21	Northland Fisheries LLC.	Everett, WA	U, E	C	SEA
22	Ocean Beauty Seafoods, Inc.	Seattle, WA	K,E,U,N,T	C,EF,F,S	SEA,AIR
23	Paul Friis-Mikkelsen	Dillingham, AK	N	F	SEA,AIR
24	Pederson Point	Seattle, WA	K,E	F	SEA
25	Peter Pan Seafoods, Inc.	Seattle, WA	K,E,U,N	C,EF,F,S	SEA,AIR
26	Rolf's Choice	Longbranch, WA	N	F	SEA,AIR
27	Salmon Guy Seafoods	Asheville, NC	N	F	AIR
28	Shannon Ford	Auburn, WA	K	F	AIR
29	Snopac Products, Inc.	Seattle, WA	K,E,U,N	EF, F	SEA,AIR
30	Terry Medjo F/V Krisindy	Denver, CO	N	EF	AIR
31	Three Winds	Dillingham, AK	N	EF	AIR
32	TK Fishing	Egegik, AK	E	EF	AIR
33	Togiak Fisheries	Seattle, WA	T	F	SEA
34	Trident Seafoods	Seattle, WA	K,E,U,N	C,EF,F	SEA,AIR
35	Ugashik Wild Salmon	Ugashik, AK	U	C	AIR
36	West Coast Wild	Portland, OR	N	EF	AIR
37	Wild Alaska Salmon and Seafood	King Salmon, AK	K	EF, F	SEA,AIR
38	Wild Premium Salmon	Egegik, AK	E	EF	AIR
39	Yard Arm Knot Fisheries, LLC	Seattle, WA	K,E,U,N	C,F	SEA

Canning=10; Freezing= 28; Fresh=22; Curing=3; Air Export=29; Sea Export=22

[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 26.–Mean round weight, price per pound, and total exvessel value of the commercial salmon catch, Bristol Bay, 2008.

Species	Total Catch (lbs.)	Mean Weight (lbs.)	Mean Price ($/lb.)	Exvessel Value ($)
Sockeye	159,281,256	5.75	0.69	109,904,000
Chinook	382,533	15.54	0.78	298,000
Chum	8,474,090	6.49	0.15	1,271,000
Pink	986,726	3.55	0.16	158,000
Coho	739,297	6.48	0.39	288,000
Total	169,863,902			111,919,000

Note: Weighted averages used.

Table 27.–Subsistence salmon harvest by species, in numbers of fish, by district and location fished, Bristol Bay, 2007.

Area and River System	Permits Issued [a]	Estimated Number of Salmon Harvested					
		Sockeye	Chinook	Chum	Pink	Coho	Total [b]
NAKNEK-KVICHAK DISTRICT	479	78,067	712	385	243	1,095	80,502
Naknek River	287	23,915	697	351	239	1,066	26,268
Kvichak River/Iliamna Lake:	195	54,152	15	34	4	29	54,236
Chekok	1	310	0	0	0	0	310
Igiugig	4	1,532	8	7	3	3	1,553
Iliamna Lake	31	8,080	0	0	0	0	8,080
Kijik	4	769	0	0	0	0	769
Kokhanok	30	15,540	6	22	1	26	15,595
Kvichak River	12	1,729	0	0	0	0	1,729
Lake Clark: General	23	3,030	0	0	0	0	3,030
Levelock	1	102	1	6	0	0	109
Newhalen River	39	12,869	0	0	0	0	12,869
Nondalton Village	18	4,363	0	0	0	0	4,363
Pedro Bay	20	4,619	0	0	0	0	4,619
Port Alsworth	11	548	0	0	0	0	548
Six Mile Lake	7	662	0	0	0	0	662
EGEGIK DISTRICT	28	980	165	72	26	334	1,577
UGASHIK DISTRICT	17	1,056	43	88	79	281	1,546
NUSHAGAK DISTRICT	496	25,127	13,330	3,006	430	3,050	44,944
Wood River	135	6,813	1,793	249	36	293	9,184
Lower Nushagak River	43	1,435	2,068	229	74	136	3,944
Upper Nushagak River	82	4,444	3,411	1,343	139	991	10,327
Dillingham Beaches	228	9,545	5,138	1,009	163	1,467	17,322
Nushagak Bay Commercial	33	887	418	119	12	113	1,549
Igushik/Snake River	25	2,000	500	57	6	36	2,599
Nushagak, Site Unspecified	1	3	1	0	0	15	19
TOGIAK DISTRICT	48	2,548	1,234	420	19	110	4,331
TOTAL BRISTOL BAY	1,062	107,778	15,484	3,972	796	4,870	132,901

Note: 2008 numbers were not available at the time of publication. Due to rounding, the sum of columns and rows may not equal the estimated total.

[a] Harvests are extrapolated for all permits issued based on those returned and on the area fished as recorded on the permit. Of 1,062 permits issued for the management area, 871 were returned (82.0%).

[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 28.–Daily observed estimates (tons) of herring by index area, Togiak District, 2008.

				Estimated Biomass by Index Area [a]													
Date	Start Time	Survey Rating [b]	Miles of Spawn	NUS	KUK	MET	NVK	UGL	TOG	TNG	MTG	OSK	PYR	CPN	HAG	WAL	Daily Total
5/05	10:10	1.8															
5/08	10:00	3.8															
5/11	10:05	4.6															
5/14	09:50	3.1															
5/15	09:00	1.9			54				391	570							1,014
5/16	09:00	3.8							106						8,903		9,009
5/18	11:00	3.7							34,211	19,726							53,938
5/19	14:30	1.5	[c] 12.9														
5/22	09:30	2.5	13.0	500	16,232	5,043	2,098	5,428	30,900	2,936	1,000	3,595	2,959				70,692
5/28	13:30	3.6	22.7				15,222	31,655	28,111	55	5,622	61	1,784		49		82,557
6/09	09:15	3.7				83	512	120		8							724
Total linear miles of spawn			48.6										Peak biomass estimate				82,557

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 - Osviak; 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 29.–Emergency order (EO) commercial fishing periods for herring sac roe and spawn-on-kelp, Togiak District, 2008.

EO #	Area [a]		Date and Time				
Herring Sac Roe Gillnet							
DLG-02	Egg Island Section		5/16	6:00 PM	to	end of season	
DLG-06	Egg Island Section to Nunavachak Bay		5/23	1:00 PM	to	end of season	
DLG-10	Egg Island Section		5/26	9:30 PM	to	end of season	
DLG-12	Egg Island Section, Right Hand Pt. to Cape Newenham		5/29	10:00 AM	to	end of season	
Herring Sac Roe Purse Seine							
DLG-01	Right Hand Pt. to Anchor Pt., Togiak Reef to Cape Newenham		5/16	6:00 PM	to	5/19	10:00 PM
DLG-03	Right Hand Pt. to Anchor Pt., Togiak Reef to Cape Newenham	extension	5/19	10:00 PM	to	5/22	10:00 PM
DLG-04	Right Hand Pt. to Anchor Pt., Togiak Reef to Cape Newenham	extension	5/22	10:00 PM	to	5/24	10:00 PM
DLG-05	Right Hand Pt. to Nunavachak Bay	area change	5/23	12:00 PM	to	5/24	10:00 PM
	Anchor Point to Togiak Reef	addition	5/23	1:00 PM	to	5/24	10:00 PM
DLG-07	Nunavachak Bay to Cape Newenham	extension	5/24	10:00 PM	to	5/25	10:00 PM
DLG-08	Nunavachak Bay to Cape Newenham	extension	5/25	10:00 PM	to	5/26	10:00 PM
DLG-09	Right Hand Pt. to Cape Newenham	extension	5/26	10:00 PM	to	5/27	10:00 PM
DLG-11	Right Hand Pt. to Cape Newenham	extension	5/27	10:00 PM	to	5/28	10:00 PM
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 30.–Commercial herring harvest (tons) by fishing section, gear type, and date Togiak District, Bristol Bay, 2008.

Date	Duration	Periods	Kulukak Tons	Kulukak Roe %	Nunavachak Tons	Nunavachak Roe %	Togiak Tons	Togiak Roe %	Hagemeister Tons	Hagemeister Roe %	Pyrite Point Tons	Pyrite Point Roe %	Cape Newenham Tons	Cape Newenham Roe %	Total Tons	Total Roe %
Purse Seine																
16-May	52:00	1			160.2	10.4	114.1	5.1	0.0	0.0	0.0	0.0	0.0	0.0	274	8.2
19-May	24:00	2			2,819.7	8.8	0.0	0.0	121.6	8.6	0.0	0.0	0.0	0.0	2,941	8.8
20-May	24:00	3			1,374.5	9.7	146.9	9.8	320.8	9.2	0.0	0.0	0.0	0.0	1,842	9.6
21-May	24:00	4			1,288.4	9.3	15.0	9.6	123.8	8.7	20.1	10.7	0.0	0.0	1,447	9.3
22-May	24:00	5			1,379.0	9.2	113.8	7.3	355.7	8.8	99.7	8.4	0.0	0.0	1,948	9.0
23-May	24:00	6			0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.0
24-May	24:00	7			0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.0
25-May	24:00	8			0.0	0.0	0.0	0.0	310.0	8.8	0.0	0.0	0.0	0.0	310	8.8
26-May	24:00	9			0.0	0.0	0.0	0.0	3,085.8	9.5	276.7	9.7	0.0	0.0	3,363	9.5
27-May	24:00	10			132.0	8.0	0.0	0.0	1,250.9	9.3	138.0	8.4	123.9	11.0	1,645	9.2
28-May	24:00	11			241.2	9.1	84.5	8.0	1,170.2	9.2	0.0	0.0	266.6	10.9	1,763	9.4
30-May									63.3	[a]					63	
31-May									95	[a]					95	
Subtotal	292:00				7,395.0	9.2	474.3	7.7	6,897.1	9.3 [a]	534.5	9.2	390.5	10.9	15,691	9.1
Gillnet																
16-May	76:00	1	69.5	10.5											69.5	10.5
20-May	24:00	2	1498.5	11.2											1498.5	11.2
21-May	24:00	3	805.5	10.8											805.5	10.8
22-May	24:00	4	493.8	11.3											493.8	11.3
23-May	24:00	5	0.0	0											0.0	0
24-May	24:00	6	0.0	0											0.0	0
25-May	24:00	7	0.0	0											0.0	0
26-May	24:00	8	652.5	12.4											652.5	12.4
27-May	24:00	9	803.3	11.9											803.3	11.9
28-May	24:00	10	305.3	11.8											305.3	11.8
29-May	24:00	11	162.9	10.9											162.9	10.9
30-May	24:00	12	40.4	9.7											40.4	9.7
31-May	24:00	13	0.0	0											0.0	0
Subtotal	364:00		4,831.7	11.2											4,831.7	11.2

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Table 30.–Page 2 of 2.

Date	Duration	Periods	Kulukak Tons	Kulukak Roe %	Nunavachak Tons	Nunavachak Roe %	Togiak Tons	Togiak Roe %	Hagemeister Tons	Hagemeister Roe %	Pyrite Point Tons	Pyrite Point Roe %	Cape Newenham Tons	Cape Newenham Roe %	Total Tons	Total Roe %
Combined																
16-May			69.5	10.5	160.2	10.4	114.1	5.1	0.0	0.0	0.0	0.0	0.0	0.0	343.8	8.7
19-May					2,819.7	8.8	0.0	0.0	121.6	8.6	0.0	0.0	0.0	0.0	2,941.3	8.8
20-May			1498.5	11.2	1,374.5	9.7	146.9	9.8	320.8	9.2	0.0	0.0	0.0	0.0	3,340.7	10.3
21-May			805.5	10.8	1,288.4	9.3	15.0	9.6	123.8	8.7	20.1	10.7	0.0	0.0	2,252.8	9.8
22-May			493.8	11.3	1,379.0	9.2	113.8	7.3	355.7	8.8	99.7	8.4	0.0	0.0	2,442.0	9.4
23-May			0.0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
24-May			0.0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
25-May			0.0	0	0.0	0.0	0.0	0.0	310.0	8.8	0.0	0.0	0.0	0.0	310.0	8.8
26-May			652.5	12.4	0.0	0.0	0.0	0.0	3,085.8	9.5	276.7	9.7	0.0	0.0	4,015.0	10.0
27-May			803.3	11.9	132.0	8.0	0.0	0.0	1,250.9	9.3	138.0	8.4	123.9	11.0	2,448.1	10.1
28-May			305.3	11.8	241.2	9.1	84.5	8.0	1,170.2	9.2	0.0	0.0	266.6	10.9	2,067.8	9.7
29-May			162.9	10.9											162.9	10.9
30-May			40.4	9.7					63.3	[a]					103.7	9.7
31-May			0.0	0					95	[a]					95.0	0.0
Total			4,831.7	11.2	7,395.0	5.8	474.3	40.3	6,897.1	9.0 [a]	534.5	9.2	390.5	11.0	20,523.1	9.7

Note: Blank cells represent no data due to area closures.

[a] Includes test fish harvest which is conducted during closed commercial periods and as food/bait.

Table 31.–Herring total run and commercial catch by year class, Togiak District, 2008.

Year Class	Age	Total Run (tons)	%	Harvest [a] (tons)	%	Escapement (tons)	%
1989	20	0	0.0	0	0.0	0	0.0
1990	19	0	0.0	0	0.0	0	0.0
1991	18	0	0.0	0	0.0	0	0.0
1992	17	0	0.0	31	0.2	-31	0.0
1993	16	142	0.1	28	0.1	114	0.1
1994	15	553	0.4	90	0.4	463	0.4
1995	14	1,339	1.0	181	0.9	1,158	1.0
1996	13	3,646	2.7	456	2.2	3,189	2.7
1997	12	10,248	7.5	1,311	6.4	8,937	7.7
1998	11	23,353	17.1	3,705	18.2	19,648	16.9
1999	10	15,482	11.3	3,171	15.6	12,312	10.6
2000	9	8,715	6.4	1,886	9.3	6,830	5.9
2001	8	11,053	8.1	1,869	9.2	9,184	7.9
2002	7	21,153	15.5	3,245	15.9	17,908	15.4
2003	6	19,883	14.6	2,727	13.4	17,156	14.8
2004	5	12,331	9.0	1,078	5.3	11,253	9.7
2005	4	8,459	6.2	578	2.8	7,881	6.8
2006	3	140	0.1	11	0.1	129	0.1
2007	2	0	0.0	0	0.0	0	0.0
Total		136,495	100	20,365	100	116,130	100

[a] Does not include Dutch Harbor food and bait fishery or test fishing harvests.

Table 32.–Commercial herring sac roe and spawn-on-kelp buyers in Togiak District, 2008.

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

[a] Operators that registered in the Togiak District.

APPENDIX A. SALMON

Appendix A1.–Escapement goal ranges and actual counts of sockeye salmon by river system, in thousands of fish, Bristol Bay, 1988–2008.

	Kvichak River			Naknek River [a]		
	Range			Range		
Year	Lower	Upper	Actual	Lower	Upper	Actual
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			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	2,745
2006	2,000	10,000	3,068	800	2,000	1,953
2007	2,000	10,000	2,810	800	2,000	2,945
20-Year Avg.	3,800	9,100	4,058	800	1,621	1,719
1988-97 Avg.	4,800	8,200	5,366	800	1,400	1,567
1998-07 Avg.	2,800	10,000	2,751	800	1,820	1,871
2008	2,000	10,000	2,758	800	1,400	2,473

	Egegik River			Ugashik River		
	Range			Range		
Year	Lower	Upper	Actual	Lower	Upper	Actual
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	1,400	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
2006	800	1,400	1,465	500	1,200	978
2007	800	1,400	1,433	500	1,200	2,599
20-Year Avg.	800	1,330	1,492	500	1,095	1,176
1988-97 Avg.	800	1,260	1,701	500	990	1,275
1998-07 Avg.	800	1,400	1,284	500	1,200	1,078
2008	800	1,400	1,260	500	1,200	569

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	Wood River			Igushik River		
	Range			Range		
Year	Lower	Upper	Actual	Lower	Upper	Actual
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
2006	700	1,500	4,008	150	300	305
2007	700	1,500	1,528	150	300	415
20-Year Avg.	710	1,305	1,510	150	268	346
1988-97 Avg.	720	1,200	1,285	149	250	391
1998-07 Avg.	700	1,410	1,735	150	285	300
2008	700	1,500	1,725	150	300	1,055
	Nushagak River [b]			Togiak River		
	Range			Range		
Year	Lower [c]	Upper	Actual	Lower	Upper	Actual
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	235	760	404	100	200	312
2001	340	760	804	100	200	297
2002	235	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
2006	340	760	541	100	200	312
2007	340	760	518	120	270	270
20-Year Avg.	320	754	543	115	221	197
1988-97 Avg.	332	748	525	128	235	176
1998-07 Avg.	309	760	560	102	207	217
2008	340	760	493	120	270	206

[a] An “Optimal Escapement Goal” of up to 2,000,000 sockeye salmon 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 salmon set by the BOF in 1999.

Appendix A2.–Salmon entry permit registration by gear and residency, Bristol Bay, 1988–2008.

	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
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	797	81%	1	2,849
2005	895	967	1,862	1,526	82%	3	688	300	988	829	84%	1	2,850
2006	893	966	1,859	1,567	84%	1	683	302	985	844	86%	0	2,844
2007	881	981	1,862	1,621	87%	1	672	311	983	836	85%	0	2,845
20-Year Avg.	961	917	1,878	1,725	92%	51	740	268	1,008	890	88%	7	2,800
1988-97 Avg.	997	883	1,880	1,869	99%	82	765	251	1,015	952	94%	11	2,831
1998-07 Avg.	924	952	1,876	1,581	84%	20	714	286	1,000	828	83%	3	2,768
2008	885	978	1,863	1,636	88%	0	674	307	981	835	85%	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 set net.

Appendix A3.–Sockeye salmon commercial catch by district, in numbers of fish, Bristol Bay, 1988–2008.

Year	Naknek-Kvichak	Egegik	Ugashik	Nushagak	Togiak	Total
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
2006	7,151,741	7,408,983	2,429,637	10,876,552	626,442	28,493,355
2007	9,022,511	6,495,908	5,026,615	8,404,111	816,581	29,765,726
20-Year Avg.	8,159,760	8,654,522	2,652,402	4,969,524	500,055	24,953,708
1987-96 Avg.	10,875,396	11,323,952	3,190,818	3,713,632	453,507	29,557,304
1997-06 Avg.	5,444,124	5,985,093	2,113,986	6,225,416	546,603	19,838,602
2008	10,392,012	7,448,175	2,322,030	6,888,153	650,718	27,701,088

[a] Total includes General District catch of 1,656,994.

Appendix A4.–Chinook salmon commercial catch by district, in numbers of fish, Bristol Bay, 1988–2008.

Year	Naknek-Kvichak	Egegik	Ugashik	Nushagak	Togiak	Total
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
2006	2,333	915	2,608	84,881	16,225	106,962
2007	1,484	514	1,465	51,473	7,769	62,705
20-Year Avg.	3,359	1,073	1,575	52,190	9,928	65,939
1988-97 Avg.	5,342	1,408	1,986	51,494	10,477	70,706
1998-07 Avg.	1,377	739	1,164	52,887	9,379	60,643
2008	1,326	390	1,172	18,634	3,094	24,616

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

Appendix A5.–Chum salmon commercial catch by district, in numbers of fish, Bristol Bay, 1988–2008.

Year	Naknek-Kvichak	Egegik	Ugashik	Nushagak	Togiak	Total
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
2006	457,855	153,777	168,428	1,240,235	223,364	2,243,659
2007	383,927	157,991	242,025	953,275	202,486	1,939,704
20-Year Avg.	190,082	86,331	69,187	476,508	170,396	957,138
1988-97 Avg.	224,455	104,048	63,989	387,421	205,130	985,043
1998-07 Avg.	155,709	68,614	74,386	565,595	135,661	929,233
2008	231,824	93,360	137,207	541,469	301,855	1,305,715

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

Appendix A6.–Pink salmon commercial catch by district, in numbers of fish, Bristol Bay, 1988–2008.

Year	Naknek-Kvichak	Egegik	Ugashik	Nushagak	Togiak	Total
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	52,380[a]
2005	32	0	1	554	2,108	2,695
2006	25,149	700	0	39,011	80,748	145,608
2007	9	9	2	384	533	937
20-Year Avg.[a]	136,450	1,835	159	60,995	36,744	230,944
1988-97 Avg.[a]	260,123	3,388	229	99,897	52,198	415,835
1998-07 Avg.[a]	12,777	281	88	22,092	21,291	46,053
2008	18,407	1,033	15	137,820	120,676	277,951

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, 1988–2008.

Year	Naknek-Kvichak	Egegik	Ugashik	Nushagak	Togiak	Total
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
2006	5,163	26,788	3,087	44,385	449	79,872
2007	2,180	18,111	1,954	29,578	157	51,980
20-Year Avg.	6,680	30,271	14,499	28,660	17,497	97,606
1988-97 Avg.	11,791	42,282	25,303	26,682	26,769	132,826
1998-07 Avg.	1,569	18,260	3,695	30,638	8,226	62,387
2008	6,213	29,675	2,280	73,889	2,032	114,089

Appendix A8.–Total salmon commercial catch by district, in numbers of fish, Bristol Bay, 1988–2008.

Year	Naknek-Kvichak	Egegik	Ugashik	Nushagak	Togiak	Total
1988	4,461,502	6,751,055	1,674,082	2,391,148	1,384,377	16,662,164
1989	14,150,179	9,089,394	3,266,995	3,406,958	360,620	30,274,146
1990	18,137,349	10,551,485	2,216,129	3,987,438	323,016	35,215,417
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	8,960,902	21,714,569	4,255,766	5,819,760	708,508	41,459,505
1994	16,570,406	10,862,998	4,427,880	3,855,157	808,698	36,525,139
1995	20,522,297	14,516,875	4,587,276	4,920,284	847,600	45,394,332
1996	8,322,312	10,900,288	4,530,995	6,111,030	724,023	30,588,648
1997	616,084	7,626,863	1,432,200	2,866,890	200,676	12,742,713
1998	2,693,068	3,589,540	751,962	3,345,717	336,995	10,717,282
1999	9,714,503	7,475,146	2,327,941	6,359,995	511,662	26,389,247
2000	4,816,917	7,082,513	1,577,305	6,644,845	946,482	21,068,062
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	3,156,646	350,596	11,197,700
2003	3,383,567	2,369,326	1,803,245	7,449,615	778,472	15,784,225
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
2006	7,642,241	7,591,163	2,603,760	12,285,064	947,228	31,069,456
2007	9,410,111	6,672,533	5,272,061	9,438,821	1,027,526	31,821,052
20-Year Avg.	8,428,698	8,774,018	2,739,497	5,563,488	714,323	26,255,470
1987-96 Avg.	11,248,226	11,475,181	3,285,718	4,241,183	717,854	30,968,162
1997-06 Avg.	5,609,171	6,072,855	2,193,275	6,885,794	710,791	21,019,146
2008	10,649,782	7,572,633	2,462,704	7,659,965	1,078,375	29,423,459

[a] Total includes General District catch.

Appendix A9.–Commercial sockeye salmon catch, in percent, by gear type and district, Bristol Bay, 1988–2008.

	Naknek-Kvichak									Nushagak								
		Setnet Sec.		NRSHA [a]		Egegik		Ugashik			Setnet Sec.		WRSHA[b]		Togiak		Total	
Year	Drift	Nak.	Kvi.	Drift	Set	Drift	Set	Drift	Set	Drift	Nush.	Igushik	Drift	Set	Drift	Set	Drift	Set
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
2006	86	8	5	81	19	84	16	88	12	87	11	2			53	47	85	15
2007	82	12	6	80	12	84	16	92	8	80	17	3			59	41	81	19
20-Year Avg.	85	12	5	76	23	87	13	89	11	75	24	3	72	28	56	44	83	17
1988-97 Avg.	86	14				91	10	91	9	70	30				56	45	87	13
1998-07 Avg.	84	10	5	76	23	84	16	87	13	79	18	3	72	28	57	43	80	20
2008	81	12	7			85	15	92	8	79	16	5			60	40	82	18
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] Naknek River Special Harvest Area (NRSHA), Naknek-Kvichak District; allocation plan enacted in December 2003.

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

[c] 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 postseason 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, 1988–2008.

Year	Naknek-Kvichak [a]	Egegik [b]	Ugashik [c]	Nushagak [d]	Togiak [e]	Total
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 [h]	1,152,120	790,202	2,241,556 [f]	261,851 [g]	10,073,703
2004	12,836,100 [h]	1,290,144	815,104	2,144,690 [f]	154,681 [g]	17,240,719
2005	9,283,980 [h]	1,621,734	799,612	2,958,527 [f]	155,778 [g]	14,819,631
2006	6,795,420 [h]	1,465,158	1,003,158	4,861,780 [f]	312,126 [g]	14,437,642
2007	8,221,926 [h]	1,432,500	2,599,186	2,461,579 [f]	269,646 [g]	14,984,837
20-Year Avg.	6,715,107	1,484,373	1,103,239	2,373,670	250,324	11,975,157
1988-97 Avg.	7,580,429	1,717,850	1,300,279	2,201,501	257,664	13,057,722
1998-07 Avg.	5,849,785	1,250,897	906,198	2,545,840	242,983	10,892,591
2008	7,411,104 [h]	1,259,568	596,332	3,271,926 [f]	205,680 [g]	12,744,610

[a] Includes counts from Kvichak Tower, Alagnak aerial survey, and Naknek Tower.

[b] Includes Egegik River. May include King Salmon River and Shosky Creek; see Appendix A14 for specific counts.

[c] Includes Ugashik River. Also includes Mother Goose River and Dog Salmon River system in 1984–2004.

[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, 2003–2008.

[h] Alagnak tower count.

Appendix A11.–Inshore commercial catch and escapement of sockeye salmon in the Naknek-Kvichak District by river system, in numbers of fish, Bristol Bay, 1988–2008.

		Escapement				
Year	Catch	Kvichak [a]	Alagnak [b]	Naknek [a]	Total	Total Run
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
2006	7,153,750	3,068,226	1,773,966 [a]	1,953,228	6,795,420	13,949,170
2007	9,022,511	2,810,208	2,466,414 [a]	2,945,304	8,221,926	17,244,437
20-Year Avg.	8,158,595	4,058,161		1,696,498	6,840,330	14,998,925
1988-97 Avg.	10,875,078	5,365,742		1,521,895	7,126,991	18,002,069
1998-07 Avg.	5,442,112	2,750,579		1,871,100	6,553,670	11,995,782
2008	10,392,012	2,757,912	2,180,502	2,472,690	7,411,104	17,803,116

[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, 1988–2008.

	Kvichak		Alagnak			Naknek		
Year	Number	%	Number	%		Number	%	Total Run [b]
1988	6,720	76.5	320	4	[a]	1,739	20	8,779
1989	19,774	84.2	534	2	[a]	3,179	14	23,487
1990	17,521	66	555	2	[a]	8,427	32	26,503
1991	8,032	43	604	3	[a]	9,918	53	18,554
1992	10,445	65	487	3	[a]	5,021	31	15,953
1993	9,313	63	817	6	[a]	4,687	32	14,817
1994	22,232	86	634	2	[a]	3,033	12	25,899
1995	27,431	87	651	2	[a]	3,564	11	31,646
1996	3,458	31	706	6	[a]	6,860	62	11,024
1997	1,683	50	244	7	[a]	1,409	42	3,336
1998	3,412	54	388	6	[a]	2,546	40	6,346
1999	12,947	73	1,070	6	[a]	3,740	21	17,757
2000	2,862	34	731	9	[a]	4,789	57	8,382
2001	1,426	17	409	5	[a]	6,639	78	8,474
2002	704	19	336	9	[a]	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
2006	5,804	42	2,854	20		5,292	38	13,950
2007	4,231	25	4,277	25		8,736	51	17,244
20-Year Avg.	8,500	50	1,484	11		4,954	40	14,937
1988-97 Avg.	12,661	65	555	4		4,784	31	18,000
1998-07 Avg.	4,339	34	2,412	17		5,124	48	11,875
2008	5,637	32	5,909	33		6,257	35	17,803

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

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

Appendix A13.–Inshore commercial catch and escapement of sockeye salmon in the Egegik District by river system, in numbers of fish, Bristol Bay, 1988–2008.

		Escapement			
Year	Catch	Egegik [a]	Shosky Cr. [b]	King Salmon River [b]	Total Run
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
2006	7,388,027	1,465,128	0		8,853,155
2007	6,495,908	1,432,500	0	1,500	7,929,908
20-Year Avg.	8,656,456	1,492,193	20	394	10,148,277
1988-97 Avg.	11,327,765	1,700,674	38	295	13,028,660
1998-07 Avg.	5,985,147	1,283,713	3	566	7,267,893
2008	7,448,175	1,259,568	0	250	8,707,993

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, in numbers of fish, Bristol Bay, 1988–2008.

		Escapement			
Year	Catch	Ugashik [a] River	King Salmon [b] River	Dog Salmon [b] River	Total Run
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
2006	2,426,650	978,718	0 [c]	24,440	3,429,808
2007	5,026,615	2,523,686	5,420 [c]	70,020	7,625,741
20-Year Avg.	2,653,762	1,172,500	14,087	12,261	3,851,888
1988-97 Avg.	3,193,836	1,274,567	14,478	8,209	4,491,090
1998-07 Avg.	2,113,688	1,070,432	13,697	16,313	3,212,686
2008	2,322,030	588,632 [d]	0 [c]	7,700	2,918,362

[a] Tower count.

[b] Aerial survey.

[c] King Salmon system still impacted by Mt. Chiginigak-see text for explanation.

[d] Includes 20,000 sockeye salmon at Lower Ugashik Lake outlet from postseason aerial survey.

Appendix A15.–Inshore commercial catch and escapement of sockeye salmon in the Nushagak District by river system, in numbers of fish, Bristol Bay, 1988–2008.

		Escapement							
Year	Catch	Wood [a]	Igushik [a]	Nuyakuk [a]	Nush/Mul [b]	Nushagak [c]	Snake [d]	Total	Total Run
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
2006	10,876,552	4,008,102	305,268	170,760	377,650	548,410	[e]	4,861,780	15,738,332
2007	8,404,111	1,528,086	415,452	[f]		518,041	[e]	2,461,579	10,865,690
20-Year Avg.	4,971,899	1,510,373	345,495	164,530	347,713	539,152	16,439	2,401,596	7,373,495
1988-97 Avg.	3,714,695	1,286,097	391,223	228,342	181,956	524,704	17,199	2,214,063	5,928,758
1998-07 Avg.	6,229,103	1,734,650	299,768	136,169	421,383	553,601	11,120	2,589,130	8,818,233
2008	6,888,153	1,724,676	1,054,704	[f]		492,546		3,271,926	10,160,079

Note: Blank cells represent no data.

[a] Tower count.

[b] Escapement estimates for 1988, and 1995–2005, were derived from the difference between lower river sonar estimates and Nuyakuk Tower counts.

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

[d] Aerial survey estimate 1988–91, 1994–95 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.

[f] The Nuyakuk Tower project was discontinued prior to 2007. There is no longer a breakdown of Nuyakuk or Nush/Mul. escapements.

Appendix A16.–Inshore sockeye salmon total run by river system, in thousands of fish, Nushagak District, Bristol Bay, 1988–2008.

	Wood		Igushik		Nushagak								Snake [b]		
	Total Run		Total Run		Nushagak Escapement [a]					Catch	Total Run				
					Nuyakuk		Nush-Mul		Sonar	Total					
Year	Number	%	Number	%	Number	%	Number	%	Estimate	Number	Number	%	Number	%	Total Run [c]
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	211	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	275	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	415	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
2006	11,064	70	1,435	9	171	31	377	69	548	2,690	3,238	21			15,737
2007	6,523	60	1,762	16					518	2,062	2,580	24			10,865
20-Year Avg.	4,396	59	1,237	17	165	34	348	66	539	1,193	1,732	24	19	0	7,384
1988-97 Avg.	3,174	54	1,267	20	229	54	182	46	525	949	1,474	26	20	0	5,935
1998-07 Avg.	5,619	65	1,206	13	136	25	422	75	554	1,436	1,990	22	11	0	8,826
2008	5,234	52	3,290	32					493	1,144	1,637	16			10,161

Note: Blank cells represent no data.

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

[b] Snake River escapement is not included from 1999–2008 because staff was unable to conduct aerial surveys

[c] 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, 1988–2008.

	Catch				Escapement						
					Togiak						
Year	Togiak	Kulukak	Os/Mat [a]	Total	Lake [b]	River [c]	Tributaries [d]	Kulukak [e]	Other [f]	Total	Total Run
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
2006 [i]	574,629	51,603	0	626,442	312,126					312,126	938,568
2007 [i]	758,736	57,845	0	816,581	269,646					269,646	1,086,227
20-Year Avg.	439,606	58,576	2,427	499,983	196,817	11,153	11,742	21,062	18,825	248,188	748,171
1988-97 Avg.	384,038	66,259	4,197	453,221	176,310	12,152	12,967	25,561	20,255	243,193	696,414
1998-07 Avg.	458,490	50,628	864	510,002	209,538	10,048	9,785	12,762	16,698	245,745	755,747
2008 [i]	626,248	24,470	0	650,718	205,680					205,680	856,398

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.

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

[f] Aerial survey estimate includes Matogak, Osviak, Slug, Negukthlik, Ungalikthluk, and Quigmy Rivers.

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

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

[i] Partial survey.

Appendix A18.–Inshore total run of sockeye salmon by district, in numbers of fish, Bristol Bay, 1988–2008.

Year	Naknek-Kvichak	Egegik	Ugashik	Nushagak	Togiak	Total
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	41,017,529[a]
2005	15,984,566	9,625,859	3,001,814	10,090,869	622,965	39,326,073
2006	13,945,960	8,873,391	3,432,755	15,738,137	886,755	42,876,998
2007	17,244,437	7,928,408	7,625,801	10,865,690	1,086,227	44,750,563
20-Year Avg.	14,795,013	10,149,227	3,852,041	7,373,457	745,428	36,786,463
1988-97 Avg.	18,002,069	13,028,660	4,491,090	5,928,714	696,414	42,146,946
1998-07 Avg.	11,587,958	7,269,794	3,212,992	8,818,201	794,442	30,830,371
2008	17,803,116	8,707,743	2,918,362	10,160,079	856,398	40,445,698

[a] Total includes General District catch.

Appendix A19.–Chinook salmon harvest, escapement and total runs in the Nushagak District, in numbers of fish, Bristol Bay, 1988–2008.

	Harvests by Fishery				Inriver	Spawning	
Year	Commercial	Sport	Subsistence	Total	Abundance [a]	Escapement [b]	Total Run
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	145,597	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
2006	84,881	7,473	9,971	102,325	124,683	116,088	218,413
2007	51,350	9,669	14,001 [c]	75,020	60,464	48,356	123,376
20-Year Avg.	52,388	5,719	13,832	71,939	89,185	79,643	151,582
1988-97 Avg.	51,494	5,059	13,598	70,152	79,764	71,936	142,087
1998-07 Avg.	53,282	6,378	14,067	73,727	97,663	87,350	161,077
2008	18,634	7,622 [c]	14,132 [c]	40,388	96,641	85,342	125,730

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: 1997 - from comprehensive aerial surveys. 1988–1996, 1998–2008 - from inriver abundance estimated by sonar minus inriver harvests.

[c] Data not available at the time of publication. Five year average used.

Appendix A20.–Chinook salmon harvest, escapement and total runs in the Togiak District, in numbers of fish, Bristol Bay, 1988–2008.

	Harvests by Fishery				Spawning	Total
Year	Commercial	Sport [a]	Subsistence	Total	Escapement [b]	Run
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]	[d]
2004	9,310	1,388	1,094	11,792	15,990	27,782
2005	10,605	1,734	1,528	13,867	13,521	27,388
2006	16,225	1,064	1,630	18,919	1,670 [c]	[d]
2007	7,755	1,501	1,234	10,490	0 [c]	[d]
20-Year Avg.	9,929	687	936	11,552	11,732	24,929
1988-97 Avg.	10,482	439	657	11,577	12,752	24,329
1998-07 Avg.	9,377	935	1,215	11,528	10,713	25,787
2008	3,094	1,279 [e]	1,339 [e]	5,712	2,140 [c]	[d]

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

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

[c] Partial survey.

[d] Total run size cannot be determined in the absence of complete escapement data.

[e] Data not available at the time of publication. Five year average used.

Appendix A21.–Inshore commercial catch and escapement of chum salmon in the Nushagak and Togiak Districts, in numbers of fish, 1988–2008.

	Nushagak District			Togiak District		
Year	Catch	Escapement [a]	Total Run	Catch	Escapement [b]	Total Run
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
2006	1,240,235	661,003	1,901,238	223,364	26,900 [c,d]	250,264
2007	953,275	161,483	1,114,758	202,486	[c]	202,486
20-Year Avg.	472,623	304,821	777,444	170,402	136,420	300,001
1988-97 Avg.	387,705	257,924	645,629	205,112	160,736	365,848
1998-07 Avg.	557,541	351,718	909,259	135,692	109,402	234,154
2008	541,469	326,300	867,769	301,855	279,580 [d]	581,435

Note: Blank cells represent no data.

[a] Escapement based on sonar estimates from the Portage Creek site.

[b] Escapement estimates based on aerial surveys. Estimates for 1987–1988 rounded to the nearest thousand fish.

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

[d] Partial count.

Appendix A22.–Coho salmon harvest by fishery, escapement and total runs for the Togiak River, in numbers of fish, Bristol Bay, 1988–2008.

	Harvests by Fishery				Spawning	Total
Year	Commercial	Subsistence [a]	Sport	Total	Escapement [b]	Run
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	295	1,959	2,262		2,262
2006	453	408	2,214	3,075		3,075
2007	152	110	1,970	2,313		2,313
20-Year Avg.	15,281	578	1,084	16,948	30,468	34,721
1988-97 Avg.	22,642	816	579	24,038	39,688	54,604
1998-07 Avg.	7,920	340	1,590	9,858	12,030	17,679
2008	2,032	380 [d]	2,110 [d]	4,522		6,632

Note: Blank cells represent no data.

[a] Subsistence harvest estimated by expanding permit returns.

[b] Expanded estimates from aerial surveys.

[c] Results of a partial survey.

[d] Data not available at the time of publication. Five year average used.

Appendix A23.–Average round weight (lbs.) of the commercial salmon catch by species, Bristol Bay, 1988–2008.

Year	Sockeye	Chinook	Chum	Pink	Coho
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
2006	5.7	17.0	7.7	3.7	6.4
2007	5.8	13.5	6.1	3.5	6.4
20-Year Avg.	5.9	16.9	6.8	3.6	7.1
1988-97 Avg.	5.8	17.7	6.6	3.6	7.2
1998-07 Avg.	6.0	16.2	6.9	3.6	6.9
2008	5.8	15.5	6.5	3.6	6.5

Note: Blank cells represent no data.

Appendix A24.–Average price paid in dollars per pound for salmon, by species, Bristol Bay, 1988–2008.

Year	Sockeye	Chinook	Chum	Pink	Coho
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
2006	0.55	0.74	0.11	0.03	0.35
2007	0.64	0.67	0.13	0.03	0.41
20-Year Avg.	0.85	0.62	0.17	0.13	0.52
1988-97 Avg.	1.05	0.75	0.23	0.19	0.65
1998-07 Avg.	0.65	0.49	0.10	0.06	0.39
2008 [b]	0.69	0.78	0.15	0.16	0.39

Note: Blank cells represent no data.

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

[b] Price does not include all postseason adjustments.

Appendix A25.–Estimated exvessel value of the commercial salmon catch by species, in thousands of dollars, Bristol Bay, 1988–2008.

Year	Sockeye	Chinook	Chum	Pink [a]	Coho	Total
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
2006	90,233	1,330	1,350	19	178	93,110
2007	119,196	542	1,583	0	120	121,441
20 Year Ave.	122,370	730	1,147	177	446	124,799
1988-97 Ave.	167,416	890	1,633	343	716	170,861
1998-07 Ave.	77,324	569	662	10	175	78,736
2008	109,904	298	1,271	158	288	111,919

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 salmon harvest in thousands of fish, Alaska Peninsula, 1988–2008.

	South Unimak			Shumigan Island			Total		
	Sockeye			Sockeye			Sockeye		
Year	Actual	Quota [a]	Chum	Actual	Quota [a]	Chum	Actual	Quota [a]	Chum
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
2006	491		96	441		204	932		300
2007	738		153	852		144	1,589		297
20-Year Avg.	944	1,845	266	420	407	147	1,335	2,252	413
1988-97 Avg.	1,274	1,979	374	429	437	129	1,704	2,415	503
1998-07 Avg.	613	1,401	158	410	308	165	967	1,709	324
2008	1,064		285	650		126	1,701		411

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

[a] The sockeye salmon 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, 1988–2008.

Year [a]	Permits Issued	Sockeye	Chinook	Chum	Pink	Coho	Total
NAKNEK KVICHAK DISTRICT							
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	72,302
2006	468	69,097	881	341	757	720	71,796
2007	479	78,067	712	385	243	1,095	80,502
20-Year Avg.	505	78,980	1,342	852	969 [c]	1,186	83,012
1988-1997 Avg.	508	89,039	1,530	1,140	961 [c]	1,424	93,817
1998-2007 Avg.	501	68,921	1,154	565	976 [c]	949	72,207
2008 [b]	476	69,786	987	400	511	883	72,567
EGEGIK DISTRICT							
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
2006	41	1,641	94	34	7	641	2,418
2007	28	980	165	72	26	334	1,577
20-Year Avg.	51	2,332	96	107	54 [c]	599	3,171
1988-1997 Avg.	58	2,644	99	115	76 [c]	601	3,511
1998-2007 Avg.	44	2,020	93	100	32 [c]	596	2,832
2008 [b]	44	2,149	119	156	27	644	3,095

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Year	Permits Issued	Sockeye	Chinook	Chum	Pink	Coho	Total
UGASHIK DISTRICT							
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
2006	25	962	41	6	16	339	1,364
2007	17	1,056	43	88	79	281	1,546
20-Year Avg.	27	1,436	67	50	31 [c]	367	1,944
1988-1997 Avg.	30	1,694	88	71	42 [c]	381	2,264
1998-2007 Avg.	24	1,178	46	29	21 [c]	353	1,625
2008 [b]	22	951	41	30	20	299	1,341
NUSHAGAK DISTRICT							
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
2006	461	20,773	9,971	4,448	1,591	3,590	40,373
2007	496	25,127	13,330	3,006	430	3,050	44,944
20-Year Avg.	503	26,421	13,047	4,461	2,409 [c]	5,420	50,727
1988-1997 Avg.	484	28,685	13,598	5,137	3,327 [c]	6,064	55,282
1998-2007 Avg.	522	24,157	12,495	3,786	1,490 [c]	4,776	46,172
2008 [b]	499	22,560	14,025	4,279	1,032	4,382	46,278

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Year	Permits Issued	Sockeye	Chinook	Chum	Pink	Coho	Total
TOGIAK DISTRICT							
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	2,576	1,612	367	61	388	6,590
2002	36	2,890	703	605	10	241	3,878
2003	92	2,357	1,208	483	451	883	7,428
2004	46	2,221	1,094	383	108	204	3,584
2005	45	2,299	1,528	301	26	295	4,448
2006	61	2,728	1,630	492	355	408	5,613
2007	48	2,548	1,234	420	19	110	4,332
20-Year Avg.	46	2,506	936	512	102 [c]	578	4,749
1998-1997 Avg.	32	2,350	657	583	75 [c]	816	4,438
1998-2007 Avg.	59	2,662	1,215	447	128 [c]	340	5,060
2008 [b]	58	2,431	1,339	453	192	380	5,081
TOTAL BRISTOL BAY AREA							
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
2006	1,050	95,201	12,617	5,321	2,726	5,697	121,564
2007	1,062	107,778	15,484	3,972	796	4,870	132,901
20-Year Avg.	1,129	111,806	15,495	5,978	3,564 [c]	8,150	143,610
1988-1997 Avg.	1,113	124,411	15,986	7,026	4,481 [c]	9,285	159,325
1998-2007 Avg.	1,148	100,819	15,381	4,752	2,648 [c]	6,940	129,540
2008 [b]	1,094	98,200	16,511	5,281	1,781	6,588	128,362

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

[c] Includes even years only.

Appendix A28.–Subsistence harvest of sockeye salmon by community, in numbers of fish, Kvichak River drainage, Bristol Bay, 1988–2008.

Year [a,b]	Levelock	Igiugig	Pedro Bay	Kokhanok	Iliamna-Newhalen [c]	Nondalton	Port Alsworth	Other [d]	Total
1988	3,500	[e]	5,500	14,400	29,800	20,700	3,200	[f]	77,100
1989	5,100	1,200	6,700	13,000	24,700	18,500	2,200	[f]	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
2006	0	1,252	4,319	19,028	11,487	8,885	2,418	2,461	49,850
2007	102	1,803	4,537	15,105	19,972	6,897	3,211	2,525	54,152
20-Year Avg.	2,015	1,473	5,081	13,019	17,727	12,382	2,718	2,385	56,486
1988-97 Avg.	3,081	1,515	6,652	14,019	22,108	15,020	2,914	2,498	67,156
1998-07 Avg.	948	1,434	3,509	12,019	13,347	9,744	2,523	2,295	45,816
2008 [g]	551	1,236	3,991	14,515	15,789	8,282	2,382	2,057	48,797

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.

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

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

Appendix A29.–Subsistence salmon harvest by community, Nushagak District, Bristol Bay, 1988–2008.

Year [a,b]	Dillingham [c]	Manokotak	Aleknagik	Ekwok	New Stuyahok	Koliganek	Other [d]	Total
1988	29,600 [e]	5,500	2,400	6,100	11,700	5,700	[f]	61,000
1989	31,800 [e]	5,800	2,000	4,700	9,700	3,800	[f]	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	9,673	8,422	3,088	47,841
2006	22,184 [e]	1,655	2,048	1,499	6,160	3,886	2,941	40,373
2007	25,237 [e]	2,442	1,382	1,267	8,284	3,054	3,278	44,944
20-Year Avg.	26,838	3,725	1,944	3,139	8,104	4,228	3,068	50,740
1988-97 Avg.	28,724	4,495	2,200	4,019	9,341	4,582	2,434	55,308
1998-07 Avg.	24,953	2,955	1,687	2,259	6,868	3,874	3,576	46,171
2008 [g]	23,916	2,388	1,895	1,667	8,330	4,940	3,141	46,277

Note: Blank cells represent no data.

[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 data was not available at the time of publishing.

APPENDIX B. HERRING

Appendix B1.–Sac roe herring industry participation, fishing effort and harvest, Togiak District, 1988–2008.

				Gillnet					Purse Seine					
Year	Number of Buyers	Daily Processing Capacity [a]	Fishery Dates	Effort [b]	Duration (hours)	Harvest [c]	CPUE	Roe %	Effort [b]	Duration (hours)	Harvest [c]	CPUE	Roe % [d]	Total Harvest [c]
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	14,368	33.3	9.2	19,226
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	6,491	0.8	10.6	64	26.0	15,879	9.5	9.2	22,370
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	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	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	15,071	5.1	9.6	20,912
2006	7	2,060	5/12-5/21	49	143.9	7,132	0.8	10.8	28	113.0	16,821	4.8	9.2	23,953
2007	5	1,420	5/10-5/25	25	366.0	4,012	0.4	11.2	21	244.0	13,120	2.6	10.0	17,132
1988-2007 Avg.	13	2,799		180	85	5,216	0.9	10.5	148	41	15,158	26.1	9.5	20,375
1998-2007 Avg.	9	2,103		99	129	5,645	0.7	11.1	56	75	14,792	8.9	9.5	20,437
2008	7	1,950	5/16-5/31	27	312.0	4,832	0.6	11.4	28	292.0	15,691	1.9	8.4	20,523

Note: Blank cells represent no data.

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

[b] Peak aerial survey count.

[c] Harvest total includes deadloss and test fish harvest.

[d] Values in 2002 and 2003 are lower than inseason assessments due to more stringent postseason market scrutiny compared with previous years.

Appendix B2.–Exploitation of Togiak herring stock, 1988–2008.

Year	Biomass Estimate[a] (short tons)	S-O-K Herring Equivalent	Dutch Harbor Food/Bait	Sac Roe				Total Harvest	Exploitation Rate
				Gillnet[b]	Purse Seine[c]	Waste[d]	Total[e]		
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	18,298	350	23,462	25,412	20.3%
1998	121,000	0	1,994	5,952	16,424	400	22,376	24,370	20.1%
1999	124,946	1,605	2,398	4,858	14,170	198	19,028	23,031	18.4%
2000	130,904	0	2,014	5,464	14,857	100	20,321	22,335	17.1%
2001	119,818	0	1,439	6,491	15,660	219	22,151	23,590	19.7%
2002	120,196	260	2,846	5,216	11,793	40	17,009	20,115	16.7%
2003	126,213	55	1,487	6,505	14,778	380	21,283	22,825	18.1%
2004	143,124	0	1,258	4,980	13,785	103	18,765	20,023	14.0%
2005	108,585	0	1,154	5,841	14,287	784	20,128	21,282	19.6%
2006	129,976	0	953	7,132	16,321	500	23,453	24,406	18.8%
2007	134,566	0	1,214	4,012	12,800	320	16,812	18,026	13.4%
1988-07 Avg.	122,352	806	1,901	5,216	14,989	309	20,205	22,911	19.3%
1998-07 Avg.	125,933	192	1,676	5,645	14,487	304	20,133	22,000	17.6%
2008	130,516	0	1,536	4,832	15,533	0	20,365	21,901	16.8%

Note: Blank cells represent no data.

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

[b] Includes bait harvest.

[c] Includes test fish harvest.

[d] Estimated waste.

[e] Does not include waste.

Appendix B3.–Age composition, by weight, of total inshore herring run, Togiak District, 1988–2008.

	Age Composition (%) [a]							Total [b]
Year	3 [c]	4	5	6	7	8	9 +	Run (tons)
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
2007		0.7	7.3	15.5	5.5	9.4	61.7	134,221
2008	[d]	6.2	9.0	14.6	15.5	8.1	46.5	136,495

Note: Blank cells represent no data.

[a] Age composition in 1988–1992 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, 1988–2008.

Year	Companies	Fishery Dates	Hours	Effort [a]	Area	Total Harvest in pounds	Herring Equivalent (in tons)	Openings	Average Roe %
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	13,884 [b]	55	1	9.45 [b]
2004		no fishery							
2005		no fishery							
2006		no fishery							
2007		no fishery							
1998-2007 Avg.	1		4	72		167,080	640	1	10
2003-2007 Avg.	1		3.0	35		13,884	55	1	9
2008		no fishery							

Note: Blank cells represent no data.

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

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

Appendix B5.–Aerial survey estimates of herring biomass and spawn deposition, Togiak District, 1988–2008.

Year	Preseason Forecast [a]	Biomass Estimate		Spawn Estimates	
				Observations	Miles
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
2006	129,976	176,288		66	18
2007	134,566	134,221		43	19
1988-07 Avg.	110,930	137,583		85	54
1998-07 Avg.	121,183	138,086		77	42
2008	134,516	136,495		38	49

[a] 1993–2008 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, 1988–2008.

	Herring			
Year	Sac Roe	Food/Bait	Spawn-on-Kelp	Total
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
2006	2,618	0	[a]	2,618
2007	1,869	0	[a]	1,869
1988-07 Avg.	6,113	4	290	6,292
1998-07 Avg.	3,197	0	113	3,231
2008	2,600	0	[a]	2,600

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] Less than 4 permits; records are confidential.

Appendix B7.–Guideline and actual harvests of sac roe herring (tons) and spawn-on-kelp (lbs), Togiak District, 1988–2008.

	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]
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	18,593	13	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	14,368	-31	350,000	419,563	20
2000	5,738	5,464	-5	17,215	14,957	-13	350,000	[d]	
2001	6,268	6,491	4	14,624	15,879	9	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]	
2006	7,059	7,132	1	16,471	16,821	2	350,000	[d]	
2007	7,090	4,012	-43	16,544	13,120	-21	350,000	[d]	
1988-07 Avg.	5,808	5,216	-9	15,873	15,156	-3	350,000	342,078	-2
1998-07 Avg.	6,450	5,645	-11	16,245	14,792	-8	350,000	167,080	-52
2008	6,864	4,832	-30	16,017	15,602	-3	350,000	[d]	

[a] Harvest guideline derived from inseason biomass estimate when available, or preseason forecast if weather prevents an estimate. Harvest guidelines were adopted in 1988.

[b] Actual minus guideline divided by guideline.

[c] Includes deadloss and test fish harvest.

[d] No fishery conducted.

[e] Less than 4 permits; records are confidential.

APPENDIX C. 2008 BRISTOL BAY SALMON OUTLOOK

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

Denby S. Lloyd, Commissioner
John Hilsinger, Director

Contact:
Slim Morstad Area Management Biologist
Paul Salomone Area Management Biologist
Phone: (907) 246-3341
Fax: (907) 246-3340

Issuing Area Office
P.O. Box 230
King Salmon, Alaska, 99576
Date Issued: April 18, 2008
Time: 12:00 PM

BRISTOL BAY
2008 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 2008 Bristol Bay salmon season. Included is a short narrative regarding the general management approach for each of the 5 major districts, the 2008 salmon forecast, and a brief summary of regulation changes adopted by the Alaska 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 local radio stations – KAKN, KDLG and KRUP. Regular announcement times that may be utilized are 9:00 AM, 12:00 noon, 3:00 PM, 6:00 PM, and 8:00 PM, unless otherwise stated. If you miss an announcement, there are 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. 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

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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 2008 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

REGULATORY CHANGES

Ugashik fishers should note that an adjustment was made to the northern line of the district at the March 2008 BOF session. The northwest corner of the district will now be located at 57° 43.54N, 157° 43.80 W (**5 AAC 06.200 (d)**). The northwest corner of the "reduced" district will be located at 57° 43.54N, 157° 43.25 W. (**5 AAC 06.366 (f)(2)**).

For fishers intending to fish under the dual permit regulation as defined in 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 ADF&G 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.

Fishers are also reminded that in December 2006 the BOF expanded the grounding regulations baywide, instituted requirements for reporting lost gear, made small boundary changes in the Nushagak District and made other district specific changes. Please review the information for the district you plan to fish in and the news release put out by the Department of Public Safety.

SALMON OUTLOOKS

BAYWIDE

The forecasted Bristol Bay sockeye salmon run for 2008 is approximately 40.3 million fish. From this total, a commercial harvest of approximately 31.4 million fish is projected (Table 1). Because of the projected surplus, the department plans to fish aggressively early in the run. Fishers should expect significant amounts of fishing time, however, run timing will be the key factor as to when fishing will occur. The department manages fisheries based on inseason information regarding abundance. The inseason management approach uses a suite of tools to provide information on abundance in each district as each run develops and that information is used by fisheries managers to determine fishing opportunity.

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The commercial salmon season in Bristol Bay opens June 1 by regulation. The east side districts will be on a weekly schedule that will vary by district, beginning June 2. The schedules are in place to balance fishing opportunity with escapement in the early part of the season (particularly Chinook salmon), during the early "shoulder" of the run. As each run develops and sockeye salmon run characteristics begin to be defined within individual districts, fishing time will be adjusted accordingly. In the Nushagak district, management of the Chinook fishery will dictate fishing time in the early part of the season, followed by directed sockeye salmon management as abundance indicates.

NAKNEK/KVICHAK DISTRICT

An inshore run of nearly 14.7 million sockeye salmon is expected for the Naknek/Kvichak District in 2008. The forecasted harvest in the Naknek/Kvichak District is approximately 9.7 million sockeye salmon, consisting of roughly 1.5 million from the Kvichak River, 1.5 million from the Alagnak River

and 6.7 million from the Naknek River. The 2008 Kvichak River minimum biological escapement goal will be 2.0 million. The **preseason** point goal for the Kvichak River is the minimum 2.0 million. If the return is greater than the forecast, the **inseason** point goal will be changed to reflect the actual inseason total run. The Naknek River escapement goal range is 800,000 to 1.4 million with the midpoint objective of 1.1 million. Sockeye salmon returning to the Naknek/Kvichak District are predicted to be 57% age-1.3, 28% age-1.2, 8% 2.2 and 6% 2.3 fish.

During the 2006 Alaska Board of Fisheries meeting in Dillingham, a change was adopted for the Naknek River Special Harvest Area. The BOF adopted an allocation plan based on the number of periods fished by each gear group instead of their percent of catch. The new allocation plan will be one set gillnet period for every three drift gillnet periods.

To begin the season, the Naknek Section only will be open to drift gillnet gear, and for set gillnet gear both the Naknek and Kvichak Sections will be open beginning June 2. Fishing time during the first three weeks of June will be 4 days a week from 9:00 AM Monday to 9:00 AM Friday beginning 9:00 AM Monday, June 2 and ending 9:00 AM Friday, June 20. Permit holders participating in the Naknek/Kvichak District salmon fishery should be advised that once sufficient run strength appears in the district, they may be put on short notice.

There is the possibility of escapements falling behind schedule in the Kvichak River. In order to reduce the harvest of Kvichak stocks, the department may restrict fishing to the flood only, from the 7-foot to high water slack. This could cause the escapement in the Naknek River to exceed the 1.1 million midpoint, however, the department will attempt to keep the escapement below the upper range of 1.4 million.

With limited information and abundance over the past 2 years, special attention will be given to Chinook salmon run strength and effort levels early in June. Mesh size restriction of 5.5 inches or less will be in effect beginning June 1, to help in the conservation of Chinook salmon.

During closures, there will be extensive use of district test fish boats. Additional volunteer test boats might be needed because of this increase in test fishing. Permit holders interested in

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district test fishing in the Naknek-Kvichak District should contact Slim Morstad at (907) 246-3341 in King Salmon.

EGEGIK DISTRICT

A forecasted run of approximately 8.0 million sockeye salmon is expected for the Egegik River in 2008. The escapement goal range is 800,000 to 1.4 million sockeye with a midpoint of 1.1 million. The expected surplus potentially available for harvest is approximately 6.9 million fish. Approximately 33% of the run is expected to be age-1.3 fish, followed by age-2.3 (24%), age-1.2 (23%), and age-2.2 (20%) fish.

The proportion of harvest between set gillnets and drift gillnets (during the allocation period) in 2007 was approximately 16% and 84% respectively; the sockeye salmon allocation plan specifies 14% and 86%. In 2008, separate gear openings and extensions are tools that will be used to adjust harvest in an attempt to achieve 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.

Based on the forecasted run size for the Kvichak River, fishing will begin in the full Egegik District. The season will start with a 4 day per week schedule that will be in effect through June 13. By emergency order, commercial fishing will be allowed in the Egegik District from 9:00 AM Monday, until 9:00 AM Friday. This schedule will be in effect beginning 9:00 AM Monday, June 2 and run through 9:00 AM Friday, June 13. After June 13, fishing will be scheduled according to sockeye salmon run strength. As in previous years some openings could occur on short notice. Periods will also be adjusted to allocate harvest between drift and set gillnet gear groups.

The 2004 parent-year escapement for coho salmon was assessed using aerial surveys and produced an index count of 41,000 coho compared to the 1998-2004 average of 10,000. The commercial harvest in 2004 was approximately 2,300 coho, 8% of the recent 20-year average of 31,000. In 2008, management of the fall coho fishery will be based on fishery performance and run strength indicators.

District test fishing for inseason management may be conducted periodically depending on run characteristics. Permit holders interested in test fishing in the Egegik District should contact Paul Salomone by calling (907) 267-2229 (Anchorage) or 246-3341 (King Salmon after May 31, 2008).

Ugashik District

The forecasted Ugashik River sockeye salmon run is 6.5 million fish. With an escapement goal range of 500,000 to 1.2 million (mid range goal of 800,000) approximately 5.6 million fish are potentially available for harvest. Approximately 52% of the run is expected to be age-1.2 fish, 37% age-1.3, 5% age-2.2, and 7% age-2.3 fish.

The allocation of the sockeye salmon harvest between set gillnets and drift gillnets (during the allocation period) in 2008 was approximately 8% and 92% respectively, the Ugashik District

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allocation plan specifies 10% and 90%. Separate gear openings and extensions will be used to adjust harvest between gear groups in 2008.

The emergency order period in the Ugashik District will begin at 12:00 AM Sunday June 1. Commercial fishing will be allowed on a 9:00 AM Monday to 9:00 AM Friday schedule through 9:00 AM Friday, June 20. With an expected run to the Kvichak that exceeds a 40% exploitation rate stipulated in regulation, fishing time after June 20 will be allowed under E.O. authority and will depend on fishery performance and run strength indicators. Permit holders should note that the regulation restricting opportunity to no more than 48 hours between June 16 and June 23 will not be in effect in 2008.

Parent-year coho salmon escapements in the Ugashik District were assessed by aerial surveys. The escapement index for Ugashik coho in 2004 was approximately 5,400. However, significant portions of the survey were done under conditions that prohibited a complete assessment of coho streams. Coho harvest in 2004 was approximately 4,700. Recent effort for coho salmon within the Ugashik District has been low. Directed commercial openings for coho salmon in 2008 will depend on fishery performance and run strength indicators.

Area T permit holders who fish the Cinder River and Port Heiden sections prior to July 1 and deliver their catch in the Ugashik District are reminded to report the section of catch on the appropriate fish tickets. Only the inner Port Heiden Section and the Cinder River Lagoon have fishing periods available to Area T permit holders in June, the outside waters of the Cinder River section are open after August 1. There is a closed waters area southwest of Cape Meshik as defined by 5 AAC 09.350(1). Permit holders interested in test fishing in the Ugashik District should contact Paul Salomone at (907) 267-2229 (Anchorage) or 243-3341 (King Salmon after May 31, 2008). Permit holders fishing in the Ugashik District should be aware that during the winter of 2008 BOF meeting, slight adjustments were made to the northern district line. The northwest corner will now be located at 57^{o} 43.54N, 157^{o} 43.80 W (**05 AAC 06.200 (d)**). The northwest corner of the "reduced" district is 57^{o} 43.54N, 157^{o} 43.25 W. (**05 AAC 06.366 (f)(2)**). (See updated district map).

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 escapement goal range of 340,000 to 760,000 when the preseason forecast is greater than 1 million fish. If the preseason forecast is below 1 million fish, then an Optimum Escapement Goal (OEG) minimum of 235,000 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 sockeye salmon forecast to the Wood and Nushagak Rivers for 2008, 7.1 million and 1.9 million respectively, are accurate, the department projects little if any fishing time in the WRSHA.

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

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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 2008 forecast for Chinook salmon returning to the Nushagak River is 160,000 fish (68% 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 75,000 Chinook salmon, while the sport fishery is to be managed for a guideline harvest of 5,000 fish, if the projected inriver escapement is between 65,000 and 75,000 fish. Based on the

preseason forecast and the inriver goal, 85,000 Chinook salmon should be available for commercial harvest. A portion of this surplus may be taken in the subsistence fishery (8,000 to 12,000 Chinook salmon taken on Dillingham beaches), but there should be some fish available for directed Chinook openings in 2008. Permit holders should expect the first two directed Chinook openings on June 5 and June 9. Subsequent openings will follow only if escapement is sufficient to warrant additional openings; these subsequent openings are scheduled for June 12, 15, 18, and 20. 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 4 or 5. 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 2008 forecasted run of sockeye salmon for the Nushagak District is 10.4 million fish with distribution by river as follows: Wood River at 7.1 million with a 1.1 million midpoint goal, leaving 6 million available for harvest; Igushik River at 1.4 million with a 225,000 midpoint goal, leaving approximately 1.2 million available for harvest; and the Nushagak River at 1.9 million with the midpoint goal of 550,000, leaving approximately 1.4 million available for harvest. Approximately 38% of the forecasted run is age-1.2 sockeye salmon, <1% age-2.2, 54% age-1.3, and <1% age-2.3 fish. Projected harvest for the Nushagak District is 8.53 million sockeye salmon.

Management strategies for 2008 include: 1) multiple directed Chinook salmon openings beginning June 5, 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 regular district in late June with short openings. The management strategy for 2008 is to harvest Chinook salmon surplus to escapement needs prior to large numbers of sockeye arriving. Once

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sockeye escapement warrants, management priority will shift from Chinook to sockeye management. Openings will be scheduled based on sockeye salmon escapement levels in the Nushagak and Wood Rivers and mesh size will be limited to 5.5 inches or smaller unless Chinook escapement is above expectations. If the Nushagak sockeye salmon escapement falls below the expected 340,000 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 the 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 150,000, the department may reduce fishing area in the Nushagak Section to protect Igushik River sockeye.

In 2008, there is no forecast of the coho salmon run to the Nushagak River. Enumeration of the spawning escapement in 2004 was 152,000 coho salmon when counting operations ceased. At this time the sonar project is not budgeted to operate 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 a conservative weekly schedule of 36-48 hours per week will occur beginning in late July.

District test fishing for inseason management may be conducted periodically depending on run characteristics. Permit holders interested in test fishing in the Nushagak District should contact Tim Sands in Dillingham at (907) 842-5227.

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 5.5 inches or smaller between June 15 and July 15 for the conservation of Chinook salmon.

Chinook salmon run strength in the Togiak River declined between 1994 and 1997, from a total run of 26,000 fish in 1994 down to 18,000 fish in 1997. For the last 5 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

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Chinook run strength, reduction in the weekly fishing schedule is again likely for the 2008 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 2008 inshore run of sockeye salmon to the Togiak River is forecasted at 740,000 fish. With a mid range escapement goal of 150,000 sockeye salmon past the towers into Togiak Lake, approximately 590,000 sockeye salmon will be potentially available for commercial harvest. Approximately 4% of the run is expected to be 2-ocean fish and 96% 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 escapement within the desired 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 2008 run of coho salmon to the Togiak District because information on parent-year escapement in 2004 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 2008.

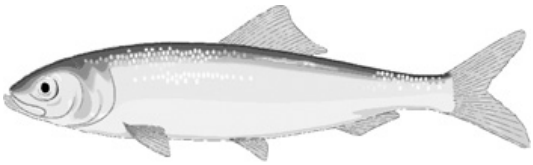
Millions of Sockeye Salmon							
	Forecasted Production by Age Class						
District: River	1.2	2.2	1.3	2.3	**Total**	**Goal**	**Total Harvest**
NAKNEK-KVICHAK:							
Kvichak	1.68	0.58	1.04	0.25	3.56	2.00	1.56
Alagnak	2.08	0.15	1.02	0.07	3.32	1.86	1.45
Naknek	0.39	0.50	6.32	0.57	7.78	1.10	6.68
Total	**4.15**	**1.23**	**8.38**	**0.89**	**14.65**	**4.96**	**9.68**
EGEGIK	**1.87**	**1.57**	**2.63**	**1.95**	**8.02**	**1.10**	**6.92**
UGASHIK	**3.35**	**0.30**	**2.38**	**0.46**	**6.48**	**0.85**	**5.63**
NUSHAGAK							
Wood	3.24	0.31	3.46	0.09	7.10	1.10	6.00
Igushik	0.44	0.02	0.86	0.05	1.37	0.23	1.15
Nushagak	0.28	0.02	1.44	0.01	1.93	0.55	1.38
Total	**3.96**	**0.35**	**5.63**	**0.15**	**10.41**	**1.88**	**8.53**
TOGIAK	**0.01**	**0.02**	**0.65**	**0.06**	**0.74**	**0.15**	**0.59**
BRISTOL BAY	**13.33**	**3.47**	**19.80**	**3.50**	**40.29**	**8.94**	**31.35**

APPENDIX D. 2008 TOGIAK HERRING OUTLOOK

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

Denby S. Lloyd, Commissioner

John Hilsinger, Director



Contact:	Dillingham Area Office
Tim Sands, Area Management Biologist	546 Kenny Wren Road
Matthew Jones, Assistant Area Biologist	P.O. Box 230
Phone: (907) 842-	Dillingham, AK, 99576
Fax: (907) 842-5937	Date Issued: March 14, 2008

2008 TOGIAK HERRING FISHERY INFORMATION

This notice is intended to provide information to participants in the 2008 Togiak herring fisheries. The 2008 herring biomass in Togiak District is forecasted to be 130,516 tons, a slight decrease from 2007. The 2008 forecast is based on an age-structured-analysis (ASA) model, used for Togiak since 1993. Ages -10 and -11 herring are expected to comprise 37% of the projected biomass (Figure 1), with ages 6-9 making up another 47% 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 394 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 130,516 tons, up to 26,103 tons will be available for harvest in 2008. Harvest allocation, in accordance with the BBHMP will be:

Fishery	Harvest Allocation
Spawn-on-Kelp	1,500 tons
Dutch Harbor Food and Bait	1,722 tons
Togiak Sac Roe	22,881 tons
Purse Seine (70%)	16,017 tons
Gillnet (30%)	6,864 tons

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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 2008, sac roe fisheries will again be managed to maximize product quality through 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 2008 season. Daily freezing capacity is expected to be more than last year's capacity and will probably be between 1,900 and 2,000 tons per day. In order to maximize fishing time it is the department's plan to open the fishery as soon as threshold biomass is established. This allows individual companies to maximize their processing capacity and decide what quality is suitable for their individual market.

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 2008. Therefore fishing time and area will be very liberal. This should allow purse seine vessels to locate high quality herring and allow 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.

With the expected decrease in effort and the increasing fuel costs, the department will work closely with industry to minimize any expense from test fishing efforts to determine fish maturity.

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 6,864 tons, while maintaining the specified 70/30-purse seine/gillnet ratio. Product quality will be a priority throughout the gillnet fishery.

In 2008, the department will primarily focus the gillnet fleet in the area east of Right Hand Point. The department will consider opening areas west of Right Hand Point to the gillnet fleet if weather conditions are unfavorable. Test fishing becomes more of a burden with the ever dwindling number of participants in the gillnet fishery. As in 2007 the plan is to open the gillnet area to fishing when threshold biomass is present. Individual companies and fishermen can organize their own test fishing scheme once the area is open and make decisions on when to begin fishing for production. Obviously, until it is determined that marketable quality fish are present participants should test cautiously with a small portion of gear.

ADF&G OPERATIONS 2008

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 in late April depending on weather conditions. Once fish are

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observed, the department will relocate to a field office in Togiak. 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 PM, and at other times as needed. Catch and opening information will be available with some delay at the Commercial Fisheries website: http://www.cf.adfg.state.ak.us/

Test Fish Guidelines

Gillnet and Purse Seine

1 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.

2 The department representative, upon contact, will assign number of test sets and number of samples per set. Number of sets typically ranges from 1 to 3 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.

3 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.

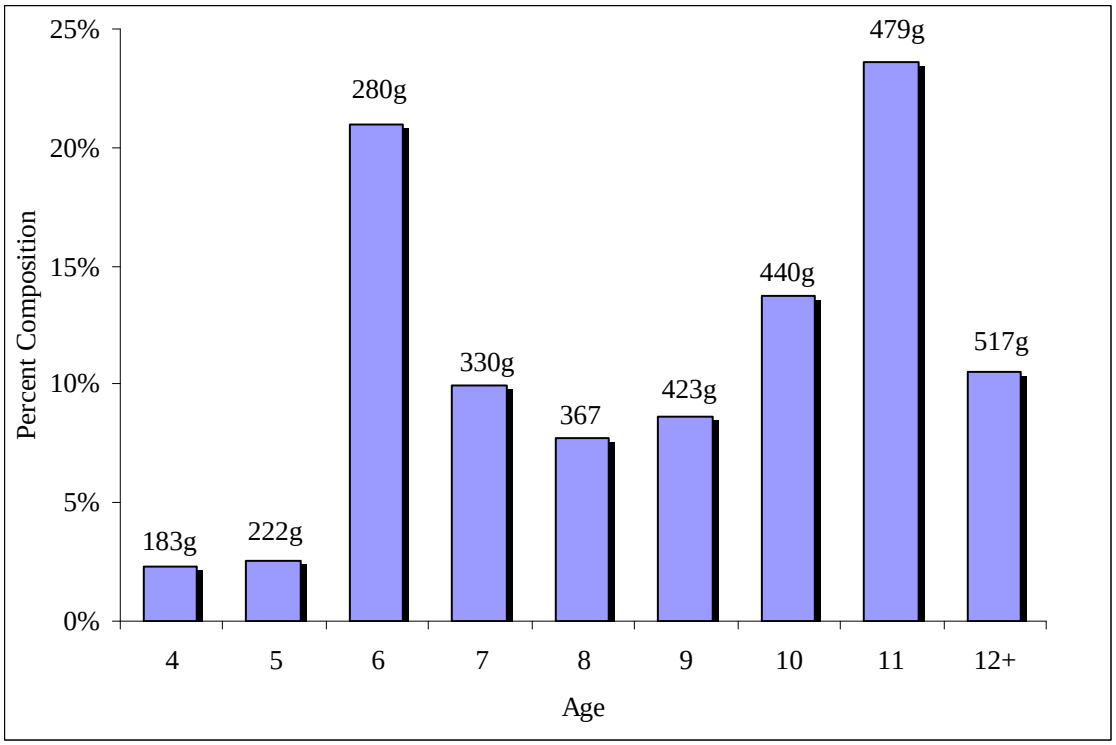

Figure 1. Forecasted age composition by weight for the 2008 Togiak herring return. Forecasted average weight (grams) by age is also presented.