

**Special Publication No. 09-18**

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**Overview of the Bristol Bay Salmon Fishery 2007-2009,  
a Report to the Alaska Board of Fisheries**

by

**Tim Sands**

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November 2009

Alaska Department of Fish and Game

Divisions of Sport Fish and Commercial Fisheries



## Symbols and Abbreviations

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<b>Weights and measures (metric)</b>		<b>General</b>		<b>Measures (fisheries)</b>	
centimeter	cm	Alaska Administrative Code	AAC	fork length	FL
deciliter	dL	all commonly accepted abbreviations	e.g., Mr., Mrs., AM, PM, etc.	mid-eye-to-fork	MEF
gram	g	all commonly accepted professional titles	e.g., Dr., Ph.D., R.N., etc.	mid-eye-to-tail-fork	METF
hectare	ha	at	@	standard length	SL
kilogram	kg	compass directions:		total length	TL
kilometer	km	east	E		
liter	L	north	N	<b>Mathematics, statistics</b>	
meter	m	south	S	<i>all standard mathematical signs, symbols and abbreviations</i>	
milliliter	mL	west	W	alternate hypothesis	H <sub>A</sub>
millimeter	mm	copyright	©	base of natural logarithm	<i>e</i>
		corporate suffixes:		catch per unit effort	CPUE
<b>Weights and measures (English)</b>		Company	Co.	coefficient of variation	CV
cubic feet per second	ft <sup>3</sup> /s	Corporation	Corp.	common test statistics	(F, t, $\chi^2$ , etc.)
foot	ft	Incorporated	Inc.	confidence interval	CI
gallon	gal	Limited	Ltd.	correlation coefficient (multiple)	R
inch	in	District of Columbia	D.C.	correlation coefficient (simple)	r
mile	mi	et alii (and others)	et al.	covariance	cov
nautical mile	nmi	et cetera (and so forth)	etc.	degree (angular)	°
ounce	oz	exempli gratia		degrees of freedom	df
pound	lb	(for example)	e.g.	expected value	<i>E</i>
quart	qt	Federal Information Code	FIC	greater than	>
yard	yd	id est (that is)	i.e.	greater than or equal to	≥
		latitude or longitude	lat. or long.	harvest per unit effort	HPUE
<b>Time and temperature</b>		monetary symbols		less than	<
day	d	(U.S.)	\$, ¢	less than or equal to	≤
degrees Celsius	°C	months (tables and figures): first three letters	Jan, ..., Dec	logarithm (natural)	ln
degrees Fahrenheit	°F	registered trademark	®	logarithm (base 10)	log
degrees kelvin	K	trademark	™	logarithm (specify base)	log <sub>2</sub> , etc.
hour	h	United States (adjective)	U.S.	minute (angular)	'
minute	min	United States of America (noun)	USA	not significant	NS
second	s	U.S.C.	United States Code	null hypothesis	H <sub>0</sub>
		U.S. state	use two-letter abbreviations (e.g., AK, WA)	percent	%
<b>Physics and chemistry</b>				probability	P
all atomic symbols				probability of a type I error (rejection of the null hypothesis when true)	α
alternating current	AC			probability of a type II error (acceptance of the null hypothesis when false)	β
ampere	A			second (angular)	"
calorie	cal			standard deviation	SD
direct current	DC			standard error	SE
hertz	Hz			variance	
horsepower	hp			population	Var
hydrogen ion activity (negative log of)	pH			sample	var
parts per million	ppm				
parts per thousand	ppt, ‰				
volts	V				
watts	W				

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Division of Sport Fish, Research and Technical Services  
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## ABSTRACT

Bristol Bay salmon fishery harvest has exceeded the 10- and 20-year averages from 2007–2009. Exvessel value for the same period has been above the 10-year average, but below the 20-year average for 2 of the 3 years. Price per pound for sockeye salmon (*Oncorhynchus nerka*) has been above the 10-year average, but below the 20-year average from 2007–2009. Escapement goals for all river systems were met or exceeded for the 3-year period for all rivers. Kvichak River continues to be a stock of concern, although it has achieved the minimum escapement goal the last 3 years and there was no need to use the Naknek River Special Harvest Area during the last 2 fishing seasons.

Keywords: Naknek-Kvichak, Ugashik, Egegik, Nushagak, Togiak, sockeye salmon, *Oncorhynchus nerka*, Chinook salmon, *Oncorhynchus tshawytscha* chum salmon, *Oncorhynchus keta*, pink salmon, *Oncorhynchus gorbuscha*, coho salmon, *Oncorhynchus kisutch*, stock of concern, commercial fishing, ADF&G, Bristol Bay, Alaska.

## INTRODUCTION

The Bristol Bay Area includes all coastal waters and inland waters east of a line from Cape Newenham to Cape Menshikof (Figure 1) and is the largest sockeye salmon (*Oncorhynchus nerka*) producing region in the world. This area also produces substantial returns of other salmon species as well as herring.

The Bristol Bay Area is divided into 5 fishing districts: Togiak, Nushagak, Naknek–Kvichak, Egegik, and Ugashik. Associated with these districts are 9 major rivers: Togiak, Igushik, Wood, Nushagak, Kvichak, Alagnak, Naknek, Egegik, and Ugashik. Several districts are divided into sections that provide more management flexibility in controlling exploitation of individual salmon stocks when more than one river system contributes to the district's salmon return. Districts and sections are confined to areas near the river mouths in order to minimize interceptions of salmon destined for other areas. In addition, there are special harvest areas in Ugashik and Egegik districts and Naknek and Wood rivers. These special harvest areas may further minimize the potential interception of salmon stocks bound for other systems. Commercial fishing is opened by emergency order (EO) in all districts but Togiak District, which has a regular weekly fishing schedule.

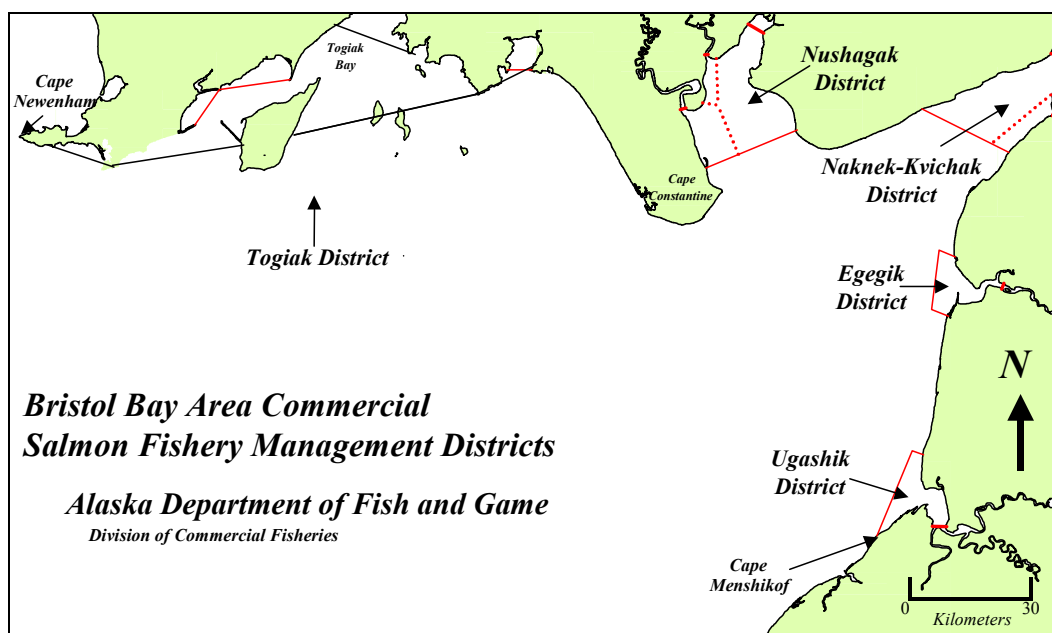


Figure 1.—Bristol Bay area commercial salmon fishery management districts.

In the last 20 years (1989–2008), Bristol Bay commercial salmon harvests have averaged 25.6 million sockeye, 67,000 Chinook (*Oncorhynchus tshawytscha*), 984,000 chum (*Oncorhynchus keta*), 168,000 pink salmon (*Oncorhynchus gorbuscha*) (during even years), and 93,000 coho salmon (*Oncorhynchus kisutch*). The exvessel value of the Bristol Bay commercial salmon fishery has averaged \$120.7 million over the last 20 years (Table 1), but because of smaller runs and lower prices the recent 5-year average is \$101 million.

Table 1.–Summary of important salmon fishery metrics, Bristol Bay, 2007–2009.

Year	Price/lb	Sockeye Catch	Value	Registered Drift Permits
2007	\$0.64	29,765,726	\$119,196,000	1,621
2008	\$0.69	27,701,088	\$109,904,000	1,636
2009	\$0.70	30,899,473	\$127,614,824	1,614
Avg.	\$0.68	29,455,429	\$120,325,000	1,624
20-Avg.	\$0.78	25,621,828	\$120,721,000	1,715
10-Avg.	\$0.60	22,081,773	\$82,673,000	1,558

Subsistence salmon harvests for the past 20 years (1988–2007) have averaged approximately 144,000 fish, 112,000 of which have been sockeye salmon. Sport fisheries target Chinook and coho salmon, but pink, chum, and sockeye salmon are also harvested.

The management objective for all districts in Bristol Bay is to achieve escapement goals for salmon species while providing opportunities to harvest fish that are surplus to escapement needs.

The Bristol Bay salmon fishery has several regulations that are unique. One of these regulations is the district registration requirement. All vessels and permits must be registered to fish in only one district prior to fishing. A permit holder that wants to fish in a different district must transfer to that district at the King Salmon or Dillingham Alaska Department of Fish and Game (department) office and cannot fish for 48 hours. In 2009, a program was introduced allowing transfers to be made online by the permit holder or their authorized agent. These transfers were only allowed to originate during office hours. An associated regulation stipulates that a permit holder that owns both a set and drift gillnet permit may not fish both permits at the same time, but must transfer and wait 48 hours before switching to the new gear; the permit holder may, however, fish the gear originally registered during the 48 hour waiting period.

In 2003, the Alaska Board of Fisheries (board) allowed for two permit holders to fish 200 fathoms of gear (the regular limit is 150 fathoms) from one vessel if both permit holders were on the vessel. Special harvest areas and the reduced Egegik District were exempt from allowing the use of dual permit operations. In 2009, the department estimated that 287 vessels opted for using a dual permit for at least part of the season. This is an estimate as there are no registration requirements specific to dual permit vessels. Recent legislation allowing a permit holder to own and fish two permits has prompted permit holders to ask the board to consider proposals for dual permit holders. Another longstanding Bristol Bay regulation is the 32-foot length limit for all commercial drift gillnet vessels. These two proposal topics labeled as restructuring proposals in 2006, were sent to the restructuring committee, and have been brought back for consideration in 2009.



## 2007–2009 COMMERCIAL SALMON FISHERY

The last 3 years in the Bristol Bay salmon fishery can best be described as productive and healthy. Kvichak River has achieved its escapement goal for the last 3 years, allowing commercial fishing in Naknek-Kvichak District for the last 2 years. The sockeye salmon harvest for 2007–2009 has been above the 20-year average. Nushagak and Ugashik districts, in particular, have had record and near-record runs during the last 3 years. The base price per pound has increased slightly in each of the last 3 years, but the final price after postseason adjustments is unknown.

Subjects that have caused the most debate and discussion among stakeholders over the last 3 years are foregone harvest and processing capacity. At some point during each of the last 3 seasons, most major processing companies buying fish in Bristol Bay have limited the amount of fish they could buy for at least a few days. This can result in escapement that is above the escapement goal range or a redistribution of the harvest between gear types or among a gear type. Although the department did not track processor limits in 2007, the following tables from 2008 and 2009 represent summaries of limits and suspensions by processors and estimates of lost yield (Tables 2-5). The lost yield numbers are estimates made by the biologist that manages each district. Togiak District is generally not impacted by limits.

Table 2.—Estimates of sockeye salmon lost yield by district, in numbers of fish, Bristol Bay, 2008.

District	Escapement	Catch	Escapement Goal	Approximate Lost Yield
Naknek-Kvichak	7,355,000	10,440,000	4,300,000	1,100,000
Egegik	1,250,000	7,430,000	800,000–1,400,000	0
Ugashik	570,000	2,340,000	500,000–1,200,000	0
Nushagak	3,270,000	6,900,000	1,190,000–2,560,000	600,000

Table 3.—Summary of processor limits by district, gear type, and day (pounds), Bristol Bay, 2008.

Date	Avg DGN <sup>a</sup>	Range	Avg SGN <sup>b</sup>	Range	Daily Catch (fish)	Suspensions <sup>c</sup>
3 Jul	6,625	0–9,000	3,445	0-5,000	2,002,000	5
4 Jul	6,389	0–9,000	3,310	0-5,000	1,586,000	5
5 Jul	6,705	0–11,000	4,288	0-10,000	1,605,000	2
6 Jul	8,545	0–16,000	3,533	0-5,400	1,780,000	2
7 Jul	8,500	2,500–16,000	3,815	0-6,600	1,606,000	2
8 Jul	6,955	0–15,000	3,462	0-9,000	1,634,000	
9 Jul	10,438	0–18,000	5,586	0-9,600	1,844,000	2
10 Jul	8,286	0–12,000	3,500	0-6,500	1,358,000	
11 Jul	11,250	0–16,000	3,000	0-6,000	776,000	

Note: DGN = drift gillnet; SGN = set gillnet.

<sup>a</sup> Average drift gillnet limit for those companies that had limits.

<sup>b</sup> Average set gillnet limit for those companies that had limits.

<sup>c</sup> Number of companies that completely suspended buying, suspended for a tide, a district or a gear group preliminary 2008 Bristol Bay salmon harvest and escapement by district and species.

Table 4.–Estimates of lost yield by district, in numbers of fish, Bristol Bay, 2009.

District	Escapement	Catch	Escapement Goal	Approximate Lost Yield
Naknek-Kvichak	4,406,424	8,519,345	4,000,000	500,000 <sup>a</sup>
Egegik	1,146,276	11,582,050	800,000–1,400,000	0
Ugashik	1,346,118	2,553,045	500,000–1,200,000	146,118
Nushagak	2,317,569	7,670,753	1,190,000–2,560,000	200,000 <sup>b</sup>

<sup>a</sup> Naknek–Kvichak estimated lost yield attributed to the Alagnak River, where management for the Kvichak River contributed to additional escapement.

<sup>b</sup> Nushagak District estimated lost yield attributed to the Igushik River, where both processor capacity and a lack of fishing effort contributed to additional escapement.

Table 5.–Summary of processor limits by district, gear type, and day, (pounds) Bristol Bay, 2009.

Date	Ugashik DGN	Ugashik SGN	Egegik DGN	Egegik SGN	Nak/Kvi DGN	Nak/Kvi SGN	Nushagak DGN	Nushagak SGN
6/28	U	U	U	U	U	U	U	S <sup>a</sup>
6/29	7,000-U	3,200-U	S <sup>a</sup> -U	S <sup>a</sup> -U	5,000-U	U	S <sup>a</sup> -U	S <sup>a</sup> -U
6/30	7,000-U	3,200-U	S <sup>a</sup> -U	S <sup>a</sup> -U	S <sup>a</sup> -U	S <sup>a</sup> -U	S <sup>a</sup> -9,000	S <sup>a</sup> -U
7/1	4,000-12,000	2,800-U	S <sup>a</sup> -10,000	S-U	4,000-U	2,000-U	4,000-10,000	2,000-U
7/2	9,000-U	2,000-U	6,000-U	3,000-U	6,000-U	U	U	U
7/3	9,000-U	2,000-U	U	U	8,000-U	U	S-U	S-U
7/4	9,000-U	2,000-U	9,000-U	3,000-U	9,000-U	U	9,000-U	S-U
7/5	7,000-U	S-U	U	U	7,000-U	U	U	U
7/6	16,000-U	2,000-U	16,000-U	4,000-U	7,000-U	U	16,000-U	U
7/7	U	U	U	U	U	U	U	U

Note: DGN = drift gillnet; SGN = set gillnet; U = unlimited (no limits); S = suspended (no buying) for half day.

Individual processors chose different approaches to capacity limitations, which varied by district, by tide, by gear type, and by day. Generally, companies allowed dual permit holders larger limits. Due to the variety of approaches by individuals, it is difficult to summarize actions taken by industry.

Other groups may have their own estimates for the lost yield numbers and estimates from additional years. The department tried to estimate the amount of lost yield that was directly attributable to processing/harvesting capacity issues and only started compiling this information in 2008. The pie chart below (Figure 2) gives a broader indication of the foregone harvest by river system since 2004. Approximately 75% of the foregone harvest is attributable to conservation measures designed to protect the Kvichak River stock of concern; the remaining 25% is attributable to processing and harvesting capacity issues or management error.

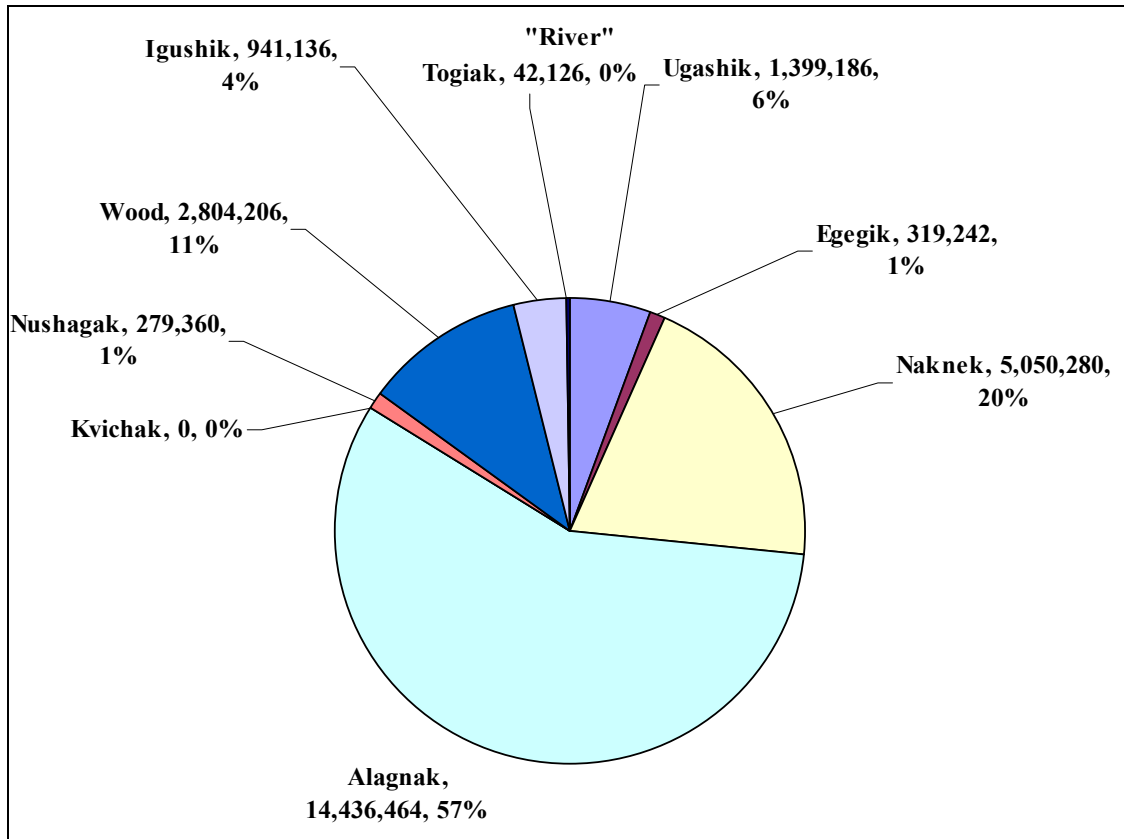


Figure 2.—Foregone harvest by river system, in numbers of fish above the upper end of the escapement goal range and as a percentage of the total foregone harvest, Bristol Bay, 2004–2008.

Togiak District has been protected from shifts in fishing effort during the season by a management plan that does not allow permit holders to transfer to Togiak District if they previously fished in another district or, conversely, to transfer out of Togiak District once they register there. This regulation, which is in effect until July 24, is intended to protect the permit holders who choose to fish in Togiak District from an influx of effort from the other districts as their catches decrease. Since the Togiak District salmon fishery is later and smaller than most other fisheries in Bristol Bay, an influx of boats to the Togiak District might otherwise take a large percentage of the harvest. This has been especially true the last several years when other river systems have experienced earlier than usual run timing and Togiak District had normal or even late run timing.

Harvest of other species in Bristol Bay is secondary to the sockeye salmon harvest. Chum salmon are the second most numerous species harvested, with 2.0 million harvested in 2009. The majority of the chum salmon harvest occurs in Nushagak and Togiak districts. There is relatively little value to the chum salmon harvest and the price lags behind other areas of the state. Chinook salmon harvests have decreased over the last 3 years, as has the value of the fishery. Nushagak District is the main Chinook salmon producer and the department has worked with stakeholders to provide advanced notice of fishing periods and more harvest opportunity. The Nushagak River Chinook salmon run is currently healthy and has had sufficient strength in

the last 5 years to allow some directed Chinook salmon openings, but not as many as occurred between 2004–2006.

Over the last 3 years, the coho salmon harvest has averaged 83,000 fish, with the majority coming from Nushagak District. This is an increase over previous years, mostly because of renewed market interest in coho salmon. Nushagak River can be a large coho salmon producer, but the department no longer operates the enumeration project for coho salmon and many of the triggers in the management plan are no longer pertinent. The department has taken a conservative approach to managing the commercial coho salmon fishery.

## **SUMMARY**

From 2007–2009, minimum escapement goals were met for all systems. Commercial fishery proposals for this board cycle are mostly focused on registration and re-registration of permits, permit stacking, and allocation and management plans. The following 3 appendix tables list the harvests and escapements for each district, 2007–2009.

## **APPENDIX A**

Appendix A1.—Total inshore run of salmon, in numbers of fish, Bristol Bay, 2007.

District	Sockeye	Chinook	Chum	Pink	Coho	TOTAL
Naknek-Kvichak Catch	9,022,511	1,484	383,927	9	2,180	9,410,111
Escapement-Kvichak Twr.	2,810,208	N.A.	N.A.	N.A.	N.A.	2,810,208
Naknek Twr.	2,945,304	7,953 <sup>a</sup>	N.A.	N.A.	N.A.	2,945,304
Alagnak Twr.	2,466,414	3,455 <sup>a</sup>	100,000 <sup>a</sup>	N.A.	N.A.	2,466,414
NK Subtotal	17,244,437	12,892	483,927	9	2,180	17,743,445
Egegik Catch	6,495,908	514	157,991	9	18,111	6,672,533
Escapement-Egegik Twr.	1,432,500	N.A.	N.A.	N.A.	N.A.	1,432,500
other <sup>b</sup>	N.A.	555	3,783	N.A.	2,000	6,338
Egegik Subtotal	7,928,408	1,069	161,774	9	20,111	8,111,371
Ugashik Catch	2,473,746	1465	242,025	2	1,954	2,719,192
Escapement-Ugashik Twr.	776,364	N.A.	N.A.	N.A.	N.A.	776,364
other <sup>c</sup>	38,740	6,053	46,541	N.A.	1,102	92,436
Ugashik Subtotal	3,288,850	7,518	288,566	2	3,056	3,587,992
Nushagak Catch	8,404,111	51,473	953,275	384	29,578	9,438,821
Escapement- Wood Twr.	1,528,086	N.A.	N.A.	N.A.	N.A.	1,528,086
Igushik	415,452	N.A.	N.A.	N.A.	N.A.	415,452
Nushagak	518,041	60,459	161,483	N.A.	N.A.	739,983
Nushagak Subtotal	10,865,690	111,932	1,114,758	384	29,578	12,122,342
Togiak Catch	816,581	7,769	202,486	533	157	1,027,526
Escapement- Togiak Twr.	269,646	N.A.	N.A.	N.A.	N.A.	269,646
Togiak R. & Trib.	N.A.	N.A.	N.A.	N.A.	N.A.	0
Kulukak	N.A.	N.A.	N.A.	N.A.	N.A.	0
Togiak Subtotal	1,086,227	7,769	202,486	18,293	15,463	1,330,238
Bristol Bay Catch	27,212,857	62,705	1,939,704	937	51,980	29,268,183
Bristol Bay Escapement	13,200,755	78,475	311,807	N.A.	3,102	13,594,139
<b>Bristol Bay Total Run</b>	<b>40,413,612</b>	<b>141,180</b>	<b>2,251,511</b>	<b>937</b>	<b>55,082</b>	<b>42,862,322</b>

Note: Escapement data for coho salmon are incomplete (in most cases the data are escapement index counts). Total run data do not include sport or subsistence harvests.

<sup>a</sup> Aerial survey count.

<sup>b</sup> Includes aerial surveys of King Salmon River drainage and Shosky Creek.

<sup>c</sup> Includes aerial surveys of King and Dog Salmon rivers.

Appendix A2.—Total inshore run of salmon, in numbers of fish, Bristol Bay, 2008.

District	Sockeye	Chinook	Chum	Pink	Coho	TOTAL
Naknek-Kvichak Catch	10,392,012	1,326	231,824	18,407	6,213	10,649,782
Escapement-Kvichak Twr.	2,757,912	N.A.	N.A.	N.A.	N.A.	2,757,912
Naknek Twr.	2,472,690	5,330 <sup>a</sup>	N.A.	N.A.	N.A.	2,472,690
Alagnak Twr.	2,180,502	1,825 <sup>a</sup>	80,000 <sup>a</sup>	180,000 <sup>a</sup>	N.A.	2,180,502
NK Subtotal	17,803,116	8,481	311,824	198,407	6,213	18,328,041
Egegik Catch	7,448,175	390	93,360	1,033	29,675	7,572,633
Escapement-Egegik Twr.	1,259,568	N.A.	N.A.	N.A.	N.A.	1,259,568
other <sup>b</sup>	250	227	1,365	N.A.	6,100	7,942
Egegik Subtotal	8,707,993	617	94,725	1,033	35,775	8,840,143
Ugashik Catch	2,322,030	1,172	137,207	15	2,280	2,462,704
Escapement-Ugashik Twr.	568,632	54	24	120	N.A.	568,830
other <sup>c</sup>	7,700	2,038	26,240	N.A.	6,240	42,218
Ugashik Subtotal	2,898,362	3,264	163,471	135	8,520	3,073,752
Nushagak Catch	6,888,153	18,634	541,469	137,820	73,889	7,659,965
Escapement- Wood Twr.	1,724,676	N.A.	N.A.	N.A.	N.A.	1,724,676
Igushik	1,054,704	N.A.	N.A.	N.A.	N.A.	1,054,704
Nushagak	492,546	97,330	326,300	N.A.	N.A.	916,176
Nushagak Subtotal	10,160,079	115,964	867,769	137,820	73,889	11,355,521
Togiak Catch	650,718	3,094	301,855	120,676	2,032	1,078,375
Escapement- Togiak Twr.	205,680	N.A.	N.A.	N.A.	N.A.	205,680
Togiak R. & Trib.	N.A.	2,140 <sup>d</sup>	279,580 <sup>d</sup>	N.A.	N.A.	281,720
Kulukak	N.A.	N.A.	N.A.	N.A.	N.A.	0
Togiak Subtotal	856,398	3,094	301,855	120,676	2,032	1,284,055
Bristol Bay Catch	27,701,088	24,616	1,305,715	277,951	114,089	29,423,459
Bristol Bay Escapement	12,724,610	108,944	713,509	180,000	12,340	13,739,403
Bristol Bay Total Run	40,425,698	133,560	2,019,224	457,951	126,429	43,162,862

Note: Escapement data for coho salmon are incomplete (in most cases the data are escapement index counts). Total run data do not include sport or subsistence harvests.

<sup>a</sup> Aerial survey count.

<sup>b</sup> Includes aerial surveys of King Salmon River drainage and Shosky Creek.

<sup>c</sup> Includes aerial surveys of King and Dog Salmon rivers.

<sup>d</sup> Partial survey.

Appendix A3.—Total inshore run of salmon, in numbers of fish, Bristol Bay, 2009.

District	Sockeye	Chinook	Chum	Pink	Coho	TOTAL
Naknek-Kvichak Catch	8,519,345	938	258,141	18,407	6,213	8,803,044
Escapement-Kvichak Twr.	2,266,140	N.A.	N.A.	N.A.	N.A.	2,266,140
Naknek Twr.	1,169,466	N.A.	N.A.	N.A.	N.A.	1,169,466
Alagnak Twr.	970,818	2,196 <sup>a</sup>	150000 <sup>a</sup>	N.A.	N.A.	970,818
NK Subtotal	12,925,769	3,134	408,141	18,407	6,213	13,361,664
Egegik Catch	11,582,050	275	93,360	1,033	29,675	11,706,393
Escapement-Egegik Twr.	1,146,276	N.A.	N.A.	N.A.	N.A.	1,146,276
other <sup>b</sup>	4	350	277	N.A.	9,650	10,281
Egegik Subtotal	12,728,330	625	93,637	1,033	39,325	12,862,950
Ugashik Catch	2,553,045	714	137,207	15	2,280	2,693,261
Escapement-Ugashik Twr.	1,346,118	54	24	120	N.A.	1,346,316
other <sup>c</sup>	18,220	349	2,718	N.A.	74,900	96,187
Ugashik Subtotal	3,917,383	1,117	139,949	135	77,180	4,135,764
Nushagak Catch	7,670,753	24,058	775,340	310	35,529	8,505,990
Escapement- Wood Twr.	1,319,232	N.A.	N.A.	N.A.	N.A.	1,319,232
Igushik	514,188	N.A.	N.A.	N.A.	N.A.	514,188
Nushagak	484,149	81,480	438,481	N.A.	N.A.	1,004,110
Nushagak Subtotal	9,988,322	105,538	1,213,821	310	35,529	11,343,520
Togiak Catch	574,280	4,417	143,049	157	8,598	730,501
Escapement- Togiak Twr.	313,946	N.A.	N.A.	N.A.	N.A.	313,946
Togiak R. & Trib.	N.A.	N.A.	N.A.	N.A.	N.A.	0
Kulukak	N.A.	N.A.	N.A.	N.A.	N.A.	0
Togiak Subtotal	888,226	4,417	143,049	157	8,598	1,044,447
Bristol Bay Catch	30,899,473	30,402	1,407,097	19,922	82,295	32,439,189
Bristol Bay Escapement	9,548,553	84,429	591,500	N.A.	N.A.	10,224,482
Bristol Bay Total Run	40,448,026	114,831	1,998,597	19,922	82,295	42,663,671

Note: Escapement data for coho salmon are incomplete (in most cases the data are escapement index counts). Total run data do not include sport or subsistence harvests.

<sup>a</sup> Aerial survey count.

<sup>b</sup> Includes aerial surveys of King Salmon River drainage and Shosky Creek.

<sup>c</sup> Includes aerial surveys of King and Dog Salmon rivers.