

# UNITED STATES DEPARTMENT OF COMMERCE National Oceanic Atmospheric Administration

National Marine Fisheries Service P.O. Box 21668 Juneau Alaska 99802-1668

June 15, 2017

MEMORANDUM FOR: Barry Thom/

Administrator, Northwest Region

FROM:

James W. Balsiger, Ph.D.

Administrator, Alaska Region

SUBJECT:

2016 Annual Report for the Alaska Groundfish Fisheries Chinook Salmon Incidental Catch and Endangered Species Act Consultation

We are providing to you the annual report on salmon incidental catch in the Alaska groundfish fisheries, including current information on salmon bycatch reduction measures and sources for the genetic composition of salmon caught in these fisheries. This report updates previous annual reports on salmon incidental catch and includes:

- 2016 data on salmon incidental catch in groundfish fisheries;
- an update of NMFS's efforts to reduce the incidental catch of salmon in groundfish fisheries; and
- Web locations for the NMFS Alaska Fisheries Science Center's reports on stock of origin information from incidental catch of salmon in 2015 groundfish fisheries.

North Pacific Observer Program bycatch sampling data from 2016 and coded wire tag (CWT) data for 2016 will be forthcoming in the fall of 2017, after CWT numbers are merged with data on stock of origin, hatchery, and location of origin.

This report fulfills one of the terms and conditions of the December 2, 2009, and the January 11, 2007 (NMFS 2009a and NMFS 2007), supplements to the November 30, 2000, biological opinion (BiOp) regarding authorization of the Bering Sea and Aleutian Islands (BSAI) and Gulf of Alaska (GOA) groundfish fisheries (NMFS 2000). The most recent BiOp that addresses incidental catch of Chinook salmon in the GOA groundfish fisheries is the supplemental BiOp issued on January 9, 2012. This BiOp concluded that the GOA groundfish fisheries are not likely to jeopardize the continued existence of listed salmon evolutionarily significant units (ESUs) (NMFS 2012).



## Data Reports: Accounting for Chinook Salmon Incidental Catch in the GOA and BSAI Groundfish Fisheries

Tables 1 through 5 provide data on the incidental catch of Chinook salmon by fishery type or target fishery, quarter, and from Western Alaska Community Development Quota (CDQ) Program and non-CDQ Program sources. The annual Chinook salmon incidental catch data in these tables are current for slightly different dates in 2016. For example, NMFS revised Tables 1 and 2 on March 2, while Tables 3, 4, and 5 are automatically updated on a monthly basis. These slightly different revision dates account for small differences in some of the incidental catch estimates in Tables 1 and 2 versus 3, 4, and 5. Updated versions of Tables 3, 4, and 5 are available at the NMFS Alaska Region website. <sup>1</sup>

Tables 1 and 2 provide annual estimates of Chinook salmon incidental catch by fishery target for the groundfish trawl and non-trawl fisheries for the BSAI and GOA from 2004 through 2016. In 2016, approximately 76 percent of the incidental catch of Chinook salmon in the BSAI and GOA occurred in the pollock pelagic trawl fishery. Tables 3 through 5 provide seasonal or quarterly Chinook salmon incidental catch estimates by pollock and non-pollock fishery categories.

In BSAI groundfish fisheries, the majority of the Chinook salmon incidental catch occurs during the A season groundfish fishery from January 20 through June 10 (Tables 3 and 4). In GOA groundfish fisheries, the seasonal distribution of Chinook salmon incidental catch across the pollock fishery is highly variable from year to year, with no consistently predominant quarter or season with high incidental catch (Table 5). In the Bering Sea pollock fishery, most Chinook salmon incidental catch occurs in the non-CDQ groundfish fisheries (Table 4).

The amount of Chinook salmon incidental catch in the Alaska groundfish fisheries in 2016 (Tables 1 and 2) was both below and above the incidental take statement amounts for both the BSAI and GOA groundfish fisheries.

Groundfish Fishery	BSAI Pollock Trawl	BSAI non-Pollock	GOA Pollock and Non-Pollock Fisheries
Chinook Incidental Take Statement	47,591 to 60,000 Chinook salmon <sup>2</sup>	8,745 Chinook salmon <sup>2</sup>	40,000 Chinook salmon <sup>3</sup>
2016 Incidental Catch of Chinook Salmon	21,926	10,634	22,071

The amount of Chinook salmon incidental catch in the BSAI groundfish fisheries in 2016 was 32,560 salmon (Table 1). Of this amount, 21,926 Chinook salmon were caught in the Bering Sea pollock trawl fishery. The amount of Chinook salmon incidental catch in the 2016 BSAI non-pollock groundfish fisheries was 10,634 salmon, above the incidental take permit amount for the non-pollock trawl fishery of 8,745 established in the 2009 BiOp. However, the combined number

<sup>&</sup>lt;sup>1</sup> https://alaskafisheries.noaa.gov/sites/default/files/reports/chinook\_salmon\_mortality2017.pdf and https://alaskafisheries.noaa.gov/sites/default/files/reports/goasalmonmort2017.pdf

<sup>&</sup>lt;sup>2</sup> See the 2009 BiOp (NMFS 2009a) for Amendment 91 to the BSAI fishery management plan. The incidental take statement includes the Chinook prohibited species catch limit from non-trawl groundfish of 8,745 salmon.

<sup>&</sup>lt;sup>3</sup> See the 2012 section 7 consultation for GOA groundfish fisheries (NMFS 2012).

of Chinook salmon incidental catch for both the pollock and non-pollock fisheries in the BSAI is 32,560 – well below the hard cap of up to 60,000. NMFS is aware of the overage in the non-pollock fisheries and is taking steps to address it.

The amount of Chinook salmon incidental catch in the GOA groundfish fisheries in 2016 was 22,071 salmon (Table 2). Of this amount, 19,363 Chinook salmon were caught in the GOA pollock trawl fishery. The total Chinook salmon incidental catch in the GOA was below the annual incidental take limit of 40,000 Chinook salmon established in the 2012 BiOp for groundfish fisheries of the GOA (NMFS 2012) and for the previous 2000 BiOp incidental take of Chinook salmon in GOA groundfish fisheries (NMFS 2000).

#### Current Genetic Analysis of Salmon Incidental Catch in the BSAI and GOA for 2015

In early 2017, three NOAA technical memorandums were published providing genetic information on salmon incidental catch from the BSAI and GOA groundfish fisheries in 2015. All may be found at the NMFS Alaska Region website:

- Genetic Stock Composition Analysis of Chum Salmon from the Prohibited Species Catch of the 2015 Bering Sea Walleye Pollock Trawl Fishery and Gulf of Alaska Groundfish Fisheries<sup>4</sup>
- Genetic Stock Composition Analysis of the Chinook Salmon Bycatch Samples from the 2015 Gulf of Alaska Trawl Fisheries<sup>5</sup>
- Genetic Stock Composition Analysis of the Chinook Salmon Bycatch from the 2015 Bering Sea Walleye Pollock (Gadus chalcogrammus) Trawl Fishery<sup>6</sup>

Technical memorandums providing salmon genetic information for other years may also be found at the NMFS Alaska Region website.<sup>7</sup>

#### **Groundfish Management Measures for Salmon Incidental Catch in Groundfish Fisheries**

#### Bering Sea Management Measures—Amendment 91

Amendment 91 to the Fishery Management Plan for Groundfish of the Bering Sea and Aleutian Islands Management Area (BSAI FMP) is an innovative approach to managing Chinook salmon bycatch in the BSAI pollock fishery that combines a limit on the amount of Chinook salmon that may be caught incidentally with incentive plan agreements and performance standards. The program was designed to minimize bycatch to the extent practicable in all years, and prevent bycatch from reaching the limit in most years, while providing the pollock fleet with the flexibility to harvest the total allowable catch (TAC). NMFS implemented this program for the 2011 BSAI pollock fishery.

### Bering Sea Management Measures—Amendment 110

<sup>4</sup> https://www.afsc.noaa.gov/Publications/AFSC-TM/NOAA-TM-AFSC-345.pdf

<sup>5</sup> https://www.afsc.noaa.gov/Publications/AFSC-TM/NOAA-TM-AFSC-343.pdf

<sup>&</sup>lt;sup>6</sup> https://www.afsc.noaa.gov/Publications/AFSC-TM/NOAA-TM-AFSC-342.pdf

<sup>&</sup>lt;sup>7</sup> http://www.afsc.noaa.gov/Publications/techmemos.htm

In 2016, Amendment 110 to the BSAI FMP was implemented to improve the management of Chinook and chum salmon bycatch in the Bering Sea pollock fishery by creating a comprehensive salmon bycatch avoidance program. This action is necessary to minimize Chinook and chum salmon bycatch in the Bering Sea pollock fishery to the extent practicable while maintaining the potential for the full harvest of the pollock TAC within specified prohibited species catch (PSC) limits.

#### GOA Management Measures - Amendment 103

In 2016, Amendment 103 to the Fishery Management Plan for Groundfish of the Gulf of Alaska (GOA FMP) provided NMFS Inseason Management with the authority to reapportion salmon PSC limits among trawl sectors in the GOA within a fishing year. The purpose is to reduce the chances of closing a fishery due to a sector reaching its limit while ensuring that the total catch of Chinook salmon PSC in the Central and Western GOA trawl fisheries does not exceed the overall FMP limit of 32,500.

#### GOA Management Measures—Amendment 93

In 2012, Amendment 93 to the GOA FMP was implemented to limit the amount of Chinook salmon caught in the Central and Western GOA pollock fisheries. Amendment 93 established separate PSC limits in the Central and Western GOA for Chinook salmon that would cause NMFS to close the directed pollock fishery in the Central or Western regulatory areas of the GOA, if the applicable limit is reached. This action also requires retention of salmon by all vessels in the Central and Western GOA pollock fisheries until the catch is delivered to a processing facility where an observer is provided the opportunity to count the number of salmon and to collect scientific data or biological samples from the salmon.

Under Amendment 93, the Chinook salmon PSC in the Central and Western GOA pollock fisheries is limited to no more than 25,000 salmon. This limit, in addition to the total PSC limit established by Amendment 97 (see the following action), is below the annual amount of Chinook salmon established by the 2012 Incidental Take Statement for GOA groundfish fisheries of 40,000 Chinook salmon.

#### GOA Management Measures—Amendment 97

In 2015, Amendment 97 to the GOA FMP established annual Chinook salmon PSC limits for the groundfish trawl fisheries, except for pollock trawl fisheries, in the Western and Central GOA. This action established annual Chinook salmon PSC limits for the non-pollock trawl catcher/processor (C/P) sector of 3,600 Chinook salmon, Rockfish Program catcher vessel (CV) sector of 1,200 Chinook salmon, and Non-Rockfish Program CV sector of 2,700 Chinook salmon. It also established incentives for reducing Chinook salmon PSC for the trawl C/P and Non-Rockfish Program CV sectors, and established seasonal Chinook salmon PSC limits for the trawl C/P sector.

#### GOA Management Measures—GOA Trawl Emergency Rule

On May 3, 2015, all groundfish fisheries for the Non-Rockfish Program catcher vessel sector were closed for the remainder of 2015, because the sector unexpectedly reached its annual Chinook salmon PSC limit for the Western and Central GOA of 2,700 Chinook salmon. A prolonged closure would have been detrimental to the community of Kodiak, harvesters, and processors. In June 2015, the Council therefore recommended and NMFS implemented an emergency rule to provide an additional 1,600 Chinook salmon PSC allowance to the GOA groundfish trawl fisheries for the Non-Rockfish Program catcher vessel sector. Providing the additional limit of 1,600 Chinook salmon PSC restored a substantial portion of the forgone groundfish harvest and associated revenue made unavailable by the closure, by allowing the sector to harvest its recent average amount of groundfish for the remainder of 2015, while keeping the total Chinook salmon PSC at or below 32,500, well below the annual 40,000 threshold. The emergency rule was published in the *Federal Register* on August 10, 2015 (80 FR 47864), and became effective on publication. The effectiveness period ended on December 31, 2015. Between August 10, and December 31, 2015, only 12 additional Chinook salmon PSC of the 1,600 allowed were caught by the Non-Rockfish Program catcher vessel sector.

#### **Literature Cited**

- NMFS (National Marine Fisheries Service). 2012. Supplemental Biological Opinion on the Reinitiation of Endangered Species Act Section 7 Consultation on Incidental Catches of Chinook Salmon in the Gulf of Alaska Groundfish Fisheries. January 9, 2012. U.S. Dept. of Commerce, National Oceanic and Atmospheric Administration, National Marine Fisheries Service, Seattle, WA.
- NMFS 2009a. Supplemental Biological Opinion Reinitiating Consultation on the January 11, 2007 Biological Opinion regarding Authorization of Bering Sea/Aleutian Islands (BSAI) Groundfish Fisheries. December 2, 2009. U.S. Dept. of Commerce, National Oceanic and Atmospheric Administration, National Marine Fisheries Service, Seattle, WA. <a href="https://alaskafisheries.noaa.gov/sites/default/files/analyses/eis\_1209all.pdf">https://alaskafisheries.noaa.gov/sites/default/files/analyses/eis\_1209all.pdf</a>
- NMFS. 2007. Supplemental Biological Opinion Reinitiating Consultation on the November 30, 2000 Biological Opinion regarding Authorization of Bering Sea/Aleutian Islands Groundfish Fisheries. January 11, 2007. U.S. Dept. of Commerce, National Oceanic and Atmospheric Administration, National Marine Fisheries Service, Seattle, WA.
- NMFS. 2000. ESA Section 7 Consultation Biological Opinion and Incidental Take Statement. Activities Considered: Authorization of Bering Sea/Aleutian Islands groundfish fisheries based on the Fishery Management Plan for the Bering Sea/Aleutian Islands Groundfish and Authorization of the Gulf of Alaska groundfish fisheries based on the Fishery Management Plan for Groundfish of the Gulf of Alaska. November 30, 2000. NMFS Alaska Region, P. O. Box 21668, Juneau, Alaska 99802. URL: <a href="https://alaskafisheries.noaa.gov/sites/default/files/fmp\_sec07-NOV30\_2000\_FINAL.pdf">https://alaskafisheries.noaa.gov/sites/default/files/fmp\_sec07-NOV30\_2000\_FINAL.pdf</a>.

Table 1. BSAI groundfish fisheries total Chinook salmon incidental catch compared against total groundfish catch: 2004 through 2016

BSAI C	hinook Count		2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
a	Pelagic	Pollock Target	48,733	67,362	82,695	121,770	21,481	12,406	9,693	25,499	11,344	13,034	15,031	18,329	21,926
Š		Pacific Cod Target	5,599	3,764	3,620	6,287	2,063	1,054	1,256	404	927	864	1,303	1,419	3,353
<b>₹</b>	Non-Pelagic	Flatfish	2,166	2,950	725	1,169	246	166	636	19	175	557	1,173	4,542	6,492
Ĕ		Other Targets	404	135	13	279	308	354	883	644	434	1,537	556	894	746
No	n-Trawl Gear	All Targets	57	56	31	74	10	11	12	44	50	15	33	69	43
	TO	TAL	56,960	74,266	87,084	129,579	24,107	13,990	12,479	26,609	12,930	16,007	18,096	25,253	32,560
BSALG	iroundfish		2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
ar	Pelagic	Pollock Target	1,452,486	1,461,803	1,474,864	1,341,395	980,866	810,475	803,513	1,198,527	1,202,056	1,247,743	1,257,199	1,294,718	1,319,187
g		Pacific Cod Target	109,816	81,230	85,564	93,077	43,859	38,238	36,938	44,978	53,720	53,778	53,859	41,579	56,642
\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \	Non-Pelagic	Flatfish	180,893	192,555	194,683	217,734	293,334	245,561	277,416	309,567	324,415	348,303	333,209	269,442	281,738
1		Other Targets	75,530	78,422	80,320	85,251	83,688	99,496	100,458	81,813	79,235	63,297	70,799	96,213	93,310
No	n-Trawl Gear	All Targets	160,425	167,103	146,677	122,831	144,323	143,798	136,863	177,669	196,002	193,735	206,787	209,786	217,261
	TO	TAL	1,979,151	1,981,113	1,982,108	1,860,289	1,546,070	1,337,568	1,355,187	1,812,554	1,855,427	1,906,855	1,921,853	1,911,738	1,968,139
BSALC	Thinook Rate		2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
ä	Pelagic	Pollock Target	0.034	0.046	0.056	0.091	0.022	0.015	0.012	0.021	0.009	0.010	0.012	0.014	0.017
g		Pacific Cod Target	0.051	0.046	0.042	0.068	0.047	0.028	0.034	0.009	0.017	0.016	0.024	0.034	0.059
3	Non-Pelagic	Flatfish	0.012	0.015	0.004	0.005	0.001	0.001	0.002	0.000	0.001	0.002	0.004	0.017	0.023
ے ا		Other Targets	0.005	0.002	0.000	0.003	0.004	0.004	0.009	0.008	0.005	0.024	0.008	0.009	0.008
No	n-Trawl Gear	All Targets	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	то	TAL	0.029	0.037	0.044	0.070	0.016	0.010	0.009	0.015	0.007	0.008	0.009	0.013	0.017

Updated March 2, 2017

Table 2. GOA groundfish fisheries total Chinook salmon incidental catch compared against total groundfish catch: 2004 through 2016

Gulf of	Alaska Chinoo	k Count	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Gear		Pollock Target	12,506	26,631	15,564	35,127	10,667	2,916	42,885	12,419	16,004	12,209	10,859	13,450	19,363
	Pelagic	Other Targets		63	6	304	726	126	148	59	598	154	38	894	•
		Pollock Target	908	41	882	624	436	111	435	440	291	742	24	162	1,520
Traw	Non-Pelagic	Pacific Cod Target	2,800	2,853	1,909	2,654	2,804	3,784	7,750	1,349	520	387	278	1,162	34
F	NOTI-retagic	Flatfish	885	387	263	1,732	1,514	1,181	1,448	4,481	1,581	7,655	3,300	2,253	597
		Other Targets	646	1,296	380	50	30	278	1,893	1,039	999	2,183	1,209	1,025	383
No	n-Trawl Gear	All Targets	32		-	47	-		-		-	4	43	27	174
TOTA			17,777	31,270	19,004	40,539	16,176	8,397	54,559	19,787	19,992	23,333	15,751	18,973	22,071
Gulf of	Alaska Ground	fish	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
		Pollock Target	57,984	83,218	73,225	52,832	47,182	39,558	74,743	72,912	99,615	86,265	133,928	162,572	175,712
ā	Pelagic	Other Targets	977	1,433	3,497	4,647	4,522	3,381	4,743	3,905	4,452	2,173	4,308	3,851	2,385
Trawl Gear	Non-Pelagic	Pollock Target	7,195	897	3,259	1,351	3,556	1,921	2,994	9,328	3,616	9,924	11,761	7,168	4,189
		Pacific Cod Target	16,785	12,443	11,403	13,590	22,857	8,736	17,230	13,945	20,075	20,054	21,269	21,740	16,536
		Flatfish	20,449	29,622	41,313	42,572	47,085	52,052	42,619	45,608	32,502	38,240	52,627	25,788	28,645
		Other Targets	26,094	21,884	22,149	20,337	20,452	22,579	24,203	20,466	23,627	22,980	24,208	27,173	30,134
No	n-Trawl Gear	All Targets	59,180	50,758	53,912	54,101	56,181	55,019	71,117	85,617	74,846	70,498	78,081	75,827	66,726
TOTAL			188,664	200,254	208,758	189,429	201,835	183,246	237,649	251,782	258,733	250,133	326,183	324,119	324,328
Gulf o	f Alaska Chinoo	k Rate	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
		Pollock Target	0.216	0.320	0.213	0.665	0.226	0.074	0.574	0.170	0.161	0.142	0.081	0.083	0.110
ě	Pelagic	Other Targets	- 1	0.044	0.002	0.065	0.161	0.037	0.031	0.015	0.134	0.071	0.009	0.232	•
Gear		Pollock Target	0.126	0.045	0.271	0.462	0.123	0.058	0.145	0.047	0.080	0.075	0.002	0.023	0.363
Trawl	Non Ontonio	Pacific Cod Target	0.167	0.229	0.167	0.195	0.123	0.433	0.450	0.097	0.026	0.019	0.013	0.053	0.002
Tr.	Non-Pelagic	Flatfish	0.043	0.013	0.006	0.041	0.032	0.023	0.034	0.098	0.049	0.200	0.063	0.087	0.021
		Other Targets	0.025	0.059	0.017	0.002	0.001	0.012	0.078	0.051	0.042	0.095	0.050	0.038	0.013
No	n-Trawl Gear	All Targets	0.001	-	-	0.001					-	0.000	0.001	0.000	0.003
TOTAL			0.094	0.156	0.091	0.214	0.080	0.046	0.230	0.079	0.077	0.093	0.048	0.059	0.068

Updated March 2, 2017

Table 3. Chinook salmon mortality in BSAI groundfish fisheries (including pollock)

Year	ANNUAL	ANNUAL	ANNUAL	SEASON A	SEASON B	SEASON A	SEASON B	SEASON A	SEASON B
	WITH CDQ	NO CDQ	CDQ	With	CDQ	No C	DQ	CDQ	Only
1991	48,880	48,880	0	46,392	2,488	46,392	2,488	0	0
1992	41,954	41,954	0	31,418	10,536	31,418	10,536	0	0
1993	46,013	46,013	0	24,688	21,325	24,688	21,325	0	0
1994	43,821	40,613	3,207	38,921	4,899	36,698	3,915	2,222	984
1995	23,436	21,430	2,005	18,939	4,497	18,284	3,145	654	1,351
1996	63,204	60,744	2,460	43,316	19,888	42,027	18,716	1,288	1,171
1997	50,530	48,046	2,483	16,401	34,128	14,902	33,144	1,499	984
1998	60,548	55,431	5,117	19,869	40,679	18,930	36,500	939	4,178
1999	14,599	12,937	1,662	8,793	5,805	8,204	4,732	589	1,073
2000	8,222	7,473	749	6,567	1,655	6,137	1,336	430	319
2001	40,547	37,986	2,561	24,871	15,676	23,093	14,893	1,778	783
2002	39,683	37,580	2,103	26,276	13,407	24,858	12,722	1,418	685
2003	53,661	50,948	2,713	40,058	13,603	38,262	12,685	1,795	918
2004	60,038	57,028	3,010	30,766	29,272	29,625	27,402	1,140	1,870
2005	75,084	73,028	2,056	33,622	41,462	32,326	40,702	1,296	760
2006	87,114	85,324	1,790	62,547	24,568	60,943	24,381	1,603	187
2007	130,000	124,356	5,644	78,156	51,844	75,062	49,294	3,094	2,550
2008	23,914	23,197	717	18,827	5,086	18,223	4,973	604	113
2009	14,171	13,668	503	11,345	2,825	10,931	2,736	414	89
2010	12,401	12,066	335	9,480	2,921	9,144	2,921	335	0
2011	26,609	25,845	764	7,602	19,007	7,171	18,673	430	334
2012	12,930	12,552	378	8,981	3,949	8,636	3,915	344	34
2013	16,007	15,346	661	9,186	6,821	8,714	6,632	472	189
2014	18,096	17,203	893	13,836	4,261	13,143	4,060	692	201
2015	25,253	23,804	1,449	17,502	7,751	16,454	7,350	1,048	401
2016	32,560	29,575	2,985	25,721	6,840	23,475	6,100	2,245	740
2017	22,288	19,423	2,865	22,288	0	19,423	0	2,865	0

Updated March 23, 2017

Table 4. Chinook salmon incidental catch in BS pollock directed fisheries.

Year	ANNUAL	ANNUAL	ANNUAL	SEASON A	SEASON B	SEASON A	SEASON B	SEASON A S	REASON B	
	WITH CDQ	NO CDQ	CDQ	With		No (		CDQ Only		
1991	40.906	40,906	0	38,791	2,114	38,791	2,114	0	0	
1992	35,950	35,950	0	25,691	10,259	25,691	10,259	0	0	
1993	38.516	38,516	0	17.264	21,252	A314444 • 715504 95	21,252	0	0	
1994	33,136	30,572	2,564	28,451	4,686	26,871	3,701	1,580	985	
1995	14,984	12,978	2,008	10,579	4,405	9.924	3.053	655	1,351	
1996	55,623	53,162	2,460	36,068	19,554	34,780	18,383	1,289	1,172	
1997	44,909	42,434	2.475	10.935	33,973	9,445	32,989	1,490	985	
1998	56,440	51,322	5,118	16,132	40,308	15,193	36,130	939	4,179	
1999	11,978	10,381	1,597	6,352	5,627	5,768	4,614	584	1,013	
2000	4,961	4,242	719	3,422	1,539	2,992	1,250	430	289	
2001	33,444	30,937	2,507	18,484	14,961	16,711	14,227	1,773	734	
2002	34,495	32,402	2,093	21,794	12,701	20,378	12,024	1,416	677	
2003	45,661	43,096	2,565	33,478	12,183	30,913	12,183	2,565	0	
2004	51,762	48,796	2,966	24,925	26,837	21,959	26,837	2,966	0	
2005	68,184	66,251	1,933	27,960	40,224	26,027	40,224	1,933	0	
2006	82,752	81,015	1,737	58,547	24,205	56,810	24,205	1,737	0	
2007	124,723	116,575	8,148	72,943	51,780	67,323	49,252	5,620	2,528	
2008	21,307	20,667	640	16,495	4,811	15,891	4,775	604	36	
2009	12,579	12,132	447	9,882	2,697	9,524	2,608	358	89	
2010	9,720	9,385	335	7,649	2,071	7,314	2,071	335	0	
2011	25,499	24,735	764	7,137	18,362	6,707	18,028	430	334	
2012	11,344	10,995	349	7,765	3,579	7,421	3,574	344	5	
2013	13,034	12,514	520	8,237	4,797	7,765	4,749	472	48	
2014	15,031	14,303	728	11,539	3,492	10,847	3,456	692	36	
2015	18,329	17,298	1,031	12,304	6,025	11,523	5,775	781	250	
2016	21,926	20,329	1,597	16,828	5,098	15,583	4,746	1,245	352	
2017	19,407	17,307	2,100	19,407	0	17,307	0	2,100	0	

Updated March 23, 2017

Table 5. Chinook salmon incidental catch (numbers of salmon) by quarter from 1991 through 2016 in the GOA pollock and other non-pollock groundfish fisheries

Chinook salmon mortality in GOA groundfish fisheries

Year	Annual Total	GOA Pollock Fisheries							
		First Quarter	Second Quarter	Third Quarter	Fourth Quarter	Annual			
1991	38,893	3,239	538	1,799	2,862	8,438	30,455		
1992	16,788	2,289	2,663	1,457	1,801	8,210	8,578		
1993	19,260	6,499	157	2,730	4,192	13,578	5,682		
1994	13,616	3,685	88	1,973	1,474	7,220	6,396		
1995	14,653	1,408	32	2,342	1,136	4,918	9,735		
1996	15,761	4,802	57	6,421	100	11,380	4,381		
1997	15,229	4,622	48	4,742	30.	9,442	5,787		
1998	16,983	1,672	1	8,550	4,005	14,228	2,755		
1999	30,600	10,408	35	5,981	10,003	26,427	4,173		
2000	26,730	4,298	2,313	9,744	2,058	18,413	8,317		
2001	15,104	4,204	3,107	754	1,466	9,531	5,573		
2002	12,919	1,505	640	553	2,463	5,161	7,758		
2003	15,367	765	389	948	2,298	4,400	10,967		
2004	17,777	3,632	2,176	2,207	5,137	13,152	4,625		
2005	31,2711	11,100	5,123	1,076	10,629	27,928	3,343		
2006	18,763	2,918	4,292	4,637	3,859	15,706	3,057		
2007	40,521	1,525	28,389	1,315	3,867	35,096	5,425		
2008	16,264	578	7,691	389	2,087	10,745	5,519		
2009	8,475	718	1,406	653	412	3,189	5,286		
2010	54,678	4,992	2,038	4,868	32,927	44,825	9,853		
2011	19,772	1,712	1,205	1,291	8,636	12,844	6,928		
2012	19,992	2,907	861	4,398	8,129	16,295	3,697		
2013	23,333	4,303	684	1,156	6,807	12,950	10,383		
2014	15,752	1,718	1,626	3,406	4,134	10,884	4,868		
2015	18,973	2,592	4,254	2,181	4,585	13,612	5,361		
2016	22,070	2,567	1,002	6,242	11,071	20,882	1,188		

1991 - 2002: Blend data. Week end date was used to determine quarters. Week end dates do not always match quarter dates.

2003 - Current: Catch Accounting System.

Due to changes in regulatory pollock season dates from 1991 to 2001 and to match current pollock season dates, data were grouped by quarter.

Multiple fixes were applied to the Catch Accounting System in early 2014. This has resulted in minor changes in prior years. First Quarter Jan 1 - Feb 28

Second Quarter Mar 1 - May 31

Third Quarter Jun 1 - Sep 30

Fourth Quarter Oct 1 - Dec 31

Updated April 28, 2017