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STOCK ASSESSMENT AND FISHERY EVALUATION REPORT FOR THE GROUNDFISH FISHERIES OF THE GULF OF ALASKA AND BERING SEA/ALEUTIAN ISLANDS AREA:

ECONOMIC STATUS OF THE GROUNDFISH FISHERIES OFF ALASKA, 2011

by

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The authors of the Groundfish SAFE Economic Status Report invite users to provide feedback regarding the quality and usefulness of the Report and recommendations for improvement. AFSC's Economic and Social Sciences Research Program staff have begun an initiative to revise the SAFE Economic Status Reports for Alaska Groundfish and BSAI Crab to incorporate additional analytical content and synthesis, improve online accessibility of public data in electronic formats, and otherwise improve the utility of the reports to users. We welcome any and all comments and suggestions for improvements to the SAFE Economic Status Reports, and have developed an online survey to facilitate user feedback. The survey is available at:
`http://www.afsc.noaa.gov/REFM/Socioeconomics/Contact/SAFE_survey.php`

This report will be available at:
`http://www.afsc.noaa.gov/refm/docs/2011/economic.pdf`

Time series of data for the tables presented in this report (in CSV format) are available at:
`http://www.afsc.noaa.gov/REFM/Socioeconomics/documents.php`

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gear, which typically accounts for 90% or more of the catch. The one exception is Pacific cod, of which 31.8% (90,000 t) was taken by trawls in 2011, 48.1% (136,000 t) by hook-and-line gear, and 20.1% (57,000 t) by pot gear. In each of the years since 2006, catcher vessels took 41.4 - 45.6% of the total catch and catcher/processors took the remainder. That increase from years prior to 1999 (not shown in Table 2) is explained in part by the AFA, which among other things increased the share of the BSAI pollock TAC allocated to catcher vessels delivering to shoreside processors. The distribution of catch between catcher vessels and catcher/processor vessels differed substantially by species and area.

Target fisheries are defined by area, gear and target species. The target designations are used to estimate PSC, apportion PSC allowances by fishery, and monitor those allowances. The target fishery designations can also be used to provide estimates of catch and PSC data by fishery. The blend catch data are assigned to a target fishery by processor, week, area, and gear. The new catch-accounting system, which replaced the blend as the primary source of catch data in 2003, assigns the target at the trip level rather than weekly, except for the small fraction of total catch (0-4% in different years) that comes from NMFS Weekly Production Reports (WPR). CDQ fishing activity is targeted separately from non-CDQ fishing. Generally, the species or species group that accounts for the largest proportion of the retained catch of the TAC species is considered the target species. One exception to the dominant retained-catch rule is that the target for the pelagic pollock fishery is assigned if 95% or more of the total catch is pollock. Tables 3 and 4 provide estimates of total catch by species, area, gear, and target fishery for the GOA and the BSAI, respectively. Beginning in 2011, Kamchatka flounder is broken out from the "Other flatfish" target species category in the BSAI only. As such, the other flatfish target category is not comparable between 2011 and prior years in Tables 4 , 8, 10, 13, and 15; and the other flatfish species category is not comparable in Tables 4, 8, and 26.

Residents of Alaska and of other states, particularly Washington and Oregon, are active participants in the BSAI and GOA groundfish fisheries. Catch data by residency of vessel owners are presented in Table 5. These data were extracted from the NMFS blend and catch accounting system catch databases and from the State of Alaska groundfish fish ticket database and vessel-registration file, which includes the stated residency of each vessel owner. For the domestic groundfish fishery as a whole, 79.5% of the 2011 catch volume was made by vessels with owners who indicated that they were not residents of Alaska. The catches of the two vessel-residence groups were much closer to being equal in the GOA where Alaskan vessels accounted for the majority of the Pacific cod catch. Note that in 2010 we changed the method by which we produced Table 5. Since the Alaska Region's CAS data (unlike the earlier Blend data) now include catcher-vessel IDs for all processing sectors, and information on vessel-owner residency is readily available from both NMFS and the state of Alaska, we can obtain direct estimates of groundfish catch by owner residence. Previously, we had estimated the amount of catch by residency for the shoreside sector by prorating CAS estimates based on the fraction of catch by residency obtained from shoreside fish-ticket data, which have always included catcher-vessel IDs.

2.2. Groundfish Discards and Discard Rates

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. Table 6 presents the catch-accounting system estimates of discarded groundfish catch and discard rates by gear, area, and species for years

2007-2011. The discard rate is the percent of total catch that is discarded. Although these are the best available estimates of discards and are used for several management purposes, these estimates are not necessarily accurate. The groundfish TACs are established and monitored in terms of total catch, not retained catch; this means that both retained catch and discarded catch are counted against the TACs. Therefore, the catch-composition sampling methods used by at-sea observers provide the basis for NMFS to make good estimates of total catch by species, not the disposition of that catch. Observers on vessels sample randomly chosen catches for species composition. For each sampled haul, they also make a rough visual approximation of the weight of the non-prohibited species in their samples that are being retained by the vessel. This is expressed as the percent of that species that is retained. Approximating this percentage is difficult because discards occur in a variety of places on fishing vessels. Discards include fish falling off of processing conveyor belts, dumping of large portions of nets before bringing them on-board the vessel, dumping fish from the decks, size sorting by crewmen, quality-control discard, etc. Because observers can be in only one place at a time, they can provide only this rough approximation based on their visual observations rather than data from direct sampling. The discard estimate derived by expanding these approximations from sampled hauls to the remainder of the catch may be inaccurate because the approximation may be inaccurate. The numbers derived from the observer discard approximation can provide users with some information as to the disposition of the catch, but the discard numbers should not be treated as sound estimates. At best, they should be considered a rough gauge of the quantity of discard occurring.

For the BSAI and GOA fisheries as a whole the annual discard rate for groundfish was about 4%-6% for the years 2007-2011. The overall discard rate in 2007 represents a two-thirds reduction from the 1997 rate of 14.5% (not shown in Table 6), a result of prohibiting pollock and Pacific cod discards in all BSAI and GOA groundfish fisheries beginning in 1998. Total discards decreased by about 60% from 1997 to 2006 due to the reduction in the discard rate, while the total catch increased by about 6%. The prohibition on pollock and Pacific cod discards was so effective in decreasing the overall discard rate because the discards of these two species had accounted for 43% of the overall discards in 1997. The benefits and costs of the reduction in discards since 1997 have not been determined. In 2011, the overall discard rates were about 8% and 3%, respectively, for the GOA and the BSAI compared to 16% and 14% in 1997.

Although the fixed gear fisheries accounted for a small part of both total catch or total discards in 1998 and later years, the overall discard rates were substantially higher for fixed gear (11% in 2011) than for trawl gear (3)% in 2011). Prior to 1998, the overall discard rates had been similar for these two gear groups. This change occurred because the prohibition on pollock and Pacific cod discards had a much larger effect on trawl discards than on fixed gear discards. In the BSAI, the 2011 discard rates were 8% and 8% for fixed and trawl gear, respectively. In the GOA, however, the corresponding discard rates were 12% and 2%. One explanation for the relatively low discard rates for the BSAI trawl fishery is the dominance of the pollock fishery with very low discard rates. The mortality rates of groundfish that are discarded are thought to differ by gear or species; however, estimates of groundfish discard mortality are not available.

Tables 7, 8, 9 and 10, respectively, provide estimates of discarded catch and discard rates by species, area, gear, and target fishery. Within each area or gear type, there are substantial differences in discard rates among target fisheries. Similarly, within a target fishery, there are often substantial differences in discard rates by species. Typically, in each target fishery the discard rates are very high except for the target species. The regulatory exceptions to the prohibition on pollock and

Table 5: Groundfish catch off Alaska by area, residency, and species, 2007 - 2011 (1,000 metric tons, round weight)

		Gulf of Alaska		Bering Sea and Aleutian Islands		All Alaska	
	Year	Alaska	Other	Alaska	Other	Alaska	Other
Pollock	2007	20	33	246	1111	266	1144
	2008	22	30	183	809	205	839
	2009	20	25	125	687	145	712
	2010	35	42	136	676	171	718
	2011	32	50	185	1015	217	1065
Sablefish	2007	6	6	1	2	7	8
	2008	7	6	1	1	7	7
	2009	6	5	1	1	7	6
	2010	5	5	1	1	6	6
	2011	6	5	1	1	7	6
Pacific Cod	2007	24	16	33	137	58	153
	2008	23	21	31	135	54	156
	2009	24	16	35	138	59	154
	2010	34	25	37	131	72	155
	2011	40	22	51	169	91	191
Flatfish	2007	11	30	38	178	49	208
	2008	12	34	60	211	71	245
	2009	13	30	59	168	72	198
	2010	12	26	67	187	78	213
	2011	8	33	79	207	87	240
Rockfish	2007	5	18	1	23	6	41
	2008	5	18	0	21	5	39
	2009	6	17	1	19	6	36
	2010	7	18	1	23	8	41
	2011	7	16	1	27	8	43
Atka Mackerel	2007	0	1	1	58	1	59
	2008	0	2	0	58	0	60
	2009	0	2	0	73	0	75
	2010	0	2	0	69	0	71
	2011	0	1	0	52	0	53
All Groundfish	2007	70	108	325	1532	395	1639
	2008	72	115	281	1261	353	1375
	2009	73	97	226	1110	299	1207
	2010	98	121	245	1106	343	1227
	2011	97	131	323	1495	420	1626

Notes: These estimates include only catch counted against federal TACs. Catch delivered to motherships is classified by the residence of the owner of the mothership. All other catch is classified by the residence of the owner of the fishing vessel. All groundfish include additional species categories. Other includes catch by vessels for which residency information was unavailable.

Source: NMFS Alaska Region Catch Accounting System estimates, fish tickets, CFEC vessel data (housed at the Alaska Fisheries Information Network (AKFIN)). National Marine Fisheries Service, P.O. Box 15700, Seattle, WA 98115-0070.

Table 6: Discards and discard rates for groundfish catch off Alaska by area, gear, and species, 2007 - 2011 (1,000 metric tons, round weight)

			Fixed		Trawl		All gear	
		Year	Total Discards	Discard Rate	Total Discards	Discard Rate	Total Discards	Discard Rate
Gulf of Alaska	Pollock	2007	0	8 %	1.5	3 %	1.5	3 %
		2008	0.1	30 %	3.6	7 %	3.6	7 %
		2009	0	4 %	2.5	6 %	2.6	6 %
		2010	0.1	44 %	1.1	1 %	1.2	2 %
		2011	0	19 %	1.9	2 %	2	2 %
	Sablefish	2007	0.2	2 %	0.2	16 %	0.4	3 %
		2008	0.7	6 %	0.1	8 %	0.8	6 %
		2009	0.8	8 %	0.1	9 %	0.9	8 %
		2010	0.4	4 %	0	5 %	0.4	4 %
		2011	0.4	4 %	0.2	16 %	0.5	5 %
	Pacific Cod	2007	0.3	1 %	1.1	8 %	1.5	4 %
		2008	0.3	1 %	3	15 %	3.3	8 %
		2009	0.9	3 %	3	21 %	3.9	10 %
		2010	0.4	1 %	2.4	11 %	2.9	5 %
		2011	1.1	2 %	0.6	4 %	1.8	3 %
	Flatfish	2007	0.6	91 %	10.9	27 %	11.6	29 %
		2008	0.9	93 %	10.2	23 %	11.1	24 %
		2009	0.4	91 %	12.5	30 %	12.9	30 %
		2010	0.5	93 %	10.3	27 %	10.8	28 %
		2011	0.3	91 %	7.4	18 %	7.8	19 %
	Rockfish	2007	0.4	27 %	0.9	4 %	1.3	6 %
		2008	0.3	22 %	1.3	6 %	1.6	7 %
		2009	0.3	25 %	1.6	8 %	1.9	9 %
		2010	0.4	29 %	1.3	6 %	1.7	7 %
		2011	0.3	25 %	1.6	7 %	1.9	8 %
	Atka Mackerel	2007	0	100 %	0.6	38 %	0.6	39 %
		2008	0	99 %	1.3	62 %	1.3	63 %
		2009	0	100 %	0.9	41 %	0.9	41 %
		2010	0.1	100 %	1.2	49 %	1.2	51 %
		2011	0	99 %	0.6	36 %	0.6	36 %
	All Groundfish	2007	4.3	10 %	17.4	13 %	21.7	12 %
		2008	4.6	11 %	21.1	15 %	25.7	14 %
		2009	5.4	13 %	21.9	17 %	27.3	16 %
		2010	4	8 %	17.8	11 %	21.9	10 %
		2011	4.7	8 %	13.3	8 %	18	8 %

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