Fishery Management Report No. 12-21

2011 Bristol Bay Area Annual Management Report

by

Matt Jones,

Tim Sands,

Slim Morstad,

Paul Salomone,

Greg Buck,

Fred West,

Tim Baker,

and

Ted Krieg

May 2012

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)

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

FISHERY MANAGEMENT REPORT NO. 12-21

2011 BRISTOL BAY AREA ANNUAL MANAGEMENT REPORT

by

Matt Jones, Tim Sands,
Alaska Department of Fish and Game, Division of Commercial Fisheries, Dillingham

Slim Morstad,
Alaska Department of Fish and Game, Division of Commercial Fisheries, King Salmon

Tim Baker, Greg Buck, Fred West, and Paul Salomone
Alaska Department of Fish and Game, Division of Commercial Fisheries, Anchorage

Ted Krieg
Alaska Department of Fish and Game, Division of Subsistence, Dillingham

Alaska Department of Fish and Game
Division of Sport Fish, Research and Technical Services
333 Raspberry Road, Anchorage, Alaska, 99518-1565

May 2012

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.adfg.alaska.gov/sf/publications/ This publication has undergone regional peer review.

Matt Jones, Tim Sands,
Alaska Department of Fish and Game, Division of Commercial Fisheries,
546 Kenny Wren Road, P.O. Box 230, Dillingham, AK 99576 USA

Ted Krieg,
Alaska Department of Fish and Game, Division of Subsistence,
546 Kenny Wren Road, P.O. Box 230, Dillingham, AK 99576 USA

Slim Morstad,
Alaska Department of Fish and Game, Division of Commercial Fisheries,
Main Street, P.O. Box 37, King Salmon, AK 99613 USA

and
Tim Baker, Greg Buck, Fred West, and Paul Salomone
Alaska Department of Fish and Game, Division of Commercial Fisheries,
333 Raspberry Road, Anchorage, AK, 99518 USA

This document should be cited as:
Jones, M., T. Sands, S. Morstad, T. Baker, G. Buck, F. West, P. Salomone, and T. Krieg. 2012. 2011 Bristol Bay area annual management report. Alaska Department of Fish and Game, Fishery Management Report No. 12-21, Anchorage.

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ABSTRACT

The 2011 Bristol Bay Area Management Report is the 50th 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 annual Bristol Bay commercial salmon (sockeye *Oncorhynchus nerka*, Chinook *O. tshawytscha*, chum *O. keta*, pink *O. gorbuscha*, and coho *O. kisutch*) and Pacific herring (*Clupea pallasii*) 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 2011. The narrative is constructed beginning with a broad historical perspective followed by annual detail of individual districts. All narrative and data tabulations in this volume are combined in 2 sections, salmon followed by herring, to aid in the use of this document as a reference source. For long term context, historical data are compiled into appendices following the same format; salmon followed by herring. 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. All 2011 harvest data is considered preliminary pending processing of fish tickets. Readers should note that harvest and escapement data are routinely presented throughout the narrative in rounded form for simplicity. Corrections or comments should be directed to the Dillingham office. Attention: Editor Matt Jones, Westside Assistant Area Management Biologist, 546 Kenny Wren Road, Dillingham, AK 99576.

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

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 *Oncorhynchus nerka* fishery in the world. Sockeye salmon 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 systems. The management objective for each river is to achieve escapements within established ranges for the major salmon species while harvesting fish in excess of those ranges through orderly fisheries. In addition, regulatory management plans have been adopted for individual species in certain districts.

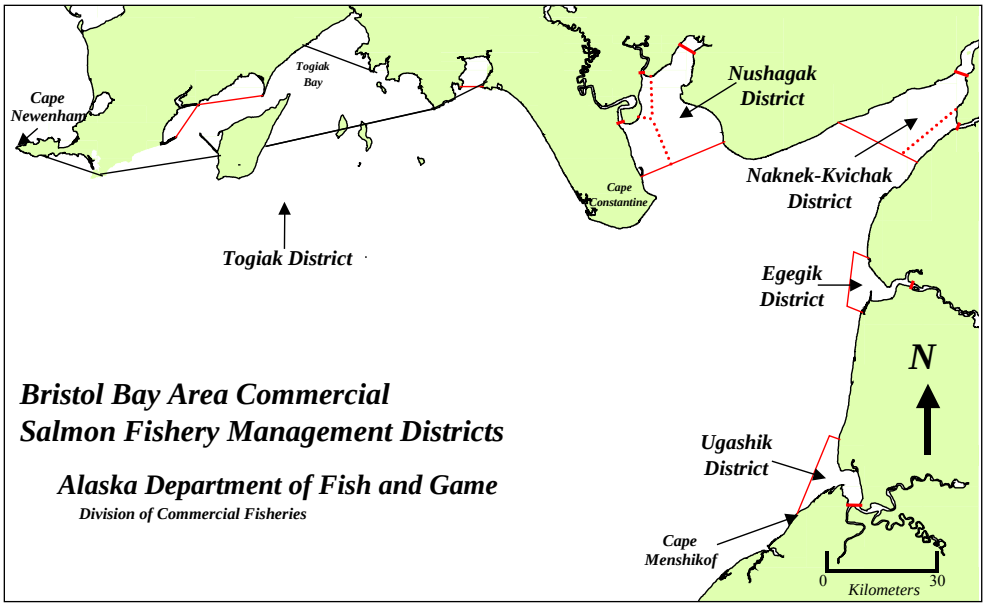

Figure 1.–Bristol Bay area commercial fisheries salmon management districts.

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 (1991–2010) average 25.6 million sockeye, 67,000 Chinook, 957,000 chum, 84,000 coho, and 253,000 (even-years only) pink salmon (Appendices A3–A7). Since 1991, the value of the commercial salmon harvest in Bristol Bay has averaged $115.3 million, with sockeye salmon being the most valuable; worth an average $113.2 million annually (Appendix A24). Subsistence catches are comprised primarily of sockeye salmon and average 138,000 fish (Appendix A26). Sport fisheries harvest all species of salmon, with most effort directed toward Chinook and coho salmon 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. In 2009, this regulation was modified so that it does not apply when the Naknek Special Harvest Area is in use. Also in 2009, a regulation was adopted that allowed set gillnet permit holders to own and operate 2 permits with associated legal amounts of gear. Drift gillnet permits are the most numerous at 1,862 in Bristol Bay (Area T), and of those, 1,747 registered to fish in 2011. There are a total of 981 set gillnet permits in Bristol Bay and of those, 878 fished in 2011 (Appendix A2).

2011 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 commercial fishery, an offshore test fishery operating from Port Moller, individual district test fishery programs, and the early performance of the commercial fishery. These pieces of information may not give a correct assessment of run size but collectively, they form patterns such as relative strengths of year classes, discrepancies from the forecast (relative to expected year class contributions), 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 2011 was forecast to be 38.5 million (Table 1). The Bristol Bay sockeye salmon inshore harvest was predicted to reach 29.7 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 2011 was the sum of individual predictions for 9 river systems (Kvichak, Alagnak, Naknek, Egegik, Ugashik, Wood, Igushik, Nushagak-Mulchatna, and Togiak) and 4 major 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 to 2007 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 2001 through 2010.

SOUTH UNIMAK/SHUMAGIN ISLANDS 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 Alaska Board of Fisheries. 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 interception of stocks bound for Bristol Bay and Arctic-Yukon-Kuskokwim regions, it should be restricted. These restrictions were as follows: from June 10 to June 24 such that: commercial fishing periods may occur only from 6:00 a.m. to 10:00 p.m. and may not be open for more than (A) 3 days in any 7-day period, (B) 16-hours per day; (C) 48-hours in any 7-day period; (D) 2 consecutive 16-hour fishing periods in any 7-day period. The BOF removed previous regulations based on a chum salmon cap and a percentage of the Bristol Bay preseason sockeye salmon forecast.

Preliminary catch information for 2011 indicates that the June Shumagin Islands fishery landed 422,000 sockeye salmon, and the June South Unimak fishery landed 937,000 sockeye salmon (Appendix A25). The June South Unimak sockeye and chum salmon harvests represent 103%

and 101% of the 20-year average, respectively. In the June Shumagin Islands fishery, sockeye and chum salmon harvests represent 94% and 108% of the 20-year average. This equates to an overall sockeye salmon harvest 2% above the 20-year average and a chum salmon harvest 4% above the 20-year average.

PORT MOLLER TEST FISHERY

From 1967 to 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 gillnets at 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 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 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 fishery project operated from 1987 through 2003. Beginning in 2004, the FRI contribution to the project was replaced by Bristol Bay Science and Research Institute (BBSRI), which operated the project and performed the bulk of daily inseason analysis. The project is currently operated jointly by ADF&G and BBSRI staff.

GENETICS

Over the last 11 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 2 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 use in the estimates of total runs and 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.

Genetic sampling was added to the Port Moller test fishery project starting in 2004 and continued through 2011. 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 to 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.

ECONOMICS AND MARKET PRODUCTION

In 2011, exvessel value of the inshore commercial salmon harvest was estimated at $137.7 million (Table 3). The 10-year (2001–2010) average exvessel value of Bristol Bay commercial salmon fisheries was $94.1 million (Appendix A24).

During the 2011 season, 7 companies canned, 25 companies froze, 17 exported fresh, and 3 companies cured salmon in Bristol Bay. Product was exported by air by 21 companies and exported by sea by 25 companies. A total of 31 processors/buyers reported that they processed fish from Bristol Bay in 2011 (Table 4).

RUN AND HARVEST PERFORMANCE BY SPECIES

Sockeye Salmon

The 2011 inshore sockeye salmon run of approximately 30.3 million fish was well below the preseason forecast of 38.5 million (Tables 1, 5, and 6). Run performance by river system varied in relation to forecasts, but aggregate runs were below forecast in all districts except Togiak. Sockeye salmon dominated the inshore commercial harvest, totaling 21.9 million fish (Table 7). Sockeye salmon escapement goals were met or exceeded in all systems where spawning requirements have been defined.

Chinook Salmon

Chinook salmon harvests in 2011 were below the recent 20-year averages in all districts except Naknek-Kvichak. The 2011 baywide commercial harvest of 40,000 Chinook salmon was well below the 20-year average of 67,000 fish. The largest producer of Chinook salmon in the Bay, the Nushagak District, achieved a harvest of 30,000 compared to the 20-year average of 53,000 fish (Appendix A4).

Chum Salmon

In 2011, the commercial harvest of 739,000 chum salmon was 29% less than the 20-year average of 957,000 fish. Chum salmon catches were below 20-year averages in all districts except Naknek/Kvichak (Appendix A5).

Pink Salmon

Bristol Bay has a dominant even-year pink salmon cycle. In 2011 the harvest was less than 1,000 fish.

Coho Salmon

The 2011 baywide coho salmon commercial harvest of 14,000 was well below the recent 20-year average of 84,000 fish (Appendix A7).

SEASON SUMMARY BY DISTRICT

Naknek/Kvichak District

The 2011 forecast for the Naknek/Kvichak District projected a total run of 14.4 million sockeye salmon; 4.8 million for escapement and 9.6 million for harvest (Table 1). The forecast by river system was 5.7 million for the Kvichak River, 1.8 million for the Alagnak River, and 6.9 million for the Naknek River (Table 2). Escapement goals by river system were as follows: 1) minimum 2.0 million for the Kvichak River, 2) minimum 320,000 for the Alagnak River and 3) a range of 800,000 to 1.4 million for Naknek River. The actual total inshore run to the district for 2011 was 13.2 million sockeye salmon (Table 1). Commercial catch was 8.9 million sockeye salmon. The Naknek River Special Harvest Area (NRSHA) did not open in 2011.

ADF&G does not forecast Chinook, chum, coho, or pink salmon for systems in Naknek/Kvichak District. Commercial harvest of Chinook salmon has remained relatively small due to current mesh size restrictions that have been in effect since the early 1990s. Mesh restrictions are set by EO and prohibit gillnets with a mesh size larger than 5.5 inches until July 22.

For the commercial fishery to begin in the full Naknek/Kvichak District, the preseason sockeye salmon forecast for the Kvichak River must be 30% greater than the minimum sustainable escapement goal (SEG). Should the forecast be below that level, fishing will begin in special harvest areas of Naknek, Egegik and Ugashik rivers (5 AAC 06.360 (h)). Based on the 2011 sockeye salmon forecast for the Kvichak River, these restrictions were not implemented on June 1. However, fishing with drift gillnets was restricted to the Naknek Section when the fishery first opened while the set gillnet fleet was allowed to fish the whole district. Fishing periods during the first 3 weeks of June were from 9:00 a.m. Monday to 9:00 a.m. Friday, beginning 9:00 a.m. Wednesday, June 1 and ending 9:00 a.m. Thursday, June 23.

The Naknek-Kvichak District opened at 9:00 a.m. Wednesday, June 1, with the first deliveries occurring June 13 (Table 8). During the week of June 13, a total of 3,596 sockeye salmon were harvested. During the 66-hour period that began at 9:00 a.m. Monday, June 20, a total of 566,000 sockeye salmon were harvested. Following the closure at 9:00 a.m. June 23, subsequent fishing periods were based on escapement into Naknek River.

Escapement counting towers for Naknek, Kvichak, and Alagnak rivers were all operational during the 2011 season. The Naknek River tower began counting on June 19, the Kvichak River Tower on June 20, and the Alagnak River tower on June 24 (Table 9). The Kvichak River test fishing project began on June 22 (Table 10). The minimum escapement objectives were exceeded in all 3 systems. At the end of the weekly fishing schedule on June 23, sockeye salmon passage rates were nearly double the anticipated for Naknek River based on historical run timing curves. Expected escapement through June 23 for Naknek River was 11,000 sockeye salmon, while actual escapement past the tower was 19,782 fish. For Kvichak River, only 174 sockeye had passed the tower through June 23 (Table 9). With escapement to the Naknek River above projections, a commercial fishing period was scheduled for June 24, and again only set gillnets were allowed to fish in the Kvichak Section. Daily escapement rates past Naknek tower continued at acceptable levels, thus a continuation of one fishing period per day occurred through June 27. Sockeye salmon harvest for the 4 periods of June 24 through June 27 was 163,000, 162,000, 270,000 and 470,000, respectively (Table 8).

Sockeye salmon escapement to Kvichak River remained below anticipated levels and was more than 3 days behind the historical escapement curve on June 27. When this occurs, by regulation Naknek-Kvichak District closes and special harvest areas open to commercial fishing in order to minimize harvest of Kvichak-bound sockeye salmon. By June 27, projected cumulative escapement past the Kvichak tower was 22,490 while actual escapement past the tower through midnight June 27 was 282 (Tables 8 and 9). However, in 2011 genetic information collected from the Port Moller test fishery indicated a greater than forecast run to Kvichak River. Based on genetic information, the district remained open with the drift gillnet fleet still confined to the Naknek Section.

During the week of June 27, commercial harvest by day remained fairly consistent from a high of 743,000 on July 2 to a low of 447,000 on June 29 (Table 8). Fishing throughout the week included both tides each day with continued restrictions for drift gillnet permit holders to the Naknek Section. By July 1, escapement to the Kvichak River was 621,000 sockeye salmon (Table 10). Based on normal run timing, an escapement of 296,000 was anticipated. With the actual Kvichak escapement significantly higher than projected, a drift period was scheduled in the Kvichak Section on July 2 for 8.5 hours.

During the week of July 3, escapement into all 3 river systems was considerably above anticipated levels, which justified fishing both tides each day. However, drift fleet fishing was confined to the Naknek Section for all but 2 tides. By July 9, cumulative escapements began to lag behind historic levels, which reduced fishing time to one period per day on July 10 and 11. Escapements continued to lag in both Naknek and Kvichak rivers, so no fishing occurred on July 12 and 13. Escapements increased in all 3 rivers allowing commercial fishing to resume on the afternoon of July 14. Beginning July 15, both tides were fished each day and the Naknek/Kvichak District went on the fall schedule of 9:00 a.m. Monday to 9:00 a.m. Friday beginning Monday, July 18.

The total harvest in Naknek/Kvichak District was 8,895,522 sockeye salmon; the 20-year average is 7.9 million (Appendix A3). The Chinook salmon total harvest was 2,693 (Appendix A4), which was slightly more than the 20-year average of 2,581 fish. The chum salmon harvest totaled 205,789 fish; the 20-year average is 190,000 (Appendix A5). There was a reported commercial harvest of 633 coho salmon (Appendix A7). No test fishing occurred in 2011 (Table 11).

Egegik District

The 2011 actual Egegik District harvest of 4.7 million sockeye salmon was 63% below the projected harvest of 7.6 million fish (Table 1).

The actual harvest of 4.7 million fish was the sixteenth largest in the last 20 years (Appendix A13). The escapement of approximately 961,000 fish was within the SEG range of 800,000 to 1.4 million (Appendix A1). With an approximate inshore total of 5.6 million fish to the Egegik District, the 2011 run ranks sixteenth over the last 20 years and represents 64% of the forecast of 8.7 million fish (Appendix A13; Table 1). In 2011, the midpoint of the sockeye salmon run was June 29 or 6 days earlier than the 20-year average of July 4.

The 2011 preseason projection for a Kvichak River run that would provide for the minimum escapement of 2.0 million sockeye salmon allowed commercial 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. In anticipation of large runs in 2008, 2009, and 2010, the district was on a 4-day per week schedule until June 16; then actively managed until the fall regulatory schedule took effect in July. However, because of concerns over Chinook salmon escapement, the 3-day per week schedule (9:00 a.m. Monday to 9:00 a.m. Wednesday and 9:00 a.m. Thursday to 9:00 a.m. Friday) was reinstated for 2011 and in place until June 15.

First deliveries were recorded June 7 (Table 12). Run assessment information on Friday June 10 indicated low abundance within the district, which remained closed over the weekend of June 11–12.

The district reopened 9:00 a.m. June 13 as scheduled. Catches on June 13–14 were 38,000 and 41,000, respectively, and well above average for these dates, indicating some volume in the district. The district closed as scheduled at 9:00 a.m. June 15 and remained closed June 16 (Table 12).

Daily inriver test fishing, which provides estimates of sockeye salmon passage into the lower Egegik River, began on June 15 at established sites just upstream of Wolverine Creek (Table 13). The Egegik River counting tower, which provides daily estimates of sockeye salmon

passage into Becharof Lake, became operational at midnight on June 18 and finished the day with a passage estimate of 2,244 sockeye salmon (Table 13). In 2011, the tower sites were relocated upstream to about 300 feet below the outlet of Becharof Lake. After extensive feasibility work in 2010, we discovered that stream morphology is better suited to counting at the new sites and the towers were relocated for the 2011 season. The new sites are located near the same spot as a weir operated by federal agencies prior to statehood.

Inriver test fishery indices showed fish moving into the Egegik River and a 6-hour drift and 8-hour set gillnet period were scheduled for June 17, resulting in a catch of 113,000 fish (Tables 12 and 13). No fishing occurred on June 18 to provide for escapement.

A 4-hour drift and 8-hour set gillnet period were scheduled for June 19. Harvest from this period was 142,000, another fairly high catch for the date especially considering the short time allowed for the drift gillnet group. Drift gillnet effort increased rapidly from June 15 (42 deliveries) to June 19 (465 deliveries; Table 12).

Because of the way the 2010 run developed, ADF&G deliberately sought to allow more fish to escape during the early part of the run in 2011. An increase in drift gillnet effort, as described above, means that it is more difficult to distribute fish throughout the district and the fleet quickly cleans up fish in the interior part of the district and moves into line fishery mode, something the department wishes to discourage. The district was closed June 20 to allow escapement and to allow fish to move into the district. The strategy was effective as about 100,000 fish passed the tower over the next 3 days, putting the escapement about one day ahead of the average run timing curve.

An additional factor when trying to achieve escapement/distribution is a regulation adopted at the 2009 BOF meeting allowing fishermen to move freely among east side districts until June 25. This complicates evaluation of fishing effort when deciding timing and duration of commercial periods. In 2011, an intensive fishery developed on the south line of the Egegik District because a large fleet took advantage of the ability to move between districts. The line fishery significantly reduced passage of sockeye salmon to the Egegik River and set gillnet sites along the upper reaches of the district.

Delaying the beginning of the registration period was meant to encourage higher drift gillnet participation early in the season and it worked. From a management standpoint, it is desirable to discourage the full mobility of the drift fleet and an effort was made to align openings in east side districts, especially between June 21 and June 25. However, this is problematic because of differences in run timing between districts; Egegik has an earlier run than the Kvichak, which means fish are usually present in Egegik before Naknek-Kvichak. Generally, Egegik District begins active management around June 16, while Naknek-Kvichak District continues to be passively managed using a schedule until around June 23. In practical terms, a situation develops where Naknek-Kvichak is open continuously for portions of the time from June 21 to 25 and Egegik is open for short periods, usually on one flood tide per day. This allows fishermen to fish in Egegik for the time allowed and then travel up to Naknek-Kvichak to finish out the day. Reports have been received of fishermen moving between districts without delivering first, which is illegal. A large number of drift vessels in Egegik complicates matters further because a fleet of 400 boats can harvest a majority of the fish available in a relatively short amount of time. Yet another concern is catching non-Egegik stocks, which can increase during intensive line fisheries.

With above average catches and escapement ahead of the curve, a 4-hour drift and an 8-hour set gillnet period were scheduled for June 21. Harvest was 219,000 and again higher than average. At this point in the run, the available data had two possible interpretations: the run was early or it was big.

Six-hour drift and eight-hour set gillnet periods were allowed on June 22, 23, and 24. Corresponding catches were 190,000, 262,000 and 240,000 fish, however, escapements dropped from 60,000 on June 21 to 9,000 on June 24 (Tables 12 and 13).

After skipping a tide to provide for additional escapement, ADF&G allowed a 4-hour drift and 8-hour set gillnet period on June 25, followed by a 3-hour drift/8-hour set gillnet period on June 26 (Table 12). Strong westerly winds developed on the night of June 25, pushing fish into and through the district. Harvest from June 25 was 225,000, and 316,000 fish were caught on June 26 (Table 12). Both days were above average and indicative of fairly high abundance within the district, especially given the short duration of the drift gillnet periods. Inriver test fishery indices showed a high level of passage into the Egegik River (Table 13).

With additional escapement entering the river, the fleet was allowed to fish 2 tides per day until the magnitude of the escapement could be determined. Catches from June 27 to 30 averaged 300,000 fish per day (Table 12). Escapement over the same period averaged 82,000 per day and by June 30 totaled 493,000 (Table 9).

Inriver test fishery information showed passage into the Egegik River had dropped off and the fishery returned to one tide per day with 5- to 6-hour periods beginning July 1 (Tables 13 and 14). Catch on July 1 dropped off to 256,000, but on July 2 reports from the fleet about the period in progress indicated strong run entry into the district, resulting in the 5-hour drift period being extended for 3 hours. Set gillnets are usually unable to fish into the ebb tide because of strong currents and dewatered sites, so no additional time was allowed for that group. Harvest was 518,000, the largest of the season, bolstering hopes of a large run (Table 12).

On July 3, catch dropped below 200,000, dropping further on July 4 and 5, before falling below 100,000 on July 6 (Table 12). Meanwhile escapement began to lag, averaging 18,000 from June 30 to July 6. Through July 6, cumulative escapement was 608,000, still 200,000 fish below the lower end of escapement goal range (Table 9). Guarding against a repeat of 2010, when the latter half of the run did not develop as expected, the district was closed until escapement improved. The original intent was to close for a tide or two and ensure the lower end of the escapement goal was met. Unfortunately, abundance dropped off rapidly, and in spite of a district closure between July 7 and July 14, only 160,000 fish escaped into the Egegik River. By July 13, the cumulative escapement was 765,000, still below the lower end of the SEG (Table 9).

On July 13, ADF&G received reports that fish had entered the district and inriver test fishery indices indicated that escapement was increasing (Table 13). On the morning of July 14, an aerial survey of the Egegik Lagoon estimated approximately 20,000 fish were present, which, when coupled with inriver information, gave a high level of confidence that the minimum SEG would be achieved. Fleet size had decreased to less than 150 drift gillnetters, so a 6-hour drift and 8-hour set gillnet period were announced for the afternoon tide of July 14 (Tables 14 and 15). Catch was 80,000 fish and escapement for the day was 94,000; bringing the cumulative to 859,000 fish and surpassing the lower end of the SEG (Table 9; Appendix A1).

Escapement on July 15 was 48,000 and, with the smaller drift fleet, ADF&G opened the fishery on a continuous basis until 9:00 a.m. July 22. The normal fall schedule of 9:00 a.m. Mondays to 9:00 a.m. Fridays commenced on July 25.

The 2011 run was below forecast and exhibited early run timing, the bulk occurring prior to July 2. However, catches continued into the third week of July. By the end of the EO period on July 17, catch was 4.7 million and cumulative escapement was 961,200 sockeye salmon (Table 9).

The 2011 Egegik sockeye salmon run was mostly 2- and 3-ocean fish, which came from the 2005 and 2006 escapements of 1.6 and 1.5 million fish, respectively. However, the 2.2 age group, which was from the 2006 escapement, was below forecast with only 1.8 million out of an expected return of 4.6 million. Commercial fishermen harvested approximately 83% of the Egegik inshore sockeye salmon run, compared to the average of 84% for the last 20-year period. Peak tower counts occurred June 27, 28, and July 14, when 108,000, 118,000, and 94,000 sockeye salmon were counted, respectively. By the end of the EO period from June 16 to July 17, harvest percentages were 83% drift and 17% set gillnet (Appendix A9).

Commercial harvest of other salmon species in the Egegik District was 41,845 fish, or about 0.7% of the total. The reported Chinook salmon harvest was 53 fish, 93% below the 20-year average of 794 fish (Appendix A4). The district chum salmon harvest of 41,401 fish was 45% below the recent 20-year average of 75,000 fish (Appendix A5). Pink salmon harvest was reported as 138. Historical pink salmon harvest information is presented in Appendix A6. The coho salmon harvest of 248 fish is 1% of the recent 20-year average of 26,000 fish (Appendix A7). Aerial surveys of coho salmon escapement observed 5,280 fish.

In summary, the 2011 harvest of 4.7 million sockeye salmon in the Egegik District ranked sixteenth out of the last 20 years, was 83% lower than the most recent 20-year average of approximately 8.6 million fish, and was 57% below forecast (Table 1; Appendix A13). The fishery harvested 83% of the run into the district compared to the 20-year average of 84%. The midpoint of the run was June 29, six days earlier than the 20-year average. Peak effort occurred on June 27, when 455 drift gillnet vessels, including 87 with dual permits, registered to fish in the district (Table 15). There were 11 processors registered to purchase fish in the Egegik District this season (Table 4).

Ugashik District

The 2011 inshore sockeye salmon run to the Ugashik District of 3.6 million fish ranks eleventh in the last 20 years (1991–2010) and was 34% below forecast (Table 1, Appendix A14). The midpoint of the run was July 5, five days earlier than the most recent 20-year average of July 10. The commercial sockeye salmon catch of approximately 2.6 million fish was 2% below the 20-year average and ranked tenth for the same period. Sockeye salmon escapement to the Ugashik River was 1,003,753 and within the SEG range of 500,000 to 1,200,000 fish.

The district was opened to a fishing schedule of 4 days per week (9:00 a.m. Monday to 9:00 a.m. Friday) on June 1 by EO. Initial landings occurred on June 13 (Table 16). 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 17, when fishery management switched to a tide by tide basis.

The preseason forecast for the Ugashik District projected a harvest of 4.0 million sockeye salmon (Table 1). Accordingly, commercial fishermen were advised that fishing time after June

17 would depend on inriver test fishing results, tower escapement levels, and fishery performance.

Catch through June 16 was 19,000, below the historical average for the first 2 weeks of June; however, most of the catch occurred on June 16 (Table 16). No additional harvest was reported on June 17. With no escapement assessment and available indicators suggesting low levels of abundance, the district stayed closed June 18.

Because of the regulation adopted in 2009 that allowed free transfer between eastside districts until June 25, it was desirable to keep the openings in individual districts aligned to discourage the full mobility of the drift fleet between districts with offset openings. Since Egegik was open on June 19, a 4-hour drift and 10-hour set gillnet period was announced in Ugashik for Sunday June 19. Only 4 hours was allowed for the drift fleet because of the relatively large fleet size. Commercial catch from the period was 22,000 fish, from 56 drift and 16 set gillnet deliveries, a relatively strong level of effort for this portion of the season (Table 16).

Lack of escapement information caused the district to remain closed on June 20. With the larger fleet, another drift period of 4 hours accompanied by a 10-hour set gillnet period was announced for June 21. Harvest was 34,000 fish, a fairly strong catch for the district on this date, even with the short duration of the drift period (Table 16).

Keeping the districts aligned, a 4-hour drift and a 9-hour set gillnet period were allowed on June 22, followed by a 7-hour drift and a 9.5-hour set gillnet opening on June 23. Catches were 50,000 and 76,000 respectively (Table 16). The district was closed again on June 24.

Initial information from the inriver test fishery became available on June 25 (Table 17). Inriver test fishing, which occurs about 3 miles upstream of Ugashik Village, provided a daily estimate of sockeye passage into the lower part of the Ugashik River. First information suggested that fish were passing into the river but volume was moderate, typical for the time of year. Four-hour drift and 10-hour set gillnet openings occurred on June 25 and 27. Catches from these 2 periods were 66,000 and 139,000 fish. Inriver test fishery information suggested escapement was continuing at about the same pace, so the district was closed June 28 to provide escapement.

The escapement tower project, operating about 24 miles upstream of Ugashik Village, started counting at 6:00 p.m. June 28 and ended the day with an estimated passage of 6,522 fish (Table 17).

An 8-hour drift and 10-hour set gillnet period were scheduled for June 29. This opener produced a catch of 212,000 fish (Table 16). Inriver indices jumped to levels suggesting a large body of fish had passed through the district and was moving into the river (Table 17). Escapement on June 29 was 39,000 which was a large number for the second day of tower operations. It is important to remember that travel times from the inriver test fishery project to the tower can be as long as 7 days; the escapement from June 29 actually passed through the district as much as a week prior to passing the tower and possibly represented the beginning of a week's worth of similar escapement already inriver.

Inriver test fishery information continued to show a high rate of fish passage so opportunity was liberalized to slow down the rate of escapement. One tide per day openers occurred with gradually increasing amount of time for the drift gillnet group, while the set gillnet fleet continued to have 10-hour periods until the rate of passage could be slowed.

From June 29 until July 6, catches averaged 168,000 fish per day while inriver test fishery data continued to show strong passage into the Ugashik River (Tables 16 and 17). Because of higher than expected escapement, the district was opened for drift gillnet fishing an average of 8.5 hours per day until July 6. The set gillnet fleet was open for 10 hours per day during the same period. Through July 6 cumulative catch was 1.7 million.

Escapement at the tower project increased rapidly from June 29 and averaged almost 70,000 per day until July 6. Escapement for July 6 was 168,000 fish as the escapement pulse detected by the test fishery from June 29 to July 2 arrived at the counting towers (Table 9). Inriver indices began to taper on July 4, showing that the fishery was having the desired impact on escapement. Data indicated a 5-6 day travel time from the test fishery to the tower. Cumulative escapement through July 6 was 565,000, surpassing the lower end of the SEG (Table 9; Appendix A1).

Fishing continued on a one tide per day basis for the rest of the season. With Egegik District experiencing low escapement levels and closed to fishing from July 7 to 13 and passage into the Ugashik River under control as demonstrated by inriver indices, a secondary concern in Ugashik was the potential harvest of stocks bound for Egegik. It is known from genetic analysis of catch samples that Egegik stocks, and to a much lesser extent those of Naknek/Kvichak, are caught in the Ugashik District. Because Egegik was closed to fishing and still below the minimum SEG, Ugashik opportunity was reduced to 5-hour drift and 8-hour set gillnet openings from July 10-14. It is not certain whether management actions in Ugashik affected Egegik, but passage into the Egegik River improved and the minimum escapement was reached on July 14. Fishing in Ugashik was then opened on a continuous basis until July 29, when the fall schedule took effect. Harvest rates declined rapidly between July 14 and 22. Preliminary total harvest of all species was 2,639,382 fish (Table 16), cumulative escapement was 1,003,753 sockeye salmon and within the escapement goal range of 500,000 to 1,200,000 (Table 17).

By the end of the emergency order period (July 17), set gillnet fishermen caught approximately 13% of the sockeye salmon harvest and drift gillnet fishermen caught 87% (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 237 hours, or 36 hours less fishing time than in 2010, while drift gillnetters were permitted to fish a total of 194.5 hours, or 36.5 hours less than in 2010.

The harvest of 226 Chinook salmon represents 17% of the recent 20-year average of 1,325 (Appendix A4). Chinook escapement is assessed by aerial surveys in the Dog Salmon and King Salmon rivers, major tributaries of the Ugashik River and biggest producers of this species in the district. In 2011, high water and poor weather made for marginal survey conditions. Observed escapement totaled 67 Chinook salmon (Paul Salomone, Commercial Fisheries Biologist, ADF&G, Anchorage; personal communication).

The chum salmon harvest of 37,525 fish represents 54% of the 20-year average of 69,000 (Appendix A5). Chum salmon escapement was assessed on the same surveys as Chinook salmon and hampered by the same poor conditions. Observed chum salmon escapement totaled 32 fish (Paul Salomone, Commercial Fisheries Biologist, ADF&G, Anchorage; personal communication).

The coho salmon harvest of 452 fish represents 1% of the 20-year average of 8,800, but there was very little directed commercial effort for Ugashik coho salmon in 2011 (Appendix A7). Coho salmon escapement is assessed using aerial surveys. Observed coho escapement totaled

4,900 (Paul Salomone, Commercial Fisheries Biologist, ADF&G, Anchorage; personal communication).

In summary, the 2011 Ugashik District fishery harvested approximately 72% of the sockeye salmon run to the district compared to the 20-year average exploitation rate of 68%. Days of peak catch occurred on June 29 and July 2 when 213,785 and 217,599 fish were harvested, respectively. The midpoint of the run was July 5, five days early compared to the 20-year average of July 10. Days of peak escapement were July 5 and 6, when 103,272 and 168,294sockeye salmon, respectively, passed the counting tower (Table 9). Peak effort occurred on July 14 when 374 drift gillnet vessels, including 87 with dual permits, registered to fish in the district (Table 15). There were 10 processors registered to purchase fish in the Ugashik District this season (Table 4).

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, 2011; Sands et al. 2008; Jones et al. 2009; Morstad et al. 2010) with impacts lessening but continuing into 2011. With the system in early stages of recovery, and considering information we report has been from aerial surveys, we will no longer devote a section of this report to qualitative visual observations from those surveys. In the future, we will confine comments to distribution and magnitude of escapement as supplied above.

Nushagak District

The 2011 Nushagak District total inshore sockeye salmon run was 6,901,000 fish, 38% below the preseason forecast of 9.5 million fish (Table 1). Commercial sockeye salmon harvest in Nushagak District reached 4,953,271 fish, 48% below the preseason projected harvest of 7.62 million fish and 16% below the 1991–2010 average harvest (Table 18; Appendix A15). Escapement in the district's 3 major river systems was: 1,098,006 sockeye salmon to the Wood River, 421,380 to the Igushik River, and 428,191 to the Nushagak River (Table 6). Wood and Nushagak River escapements were within escapement goal ranges, while Igushik River escapement exceeded the escapement goal range (Appendix A1). Chinook salmon escapement into Nushagak River was 59,728, 26% below the 75,000 inriver goal but within the SEG range of 40,000–80,000; harvest was 29,811 in Nushagak District.

In 2011, there was no forecast for Nushagak District Chinook salmon. Prior to the 2011 season, a meeting with stakeholders determined that directed openings for Chinook salmon would only occur if escapement warranted such openings. This decision was based on the very poor run of Chinook salmon in 2010 and the lack of a reliable forecast for the 2011 season. Chinook salmon escapement lagged behind the historical escapement curve for the entire season and there were no directed openings in 2011.

The sonar escapement enumeration project at Portage Creek was operational on June 6. Early Chinook counts were below expectations and continued to be below the historical average for the entire season (Table 19). Chinook salmon escapement was so poor that by June 24 expected escapement was projected below 40,000 fish. ADF&G staff decided to delay the commercial sockeye fishery in the hopes that another day or two without commercial fishing would allow

some additional Chinook salmon escapement into the Nushagak River. Normally, once sockeye escapement into the Wood River was projected to reach 100,000 fish (June 24 in 2011), the department would have switched to sockeye salmon management. Commercial fishing in the Nushagak Section of the district began on June 26. The decision to open the fishery was based on the weather forecast of strong winds by the afternoon of June 26. Staff felt that the forecasted storm would push fish through the district and sockeye salmon escapement would spike. It was also hoped that the storm would push Chinook salmon through the district, but staff felt it was essential to fish before the storm arrived.

Chinook salmon escapement did increase after the storm with 12,326 fish passing the sonar counters June 27–28. The final Chinook salmon escapement of 59,728 fish was below the inriver goal of 75,000, but within the SEG and exceeding expectations following the poor escapement during the first half of the run.

The total reported commercial Chinook salmon harvest was 29,811 fish, half of which occurred on June 26. The harvest of 29,811 Chinook salmon is 76% below the 1991–2010 average harvest of 52,451 fish (Appendix A19) for the Nushagak District.

The preseason forecast for the inshore sockeye salmon run to the Nushagak District totaled 9.5 million fish (Table 1), 15% greater than the 20-year average run of 8.23 million fish (Appendix A16). The forecasted Wood River sockeye salmon run (6.51 million) was 29% above the 1991–2010 average run of 5.06 million fish. The forecasted Nushagak River sockeye salmon run (1.64 million) was expected to be 11% below the 20-year average run of 1.84 million fish. The forecasted run to Igushik River (1.35 million) was nearly equal to the 1991–2010 average run of 1.33 million fish (Appendix A16).

On the morning of June 23, with increasing sockeye salmon escapement in the Wood River, ADF&G staff discussed options and decided to delay the opening of the Nushagak commercial sockeye salmon fishery to allow additional Chinook salmon to escape into the Nushagak River. Although the sockeye salmon escapement into the Wood River was expected to exceed 100,000 on June 24, the poor Chinook salmon escapement was a major concern. Staff thought that delaying the commercial sockeye salmon fishery would allow more Chinook salmon escapement and the resulting sockeye salmon escapement into the Wood and Nushagak rivers would be manageable.

On June 25, with the forecast for strong southeast winds by the afternoon of June 26, and steady sockeye salmon escapement into the Wood River, the decision was made to begin the commercial sockeye salmon fishery in the Nushagak Section of the district. Set gillnet fishing began at 10:00 p.m. June 25; with drift gillnet fishing beginning at 1:00 a.m. June 26. The early morning drift opening was uneventful, but the second opening at 11:00 a.m. was the most productive opening of the season. Staff flew an aerial survey of the district prior to the beginning of the second drift opening and observed very good fishing for the set gillnets at Ekuk beach. Two hours after the drift opening began; reports were received of boats being deck loaded. The harvest for June 26 was over 725,622 sockeye salmon, the largest single day harvest for the Nushagak District in 2011 (Table 18).

From the first commercial fishing period on June 26, the set gillnet fishery was open continuously and the drift gillnet fleet was open every tide but one. Because of the 2-day delay to allow for additional Chinook salmon escapement, the Wood River sockeye salmon

escapement was over 500,000 fish by June 28 (Table 20). Escapement into the Wood River slowed by June 29, as commercial fishing started to have an impact on the escapement rate.

In an attempt to keep harvest percentages in line with the allocation plan, commercial fishing with drift gillnets was limited to one tide on July 1. Although the catch and escapement to this point in the season were well above average, data from the Port Moller test fishery and the commercial fishery in the Nushagak District indicated some concerns about run strength.

This fishing schedule allowed for harvest opportunity but kept escapement at a low and steady level in the Nushagak and Wood rivers. When the Wood River tower project ceased operation on July 17, the final sockeye salmon escapement was 1,098,006 fish (Table 20). This was the lowest escapement count for the Wood River since 1990.

Commercial fishing in the Nushagak Section of the district continued until 8:00 p.m. July 23. The total sockeye salmon harvest of 4,953,271 fish was 54% below the preseason forecast of 7.62 million fish (Tables 1 and 6).

The Nushagak Section of the district opened again, off and on, beginning July 30 to provide opportunity for the harvest of coho salmon. There is no enumeration project that monitors coho salmon escapement in the Nushagak District and the odd-year runs are relatively weak historically. With the expectations of a small run and no major processors still operating late in the season, there was very little effort directed toward harvesting coho salmon in 2011. The total coho salmon harvest was 4,613 in 2011 (Appendix A7).

Commercial fishing with set gillnet gear began in the Igushik Section of the Nushagak District on June 15, when a market became available. The Igushik River tower project began enumerating sockeye salmon on June 22. With above average escapement from the start of the enumeration project, managers opened set gillnets to continuous fishing beginning at 9:00 p.m. June 24. Commercial fishing began with drift gillnets in the Igushik Section at 3:00 p.m. June 25. Although there is not a large harvest of Chinook salmon in Igushik Section set gillnets, ADF&G delayed opening the drift gillnet fishery in the Igushik section by one day to help protect Nushagak bound Chinook salmon. Escapement past the Igushik River towers continued to be above average despite 12-18 hours per day of fishing with drift gillnets and continuous fishing with set gillnets in the Igushik Section. With the continued above average escapement, managers opened the Igushik Section to continuous fishing with drift gillnets on June 30. The Igushik Section stayed open to fishing with both gear types until it closed by regulation September 30. The final sockeye salmon escapement into the Igushik River was 421,380 fish, 29% above the top end of the escapement goal range of 300,000 (Table 20; Appendix A1).

The harvest percentages by gear group for sockeye salmon were 16% Nushagak Section set gillnet (target is 20%), 77% drift gillnet (target is 74%) and 7% Igushik Section set gillnet (target is 6%).

Togiak District

The 2011 inshore sockeye salmon run of 938,697 fish was the fourth largest run to Togiak District in the last 20 years (Appendix A17) and was 9% above the preseason forecast (Table 1). The harvest for the Togiak District was 747,727 sockeye salmon, the third largest since 1991. Escapement into Togiak Lake was 190,970 fish, near the midpoint of the escapement goal range of 120,000 to 270,000 sockeye salmon.

Togiak District is managed differently than other districts in Bristol Bay. This district uses a fixed fishing schedule of 60 hours per week in Kulukak Section, 4 days per week in Togiak River Section, and 5 days per week in Osviak, Matogak, and Cape Peirce Sections. This schedule is adjusted by emergency order, as necessary, to achieve desired escapement objectives. In addition, transferring into Togiak District is prohibited by regulation if the permit has fished in any of the other 4 Bristol Bay districts prior to July 27. Conversely, permit holders that have fished in Togiak District are prohibited from fishing in any other Bristol Bay district until July 27.

The 2011 inshore run to Togiak River was forecast at 860,000 sockeye salmon (Table 1), of which 72% were projected to be 3-ocean fish and the remaining 28% 2-ocean fish (Table 2). An escapement goal range of 120,000 to 270,000 sockeye salmon for Togiak Lake would leave approximately 660,000 fish available for harvest in 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 district harvest was projected from drainages other than Togiak River.

Management strategy for Chinook salmon the last 10 years has been to reduce the weekly fishing schedule in sections of Togiak District during the last 2 weeks of June. The weekly fishing schedule in Togiak River Section was reduced by 48 hours in June for Chinook salmon conservation. Additionally, poor weather also reduced effort for a few days in late June, effectively serving as a reduction in the fishing schedule in the last week of June. Prior to 2010, Kulukak Section fishing schedule reductions occurred frequently to protect runs of all salmon species to the small Kulukak and Kanik River systems. Since 2009 BOF action that reduced the weekly schedule in regulation to 60 hours per week, no adjustments have been made to the Kulukak Section schedule. Western sections (Cape Peirce, Osviak, and Matogak) remained open for regularly scheduled periods.

Commercial fishing for sockeye salmon opened by regulation on June 1, but the first deliveries of the season occurred on June 13 (Table 21). While the *Togiak District Salmon Management Plan* provides for a directed Chinook salmon fishery if run strength is adequate, effort largely focuses on sockeye salmon for the entire season. Based on recent year harvests, the Chinook salmon run was again anticipated to be less than average and the 5.5 inch mesh restriction remained in place from mid-June to mid-July.

The fishery reopened on June 20 and was reduced by 48 hours in Togiak River Section for Chinook salmon conservation. Participation was at low, expected levels for this early in the season and at the close of fishing on June 22, cumulative harvests were 480 Chinook and 5,637 sockeye salmon. The following week poor weather hampered fishing efforts early in the week, leading ADF&G to cancel a planned 48-hour reduction in the weekly fishing schedule for Togiak River Section. Midnight, June 30 marked the end of active management for Chinook salmon and beginning Friday, July 1, the focus was on sockeye salmon management.

Total Chinook salmon harvest for Togiak River Section was 5,895 fish (Table 21), with an additional 947 caught in the remainder of Togiak District (Table 22). Poor weather prevented complete aerial surveys to assess escapement. Therefore, districtwide Chinook salmon escapement is not available (Appendix A20). Figures are not yet available for sport or subsistence harvests.

Commercial fishing reopened in Togiak River Section under the peak season fishing schedule on July 1. The escapement enumeration project on Togiak River began on July 3 with a count of 4,932 sockeye salmon (Table 20). This large first day of counts was attributed to a string of poor weather hampering permit holder efforts a week earlier. Sockeye salmon harvests picked up dramatically in this last week of June with well above average harvests every day, leaving the cumulative harvest at the close of fishing on July 2 at over 83,000 fish (Table 23). Under average participation, the following week sockeye harvest dipped to average levels and the cumulative harvest rose to approximately 255,000 on July 10. Owing to above average escapement through the first week of enumeration on the Togiak River, the cumulative escapement was now double what was expected for this date at 38,892 sockeye salmon (Table 20).

By mid-July, most of Bristol Bay was concerned that runs may not make preseason forecasts based on harvests, escapement levels, and the latest data from the Port Moller test fishery, increasing speculation about the strength of the Togiak run. The peak of the Togiak District sockeye salmon run is typically from mid-July to the third week of July, but this peak began to emerge earlier, with above average harvests occurring in late June and the first week of July. The early emergence of this peak, coupled with continued above average, early season escapement, suggested that the run might meet or exceed the preseason forecast of 858,000 sockeye salmon. Harvest stayed above historical averages and, while peaking in the week of July 11, remained above average through the weeks of July 18 and July 25. These weeks represented the largest sockeye salmon harvests of the season, with approximately 191,000, 155,000, and 107,000 fish harvested respectively (Table 23). By July 29, the sockeye salmon harvest was 708,000 fish and cumulative escapement was 167,432 fish, bringing the total run above the preseason forecast (Table 20).

By regulation, Togiak District opens to all Bristol Bay CFEC salmon permit holders on July 27. Approaching late July and owing to the smaller than forecast runs around Bristol Bay, there was a larger than usual amount of inquiry into fishing in Togiak District by permit holders from other districts. Since there are no requirements for registration after July 27, effort level is difficult to assess with some Togiak fishermen finishing their season while permit holders from other districts are moving into Togiak District. Ultimately, some increase in effort from other districts took place, but may have been offset by decreasing local effort and catches remained above average to close out the week. Catches dropped off to average late season levels with a small number of permit holders continuing to fish through September 1.

Similar to the last few years, there was strong market interest in fishing for Togiak coho salmon in 2011. Similar to pink salmon runs, coho salmon runs in odd years are generally smaller than even years and only a few permit holders fished through August. Buying ceased for the season on September 1 with a cumulative coho salmon harvest of 7,709 fish (Table 23; Appendix A7).

The 2011 sockeye salmon harvest in Togiak District was 747,727 fish, 12% above the preseason forecasted harvest and the fourth largest in the past 20 years (Table 1, Appendix A3). Total assessed escapement taken from Togiak River counting towers was 190,970 sockeye salmon. Poor weather conditions and budget constraints prevented complete surveys of Togiak River escapement in 2011. Although escapement information is incomplete, the total sockeye salmon run ranked eleventh among the last 20 years (Appendix A17). Commercial Chinook salmon harvest was 24% below the 20-year average, while harvests of chum and coho salmon represented 67% and 50%, respectively, of the 20-year averages (Appendices A4, A5, and A7).

For the first time since 2004, harvest occurred in Matogak and Osviak Sections (Tables 24 and 25).

2011 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 2011 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 2010 that were not available for the 2010 annual management report.

REGULATIONS

Permits are required to harvest salmon for subsistence purposes in Bristol Bay. Since 1990, under state regulations, all Alaska residents have been eligible to participate in subsistence salmon fishing in all Bristol Bay drainages, except the Lake Clark area. Prior to 2007, 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 dip nets, 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. In December 2009, the BOF changed subsistence regulations to allow 25 fathoms of set gill net on the Nushagak and Wood rivers upstream of a line from Nushagak Point to Snag Point.

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 salmon stocks resulted in longer commercial closures and some residents had difficulty obtaining fish for home use. In 2004 abundance of all species improved and has generally remained steady. Additional opportunity can be allowed by EO in all commercial districts, if necessary, to provide opportunity for subsistence users to meet their needs.

ADF&G 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. ADF&G 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.

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 26 provides final data for Bristol Bay subsistence salmon harvests in 2010. As noted, final subsistence harvest estimates for 2011 were not available when this report was published. Appendix A26, A27, and A28 provide harvest estimates by district and species for the 20-year period from 1991 through 2010 plus the recent 5-year average harvests prior to 2011.

2011 BRISTOL BAY HERRING FISHERY

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.

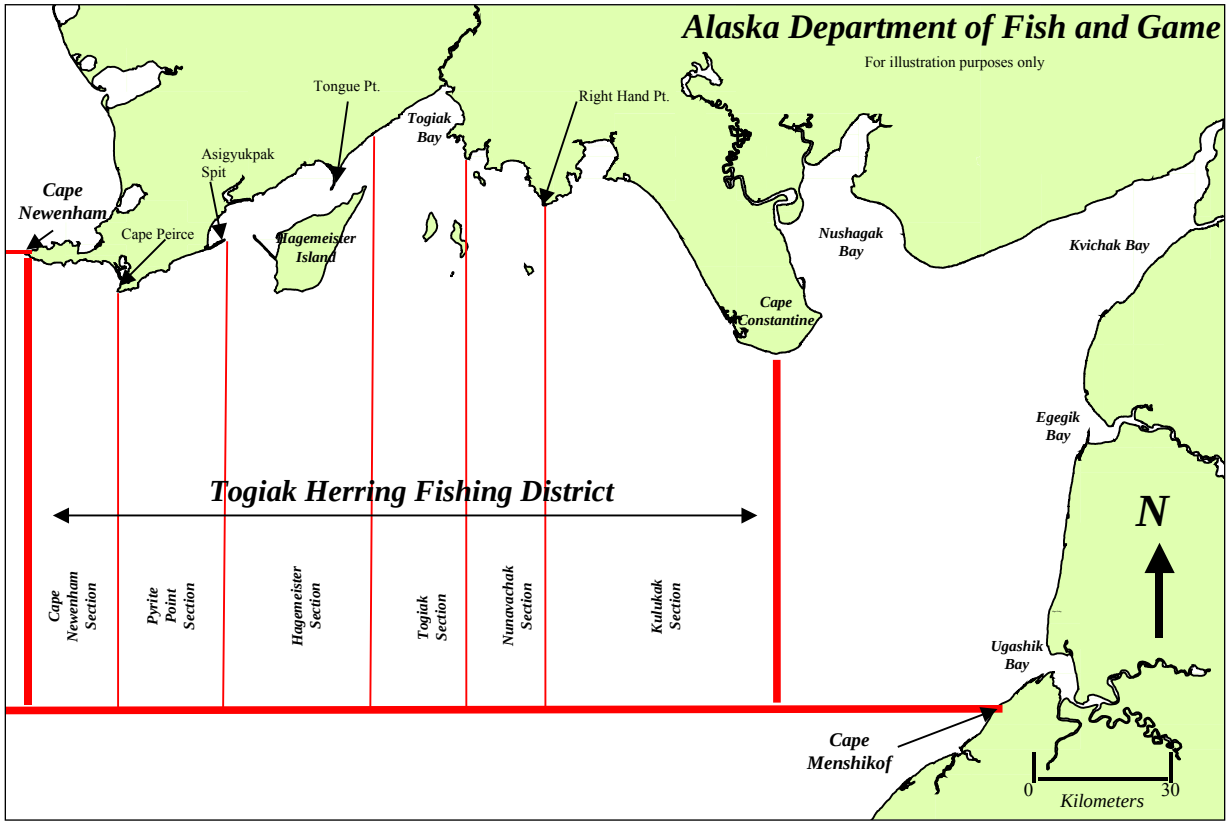

Figure 2.–Togiak herring district, Bristol Bay.

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 1991 to 2010, sac roe harvests averaged 21,471 tons, worth an average of $5.19 million annually (Appendices B2 and B5). Spawn-on-kelp harvests have occurred only once in the last decade. Given current market conditions, historic harvests and value are of limited utility when contemplating future harvest or value. In 2011, sac roe harvests brought $2.3 million to permit holders, 92% of the most recent 10-year average. No spawn-on-kelp fishery has occurred since 2004 and it is unlikely that it will occur in the foreseeable future.

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 after there is a reasonable expectation that herring might be present in the Togiak area. Surveys are done several times a week after threshold biomass has been documented. Surveys are done as weather, pilot availability and funding allow.

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 5 years, ADF&G has been converting aerial survey data collection methods to use Geographic Information Systems (GIS), allowing "real-time" data entry and analysis. This method also allows for flying transects on large schools of herring. The new GIS-based program allows observers to make transects along and across large herring schools which can be used for automated surface area calculation, providing a more objective assessment.

Herring ages 2 through 20 have been observed in the Togiak District but generally begin recruiting into the fishery at age-4 and are considered fully recruited at age-9. Herring abundance is related to year class survival and is strongly driven by large recruitment events that occur approximately every 8 to 10 years. The first of these events documented by ADF&G was underway when ADF&G began monitoring the biomass in 1978. The most recent recruitment event occurred in 2004-2005 and was signaled by large numbers of age-4 herring appearing in the 2008-2009 harvest. These fish continued to dominate the harvest biomass in 2011 as age-6 and -7 herring. The herring biomass is considered healthy and stable.

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 from year to 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 10 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.

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 2011, the total number of purse seines was 22, 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. This has also led to changes in the way the fishery is managed. Since fishing is less aggressive, managers are able to 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 purchased herring in Togiak (Appendix B1). Since 1998, industry participation has steadily declined to a low in 2007 of 5 companies. In 2011, processor participation involved 6 companies (Table 27). 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 2,413 tons per day in 2011.

2011 SEASON SUMMARY

Biomass Estimation

Aerial surveys of the Togiak District began April 27, 2011. Herring were first reported in the district on May 6 when ADF&G staff documented approximately 20,000 tons while conducting an aerial survey. On May 8, department staff flew a survey under poor conditions because of cloud cover. During the survey, department staff saw a large volume of herring in Togiak Bay with additional schools observed between Rocky Point and Anchor Point as well as along Hagemeister Island. Despite the poor survey conditions, staff documented approximately 30,000 tons of herring on the grounds. The next survey was flown on May 12 and approximately 60,000 tons of herring were documented. Additional surveys were flown but weather conditions and water turbidity were very poor and staff never documented a larger biomass. A total of 49 miles of spawn were documented in 2011 (Table 28).

AGE COMPOSITION

A total of 6,620 herring from the commercial harvest were sampled between May 10 and 21. This effort produced 5,554 readable scales. Information on age, size, and sex was gathered from each fish and samples were taken from the commercial purse seine and commercial gillnet fisheries. Sampling coverage was temporally and geographically well represented.

No age composition estimate was made for the total run biomass in 2011 as no total run biomass estimate was made.

Age classes composing more than 10% of the harvest in abundance or harvest biomass were age-6, -7, -8 and -9 fish, which comprised 20%, 21%, 18% and 15%, respectively, of the harvest by

weight and 29%, 22%, 16% and 12%, respectively, by number (Table 29). The gillnet harvest was markedly older than the purse seine harvest.

The average length and weight of herring harvested in the commercial fishery was 296 mm and 360 g respectively. Samples collected from commercial purse seine and gillnet harvests were 47% male and 53% female (χ^2=18.2, P=1.9e^{-5}), varying in composition by date and location.

COMMERCIAL FISHERY

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 2011 preseason forecasted biomass was 140,860 tons. This forecast would allow projected harvest was as follows: 1,500 tons herring equivalent or 350,000 lbs of product for the spawn-on-kelp fishery, 1,867 tons for the Dutch Harbor food and bait fishery, and the remaining 24,805 tons to the sac roe fishery. The management plan specifies that ADF&G will manage the sac roe fishery so that 70% of the removal is taken by purse seines (17,364 tons in 2011) and 30% of the removal is taken by gillnets (7,442 tons in 2011).

The *Bristol Bay Herring Management Plan* and other regulations direct ADF&G 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 2011 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 has indicated that this slows the "race for fish" and allows for improved quality and value.

To predict spawning timing for Togiak herring, ADF&G used a temperature model based on sea surface temperatures from Unimak Pass. These temperatures predicted the first spawn would be on April 28, with the first harvest occurring on April 30. Although air temperature in April seemed warmer than the previous few years and the sea ice seemed to be gone earlier than recent years, the first significant harvest did not occur until May 11.

ADF&G staff polled processing companies prior to the season to assess processing capacity for the 2011 season and to inquire about additional concerns or issues. The poll indicated that 6 companies would be participating in the 2011 Togiak herring fishery, only 5 of which would buy gillnet herring. The processing capacity for 2011 was estimated to be 2,400 tons per day, down approximately 200 tons from 2010. There were no major concerns preseason and no need for a preseason teleconference.

Purse Seine

The Togiak purse seine fishery opened at 6:00 p.m. on May 8 (Table 30). The first purse seine opening was 100 hours in duration, and some fish with immature roe were taken during the first couple of days. By May 11 fish with mature roe were available. The purse seine fishery was extended for 48 hours on May 12. Due to weather issues impacting the gillnet fishery, the area for the purse seine fishery was changed several times over the course of the fishery beginning on Friday, May 13. These changes consisted of reducing the purse seine area in Nunavachak Bay when wind precluded gillnet fishing east of Right Hand Point. May 12 saw the first significant harvest when 5,041 tons of herring were harvested (Table 31). With most processing lines and

tenders full on May 13, harvest was reduced to 1,366 tons. Fishing on May 14 and 15 was minimal because of high winds. The weather improved on May 16 and the purse seine fleet took advantage by harvesting 3,242 tons of herring (Table 31). Fishing continued steadily until May 19, with the daily harvest ranging from a low of 1,380 tons to a high of 2,491 tons of herring. The cumulative harvest after fishing on May 18 was approximately 15,700 tons with approximately 2,000 tons remaining on the quota. The harvest information for May 18 was available to staff by 10:00 a.m. May 19. Before deciding whether or not additional fishing time for the purse seine fleet was appropriate, staff polled processors to see how much purse seine fish they would harvest if they could harvest all they wanted on May 19. The results of the poll indicated to the department that most of the remaining quota would be harvested on May 19 and there would be no reason to extend the purse seine fishery.

ADF&G announced that the 2011 Togiak sac roe purse seine fishery would close as scheduled at 10:00 p.m. on May 19 (Table 30). The purse seine fleet harvested 16,970 tons of herring and 98% of the quota. Numbers in this section are based on inseason harvest information that was available at the time management decisions were made; they may vary slightly from the final fish ticket numbers reported in other tables.

Gillnet

The Togiak gillnet fishery opened at 6:00 p.m. May 8 until further notice with no prior test fishing (Table 30). In 2011, there were only 5 companies participating in the Togiak sac roe gillnet fishery. Subsequently, participation by fishermen was also down. Processors expected 28 gillnet vessels to take part in the fishery but only 25 actually participated, down from 35 participants in 2010. Although the season opened on May 8, the first fish were harvested on May 11. Fishing improved, with harvest increasing on May 12 and again on May 13. The weather worsened on May 14 and there was no significant harvest on May 14 or 15. Improved weather allowed for good fishing on May 16, but with a large purse seine harvest also on the 16th, processors needed to constrain the gillnet fleet for processing capacity reasons. The fishing was also good on May 18 and 19 but bad weather again hampered fishing on May 20. By May 21, companies and fishermen began dropping out of the fishery, while the remaining participants saw moderate catches on May 21 and 22. The weather again turned bad and fishing was minimal until May 26. By May 26, there was only one company buying fish and they bought until May 28. Although there was still approximately 1,500 tons of herring still available, there was no longer a market and fishing closed by regulation at 11:59 p.m. on May 31. The gillnet fleet harvested 5,907 tons of herring, representing 74% of the quota.

Spawn on Kelp

No companies registered to buy herring spawn-on-kelp in 2011, therefore there were no openings and no commercial harvest.

EXPLOITATION

The 2011 herring fisheries were managed for a maximum exploitation rate of 20% of the preseason biomass estimate. The purse seine harvest was 16,970 tons, with an average weight of 333 grams and an average roe percentage of 9.6%. The gillnet harvest was 5,907 tons, with an average weight of 425 grams and an average roe percentage of 12.1%, making the combined harvest 22,877 tons with an average weight of 360 grams and an average roe percentage of 10.2%. The Dutch Harbor food and bait fishery harvested 1,795 tons of herring in 2011. The

total harvest for the Togiak herring stock in 2011 was 24,672 tons. Based on the preseason biomass of 140,860 tons, the 2011 exploitation rate would be 17.5% (Appendix B2).

EXVESSEL VALUE

The projected exvessel value of the 2011 Togiak herring fishery is approximately $2.3 million. This is based on a grounds price estimate of $100 per ton for seine caught fish and $100 per ton for gillnet caught fish and does not include any postseason adjustments.

ACKNOWLEDGEMENTS

The authors gratefully acknowledge the Commercial and Subsistence Fisheries staff of the Dillingham, King Salmon, and Anchorage offices of the Alaska Department of Fish and Game for their contributions to this report.

Permanent Employees with the Division of Commercial Fisheries

West Side: Tim Sands, Nushagak Biologist; Matt Jones, Togiak Biologist; Phillip Carpenter, Facilities and Equipment Maintenance; Karen Brito, Program Technician.

East Side: Steve Morstad, Naknek/Kvichak Biologist; Carol Klutsch, Program Technician.

Anchorage: Paul Salomone, Egegik/Ugashik Biologist; Tim Baker, Area Research Biologist; Fred West, Research Biologist; Greg Buck, Research Biologist; Katie Sechrist, Information Officer; Shannon Royse, Publication Specialist.

Seasonal Employees with the Division of Commercial Fisheries

West Side: Breena Apgar-Kurtz, Seafood Industry Coordinator (Salmon and Herring); Simon Prennace, Tower Camp Coordinator; Jennifer Bennis, Office Staff; Melissa Isaacs, Office Staff; Susan Jenkins-Brito, Herring; Trevor Bird, Herring; Apayo Moore, Herring; Tamara Shadle, Catch Sampler; Bristelle Larsen, Catch Sampler; Natasha Nielson, Catch Sampler; Parker Lennihan, Wood River Tower; Casandera Johnson, Wood River Tower; Emily Bryson, Wood River Tower; Lily Wald, Igushik River Tower; James Doering, Igushik River Tower; Rachel Tilden, Igushik River Tower; Bristol Whitmore, Togiak Tower; Cameron Mckay, Togiak River Tower; Michelle Cason, Togiak River Tower; Konrad Mittlestadt, Nushagak River Sonar; Alex Pennino, Nushagak River Sonar; Jedediah Smith, Nushagak River Sonar; Hannah Hilowitz, Nushagak River Sonar; Marc Palmisano, Nushagak River Sonar; Eric Gorman, Nushagak River Sonar; Samantha Simpson, Nushagak River Sonar Chinook Tagging Project

East Side: Mary Emery, Seafood Industry Coordinator/Office Manager; Alesha Weiland, Night Office Staff; Rob Regnart, Field Camp Coordinator; Cathy Tilly, Scale Reader; Janelle Mueller, Scale Reader; Sally Hamm, District Test Fish; Stacia Gottshall, Camp Supply Coordinator; Susan Klock, Naknek River Tower; Josh Frazier, Naknek River Tower; Ben Campbell, Naknek River Tower; Kelsey Romig, Kvichak River Test Fish; Dawson Marchant, Kvichak River Test Fish; Brad Russell, Egegik River Test Fish; Dirk Middleton, Egegik River Test Fish; Chris Sewright, Ugashik River Test Fish; Chris Becker, Ugashik River Test Fish; Dustin Capik, Kvichak River Tower; Michael Courtney, Kvichak River Tower; Alexandria Patton-Romero, Kvichak River Tower; Patrick McCormick, Alagnak River Tower; Lindsey Henklemen, Alagnak River Tower; Jeff Sager, Alagnak River Tower; Shannon Dulany, Ugashik River Tower; Brian Leddy,

Ugashik River Tower; Alanna Gottshall, Ugashik River Tower; Robert Jaquith, Egegik River Tower; Cameron Lingnau, Egegik River Tower; Joseph Posey, Egegik River Tower; Dianna Merlino, Catch Sampler; Gen Kapatak, Catch Sampler; Roberta Larson Catch Sampler; Neil Branson, Student Intern; Nicole Synder, Student Intern.

Permanent Employees with the Division of Subsistence

Ted Krieg, Subsistence Resource Specialist; Sarah Evans, Fish and Wildlife Technician Specialist; Eunice Dyasuk, Program Technician; Terri Lemons, Research Analyst.

Anchorage Genetics Lab Employees

Tyler Dann, Fisheries Geneticist; Chris Habicht, Fisheries Geneticist; Bill Templin, Fisheries Scientist; Jim Jasper, Biometrician; Eric Lardizabal, Analyst Programmer; Judy Berger, Fishery Biologist; Lisa Fox, Fisheries Geneticist; Zac Grauvogel, Fishery Biologist; Tara Harrington, Fisheries Technician; Heather Liller, Fisheries Biologist; Serena Rogers, Fisheries Biologist; Paul Kuriscak, Fisheries Biologist; Christy Cupp, Technician.

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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, 2011.

District and River System [a]	Inshore Run			Escapement		Inshore Catch		
	Forecast	Actual	Percent Deviation [b]	Range	Actual	Projected Harvest [c]	Actual	Percent Deviation [b]
NAKNEK-KVICHAK DISTRICT								
Kvichak River	5,683	5,916	4	2,000-10,000	2,264	2,842	3,651	22
Alagnak River	1,766	2,421	27	320 minimum	884	883	1,537	43
Naknek River	6,930	4,884	-42	800-1,400	1,177	5,830	3,707	-57
Total	14,379	13,221	-9	3,120-11,720	4,325	9,555	8,895	-7
EGEGIK DISTRICT	8,735	5,643	-55	800-1,400	961	7,635	4,682	-63
UGASHIK DISTRICT	5,029	3,631	-39	500-1,200	1,030	4,179	2,601	-61
NUSHAGAK DISTRICT								
Wood River	6,507	4,389	-48	700-1,500	1,098	5,407	3,291	-64
Igushik River	1,350	1,020	-32	150-300	421	1,125	599	-88
Nushagak-Mulchatna	1,638	1,492	-10	340-760	428	1,088	1,063	-2
Total	9,495	6,901	-38	1,190-2,560	1,947	7,620	4,953	-54
TOGIAK DISTRICT	858	939	9	120-270	191	683	748	9
TOTAL BRISTOL BAY	38,496	30,335	-27	5,730-17,150	8,454	29,672	21,879	-36

[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. Catch, escapement, and total run 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.

[c] Includes South Peninsula projected harvest.

Table 2.–Inshore forecast of sockeye salmon returns by age class, river system and district, in thousands of fish, Bristol Bay, 2011.

District and	2-Ocean			3-Ocean			
River System	1.2 (2007)	2.2 (2006)	Total	1.3 (2006)	2.3 (2005)	Total	Total
NAKNEK-KVICHAK DISTRICT							
Kvichak River	1,851	1,751	3,602	1,399	682	2,081	5,683
Alagnak River	535	201	736	961	69	1,030	1,766
Naknek River	1,608	859	2,467	3,283	1,180	4,463	6,930
Total	3,994	2,811	6,805	5,643	1,931	7,574	14,379
EGEGIK DISTRICT	485	4,644	5,129	1,231	2,375	3,606	8,735
UGASHIK DISTRICT	957	1,935	2,892	1,691	446	2,137	5,029
NUSHAGAK DISTRICT							
Wood River	3,049	250	3,299	3,170	38	3,208	6,507
Igushik River	215	23	238	1,076	36	1,112	1,350
Nushagak River [a]	194	8	202	1,106	31	1,137	1,638
Total	3,458	281	3,739	5,352	105	5,457	9,495
TOGIAK DISTRICT[b]	197	47	244	548	66	614	858
TOTAL BRISTOL BAY [c]							
Number	9,091	9,718	18,809	14,465	4,923	19,388	38,496
Percent	24	25	49	38	13	50	100

[a] Nushagak River forecast includes age-0.3 (85,000) and age-1.4 (214,000) fish.

[b] Forecasts for Kulukak, Kanik, Osviak, and Matogak river systems were not included. These systems contribute approximately 50,000 sockeye salmon to Togiak District harvest each year.

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

Table 3.–Mean round weight, price per pound, and total exvessel value of the commercial salmon catch, Bristol Bay, 2011.

Species	Total Catch (lbs)	Mean Weight (lbs)	Mean Price ($/lb.)	Exvessel Value ($)
Sockeye	135,654,611	6.20	1.00	135,654,611
Chinook	491,777	13.00	0.86	422,928
Chum	5,173,049	7.00	0.31	1,603,645
Pink	2,595	3.20	0.10	260
Coho	92,854	6.80	0.40	37,142
Total	141,414,886			137,718,586

Note: Weighted averages used.

Table 4.–Commercial salmon processors and buyers operating in Bristol Bay, 2011.

	Name of Operator/Buyer[a]	Base of Operations	District[b]	Method[c]	Export
1	Alaska General Seafoods	Kenmore, WA	K,E,U	C,EF,F	SEA,AIR
2	Alaska Salmon Wild	Ruidoso, NM	K	F	SEA
3	Alaska Wild Salmon	Anchorage, AK	K	EF, F	SEA,AIR
4	Anthony Wood	King Salmon, AK	K	EF, F	SEA,AIR
5	Arctic Wild Salmon Company	Eagle River, AK	N	F	SEA,AIR
6	Big Creek Fisheries, LLC	Everett, WA	E,U,N	EF, F	SEA,AIR
7	Cape Greig, LLC	Seattle, WA	U	F	SEA,AIR
8	Coffee Point Seafoods of WA, LLC	S. Seattle, WA	E	EF, F	SEA,AIR
9	Ekuk Fisheries	Seattle, WA	N	F	SEA
10	Falcon Fish	Naknek, AK	K	EF,F	SEA,AIR
11	Favco Inc. - Dylan and Sarah Braund	Anchorage, AK	N	EF	AIR
12	Favco Inc. - Joseph R. Faith	Dillingham, AK	N	EF	AIR
13	Friedman Family Fisheries, Inc.	Baltimore, MD	N	F	SEA
14	Great Ruby Fish Company	Neknek, AK	K	EF,F	SEA,AIR
15	Icicle Seafoods, Inc.	Seattle, WA	K,E,U,N	C,F, EF,S	SEA,AIR
16	Leader Creek Fisheries, LLC	Seattle, WA	K,E,U,N	F	SEA,AIR
17	My Girl	Iguigig, AK	K	F	SEA
18	Naknek Family Fisheries	Naknek, AK	K	EF, F	SEA,AIR
19	Ocean Beauty Seafoods, Inc.	Seattle, WA	K,E,U,N,T	C,EF,F,S	SEA,AIR
20	Pederson Point	Seattle, WA	K,E	F	SEA
21	Peter Pan Seafoods, Inc.	Seattle, WA	K,E,U,N	C,EF,F,S	SEA,AIR
22	Sanders Weaver	Anchorage, AK	K	F	SEA
23	Snopac Products, Inc.	Seattle, WA	K,E,U,N	F	SEA
24	Togiak Fisheries	Seattle, WA	T	F	SEA
25	Travis Goodrich	Lopez Island, WA	K	EF	AIR
26	Trident Seafoods	Seattle, WA	K,E,U,N	C,F	SEA
27	Ugashik Wild Salmon	Ugashik, AK	U	C	AIR
28	West Coast Wild	Portland, OR	N	EF	AIR
29	Wild Alaska Salmon and Seafood	King Salmon, AK	K	EF, F	SEA,AIR
30	Wild Premium Salmon	Egegik, AK	E	EF	AIR
31	Yard Arm Knot Fisheries, LLC	Seattle, WA	K,E,U,N	C,F	SEA

Canning=7; Freezing= 25; Fresh=17; Curing=3; Air Export=21; Sea Export=25

[a] Indicates operators with a processing facility in a district or operators from other areas buying fish and/or providing support service for permit holders 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 5.–Inshore run of sockeye salmon by age class, river system, and district, in thousands of fish, Bristol Bay, 2011.

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	1,163	1,077	2,240	2,005	1,637	3,642	8	5,916
	Percent	19.7	18.2	37.9	33.9	27.7	61.6	0.1	99.4
Alagnak River									
	Number	464	58	522	1,751	135	1,886	12	2,421
	Percent	19.2	2.4	21.6	72.3	5.6	77.9	0.2	99.7
Naknek River									
	Number	1,399	753	2,152	1,695	985	2,680	11	4,884
	Percent	28.6	15.4	44.1	34.7	20.2	54.9	0.2	99.2
Total	Number	3,026	1,888	4,914	5,451	2,757	8,208	31	13,221
	Percent	22.9	14.3	37.2	41.2	20.9	62.1	0.2	99.5
EGEGIK DISTRICT									
	Number	411	1,700	2,111	950	2,456	3,406	6	5,643
	Percent	7.3	30.1	37.4	16.8	43.5	60.4	0.1	97.9
UGASHIK DISTRICT									
	Number	1,019	940	1,959	819	825	1,644	5	3,631
	Percent	28.1	25.9	54.0	22.6	22.7	45.3	0.1	99.4
NUSHAGAK DISTRICT									
Wood River									
	Number	1,393	181	1,574	2,725	82	2,807	6	4,389
	Percent	31.7	4.1	35.9	62.1	1.9	64.0	0.1	99.8
Igushik River									
	Number	165	19	184	784	51	835	2	1,020
	Percent	16.2	1.9	18.0	76.9	5.0	81.9	0.2	100.1
Nushagak River									
	Number	46	8	54	1,333	32	1,365	41	1,492
	Percent	3.1	0.5	3.6	89.3	2.1	91.5	2.7	97.9
Total	Number	1,604	208	1,812	4,842	165	5,007	49	6,901
	Percent	23.2	3.0	26.3	70.2	2.4	72.6	0.7	99.5
TOGIAK DISTRICT [c]									
	Number	177	50	227	675	35	710	2	939
	Percent	18.8	5.3	24.2	71.9	3.7	75.6	0.2	100.0
TOTAL BRISTOL BAY [d]									
	Number	6,237	4,786	11,023	12,737	6,237	18,975	93	30,335
	Percent	20.6	15.8	36.3	42.0	20.6	62.6	0.3	99.2

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

[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 6.–Inshore commercial catch and escapement of sockeye salmon, in numbers of fish, Bristol Bay, 2011.

District and River System		Catch	Escapement	Total Run
NAKNEK-KVICHAK DISTRICT				
Kvichak River		3,651,302	2,264,352	5,915,654
Alagnak River		1,537,029	883,794	2,420,823
Naknek River		3,707,191	1,177,074	4,884,265
	Total	8,895,522	4,325,220	13,220,742
EGEGIK DISTRICT		4,682,082	961,200	5,643,282
UGASHIK DISTRICT		2,601,174	1,029,853 [a]	3,631,027
NUSHAGAK DISTRICT				
Wood River		3,291,084	1,098,006	4,389,090
Igushik River		598,865	421,380	1,020,245
Nushagak River		1,063,322	428,191	1,491,513
	Total	4,953,271	1,947,577	6,900,848
TOGIAK DISTRICT				
Togiak Lake			190,970	190,970
Togiak River/Tributaries		629,229	[b]	629,229
Kulukak System		118,498	[b]	118,498
Other Systems [c]		[d]	[b]	
	Total	747,727	190,970	938,697
TOTAL BRISTOL BAY		21,879,776	8,454,820	30,334,596

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

[b] No monitoring of escapement occurs.

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

[d] Less than 4 permit holders involved in fishery; harvest confidential.

Table 7.–Commercial salmon catch by district and species, in number of fish, Bristol Bay, 2011.

District and River System		Sockeye	Chinook	Chum	Pink	Coho	Total
NAKNEK-KVICHAK DISTRICT							
Kvichak River		3,651,302					3,651,302
Alagnak River		1,537,029					1,537,029
Naknek River		3,707,191					3,707,191
	Total	8,895,522	2,693	12,817	13	633	8,911,678
EGEGIK DISTRICT		4,682,082	53	0	0	248	4,682,383
UGASHIK DISTRICT		2,601,174	226	51	5	452	2,601,908
NUSHAGAK DISTRICT							
Wood River		3,291,084					3,291,084
Igushik River		598,865					598,865
Nushagak River		1,063,322					1,063,322
	Total	4,953,271	29,811	340,881	257	4,613	5,328,833
TOGIAK DISTRICT							
Togiak Section		628,531	5,895	93,122	178	7,599	735,325
Kulukak Section		118,498	939	19,596	59	102	139,194
Matogak Section [a]		614	3	981	0	4	1,602
Osviak Section [a]		84	0	75	0	4	163
	Total	747,727	6,837	113,774	237	7,709	876,284
TOTAL BRISTOL BAY		21,879,776	39,620	467,523	512	13,655	22,401,086

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

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

Table 8.–Commercial salmon catch by date and species, in numbers of fish, Naknek-Kvichak District, Bristol Bay, 2011.

Date		Hours fished		Deliveries							
		Drift	Set	Drift	Set	Sockeye	Chinook	Chum	Pink	Coho	Total
6/13	[a,b]	14	14								
6/14	[a]	24	24	1	5	272	0	0	0	0	272
6/15	[a]	24	24	11	4	313	1	2	0	0	316
6/16	[a]	24	24	28	8	2,836	0	17	0	0	2,853
6/20	[a]	9	9	421	56	156,469	79	1,158	0	0	157,706
6/21	[a]	14	14	447	84	154,538	11	917	0	0	155,466
6/22	[a]	9	9	597	127	186,693	8	1,295	0	0	187,996
6/23	[a]	9	9	240	68	64,828	1	342	0	0	65,171
6/24	[a]	9	9	355	79	162,581	1	442	0	0	163,024
6/25	[a]	8.5	8.5	361	145	161,287	4	457	0	0	161,748
6/26	[a]	9	9	366	200	268,330	21	1,248	0	0	269,599
6/27	[a]	9	9	389	391	465,093	1796	3,495	0	0	470,384
6/28	[a]	9.0/7.5	19	741	487	556,941	25	1,643	0	0	558,609
6/29	[a]	9.0/7.5	18.5	779	432	447,475	107	3,356	0	0	450,938
6/30	[a]	9.05/7.5	18.5	721	544	605,475	22	3,585	0	0	609,082
7/1	[a]	9.5/7.0	18.5	757	563	670,847	14	3,251	0	0	674,112
7/2	[a]	9.0/8.5	19	740	503	743,496	33	6,998	0	0	750,527
7/3	[a]	10.0/7.0	19	801	466	461,637	25	2,952	0	0	464,614
7/4	[a]	9.5/7.0	19	889	484	840,711	64	5,491	0	0	846,266
7/5	[a]	9.5/8.0	20	811	433	438,746	22	1,524	0	0	440,292
7/6	[a]	8.5/7.0	19.5	872	346	644,611	43	4,634	0	0	649,288
7/7	[a]	9.0/8.0	21	843	316	323,219	31	2,527	0	0	325,777
7/8	[a]	8.0/8.5	21.5	771	234	181,547	40	1,677	0	0	183,264
7/9	[a]	8.0/8.5	22.5	1,024	393	322,054	26	3,205	0	0	325,285
7/11		8	8	547	197	171,753	22	2,209	0	0	173,984
7/14		7.5	13	547	199	339,788	42	23,524	0	0	363,354
7/15		8.0/7.0	24	843	297	207,930	66	17,528	0	0	225,524
7/16		9.0/7.0	24	562	280	68,697	4	3,939	0	0	72,640
7/17		8.0/6.0	24	291	178	37,747	5	2,357	0	0	40,109
7/18		21	24	518	178	93,739	33	18,758	0	0	112,530
7/19		24	24	315	114	38,803	72	9,676	0	0	48,551
7/20		24	24	174	80	31,679	8	5,607	0	0	37,294
7/21		24	24	128	68	22,326	10	7,052	0	0	29,388
7/22		9	24	66	29	8,973	4	3,393	0	0	12,370

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Table 8.–Page 2 of 2.

Date	Hours fished		Deliveries							
	Drift	Set	Drift	Set	Sockeye	Chinook	Chum	Pink	Coho	Total
7/25	15	24	51	11	4,390	6	24,721	0	7	29,124
7/26	24	24	57	42	3,591	18	18,734	2	14	22,359
7/27	24	9	39	37	3,702	9	10,038	3	0	13,752
7/28	24	15	21	49	1,583	13	5,199	8	100	6,903
7/29	9	24	13	18	571	7	2,451	0	177	3,206
8/1	14	24	1	5	36	0	145	0	45	226
8/2	24	24	1	10	29	0	118	0	89	236
8/3	24	9	2	7	18	0	70	0	65	153
8/4 [b]	24	15								
8/9 [b]	24	24								
8/10 [b]	24	24								
8/11 [b]	24	24								
8/12 [b]	9	9								
8/15 [b]	15	15								
8/17 [b]	24	24								
8/18 [b]	24	24								
Total			17,141	8,179	8,895,523	2,693	205,789	13	612	9,104,630

Note: Blank cells represent days with no data.

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

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

Table 9.–Daily sockeye salmon escapement tower counts by river system, east side Bristol Bay, 2011.

	Kvichak River		Naknek River		Alagnak River		Egegik River		Ugashik River	
Date	Daily	Cum.	Daily	Cum.	Daily	Cum.	Daily	Cum.	Daily	Cum.
6/18							2,244	2,244		
6/19			156	156			3,522	5,766		
6/20	0	0	4,098	4,254			2,526	8,292		
6/21	0	0	2,220	6,474			60,720	69,012		
6/22	150	150	7,740	14,214			33,468	102,480		
6/23	24	174	5,568	19,782			14,898	117,378		
6/24	30	204	2,640	22,422	0	0	9,066	126,444		
6/25	0	204	6,780	29,202	48	48	10,560	137,004		
6/26	18	222	56,538	85,740	6	54	23,838	160,842		
6/27	60	282	106,596	192,336	54	108	108,420	269,262		
6/28	24,990	25,272	98,898	291,234	3,546	3,654	118,320	387,582	6,522	6,522
6/29	183,318	208,590	69,114	360,348	99,852	103,506	90,876	478,458	38,604	45,126
6/30	237,216	445,806	44,742	405,090	75,192	178,698	14,040	492,498	35,022	80,148
7/01	175,224	621,030	61,326	466,416	43,218	221,916	12,984	505,482	29,994	110,142
7/02	164,916	785,946	71,184	537,600	90,066	311,982	9,018	514,500	47,754	157,896
7/03	219,726	1,005,672	58,038	595,638	96,456	408,438	43,584	558,084	54,720	212,616
7/04	215,136	1,220,808	32,910	628,548	62,850	471,288	28,032	586,116	80,868	293,484
7/05	213,144	1,433,952	58,278	686,826	45,186	516,474	15,336	601,452	103,272	396,756
7/06	146,418	1,580,370	24,384	711,210	32,148	548,622	6,096	607,548	168,294	565,050
7/07	67,788	1,648,158	23,610	734,820	30,048	578,670	7,146	614,694	77,850	642,900
7/08	46,344	1,694,502	21,612	756,432	23,364	602,034	4,398	619,092	122,100	765,000
7/09	16,260	1,710,762	12,384	768,816	15,582	617,616	22,740	641,832	8,016	773,016
7/10	37,572	1,748,334	16,098	784,914	45,108	662,724	37,458	679,290	4,884	777,900
7/11	88,410	1,836,744	49,368	834,282	33,636	696,360	51,438	730,728	10,860	788,760
7/12	45,966	1,882,710	48,690	882,972	24,840	721,200	14,106	744,834	31,686	820,446
7/13	88,950	1,971,660	133,134	1,016,106	43,740	764,940	20,418	765,252	34,686	855,132
7/14	75,312	2,046,972	93,192	1,109,298	29,682	794,622	93,804	859,056	47,154	902,286
7/15	80,700	2,127,672	43,644	1,152,942	36,666	831,288	48,324	907,380	45,906	948,192
7/16	76,680	2,204,352	12,558	1,165,500	27,096	858,384	31,140	938,520	75,648	1,023,840
7/17	43,104	2,247,456	4,398	1,169,898	10,590	868,974	13,620	952,140	57,126	1,080,966
7/18	8,544	2,256,000	4,296	1,174,194	4,716	873,690	4,182	956,322	36,486	1,117,452
7/19	3,390	2,259,390	2,880	1,177,074	6,024	879,714	2,604	958,926	22,686	1,140,138
7/20	4,962	2,264,352			4,080	883,794	2,274	961,200	8,784	1,148,922
7/21									9,642	1,158,564
7/22									6,924	1,165,488
7/23									6,660	1,172,148
7/24									11,238	1,183,386
7/25									9,510	1,192,896
7/26									5,994	1,198,890

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

Table 10.–Comparison of daily sockeye salmon escapement estimates by tower count and river test fishing enumeration methods, Kvichak River, Bristol Bay, 2011.

	Tower Count		River Test Fishing				
			Fish per	Index Points		Cumulative	Estimated
Date	Daily	Cum.	Index Pt.[a]	Daily	Cum.	Escapement	River Fish[b]
6/20	0						
6/21	0	-					
6/22	150	150	56	0	0	-	
6/23	24	174	56	0	0	-	
6/24	30	204	56	0	0	-	
6/25	0	204	56	0	0	-	
6/26	18	222	56	0	0	-	
6/27	60	282	56	996	996	55,803	50,000
6/28	24,990	25,272	56	3,059	4,055	227,101	250,000
6/29	183,318	208,590	56	2,453	6,508	364,461	200,000
6/30	237,216	445,806	89	542	7,050	627,469	200,000
7/01	175,224	621,030	95	1,462	8,512	808,637	200,000
7/02	164,916	785,946	102	2,149	10,661	1,087,386	300,000
7/03	219,726	1,005,672	104	1,543	12,203	1,269,137	250,000
7/04	215,136	1,220,808	111	622	12,826	1,423,648	200,000
7/05	213,144	1,433,952	118	485	13,311	1,570,642	150,000
7/06	146,418	1,580,370	126	768	14,078	1,773,845	200,000
7/07	67,788	1,648,158	122	324	14,402	1,757,094	100,000
7/08	46,344	1,694,502	119	199	14,601	1,737,554	50,000
7/09	16,260	1,710,762	119	752	15,353	1,827,061	110,000
7/10	37,572	1,748,334	118	242	15,596	1,840,270	100,000
7/11	88,410	1,836,744	119	690	16,286	1,938,006	100,000
7/12	45,966	1,882,710	116	598	16,884	1,958,488	70,000
7/13	88,950	1,971,660	119	1,267	18,151	2,159,952	200,000
7/14	75,312	2,046,972	114	1,198	19,349	2,205,754	150,000
7/15	80,700	2,127,672	110	914	20,263	2,228,919	100,000
7/16	76,680	2,204,352					
7/17	43,104	2,247,456					

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 1989–2010 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 the first day. This method was used until June 30 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 catchability, etc.

Table 11.–Summary of sockeye salmon test fishing indices in the Naknek/Kvichak District, by index area and date, Bristol Bay, 2011.

No test fishing occurred in 2011

Table 12.–Commercial salmon catch by date and species, in numbers of fish, Egegik District, Bristol Bay, 2011.

Date		Hours fished		Deliveries		Sockeye	Chinook	Chum	Pink	Coho	Total
		Drift	Set	Drift	Set						
6/7	[a]	24	24								
6/8	[a]	9	9								
6/9		15	15	4	6	789		45			834
6/10	[a]	9	9								
6/11											
6/12											
6/13		15	15	60	44	38,407	11	394			38,812
6/14		24	24	137	91	40,828		413			41,241
6/15		9	9	42	72	13,011	2	120			13,133
6/16											
6/17		6	8	302	121	112,556	6	643			113,205
6/18											
6/19		4	8	465	148	142,393	8	1,182			143,583
6/20											
6/21		4	7.75	443	169	219,127	1	1,341			220,469
6/22		6	7.25	440	179	189,613		793			190,406
6/23		6	7	491	214	262,468	4	970			263,442
6/24		6	8.5	424	130	240,130	2	1,081			241,213
6/25		4	8	344	165	224,440		841			225,281
6/26		3	8	352	250	313,582		1,935			315,517
6/27		4.5	8	378	232	329,666	3	3,689			333,358
6/28		8.25	10.25	391	185	254,722		2,261			256,983
6/29		10	15.25	472	260	342,955	1	1,816			344,772
6/30		8.5	15.75	494	293	272,157	2	2,707			274,866
7/1		6	15	324	286	255,405	1	1,077			256,483
7/2		8	8	313	274	516,524	3	1,684			518,211
7/3		7	8	286	216	197,272	3	998			198,273
7/4		7	8	282	180	185,753	1	871			186,625
7/5		6	8	223	176	139,642		1,368			141,010
7/6		5	8	198	126	85,919	1	1,186			87,106
7/7											0
7/8											0
7/9											0
7/10											0
7/11											0
7/12											0
7/13											0
7/14		6	8	122	148	80,191	1	2,816			83,008
7/15		24	24	133	198	59,070	1	2,540			61,611
7/16		24	24	124	136	41,072		1,526			42,598
7/17		24	24	87	94	24,803		1,218			26,021
7/18		24	24	89	101	24,303		921			25,224
7/19		24	24	117	83	26,072		1,948			28,020

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Table 12.–Page 2 of 2.

	Hours fished		Deliveries							
Date	Drift	Set	Drift	Set	Sockeye	Chinook	Chum	Pink	Coho	Total
7/20	24	24	76	39	21,561	1	1,535			23,097
7/21	24	24	50	46	8,507	1	1,454			9,962
7/22	24	24	2	4	409		24			433
7/23										
7/24										
7/25	15	15	7	29	1,574					1,574
7/26	24	24	5	28	3,318					3,318
7/27	24	24	6	37	4,210					4,210
7/28	24	24	4	24	2,848					2,848
7/29	9	9		5	415				31	446
7/30										
7/31										
8/1	15	15	7	14	1,578					1,578
8/2	24	24	6	9	859				31	890
8/3	24	24		7	358				48	406
8/4	24	24		7					138	138
8/5	9	9								
8/6										
8/7										
8/8	15	15								
8/9	24	24								
8/10	24	24								
8/11	24	24								
8/12	9	9								
8/13										
8/14										
8/15	15	15								
8/16	24	24								
8/17	24	24								
8/18	24	24								
8/19	9	9								
8/20										
8/21										
8/22	15	15								
8/23	24	24								
8/24	24	24								
8/25	24	24								
8/26	9	9								
8/27										
8/28										
8/29	15	15								
8/30	24	24								
Totals	898	959	7,700	4,827	4,682,082	53	41,401	0	248	4,736,311

Note: Blank cells represent days with no data.

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

Table 13.–Comparison of daily sockeye salmon escapement estimates by tower count and river test fishing enumeration methods, Egegik River, Bristol Bay, 2011.

	Tower Count		River Test Fishing				
				Index Points		Estimated Cumulative	Estimated
Date	Daily	Cum.	Fish per Index Pt.[a]	Daily	Cum.	Escapement	River Fish[b]
6/14							
6/15			50	14	14	675	
6/16			50	71	84	4,205	
6/17			50	63	147	7,353	
6/18	2,244	2,244	50	77	224	11,191	
6/19	3,522	5,766	50	186	410	20,501	20,000
6/20	2,526	8,292	50	232	642	32,113	20,000
6/21	60,720	69,012	80	692	1,335	106,773	90,000
6/22	33,468	102,480	106	572	1,907	202,145	50,000
6/23	14,898	117,378	64	152	2,059	131,783	15,000
6/24	9,066	126,444	64	67	2,126	136,073	10,000
6/25	10,560	137,004	66	284	2,411	159,102	25,000
6/26	23,838	160,842	72	577	2,988	215,117	50,000
6/27	108,420	269,262	97	1,642	4,630	449,080	225,000
6/28	118,320	387,582	82	1,165	5,795	475,205	100,000
6/29	90,876	478,458	75	172	5,967	447,532	20,000
6/30	14,040	492,498	90	631	6,598	593,816	45,000
7/01	12,984	505,482	76	424	7,022	533,660	40,000
7/02	9,018	514,500	71	792	7,814	554,778	50,000
7/03	43,584	558,084	70	1,551	9,364	655,502	100,000
7/04	28,032	586,116	68	246	9,610	653,476	75,000
7/05	15,336	601,452	64	77	9,687	619,946	15,000
7/06	6,096	607,548	63	74	9,761	614,926	10,000
7/07	7,146	614,694	64	35	9,795	626,907	7,000
7/08	4,398	619,092	63	120	9,915	624,663	7,500
7/09	22,740	641,832	65	705	10,620	690,300	45,000
7/10	37,458	679,290	65	597	11,217	729,079	50,000
7/11	51,438	730,728	67	391	11,607	777,693	40,000
7/12	14,106	744,834	65	387	11,994	779,609	30,000
7/13	20,418	765,252	66	1,047	13,041	860,725	100,000
7/14	93,804	859,056	66	1,140	14,181	935,965	75,000
7/15	48,324	907,380					
7/16	31,140	938,520					
7/17	13,620	952,140					
7/18	4,182	956,322					
7/19	2,604	958,926					
7/20	2,274	961,200					

Note: Blank cells indicate no data.

[a] The FPI used to estimate the daily ERFs prior to using lag time relationships was calculated using an average of the 1989–2010 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 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 catchability, etc.

Table 14.–Commercial fishing emergency orders, by district and statistical area, Bristol Bay, 2011.

Number[a]	Start Date	Start Time		End Date	End Time	Effective time	
Naknek/Kvichak District							
Drift Net							
AKN.36	2 Jul	11:30 a.m.	to	2 Jul	8:00 p.m.	8.5 hours	
AKN.42	4 Jul	2:00 p.m.	to	4 Jul	9:30 p.m.	7.5 hours	
AKN.48	6 Jul	4:30 p.m.		7 Jul	12:00 a.m.	7.5 hours	
AKN.64	14 Jul	11:00 a.m.	to	14 Jul	6:30 p.m.	7.5 hours	
AKN.65	15 Jul	12:30 a.m.	to	15 Jul	9:30 a.m.	9.0 hours	
AKN.65	15 Jul	12:00 p.m.	to	15 Jul	7:00 p.m.	7.0 hours	
AKN.68	18 Jul	3:00 a.m.	to	18 Jul	9:00 a.m.		fall schedule
Set Net							
AKN.01	1 Jun	9:00 a.m.	to	23 Jul	9:00 a.m.		[b,c]
AKN.15	24 Jun	6:00 a.m.	to	24 Jun	3:00 p.m.	9.0 hours	
AKN.18	25 Jun	7:00 a.m.	to	25 Jun	3:30 p.m.	8.5 hours	
AKN.19	26 Jun	7:30 a.m.	to	26 Jun	4:30 p.m.	9.0 hours	
AKN.23	27 Jun	7:30 p.m.	to	27 Jun	4:30 p.m.	9.0 hours	
AKN.25	27 Jun	10:00 p.m.	to	28 Jun	5:00 p.m.	19.0 hours	
AKN.28	28 Jun	11:00 p.m.	to	29 Jun	5:30 p.m.	18.5 hours	
AKN.29	29 Jun	11:30 p.m.	to	30 Jun	6:00 p.m.	18.5 hours	
AKN.32	1 Jul	12:30 a.m.	to	1 Jul	7:00 p.m.	18.5 hours	
AKN.36	2 Jul	1:00 a.m.	to	2 Jul	8:00 p.m.	19.0 hours	
AKN.39	3 Jul	1:30 a.m.	to	3 Jul	8:30 p.m.	19.0 hours	
AKN.42	4 Jul	2:30 a.m.	to	4 Jul	9:30 p.m.	19.0 hours	
AKN.45	5 Jul	3:00 a.m.	to	5 Jul	11:00 p.m.	20.0 hours	
AKN.48	6 Jul	4:00 a.m.	to	7 Jul	12:00 a.m.	20.0 hours	
AKN.51	7 Jul	4:30 a.m.	to	8 Jul	1:30 a.m.	21.0 hours	
AKN.53	8 Jul	5:30 a.m.	to	9 Jul	3:00 a.m.	21.5 hours	
AKN.55	9 Jul	6:00 a.m.	to	10 Jul	4:00 a.m.	22.0 hours	
AKN.58	11 Jul	8:00 a.m.	to	11 Jul	4:00 p.m.	8.0 hours	
AKN.64	14 Jul	11:00 a.m.	to	14 Jul	6:30 p.m.	7.5 hours	
AKN.65	14 Jul	6:30 p.m.	to	15 Jul	7:00 p.m.	24.5 hours	
AKN.68	15 Jul	7:00 p.m.	to	18 Jul	9:00 a.m.	9.0 hours	fall schedule
Naknek Section							
Drift Net							
AKN.01	1 Jun	9:00 a.m.	to	23 Jul	9:00 a.m.		[b,c]
AKN.15	24 Jun	6:00 a.m.	to	24 Jun	3:00 p.m.	9.0 hours	
AKN.18	25 Jun	7:00 a.m.	to	25 Jun	3:30 p.m.	8.5 hours	
AKN.19	26 Jun	7:30 a.m.	to	26 Jun	4:30 p.m.	9.0 hours	
AKN.23	27 Jun	7:30 p.m.	to	27 Jun	4:30 p.m.	9.0 hours	
AKN.25	27 Jun	10:00 p.m.	to	28 Jun	7:00 a.m.	9.0 hours	
AKN.25	28 Jun	9:30 a.m.	to	28 Jun	5:00 p.m.	7.5 hours	
AKN.28	28 Jun	11:00 p.m.	to	29 Jun	8:00 a.m.	9.0 hours	
AKN.28	29 Jun	10:00 a.m.	to	29 Jun	5:30 p.m.	7.5 hours	
AKN.29	28 Jun	11:30 p.m.	to	30 Jun	8:30 a.m.	9.0 hours	
AKN.29	29 Jun	10:30 a.m.	to	30 Jun	6:00 p.m.	7.5 hours	
AKN.32	1 Jul	12:30 a.m.	to	1 Jul	10:00 a.m.	9.5 hours	

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Table 14.–Page 2 of 6.

Number[a]	Start Date	Start Time		End Date	End Time	Effective time
AKN.32	1 Jul	12:00 p.m.	to	1 Jul	7:00 p.m.	7.0 hours
AKN.36	2 Jul	1:00 a.m.	to	2 Jul	10:00 a.m.	9.0 hours
AKN.39	2 Jul	1:30 a.m..	to	3 Jul	11:30 a.m.	10.0 hours
AKN.39	3 Jul	1:30 p.m..	to	3 Jul	8:30 p.m.	7.0 hours
AKN.42	4 Jul	2:30 a.m.	to	4 Jul	12:00 p.m.	9.5 hours
AKN.45	5 Jul	3:00 a.m.	to	4 Jul	12:30 p.m.	9.5 hours
AKN.45	5 Jul	3:00 p.m.	to	5 Jul	11:00 p.m.	8.0 hours
AKN.48	6 Jul	4:00 a.m.	to	6 Jul	1:30 p.m.	9.5 hours
AKN.51	7 Jul	4:30 a.m.	to	7 Jul	1:30 p.m.	9.0 hours
AKN.51	7 Jul	5:30 p.m.	to	8 Jul	1:30 a.m.	8.0 hours
AKN.53	8 Jul	5:30 a.m.	to	8 Jul	1:30 p.m.	8.0 hours
AKN.53	8 Jul	6:30 p.m.	to	9 Jul	3:00 a.m.	8.5 hours
AKN.55	9 Jul	6:00 a.m.	to	9 Jul	1:30 p.m.	7.5 hours
AKN.55	9 Jul	8:00 p.m.	to	10 Jul	4:30 a.m.	8.5 hours
AKN.58	11 Jul	8:00 a.m.	to	11 Jul	4:00 p.m.	8.0 hours
AKN.68	16 Jul	1:30 a.m.	to	16 Jul	10:30 a.m.	9.0 hours
AKN.68	16 Jul	2:00 p.m.	to	16 Jul	9:00 p.m.	7.0 hours
AKN.68	17 Jul	3:00 a.m.	to	17 Jul	11:00 a.m.	8.0 hours
AKN.68	17 Jul	3:00 p.m.	to	17 Jul	10:00 p.m.	7.0 hours
Egegik District						
Drift Net						
AKN.02	1 Jun	12:01 a.m.	to	15 Jun	9:00 a.m.	
AKN.06	17 Jun	1:00 p.m.	to	17 Jun	7:00 p.m.	6.0 hours
AKN.07	19 Jun	3:00 p.m.	to	19 Jun	7:00 p.m.	4.0 hours
AKN.09	21 Jun	5:00 p.m.	to	21 Jun	9:00 p.m.	4.0 hours
AKN.11	22 Jun	5:00 p.m.	to	22 Jun	11:00 p.m.	6.0 hours
AKN.13	23 Jun	6:00 p.m.	to	23 Jun	11:59 p.m.	6.0 hours
AKN.13	24 Jun	5:30 a.m.	to	24 Jun	11:30 a.m.	6.0 hours
AKN.16	25 Jun	6:30 a.m.	to	25 Jun	10:30 a.m.	4.0 hours
AKN.20	26 Jun	7:45 a.m.	to	26 Jun	10:45 a.m.	3.0 hours
AKN.21	27 Jun	8:30 a.m.	to	27 Jun	1:00 p.m.	4.5 hours
AKN.24	28 Jun	9:00 a.m.	to	28 Jun	3:00 p.m.	6.0 hours
AKN.26	28 Jun	9:45 p.m.	to	29 Jun	5:45 a.m.	4.0 hours
AKN.30	29 Jun	11:30 p.m.	to	30 Jun	3:30 a.m.	4.0 hours
AKN.30	30 Jun	10:45 a.m.	to	30 Jun	3:45 p.m.	5.0 hours
AKN.34	1 Jul	11:45 a.m.	to	1 Jul	5:45 p.m.	6.0 hours
AKN.37	2 Jul	1:00 p.m.	to	2 Jul	6:00 p.m.	5.0 hours
AKN.40	2 Jul	6:00 p.m.	to	2 Jul	9:00 p.m.	3.0 hours
AKN.40	3 Jul	1:15 p.m.	to	3 Jul	8:15 p.m.	7.0 hours
AKN.43	4 Jul	3:00 p.m.	to	4 Jul	10:00 p.m.	7.0 hours
AKN.46	5 Jul	3:30 p.m.	to	5 Jul	9:30 p.m.	6.0 hours
AKN.49	6 Jul	4:00 p.m.	to	6 Jul	9:00 p.m.	5.0 hours
AKN.62	14 Jul	10:00 a.m.	to	14 Jul	4:00 p.m.	6.0 hours
AKN.66	14 Jul	6:00 p.m.	to	18 Jul	9:00 a.m.	87.0 hours

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Table 14.–Page 3 of 6.

Number[a]	Start Date	Start Time		End Date	End Time	Effective time
Egegik District						
Set Net						
AKN.02	1 Jun	12:01 a.m.	to	15 Jun	9:00 a.m.	
AKN.06	17 Jun	12:30 p.m.	to	17 Jun	8:30 p.m.	8.0 hours
AKN.07	19 Jun	2:30 p.m.	to	19 Jun	10:30 a.m.	8.0 hours
AKN.09	21 Jun	4:15 p.m.	to	22 Jun	12:15 a.m.	8.0 hours
AKN.11	22 Jun	5:00 p.m.	to	23 Jun	1:00 a.m.	8.0 hours
AKN.13	23 Jun	6:00 p.m.	to	24 Jun	2:00 a.m.	8.0 hours
AKN.13	24 Jun	5:30 a.m.	to	24 Jun	1:30 p.m.	8.0 hours
AKN.16	25 Jun	6:00 a.m.	to	25 Jun	2:00 p.m.	8.0 hours
AKN.20	26 Jun	6:45 a.m.	to	26 Jun	2:45 p.m.	8.0 hours
AKN.21	27 Jun	7:45 a.m.	to	27 Jun	3:45 p.m.	8.0 hours
AKN.24	28 Jun	8:30 a.m.	to	28 Jun	4:30 p.m.	8.0 hours
AKN.26	28 Jun	9:45 p.m.	to	29 Jun	5:45 a.m.	8.0 hours
AKN.26	29 Jun	9:30 a.m.	to	29 Jun	5:30 p.m.	8.0 hours
AKN.30	29 Jun	10:30 p.m.	to	30 Jun	6:30 a.m.	8.0 hours
AKN.30	30 Jun	10:15 a.m.	to	30 Jun	6:15 p.m.	8.0 hours
AKN.34	30 Jun	11:00 p.m.	to	1 Jul	7:00 a.m.	8.0 hours
AKN.34	1 Jul	11:15 a.m.	to	1 Jul	7:15 p.m.	8.0 hours
AKN.37	2 Jul	12:00 p.m.	to	2 Jul	8:00 p.m.	8.0 hours
AKN.40	3 Jul	12:45 p.m.	to	3 Jul	8:45 p.m.	8.0 hours
AKN.43	4 Jul	2:00 p.m.	to	4 Jul	10:00 p.m.	8.0 hours
AKN.46	5 Jul	3:00 p.m.	to	5 Jul	11:00 a.m.	8.0 hours
AKN.49	6 Jul	3:45 p.m.	to	6 Jul	11:45 p.m.	8.0 hours
AKN.62	14 Jul	10:00 a.m.	to	14 Jul	6:00 p.m.	8.0 hours
AKN.66	14 Jul	6:00 p.m.	to	18 Jul	9:00 a.m.	87.0 hours
Ugashik District						
Drift Net						
AKN.03	1 Jun	12:01 a.m.	to	17 Jun	9:00 a.m.	
AKN.04	1 Jun	12:01 a.m.	to	22 Jul	9:00 a.m.	
AKN.08	19 Jun	2:30 p.m.	to	19 Jun	10:30 p.m.	8.0 hours
AKN.10	21 Jun	3:00 p.m.	to	21 Jun	7:00 p.m.	4.0 hours
AKN.12	22 Jun	3:30 p.m.	to	22 Jun	7:30 p.m.	4.0 hours
AKN.14	23 Jun	4:30 p.m.	to	23 Jun	11:30 p.m.	7.0 hours
AKN.17	25 Jun	6:00 a.m.	to	25 Jun	10:00 a.m.	4.0 hours
AKN.22	27 Jun	8:00 a.m.	to	27 Jun	12:00 p.m.	4.0 hours
AKN.27	29 Jun	8:30 a.m.	to	29 Jun	4:30 p.m.	8.0 hours
AKN.31	30 Jun	10:00 a.m.	to	30 Jun	4:00 p.m.	6.0 hours
AKN.35	1 Jul	11:00 a.m.	to	1 Jul	6:00 p.m.	7.0 hours
AKN.38	2 Jul	12:00 p.m.	to	2 Jul	4:00 p.m.	4.0 hours
AKN.41	2 Jul	4:00 p.m.	to	2 Jul	11:59 p.m.	6.0 hours
AKN.41	3 Jul	1:00 p.m.	to	3 Jul	11:00 p.m.	10.0 hours
AKN.44	4 Jul	2:00 p.m.	to	4 Jul	11:59 p.m.	10.0 hours
AKN.47	5 Jul	2:00 p.m.	to	5 Jul	8:00 p.m.	6.0 hours
AKN.50	6 Jul	1:30 p.m.	to	6 Jul	11:30 p.m.	10.0 hours

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Table 14.–Page 4 of 6.

Number[a]	Start Date	Start Time		End Date	End Time	Effective time	
AKN.52	7 Jul	2:30 p.m.	to	7 Jul	10:30 p.m.	8.0 hours	
AKN.54	8 Jul	3:30 p.m.	to	9 Jul	1:30 a.m.	10.0 hours	
AKN.56	9 Jul	1:30 a.m.	to	9 Jul	2:00 p.m.	12.5 hours	
AKN.57	10 Jul	4:30 a.m.	to	10 Jul	12:30 p.m.	8.0 hours	
AKN.59	11 Jul	5:30 a.m.	to	11 Jul	1:30 p.m.	8.0 hours	
AKN.60	12 Jul	6:30 a.m.	to	12 Jul	2:30 p.m.	8.0 hours	
AKN.61	13 Jul	7:30 a.m.	to	13 Jul	3:30 p.m.	8.0 hours	
AKN.63	14 Jul	8:30 a.m.	to	14 Jul	4:30 p.m.	8.0 hours	
AKN.67	14 Jul	4:30 p.m.	to	18 Jul	9:00 a.m.	88.5 hours	
AKN.67	14 Jul	4:30 p.m.	to	18 Jul	9:00 a.m.	88.5 hours	
Nushagak District							
Nushagak Section							
Drift Net							
DLG.11	26 Jun	1:00 a.m.	to	26 Jun	8:00 a.m.	7.0 hours	d
DLG.11	26 Jun	11:00 a.m.	to	26 Jun	7:00 p.m.	8.0 hours	
DLG.13	27 Jun	1:00 a.m.	to	27 Jun	8:00 a.m.	7.0 hours	
DLG.13	27 Jun	1:00 p.m.	to	27 Jun	7:00 p.m.	6.0 hours	
DLG.15	28 Jun	12:00 a.m.	to	28 Jun	9:00 a.m.	9.0 hours	
DLG.15	28 Jun	1:00 p.m.	to	28 Jun	9:00 p.m.	8.0 hours	
DLG.16	29 Jun	1:00 a.m.	to	29 Jun	10:00 a.m.	9.0 hours	
DLG.16	29 Jun	2:00 p.m.	to	29 Jun	9:00 p.m.	7.0 hours	
DLG.17	30 Jun	1:00 a.m.	to	30 Jun	10:00 a.m.	9.0 hours	
DLG.17	30 Jun	1:00 p.m.	to	30 Jun	10:00 p.m.	9.0 hours	
DLG.18	1 Jul	3:00 a.m.	to	1 Jul	10:00 a.m.	7.0 hours	
DLG.19	2 Jul	2:00 a.m.	to	2 Jul	11:00 a.m.	9.0 hours	
DLG.19	2 Jul	4:00 p.m.	to	2 Jul	10:00 p.m.	6.0 hours	
DLG.20	3 Jul	3:00 a.m.	to	3 Jul	11:00 a.m.	8.0 hours	
DLG.20	3 Jul	5:00 p.m.	to	3 Jul	11:00 p.m.	6.0 hours	
DLG.21	4 Jul	5:00 a.m.	to	4 Jul	1:00 p.m.	8.0 hours	
DLG.21	4 Jul	6:00 p.m.	to	5 Jul	12:00 a.m.	6.0 hours	
DLG.22	5 Jul	7:00 a.m.	to	5 Jul	2:00 p.m.	7.0 hours	
DLG.22	5 Jul	7:00 p.m.	to	6 Jul	2:00 a.m.	7.0 hours	
DLG.23	6 Jul	8:00 a.m.	to	6 Jul	3:00 p.m.	7.0 hours	
DLG.23	6 Jul	7:00 p.m.	to	7 Jul	3:00 a.m.	8.0 hours	
DLG.24	7 Jul	8:00 a.m.	to	7 Jul	4:00 p.m.	8.0 hours	
DLG.24	7 Jul	8:00 p.m.	to	8 Jul	4:00 a.m.	8.0 hours	
DLG.25	7 Jul	4:00 p.m.	to	8 Jul	4:00 p.m.	24.0 hours	f
DLG.27	8 Jul	11:00 p.m.	to	9 Jul	5:00 a.m.	6.0 hours	
DLG.27	9 Jul	11:00 a.m.	to	9 Jul	7:00 p.m.	8.0 hours	
DLG.28	9 Jul	11:00 a.m.	to				d
DLG.30			to	23 Jul	8:00 p.m.	345.0 hours	d
DLG.32	30 Jul	8:00 a.m.	to	30 Jul	8:00 p.m.	12.0 hours	
DLG.32	3 Aug	8:00 a.m.	to	3 Aug	8:00 p.m.	12.0 hours	
DLG.34	7 Aug	8:00 a.m.	to	7 Aug	8:00 p.m.	12.0 hours	
DLG.34	11 Aug	8:00 a.m.	to	11 Aug	8:00 p.m.	12.0 hours	

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Table 14.–Page 5 of 6.

Number[a]	Start Date	Start Time		End Date	End Time	Effective time	
DLG.36	14 Aug	8:00 a.m.	to	14 Aug	8:00 p.m.	12.0 hours	
DLG.36	18 Aug	8:00 a.m.	to	18 Aug	8:00 p.m.	12.0 hours	
DLG.38	21 Aug	8:00 a.m.	to	21 Aug	8:00 p.m.	12.0 hours	
DLG.38	25 Aug	8:00 a.m.	to	25 Aug	8:00 p.m.	12.0 hours	
DLG.40	28 Aug	8:00 a.m.	to				[d]
Nushagak District							
Igushik Section							
Drift Net							
DLG.10	25 Jun	3:00 p.m.	to	25 Jun	9:00 p.m.	6.0 hours	
DLG.11	26 Jun	1:00 a.m.	to	26 Jun	8:00 a.m.	7.0 hours	
DLG.11	26 Jun	11:00 a.m.	to	26 Jun	7:00 p.m.	8.0 hours	
DLG.13	27 Jun	1:00 a.m.	to	27 Jun	8:00 a.m.	7.0 hours	
DLG.13	27 Jun	1:00 p.m.	to	27 Jun	7:00 p.m.	6.0 hours	
DLG.15	28 Jun	12:00 a.m.	to	28 Jun	9:00 a.m.	9.0 hours	
DLG.15	28 Jun	1:00 p.m.	to	28 Jun	9:00 p.m.	8.0 hours	
DLG.16	29 Jun	1:00 a.m.	to	29 Jun	10:00 a.m.	9.0 hours	
DLG.16	29 Jun	2:00 p.m.	to	29 Jun	9:00 p.m.	7.0 hours	
DLG.17	30 Jun	1:00 a.m.	to	30 Jun	10:00 a.m.	9.0 hours	
DLG.17	30 Jun	1:00 p.m.	to	30 Jun	10:00 p.m.	9.0 hours	
DLG.18	30 Jun	1:00 p.m.	to				[d]
Nushagak District							
Igushik Section							
Set Net							
DLG.02	15 Jun	12:00 p.m.	to	15 Jun	8:00 p.m.	8.0 hours	[c]
DLG.02	16 Jun	1:00 p.m.	to	16 Jun	9:00 p.m.	8.0 hours	
DLG.04	17 Jun	2:00 p.m.	to	17 Jun	10:00 p.m.	8.0 hours	
DLG.04	18 Jun	3:00 p.m.	to	18 Jun	11:00 p.m.	8.0 hours	
DLG.06	19 Jun	4:00 p.m.	to	20 Jun	12:00 a.m.	8.0 hours	
DLG.06	20 Jun	5:00 p.m.	to	21 Jun	1:00 a.m.	8.0 hours	
DLG.07	21 Jun	6:00 p.m.	to	22 Jun	2:00 a.m.	8.0 hours	
DLG.07	22 Jun	7:00 p.m.	to	23 Jun	3:00 a.m.	8.0 hours	
DLG.08	23 Jun	8:00 p.m.	to	24 Jun	4:00 a.m.	8.0 hours	
DLG.08	24 Jun	9:00 p.m.	to	25 Jun	5:00 a.m.	8.0 hours	
DLG.10	24 Jun	9:00 p.m.	to	26 Jun	5:00 a.m.	32.0 hours	
DLG.11	26 Jun	5:00 a.m.	to	27 Jun	5:00 a.m.	24.0 hours	
DLG.13	27 Jun	5:00 a.m.	to	27 Jun	11:00 p.m.	18.0 hours	
DLG.15	27 Jun	11:00 p.m.	to	28 Jun	11:00 p.m.	24.0 hours	
DLG.16	28 Jun	11:00 p.m.	to	29 Jun	11:00 p.m.	24.0 hours	
DLG.17	29 Jun	11:00 p.m.	to	30 Jun	11:00 p.m.	24.0 hours	
DLG.18	30 Jun	11:00 p.m.	to				[d]

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Number [a]	Start Date	Start Time		End Date	End Time	Effective time	
Togiak District							
Drift and Set Net							
DLG.05	22 Jun	9:00 a.m.	to	25 Jun	9:00 a.m.	72.0 hours	[g, h]
DLG.09	29 Jun	9:00 a.m.	to	1 Jul	9:00 p.m.	60.0 hours	[g]
DLG.14	29 Jun	9:00 a.m.	to	1 Jul	9:00 p.m.	60.0 hours	[i]
DLG.26	9 Jul	9:00 p.m.	to	11 Jul	9:00 a.m.	36.0 hours	[j]
DLG.29	16 Jul	9:00 p.m.	to	18 Jul	9:00 a.m.	36.0 hours	[j]

[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 a.m. Monday until 9:00 a.m. Friday.

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

[d] Commercial fishing open until further notice.

[e] Gillnet mesh size is unrestricted.

[f] Extends current fishing period.

[g] Reduced the weekly fishing schedule in Togiak River section.

[h] Changes coordinate boundary of Togiak River Section for the season.

[i] Nullifies DLG.9 and reinstates regular weekly schedule.

[j] Extends the weekly fishing schedule in Togiak River Section.

Table 15.–Daily district registration of drift gillnet permit holders by district, Bristol Bay, 2011.

Date	Naknek-Kvichak	Egegik	Ugashik	Nushagak	Togiak	Total
6/23 [a]	46	36	20	81	35	218
6/24 [a]	58	40	24	151	36	309
6/25	422	398	196	342	40	1,398
6/26	455	449	206	471	44	1,625
6/27	461	455	206	480	44	1,646
6/28	470	444	203	496	47	1,660
6/29	472	433	203	496	49	1,653
6/30	487	421	204	505	49	1,666
7/01	509	396	211	508	49	1,673
7/02	523	347	214	508	50	1,642
7/03	546	343	221	507	51	1,668
7/04	593	336	226	505	51	1,711
7/05	600	277	227	500	53	1,657
7/06	602	265	227	461	55	1,610
7/07	659	229	234	443	56	1,621
7/08	691	152	262	414	57	1,576
7/09	707	139	290	358	57	1,551
7/10	777	134	322	351	57	1,641
7/11	789	134	380	350	57	1,710
7/12	780	136	390	348	57	1,711
7/13	769	148	388	332	60	1,697
7/14	769	157	374	328	62	1,690
7/15	768	175	378	316	62	1,699
7/16	782	193	352	319	62	1,708
Average [b]	620	280	269	424	53	1,646

[a] Registration in east side districts not required until 6/25.

[b] Does not include 6/23 and 6/24.

Table 16.–Commercial salmon catch by date and species, in numbers of fish, Ugashik District, Bristol Bay, 2011.

	Hours fished		Deliveries							
Date	Drift	Set	Drift	Set	Sockeye	Chinook	Chum	Pink	Coho	Total
6/10	9	9								
6/11										
6/12										
6/13	15	15	11		1,546	17	0			1,563
6/14	24	24	16		1,481	9	0			1,490
6/15	24	24	30		3,738	5	0			3,743
6/16	24	24	48		12,447	4	158			12,609
6/17	9	9								
6/18										
6/19	4	10	56	16	21,605	15	104			21,724
6/20										
6/21	4	10	72	18	33,471	23	186			33,680
6/22	4	9	80	19	49,430	12	261			49,703
6/23	7	9.5	107	22	74,900	17	686			75,603
6/24										
6/25	4	10	147	25	65,210	5	410			65,625
6/26										
6/27	4	10	153	58	136,512	6	2,030			138,548
6/28										
6/29	8	10	154	64	212,044	4	1,737			213,785
6/30	6	10	154	83	163,466	5	974			164,445
7/1	7	10	154	65	157,465	4	1,250			158,719
7/2	12	10	188	74	215,569	6	2,024			217,599
7/3	10	10	177	52	138,590	6	931			139,527
7/4	10	10	175	65	151,221	6	1,001			152,228
7/5	6	10	169	62	168,136	10	1,583			169,729
7/6	10	10	186	42	127,007	9	1,134			128,150
7/7	6	8	198	30	75,226	4	1,087			76,317
7/8	8.5	8.5	130	12	47,067	8	520			47,595
7/9	14	14	253	26	115,489	1	1,382			116,872
7/10	5	8	234	24	48,087	1	776			48,864
7/11	5	8	280	29	119,397	3	1,649			121,049
7/12	5	8	258	37	92,971	8	1,526			94,505
7/13	5	8	274	54	61,521	10	1,129	4		62,664
7/14	5	8	274	45	99,306	2	3,156			102,464
7/15	24	24	239	55	47,262	1	1,388			48,651
7/16	24	24	181	37	33,069	6	926			34,001
7/17	24	24	91	15	21,169	7	1,428			22,604
7/18	24	24	98	15	27,330	2	1,828	1		29,161
7/19	24	24	86	24	15,434	1	1,524			16,959
7/20	24	24	54	15	15,728	1	1,204			16,933
7/21	24	24	47	24	10,531	2	992			11,525

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Table 16.–Page 2 of 2.

Date		Hours fished		Deliveries		Sockeye	Chinook	Chum	Pink	Coho	Total
		Drift	Set	Drift	Set						
7/22		24	24	29	24	12,090	3	1,157			13,250
7/23		24	24	40	9	8,719	3	820			9,542
7/24		24	24	10	2	2,740		142			2,882
7/25		24	24	13	5	3,006		36			3,042
7/26		24	24	17	8	5,637		68			5,705
7/27		24	24	13	5	3,021		244			3,265
7/28		24	24	10	8	2,470		77			2,547
7/29		9	9								
7/30											
7/31											
8/1											
8/2											
8/3											
8/4	[a]	15	15								
8/5	[a]	24	24								
8/6	[a]	24	24								
8/7	[a]	24	24								
8/8		9	9								
8/9											
8/10											
8/11	[a]	15	15								
8/12	[a]	24	24								
8/13	[a]	24	24								
8/14		24	24								
8/15		9	9								
8/16											
8/17											
8/18		15	15								
8/19		24	24								
8/20		24	24								
8/21	[a]	24	24								
8/22	[a]	9	9								
8/23											
8/24											
8/25		15	15								
8/26	[a]	24	24								
8/27	[a]	24	24								
8/28	[a]	24	24								
8/29	[a]	9	9								
8/30											
Totals		984	1,043	4,907	1,182	2,601,174	226	37,525	5	452	2,639,382

Note: Blank cells represent days with no data.

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

Table 17.–Comparison of daily sockeye salmon escapement estimates by tower count and river test fishing enumeration methods, Ugashik River, Bristol Bay, 2011.

	Tower Count		River Test Fishing				
				Index Points		Estimated Cumulative	Estimated
Date	Daily	Cum.	Fish per Index Pt.[a]	Daily	Cum.	Escapement	River Fish[b]
6/25			35	86	86	2,996	
6/26			35	97	183	6,397	
6/27			35	397	580	20,297	20,000
6/28	6,522	6,522	35	571	1,151	40,295	40,000
6/29	38,604	45,126	35	1,449	2,601	91,026	100,000
6/30	35,022	80,148	35	1,026	3,627	126,933	100,000
7/01	29,994	110,142	51	1,451	5,078	258,974	150,000
7/02	47,754	157,896	54	1,503	6,581	355,362	200,000
7/03	54,720	212,616	41	942	7,523	308,451	100,000
7/04	80,868	293,484	52	399	7,922	411,951	125,000
7/05	103,272	396,756	60	287	8,209	492,556	100,000
7/06	168,294	565,050	84	261	8,470	711,498	150,000
7/07	77,850	642,900	84	201	8,671	728,365	100,000
7/08	56,606	699,506	95	157	8,828	838,647	85,000
7/09	5,629	705,135	93	52	8,880	825,797	60,000
7/10	2,943	708,078	92	61	8,940	822,488	60,000
7/11	5,604	713,682	89	50	8,990	800,100	20,000
7/12	21,311	734,993	92	168	9,158	842,535	30,000
7/13	21,586	756,579	96	225	9,383	900,738	50,000
7/14	24,699	781,278	99	196	9,579	948,328	50,000
7/15	38,535	819,813	100	363	9,942	994,175	50,000
7/16	51,738	871,551	105	154	10,096	1,060,069	40,000
7/17	38,709	910,260	111	92	10,188	1,130,825	50,000
7/18	18,751	929,011					
7/19	15,870	944,881					
7/20	8,784	953,665					
7/21	9,762	963,427					
7/22	6,924	970,351					
7/23	6,660	977,011					
7/24	11,238	988,249					
7/25	9,510	997,759					
7/26	5,994	1,003,753					

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 1989–2010 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 July 1 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 catchability, etc.

Table 18.–Commercial salmon catch by date and species, in numbers of fish, Nushagak District, Bristol Bay, 2011.

	Hours fished		Deliveries							
Date	Nushagak	Igushik	Drift	Set	Sockeye	Chinook	Chum	Pink	Coho	Total
6/15	0/0	0/8	0	11	829	5	0	0	0	834
6/16	0/0	0/8	0	9	1,515	18	9	0	0	1,542
6/17	0/0	0/8	0	17	2,087	14	14	0	0	2,115
6/18	0/0	0/8	0	16	1,033	4	4	0	0	1,041
6/19	0/0	0/8	0	16	1,156	12	3	0	0	1,171
6/20	0/0	0/7	0	25	825	37	13	0	0	875
6/21	0/0	0/7	0	34	1,970	35	33	0	0	2,038
6/22	0/0	0/7	0	41	4,489	17	8	0	0	4,514
6/23	0/0	0/7	0	64	13,396	8	7	0	0	13,411
6/24	0/0	0/8	0	39	3,129	13	6	0	0	3,148
6/25	0/2	6/24	319	155	46,749	1,659	4,180	0	0	52,588
6/26	15/24	15/24	673	516	725,622	12,902	100,011	2	0	838,537
6/27	13/24	13/24	573	544	417,126	1,697	22,757	1	0	441,581
6/28	17/24	17/24	659	406	296,465	1,779	21,414	1	0	319,659
6/29	16/24	16/24	652	400	336,823	1,038	17,634	3	0	355,498
6/30	18/24	23/24 [a]	700	466	515,811	1,210	29,639	1	0	546,661
7/1	7/24	24/24 [a]	503	461	400,359	585	21,252	1	0	422,197
7/2	15/24	24/24 [a]	625	423	358,755	1,041	18,707	6	0	378,509
7/3	14/24 [a]	24/24 [a]	593	352	312,064	3,157	15,039	6	0	330,266
7/4	14/24 [a]	24/24 [a]	677	411	353,257	863	17,213	6	0	371,339
7/5	12/24 [a]	24/24 [a]	652	384	242,590	771	12,486	7	0	255,854
7/6	14/24 [a]	24/24 [a]	632	320	252,058	501	12,701	4	0	265,264
7/7	21/24 [a]	24/24 [a]	360	242	139,769	517	7,154	4	0	147,444
7/8	17/24 [a]	24/24 [a]	295	312	67,570	348	4,407	8	0	72,333
7/9	18/24 [a]	24/24 [a]	248	211	70,230	332	4,931	5	1	75,499
7/10	24/24 [a]	24/24 [a]	255	285	53,221	188	4,038	6	4	57,457
7/11	24/24 [a]	24/24 [a]	166	231	42,971	133	3,091	2	5	46,202
7/12	24/24 [a]	24/24 [a]	184	265	48,331	165	4,045	7	2	52,550
7/13	24/24 [a]	24/24 [a]	267	265	57,377	186	5,696	8	9	63,276
7/14	24/24 [a]	24/24 [a]	159	258	51,506	155	4,222	13	11	55,907
7/15	24/24 [a]	24/24 [a]	140	238	35,650	112	2,561	12	11	38,346
7/16	24/24 [a]	24/24 [a]	112	217	33,935	91	2,688	11	23	36,748
7/17	24/24 [a]	24/24 [a]	87	173	19,144	49	1,452	6	151	20,802

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Table 18.–Page 2 of 2.

Date	Hours fished		Deliveries							
	Nushagak	Igushik	Drift	Set	Sockeye	Chinook	Chum	Pink	Coho	Total
7/18	24/24 [a]	24/24 [a]	41	133	11,636	58	1,351	6	197	13,248
7/19	24/24 [a]	24/24 [a]	36	125	11,107	39	992	21	64	12,223
7/20	24/24 [a]	24/24 [a]	19	104	7,921	29	708	14	632	9,304
7/21	24/24 [a]	24/24 [a]	2	75	4,822	16	90	25	460	5,413
7/22	24/24 [a]	24/24 [a]	0	70	3,222	9	83	11	116	3,441
7/23	20/20	24/24 [a]	8	62	4,280	16	167	17	1,148	5,628
7/24	0/0	24/24 [a]	0	5	584	0	7	7	1	599
7/25	0/0	24/24 [a]	0	4	679	0	31	15	5	730
7/26 [b]	0/0	24/24 [a]	0	3	509	0	25	13	7	554
7/27 [b]	0/0	24/24 [a]	0	3	447	0	7	6	4	464
7/30 [b]	12/12	24/24 [a]	0	1	239	2	0	0	2	243
8/3 [b]	12/12	24/24 [a]	0	0	0	0	0	0	0	0
8/7	12/12	24/24 [a]	17	2	12	0	5	2	1,467	1,486
8/11 [b]	12/12	24/24 [a]	0	0	0	0	0	0	0	0
8/14 [b]	12/12	24/24 [a]	0	0	0	0	0	0	143	143
8/18 [b]	12/12	24/24 [a]	0	1	1	0	0	0	128	129
8/21 [b]	12/12	24/24 [a]	0	0	0	0	0	0	0	0
8/25 [b]	12/12	24/24 [a]	0	0	0	0	0	0	0	0
8/28 [b]	16/16	24/24 [a]	0	1	0	0	0	0	22	22
Total	655/782	999/1084	9,654	8,385	4,953,271	29,811	340,881	257	4,613	5,328,833

[a] Fishing extended until further notice.

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

Table 19.–Final daily and cumulative escapement estimates by species, Nushagak River sonar project, Bristol Bay, 2011.

	Chinook		Sockeye		Chum		Total	
Date	Daily	Cum.	Daily	Cum.	Daily	Cum.	Daily	Cum.
6/6	10	10	17	17	66	66	93	93
6/7	100	110	30	47	164	229	294	387
6/8	119	229	89	136	379	608	587	974
6/9	113	342	92	228	401	1,010	606	1,580
6/10	75	417	71	300	284	1,294	430	2,010
6/11	1,188	1,605	285	585	305	1,599	1,778	3,788
6/12	930	2,535	1,322	1,907	2,951	4,549	5,203	8,991
6/13	397	2,932	1,055	2,962	2,123	6,673	3,576	12,567
6/14	424	3,356	981	3,943	1,211	7,884	2,615	15,182
6/15	1,348	4,704	3,750	7,692	5,478	13,362	10,576	25,758
6/16	242	4,946	938	8,631	2,552	15,913	3,732	29,490
6/17	122	5,068	801	9,431	1,961	17,874	2,884	32,374
6/18	376	5,444	1,077	10,508	4,167	22,041	5,620	37,993
6/19	66	5,510	3,272	13,780	1,816	23,857	5,154	43,147
6/20	270	5,780	5,746	19,526	1,044	24,902	7,060	50,207
6/21	833	6,613	7,573	27,099	4,922	29,824	13,328	63,535
6/22	2,727	9,340	16,026	43,125	6,713	36,537	25,466	89,002
6/23	6,984	16,324	29,560	72,685	40,706	77,243	77,251	166,252
6/24	1,907	18,231	34,302	106,987	14,076	91,319	50,285	216,537
6/25	308	18,539	24,311	131,298	5,690	97,009	30,308	246,845
6/26	852	19,391	25,831	157,129	2,506	99,515	29,190	276,035
6/27	6,536	25,927	25,525	182,654	22,319	121,834	54,380	330,415
6/28	5,790	31,717	53,622	236,276	12,784	134,618	72,196	402,611
6/29	1,593	33,310	19,355	255,631	2,008	136,626	22,956	425,567
6/30	2,392	35,702	19,315	274,946	2,799	139,425	24,506	450,073
7/1	1,578	37,280	15,514	290,460	5,959	145,384	23,050	473,124
7/2	3,073	40,353	15,764	306,224	11,690	157,074	30,527	503,650
7/3	1,321	41,674	24,599	330,823	15,207	172,280	41,127	544,778
7/4	1,153	42,827	14,198	345,021	7,813	180,094	23,165	567,942
7/5	1,645	44,472	7,925	352,946	2,792	182,885	12,361	580,304
7/6	1,119	45,591	11,415	364,362	4,944	187,830	17,479	597,782
7/7	1,659	47,250	5,030	369,392	4,440	192,270	11,129	608,911
7/8	1,201	48,451	8,348	377,740	4,787	197,057	14,336	623,248
7/9	2,277	50,728	11,671	389,411	5,762	202,819	19,710	642,958
7/10	2,344	53,072	10,646	400,057	5,273	208,092	18,264	661,221
7/11	771	53,843	6,509	406,566	4,196	212,288	11,476	672,697
7/12	1,988	55,831	2,453	409,019	5,938	218,226	10,379	683,076
7/13	1,080	56,911	4,361	413,380	8,266	226,492	13,707	696,783
7/14	1,452	58,363	1,181	414,561	5,878	232,370	8,511	705,294
7/15	581	58,944	4,130	418,691	5,870	238,240	10,581	715,876
7/16	223	59,167	4,016	422,707	3,455	241,696	7,694	723,570
7/17	147	59,314	2,448	425,155	2,893	244,589	5,488	729,058
7/18	196	59,510	2,007	427,162	2,344	246,933	4,547	733,605
7/19	218	59,728	1,029	428,191	1,345	248,278	2,592	736,197

Table 20.–Daily sockeye salmon escapement tower counts by river system, Westside Bristol Bay, 2011.

	Wood River		Igushik River		Togiak River	
Date	Daily	Cum.	Daily	Cum.	Daily	Cum.
6/18	990	990				
6/19	1,044	2,034				
6/20	6,024	8,058				
6/21	8,154	16,212				
6/22	16,350	32,562	2,892	2,892		
6/23	55,038	87,600	1,968	4,860		
6/24	57,162	144,762	4,770	9,630		
6/25	70,698	215,460	10,218	19,848		
6/26	78,888	294,348	15,594	35,442		
6/27	111,042	405,390	9,456	44,898		
6/28	139,164	544,554	15,846	60,744		
6/29	50,520	595,074	42,714	103,458		
6/30	41,802	636,876	56,862	160,320		
7/01	39,030	675,906	47,334	207,654		
7/02	63,834	739,740	36,600	244,254		
7/03	70,740	810,480	20,442	264,696	4,932	4,932
7/04	35,736	846,216	18,822	283,518	1,974	6,906
7/05	41,754	887,970	11,304	294,822	3,720	10,626
7/06	30,948	918,918	7,812	302,634	8,118	18,744
7/07	23,574	942,492	6,306	308,940	8,058	26,802
7/08	33,552	976,044	7,752	316,692	4,716	31,518
7/09	25,842	1,001,886	5,058	321,750	3,312	34,830
7/10	27,708	1,029,594	16,620	338,370	4,062	38,892
7/11	16,224	1,045,818	17,670	356,040	4,320	43,212
7/12	14,736	1,060,554	16,830	372,870	8,574	51,786
7/13	13,116	1,073,670	13,566	386,436	5,490	57,276
7/14	5,214	1,078,884	9,804	396,240	6,252	63,528
7/15	9,732	1,088,616	5,952	402,192	6,948	70,476
7/16	4,638	1,093,254	5,958	408,150	4,566	75,042
7/17	4,752	1,098,006	5,784	413,934	5,276	80,318
7/18			2,520	416,454	2,790	83,108
7/19			2,202	418,656	4,272	87,380
7/20			1,680	420,336	5,364	92,744
7/21			1,044	421,380	9,492	102,236
7/22					4,188	106,424
7/23					2,064	108,488
7/24					4,338	112,826
7/25					4,260	117,086
7/26					7,374	124,460
7/27					13,626	138,086
7/28					20,802	158,888
7/29					8,544	167,432
7/30					2,874	170,306
7/31					2,070	172,376
8/01					1,476	173,852
8/02					1,926	175,778
8/03					5,322	181,100
8/04					4,290	185,390
8/05					5,580	190,970

Note: Blank cells represent days when escapement projects were not in operation.

Table 21.–Commercial salmon catch by date and species, in numbers of fish, Togiak River Section, Bristol Bay, 2011.

Date [a]	Deliveries		Sockeye	Chinook	Chum	Pink	Coho	Total
	Drift	Set						
6/13 [b]								
6/14 [b]								
6/15 [b]								
6/16 [b]								
6/20	6	23	1,138	99	217	0	0	1,454
6/21	9	29	1,211	153	212	0	0	1,576
6/22	0	11	506	29	35	0	0	570
6/27	24	34	3,856	476	622	11	0	4,965
6/28	30	71	6,254	393	807	0	0	7,454
6/29	41	99	12,457	301	781	0	0	13,539
6/30	54	114	18,147	411	1,821	1	0	20,380
7/1	61	110	18,643	384	1,812	2	0	20,841
7/2	42	93	20,452	296	2,150	3	0	22,901
7/4	58	104	24,429	396	1,701	0	0	26,526
7/5	69	102	16,694	433	5,003	1	0	22,131
7/6	20	73	7,485	103	1,924	1	0	9,513
7/7	50	94	14,594	208	2,606	10	0	17,418
7/8	47	81	16,548	138	1,768	3	0	18,457
7/9	41	80	22,177	178	1,724	3	0	24,082
7/10	33	70	13,732	165	1,702	5	0	15,604
7/11	54	122	25,303	190	4,061	5	0	29,559
7/12	74	95	17,568	166	3,152	0	0	20,886
7/13	76	127	23,782	135	2,581	6	1	26,505
7/14	79	124	27,243	154	3,007	5	0	30,409
7/15	84	135	30,670	136	3,264	8	0	34,078
7/16	82	163	38,070	139	3,884	10	0	42,103
7/17	34	126	25,608	99	2,847	9	0	28,563
7/18	81	156	44,180	100	3,502	3	0	47,785
7/19	76	138	25,207	96	4,017	16	1	29,337
7/20	68	124	19,622	74	4,919	19	1	24,635
7/21	54	156	18,627	43	3,660	17	0	22,347
7/22	28	46	8,191	25	744	4	0	8,964
7/25	48	108	22,951	23	1,179	9	3	24,165
7/26	72	109	21,605	31	3,085	21	15	24,757
7/27	96	122	22,475	37	4,342	21	8	26,883
7/28	100	93	15,374	34	5,152	9	7	20,576
7/29	30	33	6,164	10	1,212	7	0	7,393
7/30	0	0		0	0	0	0	0
8/1	68	76	10,247	25	4,674	49	28	15,023
8/2	77	86	8,007	8	4,243	16	38	12,312
8/3	49	64	4,212	21	1,981	5	27	6,246
8/4	16	24	2,064	6	1,131	1	23	3,225

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Table 21.–Page 2 of 2.

Date [a]	Deliveries		Sockeye	Chinook	Chum	Pink	Coho	Total
	Drift	Set						
8/5	8	8	971	1	394	3	1	1,370
8/6 [b]								
8/8	23	20	2,783	13	229	1	68	3,094
8/9	19	23	1,936	10	240	3	135	2,324
8/10	13	22	1,718	14	222	1	121	2,076
8/11	13	19	1,704	13	226	4	168	2,115
8/12	3	11	671	6	57	0	53	787
8/15	9	17	471	2	47	3	367	890
8/16	18	30	775	2	57	5	678	1,517
8/17	8	21	408	0	19	1	522	950
8/18	7	10	360	1	8	2	322	693
8/19	3	5	197	4	9	2	254	466
8/22	7	7	75	0	1	2	366	444
8/23	5	12	126	1	10	2	707	846
8/24	1	11	119	0	3	0	339	461
8/25	3	13	121	1	5	2	408	537
8/26 [b]								
8/29	3	13	29	0	5	1	633	668
8/30	4	13	46	1	7	1	1,066	1,121
8/31	1	9	5	2	1	1	217	226
9/1	2	6	14	0	0	0	383	397
Total	2,083	3,705	628,531	5,895	93,122	314	7,599	735,461

[a] See Table 15 for inseason adjustments to the regular weekly fishing schedule.

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

Table 22.–Commercial salmon catch by date and species, in numbers of fish, Kulukak Section, Bristol Bay, 2011.

	Deliveries								
Date[a]	Drift	Set		Sockeye	Chinook	Chum	Pink	Coho	Total
6/20 [b]									
6/21 [b]									
6/22 [b]									
6/27		8	9	1,915	102	785	0	0	2,802
6/28		14	12	2,514	137	1,308	0	0	3,959
6/29		17	12	2,690	79	1,358	0	0	4,127
7/4		11	53	13,995	105	989	5	0	15,094
7/5		21	52	16,737	152	1,903	0	0	18,792
7/6		20	31	15,755	106	2,078	0	0	17,939
7/11		8	13	997	28	1,058	0	0	2,083
7/12		7	13	874	27	817	0	0	1,718
7/13		2	7	1,234	16	309	0	0	1,559
7/18		2	29	5,516	14	473	18	0	6,021
7/19		13	49	14,558	24	2,027	2	3	16,614
7/20		23	40	18,630	35	2,468	0	0	21,133
7/25		11	12	2,455	1	981	16	4	3,457
7/26		7	21	6,164	6	559	4	0	6,733
7/27		14	20	9,246	11	732	9	1	9,999
8/1		9	2	1,443	2	465	3	23	1,936
8/2		20	2	1,233	2	518	2	1	1,756
8/3		5	0	171	0	79	0	5	255
8/15 [b]									
Total		219	384	118,498	939	19,596	59	102	139,194

[a] Kulukak Section is open 60 hours per week by regulation.

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

Table 23.–Commercial salmon catch by date and species, in numbers of fish, Togiak District, Bristol Bay, 2011.

Date [a]	Sockeye	Chinook	Chum	Pink	Coho	Total
6/13 [b]						
6/14 [b]						
6/15 [b]						
6/16 [b]						
6/20	1,563	131	414	0	0	2,108
6/21	1,888	187	436	0	0	2,511
6/22	1,709	55	303	0	0	2,067
6/27	5,771	578	1,407	11	0	7,767
6/28	8,768	530	2,115	0	0	11,413
6/29	15,147	380	2,139	0	0	17,666
6/30	18,147	411	1,821	1	0	20,380
7/1	18,643	384	1,812	2	0	20,841
7/2	20,452	296	2,150	3	0	22,901
7/4	38,424	501	2,690	5	0	41,620
7/5	33,431	585	6,906	1	0	40,923
7/6	23,240	209	4,002	1	0	27,452
7/7	14,594	208	2,606	10	0	17,418
7/8	16,548	138	1,768	3	0	18,457
7/9	22,177	178	1,724	3	0	24,082
7/10	13,732	165	1,702	5	0	15,604
7/11	26,300	218	5,119	5	0	31,642
7/12	18,442	193	3,969	0	0	22,604
7/13	25,016	151	2,890	6	1	28,064
7/14	27,243	154	3,007	5	0	30,409
7/15	30,670	136	3,264	8	0	34,078
7/16	38,070	139	3,884	10	0	42,103
7/17	25,608	99	2,847	9	0	28,563
7/18	49,696	114	3,975	21	0	53,806
7/19	39,765	120	6,044	18	4	45,951
7/20	38,252	109	7,387	19	1	45,768
7/21	18,627	43	3,660	17	0	22,347
7/22	8,191	25	744	4	0	8,964
7/25	25,406	24	2,160	25	7	27,622
7/26	27,769	37	3,644	25	15	31,490
7/27	31,721	48	5,074	30	9	36,882
7/28	15,374	34	5,152	9	7	20,576
7/29	6,434	10	1,606	7	4	8,061
7/30	428	3	343	0	4	778
8/1	11,690	27	5,139	32	51	16,939
8/2	9,240	10	4,761	18	39	14,068
8/3	4,383	21	2,060	5	32	6,501
8/4	2,064	6	1,131	1	23	3,225
8/5	971	1	394	3	1	1,370

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Table 23.–Page 2 of 2.

Date [a]	Sockeye	Chinook	Chum	Pink	Coho	Total
8/6 [b]						
8/8	2,783	13	229	1	68	3,094
8/9	1,936	10	240	3	135	2,324
8/10	1,718	14	222	0	121	2,075
8/11	1,704	13	226	4	168	2,115
8/12	671	6	57	0	53	787
8/15	537	2	47	3	432	1,021
8/16	775	2	57	5	678	1,517
8/17	408	0	19	1	522	950
8/18	360	1	8	2	322	693
8/19	197	4	9	2	254	466
8/22	75	0	1	2	366	444
8/23	126	2	10	2	707	847
8/24	119	0	3	0	339	461
8/25	121	1	5	2	408	537
8/26 [b]						
8/29	29	0	5	1	633	668
8/30	46	1	7	1	1,066	1,121
8/31	5	2	1	1	217	226
9/1	14	0	0	0	383	397
Total	747,727	6,842	113,455	352	7,709	876,085

[a] See Table 15 for inseason adjustments to the regular weekly fishing schedule.

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

Table 24.–Commercial salmon catch by date and species, in numbers of fish, Matogak Section, Bristol Bay, 2011.

Date [a]	Sockeye	Chinook	Chum	Pink	Coho	Total
7/29 [b]						
7/30 [b]						
Total [b]						

[a] Matogak Section is open 5 days per week by regulation.

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

Table 25.–Commercial salmon catch by date and species, in numbers of fish, Osviak Section, Bristol Bay, 2011.

Date [a]	Sockeye	Chinook	Chum	Pink	Coho	Total
7/29 [b]						
Total [b]						

[a] Osviak Section is open 5 days per week by regulation.

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

Table 26.–Subsistence salmon harvest by species, in numbers of fish, by district and location fished, Bristol Bay, 2010.

Area and River System	Permits Issued [b]	Estimated Number of Salmon Harvested [a]					
		Sockeye	Chinook	Chum	Pink	Coho	Total
NAKNEK-KVICHAK DISTRICT	437	62,309	422	233	835	645	64,444
Naknek River	261	21,621	407	220	360	642	23,250
Kvichak River/Iliamna Lake:	180	40,688	16	13	475	3	41,195
Igiugig	14	3,042	4	11	1	0	3,058
Iliamna Lake	29	5,729	0	0	0	0	5,729
Kijik	1	100	0	0	0	0	100
Kokhanok	29	13,429	5	0	473	2	13,909
Kvichak River	5	761	0	0	0	0	761
Lake Clark: General	53	3,457	0	0	0	0	3,457
Levelock	9	1,233	6	2	1	1	1,243
Newhalen River	25	6,471	0	0	0	0	6,471
Pedro Bay	20	5,240	0	0	0	0	5,240
Six Mile Lake	6	991	0	0	0	0	991
EGEGIK DISTRICT	37	1,657	93	59	8	275	2,091
UGASHIK DISTRICT	18	896	21	4	0	135	1,056
NUSHAGAK DISTRICT	528	22,326	9,150	3,660	1,672	2,983	39,790
Wood River	150	6,170	1,342	375	142	418	8,447
Lower Nushagak River	74	2,240	2,452	512	202	222	5,628
Upper Nushagak River	72	1,993	1,849	1,479	169	597	6,088
Nushagak Bay Commercial	37	1,497	382	140	270	430	2,719
Nushagak Bay Noncommercial	217	2,906	7,622	1,281	1,081	865	13,756
Igushik/Snake River	26	2,673	135	35	19	29	2,890
Unknown Site	7	131	83	39	4	6	263
TOGIAK DISTRICT	64	3,256	1,162	735	113	514	5,779
TOTAL BRISTOL BAY	1,082	90,444	10,852	4,692	2,627	4,623	113,238

Note: 2011 numbers were not available at the time of publication.

[a] Harvests are extrapolated for all permits issued, based on those returned and on the area fished as recorded on the permit. Due to rounding, the sum of columns and rows may not equal the estimated total. Of 1,082 permits issued for the management area, 979 were returned (90.5%).

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

Table 27.–Commercial herring sac roe and spawn-on-kelp buyers in Togiak District, 2011.

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

[a] Operators that registered in the Togiak District.

Table 28.–Daily observed estimates of spawn (in miles) and herring (in tons) by index area, Togiak District, 2011.

				Estimated Biomass by Index Area [a]													
Date	Start Time	Survey Rating [b]	Spawn	NUS	KUK	MET	NVK	UGL	TOG	TNG	MTG	OSK	PYR	CPN	HAG	WAL	Daily Total
4/28	10:30	3.2															0
5/3	14:00	1.2															0
5/6	11:00	2.0							34	2,209					16,391	2,345	20,979
5/8	12:30	4.0						266	32,735	15					1,041		34,057
5/12	10:00	2.0	12.9	891	3,517	20,778	9,272	2,571	5,497	693	10,213	2,971			360		56,763
5/13	15:00	3.5	24.8														[c]
5/16	15:00	3.5	0.5	201			287	670	13,317		511						14,986
5/19	09:00	3.3	7.0	49	3		1,057	1,549	27,365	286		24	11	30			30,374
5/26	13:00	4.0	3.9			9	300	450	3,888								4,646
Total linear miles of spawn			49.1										Peak biomass estimate				56,763

Note: Blank cells represent days when no biomass was 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, WAL - Walrus Islands.

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

[c] Spawn survey only.

Table 29.–Herring total run and commercial catch (in tons) by year class, Togiak District, 2011.

Year Class	Age	Total Run [a]		Harvest [b]		Escapement [a]	
			%		%		%
1989	20			0	0.0		
1990	19			0	0.0		
1991	18			0	0.0		
1992	17			0	0.0		
1993	16			18	0.1		
1994	15			12	0.1		
1995	14			173	0.8		
1996	13			620	2.7		
1997	12			982	4.3		
1998	11			1,401	6.1		
1999	10			1,883	8.2		
2000	9			3,516	15.4		
2001	8			4,151	18.1		
2002	7			4,750	20.8		
2003	6			4,647	20.3		
2004	5			707	3.1		
2005	4			16	0.1		
2006	3			0	0.0		
2007	2			0	0.0		
Total				22,877	100		

[a] Total run and escapement estimates not available. Aerial surveys hampered by poor weather preventing adequate biomass assessment to calculate season's biomass estimate.

[b] Does not include Dutch Harbor food and bait fishery harvest.

Table 30.–Emergency order commercial fishing periods for herring sac roe and spawn-on-kelp, Togiak District, 2011.

EO #	Area [a]		Date and Time				
Herring Sac Roe Gillnet							
DLG-01	Egg Island Section		5/8	6:00 p.m.	to	end of season	
DLG-04	Egg Island Section; Right Hand Point to Mud Bay	area change	5/13	1:00 p.m.	to	end of season	
DLG-09	Egg Island Section; Right Hand Point to Nunavachak Reef	area change	5/16	1:00 p.m.	to	end of season	
DLG-12	Egg Island Section; Right Hand Point to Anchor Point	area change	5/20	1:00 a.m.	to	end of season	
Herring Sac Roe Purse Seine							
DLG-02	Right Hand Pt. to Anchor Pt., Togiak Reef to Cape Newenham		5/8	6:00 p.m.	to	5/12	10:00 p.m.
DLG-03	Right Hand Pt. to Anchor Pt., Togiak Reef to Cape Newenham	extension	5/12	10:00 p.m.	to	5/14	10:00 p.m.
DLG-05	Mud Bay to Anchor Pt., Togiak Reef to Cape Newenham	area change	5/13	12:00 p.m.	to	5/14	10:00 p.m.
DLG-06	Mud Bay to Anchor Pt., Togiak Reef to Cape Newenham	extension	5/14	10:00 p.m.	to	5/15	10:00 p.m.
DLG-07	Mud Bay to Anchor Pt., Togiak Reef to Cape Newenham	extension	5/15	10:00 p.m.	to	5/16	10:00 p.m.
DLG-08	Nunavachak Reef to Anchor Pt.; Togiak Reef to Cape Newenham	area change	5/16	12:00 p.m.			
DLG-08	Nunavachak Reef to Anchor Pt.; Togiak Reef to Cape Newenham	extension	5/16	10:00 p.m.	to	5/17	10:00 p.m.
DLG-10	Nunavachak Reef to Anchor Pt.; Togiak Reef to Cape Newenham	extension	5/17	10:00 p.m.	to	5/18	10:00 p.m.
DLG-11	Nunavachak Reef to Anchor Pt.; Togiak Reef to Cape Newenham	extension	5/18	10:00 p.m.	to	5/19	10:00 p.m.
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 and no fishery occurred.

Table 31.–Commercial herring harvest (in tons) by fishing section, gear type, and date Togiak District, Bristol Bay, 2011.

			Kulukak		Nunavachak		Togiak		Hagemeister		Pyrite Point		Cape Newenham		Total	
Date	Duration	Period	Tons	Roe %	Tons	Roe %	Tons	Roe %	Tons	Roe %	Tons	Roe %	Tons	Roe %	Tons	Roe %
Purse Seine																
5/8	78:00	1			42.0	9.9	103.8 [a]		692.0	9.8					837.8	9.8
5/12	24:00	2			67.5	10.8			4,544.0	10.0	429.6	10.0			5,041.1	10.0
5/13	24:00	3					110.2	8.8	1,255.5	9.8					1,365.7	9.7
5/14	24:00	4							155.4	9.8					155.4	9.8
5/15	24:00	5							505.0	9.7					505.0	9.7
5/16	24:00	6							3,241.8	9.0					3,241.8	9.0
5/17	24:00	7							1,638.4	9.9	313.6	8.0			1,952.0	9.6
5/18	24:00	8							1,929.6	9.9	343.8	8.6	217.4	9.4	2,490.8	9.7
5/19	24:00	9							648.1	9.2	418.4	9.0	313.8	8.8	1,380.3	9.0
Subtotal	270:00				109.5	10.5	214.0	8.8	14,609.8	9.7	1,505.4	9.0	531.2	9.0	16,969.9	9.6
Gillnet																
5/8	78:00	1	84.6	10.1											84.6	10.1
5/12	24:00	2	407.7	11.1											407.7	11.1
5/13	24:00	3	635.1	12.0											635.1	12.0
5/14	24:00	4	53.8	11.7											53.8	11.7
5/15	24:00	5	11.0	10.8											11.0	10.8
5/16	24:00	6	969.2	12.9											969.2	12.9
5/17	24:00	7	637.3	12.3											637.3	12.3
5/18	24:00	8	700.9	11.7											700.9	11.7
5/19	24:00	9	473.0	11.3											473.0	11.3
5/20	24:00	10	31.9	11.1	55.3	11.2									87.2	11.2
5/21	13:00	11	228.7	11.4	135.6	11.4									364.3	11.4
5/22	24:00	12	393.7	12.3	24.2	12.4									417.9	12.3
5/23	192:00	13	1,014.9	12.8	50.3	12.1									1,065.2	12.8
Subtotal	601:00		5,641.8	12.1	265.4	11.6									5,907.2	12.1

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Table 31.–Page 2 of 2.

Date	Duration	Period	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																
5/8			84.6	10.1	42.0	9.9	103.8 [a]		692.0	9.8					922.4	8.7
5/12			407.7	11.1	67.5	10.8			4,544.0	10.0	429.6	10.0			5,448.8	10.1
5/13			635.1	12.0			110.2	8.8	1,255.5	9.8					2,000.8	10.4
5/14			53.8	11.7					155.4	9.8					209.2	10.3
5/15			11.0	10.8					505.0	9.7					516.0	9.7
5/16			969.2	12.9					3,241.8	9.0					4,211.0	9.9
5/17			637.3	12.3					1,638.4	9.9	313.6	8.0			2,589.3	10.3
5/18			700.9	11.7					1,929.6	9.9	343.8	8.6	217.4	9.4	2,974.3	10.9
5/19			473.0	11.3					648.1	9.2	418.4	9.0	313.8	8.8	1,539.5	11.6
5/20			31.9	11.1	55.3	11.2									87.2	11.2
5/21			228.7	11.4	135.6	11.4									364.3	11.4
5/22			393.7	12.3	24.2	12.4									417.9	12.3
5/23			1,014.9	12.8	50.3	12.1									1,065.2	12.8
Total			5,641.8	12.1	374.9	11.3	214.0	8.8	14,609.8	9.7	1,505.4	9.0	531.2	9.0	22,877.1	10.2

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

[a] Food/bait harvest.

APPENDIX A. SALMON

Appendix A1.–Escapement goal ranges and actual counts of sockeye salmon by river system, in thousands of fish, Bristol Bay, 1991–2011.

	Kvichak River			Naknek River [a]		
	Range			Range		
Year	Lower	Upper	Actual	Lower	Upper	Actual
1991	4,000	8,000	4,223	800	1,400	3,579
1992	4,000	8,000	4,726	800	1,400	1,607
1993	4,000	8,000	4,025	800	1,400	1,536
1994	6,000	10,000	8,338	800	1,400	991
1995	6,000	10,000	10,039	800	1,400	1,111
1996	4,000	6,000	1,451	800	1,400	1,078
1997	4,000	6,000	1,504	800	1,400	1,026
1998	2,000	10,000	2,296	800	1,400	1,202
1999	6,000	10,000	6,197	800	1,400	1,625
2000	6,000	10,000	1,828	800	1,400	1,375
2001	2,000	10,000	1,095	800	2,000	1,830
2002	2,000	10,000	704	800	2,000	1,264
2003	2,000	10,000	1,687	800	2,000	1,831
2004	2,000	10,000	5,500	800	2,000	1,939
2005	2,000	10,000	2,320	800	2,000	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
2008	2,000	10,000	2,758	800	1,400	2,473
2009	2,000	10,000	2,266	800	1,400	1,170
2010	2,000	10,000	4,207	800	1,400	1,464
20-Year Avg.	3,300	9,300	3,552	800	1,610	1,737
1991-00 Avg.	4,600	8,600	4,463	800	1,400	1,513
2001-2010 Avg.	2,000	10,000	2,642	800	1,820	1,961
2011	2,000	10,000	2,264	800	1,400	1,177

	Egegik River			Ugashik River		
	Range			Range		
Year	Lower	Upper	Actual	Lower	Upper	Actual
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
2008	800	1,400	1,260	500	1,200	569
2009	800	1,400	1,146	500	1,200	1,346
2010	800	1,400	927	500	1,200	805
20-Year Avg.	800	1,360	1,389	500	1,140	1,160
1991-00 Avg.	800	1,320	1,548	500	1,080	1,286
2001-2010 Avg.	800	1,400	1,230	500	1,200	1,034
2011	800	1,400	961	500	1,200	1,030

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	Wood River			Igushik River		
	Range			Range		
Year	Lower	Upper	Actual	Lower	Upper	Actual
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
2008	700	1,500	1,725	150	300	1,055
2009	700	1,500	1,319	150	300	514
2010	700	1,500	1,804	150	300	518
20-Year Avg.	700	1,350	1,596	150	275	400
1991-00 Avg.	700	1,200	1,430	150	250	399
2001-2010 Avg.	700	1,500	1,763	150	300	401
2011	700	1,500	1,098	150	300	421

	Nushagak River			Togiak River		
	Range			Range		
Year	Lower [b]	Upper	Actual	Lower	Upper	Actual
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
2008	340	760	493	120	270	206
2009	340	760	484	120	270	314
2010	340	760	469	120	270	188
20-Year Avg.	324	760	531	116	229	207
1991-00 Avg.	319	760	483	124	230	188
2001-2010 Avg.	330	760	579	108	228	226
2011	340	760	428	120	270	191

[a] An “optimal escapement goal” of up to 2,000,000 sockeye salmon was set by the BOF in 2001 when fishing in the Naknek River Special Harvest Area.

[b] An "optimal escapement goal" of 235,000 sockeye salmon was set by the BOF in 1999.

Appendix A2.–Salmon entry permit registration by gear and residency, Bristol Bay, 1991–2011.

	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
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
2008	887	976	1,863	1,636	88%	0	678	302	980	850	87%	0	2,843
2009	864	999	1,863	1,642	88%	0	674	307	981	855	87%	0	2,844
2010	866	997	1,863	1,731	93%	0	672	311	983	861	88%	0	2,846
20-Year Avg.	936	942	1,878	1,697	90%	37	726	279	1,005	875	87%	4	2,804
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
2011	1005	857	1,862	1,747	94%	0	660	321	981	878	90%	0	2,843

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, 1991–2011.

Year	Naknek-Kvichak	Egegik	Ugashik	Nushagak	Togiak	Total
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
2008	10,381,844	7,403,885	2,334,022	6,903,157	651,315	27,674,223
2009	8,514,944	11,527,462	2,555,263	7,730,168	559,442	30,887,279
2010	10,858,209	5,070,816	4,031,832	8,424,030	667,850	29,052,737
20-Year Avg.	7,919,352	8,570,008	2,759,030	5,721,572	538,554	25,556,080
1991-00 Avg.	9,096,628	10,549,339	2,964,469	4,465,316	479,727	27,555,479
2001-10 Avg.	6,742,077	6,590,677	2,553,591	6,977,829	597,381	23,334,526
2011	8,895,522	4,682,082	2,601,174	4,953,271	747,727	21,879,776

Appendix A4.–Chinook salmon commercial catch by district, in numbers of fish, Bristol Bay, 1991–2011.

Year	Naknek-Kvichak	Egegik	Ugashik	Nushagak	Togiak	Total
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
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
2008	1,307	383	1,169	18,670	3,087	24,616
2009	974	271	920	24,287	1,397	27,849
2010	369	56	314	25,580	5,082	31,401
20-Year Avg.	2,581	794	1,325	53,162	8,501	66,595
1991-00 Avg.	3,997	1,033	1,534	60,586	10,057	77,207
2001-10 Avg.	1,164	556	1,116	45,739	6,944	55,983
2011	2,693	53	226	29,811	6,842	39,625

Appendix A5.–Chum salmon commercial catch by district, in numbers of fish, Bristol Bay, 1991–2011.

Year	Naknek-Kvichak	Egegik	Ugashik	Nushagak	Togiak	Total
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
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
2008	237,260	92,901	135,292	492,341	301,967	1,259,761
2009	255,520	118,212	64,973	744,083	141,371	1,324,159
2010	330,342	58,979	68,617	509,628	123,703	1,091,269
20-Year Avg.	190,082	86,331	69,187	476,508	170,396	957,138
1991-00 Avg.	224,455	104,048	63,989	387,421	205,130	985,043
2001-10 Avg.	155,709	68,614	74,386	565,595	135,661	929,233
2011	205,789	41,401	37,525	340,881	113,455	739,051

Appendix A6.–Pink salmon commercial catch by district, in numbers of fish, Bristol Bay, 1991–2011.

Year	Naknek-Kvichak	Egegik	Ugashik	Nushagak	Togiak	Total
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
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
2008	20,682	1,033	16	138,284	125,409	285,424
2009	23	0	1	320	544	888
2010	8,237	1,655	0	1,289,970	39,734	1,339,596
20-Year Avg.	32,316	496	102	174,015	46,545	253,473
1991-00 Avg.	52,266	3,388	229	99,897	52,198	142,239
2001-10 Avg.	12,365	678	41	298,724	52,899	364,707
2011	13	0	5	257	352	627

Note: Averages include even numbered years only.

Appendix A7.–Coho salmon commercial catch by district, in numbers of fish, Bristol Bay, 1991–2011.

Year	Naknek-Kvichak	Egegik	Ugashik	Nushagak	Togiak	Total
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
2008	7,055	29,682	2,220	76,668	1,159	116,784
2009	732	11,726	2,602	35,004	9,209	59,273
2010	1,006	9,984	467	69,186	23,730	104,373
20-Year Avg.	3,682	25,738	8,803	30,827	15,286	84,335
1991-00 Avg.	5,200	33,525	15,039	26,766	25,345	105,876
2001-10 Avg.	2,164	17,951	2,567	34,888	5,226	62,795
2011	633	248	452	4,613	7,709	13,655

Appendix A8.–Total salmon commercial catch by district, in numbers of fish, Bristol Bay, 1991–2011.

Year	Naknek-Kvichak	Egegik	Ugashik	Nushagak	Togiak	Total
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	25,546,540
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
2008	10,648,148	7,527,884	2,472,719	7,629,284	1,082,937	29,360,972
2009	8,772,201	11,657,671	2,623,759	8,534,862	714,575	32,303,068
2010	11,198,163	5,141,490	4,101,230	10,318,394	860,099	31,619,376
20-Year Avg.	8,122,172	8,670,774	2,841,522	6,398,338	743,802	26,776,608
1991-00 Avg.	9,295,772	10,650,708	3,035,718	4,897,684	690,567	28,570,448
2001-10 Avg.	6,948,573	6,690,840	2,647,325	7,898,992	797,038	24,982,768
2011	8,911,678	4,682,383	2,601,908	5,328,833	876,284	22,401,086

Appendix A9.–Commercial sockeye salmon catch, in percent, by gear type and district, Bristol Bay, 1991–2011.

	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
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
2008	81	12	7			85	15	92	8	79	16	5				60	40	82	18
2009	80	12	9			85	15	87	13	76	20	4				60	40	82	18
2010	81	10	9			84	16	90	10	78	17	6		71	29	61	39	82	18
20-Year Avg.	84	12	6	76	23	87	13	89	11	76	22	4		72	28	56	44	83	17
1991-00 Avg.	85	13	7			89	11	90	10	72	27	5		74	26	53	48	86	14
2001-10 Avg.	83	11	6	76	23	84	16	88	12	81	17	3		69	31	60	41	80	21
2011	84	10	7			83	17	87	13	76	16	7				60	40	81	19
Allocation [d]	84	8	8	84	16	86	14	90	10	74	20	6		74	26	n.a.	n.a.	n.a.	n.a.

Note: Blank cells indicate no data.

[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] The 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 to present, as they were used to make management decisions regarding allocation.

Appendix A10.–Sockeye salmon escapement by district, in numbers of fish, Bristol Bay, 1991–2011.

Year	Naknek-Kvichak [a]	Egegik [b]	Ugashik [c]	Nushagak [d]	Togiak [e]	Total
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
2008	7,411,104 [h]	1,259,568	596,332	3,271,926 [f]	205,680 [g]	12,744,610
2009	4,406,424 [h]	1,146,276	1,364,338	2,317,569 [f]	313,946 [g]	9,548,553
2010	6,859,068 [h]	927,054	830,886	2,791,080 [f]	188,298 [g]	11,596,386
20-Year Avg.	6,485,673	1,388,850	1,182,573	2,528,048	246,199	11,879,785
1991-00 Avg.	6,277,329	1,547,748	1,308,068	2,311,030	252,384	11,696,559
2001-10 Avg.	6,694,017	1,229,952	1,057,077	2,745,066	240,013	12,063,011
2011	4,325,220 [h]	961,200	1,029,853	1,947,577 [f]	190,970 [g]	8,454,820

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

[b] Includes Egegik River. May include King Salmon River and Shosky Creek.

[c] Includes Ugashik River. Also includes Mother Goose River and Dog Salmon River system in 1991–2011.

[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.

[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, 1991–2011.

		Escapement				
Year	Catch	Kvichak [a]	Alagnak [b]	Naknek [a]	Total	Total Run
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
2008	10,381,844	2,757,912	2,180,502 [a]	2,472,690	7,411,104	17,792,948
2009	8,519,345	2,266,140	970,818 [a]	1,169,466	4,406,424	12,925,769
2010	10,858,209	4,207,410	1,187,730 [a]	1,463,928	6,859,068	17,717,277
20-Year Avg.	7,918,414	3,552,097		1,737,181	6,563,895	14,482,309
1991-00 Avg.	9,096,324	4,462,546		1,512,955	6,277,349	15,373,672
2001-10 Avg.	6,740,504	2,641,649		1,961,406	6,850,440	13,590,945
2011	8,895,522	2,264,352	883,794 [a]	1,177,074	4,325,220	13,220,742

[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, 1991–2011.

	Kvichak		Alagnak			Naknek		
Year	Number	%	Number	%		Number	%	Total Run [a]
1991	8,032	43	604	3	[b]	9,918	53	18,554
1992	10,445	65	487	3	[b]	5,021	31	15,953
1993	9,313	63	817	6	[b]	4,687	32	14,817
1994	22,232	86	634	2	[b]	3,033	12	25,899
1995	27,431	87	651	2	[b]	3,564	11	31,646
1996	3,458	31	706	6	[b]	6,860	62	11,024
1997	1,683	50	244	7	[b]	1,409	42	3,336
1998	3,412	54	388	6	[b]	2,546	40	6,346
1999	12,947	73	1,070	6	[b]	3,740	21	17,757
2000	2,862	34	731	9	[b]	4,789	57	8,382
2001	1,426	17	409	5	[b]	6,639	78	8,474
2002	704	19	336	9	[b]	2,671	72	3,711
2003	1,721	19	2,110	24	[c]	5,096	57	8,927
2004	7,332	42	6,510	37	[c]	3,721	21	17,563
2005	2,951	18	5,436	33	[c]	8,005	49	16,392
2006	5,804	42	2,854	20	[c]	5,292	38	13,950
2007	4,231	25	4,277	25	[c]	8,736	51	17,244
2008	5,632	32	5,907	33	[c]	6,254	35	17,793
2009	5,545	43	2,689	21	[c]	4,692	36	12,926
2010	9,315	53	2,609	15	[c]	5,793	32	17,717
20-Year Avg.	7,324	45	1,973	14		5,123	42	14,421
1991-00 Avg.	10,182	59	633	5		4,557	36	15,371
2001-10 Avg.	4,466	31	3,314	22		5,690	47	13,470
2011	5,916	53	2,421	15	[c]	4,884	32	13,221

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

[b] Total run is based on aerial survey estimate.

[c] Total run is based on tower count.

Appendix A13.–Inshore commercial catch and escapement of sockeye salmon in the Egegik District by river system, in numbers of fish, Bristol Bay, 1991–2011.

		Escapement			
Year	Catch	Egegik [a]	Shosky Cr. [b]	King Salmon River [b]	Total Run
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		9,637,534
2006	7,388,027	1,465,128	0		8,853,155
2007	6,493,655	1,432,500	0	1,500	7,927,655
2008	7,403,885	1,259,568	0	250	8,663,703
2009	11,527,462	1,146,276	0	4	12,673,742
2010	5,070,816	926,904	[c]	150	5,997,870
20-Year Avg.	8,569,934	1,388,762	6	326	9,958,894
1991-00 Avg.	10,551,512	1,547,615	18	274	12,099,323
2001-10 Avg.	6,588,356	1,229,909	2	399	7,818,465
2011	4,682,082	961,200	[c]	[c]	5,643,282

Note: Blank cells represent no data.

[a] Tower count.

[b] Aerial survey index count.

[c] No survey conducted.

Appendix A14.–Inshore commercial catch and escapement of sockeye salmon in the Ugashik District by river system, in numbers of fish, Bristol Bay, 1991–2011.

		Escapement			
Year	Catch	Ugashik [a] River	King Salmon [b] River	Dog Salmon [b] River	Total Run
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	3,016,247
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
2008	2,334,022	588,632	0 [c]	7,700	2,930,354
2009	2,555,263	1,346,630	0 [c]	17,920	3,919,813
2010	4,031,832	805,686 [d]	0 [c]	25,200	4,862,718
20-Year Avg.	2,758,880	1,156,832	11,828	13,918	3,941,457
1991-00 Avg.	2,964,467	1,285,348	14,628	8,092	4,272,535
2001-10 Avg.	2,553,292	1,028,315	9,029	19,743	3,610,380
2011	2,601,174	1,003,753	0 [c]	26,100	3,631,027

[a] Tower count plus fish observed in lower Ugashik River during postseason surveys.

[b] Aerial survey.

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

[d] Includes 300 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, 1991–2011.

		Escapement									
Year	Catch	Wood [a]	Igushik [a]	Nuyakuk [a]	Nush/Mul [b]	Nushagak [c]	Snake [d]	Total	Total Run
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		[e] 2,286,278	5,076,019
1993	5,236,557	1,176,126	405,564			715,099		[e] 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		[e] 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]	[f]	518,041		[e] 2,461,579	10,865,690
2008	6,903,157	1,724,676	1,054,704	[f]	[f]	492,546		[e] 3,271,926	10,175,083
2009	7,730,168	1,319,232	514,188	[f]	[f]	484,149		[e] 2,317,569	10,047,737
2010	8,424,030	1,804,344	518,040	[f]	[f]	468,696	27,135	2,818,215	11,242,245
20-year Avg.	5,723,395	1,596,655	399,948	151,575	363,088	527,572	16,238	2,529,047	8,252,441
1991-00 Avg.	4,465,273	1,430,656	398,912	158,350	230,361	474,432	14,059	2,311,030	6,776,303
2001-10 Avg.	6,981,516	1,762,653	400,985	144,800	495,816	580,713	27,135	2,747,064	9,728,580
2011	4,953,271	1,098,006	421,380	[f]	[f]	428,191	21,167	1,968,744	6,922,015

Note: Blank cells represent no data.

[a] Tower count.

[b] Escapement estimates were derived from the difference between Portage Creek sonar estimates and Nuyakuk Tower counts.

[c] Total escapements determined for the entire drainage using Portage Creek sonar estimates.

[d] Aerial survey estimate.

[e] No survey conducted.

[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, 1991–2011.

	Wood		Igushik		Nushagak								Snake [a]		
	Total Run		Total Run		Nushagak Escapement [b]					Catch	Total Run				
					Nuyakuk		Nush-Mul		Sonar	Total					
Year	Number	%	Number	%	Number	%	Number	%	Estimate	Number	Number	%	Number	%	Total Run [c]
1991	3,303	44	2,424	32					493	1,243	1,736	23	11	0.1	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	0.7	5,842
1995	4,022	60	1,902	28	70	25	211	75	281	475	756	11	20	0.3	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	0.2	4,528
1998	3,901	72	571	11	146	32	313	68	459	490	949	17	11	0.2	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
2008	5,236	56	2,394	26					493	1,152	1,645	18			9,275
2009	7,195	72	926	9					484	1,443	1,927	19			10,048
2010	7,698	66	1,365	12					469	2,153	2,622	22	27	0.2	11,712
20-Year Avg.	5,059	61	1,326	16	152	31	363	69	528	1,312	1,839	22	20	0.3	8,230
1991-00 Avg.	3,997	59	1,365	19	158	40	231	60	475	930	1,405	21	18	0.3	6,776
2001-10 Avg.	6,121	64	1,286	13	145	22	496	78	581	1,693	2,274	23	27	0.2	9,684
2011	4,389	60	1,020	14					428	1,492	1,920	26	21	0.3	7,350

Note: Blank cells represent no data.

[a] Snake River escapement is not included from 1999 to 2009 because staff was unable to conduct aerial surveys.

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

[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, 1991–2011.

	Catch				Escapement						
						Togiak					
Year	Togiak	Kulukak	Os/Mat [a]	Total	Lake [b]	River [c]	Tributaries [d]	Kulukak [e]	Other [f]	Total	Total Run
1991	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 [g]	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 [g,h]	357,354	80,204	1,095	438,653	129,462	6,100	75		19,044	154,681	593,334
2005 [h]	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
2008 [i]	626,792	24,523	0	651,315	205,680					205,680	856,995
2009 [i]	516,938	42,504	0	559,442	313,946					313,946	873,388
2010 [i]	535,458	132,392	0	667,850	188,298					188,298	856,148
20-Year Avg.	478,042	59,320	1,747	538,483	207,060	9,861	10,847	18,066	17,448	246,384	784,867
1991-00 Avg.	411,703	65,960	3,053	479,443	188,147	11,576	13,854	20,107	18,700	252,384	731,827
2001-10 Avg.	544,381	52,680	440	597,522	225,972	5,575	3,330	11,261	14,944	240,384	837,907
2011 [i]	628,531	118,498	698	747,727	190,970					190,970	938,697

Note: Blank cells represent 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] Only the Ongivinuk River was surveyed for sockeye salmon escapement.

[h] Partial survey.

[i] No aerial surveys to assess sockeye salmon escapement conducted.

Appendix A18.–Inshore total run of sockeye salmon by district, in numbers of fish, Bristol Bay, 1991–2011.

Year	Naknek-Kvichak	Egegik	Ugashik	Nushagak	Togiak	Total
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
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
2008	17,792,948	8,663,453	2,930,354	10,175,083	856,995	40,418,833
2009	12,921,368	12,673,738	3,919,601	10,047,737	873,388	40,435,832
2010	17,717,277	5,997,870	4,862,718	11,215,110	856,148	40,649,123
20-Year Avg.	14,278,177	9,959,347	3,940,878	8,251,049	782,124	37,294,425
1991-00 Avg.	15,371,872	12,099,323	4,272,535	6,776,252	731,827	39,251,809
2001-10 Avg.	13,184,481	7,819,371	3,609,221	9,725,847	832,421	35,337,040
2011	13,220,742	5,643,282	3,631,027	6,900,848	938,697	30,334,596

Appendix A19.–Chinook salmon harvest, escapement and total runs in the Nushagak District, in numbers of fish, Bristol Bay, 1991–2011.

	Harvests by Fishery				Inriver	Spawning	
Year	Commercial	Sport	Subsistence	Total	Abundance [a]	Escapement [b]	Total Run [c]
1991	19,718	5,551	13,627	38,896	104,351	94,733	143,247
1992	47,563	4,755	13,588	65,906	82,848	74,094	148,754
1993	62,971	5,900	17,709	86,580	97,812	86,705	184,392
1994	119,478	10,627	15,490	145,595	95,954	83,102	241,549
1995	79,942	4,951	13,701	98,594	85,622	77,018	184,216
1996	72,011	5,391	15,941	93,343	52,127	42,227	145,470
1997	64,160	3,497	15,318	82,975		82,000	82,975
1998	117,065	5,827	12,258	135,150	117,495	108,037	252,645
1999	10,893	4,237	10,057	25,187	62,331	54,703	87,518
2000	12,055	6,017	9,470	27,542	56,374	47,674	83,916
2001	11,568	5,899	11,760	29,227	99,155	89,799	128,382
2002	39,473	3,693	11,281	54,447	87,141	79,790	141,588
2003	42,615	5,590	18,686	66,891	80,028	68,606	146,919
2004	100,601	6,813	15,610	123,024	116,400	105,442	239,424
2005	62,308	8,565	12,392	83,265	172,559	161,528	255,824
2006	84,010	7,473	9,971	101,454	124,683	116,088	226,137
2007	51,473	9,669	13,330	74,472	60,464	48,644	134,936
2008	18,670	6,700	12,960	38,330	96,641	87,673	134,971
2009	24,058	6,354	12,737	43,149	81,480	71,828	124,629
2010	25,580	3,907	9,150	38,637	36,625	32,089	75,262
20-Year Avg.	53,311	6,071	13,252	72,633	90,005	80,589	158,138
1991-00 Avg.	60,586	5,675	13,716	79,977	83,879	75,029	155,468
2001-10 Avg.	46,036	6,466	12,788	65,290	95,518	86,149	160,807
2011	29,811	6,821	11,630	48,261	59,728	50,307	107,989

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. 1991–1996, 1998–2011 - 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, 1991–2011.

	Harvests by Fishery				Spawning		Total	
Year	Commercial	Sport [a]	Subsistence	Total	Escapement	[b]	Run	
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]
2008	3,094	592	1,337	5,023	2,140	[c]		[d]
2009	4,397	606	827	5,830		[e]		[d]
2010	5,082	591	1,162	6,835		[e]		[d]
20-Year Avg.	8,653	756	1,029	10,438	11,508		25,299	
1991-00 Avg.	10,062	586	825	11,472	13,870		25,343	
2001-10 Avg.	7,244	926	1,234	9,404	8,555		25,787	
2011	3,094	871 [f]	1,339 [f]	5,304	2,140	[c]		[d]

Note: Blank cells represent no data.

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

[b] Spawning escapement estimated from comprehensive aerial surveys.

[c] Partial survey.

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

[e] No survey conducted due to poor weather/pilot availability.

[f] 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, 1991–2011.

	Nushagak District			Togiak District		
Year	Catch	Escapement [a]	Total Run	Catch	Escapement [b]	Total Run
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 [c]	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]	250,264
2007	953,275	161,483	1,114,758	202,486	[d]	202,486
2008	541,469	326,300	867,769	301,855	279,580 [c]	581,435
2009	745,083	438,481	1,183,564	141,371	[d]	141,371
2010	509,628	273,914	783,542	123,703	[d]	123,703
20-Year Avg.	498,766	312,070	810,835	159,940	132,247	272,350
1991-00 Avg.	309,753	236,859	546,612	159,421	128,351	287,772
2001-10 Avg.	687,779	387,280	1,075,059	160,459	137,814	256,929
2011	340,881	248,278	589,159	113,455	[d]	113,455

Note: Blank cells represent no data.

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

[b] Escapement estimates based on aerial surveys.

[c] Partial count.

[d] No survey conducted due to poor weather/pilot availability.

Appendix A22.–Average round weight (lbs) of the commercial salmon catch by species, Bristol Bay, 1991–2011.

Year	Sockeye	Chinook	Chum	Pink	Coho
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
2008	5.8	15.5	6.5	3.6	6.5
2009	5.9	15.2	6.3	3.3	6.5
2010	5.5	14.7	6.4	3.2	8.9
20-Year Avg.	5.9	16.5	6.8	3.5	7.0
1991-00 Avg.	5.8	17.0	6.7	3.5	7.2
2001-10 Avg.	6.0	16.0	6.8	3.5	6.9
2011	6.2	13.0	7.0	3.2	6.8

Note: Blank cells represent no data.

Appendix A23.–Average price paid in dollars per pound for salmon, by species, Bristol Bay, 1991–2011.

Year	Sockeye	Chinook	Chum	Pink	Coho
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	0.66	0.71	0.12	0.03	0.38
2007	0.67	0.64	0.13	0.03	0.41
2008	0.75	0.83	0.17	0.17	0.55
2009	0.80	0.89	0.17	0.07	0.56
2010	1.07	1.18	0.28	0.36	0.66
20-Year Avg.	0.76	0.62	0.15	0.11	0.47
1991-00 Avg.	0.87	0.63	0.16	0.12	0.53
2001-10 Avg.	0.65	0.62	0.13	0.10	0.41
2011	1.00	0.86	0.31	0.10	0.40

Note: Price does not include all postseason adjustments or bonuses.

Appendix A24.–Estimated exvessel value of the commercial salmon catch by species, in thousands of dollars, Bristol Bay, 1991–2011.

Year	Sockeye	Chinook	Chum	Pink [a]	Coho	Total
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		120	121,441
2008	109,904	298	1,271	158	288	111,919
2009	127,615	400	1,291		162	129,468
2010	180,818	464	1,711	1,565	469	185,027
20 Year Avg.	113,244	685	932	208	295	115,259
1991-00 Avg.	134,227	863	862	64	423	136,407
2001-10 Avg.	92,260	507	1,002	352	166	94,111
2011	135,655	430	1,604	0	37	137,726

Note: Blank cells represent no data. Value paid to fishermen is derived from price per pound multiplied by commercial catch.

[a] Includes even-years only.

Appendix A25.–South Unimak and Shumigan Island preseason sockeye allocation, actual sockeye and chum salmon harvest in thousands of fish, Alaska Peninsula, 1991–2011.

	South Unimak			Shumigan Island			Total		
	Sockeye			Sockeye			Sockeye		
Year	Actual	Quota [a]	Chum	Actual	Quota [a]	Chum	Actual	Quota [a]	Chum
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	2,013	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	1,023		297
2008	1,064		285	650		126	1,714		411
2009	594		201	573		496	1,167		697
2010	488		100	331		171	819		271
20-yr Avg.	906	2,044	229	451	451	178	1,328	2,495	407
1991-00 Avg.	1,280	2,044	297	430	451	129	1,710	2,495	426
2001-10 Avg.	531		162	471		227	945		389
2011	937		231	422		192	1,359		423

Note: Blank cells represent no data.

[a] Sockeye salmon quota management system used from 1991 to 2000. The system was based on 8.3% of the Bristol Bay projected inshore harvest and traditional harvest patterns.

Appendix A26.–Subsistence salmon harvest by district and species, Bristol Bay, 1991–2011.

Year [a]	Permits Issued	Sockeye	Chinook	Chum	Pink	Coho	Total
NAKNEK-KVICHAK DISTRICT							
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	480	69,837	672	405	262	1,104	73,384
2008	481	69,823	719	404	801	1,437	73,184
2009	461	67,970	392	167	36	669	69,235
2010	437	62,309	422	233	835	645	64,445
20-Year Avg.	510	75,195	1,266	786	625	1,151	79,078
1991-00 Avg.	547	85,305	1,718	1,133	673	1,416	90,244
2001-10 Avg.	474	65,086	814	440	576	886	67,912
2011 [a]	465	67,807	617	310	538	915	70,409
EGEGIK DISTRICT							
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
2008	37	1,502	91	35	4	295	1,928
2009	26	778	31	6	5	133	953
2010	37	1,657	93	59	8	275	2,091
20-Year Avg.	48	2,321	97	102	34	580	3,134
1991-00 Avg.	53	2,736	95	102	50	639	3,622
2001-10 Avg.	43	1,907	98	102	18	521	2,646
2011 [a]	34	1,312	95	41	10	336	1,793

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Year [a]	Permits Issued		Sockeye	Chinook	Chum	Pink	Coho	Total
UGASHIK DISTRICT								
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
2008		14	1,660	47	17	9	222	1,955
2009		15	1,061	33	4	41	131	1,270
2010		18	896	21	4	0	135	1,056
20-Year Avg.		25	1,402	64	39	19	350	1,875
1991-00 Avg.		30	1,718	86	59	23	421	2,307
2001-10 Avg.		20	1,086	42	20	16	280	1,443
2011 [a]		18	1,127	37	24	29	222	1,438
NUSHAGAK DISTRICT								
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
2008		571	26,828	12,960	4,552	1,923	5,133	51,395
2009		530	26,922	12,737	4,510	355	6,777	51,300
2010		528	22,326	9,150	3,660	1,672	2,983	39,791
20-Year Avg.		519	25,293	13,259	4,010	1,080	5,173	48,816
1991-00 Avg.		518	26,728	13,716	3,798	1,093	5,611	50,946
2001-10 Avg.		520	23,859	12,801	4,222	1,067	4,736	46,685
2011 [a]		517	24,395	11,630	4,035	1,194	4,307	45,561

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TOGIAK DISTRICT							
	Permits						
Year [a]	Issued	Sockeye	Chinook	Chum	Pink	Coho	Total
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
2008	91	3,770	1,337	701	114	541	6,463
2009	40	2,220	827	365	5	272	3,689
2010	64	3,256	1,162	735	113	514	5,779
20-Year Avg.	50	2,522	1,029	478	91	500	4,752
1991-00 Avg.	39	2,357	825	470	56	615	4,323
2001-10 Avg.	62	2,687	1,233	485	126	386	5,180
2011 [a]	61	2,904	1,238	543	121	369	5,175
TOTAL BRISTOL BAY AREA							
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
2008	1,178	103,583	15,153	5,710	2,851	7,627	134,924
2009	1,063	98,951	14,020	5,052	442	7,982	126,447
2010	1,082	90,444	10,852	4,692	2,627	4,623	113,238
20-Year Avg.	1,149	107,277	15,723	5,415	2,932 [b]	7,758	138,021
1991-00 Avg.	1,187	118,844	16,454	5,562	3,110 [b]	8,701	151,456
2001-10 Avg.	1,111	95,711	14,993	5,267	2,754 [b]	6,814	124,586
2011 [a]	1,087	99,191	13,625	4,949	2,735 [b]	6,160	125,815

-continued-

Note: The sum of columns and rows may not equal the estimated total due to rounding. Harvests extrapolated over areas based on permits returned.

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

[b] Includes even years only.

Appendix A27.–Subsistence harvest of sockeye salmon by community, in numbers of fish, Kvichak River drainage, Bristol Bay, 1991–2011.

Year	Levelock	Igiugig	Pedro Bay	Kokhanok	Iliamna-Newhalen [a]	Nondalton	Port Alsworth	Other [b]	Total
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	5,487	15,105	11,453	7,902	3,211	2,410	47,473
2008	30	1,558	4,884	14,755	13,569	8,916	3,307	2,544	49,563
2009	759	1,457	7,802	15,759	9,871	5,709	3,155	2,260	46,772
2010	940	2,901	5,609	13,973	8,815	3,185	3,250	2,015	40,689
20 Year Avg.	1,436	1,525	5,103	13,253	15,249	9,998	2,774	2,412	51,748
1991-00 Avg.	2,270	1,549	5,805	12,870	18,475	12,665	3,070	2,777	59,483
2001-10 Avg.	601	1,434	3,604	12,019	12,495	9,844	2,523	2,284	45,148
2011 [c]	366	1,794	5,620	15,724	11,039	6,920	3,068	2,338	46,869

Note: Harvests are extrapolated over areas for all permits issued, based on those returned. Harvest estimates based on community of residence and include fish caught only in the Naknek-Kvichak District.

[a] Includes Chekok.

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

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

Appendix A28.–Subsistence salmon harvest by community, Nushagak District, Bristol Bay, 1991–2011.

Year	Dillingham [a]	Manokotak	Aleknagik	Ekwok	New Stuyahok	Koliganek	Other [b]	Total
1991	34,399	5,873	3,043	4,532	8,326	5,438	2,163	63,774
1992	31,702	4,317	2,184	5,971	11,325	3,708	2,635	61,842
1993	25,315	3,048	2,593	2,936	12,169	4,180	2,538	52,779
1994	30,145	3,491	2,289	4,343	8,056	4,513	2,322	55,159
1995	24,998	2,453	1,468	2,046	6,911	2,983	2,406	43,265
1996	27,161	3,883	1,733	2,866	8,892	3,319	2,113	49,967
1997	23,255	3,988	1,989	1,797	6,427	4,179	4,598	46,233
1998	24,072	4,069	1,112	3,555	5,419	3,166	4,958	46,351
1999	26,502	3,413	1,532	1,805	4,556	2,772	5,389	45,969
2000	27,931	3,173	1,111	3,946	3,715	2,792	2,362	45,029
2001	26,435	3,700	2,129	2,218	7,294	2,209	4,096	48,080
2002	25,004	3,254	1,517	2,735	6,043	3,098	3,247	44,897
2003	26,955	4,214	2,044	2,291	10,817	5,721	3,034	55,076
2004	23,308	2,052	2,206	1,891	6,714	3,619	3,364	43,154
2005	21,898	1,576	1,795	1,388	9,673	8,422	3,088	47,841
2006	22,184	1,655	2,048	1,499	6,160	3,886	2,941	40,373
2007	25,237	2,442	1,382	1,267	8,284	3,054	3,278	44,944
2008	27,446	5,429	3,309	1,902	5,690	4,423	3,196	51,395
2009	28,934	2,182	2,646	2,345	6,855	3,700	4,638	51,300
2010	21,732	2,665	1,570	1,380	5,608	2,406	9,907	45,268
20 Year Ave.	26,231	3,344	1,985	2,636	7,447	3,879	3,614	49,135
1991-00 Avg.	27,548	3,771	1,905	3,380	7,580	3,705	3,148	51,037
2001-10 Avg.	24,913	2,917	2,064	1,892	7,314	4,054	4,079	47,233
2011 [c]	25,107	2,875	2,191	1,679	6,519	3,494	4,792	46,656

Note: Harvests are extrapolated over areas for all permits issued based on those returned. Harvest estimates are based on community of residence and include fish caught only in the Nushagak District.

[a] Includes Portage Creek, Clarks Point, and Ekuk.

[b] Subsistence harvests by non-watershed residents.

[c] A 5 year average was used, as current 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, 1991–2011.

			Gillnet					Purse Seine				
Year	Number of Buyers	Daily Processing Capacity [a]	Fishery Dates	Effort [b]	Duration (hours)	Harvest [c]	Roe %	Effort [b]	Duration (hours)	Harvest [c]	Roe % [d]	Total Harvest [c]
1991	16	3,350	5/10-5/17	170	14.0	3,182	8.5	200	3.0	11,788	10.0	14,970
1992	18	3,700	5/20-5/27	274	25.5	5,030	8.8	301	0.3	20,778	9.2	25,808
1993	12	2,500	4/27-5/9	75	144.5	3,564	10.1	140	33.8	14,392	9.6	17,956
1994	16	3,300	5/11-5/20	146	76.0	7,462	12.0	240	4.6	22,853	9.4	30,315
1995	22	4,350	5/7-5/15	250	33.5	6,995	12.0	254	12.2	19,737	10.1	26,732
1996	19	4,850	5/3-5/8	461	18.0	6,863	11.1	268	2.4	18,008	9.0	24,871
1997	18	4,200	5/2-5/6	336	24.0	5,164	11.8	231	6.4	18,649	9.4	23,813
1998	15	2,475	4/29-5/10	152	46.0	5,952	12.5	123	16.5	16,824	9.6	22,776
1999	12	2,400	5/18-5/26	171	28.0	4,858	11.5	96	4.7	14,368	9.2	19,226
2000	12	2,100	5/6-5/14	227	67.0	5,464	10.6	90	15.8	14,957	10.1	20,421
2001	11	2,255	5/6-5/13	96	84.0	6,491	10.6	64	26.0	15,879	9.2	22,370
2002	8	1,920	5/3-5/13	82	102.0	5,216	10.9	37	57.5	11,833	9.3	17,049
2003	7	1,920	4/25-5/7	75	142.0	6,505	10.9	35	110.2	15,158	8.9	21,663
2004	6	2,150	4/29-5/9	54	162.0	4,980	10.4	31	78.0	13,888	9.5	18,868
2005	8	2,330	4/30-5/8	56	149.0	5,841	11.2	33	83.0	15,071	9.6	20,912
2006	7	2,060	5/12-5/21	49	143.9	7,132	10.8	28	113.0	16,821	9.2	23,953
2007	5	1,420	5/10-5/25	25	366.0	4,012	11.2	21	244.0	13,120	10.0	17,132
2008	7	1,950	5/16-5/31	27	312.0	4,832	11.4	28	292.0	15,691	8.4	20,523
2009	6	2,015	5/16-5/31	32	314.0	4,140	10.2	21	266.0	12,967	10.3	17,107
2010	6	2,690	5/11-5/27	35	338.0	7,540	10.1	26	266.0	18,816	9.7	26,356
1991-10 Avg.	12	2,697		140	129	5,561	11	113	82	16,080	9	21,641
2001-10 Avg.	7	2,071		53	211	5,669	11	32	154	14,924	9	20,593
2011	6	2,413	5/8-5/31	28	318.0	5,907	12.1	23	268.0	16,970	9.6	22,877

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 dead loss 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, 1991–2011.

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]		
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%
2008	136,495	0	1,536	4,832	15,691	0	20,523	22,059	16.2%
2009	121,800	0	1,941	4,140	12,967	0	17,107	19,048	15.6%
2010	146,775	0	1,938	7,540	18,816	0	26,356	28,294	19.3%
1991-10 Avg.	128,559	511	1,876	5,561	15,910	242	21,471	23,858	19.0%
2001-10 Avg.	128,755	32	1,577	5,669	14,690	235	20,359	21,967	17.1%
2011	140,860	0	1,795	5,907	16,970	0	22,877	24,672	17.5%

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, 1991–2011.

	Age Composition (%) [a]						Total [b]
Year	3 [c]	4	5	6	7	8	9+	Run (tons)
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
2009	[d]	9.4	14.7	14.5	14.9	12.2	34.0	142,133
2010		1.4	16.1	18.1	13.2	13.2	38.3	135,214
2011		[d]	4.0	25.3	21.7	15.7	33.3	[e]

Note: Blank cells represent no data.

[a] Age composition in 1991–1992 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.–Aerial survey estimates of herring biomass (in tons) and spawn deposition (in miles), Togiak District, 1991–2011.

Year	Preseason Forecast [a]	Biomass Estimate		Spawn Estimate
1991	55,000	83,229		70
1992	60,214	156,957		97
1993	148,786	193,847		53
1994	142,497	185,412		72
1995	149,093	149,093	[b]	59
1996	135,585	135,585	[b]	73
1997	125,000	144,887		59
1998	121,000	121,000	[b]	33
1999	90,000	157,028		56
2000	130,904	130,904	[b]	46
2001	119,818	115,155	[b]	57
2002	120,196	120,196	[b]	32
2003	126,213	126,213	[b]	95
2004	143,124	143,124	[b]	36
2005	96,029	156,727		28
2006	129,976	176,288		18
2007	134,566	134,221		19
2008	134,516	136,495		49
2009	121,800	142,133		15
2010	146,775	135,214		8
20-year Avg.	121,555	142,185		49
1991-00 Avg.	115,808	145,794		62
2001-10 Avg.	127,301	138,577		36
2011	140,860	140,860	[b]	36

[a] 1993–2011 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 for exploitation rate determination.

Appendix B5.–Exvessel value of the commercial herring and spawn-on-kelp harvest, in thousands of dollars, Togiak District, 1991–2011.

	Herring			
Year	Sac Roe	Food/Bait	Spawn-on-Kelp	Total
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
2008	2,600	0	[a]	2,600
2009	2,500	0	[a]	2,500
2010	2,056	0	[a]	2,056
1991-10 Avg.	5,192	3	259	5,311
2001-10 Avg.	2,493	0	12	2,495
2011	2,300	0	[a]	2,300

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 permit holders; records are confidential.

Appendix B6.–Guideline and actual harvests of sac roe herring (tons) and spawn-on-kelp (lbs), Togiak District, 1991–2011.

	Gillnet Sac Roe			Purse Seine Sac Roe			Spawn-on-Kelp		
Year	Guideline[a]	Actual[b]	% Difference[c]	Guideline[a]	Actual[b]	% Difference[c]	Guideline[a]	Actual[b]	% Difference[c]
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]	
2008	6,864	4,832	-30	16,017	15,602	-3	350,000	[d]	
2009	6,378	4,167	-35	14,882	12,404	-17	350,000	[d]	
2010	7,772	7,540	-3	18,134	18,816	4	350,000	[d]	
1991-10 Avg.	6,258	5,563	-10	16,522	16,045	-2	350,000	293,555	-16
2001-10 Avg.	6,758	5,672	-16	15,768	14,859	-5	350,000	40,839	-88
2011	7,442	5,907	-21	17,364	16,970	-2	350,000	[d]	

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

[b] Actual minus guideline divided by guideline multiplied by 100.

[c] Includes deadloss and test fish harvest.

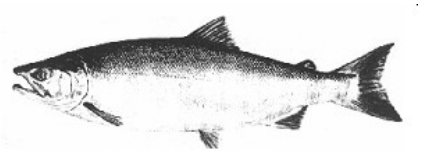
[d] No fishery conducted.

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

APPENDIX C. 2010 BRISTOL BAY SALMON OUTLOOK

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

Cora Campbell, Commissioner
Jeff Regnart, Director



Slim Morstad, Naknek-Kvichak Manager
Paul Salomone, Egegik and Ugashik Manager
Tim Sands, Nushagak Manager
Matt Jones, Togiak Manager

King Salmon Office P.O. Box 37
King Salmon AK 99613
Phone: 246-3341 Fax: 246-3309
Dillingham Office P.O. Box 230
Dillingham, AK 99576
Phone: 842-5227 Fax: 842-5937

Date Issued: 04/01/2011

Time: 1:00 p.m.

BRISTOL BAY

2011 OUTLOOK FOR COMMERCIAL
SALMON FISHING

INTRODUCTION

This document is provided as a guide to fishermen, processors, and the public. The intent of this document is to provide the reader with general information regarding the 2011 Bristol Bay salmon season. Included is a short narrative regarding general framework for management of each of the five major districts, the 2011 salmon forecast, and a brief summary of regulation changes adopted by the Alaska Board of Fisheries (BOF) in December 2009.

During the season, Bristol Bay salmon fishing announcements are broadcast on marine VHF Channel 07A and 2509 MHz SSB. Current fishing announcements are aired on local radio stations – KAKN and KDLG. Regular announcement times that may be utilized are 9:00 a.m., 12:00 noon, 3:00 p.m., 6:00 p.m., and 8:00 p.m., unless otherwise stated. Information is also available via telephone; for 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

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from the Dillingham boat harbor will be operational in late April and is located on the west end of the harbormaster's house.

At the December 2009 BOF meeting, significant changes were made to regulations regarding blue and green district registration cards. Set gillnet permit holders are only required to fill out and return green cards if they fish in the Nushagak District. Drift gillnet permit holders that fish in the Ugashik, Egegik, and Naknek-Kvichak Districts will not need to fill out and return a blue card prior to June 25. Set gillnet permit holders in the Nushagak District and drift gillnet permit holders in the Nushagak and Togiak Districts must fill out and return the appropriate blue and green district registration cards prior to commercial fishing. Please read the BOF actions summary below for more information about regulatory changes. The blue and green permit district registration cards will be available at the Anchorage, King Salmon, and Dillingham offices beginning May 1. In addition, PDF files of blue and green district registration cards are posted on the Bristol Bay homepage and can be printed, completed, mailed to the address on the printout, or submitted to Anchorage, King Salmon, or Dillingham office personnel. During the 2011 season, catch, escapement, and announcements will be available at the same site. (http://www.adfg.alaska.gov/index.cfm?adfg=commercialbyareabristolbay.salmon)

Fishermen and processors should be aware of the reporting requirements in 5 AAC 06.377 (b) that state

"Each commercial fisherman shall report, on an ADF&G fish ticket, at the time of landing, the number of Chinook and coho salmon taken but not sold."

REGULATORY CHANGES

1. A set gillnet permit holder may own 2 set gillnet S04T permits and fish up to 100 fathoms of set gillnet gear. The permit holder may not fish more than 4 separate gillnets and no net may be more than 50 fathoms. Buoys and at least one cork every 10 fathoms must be marked with both CFEC permit numbers. The buoys must also be marked with the letter "D" All regulations applying to separation of gear apply even if a permit holder is operating adjacent nets.
2. Only set gillnet permit holders fishing in the Nushagak District are required to register their permit prior to fishing (green card).
3. Drift gillnet permit holders fishing in the Nushagak and Togiak Districts must register their permits and vessels prior to commercial fishing (blue card).
4. Drift permit holders intending to fish Ugashik, Egegik, or Naknek-Kvichak Districts may fish and move freely between these districts (east side of Bristol Bay) prior to June 25. Before commercial fishing on June 25 permit holders must register their vessels and permits for a specific district and from that point on all registration and transfer regulations are the same as in past years.
5. When fishing is restricted to the Naknek River Special Harvest Area, the legal compliment of gear for set gillnet permit holders has been increased to 37.5 fathoms.

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6. When fishing is restricted to the Naknek River Special Harvest Area no commercial fishing vessel may have on board more than 150 fathoms of gillnet in Bristol Bay.
7. At the March 2011 BOF meeting, the drift gillnet dual permitting process was changed. Both permit holders planning on utilizing the dual permit option must register as a dual permit operation with the department prior to fishing, however, it takes only one permit holder to notify the department when they terminate the dual permit partnership.
8. The waiting period for permit holders wishing to transfer from one gear type to another within the same district has been reduced to 24 hours after the department has received notification of the gear transfer.
9. The ending date for transferring into or out of the Togiak District has changed from July 24 to July 27.
10. The department may open the Wood River Special Harvest Area for commercial fishing if the Wood River escapement exceeds 1.1 million sockeye and is projected to exceed 1.4 million sockeye.
11. The boundary for Snake River Section of the Nushagak District was modified.
12. The Kulukak Section regular weekly fishing schedule was changed to close at 9:00 p.m. Wednesday.
13. It is illegal to have fish on board a commercial fishing vessel more than ½ mile inside the Snake River Section of the Nushagak District.
14. Beginning August 1, of each year, the weekly fishing schedule for the Ugashik District will be from 9:00 a.m. Thursday to 9:00 a.m. Monday.
15. Permit holders or their authorized agents may initiate a transfer via the internet 24 hours a day.
16. The Naknek Section of the Naknek-Kvichak District is now described in regulation.

ALASKA WILDLIFE TROOPERS – SUMMER 2011 OUTLOOK – BRISTOL BAY

Enforcement Priorities:

- Continued strong focus on fishing district lines and open period enforcement, particularly in the Naknek/Kvichak and Egegik districts using all available assets to include aircraft, rotorcraft, large and small enforcement vessels and undercover fishing vessels.
- Routine boardings of drift gillnet and processor vessels to verify licensing and permitting regulations are met.
- Increased enforcement of state boating safety laws in cooperation with the US Coast Guard.
- Increase Alaska Wildlife Troopers (AWT) presence in the Ugashik and Togiak Districts.

-continued-

Regulation changes/concerns:

No significant regulation changes were adopted by the BOF over the past year that would affect AWT enforcement strategies. Those that may be of concern include;

- Definition of the outer SW corner of the Naknek Section. This is of no concern to AWT, as this point was already being used to form the southern Naknek Section line per ADF&G emergency orders.
- Allowing a set net permit holder to hold 2 permits and fish dual gear will not affect enforcement strategies. If a dual permit holder has one set of gear in violation, they will receive 1 citation; with a second set of gear in violation they will receive 2 citations as if it were 2 different permit holders.
- Proposal 42 allows more potential opportunity to fish in the Wood River SHA. AWT will continue aggressive enforcement of regulations pertaining to minimum distances between gear, fishery boundary lines and length/depth of nets.
- Tow Lines – Commercial fishermen are advised that if any portion of fishing gear, including the vessel, is outside the open fishing district; Alaska Wildlife Troopers have grounds to take enforcement action. To maintain a constant and fair application of these rules, it will therefore NOT be acceptable for a vessel to be outside of an open fishing district attached via a length of tow line to a net that is inside a district. If a vessel is 100 feet over the line towing a net that is in open waters, that vessel is still commercial fishing in closed waters and is subject to enforcement action. AWT has determined this is the best way to maintain equal and fair fishing opportunity for all vessels fishing near the district boundary lines and prevents a select group of vessels from preventing others from setting out nets along a boundary line. If there are any questions about this issue, fishermen are encouraged to contact AWT offices in King Salmon or Dillingham.

SALMON OUTLOOKS

BAYWIDE

The forecasted Bristol Bay sockeye salmon run for 2011 is approximately 38.5 million fish. Based on the forecast, approximately 28.5 million fish are potentially available for commercial harvest (Table 1). Due to the projected surplus, fishermen 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 the department to determine fishing opportunity.

The commercial salmon season in Bristol Bay opens June 1 by regulation. The eastside districts will be on a weekly schedule that will vary by district, beginning June 1. The schedules are in place to balance fishing opportunity with escapement in the early part of the season (particularly

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for Chinook salmon). As each run develops and sockeye salmon run characteristics become 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 dictates.

NAKNEK/KVICHAK DISTRICT

An inshore run of approximately 14.4 million sockeye salmon is expected for the Naknek/Kvichak District in 2011. Based on the forecast, the projected harvest in the Naknek/Kvichak District is approximately 9.1 million sockeye salmon; 2.7 million from the Kvichak River, 800,000 from the Alagnak River and 5.6 million from the Naknek River. The 2011 Kvichak River escapement goal will be 2.8 million. If the run is greater than the forecast, the **inseason** point goal will be adjusted to reflect the actual inseason total run. The Naknek River escapement goal range is 800,000 to 1.4 million. Sockeye salmon returning to the Naknek/Kvichak District are predicted to be 46% age-1.3, 30% age-1.2, 12% age-2.2, and 12% age-2.3 fish.

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 1. Fishing time during the first 3 weeks of June will be 4 days a week from 9:00 a.m. Monday to 9:00 a.m. Friday, beginning 9:00 a.m. Wednesday, June 1 and ending 9:00 a.m. Thursday, June 23. 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 escapement falling behind schedule in the Kvichak River. In order to reduce the harvest of Kvichak stocks, the department may restrict fishing to the flood portion of the tide only, from the 7-foot level to high water slack.

With limited information and low abundance over the past 5 years, special attention will be given to Chinook salmon run strength and effort levels. A mesh size restriction of 5.5 inches or less will be in effect beginning 9:00 a.m. Wednesday, June 1 until 9:00 a.m. Friday, July 22, to help in the conservation of Chinook salmon.

During closures, there will be extensive use of district test fishing boats. Additional volunteer test boats might be needed because of this increase in test fishing. Permit holders interested in 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 8.7 million sockeye salmon is expected for the Egegik River in 2011. The escapement goal range is 800,000 to 1.4 million sockeye. Based on the forecast, the expected surplus potentially available for harvest is approximately 7.4 million fish. Approximately 53% of the run is expected to be age-2.2 fish, followed by age-2.3 (27%), age-1.3 (14%) and age 1.2 (6%).

The proportion of harvest for set and drift gillnets (during the allocation period) in 2010 was approximately 16% and 84% respectively; the sockeye salmon allocation plan specifies 14% and 86%. In 2011, separate gear openings and extensions will be used to adjust harvest in an attempt

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to achieve allocation percentages. At the January 2001 BOF meeting, a regulation was adopted 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 Kvichak River sockeye forecast, fishing will begin in the full Egegik District. The season will start with a 3 day per week schedule that will be in effect through June 15. The primary reason for returning to the 3 day per week schedule is to provide for Chinook salmon escapement. By emergency order, commercial fishing will be allowed in the Egegik District from 9:00 a.m. Monday, until 9:00 a.m. Wednesday and from 9:00 a.m. Thursday until 9:00 a.m. Friday. This schedule will be in effect beginning 12:01 a.m. Wednesday, June 1 through 9:00 a.m. Wednesday, June 15. After June 15, fishing will be scheduled according to sockeye salmon run strength. As in previous years, some openings could occur on short notice. Periods will be adjusted to allocate harvest between drift and set gillnet gear groups.

The 2007 parent-year escapement for coho salmon was assessed using aerial surveys and produced an index count of 2,000 coho, but weather conditions precluded a complete survey. The commercial harvest in 2007 was approximately 18,129 coho, 58% of the recent 20-year average of 30,000. In 2011, 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 5/31/09).

UGASHIK DISTRICT

The forecasted Ugashik River sockeye salmon run in 2011 is 5.0 million fish. The escapement goal range is 500,000 to 1.2 million sockeye. Based on the forecast, approximately 4.0 million fish are potentially available for harvest. Approximately 39% of the run is expected to be age-2.2 fish, 34% age-1.3, 12% age-1.2, and 9% age-2.3 fish.

The allocation of the sockeye salmon harvest for set and drift gillnets (during the allocation period) in 2010 was approximately 10% and 90% respectively; the Ugashik District allocation plan specifies 10% and 90%. As in previous years separate gear openings and adjusting length of commercial periods will be used to address allocation between gear groups in 2011. With limited information and low abundance over the past 5 years, special attention will be given to Chinook salmon run strength and effort levels. A mesh size restriction of 5.5 inches or less will be in effect beginning Wednesday, June 1 until 9:00 a.m. Friday, July 22, to help in the conservation of Chinook salmon.

The emergency order period in the Ugashik District begins 12:01 am Wednesday, June 1 and commercial fishing will be allowed on a 9:00 a.m. Monday to 9:00 a.m. Friday schedule through 9:00 a.m. Friday, June 17. With an expected run to the Kvichak that exceeds a 40% exploitation rate above the minimum escapement goal stipulated in regulation, fishing time after June 17 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 2011.

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Parent-year coho salmon escapements in the Ugashik District were assessed by aerial surveys. The escapement index for Ugashik coho in 2007 was approximately 3,500. However, significant portions of the survey were done under conditions that prohibited a complete assessment of coho streams. Coho harvest in 2007 was 1,961. Recent effort for coho salmon within the Ugashik District has been low. Directed commercial openings for coho salmon in 2011 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. In addition, permit holders fishing Ugashik after August 1 should be aware of a change to the fall schedule adopted during the 2009 Board of Fisheries meeting. Beginning August 1, the fall schedule will be 9:00 a.m. Thursday to 9:00 a.m. Monday. 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 5/31/10).

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. During 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 2011, 6.5 million and 1.6 million respectively, is accurate, the likelihood of fishing in the WRSHA is increased.

There is no forecast for Chinook salmon returning to the Nushagak River in 2011. In 2010, the escapement was the lowest since sonar counting began in 1980 and the sport fishery on the Nushagak River was completely closed while subsistence fishing was restricted. 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 poor performance of Chinook salmon statewide, and the poor run to the Nushagak in 2010, a directed opening on Chinook salmon is unlikely. However, if in-season assessment of escapement past the Nushagak sonar indicates fish surplus to escapement goal needs, a directed Chinook opening could occur.

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The 2011 forecast for sockeye salmon in the Nushagak District is 9.5 million fish, 2.35 million for escapement and the remaining 7.15 million to harvest. The total run by river system is: Wood River 6.5 million (escapement goal range 700,000 to 1.5 million), Igushik River 1.4 million (escapement goal range 150,000 to 300,000), and the Nushagak River 1.6 million (escapement goal range of 340,000 to 760,000). Approximately 36% of the forecasted run is age-1.2 sockeye salmon, <4% age-2.2, 56% age-1.3, and <1% age-2.3 fish.

Management strategies for 2011 include: 1) directed Chinook openings only if warranted by escapement. 2) Igushik Section sockeye salmon openings are likely beginning in the third week of June and will likely be set gillnet only until escapement or strong harvests dictate otherwise, and 3) begin fishing in the regular district in late June with short openings. Openings will be scheduled based on sockeye salmon escapement levels in the Nushagak and Wood River. 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. Set gillnet fishing will begin in the Igushik Section when there is a market available. Initial openings will be 8 hours per day and additional time will be added if large harvests or escapement information indicate more time is warranted. Drift gillnet openings 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. Management will incorporate a readiness to respond with increasing 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.

In 2011, there is no forecast of the coho salmon run to the Nushagak River, but the 2007 parent year was notably weak. The department will switch to coho management around July 23 when sockeye harvest decreases. The department will use subsistence information, aerial surveys and sport and commercial harvest information to determine what amount of fishing time is warranted for coho fishing in 2011.

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 27 if they have fished in any other district in Bristol Bay, and conversely, restricts permit holders from fishing in any other district until July 27 if they have fished in the Togiak District. The plan also increases the weekly fishing schedule in the Togiak River Section between July 1 and July 16,

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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 varies considerably, but adequate Chinook escapement in most years can be attributed to mesh size restrictions in late June and early July, as well as to reductions in the weekly fishing schedule during late June. Based on the anticipated Chinook run strength, reduction to the weekly fishing schedule is again likely for the 2011 season. These reductions will likely limit commercial fishing to between 48 and 72 hours of fishing time during each of the last two weeks of June.

The 2011 inshore run of sockeye salmon to the Togiak River is forecasted at 860 thousand fish. The TDSMP calls for sockeye salmon escapement of 150,000 fish past the counting towers located at the outlet of Togiak Lake. Based on the forecast, approximately 660,000 sockeye salmon will potentially be available for commercial harvest. Approximately 23% of the run is expected to be 2-ocean fish and 64% 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. The Kulukak Section weekly fishing schedule, reduced to 60 hours at the 2009 Board of Fisheries meeting, is unlikely to be reduced in 2011.

Coho salmon returns are not formally forecasted in the Togiak District due to lack of sufficient age class information and accurate escapement data. 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.

Table 1.-Forecast of total run, escapement, and harvest of sockeye salmon returning to Bristol Bay River systems in 2011.

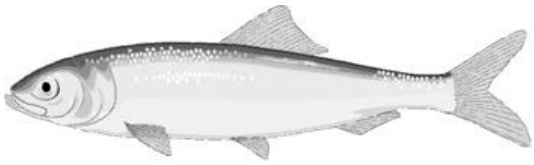
Millions of Sockeye Salmon							
	Total Run Forecast by Age Class						
DISTRICT							**Total**
River	1.2	2.2	1.3	2.3	**Total**	**Escapement**	**Harvest**
NAKNEK-KVICHAK:							
Kvichak	1.85	1.75	1.40	0.68	5.68	2.84	2.67
Alagnak	0.54	0.20	0.96	0.07	1.77	0.88	0.83
Naknek	1.61	0.86	3.28	1.18	6.93	1.10	5.62
Total	**3.99**	**2.81**	**5.64**	**1.93**	**14.38**	**4.82**	**9.12**
EGEGIK	**0.49**	**4.64**	**1.23**	**2.38**	**8.74**	**1.10**	**7.37**
UGASHIK	**0.96**	**1.94**	**1.69**	**0.45**	**5.03**	**0.85**	**4.03**
NUSHAGAK							
Wood	3.05	0.25	3.17	0.04	6.51	1.10	5.21
Igushik	0..22	0.02	1.08	0.04	1.35	0.23	1.08
Nushagak	0.19	0.01	1.11	0.03	1.64	0.55	1.04
Total	**3.46**	**0.28**	**5.35**	**0.11**	**9.5**	**1.88**	**7.34**
TOGIAK	**0.20**	**0.05**	**0.55**	**0.07**	**0.86**	**0.18**	**0.66**
BRISTOL BAY	**9.09**	**9.72**	**14.47**	**4.92**	**38.50**	**8.83**	**28.52**

APPENDIX D. 2010 TOGIAK HERRING OUTLOOK

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

Cora Campbell, Commissioner

Jeff Regnart, Director



Contact:
Tim Sands, Area Management Biologist
Matthew Jones, Assistant Area Biologist
Phone: (907) 842-5227
Fax: (907) 842-5937

Dillingham Area Office
546 Kenny Wren Road
Dillingham, AK, 99576
Date Issued: April 4, 2011
Time: 12:00 p.m.

2011 TOGIAK HERRING FISHERY INFORMATION

This notice is intended to provide information to participants in the 2011 Togiak herring fisheries. The 2011 herring biomass in Togiak District is forecasted to be 140,860 tons, a slight decrease from 2010. The 2011 forecast is based on an age-structured analysis (ASA) model that has been used since 1993. Ages -7 and -8 herring are expected to comprise 33% of the projected herring run, with ages -6 and under making up another 38% . Ages 9-11 are expected to make up 20% of the spawning run, while the remaining 9% will be age 12+ fish. Average weight for age -7 and older herring should exceed 300 grams. The forecasted individual average weight of herring in the harvested biomass is 340 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 140,860 tons, up to 28,172 tons of herring will be available for harvest in 2011. Harvest allocation, in accordance with the BBHMP, will be:

Fishery	Harvest Allocation
Spawn-on-Kelp	1,500 tons
Dutch Harbor Food and Bait	1,867 tons
Togiak Sac Roe	24,805 tons
Purse Seine (70%)	17,364 tons
Gillnet (30%)	7,442 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 2011, 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 2011 season. Daily freezing capacity is expected to be similar to last year's capacity and will probably be between 2,600 and 2,700 tons per day. For the last few seasons, the department has opened the herring fishery as soon as threshold biomass has been documented. The main reason for this is the department believes it maximizes fishing time. Organized test fishing programs can delay the start of commercial fishing by 12 hours or more. Further, given a large quota and limited processing capacity, every hour of processing time is important. The department believes this strategy allows individual companies to maximize their processing capacity and decide what quality is suitable for their individual market. The department anticipates using this strategy again in 2011 but is flexible and will consider waiting until test fishing has been done if there is significant desire from industry.

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 2011. 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 department planning on opening the area to commercial harvest as soon as threshold biomass is documented, the department will not be coordinating any test fishing efforts. As always, the department will work with companies that want to make test sets prior to the threshold biomass being documented.

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 7,442 tons, while maintaining the specified 70/30 purse seine/gillnet ratio. Product quality will be a priority throughout the gillnet fishery.

In 2011, 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 in the eastern section. Test fishing becomes more of a burden with the ever dwindling number of participants in the gillnet fishery. As in 2010, 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. Until it is determined that marketable quality fish are present, participants should test cautiously with a small portion of gear.

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At the December 2009 Board of Fisheries (BOF) meeting, the Egg Island Section was formally approved and the coordinates are now in regulation. Also, the legal compliment of gear was increased to 100 fathoms. Although 100 fathoms of gear has been allowed for the past several years, it was by Emergency Order. Now it is by regulation, so permit holders do not need to wait for an Emergency Order.

ADF&G OPERATIONS 2011

Beginning in late April or early May, 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 or early May depending on weather conditions. The department will not relocate to a field office in Togiak for 2011. The department will monitor marine VHF channel 7 from Dillingham and be available at the phone number listed at the top of this document. Fishing announcements and regular fishery updates will be communicated directly to each processor, published on the web and distributed by fax and email; contact the Dillingham office if you would like to be added to these distribution lists. Harvest and fishery opening information will be available with some delay at the Commercial Fisheries website:

http://www.adfg.alaska.gov/index.cfm?adfg=commercialbyareabristolbay.herring_announcements