Amendment 48 for the Fishery Management Plan for the Groundfish Fishery of the Bering Sea/Aleutian Islands Area

* * * * * means the text that either precedes or follows the revision remains unchanged.

The title is revised as follows:

Fishery Management Plan for Groundfish of the Bering Sea and Aleutian Islands Management Area

Section 3.0 is modified as follows:

1. The second introductory paragraph is revised to read as follows:

> One feature of the format of this FMP is that such items as acceptable biological catch, expected annual harvest and annual catch statistics which are likely to change from time to time have been arranged in Annexes. This should facilitate both the drafting and review process when such changes are made in the future.

2. In Section 3.2, in the secondary objectives list, the first sentence of item 5 is revised as follows:

Management measures should contain a margin of safety in recommending acceptable biological catches when the quality of information concerning the resource and ecosystem is questionable.

3. In Section 3.3, Delete the number "1." for the first definition. Delete definitions 2. and 3.

Section 4.0 is revised to read as follows:

1. Delete "4.1 Areas and Stocks Involved"

2. Renumber Section 4.1.1 to 4.1

3. Delete sections 4.1.2 through 4.2.2.3, including all figures and tables.

4. Add sections 4.2, 4.3, and 4.4 as follows:

4.2 Species of Fish Targeted

The Bering Sea supports about 300 species of fishes, the majority of which are found near or on the bottom (Wilimovsky 1974). Among the pelagic species are the commercially important, or potentially important groups such as the salmon (Oncorhynchus), herring (Clupea), smelts (Osmerus), and capelin (Mallotus). The fish groups of primary concern in this plan are the bottom or near-bottom dwelling forms--the flounders, rockfish, sablefish, cod, pollock, and Atka mackerel. Although not bottom-dwelling, squids (Cephalopoda) are also included in the plan.

There is a general simplification in the diversity of bottomfish species in the Bering Sea compared to the more southern regions of the Gulf of Alaska and Washington to California. As a result, certain species inhabiting the Bering Sea are some of the largest bottomfish resources found anywhere in the world. Relatively few groundfish species in the eastern Bering Sea and Aleutian Islands are large enough to

attract target, or target fisheries: walleye pollock, Pacific cod, Pacific ocean perch, sablefish, Atka mackerel, several species of rockfishes and flatfishes. Since the 1960s, pollock catches have accounted for the majority of the Bering Sea groundfish harvest. Yellowfin sole and rock sole currently dominate the flatfish group and has the longest history of intense exploitation by foreign fisheries. Other flounder species that are known to occur in aggregations large enough to form target species or occasional target species are Greenland turbot, Pacific halibut, rock sole, flathead sole, Alaska plaice, and arrowtooth flounder.

Catch History

Catch statistics since 1954 are shown for the Eastern Bering Sea subarea in **Table 4.1a**. The initial target species was yellowfin sole. During the early period of these fisheries, total catches of groundfish reached a peak of 674,000 metric tons (t) in 1961. Following a decline in abundance of yellowfin sole, other species (principally walleye pollock) were targeted upon, and total catches rose to 2.2 million t in 1972. Catches have since varied from one to two million t as catch restrictions and other management measures were placed on the fishery.

Catches in the Aleutian region have always been much smaller than those in the Eastern Bering Sea. Target species have also been different (**Table 4.1b**): In the Aleutians, Pacific ocean perch (POP) was the initial target species. During the early years of exploitation, overall catches of Aleutian groundfish reached a peak of 112,000 t in 1965. As POP abundance declined, the fishery diversified to other species. Total catches from the Aleutians in recent years have been about 100,000 t annually.

Table 4.1.a. Groundfish and squid catches in the eastern Bering Sea, 1954-2003.

Year	Pollock	Pacific Cod	Sable Fish	Pacific Ocean Perch Complex/b	Other Rock Fish	Yellow Fin Sole	Greenland Turbot
1954						12,562	
1955						14,690	
1956						24,697	
1957						24,145	
1958	6,924	171	6			44,153	
1959	32,793	2,864	289			185,321	
1960			1,861	6,100		456,103	36,843
1961			15,627	47,000		553,742	57,348
1962			25,989	19,900		420,703	58,226
1963			13,706	24,500		85,810	31,565
1964	174,792	13,408	3,545	25,900		111,177	33,729
1965	230,551	14,719	4,838	16,800		53,810	9,747
1966	261,678	18,200	9,505	20,200		102,353	13,042
1967	550,362	32,064	11,698	19,600		162,228	23,869
1968	702,181	57,902	4,374	31,500		84,189	35,232
1969	862,789	50,351	16,009	14,500		167,134	36,029
1970	1,256,565	70,094	11,737	9,900		133,079	19,691
1971	1,743,763	43,054	15,106	9,800		160,399	40,464
1972	1,874,534	42,905	12,758	5,700		47,856	64,510
1973	1,758,919	53,386	5,957	3,700		78,240	55,280
1974	1,588,390	62,462	4,258	14,000		42,235	69,654
1975	1,356,736	51,551	2,766	8,600		64,690	64,819
1976	1,177,822	50,481	2,923	14,900		56,221	60,523
1977	978,370	33,335	2,718	2,654	311	58,373	27,708
1978	979,431	42,543	1,192	2,221	2,614	138,433	37,423
1979	913,881	33,761	1,376	1,723	2,108	99,017	34,998
1980	958,279	45,861	2,206	1,097	459	87,391	48,856
1981	973,505	51,996	2,604	1,222	356	97,301	52,921
1982	955,964	55,040	3,184	224	276	95,712	45,805
1983	982,363	83,212	2,695	221	220	108,385	43,443
1984	1,098,783	110,944	2,329	1,569	176	159,526	21,317
1985	1,179,759	132,736	2,348	784	92	227,107	14,698
1986	1,188,449	130,555	3,518	560	102	208,597	7,710
1987	1,237,597	144,539	4,178	930	474	181,429	6,533
1988	1,228,000	192,726	3,193	1,047	341	223,156	6,064
1989	1,230,000	164,800	1,252	2,017	192	153,165	4,061
1990	1,353,000	162,927	2,329	5,639	384	80,584	7,267
1991	1,268,360	165,444	1,128	4,744	396	94,755	3,704
1992	1,384,376	163,240	558	3,309	675	146,942	1,875
1993	1,301,574	133,156	669	3,763	190	105,809	6,330
1994	1,362,694	174,151	699	1,907	261	144,544	7,211

Year	Pollock	Pacific Cod	Sable Fish	Pacific Ocean Perch Complex/b	Other Rock Fish	Yellow Fin Sole	Greenland Turbot
1995	1,264,578	228,496	929	1,210	629	124,746	5,855
1996	1,189,296	209,201	629	2,635	364	129,509	4,699
1997	1,115,268	209,475	547	1,060	161	166,681	6,589
1998	1,101,428	160,681	586	1,134	203	101,310	8,303
1999	889,589	134,647	646	609	135	67,307	5,205
2000	1,132,736	151,372	742	704	239	84,057	5,888
2001	1,387,452	142,452	863	1,148	296	63,563	4,252
2002	1,481,815	166,552	1,143	858	401	74,956	3,150
2003/d	1,340,801	159,420	896	1,313	324	74,408	2,467

Year	Arrow Tooth Flounder	Other Flat Fish/c	Rock Sole/c	Atka Mackerel	Squid	Other Species	Total (All Species)
1954							12,562
1955							14,690
1956							24,697
1957							24,145
1958						147	51,401
1959						380	221,647
1960	a						500,907
1961	a						673,717
1962	a						524,818
1963	a	35,643					191,224
1964	a	30,604				736	393,891
1965	a	11,686				2,218	344,369
1966	a	24,864				2,239	452,081
1967	a	32,109				4,378	836,308
1968	a	29,647				22,058	967,083
1969	a	34,749				10,459	1,192,020
1970	12,598	64,690				15,295	1,593,649
1971	18,792	92,452				13,496	2,137,326
1972	13,123	76,813				10,893	2,149,092
1973	9,217	43,919				55,826	2,064,444
1974	21,473	37,357				60,263	1,900,092
1975	20,832	20,393				54,845	1,645,232
1976	17,806	21,746				26,143	1,428,565
1977	9,454	14,393			4,926	35,902	1,168,144
1978	8,358	21,040		831	6,886	61,537	1,302,509
1979	7,921	19,724		1,985	4,286	38,767	1,159,547
1980	13,761	20,406		4,955	4,040	34,633	1,221,944
1981	13,473	23,428		3,027	4,182	35,651	1,259,666
1982	9,103	23,809		328	3,838	18,200	1,211,483
1983	10,216	30,454		141	3,470	15,465	1,280,285
1984	7,980	44,286		57	2,824	8,508	1,458,299
1985	7,288	71,179		4	1,611	11,503	1,649,109
1986	6,761	76,328		12	848	10,471	1,633,911
1987	4,380	50,372		12	108	8,569	1,639,121
1988	5,477	137,418		428	414	12,206	1,810,470

Year	Arrow Tooth Flounder	Other Flat Fish/c	Rock Sole/c	Atka Mackerel	Squid	Other Species	Total (All Species)
1989	3,024	63,452		3,126	300	4,993	1,630,382
1990	2,773	22,568		480	460	5,698	1,644,109
1991	12,748	30,401	46,681	2,265	544	16,285	1,647,455
1992	11,080	34,757	51,720	2,610	819	29,993	1,831,954
1993	7,950	28,812	63,942	201	597	21,413	1,674,406
1994	13,043	29,720	60,276	190	502	23,430	1,818,628
1995	8,282	34,861	54,672	340	364	20,928	1,745,890
1996	13,280	35,390	46,775	780	1,080	19,717	1,653,355
1997	8,580	42,374	67,249	171	1,438	20,997	1,640,590
1998	14,985	39,940	33,221	901	891	23,156	1,486,739
1999	9,827	33,042	39,934	2,008	393	17,045	1,200,387
2000	12,071	36,813	49,186	239	375	23,098	1,497,520
2001	12,836	27,693	28,949	264	1,761	23,148	1,694,678
2002	10,821	30,229	40,700	572	1,334	26,639	1,839,169
2003/d	11,911	26,231	34,382	5,286	1,198	23,957	1,682,593

a/ Arrowtooth flounder included in Greenland turbot catch statistics.
b/ Includes POP shortraker, rougheye, northern and sharpchin.
c/ Rocksole prior to 1991 is included in other flatfish catch statistics.
d/ Does not include CDQ harvest, except in ICA
pollock and squid.

Note: Numbers don't include fish taken for research.

Table 4.1.b. Groundfish and squid catches in the Aleutian Islands region, 1962-2003.

Year	Pollock	Pacific Cod	Sable Fish	Pacific Ocean Perch Complex / b	Other Rock Fish	Greenland Turbot	Yellow Fin Sole
1962				200			
1963			664	20,800		7	
1964		241	1,541	90,300		504	
1965		451	1,249	109,100		300	
1966		154	1,341	85,900		63	
1967		293	1,652	55,900		394	
1968		289	1,673	44,900		213	
1969		220	1,673	38,800		228	
1970		283	1,248	66,900		285	
1971		2,078	2,936	21,800		1,750	
1972		435	3,531	33,200		12,874	
1973		977	2,902	11,800		8,666	
1974		1,379	2,477	22,400		8,788	
1975		2,838	1,747	16,600		2,970	
1976		4,190	1,659	14,000		2,067	
1977	7,625	3,262	1,897	8,080	3,043	2,453	
1978	6,282	3,295	821	5,286	921	4,766	
1979	9,504	5,593	782	5,487	4,517	6,411	

Year	Pollock	Pacific Cod	Sable Fish	Pacific Ocean Perch Complex / b	Other Rock Fish	Greenland Turbot	Yellow Fin Sole
1980	58,156	5,788	274	4,700	420	3,697	
1981	55,516	10,462	533	3,622	328	4,400	
1982	57,978	1,526	955	1,014	2,114	6,317	
1983	59,026	9,955	673	280	1,045	4,115	
1984	81,834	22,216	999	631	56	1,803	
1985	58,730	12,690	1,448	308	99	33	
1986	46,641	10,332	3,028	286	169	2,154	
1987	28,720	13,207	3,834	1,004	147	3,066	
1988	43,000	5,165	3,415	1,979	278	1,044	
1989	156,000	4,118	3,248	2,706	481	4,761	
1990	73,000	8,081	2,116	14,650	864	2,353	
1991	78,104	6,714	2,071	2,545	549	3,174	1,380
1992	54,036	42,889	1,546	10,277	3,689	895	4
1993	57,184	34,234	2,078	13,375	495	2,138	0
1994	58,708	22,421	1,771	16,959	301	3,168	0
1995	64,925	16,534	1,119	14,734	220	2,338	6
1996	28,933	31,389	720	20,443	278	1,677	654
1997	26,872	25,166	779	15,687	307	1,077	234
1998	23,821	34,964	595	13,729	385	821	5
1999	965	27,714	565	17,619	630	422	13
2000	1,244	39,684	1,048	14,893	601	1,086	13
2001	824	34,207	1,074	15,588	610	1,060	15
2002	1,177	30,801	1,118	14,996	551	485	29
2003/c	1,653	32,158	1,009	17,573	401	960	0

Table 4.1.b. Continued.

Year	Rock Sole	Other Flat Fish	Arrow Tooth Flounder	Atka Mackerel	Squid	Other Species	Total (All Species)
1962							200
1963			a				21,471
1964			a			66	92,652
1965			a			768	111,868
1966			a			131	87,589
1967			a			8,542	66,781
1968			a			8,948	56,023
1969			a			3,088	44,009
1970			274	949		10,671	80,610
1971			581			2,973	32,118
1972			1,323	5,907		22,447	79,717
1973			3,705	1,712		4,244	34,006
1974			3,195	1,377		9,724	49,340
1975			784	13,326		8,288	46,553
1976			1,370	13,126		7,053	43,465
1977			2,035	20,975	1,808	16,170	67,348

Year	Sole	Rock	Other Flat Fish	Arrow Tooth Flounder	Atka Mackerel	Squid	Other Species	Total (All Species)
1978				1,782	23,418	2,085	12,436	61,092
1979				6,436	21,279	2,252	12,934	75,195
1980				4,603	15,533	2,332	13,028	108,531
1981				3,640	16,661	1,763	7,274	104,199
1982				2,415	19,546	1,201	5,167	98,233
1983				3,753	11,585	510	3,675	94,617
1984				1,472	35,998	343	1,670	147,022
1985				87	37,856	9	2,050	113,310
1986				142	31,978	20	1,509	96,259
1987				159	30,049	23	1,155	81,364
1988				406	21,656	3	437	77,383
1989				198	14,868	6	108	186,494
1990				1,459	21,725	11	627	124,886
1991	n/a		88	938	22,258	30	91	117,942
1992	236		68	900	46,831	61	3,081	164,513
1993	318	59		1,348	65,805	85	2,540	179,659
1994	308		55	1,334	69,401	86	1,102	175,614
1995	356		47	1,001	81,214	95	1,273	183,862
1996	371		61	1,330	103,087	87	1,720	190,750
1997	271		39	1,071	65,668	323	1,555	139,049
1998	446		54	694	56,195	25	2,448	134,182
1999	577		53	746	51,636	9	1,633	102,582
2000	480		113	1,157	46,990	8	3,010	110,327
2001	526		97	1,220	61,296	5	4,029	120,551
2002	1,165		150	1,032	44,722	10	1,980	98,215
2003/c	961		76	911	48,918	36	1,344	106,000

a/ Arrowtooth flounder included in Greenland turbot catch statistics.
b/ Includes POP shortraker, rougheye, northern and sharpchin rockfish.
c/ Does not include CDQ except for ICA pollock and squid.
Note: Numbers do not include fish taken for research.

4.3 Socioeconomic Characteristics of the Fishery

Subsistence Fishery

The earliest fisheries for groundfish in the eastern Bering Sea and Aleutian Islands were the native subsistence fisheries. The fish and other marine resources remain an important part of the life of native people, and dependence on demersal species of fish may have been critical to their survival in periods of the year when other sources of food were scarce or lacking. Fishing was in near-shore waters utilizing such species as cod, halibut, rockfish, and other species. These small-scale subsistence fisheries have continued to the present time. Although not well estimated, the total catch of groundfish in subsistence fisheries is thought to be minuscule relative to commercial fishery catches.

Recreational Fishery

At this time, there are no essentially recreational fisheries for groundfish species covered under this FMP. Recreational catches of groundfish in the BSAI region would take place in state waters and likely fall under the classification of subsistence fisheries.

Charter Fishery

A limited charter vessel fishery for Pacific halibut is based in Dutch Harbor. Three charter vessels participated in 1999.

Commercial Fishery

The first commercial venture for bottomfish occurred in 1864 when a single schooner fished for Pacific cod in the Bering Sea. This domestic fishery continued until 1950 when demand for cod declined and economic conditions caused the fishery to be discontinued. Fishing areas in the eastern Bering Sea were from north of Unimak Island and the Alaska Peninsula to Bristol Bay. Vessels operated from home ports in Washington and California and from shore stations in the eastern Aleutian Islands. The cod fishery reached its peak during World War I when the demand for cod was high. Numbers of schooners operating in the fishery ranged from 1-16 up to 1914 and increased to 13-24 in the period 1915-20. Estimated catches during the peak of the fishery ranged annually from 12,000-14,000 mt.

Another early fishery targeted Pacific halibut. Halibut were reported as being present in the Bering Sea by United States cod vessels as early as the 1800s. However, halibut from the Bering Sea did not reach North American markets until 1928. Small and infrequent landings of halibut were made by United States and Canadian vessels between 1928 and 1950, but catches were not landed every year until 1952. The catch by North American setline vessels increased sharply between 1958 and 1963 and then declined steadily until 1972.

Several foreign countries conducted large scale groundfish fisheries in the eastern Bering Sea and Aleutian Islands prior to 1991. Vessels from Japan, USSR (Russia), Canada, Korea, Taiwan, and Poland all plied the waters of the North Pacific for groundfish. In the mid 1950's, vessels from Japan and Russia targeted yellowfin sole, and catches peaked at over 550,000 mt in 1961. In the 1960's, Japanese vessels, and to a lesser extent Russian vessels, developed a fishery for Pacific ocean perch, pollock, Greenland turbot, sablefish, and other groundfish. By the early 1970's over 1.7 million mt of pollock was being caught by these two countries in the eastern Bering Sea annually. Korean vessels began to target pollock in 1968. Polish vessels fished briefly in the Bering Sea in 1973. Tiawanese vessels entered the fishery in 1977. For more information on foreign fisheries in the BSAI, refer to NPFMC (1995), Megrey and Wespestad (1990), and Fredin (1987).

The foreign fleets were phased out in the 1980's. The transition period from foreign to fully domestic groundfish fisheries was stimulated by a quick increase in joint-venture operations. The American Fisheries Promotion Act (the so-called “fish and chips” policy) required that allocations of fish quotas to foreign nations be based on the nation’s contributions to the development of the U.S. fishing industry. This provided incentive for development of joint-venture operations, with U.S. catcher vessels delivering their catches directly to foreign processing vessels. Joint-venture operations peaked in 1987, giving way to a rapidly developing domestic fleet. By 1991, the entire BSAI groundfish harvest (2,126,600 mt, worth $351 million ex-vessel) was taken by only 391 U.S. vessels.

The commercial groundfish catch off Alaska totaled 1.9 million t in 1998, compared to 2.1 million t in 1997 Based on a preliminary estimate for 1998 that may not be consistent with the estimates for previous years, the ex-vessel value of the catch, excluding the value added by at-sea processing, decreased from

$583 million in 1997 to $385 million in 1998. The value of the 1998 catch after primary processing was approximately $1 billion. The groundfish fisheries accounted for the largest share of the ex-vessel value of all commercial fisheries off Alaska in 1998 (40 percent), and approximately 80 percent of this total came from the BSAI management area. The Pacific salmon (*Oncorhynchus* spp.) fishery was second with $243 million or 26 percent of the total Alaska ex-vessel value. The value of the shellfish catch amounted to $219 million or 23 percent of the total for Alaska.

Walleye (Alaska) pollock (*Theragra chalcogramma*) has been the dominant species in the commercial groundfish catch off Alaska. The 1998 pollock catch of 1.25 million t accounted for 67 percent of the total groundfish catch of 1.87 million t. The next major species, Pacific cod (*Gadus macrocephalus*), accounted for 257,900 t or almost 14 percent of the total 1998 groundfish catch. The Pacific cod catch was down about 21 percent from a year earlier. The 1998 catch of flatfish, which includes yellowfin sole (*Pleuronectes asper*), rock sole (*Pleuronectes bilineatus*), and arrowtooth flounder (*Atheresthes stomias*) was 223,100 t in 1998, down almost 35 percent from 1997. Pollock, Pacific cod, and flatfish comprised almost 93 percent of the total 1998 catch. Other important species are sablefish (*Anoplopoma fimbria*), rockfish (*Sebastes and Sebastolobus* spp.), and Atka mackerel (*Pleurogrammus monopterygius*).

Trawl, hook-and-line (including longline and jigs), and pot gear account for virtually all the catch in the BSAI groundfish fisheries. There are catcher vessels and catcher processor vessels for each of these three gear groups. From 1993-1998, the trawl catch averaged about 91 percent of the total catch, while the catch with hook-and-line gear accounted for 7.5 percent. Most species are harvested predominately by one type of gear, which typically accounts for 90 percent or more of the catch. The one exception is Pacific cod, where in 1998, 48 percent (123,000 t) was taken by trawls, 43 percent (110,000 t) by hook-and-line gear, and 9 percent (24,000 t) by pots. During the same period, catcher vessels took 41 percent of the catch and catcher processor vessels took the other 59 percent.

The discards of groundfish in the groundfish fishery have received increased attention in recent years by NMFS, the Council, Congress, and the public at large. The discard rate is the percent of total catch that is discarded. For the BSAI and GOA fisheries as a whole, the annual discard rate for groundfish decreased from 15.1 percent in 1994 to 8.2 percent in 1998 with the vast majority of the reduction occurring in 1998. The 43 percent reduction in the overall discard rate in 1998 is the result of prohibiting pollock and Pacific cod discards in all BSAI and GOA groundfish fisheries beginning in 1998. Total discards decreased by almost 49 percent in 1998 with the aid of a 9.5 percent reduction in total catch. Estimates of total catch, discarded catch, and discard rates by species, area, gear, and target fishery are provided in the annual Economic SAFE report.

The bycatch of Pacific halibut, crab, Pacific salmon, and Pacific herring (*Clupea pallasi*) has been an important management issues for more than twenty years. The retention of these species was prohibited first in the foreign groundfish fisheries. This was done to ensure that groundfish fishermen had no incentive to target these species. For a review of the history of prohibited species bycatch management, refer to Witherell and Pautzke (1997).

Residents of Alaska and of other states, particularly Washington and Oregon, are active participants in the BSAI groundfish fisheries. For the domestic groundfish fishery as a whole, 92 percent of the 1998 catch was made by vessels with owners who indicated that they were not residents of Alaska.

Estimates of ex-vessel value by area, gear, type of vessel, and species are included in the annual Economic SAFE report. The ex-vessel value of the domestic landings in the combined GOA and BSAI groundfish fisheries, excluding the value added by at-sea processing, increased from $425 million in 1993 to $585 million in 1995, decreased in 1996 to $531 million, and increased to $570 million in 1997. The

distribution of ex-vessel value by type of vessel differed by area, gear and species. In 1997, catcher vessels accounted for 44 percent of the ex-vessel value of the groundfish landings compared to 42 percent of the total catch because catcher vessels take larger percentages of higher priced species such as sablefish which was $2.25 per pound in 1997. Similarly, trawl gear accounted for only 67 percent of the total ex-vessel value compared to 90 percent of the catch because much of the trawl catch is of low priced species such as pollock which was about $0.10 per pound in 1997.

For the BSAI and GOA combined, 82.5 percent of the 1997 ex-vessel value was accounted for by vessels with owners who indicated that they were not residents of Alaska. Vessels with owners who indicated that they were residents of Alaska accounted for 15.5 percent of the total and the remaining 2.0 percent was taken by vessels for which the residence of the owner was not known. The vessels owned by residents of Alaska accounted for a much larger share of the ex-vessel value than of catch (15.5% compared to 8.5%) because these vessels accounted for relatively large shares of the higher priced species such as sablefish.

Employment data for at-sea processors (but not including inshore processors) indicate that in 1998, the crew weeks totaled 106,365 with the majority of them (101,064) occurring in the BSAI groundfish fishery. In 1998, the maximum monthly employment (18,864) occurred in October. Much of this was accounted for by the BSAI pollock fishery.

There are a variety of at least partially external factors that affect the economic performance of the BSAI and GOA groundfish fisheries. They include landing market prices in Japan, wholesale prices in Japan, U.S. imports of groundfish products, U.S. per capita consumption of seafood, U.S. consumer and producer price indexes, foreign exchange rates, and U.S. cold storage holdings of groundfish. Exchange rates and world supplies of fishery products play a major role in international trade. Exchange rates change rapidly and can significantly affect the economic status of the groundfish fisheries.

4.4 Description of Fishing Communities

Traditionally, the dependence of BSAI and GOA coastal communities on the groundfish fisheries and fisheries affected by the groundfish fisheries has resulted from these communities being one or more of the following: 1) the home ports of vessels that participate in these fisheries; 2) the residence of participants in the harvesting or processing sectors of these fisheries; 3) the port of landings for these fisheries; 4) the location of processing plants; and 5) a service or transportation center for the fisheries. With the creation of the pollock, sablefish, and halibut community development quota (CDQ) programs for the BSAI in the early to mid-1990s and with the expansion of those programs into the multispecies CDQ program with the addition of all BSAI groundfish and crab by the late 1990s, the dependence now includes the participation of coastal, Western Alaska, Native communities in the CDQ program. The CDQ program has provided the following for the CDQ communities: 1) additional employment in the harvesting and processing sectors of these fisheries; 2) training; and 3) royalty income when the CDQs are used by a fishing company. In many cases, those royalties have been used to increase the ability of the residents of the CDQ communities to participate in the regional commercial fisheries.

Almost 100 Alaskan communities are listed as home ports. For the vast majority of the Alaska home ports, trawl vessels account for none or a very small part of the vessels and the mean length is less than 50 feet. Many of the Alaska home ports had fewer than 5 vessels. The Alaska home ports with typically more than 50 fishing vessels are as follows: Homer (100+), Juneau (200+), Kodiak (100+), Petersburg (50+), and Sitka (100+). For these five home ports, all but Kodiak had non-trawl vessels account for at least 90 percent of the vessels, and in Petersburg and Sitka almost 100 percent were non-trawl vessels. In 1997, the mean vessel lengths were as follow: Homer, 52 feet; Juneau, 54 feet; Kodiak, 61 feet;

Petersburg, 52 feet; and Sitka, 44 feet. Sand Point, which typically had more than 30 vessels and a mean vessel length of 47 feet in 1997, was unique among Alaska home ports in that typically trawl vessels accounted for more than 50 percent of its vessels.

From 1991 to 1997, the number of fishing vessels in the BSAI and GOA groundfish fisheries owned by Alaska residents decreased from 1,511 to 916, with most of the decrease occurring in 1992, and the mean length increased from 45 feet to 49 feet. Trawl vessels accounted for fewer than 10 percent of the total in any year and for fewer than 2 percent of the overall decrease in the number of vessels between 1991 and 1997.

The vast majority of the groundfish fishing vessels owned by Alaska residents use hook-and-line gear and operate only in the GOA. For example, of the 894 Alaskan owned fishing vessels that participated in the BSAI and GOA groundfish fisheries in 1996, 852 fished in the GOA compared to only 115 in the BSAI and 752 used hook-and-line gear compared to either 140 for pot gear or 75 for trawl gear. This is explained by the following: 1) the small size of most of the Alaska vessels; 2) the ability of small vessels to use hook-and-line gear effectively and safely, particularly in the GOA; and 3) the greater proximity of GOA fishing grounds to the home ports and owners' residences for the vast majority of the Alaska vessels.

With respect to groundfish fisheries, the hook-and-line vessels owned by Alaska residents have been involved almost exclusively in the sablefish, Pacific cod, and rockfish fisheries. Trawlers owned by Alaska residents principally have been involved in the pollock, Pacific cod, and flatfish fisheries. In 1996, 20 of the 75 Alaska owned trawlers participated in the BSAI groundfish fishery compared to 69 of the 752 Alaskan hook-and-line vessels, and 40 of the 140 Alaskan pot boats.

Vessels of residents of Alaska account for a larger percent of the ex-vessel value of the catch than of the weight of the catch. For example, in 1996, these vessels accounted for only 7.9 percent of the BSAI and GOA groundfish catch, but 14.5 percent of its ex-vessel value. This occurs because a larger percent of the catch of these vessels consists of higher priced groundfish species that are taken with hook-and-line gear. These species include sablefish, some of the higher priced rockfish, and Pacific cod.

When the fishing ports are ranked, from highest to lowest, on the basis of their 1997 groundfish landings and value, the first five ports account for in excess of 95 percent of the total Alaska groundfish landings. These are, in rank order:

Port & Ranking	Metric Tons*	Value	Number of Processors
1. Dutch Harbor/Unalaska	224,000	$59,774,500	6
2. Akutan	<120,000	NA	1
3. Kodiak	84,000	$33,488,800	9
4. Sand Point	<45,000	NA	1
5. King Cove	<25,000	NA	1

* estimated total groundfish landings
NA - data cannot be reported due to “confidentiality” constraints

For reference, in 1997, the sixth ranked Alaska groundfish landings port was Seward, Alaska. The total quantity of groundfish landed in Seward was approximately one-third that of King Cove, by far the smallest of the top five Alaska groundfish landings ports, and was dominated by sablefish, the only BSAI and GOA groundfish species managed under an IFQ program. Furthermore, much of the Seward

groundfish catch comes from State waters (e.g., Prince William Sound). After Seward, the quantities of groundfish landings drop off even more sharply for the remaining ports. For these reasons, a natural break occurs between the top five ports and the remaining ports. Therefore, the balance of this section will focus on the five primary groundfish ports, listed above.

Dutch Harbor/Unalaska and Akutan are located on the Bering Sea side of the Alaska Peninsula/Aleutian Island chain, while Sand Point and King Cove are on the Gulf of Alaska side and Kodiak Island, where the port and City of Kodiak are located, is in the Gulf. Nonetheless, a substantial portion of the groundfish processed in Sand Point and King Cove is harvested in the Bering Sea, as is a somewhat lesser share of that landed in Kodiak. Historically, relatively small amounts of groundfish harvested in the GOA have been delivered for processing in Dutch Harbor/Unalaska and Akutan.

At present, pollock and Pacific cod are the primary groundfish species landed and/or processed in these five ports. Alaska Department of Fish and Game fish ticket data indicate that in Dutch Harbor/Unalaska and Akutan, pollock represented 83 percent and 76 percent, respectively, of the 1997 total groundfish landings in these ports, with Pacific cod making up virtually all of the balance. In the case of Sand Point, pollock and Pacific cod, respectively, accounted for 69 percent and 29 percent of the total, with fractional percentages of other groundfish species accounting for the rest. In King Cove, this relationship was reversed, with pollock catch-share at 31 percent and Pacific cod at 69 percent of the groundfish total. Kodiak presented the most diversified species complex, with pollock representing 43 percent, Pacific cod 36 percent, assorted flatfishes at 14 percent, and a mix of other groundfish species making up the balance of the total.

Dutch Harbor/Unalaska

Dutch Harbor/Unalaska is located approximately 800 miles southwest of Anchorage and 1,700 miles northwest of Seattle. Unalaska is the 11th largest city in Alaska, with a reported year-round population of just over 4,000. The name Dutch Harbor is often applied to the portion of the City of Unalaska located on Amaknak Island, which is connected to Unalaska Island by a bridge. Dutch Harbor is fully contained within the boundaries of the City of Unalaska, which encompasses 115.8 square miles of land and 98.6 square miles of water (Alaska Department of Community and Regional Affairs 1998).

Unalaska is primarily non-Native, although the community is culturally diverse. Subsistence activities remain important to the Aleut community and many long-time non-Native residents, as well. Salmon, Pacific cod, Dolly Varden, Pacific halibut, sea bass, pollock, and flounders are the most important marine species, according to Alaska Department of Fish and Game reports. Sea urchins, razor and butter clams, cockles, mussels, limpets, chiton, crabs, and shrimps make up the shellfish and invertebrates most commonly harvested by subsistence users. Marine mammals traditionally harvested include sea lions, harbor and fur seals, and porpoises. Local residents also harvested reindeer, ducks, geese, sea gull eggs and other bird eggs in great numbers in previous years (NPFMC 1994a).

According to the 1990 U.S. Census, 682 total housing units existed and 107 were vacant. More than 2,500 jobs were estimated to be in the community. The official unemployment rate at that time was 1.0 percent, with 7.8 percent of the adult population not in the work force. The median household income was reportedly $56,215, and 15.3 percent of residents were living below the poverty level.

The majority of homes in the community are served by the City's piped water and sewer system. Sewage receives primary treatment before being discharged into Unalaska Bay. Approximately 90 percent of households are plumbed. Two schools are located in the community, serving 415 students.

Dutch Harbor/Unalaska has been called the most prosperous stretch of coastline in Alaska. With 27 miles of ports and harbors, several hundred local businesses, most servicing, supporting, or relying on the seafood industry, this city is the center of the Bering Sea fisheries.

Dutch Harbor is not only the top ranked fishing port in terms of landings in Alaska, but has held that distinction for the Nation, as a whole, each year since 1989. In addition, it ranked at or near the top in terms of the ex-vessel value of landings over the same period.

Virtually the entire local economic base in Dutch/Unalaska is fishery-related, including fishing, processing, and fishery support functions (e.g., fuel, supply, repairs and maintenance, transshipment, cold storage, etc.). Indeed, Dutch Harbor/Unalaska is unique among Alaska coastal communities in the degree to which it provides basic support services for a wide range of Bering Sea fisheries (Impact Assessment Incorporated 1998). It has been reported that over 90 percent of the population of this community considers itself directly dependent upon the fishing industry, in one form or another (NPFMC 1994a).

Historically, Dutch Harbor/Unalaska was principally dependent upon non-groundfish (primarily king and Tanner crab) landings and processing for the bulk of its economic activity. These non-groundfish species continue to be important components of a diverse processing complex in Dutch Harbor/Unalaska. In 1997, for example, nearly 2 million pounds of salmon, more than 1.7 million pounds of herring, and 34 million pounds of crabs were reportedly processed in this port.

Nonetheless, since the mid-1980s, groundfish has accounted for the vast majority of total landings in Dutch Harbor/Unalaska. Again, utilizing 1997 catch data, over 93.5 percent of total pounds landed and processed in this port were groundfish.

While well over 90 percent of this total tonnage was groundfish, a significantly smaller percentage of the attributable ex-vessel value of the catch is comprised of groundfish. While equivalent processed product values for non-groundfish production are not readily available, Alaska fish ticket data indicate that the ex-vessel value of these species landed in Dutch Harbor/Unalaska was nearly $43 million, in 1997; or about 60 percent of the reported gross product value of the groundfish output. If the value added through processing of these non-groundfish species were fully accounted for, the total would obviously exceed the ex-vessel value of the raw catch.

As suggested, transshipping is an integral component of the local service-based economy of this community, as well. The port serves as a hub for movement of cargo throughout the Pacific Rim. Indeed, the Great Circle shipping route from major U.S. west coast ports to the Pacific Rim passes within 50 miles of Unalaska. The Port of Dutch Harbor is among the busiest ports on the west coast. The port reportedly serves more than 50 domestic and foreign transport ships per month. Seafood products, with an estimated first wholesale value substantially in excess of a billion dollars, cross the port's docks each year and are carried to markets throughout the world.

The facilities and related infrastructure in Dutch Harbor/Unalaska support fishing operations in both the BSAI and GOA management areas. Processors in this port receive and process fish caught in both areas, and the wider community is linked to, and substantially dependent upon serving both the on-shore and at-sea sectors of the groundfish industry.

In a profile of regional fishing communities, published by the NPFMC in 1994, the local economy of Unalaska was characterized in the following way:

> If it weren't for the seafood industry, Unalaska would not be what it is today ... In 1991, local

processors handled 600 million lbs. of seafood onshore, and 3 billion lbs. of seafood were processed offshore aboard floating processors that use Dutch Harbor as a land base. Seven shore-based and many floating processors operate within municipal boundaries.

While these figures presumably include both groundfish and non-groundfish species, and current sources identify at least eight shore-based processing facilities, they are indicative of the scope of this community's involvement in, and dependence upon, seafood harvesting and processing.

Because of this high level of economic integration between Dutch Harbor/Unalaska and the fishing industry, any action which significantly reduced the total allowable catch of groundfish from the Bering Sea/Aleutian Islands (and to a lesser extent Gulf of Alaska) management areas would be expected to have a severely negative impact on the port and surrounding community.

While the port continues to be actively involved in support operations for crab, salmon, and herring fisheries, these resources do not hold the potential to offset economic impacts which would be associated with a significant reduction in (especially pollock and Pacific cod) groundfish TACs. Indeed, the newest and largest of the processing facilities in Dutch Harbor/Unalaska are dedicated to pollock surimi production, and could not readily shift production to an alternative species or product form, even if such an opportunity were to exist.

Detailed data on costs, net earnings, capital investment and debt service for the harvesting, processing, and fisheries support sectors in Dutch Harbor/Unalaska are not available. Therefore, it is not possible to quantify the probable net economic impacts on this community attributable to a significant reduction in groundfish TACs for the Bering Sea and Aleutian Islands or Gulf of Alaska management areas. It is apparent, however, that no alternative fisheries exist into which the port might diversify, in order to offset such a reduction in groundfish activity (crab resources remain biologically depressed and those fisheries are fully subscribed. The herring and salmon fisheries are managed by the State of Alaska with limited entry programs. Neither are there prospects (at least in the foreseeable future) for non-fishery related economic activity in Dutch Harbor/Unalaska that could substantially mitigate impacts from a significant reduction in groundfish fishing activity.

While Dutch Harbor has been characterized as one of the world's best natural harbors, it offers few alternative opportunities for economic activity beyond fisheries and fisheries support. Its remote location, limited and specialized infrastructure and transportation facilities, and high cost make attracting non-fishery related industrial and/or commercial investment doubtful (at least in the short-run). Sea floor minerals exploration, including oil drilling, in the region have been discussed. No such development seems likely in the short run, however. Unalaska, also, reportedly expected nearly 6,000 cruise ship visitors in 1996.

Without the present level of fishing and processing activities, it is probable that many of the current private sector jobs in this groundfish landings port could be lost, or at the very least, would revert to highly seasonal patterns, with the accompanying implications for community stability observed historically in this and other Alaska seafood processing locations dependent upon transient, seasonal work forces. It is likely, for example, that the number of permanent, year-round residents of Dutch Harbor/Unalaska would decline significantly. This would, in turn, alter the composition and character of the community and place new, and different, demands on local government.

The municipal government of the City of Unalaska is substantially dependent upon the tax revenues which are generated from fishing and support activities. While a detailed treatment of municipal tax accounts is beyond the scope of this assessment, it is clear that, between the State of Alaska's Fisheries

Business Tax and Fishery Resource Landings Tax revenues (both of which are shared on a 50/50 basis with the community of origin), local raw fish sales tax, real property tax (on fishery related property), and permits and fees revenues associated with fishing enterprises, the City of Unalaska derives a substantial portion of its operating, maintenance, and capital improvement budget from fishing, and especially groundfish fishing, related business activities. Should the groundfish harvest in the BSAI management area be substantially reduced, the municipality could experience a very significant reduction in its tax base and revenues (depending upon the species and size of the reduction). Potentially, the magnitude of these revenue reductions could be such that they could not readily be compensated for by the municipal government.

The local private business infrastructure which has developed to support the needs and demands of the fishery-based population of Dutch Harbor/Unalaska would very clearly suffer severe economic dislocation, should the number of employees in the local plants and fishing fleets decline in response to substantial TAC reductions. While insufficient cost and investment data exist with which to estimate the magnitude of probable net losses to these private sector businesses, it seems certain that a substantial number would fail. With no apparent economic development alternative available to replace groundfish harvesting and processing in Dutch Harbor/Unalaska (at least in the short run), there would be virtually no market value associated with these stranded assets.

Akutan

Akutan is located on Akutan Island in the eastern Aleutian Islands, one of the Krenitzin Islands of the Fox Island group. The community is approximately 35 miles east of Unalaska and 766 air miles southwest of Anchorage. Akutan is surrounded by steep, rugged mountains reaching over 2,000 feet in height. The village sits on a narrow bench of flat, treeless terrain. The small harbor is ice-free year-round, but frequent storms occur in winter and fog in summer. The community is reported to have a population of 414 persons, although the population can swell to well over 1,000 during peak fish processing months.

During the 1990 U.S. Census, 34 total housing units existed and 3 were vacant. 527 jobs were estimated to be in the community. The official unemployment rate at that time was .4 percent, with 7.4 percent of all adults not in the work force. The median household income was $27,813, and 16.6 percent of the residents were living below the poverty level. One school is in the community, serving 24 students.

Water is supplied from local streams, treated, and piped into homes. The seafood processing plant operates its own water treatment facility.

Akutan ranks as the second most significant landings port for groundfish on the basis of tons delivered and has been characterized as a unique community in terms of its relationship to these BSAI fisheries. According to a recent social impact assessment, prepared for the NPFMC, while Akutan is the site of one of the largest of the shoreside groundfish processing plants in the region, the community is geographically and socially separate from the plant facility.

Indeed, while the village of Akutan was initially judged to be ineligible to participate in the State of Alaska's CDQ program, based largely upon its being associated with "... a previously developed harvesting and processing capability sufficient to support substantial groundfish participation in the BSAI ...", it was subsequently determined that the community of Akutan was discrete and distinct from the Akutan groundfish processing complex.

As a result, Akutan has a very different relationship to the region's groundfish fisheries than does, for example, Dutch Harbor/Unalaska or Kodiak. While the community of Akutan derives economic benefits

from its proximity to the large Trident Seafoods shore plant (and a smaller permanently moored processing vessel, operated by Deep Sea Fisheries, which does only crab), the entities have not been integrated in the way other landings ports and communities on the list have.

As a CDQ community, the community of Akutan enjoys access to the BSAI groundfish resource independently of direct participation in the fishery. The CDQ communities as a group will receive CDQs equal to 7.5 percent of each BSAI groundfish TAC, except for the fixed gear sablefish TACs and pollock. The CDQ communities will receive 20 percent of the fixed gear sablefish TACs for the eastern Bering Sea and the Aleutian Islands areas and 10 percent of the eastern Bering Sea pollock allocation. Therefore, the CDQs available to the CDQ group to which Akutan is a member will change as the BSAI TACs change. As TACs decrease, the value per unit of CDQ would be expected to increase and at least partially offset the effect of the decrease in quantity. However, it is not known whether the total value of the CDQs would increase or decrease if TACs and, therefore, CDQs decrease. Similarly, the economic benefits the community derives from the local 1 percent raw fish tax from landings at the nearby plant are dependent on BSAI groundfish TACs and the resulting ex-vessel value of groundfish landings. As with the value of CDQs, typically decreases in TACs and landings would be expected to be at least partially offset by increases in ex-vessel prices.

Although this conclusion pertains to the community of Akutan, implications for the groundfish landings port of Akutan are quite different. The Trident plant is the principal facility in the Akutan port and, historically, a number of smaller, mobile processing vessels have operated seasonally out of the port of Akutan. Therefore, a substantial decrease in groundfish landings in this region, in response to decreases in TACs being assessed in this document, could have profoundly negative implications. Akutan does not have a boat harbor or an airport in the community. Beyond the limited services provided by the plant, no other opportunity exists in Akutan to provide a support base for other major commercial fisheries. Indeed, alternative economic opportunities of any kind are extremely limited.

While crab processing was a major source of income for the Akutan plant during the boom years of the late 1970s and early 1980s, with the economic collapse of this resource base in the early 1980s, groundfish processing became the primary source of economic activity. In 1997, for example, State of Alaska and NMFS catch records indicate that, while landings of herring and crabs were reported for the Akutan plant, more than 98 percent of the total pounds landed were groundfish, and these made up more than 80 percent of the estimated total value.

An obvious alternative to groundfish processing which could be developed to offset a significant reduction in groundfish landings in Akutan does not appear. Fisheries for crabs, halibut, salmon, and herring, while important sources of income to the region, are fully developed. Therefore, should the groundfish TAC be significantly reduced, most of the jobs held by employees of the plant would likely disappear (or at a minimum, become seasonal), and people would leave the area (although the exact number is unknown).

No data on cost, net revenues, capital investment and debt structure are available with respect to Trident Seafood's Akutan plant complex. It is not possible, therefore, to quantify probable attributable net impacts to plant owners/operators of a potential reductions in groundfish catches, although as noted above, the Akutan facility is almost completely dependent upon pollock and Pacific cod deliveries. Should TACs for these two species decline significantly, the impacts would be greater than if TACs for other groundfish species were reduced. While some adjustment to alternative groundfish species might be possible, in response to a sharp decline in pollock and/or Pacific cod TACs, the fact that the plant has not become more involved with other groundfish species during the times of the year in which pollock and Pacific cod are not available suggests that the economic viability of such alternatives is limited and

certainly inferior for the plant.

While the distribution of impacts across ports would not be expected to be uniform, should, in particular, pollock and/or Pacific cod TACs be reduced, it is likely that there could be substantial stranded capital costs and job losses in the port of Akutan. The size and rate of such losses is largely an empirical question.

Whereas the 1990 U.S. Census reported the population of Akutan at just under 600 (and the Alaska Department of Community and Regional Affairs CIS data places the figure at 414, in 1997), the local resident population is estimated at 80, with the remaining individuals being regarded as non-resident employees of the plant.

The permanent residents of the village are, reportedly, almost all Aleut. While some are directly involved in the cash economy (e.g., a small boat near-shore commercial fishery), many depend upon subsistence activities or other non-cash economic activities to support themselves and their families. The species important for subsistence users reportedly include: salmon, halibut, Pacific cod, pollock, flounders, Dolly Varden, greenling, sea lions, harbor and fur seals, reindeer, ducks and geese and their eggs, as well as intertidal creatures (e.g., clams, crabs, mussels). Berries and grasses are also collected as part of the subsistence harvest (NPFMC 1994a). These activities would be expected to be largely unaffected by any action to reduce the BSAI groundfish TAC.

Kodiak

The groundfish landings port of Kodiak is located near the eastern tip of Kodiak Island, southeast of the Alaska Peninsula, in the Gulf of Alaska. The City of Kodiak is the sixth largest city in Alaska, with a population of 6,869 (Alaska Department of Community and Regional Affairs 1998). The City of Kodiak is 252 air miles south of Anchorage. The port and community are highly integrated, both geographically and structurally. The port and community are the de facto center of fishing activity for the western and central Gulf of Alaska.

Kodiak is primarily non-Native, and the majority of the Native population are Sugpiaq Eskimos and Aleuts. Filipinos are a large subculture in Kodiak due to their work in the canneries. During the 1990 U.S. Census, 2,177 total housing units existed and 126 were vacant. An estimated 3,644 jobs were in the community. The official unemployment rate at that time was 4.4 percent, with 23 percent of the adult population not in the work force. The median household income was $46,050, and 6.2 percent of residents were living below the poverty level. Pillar Creek Reservoir and Monashka Reservoir provide water to the community, which is piped throughout the area. Piped sewage is processed in a secondary treatment plant. All homes are fully plumbed. Eight schools are located in the community, serving 2,252 students.

Kodiak supports at least nine processing operations which receive groundfish harvested from the GOA and, to a lesser extent, the BSAI management areas, and four more which process exclusively non-groundfish species. The port also supports several hundred commercial fishing vessels, ranging in size from small skiffs to large catcher/processors.

According to data supplied by the City:

> The Port of Kodiak is home port to 770 commercial fishing vessels. Not only is Kodiak the state's largest fishing port, it is also home to some of Alaska's largest trawl, longline, and crab vessels.

Unlike Akutan, or even Dutch Harbor/Unalaska, Kodiak has a more generally diversified seafood processing sector. The port historically was very active in the crab fisheries and, although these fisheries have declined from their peak in the late 1970s and early 1980s, Kodiak continues to support shellfish fisheries, as well as significant harvesting and processing operations for Pacific halibut, herring, groundfish, and salmon.

Kodiak processors, like the other onshore operations profiled in this section, are highly dependent on pollock and Pacific cod landings, with these species accounting for 43 percent and 36 percent of total groundfish deliveries, by weight, respectively. The port does, however, participate in a broader range of groundfish fisheries than any of the other ports cited. Most of this activity centers on the numerous flatfish species which are present in the GOA, but also includes relatively significant rockfish and sablefish fisheries.

In fact, Kodiak often ranks near the top of the list of U.S. fishing ports, on the basis of landed value, and is frequently regarded as being involved in a wider variety of North Pacific fisheries than any other community on the North Pacific coast.

In 1997, for example, the port recorded salmon landings of just under 44 million pounds, with an estimated ex-vessel value of over $12 million. Approximately 4.3 million pounds of Pacific herring were landed in Kodiak with an ex-vessel value of more than $717 thousand. Crab landings exceeded 1.1 million pounds and were valued at ex-vessel at more than $2.7 million.

While comparable product value estimates are not currently available for groundfish and non-groundfish production (i.e., first wholesale value), it may be revealing to note that groundfish landings accounted for 79 percent of the total tons of fish and shellfish landed in this port, in 1997.

In addition to seafood harvesting and processing, the Kodiak economy includes sectors such as transportation (being regarded as the transportation hub for southwest Alaska), federal/state/local government, tourism, and timber. The forest products industry, based upon Sitka spruce, is an important and growing segment of the Kodiak economy.

The community is, also, home to the largest U.S. Coast Guard base in the Nation. Located a few miles outside of the city center-proper, it contributes significantly to the local economic base. The University of Alaska, in conjunction with the National Marine Fisheries Service, operates a state-of-the-art fishery utilization laboratory and fishery industrial technology center in Kodiak, as well.

While Kodiak appears to be a much more mature and diversified economy that those of any other of the five primary groundfish landings ports in Alaska, it is likely that a substantial reduction in groundfish TAC in the Gulf, Aleutian Islands, and/or Bering Sea management area(s) could impose significant adverse economic impacts on Kodiak.

The absence of detailed cost, net revenue, capital investment and debt structure data for the Kodiak groundfish fishing and processing sectors precludes a quantitative analysis of the probable net economic impacts of such a TAC change. Nonetheless, one may draw insights from history, as when in the early-1980s king crab landings declined precipitously and Kodiak suffered a severe community-wide economic decline. It was largely the development of the groundfish fisheries which reinvigorated the local economy.

Unfortunately, an alternative fishery resource available to Kodiak fishermen and processors which could ameliorate significant reductions in groundfish landing does not appear. Neither do non-fishery based

opportunities appear, at least in the short run, which could be developed to reduce the adverse economic impacts of such a change in groundfish harvesting and processing.

Sand Point and King Cove

These are two independent and geographically separate groundfish 'landings ports' (lying approximately 160 miles from one another), but because each has only a single processor and each community is small and remote, they are described jointly in this section.

Alaska CIS data place Sand Point's 1998 population at 808, while King Cove's population is listed as 897. Sand Point is located on Humboldt Harbor, Popof Island, 570 air miles from Anchorage. Sand Point is described by the Alaska Department of Community and Regional Affairs as "a mixed Native and non-Native community," with a large transient population of fish processing workers. During the April 1990 U.S. Census, 272 total housing units were in existence and 30 of these were vacant. A total of 438 jobs were estimated to be in the community. The official unemployment rate at that time was 2.9 percent, with 32.1 percent of all adults not in the work force. The median household income was $42,083, and 12.5 percent of the residents were living below the poverty level. One school is located in Sand Point, attended by 145 students.

King Cove is located on the Gulf of Alaska side of the Alaska Peninsula, 625 miles southwest of Anchorage. The community is characterized as a mixed non-Native and Aleut village. In the 1990 U.S. Census, 195 total housing units were in existence, with 51 of these vacant. The community had an estimated 276 jobs, with an official unemployment rate of 1.8 percent and 24.0 percent of all adults not in the work force. The median household income was $53,631, and 10 percent of the residents were living below the poverty level. One school is located in the community, attended by 140 students.

Sand Point and King Cove, like Akutan, are part of the Aleutians East Borough. Unlike Akutan, however, neither Sand Point nor King Cove qualify as a CDQ community. Indeed, both Sand Point and King Cove have had extensive historical linkages to commercial fishing and fish processing, and currently support resident commercial fleets delivering catch to local plants. These local catches are substantially supplemented by deliveries from large, highly mobile vessels, based outside of the two small Gulf of Alaska communities.

King Cove boasts a deep water harbor which provides moorage for approximately 90 vessels of various sizes, in an ice-free port. Sand Point, with a 25 acre/144 slip boat harbor and marine travel-lift, is home port to what some have called, "the largest fishing fleet in the Aleutian Islands" (NPFMC 1994a).

For decades, the two communities have principally concentrated on their respective area's salmon fisheries. In 1997, for example, Sand Point and King Cove recorded salmon landings of several million pounds, each. State of Alaska data confidentiality requirements preclude reporting actual quantities and value when fewer than four independent operations are included in a category. Sand Point and King Cove each have one processor reporting catch and production data. In addition, King Cove had significant deliveries of Pacific herring and crabs. Recently, each community has actively sought to diversify its fishing and processing capability, with groundfish being key to these diversification plans.

According to a recent report presented to the Council (Impact Assessment Incorporated 1998):

> In terms of employment, 87 percent of Sand Point's workforce is employed full time in the commercial fishery; for King Cove this figure is more than 80 percent (United States Army Corps of Engineers 1997, and 1998). In both cases, fishing employment is followed by local

government (borough and local) and then by private businesses. Seafood processing ranks after each of these other employers, meaning that the vast majority of the workforce at the shore plants are not counted as community residents.

By any measure, these two communities are fundamentally dependent upon fishing and fish processing. In recent years, groundfish resources have supplanted salmon, herring, and crabs as the primary target species-group, becoming the basis for much of each community's economic activity and stability.

Few alternatives to commercial fishing and fish processing exist, within the cash-economy, in these communities by which to make a living. However, subsistence harvesting is an important source of food, as well as a social activity, for local residents in both Sand Point and King Cove. Salmon and caribou are reportedly among the most important subsistence species, but crabs, herring, shrimps, clams, sea urchins, halibut, and cod are also harvested by subsistence users. It is reported that Native populations in these communities also harvest seals and sea lions for meat and oil (Impact Assessment Incorporated 1998).

Any action which significantly diminishes the harvest of GOA and BSAI groundfish resources, especially those of pollock and Pacific cod, would be expected to adversely impact these two communities. King Cove is somewhat unique among the five key groundfish ports insofar as it is relatively more dependent upon Pacific cod than pollock, among the groundfish species landed (69 percent and 31 percent, respectively). Sand Point follows the more typical pattern with 69 percent of its groundfish landings being composed of pollock and 29 percent of Pacific cod (in 1997).

Because neither port has significant vessel support capabilities, their links to other groundfish fisheries is less direct than, say, either Kodiak or Dutch Harbor/Unalaska. This may suggest that reductions in TACs for species other than pollock and Pacific cod would have little or no direct impact on these two ports. However, because both compete with the larger ports for deliveries of these two groundfish species, structural changes in one or more of the other principal groundfish landings ports, attributable to TAC reductions for other than pollock and Pacific cod could, indirectly, affect King Cove and Sand Point. This is, however, largely an empirical question.

No data on cost, net revenues, capital investment, and debt structure are available with respect to the Sand Point or King Cove plant complexes. It is not possible, therefore, to quantify probable attributable net impacts to plant owners/operators of the potential reductions in groundfish catches and deliveries to these landings ports.

Other Alaska Groundfish Fishing Communities

As noted above, the remaining 5 percent or so of the total groundfish landings made to Alaska fishing ports is distributed over more than twenty different locations. Very few common characteristics are shared by all these remaining ports. Like virtually every settlement in Alaska (with the exception of Anchorage, population 254,269, in 1998), these landings ports are all relatively small communities. Some are exceedingly small, with year-round resident populations of a few dozen to a couple hundred people (e.g., Chignik - pop. 128; Pelican - pop. 196; St. Paul - pop. 739), while others could be regarded as small to moderate-sized towns, with populations numbering in the several thousands (e.g., Ketchikan - pop. 8,729; Kenai - pop. 6,950; and Petersburg - pop. 3,356).

Community Development Communities

The purpose of the CDQ program was to extend the economic opportunities of the developing fisheries in the Bering Sea and Aleutian Islands (especially pollock) to small, rural communities which had otherwise

not benefitted from their proximity to these valuable living marine resources.

As initially envisioned, the proposed program would set aside 7.5 percent of the Bering Sea and Aleutian Island's annual TAC for Alaska pollock for allocation to qualifying rural Alaskan communities. The program was initially proposed to run for a period of four year, lasting from 1992 through 1995, but was subsequently extended for an additional three years, carrying it through 1998. In the intervening period, a CDQ program for BSAI halibut and sablefish was implemented in 1995, a CDQ program for BSAI crab was implemented in 1998, the multi-species groundfish CDQ program was implemented in late 1998, and the Council recommended extending the pollock CDQ allocations by including pollock in the multi-species groundfish CDQ program.

The purpose of the CDQ program is, essentially, to redistribute a portion of the economic and social benefits deriving from the rich fishery resources of the Bering Sea and Aleutian Islands management areas to coastal communities in western Alaska which have not, to date, benefitted from their proximity to these fisheries. This is, historically, an economically depressed region of the Nation. By providing CDQ shares to qualifying communities, the expectation is that investment in capital infrastructure, community development projects, training and education of local residents, regionally based commercial fishing or related businesses can be developed and sustained.

CDQ communities are predominantly Alaska Native villages. They are remote, isolated settlements with few natural assets with which to develop and sustain a viable diversified economic base. As a result, unemployment rates are chronically high. This has led to habitual community instability.

While these communities effectively border some of the richest fishing grounds in the world, they have not been able, for the most part, to exploit their advantageous proximity. The full Americanization of these highly valued offshore fisheries has taken place relatively quickly (i.e., the last participation by foreign fishing vessels ended in the Bering Sea in 1990). But the scale of these fisheries (e.g., 2 million mt groundfish TAC), the severe physical conditions within which the fisheries are prosecuted, and the very high capital investment required to compete in the open-access management environment, all contributed to effectively precluding these villages from participating in this development. The CDQ program serves to ameliorate some of these apparent inequities by extending an opportunity to qualifying communities to directly benefit from the exploitation of these publicly owned resources.

The communities which are currently eligible to participate in the CDQ program include 56 coastal Alaska villages, with a combined population estimated at roughly 24,000. The CDQ-qualifying communities have organized themselves into six non-profit groups (with between 1 and 17 villages in each group). The CDQ-villages are geographically dispersed, extending from Atka, on the Aleutian chain, along the Bering coast, to the village of Wales, near the Arctic Circle. The following lists the current CDQ groups.

> Aleutian Pribilof Island Community Development Association (APICDA): The six communities represented by APICDA are relatively small and located adjacent to the fishing grounds. Population of the six communities is approximately 730.
>
> Bristol Bay Economic Development Corporation (BBEDC):BBEDC represents 13 villages distributed around the circumference of Bristol Bay, including Dillingham, the second-largest CDQ community with approximately 2,200 residents and the location of BBEDC's home office. Total population is approximately 3,900.

Central Bering Sea Fisherman's Association (CBSFA): CBSFA is unusual among CDQ groups in that it represents a single community, St. Paul in the Pribilof Islands.

Coastal Villages Region Fund (CVRF): CVRF manages the CDQ harvest for its 17 member villages. The villages are located along the coast between the southern end of Kuskokwim Bay and Scammon Bay, including Nunivak Island.

Norton Sound Economic Development Corporation (NSEDC): Fifteen villages and approximately 8,700 people make up the region represented by NSEDC, which ranges from St. Michael to Diomede.

Yukon Delta Fisheries Development Association (YDFDA): YDFDA represents the four communities, Alakanuk, Emmonak, Kotlik, and Sheldon Point, containing approximately 1, 750 people.

By design, at the time of implementation, CDQ communities could have no current or historical linkage to the fisheries in question. In fact, if a rural coastal community had such a history, it was precluded from receiving a CDQ allocation. Therefore, to derive economic benefit from their respective allocations, it has been necessary (with the exception of some of the halibut CDQs) for each CDQ group to enter into a relationship with one or more of the commercial fishing companies which participate in the open-access fishery. In this way, the CDQ community brings to the relationship preferential access to the fish and the partnering firm brings the harvesting/processing capacity. The nature of these relationships differs from group to group. In every case, the CDQ community receives royalty payments on apportioned catch shares. Some of the agreements also provide for training and employment of CDQ-community members within the partners' fishing operations, as well as, other community development benefits.

Fishing Communities not Adjacent to the Management Areas

Many of the participants in the BSAI and GOA groundfish fisheries are not from the communities adjacent to the management areas. Therefore, many of the fishing communities that are substantially dependent on or substantially engaged in the harvest or processing of BSAI or GOA groundfish fishery resources are not adjacent to the management areas. This is particularly true for the BSAI fishery because the adjacent communities are small and remote. Even in the case of Unalaska and Akutan, the two BSAI communities with large groundfish processing plants, a large part of the processing plant labor force is accounted for by individuals who are neither local nor Alaska residents. In the GOA, local residents play a substantially larger role in the harvesting and processing sectors of the groundfish industry as well as in the support industries.

Vessels that participated in the BSAI and GOA groundfish fisheries had home ports in nine states other than Alaska. However, only three states had home ports for more than 2 vessels. They were: California with fewer than 20 vessels, Oregon with 42 to 75 vessels, and Washington with 310 to 423 vessels. In 1997, 25 of the 48 vessels with Oregon home ports used trawl gear and the mean vessel length of the Oregon vessels was 75 feet. In 1997, 136 of the 331 vessels with Washington home ports used trawl gear and the mean vessel length of the Washington vessels was 115 feet. In comparison, fewer than 10 percent of the vessels with Alaska home ports used trawl gear in 1997 and their mean length was 49 feet.

Almost all of the non-Alaska home ports had fewer than 10 vessels, and many had only a few. Seattle, with typically about 300 vessels, was the only non-Alaska port with more than 50 vessels. Next after Seattle, was Newport with 17 vessels in 1997 and Portland with 19 vessels. For Seattle, 122 of the 282

vessels in 1997 were trawlers and the mean length of all vessels was 122 feet. The comparable numbers for Portland and Newport, respectively, are 5 of 19 and 64 feet and 16 of 17 and 91 feet.

Delete Section 5.0

Delete Section 6.0

Delete Section 7.0

Section 8 is revised as follows:

1. Sections 8.3, 8.4, 8.5, 8.6, and 8.7 and Tables 20, 21, and figures 21, 22, 23, and 24 are deleted.

2. Section 8.1 is renumbered 5.1

3. Section 8.2 is renumbered 5.2

4. Section 8.8 is renumbered 5.3.

5. Section 8.9 is renumbered 5.4.

6. Section 8.10 is renumbered 5.5.

7. Section 8.11 is renumbered 5.6.

8. Section 8.12 is renumbered 5.7.

9. Section 8.13 is renumbered 5.8.

10. Section 8.14 is renumbered 5.9.

11. Section 8.15 is renumbered 5.10.

12. Section 8.16 is renumbered 5.11.

13. In the new section 5.11, references to sections 8.1 and 8.9.1 are changes to 5.1 and 5.4.1, respectively.

14. Section 8.17 is renumbered 5.12.

Renumber Section 9 to Section 6

Renumber Section 10 to Section 7

The new Section 7 is revised as follows:

1. In Section 7.1 the following paragraph is added to the end of the section:

* * * * *

The groundfish resources off Alaska have been harvested entirely by U. S.-flagged vessels

since 1991 and processed entirely by U. S. processors. No portion of the annual optimal yield is allocated to foreign harvesters or foreign processors.

2. In Section 7.3, the introductory paragraphs are revised as follows:

a. Revise the first paragraph as follows:

In consultation with the Council, the Secretary will establish harvest specifications, including TACs and apportionments thereof, and reserves for each target species and the "other species" category, by January 1 of the new fishing year, or as soon as practicable thereafter, by means of regulations published in the Federal Register. Harvest specifications may be effective for up to two fishing years.

b. In the second paragraph, the reference "13.2B.2 on page 14-1" is revised to "8.2.B.2".

c. Revise the third paragraph as follows:

As soon as practicable after its October meeting, the Council will recommend proposed harvest specifications to the Secretary. The Council's recommendation will include proposed ABC and TAC amounts for each target species and the "other species" category, PSC limits, apportionments, TAC reserves, the basis for each proposed harvest specification, and a descriptions of developing information that may be relevant to the final harvest specifications. As soon as practicable after the October meeting and after considering the Council's recommended proposed harvest specifications, the Secretary will publish in the Federal Register a notice of proposed harvest specifications and make available for public review and comment all information regarding the basis for the harvest specifications. The notice of proposed harvest specifications will identify whether and how harvest specifications are likely to be affected by developing information unavailable at the time the notice is published. The prior public review and comment period on the notice of proposed harvest specifications will be a minimum of 15 days.

d. The last paragraph is revised and a paragraph is added as follows:

At its December meeting, the Council will review the final SAFE reports, recommendations from the Groundfish Plan Team, SSC, AP, and comments received. The Council will make final harvest specifications recommendations to the Secretary. As soon as practicable thereafter and after considering the Council's recommendation, the Secretary will publish final harvest specifications for the groundfish fishery. New final harvest specifications will supercede current harvest specifications on the effective date of the new harvest specifications. However, if the Secretary determines that the notice of final specifications would not be "a logical outgrowth" of the notice of proposed harvest specifications (i.e., the notice of proposed harvest specifications was inadequate to afford the public opportunity to comment meaningfully on the issues involved), the Secretary will either: (1) publish a revised notice of proposed harvest specifications in the Federal Register, solicit public comment thereon, and publish a notice of final harvest specifications, as soon as is practicable; or (2) if "good cause" pursuant to the Administrative Procedure Act exists, waive the requirements for notice and comment and 30-day delayed effectiveness and directly publish a notice of final harvest specifications with a post-effectiveness public comment period of 15 to 30 days.

3. In Section 7.3.1, delete the last sentence.

4. Section 7.3.2 is revised as follows:

7.3.2 Reserves

The groundfish reserves at the beginning of each fishing year shall equal the sum of 15 % of each target species and the "other species" category TACs, except for pollock and the hook-and-line and pot gear allocation of sablefish. When the TACs for the groundfish complex is determined by the Council, 15 % of TACs is set aside as a reserve, except for pollock and hook-and-line and pot gear allocations of sablefish. This reserve is used for: (a) unexpected expansion of the fishery, (b) correction of operational problems in the fishing fleets, promoting full and efficient use of groundfish resources, (c) adjustment of species TACs according to the condition of stocks during the fishing year, and (d) apportionments.

The reserve is not designated by species or species groups and will be apportioned to the fishery during the fishing year by the Regional Administrator in amounts and by species that he/she determines to be appropriate. The apportionment of the reserve to target species or to the "other species" category must be consistent with the most recent assessments of resource conditions unless the Regional Administrator finds that the socioeconomic considerations listed above or specified fishery operational problems dictate otherwise. Except as provided for in the National Standard Guidelines for Fishery Conservation and Management, the Regional Administrator must also find that the apportionment of reserves will not result in overfishing as defined in the guidelines. The Regional Administrator may withhold reserves for conservation reasons.

5. Delete sections 7.3.3, 7.4, 7.5, 7.6, 7.7 and Table 22a.

Delete Section 11.

Delete Section 12

Renumber Section 13 to 8.

1. The new Section 8.1 is revised as follows:

Four priority objectives dictate the philosophy of management for the groundfish fishery in the region:

(1) Provide for rational and optimal use, in a biological and socioeconomic sense, of the region's fishery resources as a whole;
(2) Minimize the impact of groundfish fisheries on prohibited species and continue the rebuilding of the Pacific halibut resource;
(3) Provide for the opportunity and orderly development of domestic groundfish fisheries, consistent with (1) and (2) above; and
(4) Seek to maintain the productive capacity of the habitat required to support the Bering Sea/Aleutian Islands groundfish fishery.

2. In the new Section 8.2B.,

a. The reference to "4.2 A" in the introductory paragraph is revised to read "Section 4.0"

b. In paragraph 1., the reference 14.4.2.F is revised to 8.4.2.F.

3. In the new Section 8.4.2

a. In paragraph A., the reference to 13.2.B.1 is revised to 8.2.B.1.

b. Paragraph E. is revised as follows:

E. PSC Limits and Time/Area Closures for Groundfish Fisheries

The PSC limits and area closures for groundfish fisheries will be reviewed each year to determine whether changes in prohibited species stock abundance or other factors justify consideration of alternative PSC limits or time/area closures.

4. In the new Section 8.4.2.3,

a. In paragraphs A, the reference to "13.4.2.2" is revised to "8.4.2.2".

b. Paragraphs B (1) through B(6) are revised as follows:

B. * * *

(1) Prior to the October Council Meeting. The Plan Team will provide the Council the best available information on estimated prohibited species bycatch and mortality rates in the target groundfish fisheries, and estimates of seasonal and annual bycatch rates and amounts.

(2) October Council Meeting. During its development of recommendations for proposed groundfish harvest levels under Section 7.3, the Council will also review the need to control the bycatch of prohibited species and will recommend appropriate apportionments of PSC limits to fishery categories as bycatch allowances. Fishery bycatch allowances are intended to optimize total groundfish harvest under established PSC limits, taking into consideration the anticipated amounts of incidental catch of prohibited species in each fishery category. The Council may recommend exempting specified nontrawl fishery categories from the non-trawl halibut bycatch mortality limit restrictions, after considering the same factors (1) through (8) set forth under Section 8.4.2.2, Part D. The Council will also review the need for seasonal apportionments of fishery bycatch allowances. The Council will consider the best available information when recommending fishery apportionments of PSC limits and seasonal allocation of those apportionments. Types of information that the Council will consider relevant to seasonal allocation of fishery bycatch quotas include:

(a) Seasonal distribution of prohibited species;
(b) Seasonal distribution of target groundfish species relative to prohibited species distribution,
(c) Expected prohibited species bycatch needs on a seasonal basis relevant to changes in prohibited species biomass and expected catches of target groundfish species,
(d) Expected bycatch rates on a seasonal basis,
(e) Expected changes in directed groundfish fishing seasons,
(f) Expected start of fishing effort, and

(g) Economic effects of establishing seasonal halibut allocations on segments of the target groundfish industry.

(3) As soon as practicable after the Council's October meeting and after considering the Council's recommendations, the Secretary will publish proposed PSC apportionments in the Federal Register as part of the notice of proposed harvest specifications published under section 7.3. Information on which the recommendations are based also will be published in the Federal Register or otherwise made available. Public comments will be invited by means specified in regulations implementing the FMP.

(4) Prior to the December Council Meeting. The Plan Team will prepare for the Council a final SAFE report under Section 7.3 which provides the best available information on estimated prohibited species bycatch rates in the target groundfish fisheries and recommendations for halibut PSCs. If the Council requests, the Plan Team also may provide PSC apportionments and allocations among the target fisheries and gear types, and an economic analysis of effects of the apportionments.

(5) December Council Meeting. During its development of recommendations for final groundfish harvest levels, the Council will review public comments, take public testimony, and develop final recommendations on apportionments of PSC limits among fisheries and seasons, using the same factors (a) through (g) set forth under Section 8.4.2.3, Part B (seasonal allocations of the PSC limits). The Council also will develop final recommendations on the exemption of any non-trawl fishery category from halibut bycatch mortality restrictions using the same factors (1) through (8) set forth under Section 8.4.2.2, Part D.

(6) As soon as practicable after the Council's December meeting, following the harvest specifications process described in section 7.3, and after considering the Council's recommendations, the Secretary will publish final PSC apportionments in the Federal Register as part of the notice of final harvest specifications published under section 7.3. Information on which the final recommendations are based will also be published in the Federal Register or otherwise made available.

4. In the new Section 8.4.2.4, the reference "13.4.2.2" is revised to "8.4.2.2".

5. In the new Section 8.4.3.4, the text "DAP or JVP" is deleted.

6. In the new Section 8.4.5,

   a. The text "NOAA Fisheries" in the first and second paragraphs is revised to "NMFS".

   b. Delete the paragraph titled Information on processing expectations.

   c. Paragraph B. is revised as follows:

   B. Processor Reports

   All processors of groundfish shall report information necessary for the management of groundfish fishery resources. The regulation implementing this plan specify the information to be reported and the time schedule for reporting.

d. Delete paragraph C.

e. Redesignate paragraph D. to paragraph C.

f. In the new paragraphs C. 1., C. 2., and C.3., the text “Director” is revised to “ Administrator”.

7. In the new paragraph 8.4.7.1.1, the reference to 13.4.7.1 is revised to 8.4.7.1.

8. In the new paragraph 8.4.7.1.5(5), the reference 13.4.8.4(1) is revised to 8.4.7.1.4.

9. In the new paragraph 8.4.7.1.5(5)d., the reference 13.4.7.1.1 is revised to 8.4.7.1.1.

10. In the new paragraph 8.4.7.3.3, the reference 13.4.7.1 is revised to 8.4.7.1.

11. In the new paragraph 8.4.7.3.5, the references to 13.4.7.3.3 and 13.4.7.3.4 are revised to 8.4.7.3.3 and 8.4.7.3.4, respectively

12. In the new Section 8.4.8, in paragraphs 1, 3, 7, 8, 10, 12, and 13 the text “Director” is revised to “Administrator”.

13. In the new paragraph 8.4.8(B), the reference to 13.4.2 is revised to 8.4.2.

14. In the new paragraph 8.4.9.2.2, the reference 13.4.9.2.1 is revised to 8.4.9.2.1.

15. In the new paragraph 8.4.9.2.3, the reference to 13.4.9.2.1 is revised to 8.4.9.2.1.

16. In the new Section 8.4.9.3

a. the reference to 11.3 in the introductory paragraph is revised to 7.3.

b. In paragraph (a), the reference 13.4.2 is revised to 8.4.2.

17. In the new Section 8.4.10, in the first paragraph, the text “Director” is revised to “ Administrator”
.

18. Delete Section 13.5 (Management Measures–Foreign Fisheries)

19. Delete Section 13.6.

20. Renumber Section 13.7 to 8.5.

21. Renumber Section 13.8 to 8.6.

22. Renumber Section 13.9 to 8.7.

Renumber Section 14 to 9

In the second introductory paragraph, reference to Section 14.0 is revised to 9.0.

Renumber Section 15 to 10

Renumber Section 16 to 11

Renumber Section 17 to 12

Add the following references to the new Section 12.1 in alphabetical order:

Alaska Department of Community and Regional Affairs. 1998. "Community Information Summary (CIS)." in Alaska Department of Community and Regional Affairs, P.O. Box 112100, Juneau, AK 99811.

Fredin, R. A. 1987. History of regulation of Alaska groundfish fisheries. National Marine Fisheries Service, NWAFC Processed Report 87-07. 63 p.

Impact Assessment Incorporated. 1998. "Inshore/Offshore 3 - Socioeconomic Description and Social Impact Assessment." in Impact Assessment, Inc., 911 West 8th Avenue, Suite 402, Anchorage, AK.

Megrey, B. A., and V. G. Wespestad. 1990. Alaskan groundfish resources: 10 years of management under the Magnuson Fishery Conservation and Management Act. N. Am. J. Fish. Management 10(2):125-143.

NPFMC. 1994a. "Fishery Management Plan for the Gulf of Alaska Groundfish Fishery." in North Pacific Fishery Management Council, 605 West 4th Avenue, Suite 306, Anchorage, AK 99501.

NPFMC. 1995. "Fishery Management Plan for the Bering Sea/Aleutian Islands Groundfish." in North Pacific Fishery Management Council, 605 West 4th Avenue, Suite 306, Anchorage, AK 99501.

United States Army Corps of Engineers. 1997. "Navigation improvements: detailed project report and environmental assessment, King Cove, Alaska." in U.S. Army Alaska Engineer District, Anchorage, AK.

United States Army Corps of Engineers. 1998. "Harbor improvements feasibility report and environmental assessment, Sand Point, Alaska." in U.S. Army Alaska Engineer District, Anchorage, AK.

Witherell, D., and Pautzke, C. 1997. "A brief history of bycatch management measures for eastern Bering Sea groundfish fisheries." *Marine Fisheries Review.* 59:15-22.

Renumber Section 18 to 13.

Remove and reserve Annex II and Annex III