UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic Atmospheric Administration
National Marine Fisheries Service
P.O. Box 21668
Juneau Alaska 99802-1668

May 04, 2018

MEMORANDUM FOR: Barry Thom
Administrator, Northwest Region

FROM: James W. Balsiger, Ph.D.
Administrator, Alaska Region

SUBJECT: 2017 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—

- 2017 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 2016 groundfish fisheries.

North Pacific Observer Program bycatch sampling data from 2017 and coded wire tag (CWT) data for 2017 will be forthcoming in the fall of 2018, 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).

The amount of Chinook salmon incidental catch in the GOA groundfish fisheries in 2017 was 24,880 salmon (Table 2). Of this amount, 21,357 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 2016

In early 2018, three NOAA technical memorandums were published providing genetic information on salmon incidental catch from the BSAI and GOA groundfish fisheries in 2016. All may be found at the NMFS Alaska Region website:

- *Genetic Stock Composition Analysis of Chum Salmon from the Prohibited Species Catch of the 2016 Bering Sea Walleye Pollock Trawl Fishery and Gulf of Alaska Groundfish Fisheries*[4]
- *Genetic Stock Composition Analysis of the Chinook Salmon Bycatch Samples from the 2016 Gulf of Alaska Trawl Fisheries*[5]
- *Genetic Stock Composition Analysis of the Chinook Salmon* (Oncorhynchus tshawytscha) *Bycatch from the 2016 Bering Sea Walleye Pollock* (Gadus chalcogrammus) *Trawl Fishery*[6]

Technical memorandums providing salmon genetic information for other years may also be found at the NMFS Alaska Fisheries Science Center website.[7]

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

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

[4] https://www.afsc.noaa.gov/Publications/AFSC-TM/NOAA-TM-AFSC-366.pdf
[5] https://www.afsc.noaa.gov/Publications/AFSC-TM/NOAA-TM-AFSC-370.pdf
[6] https://www.afsc.noaa.gov/Publications/AFSC-TM/NOAA-TM-AFSC-365.pdf
[7] http://www.afsc.noaa.gov/Publications/techmemos.htm

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.

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 Chinook salmon PSC action postponed

In April 2017, the Council initiated an analysis evaluating increasing the GOA catcher vessel Chinook salmon PSC cap. The action could have either increased Chinook salmon PSC limits or added flexibility in the form of annual rollovers of unused PSC for trawl vessels targeting Pacific cod, rockfish, and flatfish in the Central and Western GOA. After reviewing alternatives in April 2018, the Council determined that modifying the limit was not appropriate at this time due to concerns about the status of Chinook salmon stocks that are known to occur as bycatch in the GOA non-pollock trawl fishery. The Council also noted the possibility that Federal actions relating to Chinook salmon removals could create an unintended interference with the decadal renegotiation of the Pacific Salmon Treaty between the United States and Canada, which were ongoing in April. The Council did not identify a future time at which this action should be revisited, but signaled its intent to monitor both the status of Chinook salmon stocks and the performance of the PSC-limited GOA trawl catcher vessel sector. The Council will receive a report on Chinook stock status throughout the Pacific coast and on GOA trawl harvest and participation. The report will be made after 2018 fisheries occur, and after the Pacific Salmon Treaty negotiation has been resolved.

Table 1. **BSAI groundfish fisheries total Chinook salmon incidental catch compared against total groundfish catch: 2004 through 2017**

BSAI Chinook Count			2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Trawl Gear	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	30,076
	Non-Pelagic	Pacific Cod Target	5,599	3,764	3,620	6,287	2,063	1,054	1,256	404	927	864	1,304	1,419	3,354	2,117
		Flatfish	2,166	2,950	725	1,169	246	166	636	19	175	557	1,173	4,542	6,492	2,339
		Other Targets	404	135	13	279	308	354	883	644	434	1,537	556	894	746	1,715
Non-Trawl Gear		All Targets	57	56	31	74	10	11	12	44	50	15	33	68	43	36
TOTAL			**56,960**	**74,266**	**87,084**	**129,579**	**24,107**	**13,990**	**12,479**	**26,609**	**12,930**	**16,007**	**18,097**	**25,253**	**32,561**	**36,283**

BSAI Groundfish			2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Trawl Gear	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	1,294,714	1,319,188	1,334,303
	Non-Pelagic	Pacific Cod Target	109,816	81,230	85,564	93,077	43,859	38,238	36,938	44,978	53,720	53,781	53,862	41,585	56,645	46,571
		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	281,728	262,236
		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	107,053
Non-Trawl Gear		All Targets	160,425	167,103	146,677	122,831	144,323	143,798	136,863	177,669	196,002	193,739	206,593	209,419	216,362	218,113
TOTAL			**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**	**1,906,863**	**1,921,662**	**1,911,372**	**1,967,233**	**1,968,276**

BSAI Chinook Rate			2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Trawl Gear	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	0.023
	Non-Pelagic	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	0.045
		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	0.009
		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	0.016
Non-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	0.000
TOTAL			**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**	**0.018**

Updated February 9, 2018

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

Year	ANNUAL WITH CDQ	ANNUAL NO CDQ	ANNUAL CDQ	SEASON A With CDQ	SEASON B With CDQ	SEASON A No CDQ	SEASON B No CDQ	SEASON A CDQ Only	SEASON B CDQ Only
1991	48,880	48,880		46,392	2,488	46,392	2,488		
1992	41,954	41,954		31,418	10,536	31,418	10,536		
1993	46,013	46,013		24,688	21,325	24,688	21,325		
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	29,626	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	87,115	85,325	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	23,837	23,197	640	18,828	5,009	18,223	4,973	604	36
2009	14,115	13,668	447	11,289	2,825	10,931	2,736	358	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	18,098	17,205	893	13,837	4,261	13,145	4,060	692	201
2015	25,254	23,805	1,449	17,502	7,752	16,453	7,351	1,048	401
2016	32,561	29,576	2,985	25,721	6,840	23,476	6,100	2,245	740
2017	36,280	33,011	3,269	27,008	9,272	24,126	8,884	2,881	388
2018	10,592	9,512	1,080	10,592	0	9,511	0	1,080	0

Updated April 17, 2018

Table 5. Chinook salmon incidental catch (numbers of salmon) by quarter from 1991 through 2017 in the GOA pollock and other non-pollock groundfish fisheries

Year	Annual Total	Chinook salmon mortality in GOA groundfish fisheries					
		GOA Pollock Fisheries					Other 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	17,778	3,632	2,176	2,207	5,137	13,152	4,626
2005	31,271	11,100	5,123	1,076	10,629	27,928	3,343
2006	18,762	2,918	4,292	4,636	3,859	15,705	3,057
2007	40,519	1,525	28,389	1,315	3,866	35,095	5,424
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	54,682	4,992	2,038	4,868	32,927	44,825	9,857
2011	19,771	1,712	1,205	1,291	8,635	12,843	6,928
2012	19,992	2,907	861	4,398	8,129	16,295	3,697
2013	23,343	4,303	684	1,156	6,807	12,950	10,393
2014	15,751	1,718	1,626	3,406	4,133	10,883	4,868
2015	18,969	2,592	4,254	2,181	4,585	13,612	5,357
2016	22,080	2,567	1,002	6,242	11,071	20,882	1,198
2017	24,881	9,042	1,713	4,574	6,063	21,392	3,489

Note:
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

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