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**INCIDENTAL CATCHES OF SALMONIDS
BY U.S. GROUND FISH FISHERIES
IN THE BERING SEA/ALEUTIAN ISLANDS,
GULF OF ALASKA, AND THE PACIFIC COAST, 1990-2003**

by

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ABSTRACT

Incidental catches of Pacific salmonids in U.S. groundfish trawl fisheries of Alaska and the Pacific West Coast are presented for 1977 through August 23, 2003. Estimated numbers of salmonids caught incidentally in the U.S. groundfish fisheries in the Bering Sea/Aleutian Islands were 30,501 in 1990; 79,133 in 1991; 83,405 in 1992; 289,210 in 1993; 140,811 in 1994; 44,859 in 1995; 141,200 in 1996; 117,753 in 1997; 121,058 in 1998; 59,219 in 1999; 65,070 in 2000; 95,073 in 2001 and 116,207 in 2002. In the Gulf of Alaska, incidental catches were 21,085 in 1990; 53,844 in 1991; 38,308 in 1992; 80,853 in 1993; 54,486 in 1994; 79,439 in 1995; 19,937 in 1996; 18,539 in 1997; 30,528 in 1998; 38,129 in 1999; 37,700 in 2000; 21,167 in 2001; and 16,139 in 2002. The Pacific Coast U.S. groundfish fisheries off Washington, Oregon, and California caught 617 salmon in 1990; 6,331 salmon in 1991; 5,100 salmon in 1992; 8,373 salmon in 1993; 4,001 salmon in 1994; 15,991 in 1995; 3,437 in 1996; and 5,410 in 1997. Through August 23, 2003, the incidental catches were 101,032 salmon in the Bering Sea/Aleutian Islands and 14,813 salmon in the Gulf of Alaska. The estimates of salmon caught off the Pacific Coast from 1998 to the present are currently unavailable. The last joint venture operations took place in 1990 in the Bering Sea/ Aleutian Islands and off the Pacific Coast. Their incidental catches of salmon were 152 and 9,308, respectively.

INTRODUCTION

Groundfish fisheries are conducted primarily by the use of trawl gear that occasionally encounters and catches Pacific salmonids. Other gear used to harvest groundfish - longline and pots - generally do not catch many salmonids. U.S. fishing regulations consider salmonids to be prohibited species for the groundfish fisheries, and when taken, they must immediately be returned to the sea. The incidental catches of salmonids are monitored by the U.S. National Marine Fisheries Service (NMFS) and estimated by its scientific observer program. At present, there are no specific limits set for salmonid bycatch in the Gulf of Alaska nor off the Pacific Coast. In the Bering Sea, a catch of 42,000 non-Chinook salmon during August 15 through October 14 triggers a time-area closure. This was established in 1994 to minimize the incidental catches of chum salmon (*Onchorhynchus keta*). Additionally, incidental catch rates of individual vessels and the fleet average are monitored closely and made known to the fleet, so individual vessels can take voluntary actions to minimize their bycatch.

The observer program coverage for the groundfish fisheries off Alaska is 100% for the large-sized vessel fleet (greater than 125 ft. length overall) and 30% for the medium-sized vessel fleet (60-125 ft. length overall). The small-sized vessel fleet (less than 60 ft. length overall) is not monitored by direct observer coverage. Instead, some of their catches are sampled when they deliver to motherships or shore-based processing plants. Motherships are staffed 100% of the time by observers and shore-based plants are staffed 30%-100%, depending upon the volume of fish processed. For the Pacific Coast, only the at-sea processors (catcher-processors and motherships) are included in these estimates.

RESULTS

Observers count salmonids, take length-weight measurements of salmonid samples, and estimate total groundfish catch weight. Tables 1-4 summarize the estimates from the observer sampling.

Table 1. Total groundfish catch and estimated bycatch of chinook and other Pacific salmon in U.S. groundfish fisheries, 1990-2003*.

Year	Region	Groundfish	Chinook	Chum	Coho	Sockeye	Pink	
Total		Catch (mt)	-----numbers of fish-----					
Domestic								
1990	BSAI	1,706,379	14,085	16,202	153	30	31	30,501
1991	BSAI**	2,154,903	48,873	29,706	396	79	79	79,133
1992	BSAI	1,963,523	41,955	40,090	1,266	14	80	83,405
1993	BSAI**	1,754,384	45,964	242,895	321	22	8	289,210
1994	BSAI	1,855,031	44,380	95,978	231	20	202	140,811
1995	BSAI	1,830,295	23,079	20,901	858	0	21	44,859
1996	BSAI	1,755,872	63,205	77,771	218	5	1	141,200
1997	BSAI	1,740,663	50,218	67,349	114	3	69	117,753
1998	BSAI	1,530,823	55,427	-----	-----	65,631	-----	121,058
1999	BSAI	1,302,967	12,924	-----	-----	46,295	-----	59,219
2000	BSAI	1,470,457	7,470	-----	-----	57,600	-----	65,070
2001	BSAI	1,652,802	37,734	-----	-----	57,339	-----	95,073
2002	BSAI	1,761,866	37,465	-----	-----	78,742	-----	116,207
2003	BSAI	1,393,169	43,677	-----	-----	57,355	-----	101,032

Table 1. (Continued)

Year	Region	Groundfish	Chinook	Chum	Coho	Sockeye	Pink	Total	
		Catch (mt)	-----numbers of fish-----						
Domestic									
1990	GOA	244,397	16,913	2,541	1,482	85	64	21,085	
1991	GOA	269,616	38,894	13,713	1,129	51	57	53,844	
1992	GOA	269,797	20,462	17,727	86	33	0	38,308	
1993	GOA	255,434	24,465	55,268	306	15	799	80,853	
1994	GOA	239,503	13,973	40,033	46	103	331	54,486	
1995	GOA	216,585	14,647	64,067	668	41	16	79,439	
1996	GOA	202,054	15,761	3,969	194	2	11	19,937	
1997	GOA	230,448	15,119	3,349	41	7	23	18,539	
1998	GOA	245,516	16,984	-----13,544-----				30,528	
1999	GOA	227,614	30,600	-----7,529-----				38,129	
2000	GOA	204,398	26,705	-----10,995-----				37,700	
2001	GOA	182,011	15,104	-----6,063-----				21,167	
2002	GOA	165,664	12,920	-----3,219-----				16,139	
2003	GOA	127,705	11,047	-----3,766-----				14,813	

Table 1. (Continued)

Year	Region	Groundfish	Chinook	Chum	Coho	Sockeye	Pink	Total	
		Catch (mt)	-----numbers of fish-----						
Domestic									
1990	WOC***	4,478	617	0	0	0	0	617	
1991	WOC***	198,953	6,165	11	132	0	23	6,331	
1992	WOC***	155,333	4,863	36	201	0	0	5,100	
1993	WOC***	99,698	4,843	71	20	126	3,313	8,373	
1994	WOC***	175,731	3,626	275	39	0	61	4,001	
1995	WOC***	103,598	11,577	200	1,775	6	2,433	15,991	
1996	WOC***	129,489	3,152	196	89	0	0	3,437	
1997	WOC***	147,221	4,404	139	304	0	563	5,410	
1998	WOC***	147,396	na	na	na	na	na	na	
1999	WOC***	143,291	na	na	na	na	na	na	
2000	WOC***	122,230	na	na	na	na	na	na	
2001	WOC***	101,539	na	na	na	na	na	na	
2002	WOC***	85,476	na	na	na	na	na	na	
2003	WOC***	72,640	na	na	na	na	na	na	

Table 1. (Continued)

Year	Region	Groundfish	Chinook	Chum	Coho	Sockeye	Pink	
Total		Catch (mt)	-----numbers of fish-----					
				Joint Venture				
1990	BSAI	133,438	147	2	3	0	0	152
1990	GOA	0	0	0	0	0	0	0
1990	WOC	172,069	9,141	133	34	0	0	9,308

BSAI = Bering Sea/Aleutian Islands; GOA = Gulf of Alaska;

WOC = Washington-Oregon-California

na - Not available

* Through 8/23/2003

** 1 steelhead was reported in 1991 and 5 steelheads were reported in 1993.

*** At sea processing only

Note: For 1998 - 2003, the estimates of non-chinook salmon have not yet been separated by species and are thus listed as a single value.

Table 2. Average body weight of chinook salmon incidentally caught in U.S. groundfish fisheries, 1990-2003*.

Year	Region	Male Average Weight (kg)	Female Average Weight (kg)
1990	BSAI	3.74	3.87
1991	BSAI	2.83	3.03
1992	BSAI	3.26	3.32
1993	BSAI	3.76	4.07
1994	BSAI	4.37	4.29
1995	BSAI	4.95	3.97
1996	BSAI	3.67	3.89
1997	BSAI	4.02	4.17
1998	BSAI	2.91	3.30
1999	BSAI	3.53	3.73
2000	BSAI	3.67	3.87
2001	BSAI	2.94	3.32
2002	BSAI	3.79	4.15
2003	BSAI	3.21	3.42
1990	GOA	3.57	3.88
1991	GOA	3.03	3.43
1992	GOA	3.46	3.32
1993	GOA	2.84	2.77
1994	GOA	3.70	3.68
1995	GOA	4.48	3.31
1996	GOA	2.71	2.96
1997	GOA	4.28	4.08
1998	GOA	3.00	3.07
1999	GOA	2.69	3.16
2000	GOA	3.34	3.21
2001	GOA	3.36	3.08
2002	GOA	2.76	2.60
2003	GOA	2.31	2.53

Table 2. (Continued)

Year	Region	Male Average Weight (kg)	Female Average Weight (kg)
1990	WOC	2.14	2.65
1991	WOC	3.18	3.40
1992	WOC	2.93	4.08
1993	WOC	2.22	2.88
1994	WOC	2.26	2.69
1995	WOC	2.72	2.64
1996	WOC	4.67	5.35
1997	WOC	2.71	2.91
1998	WOC	3.06	3.68
1999	WOC	3.40	2.74
2000	WOC	2.45	3.01
2001	WOC	2.83	2.73
2002	WOC	3.27	3.07
2003	WOC	2.75	2.55

BSAI = Bering Sea/Aleutian Islands; GOA = Gulf of Alaska
WOC = Washington-Oregon-California

* Data presented for 2003 are based on preliminary data.

Table 3. Average body weight of chum salmon incidentally caught in U.S. groundfish fisheries, 1990-2003*.

Year	Region	Male Average Weight (kg)	Female Average Weight (kg)
1990	BSAI	2.28	2.18
1991	BSAI	2.44	2.29
1992	BSAI	2.53	2.51
1993	BSAI	2.16	1.96
1994	BSAI	2.72	2.65
1995	BSAI	3.45	3.17
1996	BSAI	2.47	2.23
1997	BSAI	2.35	2.24
1998	BSAI	2.88	2.50
1999	BSAI	2.97	2.82
2000	BSAI	2.97	2.79
2001	BSAI	2.70	2.47
2002	BSAI	2.97	2.71
2003	BSAI	3.05	2.90
1990	GOA	3.36	3.11
1991	GOA	3.11	2.89
1992	GOA	3.32	3.06
1993	GOA	2.40	2.27
1994	GOA	3.40	3.20
1995	GOA	3.14	3.12
1996	GOA	3.10	2.42
1997	GOA	5.28	4.09
1998	GOA	3.84	3.77
1999	GOA	4.33	5.45
2000	GOA	4.16	4.26
2001	GOA	2.82	2.90
2002	GOA	3.61	3.53
2003	GOA	3.42	3.00

Table 3. (Continued)

Year	Region	Male Average Weight (kg)	Female Average Weight (kg)
1990	WOC	--**	--**
1991	WOC	4.55	4.35
1992	WOC	4.58	4.55
1993	WOC	3.37	1.07***
1994	WOC	5.35	5.27
1995	WOC	1.80	2.95
1996	WOC	5.05	4.22
1997	WOC	3.04	3.12
1998	WOC	4.15	3.77
1999	WOC	5.73	4.90
2000	WOC	5.28	--**
2001	WOC	3.61	3.18
2002	WOC	5.28	4.15
2003	WOC	5.49***	3.42

BSAI = Bering Sea/Aleutian Islands; GOA = Gulf of Alaska;
WOC = Washington-Oregon-California

* Data presented for 2003 are based on preliminary data.

** None caught.

*** Very few fish.

Table 4. Estimated incidental catches of Pacific salmonids previously reported to the International North Pacific Fisheries Commission, 1977-1989.

Year	Bering Sea/ Aleutian*	Gulf of Alaska**	Washington- Oregon-California*
1977	47,840	5,222	14,627
1978	44,548	45,603	5,924
1979	107,706	21,460	8,666
1980	122,002	36,069	8,433
1981	43,191	30,860	11,474
1982	23,623	6,967	11,798
1983	42,666	13,874	5,143
1984	84,138	75,846	10,255
1985	20,423	14,102	2,288
1986	20,983	20,820	43,790
1987	14,234	1,221	13,285
1988	9,380	147	16,168
1989	14,153	0	9,199

* Reported in INPFC Doc. 3588, October 1990

** Reported in INPFC Doc. 3417, September 1989