

## Change to MRA Enforcement Period<sup>1</sup> October 2014

### I. Introduction

At the December 2013 meeting, the Council initiated a regulatory amendment adjusting the maximum retainable allowance (MRA) enforcement period for all fisheries in the Bering Sea and Aleutian Islands (BSAI) and the Gulf of Alaska (GOA). Specifically, the proposed action would change the enforcement period from an instantaneous (at any point in time during a fishing trip) to the time of offload. The intent of the action is to increase efficiency and reduce regulatory discards.

With the exception of pollock in the BSAI for non-American Fisheries Act (AFA) vessels<sup>2</sup>, current regulations prohibit the retention of a species that are closed to directed fishing in an amount that exceeds the MRA percentage of the basis species at any point in time during a fishing trip. Catch that exceeds the MRA percentage must be discarded. Under the proposed action, compliance with the MRA would be determined at the end of each offload, and any catch that exceeds the MRA must be discarded prior to the offload.

The benefit of this action is that vessels could choose to retain species that are closed to directed fishing in excess of the MRA as long as the amount retained at the time of offload is at or below the MRA percentage with respect to the basis species or species groups retained. For example, if the Greenland turbot fishery is closed to directed fishing, and a vessel operator catches Greenland turbot early in a trip in excess of the MRA, the vessel operator may choose to retain the Greenland turbot and move to an area with lower incidental catch rates of the species. This would lower the percentage of Greenland turbot retained, with respect to other basis species, prior to the offloading of catch. As long as the amount of Greenland turbot is at or below the appropriate MRA at the time of offload, the vessel operator would be in compliance.

At the February 2014 meeting, the Council provided further clarification that staff should prepare a discussion paper prior to preparing an EA/RIR/IRFA. The Council indicated that the discussion paper should focus on how a change in the MRA enforcement period could affect vessel behavior with regards to the species managed in the North Pacific groundfish fisheries. The discussion paper should balance a vessel's ability to target species that are closed to directed fishing with the regulatory requirement to discard catch over the MRA percentage for the species closed to directed fishing.

### II. Problem statement

Under current regulations, it is unlawful for a vessel to exceed the MRA at any time during a fishing trip as defined in 50 CFR 679.2. The current MRA regulations appear to be most difficult to operate under at the beginning of a fishing trip when vessels are searching for species that are open for directed fishing and do not have significant amounts of the basis species on board. If a vessel catches a percentage of incidental catch species that exceeds the MRA for the basis species currently on board the portion of the

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<sup>2</sup> The regulations allowing MRA enforcement for non-AFA vessels in the BSAI pollock fishery during offload was intended to increase the retention of pollock by non-AFA vessels in the BSAI, while not increasing the overall amount of pollock harvested. The effective date of this regulation was July 14, 2004.

incidental catch species exceeding the MRA must be discarded, which is called regulatory discards. Later in the trip, after sufficient amounts of the basis species have been caught, it is more likely that a vessel will have enough of the basis species on board to accommodate a tow that includes incidental catch of an MRA species without being required to discard the incidental catch species. **Although the Council has not created a problem statement for the proposed action, this action is to reduce regulatory discards by calculating retention of MRA species at the time of offload while at the same time not increasing the catch of MRA species above the MRA.**

### III. Description of the alternatives

The Council, during its December 2013 meeting, proposed two alternatives:

**Alternative 1 – No Action/Status Quo.** Under this alternative, the MRA enforcement period would continue to be enforced on an instantaneous basis, i.e., it is unlawful for a vessel to retain species on MRA status that exceed the MRA percentage at any time during a fishing trip.

**Alternative 2 – Change the MRA enforcement period for all fisheries in the BSAI and GOA to an offload-to-offload basis.** This alternative would change the enforcement period for all fisheries in the BSAI and GOA to an offload-to-offload period. Modifying the enforcement period to an offload-to-offload period would allow vessels that would have otherwise been required mid-trip to discard groundfish species on MRA status over the MRA, to retain species on MRA status, as long as they were under the MRA percentage at the time of offload.

### IV. Alternative enforcement periods eliminated from previous action

In June 2003, as part of a regulatory action, the Council approved a revision to the MRA enforcement period for BSAI pollock for non-AFA vessels. While considering that MRA action, the Council considered other enforcement periods ranging from weekly to yearly. In the end, these other enforcement periods were determined to be infeasible for NOAA Office of Law Enforcement. Enforcement periods less than an offload-to-offload basis would be infeasible to enforce because of the inability to determine which fish in the vessel's hold were associated with catches from individual weeks. Although enforcement periods longer than offload-to-offload were feasible to enforce, these longer period were judged by the Council as inconsistent with the problem statement and the goal to discourage covert targeting of more valuable species subject to MRA.

### V. Previous action to change MRA enforcement period

On July 14, 2004, NMFS implemented an action to adjust the MRA enforcement period for pollock harvested in the BSAI management area by non-AFA vessels from enforcement anytime during a fishing trip to enforcement at the time of offload. The intent of this action was to increase the retention of pollock by non-AFA vessels in the BSAI, while not increasing the overall amount of pollock harvested. By allowing vessels to manage their MRA percentage for pollock on an offload-to-offload basis, additional pollock may be retained over the course of a fishing trip. For example, if a vessel operator catches pollock early in a trip in excess of the MRA, he or she may choose to retain the pollock and move to an area with lower incidental catch rates of pollock, thereby lowering the percentage of pollock retained, with respect to other basis species, prior to the offloading of catch. As long as the amount of pollock on board the vessel is at or below the appropriate MRA (20 percent) at the time of offload, the vessel operator would be in compliance. See Table 9 for incidental catch of pollock by fishery for the non-AFA trawl catcher processor sector from 2000 through 2014.

## VI. Management of the fisheries

Both the trawl and non-trawl groundfish fisheries are prosecuted under a single total allowable catch (TAC). The harvest specifications for groundfish species, are recommended by the Council at its December meeting, for the following fishing year(s). The recommendations are based on Stock Assessment Fishery Evaluation reports prepared by Council's BSAI and GOA Groundfish Plan Teams. The Secretary of Commerce, after receiving recommendations from the Council, determines up to 2 years of TACs and apportionments.

Target species are those species that support either a single species or mixed species group, are commercially important, and for which sufficient information exists that allows each to be managed on its biological merits. Accordingly, a specific TAC is established annually for each target species or species group.

Directed, incidental, and discarded harvest accrue against the TAC for groundfish species, to ensure that they are not over harvested. Directed fishing is closed when the directed fishing allowance is harvested, reserving the remainder of the TAC for incidental catch in other target fisheries. NOAA Fisheries allows vessels to retain incidental catch of species (if the TAC has not been reached) taken in other open directed fisheries, up to the MRA. Once the TAC is reached, NOAA Fisheries issues a prohibition on retention for that species and all catch of that species must be discarded. Prohibiting retention removes any incentive to increase incidental catch. If a species is closed to directed fishing, the Acceptable Biological Catch (ABC) has been reached, and the continued, incidental catch indicates the OFL may be approached then additional closures are imposed. To prevent overfishing, specific fisheries identified by gear and area that incur the greatest incidental catch are closed. If the rate of catch is not sufficiently slowed, then closures expand to other fisheries. Overfishing level closures are rare.

NOAA Fisheries determines the amount of an individual TAC necessary as the incidental catch allowance (ICA) in other directed fisheries. For example, Pacific cod caught incidentally in a pollock directed fishery contributes to the Pacific cod ICA. After deducting the ICA, the remaining TAC is the directed fishing allowance, which allows vessels full retention of the species or species group. The remaining TAC for the directed fishing allowance may not be enough to support a directed fishery. The directed fishery closes once the directed fishing allowance is reached or NOAA Fisheries determines the directed fishing allowance does not support a directed fishery. A fishery closure limits retention of that species to a percentage of the retained catch of other species open to directed fishing, the MRA.

Under the Improved Retention/Improved Utilization regulations at 50 CFR 679.27, all vessels with Federal Fisheries Permits (FFPs) participating in the groundfish fisheries are required to retain all catch of pollock and Pacific cod, when directed fishing for these species is open, regardless of gear type employed and target fishery. When directed fishing for pollock and Pacific cod species is prohibited, retention of that species is required only up to any MRA in effect for that species. Vessels with FFPs participating in the halibut IFQ fishery must retain all catch of Pacific cod and rockfish up to the MRA.

## VII. MRA regulations

MRA regulations at § 679.20(e) establish the calculation method and set individual MRAs for groundfish species, when directed fishing for that species is closed. The MRA is calculated as a percentage of the retained amount of a species closed to directed fishing, relative to the retained amount of basis species or basis species groups open for directed fishing. All MRA accounting is computed based on round weight equivalent. Amounts that are caught in excess of the MRA percentage must be discarded.

MRAs are the primary tool NMFS uses to regulate the catch of species closed to directed fishing. NMFS closes directed fishing to avoid reaching a TAC (typically established for conservation reasons), reaching an amount or percentage of groundfish TAC included in the annual harvest specifications for a gear and species or species group, or when a directed fishery has attained a prohibited species catch limit (e.g., halibut PSC mortality limits). When NMFS prohibits directed fishing for a groundfish species, retention of incidental catch of that species is allowed up to an MRA calculated amount.

The MRA tables for both BSAI and GOA (Tables 10 and 11 to 50 CFR part 679) are provided in the appendix of this document. These tables show retainable proportions of incidental catch species, relative to basis species open to directed fishing. The MRA table is a matrix of proportions representing a range of rates of expected or accepted incidental catch of species closed to directed fishing, relative to target species. As a management tool, MRAs rely on the ability of the vessel operator to selectively catch groundfish species. The species open for a directed fishery are called the basis species in the MRA regulations. Groundfish species not open for a directed fishery are the incidental catch species. The MRA percentages are intended to slow the rate of harvest of a species when insufficient TAC amounts are available to support a directed fishery.

There are three steps to calculating an MRA. First, the vessel operator identifies and calculates the round weight of the basis species on board. Second, he or she identifies the appropriate percentage of the incidental catch species from the MRA table and, third, multiplies that rate against the calculated round weight of the basis species. This amount is the calculated maximum retainable amount that limits retention of the incidental catch species. A vessel will typically discard catch of the incidental catch species in excess of the MRA, to avoid violation of current regulation. With the exception of pollock for non-AFA vessels in the BSAI, the vessel operator must calculate the MRA in real time, at any time during the fishing trip, often referred to as an “instantaneous” calculation. The one exception, pollock harvested by non-AFA vessels in the BSAI, is calculated at the end of each offload. The shoreside non-AFA catcher vessel operator calculates the MRA upon returning to port for delivery of retained catch. This action was implemented

The application of the MRA at the vessel depends on whether the vessel is a catcher vessel or catcher processors. For catcher vessels, the MRA is applied at any time and to all areas for the duration of the fishing trip, which is defined as the time the harvesting of groundfish has begun until the offload or transfer of all fish or fish products from that vessel. For catcher processors, the MRA also applies at any time for the duration of the fishing trip, which is defined as the time harvesting, receiving, or processing of groundfish has begun or resumed in an area until any of the following events occur:

- The effective date of a notification prohibiting directed fishing in the same area under § 679.20 or § 679.21
- The offload or transfer of all fish or fish product from that vessel
- The vessel enters or leaves an area where a different directed fishing prohibition applies
- The vessel begins fishing with different type of authorized fishing gear
- The end of a weekly reporting period, whichever comes first.

When NMFS prohibits directed fishing for a groundfish species, MRAs buffer the amount of catch of that species occurring in directed groundfish fisheries that remain open. Ideally, the application of an MRA

slows catch of a species, so that harvest can be managed up to the TAC by the end of the year. Beyond management of a TAC to obtain optimum yield, MRA calculations perform two additional functions. First, MRAs limit retention to a species' expected or accepted incidental catch rate. Second, the MRA functions as a trip limit for retention of incidental catch of a species. This function allows for limited targeting of a species up to the MRA ("topping off").

"Topping off" works in this way: the MRA tables assign an MRA percentage for certain species that may be encountered as incidental catch for each species open to directed fishing. If a vessel does not catch its MRA while fishing for a species open for directed fishing, or the MRA percentage is high, before returning to port the vessel may be able to make some target hauls on the incidental catch species and still not exceed its MRA.

For several incidental catch/basis species combinations, the use of low MRAs may reduce the incentive for "topping off" (i.e., deliberately targeting species closed to directed fishing) that would occur in the absence of the MRA. In other cases, the MRAs represent the expected catch of an incidental catch species, absent any deliberate action by the vessel operator to target or avoid that incidental catch species (i.e., the natural rate of incidental catch).

The requirement to not exceed an MRA at any time during a trip, limits the vessel operator's ability to fully utilize catch. The MRA is intended to limit total catch of groundfish species: (1) with low TACs (relative to the species caught in the directed fisheries); (2) at greater risk of reaching an overfishing level; and (3) of sufficiently high value to induce topping off. Atka mackerel, Pacific cod, Greenland turbot, sablefish, and several rockfish species meet these criteria in the BSAI. In the GOA, Pacific cod, longnose skates, big skates, several rockfish species, and octopus meet these criteria.

Current regulations establish, in many groundfish fisheries, a relatively high MRA for particular species. For example, the highest rate is 35 percent for arrowtooth flounder as an incidental catch species and is applied to all open groundfish as a basis species (see Appendix). Several trawl directed fisheries incur high arrowtooth flounder incidental catch rates. The 35 percent MRA allows for increased indirect targeting on arrowtooth flounder. For some species, where restricting catch to an incidental catch rate is not a consideration, regulations establish a default MRA rate of 20 percent.

## **VIII. Description of groundfish fisheries**

Provided below is a brief description of each BSAI and GOA groundfish fisheries by species. Much of the information provided in the fishery descriptions originated from the 2012 and 2013 Stock Assessment and Fishery Evaluation Reports for the BSAI and GOA (<http://www.afsc.noaa.gov/refm/stocks/assessments.htm>). Also provided in the description of the BSAI and GOA groundfish fisheries are several tables. Tables 1, 2, 3, 10, 11, and 12 provide 2013 BSAI and GOA OFL (mt), ABC (mt), TAC (mt), catch (mt), retained catch (mt), vessel count, and vessel count for retained catch in the BSAI and GOA federal and state waters, but does not include the State of Alaska's guideline harvest level (GHL) fisheries catch. Tables 4, 5, 13, and 14 provide the 2013 direct and incidental catch by target species for vessels using fixed (pot, hook-and-line, and jig) gear and trawl gear in federal and state waters of the BSAI and GOA. Tables 6 and 15, provide average retained and discarded catch in addition to total catch as a percent of TAC from 2008 through 2013 by species for vessels using fixed gear and trawl gear in federal waters of the BSAI and GOA. Table 7 and Table 16 provide the 2013 ex-vessel price per pound for groundfish species in the BSAI and GOA for fixed gear vessels and trawl vessels. Table 8 and Table 17 lists those fisheries that were closed to directed fishing during the 2013 fishing season, the date they were closed, and the reason they were closed.

The MRA regulations identify basis and incidental catch species retention on different timeframes and species compositions and are not discernable in NMFS’s catch accounting system’s target calculations. Vessels may retain numerous groundfish species. If several species are caught together (which is generally the case), the predominant retained species is assigned as the target. The amount of annual retained and discarded species within each of the fisheries does not reflect the MRA proportions, but rather, multiple species, caught together in the groundfish and halibut IFQ fisheries, where the target species comprised the majority of the catch. These tables provide all the species that are caught in conjunction with the target groundfish and halibut IFQ fisheries.

**i. Bering Sea and Aleutian Islands**

**Table 1 2013 OFL, ABC, TAC, catch, and vessel counts in the BSAI for each groundfish species for vessels using fixed gear**

Species	Directed fishery/Status	OFL (mt)	ABC (mt)	TAC (mt)	Catch (mt)*	Retained catch (mt)*	Vessel count	Vessel count for retained catch
Pollock	Directed	2,609,000	1,422,400	1,266,100	5,119.4	4,501.4	92	56
Pacific cod	Directed	359,000	307,000	260,000	156,901.1	153,243.1	198	138
Sablefish	Directed	4,400	3,720	3,720	1,518.9	1,487.6	97	51
Atka mackerel	Directed	57,700	50,000	25,920	28.8	2.3	55	8
Yellowfin sole	Directed	222,000	206,000	198,000	1,722.4	0.4	66	12
Rock sole	Directed	241,000	214,000	92,380	34.7	0.0	59	4
Greenland turbot	Directed	2,540	2,060	2,060	708.4	615.0	111	12
Arrowtooth flounder	Directed	186,000	152,000	25,000	666.7	114.3	156	20
Kamchatka flounder	Directed	16,300	12,200	10,000	176.9	21.8	87	13
Flathead sole	Directed	81,500	67,900	22,699	377.7	0.7	88	16
Other flatfish	Directed	17,800	13,300	3,500	38.7	3.5	86	2
Alaska plaice	Directed	67,000	55,200	20,000	0.9		24	0
Pacific ocean perch	Directed	41,900	35,100	35,100	1.8	0.4	32	10
Northern rockfish	ICA	12,200	9,850	3,000	53.4	3.3	63	12
Shortraker rockfish	ICA	493	370	370	89.8	12.5	115	26
Rougheye rockfish	ICA	462	378	378	26.3	3.9	91	22
Other rockfish	ICA	1,540	1,159	873	258.8	146.9	156	66
Skate	ICA	45,800	38,800	24,000	20,710.1	5,731.1	129	30
Sculpin	ICA	56,400	42,300	5,600	1,471.3	4.0	172	31
Sharks	ICA	1,360	1,020	100	68.0	0.0	70	1
Squid	ICA	2,620	1,970	700	0.0		3	0
Octopus	ICA	3,450	2,590	500	215.1	45.7	107	41

Source: 2013 Final Specifications and MRA\_Spec(06-18)

\* Includes state water catch

**Table 2 2013 OFL, ABC, TAC, catch, and vessel counts in the BSAI for each groundfish species for vessels using trawl gear**

Species	Directed fishery/Status	OFL (mt)	ABC (mt)	TAC (mt)	Catch (mt)*	Retained catch (mt)*	Vessel count	Vessel count for retained catch
Pollock	Directed	2,609,000	1,422,400	1,266,100	1,268,646.8	1,263,784.5	136	134
Pacific cod	Directed	359,000	307,000	260,000	88,579.9	87,058.6	135	135
Sablefish	Directed	4,400	3,720	3,720	191.7	189.1	60	22
Atka mackerel	Directed	57,700	50,000	25,920	23,152.3	22,476.7	130	103
Yellowfin sole	Directed	222,000	206,000	198,000	163,221.6	158,780.5	127	100
Rock sole	Directed	241,000	214,000	92,380	59,772.0	56,623.3	135	123
Greenland turbot	Directed	2,540	2,060	2,060	1,045.6	779.0	121	82
Arrowtooth flounder	Directed	186,000	152,000	25,000	19,832.5	16,794.5	136	124
Kamchatka flounder	Directed	16,300	12,200	10,000	7,595.4	6,976.1	98	46
Flathead sole	Directed	81,500	67,900	22,699	16,980.5	15,792.3	159	145
Other flatfish	Directed	17,800	13,300	3,500	1,497.1	710.3	136	123
Alaska plaice	Directed	67,000	55,200	20,000	23,521.8	14,470.3	113	67
Pacific ocean perch	Directed	41,900	35,100	35,100	31,390.8	30,839.3	136	124
Northern rockfish	ICA	12,200	9,850	3,000	1,984.1	1,813.3	115	74
Shortraker rockfish	ICA	493	370	370	284.2	249.6	43	27
Rougheye rockfish	ICA	462	378	378	297.4	258.7	44	30
Other rockfish	ICA	1,540	1,159	873	573.2	465.6	127	68
Skate	ICA	45,800	38,800	24,000	6,326.4	2,232.5	136	101
Sculpin	ICA	56,400	42,300	5,600	4,355.8	152.2	136	110
Sharks	ICA	1,360	1,020	100	48.0	2.2	121	26
Squid	ICA	2,620	1,970	700	299.6	110.9	109	63
Octopus	ICA	3,450	2,590	500	7.9	0.3	99	18

Source: 2013 Final Specifications and MRA\_Spec(06-18)

\* Includes state water catch

**Table 3 2013 OFL, ABC, TAC, catch, and vessel counts in the BSAI for each groundfish species for all vessels**

Species	Directed fishery/Status	OFL (mt)	ABC (mt)	TAC (mt)	Catch (mt)*	Retained catch (mt)*	Vessel count	Vessel count for retained catch
Pollock	Directed	2,609,000	1,422,400	1,266,100	1,273,766.2	1,268,285.9	228	190
Pacific cod	Directed	359,000	307,000	260,000	245,481.1	240,301.8	333	273
Sablefish	Directed	4,400	3,720	3,720	1,710.6	1,676.6	157	73
Atka mackerel	Directed	57,700	50,000	25,920	23,181.1	22,479.0	185	111
Yellowfin sole	Directed	222,000	206,000	198,000	164,944.0	158,780.8	193	112
Rock sole	Directed	241,000	214,000	92,380	59,806.7	56,623.3	194	127
Greenland turbot	Directed	2,540	2,060	2,060	1,754.0	1,393.9	232	94
Arrowtooth flounder	Directed	186,000	152,000	25,000	20,499.2	16,908.8	292	144
Kamchatka flounder	Directed	16,300	12,200	10,000	7,772.3	6,997.9	185	59
Flathead sole	Directed	81,500	67,900	22,699	17,358.3	15,793.1	247	161
Other flatfish	Directed	17,800	13,300	3,500	1,535.9	713.8	222	125
Alaska plaice	Directed	67,000	55,200	20,000	23,522.7	14,470.3	137	67
Pacific ocean perch	Directed	41,900	35,100	35,100	31,392.7	30,839.7	168	134
Northern rockfish	ICA	12,200	9,850	3,000	2,037.5	1,816.6	178	86
Shortraker rockfish	ICA	493	370	370	373.9	262.0	158	53
Rougheye rockfish	ICA	462	378	378	323.8	262.6	135	52
Other rockfish	ICA	1,540	1,159	873	832.1	612.5	283	134
Skate	ICA	45,800	38,800	24,000	27,036.6	7,963.6	265	131
Sculpin	ICA	56,400	42,300	5,600	5,827.1	156.2	308	141
Sharks	ICA	1,360	1,020	100	115.9	2.2	191	27
Squid	ICA	2,620	1,970	700	299.6	110.9	112	63
Octopus	ICA	3,450	2,590	500	222.9	46.1	206	59

Source: 2013 Final Specifications and MRA\_Spec(06-18)

\* Includes state water catch

Table 4 2013 Direct and incidental catch of groundfish in the BSAI by target for fixed gear vessels

Species	Target Fisheries*				Species total
	Pacific Cod	Sablefish	Rockfish	Halibut IFQ**	
Pacific cod	28,319	125	6	2,086	30,536
Sablefish	32	10,216	0	972	11,220
Demersal shelf rockfish		12	136	81	229
Pollock	140	6		10	156
Shallow-water flatfish	11	6		7	25
Deep-water flatfish	0	17		3	20
Rex sole	0	0		0	0
Arrowtooth flounder	96	249		118	463
Flathead sole	14	4		0	18
Pacific ocean perch	0	1		0	2
Northern rockfish	5	0	0	5	10
Shortraker rockfish	2	257	1	109	369
Dusky rockfish	6	1	22	14	43
Rougheye rockfish	1	210	0	40	251
Thornyhead rockfish	0	899	0	45	945
Other rockfish	33	61	8	206	308
Atka mackerel	3			1	4
Big skate	419	7		523	949
Longnose skate	309	320		1,004	1,633
Other skates	793	199		740	1,732
Sculpins	355	40		1,067	1,462
Sharks	53	1,113		868	2,033
Squid	1	0			1
Octopus	315	14		103	432
<b>Target total</b>	<b>30,907</b>	<b>13,757</b>	<b>173</b>	<b>8,004</b>	<b>52,840</b>

Source: AKFIN report from file MRA-TGT(06-18) file

\*Table includes catch inside state waters

\*\* Halibut IFQ target includes incidental state waters catch

Table 5 2013 Direct and incidental catch of groundfish in the BSAI by target for trawl vessels

Species	Target Fisheries*													Species total
	Pollock - bottom	Pollock - midwater	Pacific Cod	Atka Mackerel	Yellowfin Sole	Rock Sole	Greenland Turbot	Arrowtooth Flounder	Kamchatka a Flounder	Flathead Sole	Other Flatfish	Alaska Plaice	Rockfish	
Pollock	74,185	1,155,794	3,957	502	20,246	7,372	1	2,274	495	2,021	33	372	1,394	1,268,646
Pacific cod	2,952	5,992	43,046	872	24,382	8,599	0	480	49	1,135	17	456	601	88,580
Atka mackerel	67	3	11	19,835	0	0		173	95	0			2,967	23,152
Yellowfin sole	1,526	544	2,679	0	147,477	8,477		1	0	1,280		1,233	4	163,222
Rock sole	4,370	1,989	964	41	7,737	42,433		26	0	2,089		46	76	59,772
Greenland tubot	3	18	2	40	35	3	3	734	109	39		0	54	1,044
Arrowtooth flounder	669	378	292	606	2,012	683	2	12,166	1,214	617		67	13	19,832
Kamchatka flounder	71	23	18	575	147	109	2	2,589	2,769	116		7	1	7,593
Flathead sole	1,528	1,615	244	5	4,191	2,019	0	648	31	6,606		12	26	16,980
Other flatfish	36	77	33	5	388	313	0	484	5	7		59	36	1,496
Alaska plaice	138	9	577		16,006	4,339		4		394		2,054	1	23,522
Pacific ocean perch	241	379	36	4,127	17	45	0	659	154	309		30	25,394	31,391
Northern rockfish	2	48	12	651		1		14	1	3			1,253	1,984
Shortraker rockfish	1	1	0	37		0		46	4			3	193	284
Rougheye rockfish	3	0	0	29				60	41	0			162	297
Other rockfish	1	4	5	296		1	1	42	29	5		3	185	570
Sablefish	0	0	1	19				88	29	2		1	48	189
Skates	816	942	304	345	2,686	530		184	49	205		0	42	6,326
Sculpins	114	108	383	142	1,922	1,288	0	134	34	57		1	40	4,356
Sharks	1	42	1	1	1			0	1	0			2	48
Squids	43	75	0	15	0	0	0	68	36	1		1	60	299
Octopus	0	1	3	0	1			0	0	0			0	8
<b>Target total</b>	<b>86,768</b>	<b>1,168,042</b>	<b>52,567</b>	<b>28,143</b>	<b>227,249</b>	<b>76,211</b>	<b>10</b>	<b>20,874</b>	<b>5,146</b>	<b>14,887</b>	<b>239</b>	<b>4,319</b>	<b>35,138</b>	<b>1,719,592</b>

Source: AKFIN report from file MRA-TGT(06-18) file

\*Table includes catch inside state waters



**Table 6 Average retained, discarded, and total catch as a percent of TAC from 2008 through 2013 in the BSAI by species for vessels using fixed gear and trawl gear**

Species	Directed fishery/Status	Fixed gear			Trawl gear		
		Average % retained	Average % discarded	Total catch as % of TAC	Average % retained	Average % discarded	Total catch as % of TAC
Pollock	Directed	86%	14%	0	100%	0%	97
Pacific cod	Directed	98%	2%	64	99%	1%	33
Sablefish	Directed	98%	2%	38	98%	2%	4
Atka mackerel	Directed	23%	77%	0	96%	4%	94
Yellowfin sole	Directed	1%	99%	0	96%	4%	67
Rock sole	Directed	1%	99%	0	92%	8%	67
Greenland turbot	Directed	94%	6%	31	89%	11%	40
Arrowtooth flounder	Directed	28%	72%	3	85%	15%	50
Kamchatka flounder	Directed	35%	65%	2	95%	5%	69
Flathead sole	Directed	2%	98%	1	91%	9%	39
Other flatfish	Directed	10%	90%	1	40%	60%	27
Alaska Plaice	Directed	24%	76%	0	36%	64%	60
Pacific ocean perch	Directed	24%	76%	0	97%	3%	91
Northern rockfish	ICA	25%	75%	1	75%	25%	52
Shortraker rockfish	ICA	53%	47%	17	88%	12%	54
Rougheye rockfish	ICA	50%	50%	9	90%	10%	42
Other rockfish	ICA	63%	37%	26	82%	18%	56
Skates	ICA	25%	75%	84	35%	65%	28
Sculpins	ICA	0%	100%	26	6%	94%	75
Sharks	ICA	0%	100%	36	7%	93%	55
Squid	ICA	52%	48%	0	60%	40%	54
Octopus	ICA	11%	89%	57	11%	89%	4

Source: NMFS Sustainable Fisheries; File name is 'Average Retention'

**Table 7 2013 exvessel prices per pound for BSAI groundfish species by gear**

Species	Fixed gear (\$)	Trawl gear (\$)
Pollock	0.14	0.13
Pacific cod	0.22	0.22
Atka mackerel	0.03	0.29
Yellowfin sole	0.02	0.17
Rock sole	0.07	0.25
Greenland tubot	0.36	0.60
Arrowtooth flounder	0.05	0.21
Kamchatka flounder	0.24	0.20
Flathead sole	0.13	0.19
Other flatfish	0.24	0.45
Alaska plaice	0.00	0.15
Pacific ocean perch	0.20	0.29
Northern rockfish	0.16	0.23
Shortraker rockfish	0.20	0.49
Rougheye rockfish	0.11	0.28
Other rockfish	0.59	0.53
Sablefish	2.71	1.01
Skates	0.31	0.02
Sculpins	0.02	0.01
Sharks	0.31	0.01
Squids	0.00	0.03
Octopus	0.20	0.01

Source: AKFIN report from file MRA\_EXVES(06-11) file

**Table 8 BSAI fisheries closed during the 2013 season by date and reason**

<b>BSAI</b>				
<b>Fishery</b>	<b>Area</b>	<b>Sector</b>	<b>Date Closed</b>	<b>Reason</b>
Pollock	BS	AFA CP/Inshore/Mothership	1-Nov	Reg
Pacific cod	BS and AI	CV	11-Mar	TAC
	BS and AI	AFA CP/AM80/CV	1-Nov	Reg
Atka mackerel	BS and AI	Trawl limited access	30-Apr	TAC
	AI 542	Trawl limited access	11-Jun	TAC
	BS and AI	Trawl limited access	25-Oct	TAC
	AI	AM80/Trawl limited access	1-Nov	Reg
Yellowfin sole	BS and AI	Trawl limited access	10-Nov	TAC
Greenland turbot	BS and AI	All	1-May	TAC
	BS	All	11-Dec	TAC
Pacific ocean perch	AI 543	Trawl limited access	12-Jul	TAC
	AI 541/542	Trawl limited access	25-Oct	TAC
Arrowtooth flounder	BS and AI	All	21-Aug	TAC
Kamchatka flounder	BS and AI	All	8-Jul	TAC
Other Rockfish	AI	All	11-Sep	TAC

The annual Bering Sea pollock fishery is divided into two seasons: the “A” season, which opens in January and typically ends in April, and the “B” season, which typically runs from June 10 through the end of October. The “A” season fishery has historically focused on roe-bearing females, and is concentrated north and west of Unimak Island and along the 100-meter contour between Unimak and the Pribilof Islands. “A” season pollock also provide other primary products such as surimi and fillet blocks, but yields on these products are slightly lower than in the “B” season, when pollock carry a lower roe content and are, thus, primarily processed for surimi and fillet blocks. The “B” season fishery takes place west of 170° West longitude of the Bering Sea. The Bering Sea pollock fishery is managed under a cooperative structure defined by the AFA. The fishery is prosecuted by relatively large vessels using pelagic trawl gear as indicated in Table 6, which shows that vessels using trawl gear harvested on average 97 percent of the pollock during the 2008 through 2013 period. Table 1 and Table 2 show that in 2013, 136 trawl vessels and 92 fixed gear vessels caught pollock. The average retention of pollock during 2008 through 2013 was 99 percent for fixed gear vessels and 86 percent for trawl vessels. The primary incidental catch species in the pollock fishery was Pacific cod, rock sole, and flathead sole, while the fishery with the largest incidental catch of pollock was the yellowfin sole fishery (Table 4 and Table 5). The MRA for pollock as an incidental catch species is 20 percent for all basis species in the BSAI. The 2013 exvessel price for pollock was \$0.14 per pound for fixed gear vessels and \$0.13 per pound for trawl vessels (Table 7). For the non-AFA trawl catcher processors that have MRA enforced at the offload-to-offload, Table 9 provides the incidental catch of pollock by fishery from 2000 through 2014 for this group of vessels. As noted in the Table 9, the fisheries with the largest amount of incidental catch of pollock were the yellowfin sole and rock sole fisheries.

The BSAI Pacific cod fishery is managed with separate OFLs, ABCs, and TACs for the BS and AI starting in 2014. The decision to manage with separate catch limits was in part due to concerns about the declining AI Pacific cod population. Pacific cod is apportioned between sectors, after an allocation to the CDQ program. The Pacific cod stock is exploited by a multiple-gear fishery, including trawl, longline, pot, and jig gear (although catches by jig gear are very small in comparison to the other three main gear types). As reflected in Table 6, during 2008 through 2013, 64 percent of the TAC was caught by fixed gear vessels, while trawl vessels caught 33 percent of the TAC. In 2013, 198 fixed gear vessels harvested 60 percent of the TAC, while 135 trawl vessels harvested 34 percent (Table 1 and Table 2). Since Pacific

cod is a full retention species, except in the case of regulatory discards above the 20 percent MRA, retention rates are extremely high as reflected in Table 6, which shows average retention of 98 percent for fixed gear vessels and 99 percent for trawl vessels during 2008 through 2013. Trawl fisheries with the highest incidental catch of Pacific cod during 2013 was yellowfin sole followed by rock sole (Table 5). The primary incidental catch species in the Pacific cod fishery during 2013 for fixed gear vessels was skates and pollock, while for trawl vessels it was pollock and yellowfin sole (Table 4 and Table 5). The 2013 exvessel price for Pacific cod was \$0.22 per pound for both fixed gear vessels and trawl vessels (Table 6).

**Table 9 Incidental catch of pollock in the BSAI for non-AFA trawl catcher processors by fishery from 2000 through 2014**

Fishery	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Atka mackerel	180	345	212	386	390	457	304	262	115	351	360	243	321	420	585
Pacific cod	3,623	3,680	4,306	5,515	9,766	6,726	7,887	9,892	113	826	397	250	252	757	822
Alaska Plaice							11	3	3	0	37	39	176	367	3
Other flatfish	372	131	75	304	605	262	53	320	7	20	6	2	15	33	1
Rock fish	274	220	245	413	202	326	220	392	272	403	323	471	595	1,129	691
Flathead sole	5,939	4,002	1,875	2,826	4,844	3,307	2,356	3,426	4,096	3,130	2,963	1,469	869	2,021	3,944
Kamchatka flounder												335	104	495	437
Rock sole	5,097	4,537	9,923	4,923	8,471	6,875	6,443	2,921	4,787	5,268	5,623	6,839	6,197	6,347	10,305
Greenland turbot	95	48	10	37	64	6			27	11	2	0		1	
Arrowtooth flounder	113	217	197	288	562	1,067	1,081	555	725	446	370	759	690	2,201	2,590
Yellowfin sole	12,019	15,656	14,039	11,000	9,934	9,422	4,406	2,937	8,326	6,067	4,305	6,698	7,667	14,901	7,533
<b>Total</b>	<b>27,712</b>	<b>28,836</b>	<b>30,883</b>	<b>25,691</b>	<b>34,837</b>	<b>28,449</b>	<b>22,761</b>	<b>20,707</b>	<b>18,470</b>	<b>16,523</b>	<b>14,387</b>	<b>17,104</b>	<b>16,886</b>	<b>28,672</b>	<b>26,910</b>

Source: AKFN report from MRA-PLCK(08-29)

Sablefish are harvested with trawl, longline, and pot gear. Most sablefish are taken with longline gear in the Aleutian Islands and pot gear in the Bering Sea. The sablefish season is open seven months usually beginning in March, concurrent with the halibut fishing season. Of the combined TAC for sablefish from 2008 through 2013, trawl vessels caught 4 percent and fixed gear vessels caught 38 percent (Table 6). In 2013, the TAC was 3,720 mt of which 97 fixed gear vessels caught 1,518 mt and 60 trawl vessels caught 192 mt (Table 1 and Table 2). The retention of sablefish is extremely high, with 98 percent on average retained for both trawl and fixed gear vessels. The MRA, which applies to trawl gear only, for sablefish as an incidental catch species is 1 percent for most basis species, but is 15 percent for 6 basis species. The low MRA for sablefish tends to keep the incidental catch for sablefish low. As noted in Table 4 and Table 5, in 2013, the incidental catch of sablefish for fixed gear vessels was 163 mt and for trawl vessels was 189 mt. Most of the incidental catch of sablefish was in the halibut IFQ fishery, arrowtooth flounder fishery, and the rockfish fishery. The 2013 exvessel price for sablefish was \$2.71 per pound for fixed gear vessels and \$1.01 per pound for trawl vessels (Table 7).

Atka mackerel, most abundant in the AI, is allocated to each of three districts in the Aleutian Islands and is further divided between two seasons. The majority of the Atka mackerel TAC is directly allocated to the Amendment 80 vessels as reflected in Table 6, which shows that trawl vessels caught 94 percent of the combined TAC from 2008 through 2013. In 2013, 130 trawl vessels caught 23,152 mt of the 25,920 mt TAC, while 55 fixed gear vessels caught 29 mt (Table 1 and Table 2). The retention of Atka mackerel is high for trawl vessels, while low for fixed gear vessels, as reflected in Table 6. During 2008 through 2013, on average the trawl vessels retained 96 percent of their Atka mackerel, while the fixed gear vessels retained on average 23 percent of their Atka mackerel. Incidental catch species in the Atka mackerel fishery in 2013 was primarily Pacific ocean perch, followed by Pacific cod, northern rockfish, and pollock (Table 5). Although the MRA for Atka mackerel as an incidental catch species is 20 percent for all basis species, incidental catch for Atka mackerel was only 3,349 mt for 2013 (Table 4 and Table 5). Incidental catch of Atka mackerel occurred mostly in the rockfish, arrowtooth flounder, and Kamchatka flounder fisheries for trawl vessels. The 2013 exvessel price for Atka mackerel was \$0.03 per pound for fixed gear vessels and \$0.29 per pound for trawl vessels (Table 6).

For nearly all of the flatfish fisheries, most of the fishing effort comes from trawl vessels. Until 2008, both trawl and non-trawl fisheries for non-CDQ flatfish in the BSAI were prosecuted under a single TAC. In 2008, Amendment 80 to the BSAI Fishery Management Plan (FMP) was implemented, which allocated up to 93 percent of the yellowfin sole TAC (depending on the TAC), 100 percent of the rock sole TAC, and 100 percent of the flathead sole TAC to the non-AFA trawl catcher processors after deductions for the CDQ program and incidental catch. The remaining portion of the yellowfin sole TAC was allocated to the remaining trawl sectors. The arrowtooth flounder fishery is almost exclusively prosecuted by catcher/processors, primarily Amendment 80 vessels, using bottom trawl gear. The average retention of these flatfish species during 2008 through 2013 differ between the two gear types. For trawl vessels, average retention ranged between 80 percent and 90 percent for most flatfish species. The two flatfish species that had lower retention were other flatfish and Alaska plaice at 40 percent and 36 percent, respectively. The average retention during this same period for fixed gear vessels ranged from a low of 1 percent for yellowfin sole and rock sole to a high of 28 percent arrowtooth flounder. The primary incidental catch species in the different flatfish fisheries were Pacific cod, pollock, Alaska plaice, rock sole, and flathead sole. Of the species managed as incidental catch species only, primary catch species were skates and sculpins (Table 5). Incidental catch of the different flatfish species in 2013 was primarily in different flatfish fisheries and the pollock fishery. The MRA for these flatfish species ranges from 20 percent to 35 percent for all basis species. The 2013 exvessel price for these flatfish species for fixed gear vessels ranged from a high of \$ 0.24 per pound for other flatfish to a low of \$0.0 for Alaska plaice, while for trawl vessels prices ranged from a high of \$0.45 per pound of other flatfish to a low of \$0.15 per pound for Alaska plaice (Table 6).

Two flatfish species in the BSAI, Kamchatka flounder and Greenland turbot, are treated separately from the other flatfish species in this description given the differences in the fisheries for these two species. Kamchatka flounder are similar to arrowtooth flounder and were combined in catch records until recently. Arrowtooth flounder and Kamchatka flounder are very similar in appearance, so are difficult to distinguish in the commercial catches. Only recently has there been increase in the catch of Kamchatka flounder due to the development of market for the fish. Of the combined TAC for Kamchatka flounder from 2008 through 2013, trawl vessels caught 69 percent of the species and fixed gear vessels caught 2 percent. During this same period, trawl vessels retained 95 percent of the Kamchatka flounder and fixed gear vessels retained 35 percent. The primary incidental catch in the Kamchatka flounder fishery was arrowtooth flounder. Despite having a high MRA percentage for Kamchatka flounder of 35 percent for all basis species except arrowtooth flounder which is 20 percent, the incidental catch of Kamchatka flounder during 2013 was primarily in only two fisheries, arrowtooth flounder and rockfish (Table 5). The 2013 exvessel price for Kamchatka flounder was \$0.24 per pound for fixed gear vessels and \$0.20 per pound for trawl vessels (Table 6).

In the Greenland turbot fishery, both trawl and hook-and-line gears are active participants in this fishery. By gear type and area, trawl catch of Greenland turbot was most significant in the AI, whereas in the BS, hook-and-line vessels catch a majority of the Greenland turbot. During 2008 through 2013, trawl vessels caught 40 percent of the combined BSAI TACs and fixed gear vessels retained 31 percent of combined BSAI TACs. Unlike other BSAI flatfish species, Greenland turbot has a low OFL, ABC, and TAC. During 2013, the OFL for Greenland turbot was 2,540 mt, while the ABC and TAC were equal at 2,060 mt. In 2013, 121 trawl vessels caught 1,046 mt, while 111 fixed gear vessels caught 708 mt of Greenland turbot (Table 1 and Table 2). Most of the Greenland turbot caught by trawl vessels was as incidental catch in the arrowtooth flounder and Kamchatka flounder fisheries (Table 5). Retention of Greenland turbot is high for both gear groups, but a significant number of fixed gear vessels do not retain Greenland turbot (Table 2). Trawl vessels retained 89 percent of their Greenland turbot during 2008 through 2013, while the fixed gear vessels retained 94 percent of their Greenland turbot. The MRA for Greenland turbot is generally 1 percent for most basis species, but it is 7 percent for Arrowtooth flounder and Kamchatka

flounder, and 35 percent for rock sole, northern rockfish, Pacific ocean perch, shortraker and rougheye rockfish, sablefish, and other rockfish. The 2013 exvessel price for Greenland turbot was \$0.36 per pound for fixed gear vessels and \$0.60 per pound for trawl vessels (Table 6).

The Pacific halibut fixed gear fishery has been managed under the IFQ program since 1995. The program essentially assigns the privilege of harvesting a percentage of the halibut quota to specific individuals with a history of harvest in the fishery, or those that purchased quota. Pacific halibut fisheries are regulated by International Pacific Halibut Commission (in compliance with the terms of the North Pacific Halibut Act between the United States and Canada) and the Council. In practice, the Halibut Commission establishes total annual catch limits and other conservation measures, and the Council develops regulations to govern the fishery including limited access, allocation decisions, and PSC limits for groundfish. The MRA for the halibut IFQ fishery in the BSAI are aggregated with other non-groundfish species and are generally 20 percent for most incidental catch species, except for arrowtooth flounder and Kamchatka flounder at 35 percent, aggregated rockfish at 5 percent, shortraker/rougheye and aggregated forage fish at 2 percent, and Greenland turbot and sablefish at 1 percent, . As noted in Table 4, incidental catch species in the halibut IFQ fishery in 2013 was primarily Pacific cod at 482 mt, skates at 338 mt, and sablefish at 148 mt.

Pacific ocean perch (POP) is currently the only open rockfish directed fishery in the BSAI and are caught primarily in bottom trawl fisheries. POP is allocated among the three Aleutian Island districts and the eastern Bering Sea, based on biomass distribution. The AI fishery is concentrated during the summer months. Since 1996, the majority of the catch (by weight) occurred in the western Aleutian Islands. Starting in 2008, POP was allocated under the Amendment 80 program. During 2008 through 2013, trawl vessels harvested 91 percent of the TAC, while the fixed gear vessels harvested less than 1 percent of the TAC. With a TAC of 35,100 mt in 2013, 136 trawl vessels caught 31,391 mt, while 32 fixed gear vessels caught 1.8 mt (Table 1 and Table 2). Of the POP total catch, 98 percent was retained by the trawl vessels in 2013 (Table 2). This high retention is also apparent in Table 6, which shows an average retention during 2008 through 2013 of 91 percent. Incidental catch in the POP fishery was mostly Atka mackerel, pollock, Kamchatka flounder, arrowtooth flounder, and northern rockfish (Table 5). Since the MRA for POP, which is aggregated with all rockfish except shortraker and rougheye rockfish, is 5 percent for most basis species, but is 15 percent for 7 basis species, the incidental catch of POP was mostly limited to the Atka mackerel fishery, with smaller amounts reported in the arrowtooth flounder fishery, pollock fishery, and flathead sole fishery (Table 5). The 2013 exvessel price for POP was \$0.20 per pound for fixed gear vessels and \$0.29 per pound for trawl vessels (Table 6).

Northern rockfish is currently managed as an ICA, and is generally caught in bottom trawl fisheries targeting other species. As noted in Table 6, 52 percent of the northern rockfish TAC during 2008 through 2013 was caught by trawl vessels, while 1 percent was caught by fixed gear vessels. In 2013, the TAC for northern rockfish was 3,000 mt of which 115 trawl vessels caught 1,984 mt and 63 fixed gear vessels caught 53 mt (Table 1 and Table 2). Catch of northern rockfish occurred primarily in the Atka mackerel fishery (Table 5). Average retention of northern rockfish during 2008 through 2013 was 75 percent for trawl vessels and 25 percent for fixed gear vessels (Table 6). The MRA for northern rockfish as an incidental catch species, which is aggregated with all rockfish except shortraker and rougheye rockfish, is 5 percent for most basis species, but is 15 percent for 7 basis species. Reflecting the low MRA, incidental catch of northern rockfish occurred mostly in the POP and Atka mackerel fisheries during 2013 (Table 5). The 2013 exvessel price for northern rockfish was \$0.16 per pound for fixed gear vessels and \$0.23 per pound for trawl vessels (Table 6).

Shortraker rockfish is currently managed as an ICA. This species in the AI is primarily harvested in rockfish trawl fisheries and longline Greenland turbot, sablefish, and halibut fisheries. The central AI comprised 58 percent of the 2004 through 2007 AI shortraker catch, followed by the western AI (24

percent) and eastern AI (18 percent). In the eastern BS, catches of shortraker rockfish largely occur in midwater pollock trawl fisheries and longline Pacific cod, Greenland turbot, and halibut fisheries. As a percent of TAC during the 2008 through 2013, trawl vessels harvested 54 percent, while the fixed gear vessels harvested 17 percent. In 2013, the OFL was 493 mt and the ABC and TAC for shortraker rockfish were 370 mt. The 2013 fishery saw 43 trawl vessels land 284 mt and 115 fixed gear vessels land 90 mt (Table 1 and Table 2). Of that catch, 27 trawl vessels retained 250 mt and 26 fixed gear vessels retained 13 mt. This difference in retention is also present in Table 6, which shows an average retention during 2008 through 2013 for trawl vessels of 88 percent and for fixed gear vessels of 53 percent. The MRA for shortraker rockfish as an incidental catch species is 2 percent for most basis species, but six basis species have an MRA of 7 percent. The limited MRA is reflected in the limited incidental catch during 2013, which occurred primarily in the POP fishery, followed by the Atka mackerel fishery (Table 5). The 2013 exvessel price for shortraker rockfish was \$0.20 per pound for fixed gear vessels and \$0.49 per pound for trawl vessels (Table 6).

Rougheye rockfish, like the previously discussed northern rockfish and shortraker rockfish, are managed as an ICA. In the AI, they are primarily harvested as incidental catch in the POP trawl fishery, and to a lesser extent the Atka mackerel trawl fishery and the Pacific cod longline fishery. In the BS, rougheye rockfish are generally caught in the Pacific cod longline fishery and various bottom trawl fisheries. Table 6 shows these trends as trawl vessels caught 42 percent of the rougheye TAC during 2008 through 2013, while fixed gear vessels caught 9 percent of the TAC. For 2013, the rougheye rockfish TAC was 378 mt, with 44 trawl vessel catching 297 mt and 91 fixed gear vessels catching 26 mt (Table 1 and Table 2). Retention of rougheye rockfish is high, with an average retention of 90 percent during 2008 through 2013 for trawl vessels and 50 percent for fixed gear vessels. The MRA for rougheye rockfish as an incidental catch species is 2 percent for most basis species, but six basis species have an MRA of 7 percent. Incidental catch of rougheye rockfish during 2013 was primarily in the POP fishery (Table 5). The 2013 exvessel price for rougheye rockfish was \$0.11 per pound for fixed gear vessels and \$0.28 per pound for trawl vessels (Table 6).

Other rockfish complex consists of 7 rockfish species. Shortspine thornyheads and dusky are the two most abundant species for the other rockfish complex, accounting for about 80 percent of the survey biomass and fishery catch. Data are limited for many of the species in the other rockfish complex. There is no open directed fishery for other rockfish in the BSAI, so the species complex is managed as an ICA. Dusky rockfish are primarily taken in the AI Atka mackerel fishery and the BS Pacific cod fishery. Shortspine thornyhead are primarily taken in the AI sablefish and Greenland turbot longline fisheries and BS pollock trawl fishery. Of the combined TAC during 2008 through 2013, 56 percent was caught by trawl vessels and 26 percent was caught by fixed gear vessels. In 2013, the TAC for other rockfish was 873 mt and of that TAC, 127 trawl vessels caught 573 mt and 156 fixed gear vessels caught 259 mt (Table 1 and Table 2). Retention of other rockfish is high as demonstrated in Table 6. Trawl vessels during 2008 through 2013 retained on average 83 percent of caught other rockfish and fixed gear vessels retained 63 percent. The MRA for other rockfish as an incidental catch species, which is aggregated with all rockfish except shortraker and rougheye rockfish, is 5 percent for most basis species, but is 15 percent for 7 basis species. Incidental catch of other rockfish was reported in the Atka mackerel and POP fisheries primarily during 2013 (Table 5). The 2013 exvessel price for other rockfish was \$0.59 per pound for fixed gear vessels and \$0.53 per pound for trawl vessels (Table 6).

Skates are managed as a single complex with a skates specific ABC and OFL and are managed as an ICA. Currently skates are taken only as bycatch in other fisheries in the BSAI, so catch of skates are more dependent on the distribution and limitations placed on open directed fisheries than on any catch limit established for skates. Most of the incident catch is in the hook-and-line fishery for Pacific cod, and in the pollock and flatfish fisheries for trawl vessels, which is reflected in the Table 6. Table 6 shows that fixed gear vessels caught 84 percent of the combined skates TAC during 2008 through 2013, while trawl

vessels caught 28 percent. During the 2013 fishing season, 136 trawl vessels caught 6,326 mt of the 24,000 mt skates TAC, while 129 fixed gear vessels caught 20,710 mt of the skates TAC (Table 1 and Table 2). Retention of skates in the BSAI is low as reflected in Table 6. Information in table 6 shows that trawl vessels on average retained 35 percent of their caught skates, while the fixed gear vessels retained on average 25 percent. The MRA for skates, which is aggregated with the other species complex, is 20 percent for most basis species, but is 3 percent for arrowtooth flounder and Kamchatka flounder. Nearly all of the incidental catch of skates during 2013 was in the fixed gear Pacific cod fishery with significant smaller amounts in the halibut and sablefish IFQ fisheries (Table 4). Amongst trawl vessels, incidental catch for skates was highest in the yellowfin sole fishery and the pollock fishery (Table 5). The 2013 exvessel price for skates was \$0.31 per pound for fixed gear vessels and \$0.02 per pound for trawl vessels (Table 6).

Sculpins are managed as a single complex and are managed as an ICA, since there is no open directed fishery for sculpins in the BSAI. Incidental catches of sculpins are taken in the Pacific cod and Atka mackerel fisheries in the AI, and in the Pacific cod rock sole and yellowfin sole fisheries in the BS. Trawl vessels caught 75 percent of the combined sculpins TAC during 2008 through 2013, while fixed gear vessels caught 26 percent of the combined TAC. In 2013 the TAC for sculpins was 5,600 mt and 136 trawl vessels caught 4,356 mt of the TAC, while 172 fixed gear vessels caught 1,471 mt of the TAC (Table 1 and Table 2). Retention for sculpins is very low, with 6 percent retention for trawl vessels and 0 percent retention for fixed gear vessels during 2008 through 2013. In 2013, the primary fisheries catching sculpin incidentally are the yellowfin sole fishery and rock sole fishery for trawl vessels and Pacific cod for fixed gear vessels (Table 4 and Table 5). The MRA for sculpins, which is aggregated with the other species complex, is 20 percent for most basis species, but is 3 percent for arrowtooth flounder and Kamchatka flounder. The 2013 exvessel price for sculpins was \$0.2 per pound for fixed gear vessels and \$0.01 per pound for trawl vessels (Table 6).

Shark species are managed as a single complex and are managed as an ICA. Since there is currently no open directed fishery for sharks in federally or state managed waters of the BSAI, all of the historical catch is composed of incidental catch. Pacific sleeper shark are the primary shark species caught in the BSAI, particularly in the Pacific cod and pollock fisheries. From 2008 through 2013, trawl vessels caught 55 percent of the combined TAC for sharks, while fixed gear vessels caught 36 percent. During the 2013 fishing season, 121 trawl vessels caught 48 mt of the 100 mt TAC, while 70 fixed gear vessels caught 68 mt (Table 1 and Table 2). Retention of sharks is very low, with an average retention of 7 percent for trawl vessels and 0 percent for fixed gear vessels during 2008 through 2013. The MRA for sharks, which is aggregated with other species complex, is 20 percent for most basis species, but is 3 percent for arrowtooth flounder and Kamchatka flounder. The 2013 exvessel price for sharks was \$0.31 per pound for fixed gear vessels and \$0.01 per pound for trawl vessels (Table 6).

Squids are managed as a single complex and are managed as an ICA, since there is no open directed fishery for squids in the BSAI. Squids are primarily taken as incidental catch in the trawl pollock fishery. Squid catches are also highly seasonal, with most catches occurring from May to September. This pattern likely reflects seasonal patterns in the pollock fishery rather than patterns in squid abundance. During 2008 through 2013, trawl vessels caught 54 percent of the combined TAC for squid, while the fixed gear vessels caught less than one mt of the combined TAC. In 2013, 109 trawl vessels caught 296 mt of the 700 mt TAC, while 3 fixed gear vessels caught less than one mt of the TAC (Table 1 and Table 2). Squids are often retained as reflected in Table 6. During 2008 through 2013, trawl vessels on average retained 60 percent of the caught squid, while the fixed gear vessels retained 52 percent of the small amount of squid caught. Incidental catch for squids in 2013 was primarily in the pollock fishery and the POP fishery (Table 5). The MRA for squids as an incidental catch species is 20 percent for all basis species. The 2013 exvessel price for squids was only reported for trawl vessels at \$0.03 per pound (Table 6).

Octopus species are managed as a single complex. The species composition of the octopus community is not well documented, but recent research indicates that the giant Pacific octopus is most abundant in shelf waters and predominates in commercial catch. Octopus is not open for a directed fishery. Octopus are taken as incidental catch in trawl, longline, and pot fisheries throughout the BSAI; the highest catch rates are from Pacific cod pot fisheries in the three statistical areas around Unimak Pass. Of the combined TAC during 2008 through 2013, trawl vessels caught 4 percent and fixed vessels caught 57 percent. In 2013, incidental catch of octopus was predominately in the fixed gear Pacific cod fishery (Table 4 and Table 5). The MRA for octopus, which is aggregated with the other species complex, is 20 percent for most basis species, but is 3 percent for arrowtooth flounder and Kamchatka flounder. The 2013 exvessel price for octopus was \$0.20 per pound for fixed gear vessels and \$0.01 per pound for trawl vessels (Table 6).

**ii. Gulf of Alaska**

**Table 10 2013 OFL, ABC, TAC, catch, and vessel counts for each groundfish species in the GOA for vessels using fixed gear and federal and state water catch**

Species	Directed fishery/Status	OFL (mt)	ABC (mt)	TAC (mt)	Catch (mt)*	Retained catch (mt)*	Vessel count	Vessel count for retained catch
Pollock	Directed	165,183	121,046	121,046	172.9	123.4	457	122
Pacific cod	Directed	97,200	80,800	60,600	30,536.2	28,237.8	1,016	583
Sablefish	Directed	14,780	12,510	12,510	11,220.3	10,568.8	815	345
Shallow-water flatfish	Directed	55,680	45,484	37,077	24.8	0.3	537	6
Deep-water flatfish	Directed	6,834	5,126	5,126	19.8	0.9	432	6
Rex sole	Directed	12,492	9,560	9,560	0.1	0.0	14	1
Arrowtooth flounder	Directed	247,196	210,451	103,300	462.8	17.2	971	16
Flathead sole	Directed	61,036	48,738	30,496	17.8	0.1	179	18
Pacific ocean perch	Directed	18,919	16,412	16,412	1.9	0.0	108	3
Northern rockfish	Directed	6,124	5,130	5,130	10.0	0.0	147	10
Shortraker rockfish	Directed	1,441	1,081	1,081	369.1	151.2	477	359
Dusky rockfish	Directed	5,746	4,700	4,700	43.1	24.8	392	163
Rougheye rockfish	ICA	1,482	1,232	1,232	251.3	123.1	539	417
Demersal shelf rockfish	Dingle bar (managed by State)	487	303	303	229.0	224.4	429	390
Thornyhead rockfish	ICA	2,220	1,665	1,665	944.9	491.7	533	412
Other rockfish	ICA	5,305	4,045	1,080	308.0	92.5	823	527
Atka mackerel	ICA	6,200	4,700	2,000	3.5	0.0	96	3
Big skate	ICA	5,023	3,767	3,767	949.0	264.4	882	100
Longnose skate	ICA	3,500	2,625	2,625	1,633.4	306.0	967	144
Other skates	ICA	2,706	2,030	2,030	1,731.8	22.0	922	19
Sculpins	ICA	7,614	5,884	5,884	1,461.9	0.7	861	39
Sharks	ICA	8,037	6,028	6,028	2,033.1	2.0	909	2
Squid	ICA	1,530	1,148	1,148	0.8	0.8	5	2
Octopus	ICA	1,941	1,455	1,455	431.5	212.5	526	97

Source: 2013 Final Specifications and MRA\_Spec(06-18)

\* Includes state water catch



**Table 11 2013 OFL, ABC, TAC, catch, and vessel counts for each groundfish species in the GOA for vessels using trawl gear and total federal and state water catch**

Species	Directed fishery/Status	OFL (mt)	ABC (mt)	TAC (mt)	Catch (mt)*	Retained catch (mt)*	Vessel count	Vessel count for retained catch
Pollock	Directed	165,183	121,046	121,046	93,560.9	91,184.1	83	83
Pacific cod	Directed	97,200	80,800	60,600	21,694.2	19,384.2	86	86
Sablefish	Directed	14,780	12,510	12,510	846.1	798.8	45	42
Shallow-water flatfish	Directed	55,680	45,484	37,077	5,493.8	5,278.6	77	75
Deep-water flatfish	Directed	6,834	5,126	5,126	223.2	140.1	67	39
Rex sole	Directed	12,492	9,560	9,560	3,706.7	3,638.5	79	75
Arrowtooth flounder	Directed	247,196	210,451	103,300	21,132.2	16,066.4	83	83
Flathead sole	Directed	61,036	48,738	30,496	2,798.6	2,483.1	82	81
Pacific ocean perch	Directed	18,919	16,412	16,412	13,180.9	12,177.4	81	72
Northern rockfish	Directed	6,124	5,130	5,130	4,869.2	4,679.3	69	61
Shortraker rockfish	ICA	1,441	1,081	1,081	353.5	272.7	45	41
Dusky rockfish	Directed	5,746	4,700	4,700	3,115.2	2,968.6	80	67
Rougeye rockfish	ICA	1,482	1,232	1,232	335.1	326.0	50	47
Demersal shelf rockfish	Dingle bar (managed by State)	487	303	303				
Thornyhead rockfish	ICA	2,220	1,665	1,665	215.5	198.9	39	37
Other rockfish	ICA	5,305	4,045	1,080	520.0	171.4	69	45
Atka mackerel	ICA	6,200	4,700	2,000	1,273.4	846.3	43	31
Big skate	ICA	5,023	3,767	3,767	1,656.1	1,306.1	44	33
Longnose skate	ICA	3,500	2,625	2,625	443.9	361.2	53	48
Other skates	ICA	2,706	2,030	2,030	203.9	17.7	77	50
Sculpins	ICA	7,614	5,884	5,884	631.8	29.4	78	56
Sharks	ICA	8,037	6,028	6,028	328.9	11.9	67	42
Squid	ICA	1,530	1,148	1,148	320.7	293.4	60	50
Octopus	ICA	1,941	1,455	1,455	16.9	2.8	42	21

Source: 2013 Final Specifications and MRA\_Spec(06-18)

\* Includes state water catch

**Table 12 2013 OFL, ABC, TAC, catch, and vessel counts for each groundfish species in the GOA for all vessels and federal and state water catch**

Species	Directed fishery/Status	OFL (mt)	ABC (mt)	TAC (mt)	Catch (mt)*	Retained catch (mt)*	Vessel count	Vessel count for retained catch
Pollock	Directed	165,183	121,046	121,046	93,733.7	91,307.5	540	205
Pacific cod	Directed	97,200	80,800	60,600	52,230.4	47,622.0	1,102	669
Sablefish	Directed	14,780	12,510	12,510	12,066.4	11,367.5	860	387
Shallow-water flatfish	Directed	55,680	45,484	37,077	5,518.7	5,278.8	614	81
Deep-water flatfish	Directed	6,834	5,126	5,126	243.0	141.0	499	45
Rex sole	Directed	12,492	9,560	9,560	3,706.8	3,638.5	93	76
Arrowtooth flounder	Directed	247,196	210,451	103,300	21,595.0	16,083.6	1,054	99
Flathead sole	Directed	61,036	48,738	30,496	2,816.5	2,483.2	261	99
Pacific ocean perch	Directed	18,919	16,412	16,412	13,182.8	12,177.5	189	75
Northern rockfish	Directed	6,124	5,130	5,130	4,879.2	4,679.3	216	71
Shortraker rockfish	ICA	1,441	1,081	1,081	722.7	423.9	522	400
Dusky rockfish	Directed	5,746	4,700	4,700	3,158.3	2,993.4	472	230
Rougeye rockfish	ICA	1,482	1,232	1,232	586.4	449.1	589	464
Demersal shelf rockfish	Dingle bar (managed by State)	487	303	303	229.0	224.4	429	390
Thornyhead rockfish	ICA	2,220	1,665	1,665	1,160.4	690.6	572	449
Other rockfish	ICA	5,305	4,045	1,080	828.1	263.9	892	572
Atka mackerel	ICA	6,200	4,700	2,000	1,276.9	846.4	139	34
Big skate	ICA	5,023	3,767	3,767	2,605.1	1,570.5	926	133
Longnose skate	ICA	3,500	2,625	2,625	2,077.3	667.3	1,020	192
Other skates	ICA	2,706	2,030	2,030	1,935.7	39.7	999	69
Sculpins	ICA	7,614	5,884	5,884	2,093.8	30.1	939	95
Sharks	ICA	8,037	6,028	6,028	2,362.0	13.8	976	44
Squid	ICA	1,530	1,148	1,148	321.5	294.1	65	52
Octopus	ICA	1,941	1,455	1,455	448.4	215.3	568	118

Source: 2013 Final Specifications and MRA\_Spec(06-18)

\* Includes state water catch

**Table 13 2013 Direct and incidental catch of groundfish in the GOA by target for fixed gear vessels**

Species	Target Fisheries*				Species total
	Pacific Cod	Sablefish	Rockfish	Halibut IFQ**	
Pacific cod	28,319	125	6	2,086	30,536
Sablefish	32	10,216	0	972	11,220
Demersal shelf rockfish		12	136	81	229
Pollock	140	6		10	156
Shallow-water flatfish	11	6		7	25
Deep-water flatfish	0	17		3	20
Rex sole	0	0			0
Arrowtooth flounder	96	249		118	463
Flathead sole	14	4		0	18
Pacific ocean perch	0	1		0	2
Northern rockfish	5	0	0	5	10
Shorthead rockfish	2	257	1	109	369
Dusky rockfish	6	1	22	14	43
Rougheye rockfish	1	210	0	40	251
Thornyhead rockfish	0	899	0	45	945
Other rockfish	33	61	8	206	308
Atka mackerel	3			1	4
Big skate	419	7		523	949
Longnose skate	309	320		1,004	1,633
Other skates	793	199		740	1,732
Sculpins	355	40		1,067	1,462
Sharks	53	1,113		868	2,033
Squid	1	0			1
Octopus	315	14		103	432
<b>Target total</b>	<b>30,907</b>	<b>13,757</b>	<b>173</b>	<b>8,004</b>	<b>52,840</b>

Source: AKFIN report from file MRA-TGT(06-18) file

\*Table includes catch inside state waters

\*\* Halibut IFQ target includes incidental State Fisheries Catch

**Table 14 2013 Direct and incidental catch of groundfish in the GOA by target for trawl gear vessels**

Species	Target Fisheries*											Species Total
	Pollock - bottom	Pollock - midwater	Pacific Cod	Shallow-Water Flatfish	Deep-Water Flatfish	Rex Sole	Arrowtooth Flounder	Flathead Sole	Rockfish	Atka mackerel		
Pollock	13,142	75,651	719	1,615	0	106	1,386	108	829	1	93,557	
Pacific cod	849	192	16,081	2,628	9	203	1,033	102	578	15	21,690	
Shallow-water flatfish	178	5	954	3,944	18	14	301	48	27	1	5,491	
Deep-water flatfish	13	0	24	5	61	13	40	2	37		195	
Rex sole	139	12	113	76	0	1,837	1,340	79	89	5	3,690	
Arrowtooth flounder	1,465	299	1,344	934	12	973	14,229	1,013	765	7	21,041	
Flathead sole	307	75	413	399	0	185	922	470	26	1	2,797	
Pacific ocean perch	294	133	12	20	1	714	424	19	11,555	2	13,174	
Northern rockfish	4	2	105	6		13	179	13	4,527	20	4,869	
Dusky rockfish	6	1	18	13		7	214	2	2,848	6	3,115	
Shorthead rockfish	0		19	5	0	19	0	1,162	68		1,273	
Rougheye rockfish	2	10	2	0		6	12	2	289		323	
Thornyhead rockfish	2	4	0	0		2	30	16	274		329	
Other rockfish	1	0	8	0	3	30	21	8	104		174	
Atka mackerel	0	1	14	3		5	16	0	480	0	520	
Sablefish	11	1	14	8	4	8	81	13	494		635	
Big skate	201	11	192	139		145	949	15	2		1,654	
Longnose skate	21	4	39	69		54	224	8	23	1	443	
Other skates	9	15	12	44		33	63	8	18	0	203	
Sculpins	11	2	123	360		9	50	3	70	3	631	
Sharks	10	21	7	111		4	82	0	93	0	328	
Squid	88	219	0			1	0	0	10	0	319	
Octopus	0	0	6	6		3	0	0	2		16	
<b>Target total</b>	<b>16,754</b>	<b>76,657</b>	<b>20,218</b>	<b>10,387</b>	<b>109</b>	<b>4,364</b>	<b>21,617</b>	<b>1,930</b>	<b>24,302</b>	<b>130</b>	<b>176,467</b>	

Source: AKFIN report from file MRA-TGT(06-18) file

\*Table includes catch inside state waters

**Table 15 Average retained, discarded, and total catch as a percent of TAC from 2008 through 2013 in the GOA by species for vessels using fixed gear and trawl gear**

Species	Directed fishery/Status	Fixed gear			Trawl gear		
		Average % retained	Average % discarded	Total catch as % of TAC	Average % retained	Average % discarded	Total catch as % of TAC
Pollock	Directed	72	28	<1%	97	3	109
Pacific cod	Directed	98	2	82	90	10	33
Sablefish	Directed	95	5	89	91	9	8
Shallow-water flatfish	Directed	7	93	<1%	94	6	23
Deep-water flatfish	Directed	2	98	<1%	44	56	6
Rex sole	Directed	6	94	<1%	98	2	36
Arrowtooth flounder	Directed	8	92	1	69	31	39
Flathead sole	Directed	3	97	<1%	94	6	18
Pacific ocean perch	Directed	4	96	<1%	94	6	85
Northern rockfish	Directed	4	96	<1%	97	3	86
Shortraker rockfish	ICA	52	48	31	85	15	32
Dusky rockfish	Directed	35	65	<1%	96	4	72
Rougheye rockfish	ICA	66	34	14	87	13	23
Demersal shelf rockfish*	Dingle bar (managed by State)	99	1	55	0	0	0
Thornyhead rockfish	ICA	73	27	28	88	12	14
Other rockfish	ICA	59	41	14	39	61	53
Atka mackerel	ICA	2	98	1	55	45	93
Big Skate	ICA	61	39	19	81	19	42
Longnose skate	ICA	37	63	34	78	22	24
Other skates	ICA	10	90	54	21	79	14
Sculpins	ICA	1	99	10	14	86	8
Sharks	ICA	0	100	14	5	95	5
Squid	ICA	74	26	<1%	83	17	17
Octopus	ICA	50	50	45	20	80	1

Source: NMFS Sustainable Fisheries; File name is 'Average Retention'

**Table 16 2013 exvessel price per pound for GOA groundfish species by gear**

Species	Fixed gear (\$)	Trawl gear (\$)
Pollock	0.13	0.15
Pacific cod	0.27	0.23
Shallow-water flatfish	0.05	0.21
Deep-water flatfish	0.05	0.09
Rex sole	0.00	0.26
Arrowtooth flounder	0.05	0.04
Flathead sole	0.02	0.15
Pacific ocean perch	0.27	0.24
Northern rockfish	0.24	0.21
Dusky rockfish	0.40	0.22
Shortraker rockfish	0.36	0.37
Rougheye rockfish	0.32	0.24
Thornyhead rockfish	0.84	0.56
Other rockfish	0.49	0.09
Atka mackerel	0.02	0.39
Sablefish	2.77	2.32
Big skate	0.43	0.45
Longnose skate	0.43	0.44
Other skates	0.34	0.15
Sculpins	0.02	0.02
Sharks	0.02	0.02
Squid	0.46	0.03
Octopus	0.45	0.52

Source: AKFIN report from file MRA\_EXVES(06-11) file

**Table 17 GOA fisheries closed during the 2013 season by date and reason**

GOA				
Fishery	Area	Sector	Date Closed	Reason
Pollock	620	All	4-Feb	TAC
	620	All	13-Sep	TAC
	630	All	16-Sep	TAC
	620	All	6-Oct	TAC
	630	All	8-Oct	TAC
	610/620/630/640	All	1-Nov	Reg
Pacific cod	620/630	CP	1-Sep	TAC
	610	CP/CV	1-Nov	Reg
	620/630	CP/CV	1-Nov	Reg
	640/650	Inshore/offshore	1-Nov	Reg
Deep water flatfish	610/620/630/640	All	18-May	Halibut
Arrowtooth flounder	610/620/630/640	All	18-May	Halibut
Rex sole	610/620/630	All	18-May	Halibut
Northern rockfish	610	All	3-Jul	TAC
	610	All	12-Jul	TAC
Pelagic shelf rockfish	610	All	3-Jul	TAC
	610	All	12-Jul	TAC
Pacific ocean perch	610	All	1-Jul	TAC
	640	All	19-Jul	TAC

The GOA pollock fishery is managed through permits and limited entry. The TAC is apportioned between four seasons in the Central and Western GOA beginning January 20, March 10, August 25, and October 1, with 25 percent of the total TAC allocated to each season. The directed fishery is entirely a trawl fishery. As noted in Table 15, trawl vessels harvested 109 percent of the TAC, while fixed gear vessels caught less than one percent of the TAC during 2008 through 2013. In 2013, the TAC for pollock was 121,046 mt, of which 457 fixed gear vessels caught 172 mt and 83 trawl vessels caught 93,560 mt of the TAC (Table 10 and Table 11). Nearly all GOA pollock was caught in the pollock directed fishery, but the arrowtooth flounder fishery and the shallow-water flatfish fishery each caught over 1,000 mt (Table 14). The MRA for pollock as an incidental catch species is 20 percent for nearly all basis species. As noted in Table 15, the average retention of GOA pollock from 2008 through 2013 was 72 percent for fixed gear and 97 percent for trawl gear. As noted in Table 13 and Table 14, incidental catch in the 2013 pollock directed fishery was low. Primary incidental caught species in the pollock fishery were arrowtooth flounder and Pacific cod. The 2013 pollock exvessel price for fixed gear vessels was \$0.12 per pound and for trawl vessels was \$0.15 per pound (Table 16).

Pacific cod was apportioned by inshore and offshore components prior to 2012. Since 2012, Western and Central GOA Pacific cod TAC was apportioned amongst gear and operation types. Within the Western and Central GOA, 60 percent of each component's portion of the TAC is allocated to the A season (January 1 through June 10) and the remainder is allocated to the B season (June 10 through December 31, although the B season directed fishery for non-jig gear does not open until September 1). Pacific cod is the second major species (after pollock) targeted in the commercial groundfish fisheries in the GOA. Pacific cod are taken with trawl, longline, pot, and jig gear. From 2008 through 2013 fixed gear vessels caught 82 percent of the Pacific cod TAC, while trawl vessels caught 33 percent of the TAC. In 2013, most of the Pacific cod caught was from the directed fishery. With a TAC of 60,00 mt, 1,016 fixed gear vessels caught 30,536 mt of Pacific cod of the TAC and 86 trawl vessels caught 21,694 mt of the TAC (Table 10 and Table 11). Pacific cod was also caught as incidental catch in the shallow-water flatfish

fishery, arrowtooth flounder fishery, and the pollock fishery. The MRA for Pacific cod as incidental catch species is 20 percent for nearly all basis species. The average retained catch rate during 2008 through 2013 was 98 percent for fixed gear vessels and 90 percent for trawl vessels (Table 15). Primary incidental catch species in the Pacific cod fishery include arrowtooth flounder, shallow-water flatfish, pollock, and flathead sole for trawl vessels and other skates, big skates, longnose skates, sculpins, and octopus for fixed gear vessels. The 2013 Pacific cod exvessel price for fixed gear vessels was \$0.27 per pound and for trawl vessels was \$0.23 per pound (Table 16).

In the GOA, the sablefish directed fishery is prosecuted with longline gear (pot gear is prohibited for sablefish directed fishing in the GOA) through an IFQ program. This is reflected in Table 15, which shows that during 2008 through 2013, fixed gear vessels caught 82 percent of the sablefish TAC and trawl vessels caught 33 percent of the TAC. The majority of sablefish caught was in the directed IFQ fishery. In 2013, 815 fixed gear vessels caught 11,220 mt of the 12,510 mt of TAC, while 45 trawl vessels caught 846 mt of the sablefish TAC (Table 10 and Table 11). Sablefish are also taken by trawl gear incidental to the directed fisheries for rockfish. The MRA for sablefish is 7 percent for rockfish and flatfish basis species and 1 percent of all other basis species. The average retention rate of sablefish during 2008 through 2013 was 95 percent for fixed gear and 91 percent for trawl gear (Table 8). The primary incidental catch species in the 2013 directed fixed gear sablefish fishery were sharks, thornyhead rockfish, longnose skates, shortraker rockfish, arrowtooth flounder, roughey rockfish, and other skates (Table 13). The 2013 sablefish exvessel price for fixed gear vessels was \$2.77 per pound and for trawl vessels it was \$2.32 per pound (Table 16).

The shallow-water flatfish species group is comprised of northern rock sole, southern rock sole, yellowfin sole, butter sole, starry flounder, English sole, sand sole, and Alaska plaice. Shallow-water flatfish are generally harvested with trawl gear. Southern and northern rock sole are the predominant target species in the group. As noted in Table 15, fixed gear vessels caught less than 1 percent of the combined 2008 through 2013 TAC, while trawl vessels caught 23 percent. Of the shallow-water flatfish caught in 2013, most was caught in the directed fishery, but the Pacific cod fishery, arrowtooth flounder fishery, and the pollock fishery also caught shallow-water flatfish in large numbers. The MRA for shallow-water flatfish is 20 percent for all basis species. During 2013, 537 fixed gear vessels caught 25 mt of the 37,077 mt TAC, while 77 trawl vessels caught 5,494 mt (Table 10 and Table 11). The average retention of shallow-water flatfish was 7 percent for fixed gear vessels and 94 percent for trawl vessels from 2008 through 2013 (Table 8). Primary incidental catch species in the shallow-water flatfish fishery in 2013 was Pacific cod, pollock, and arrowtooth flounder. The 2013 shallow-water flatfish exvessel price for fixed gear vessels was \$0.05 per pound and for trawl vessels was \$0.21 per pound (Table 16).

The deep-water flatfish species group is composed of Dover sole, Greenland turbot, and deep-sea sole. Dover sole constitutes the majority of the fishery catch in the deep-water flatfish species group. Deep-water flatfish is caught in a directed fishery primarily using bottom trawl (Table 8). Fishing seasons are driven by seasonal halibut PSC apportionments, with fishing occurring primarily in April and May because of higher catch rates and better prices. From 2008 through 2013, fixed gear vessels caught less than 1 percent of the combined TACs, while the trawl vessels caught only 6 percent. In 2013, the TAC for deep-water flatfish was 5,126 mt, of which 432 fixed gear vessels caught 20 mt of deep-water flatfish and 67 trawl vessels caught 223 mt (Table 10 and Table 11). Deep-water flatfish is also caught as incidental catch primarily in arrowtooth flounder and rockfish fisheries. The MRA for deep-water flatfish is 20 percent for all basis species. The average percent retained of deep-water flatfish during 2008 through 2013 was 2 percent for fixed gear vessels and 44 percent for trawl vessels (Table 8). Deep-water flatfish are also caught in pursuit of other bottom-dwelling species as incidental catch. In 2013, these species in general include shallow-water flatfish, Pacific cod, and arrowtooth flounder. The 2013 deep-water flatfish exvessel price for fixed gear vessels was \$0.05 per pound and for trawl vessels was \$0.09 per pound (Table 16).

GOA rex sole are caught using trawl gear in a directed fishery and fisheries targeting other bottom-dwelling species such as Pacific ocean perch, Pacific cod, and bottom pollock. Fishing seasons are dictated by seasonal halibut PSC apportionments, with approximately 7 months of fishing occurring between January and November. Catches of rex sole occur primarily in the Western and Central GOA. During 2008 through 2013, fixed gear vessels caught less than 1 percent of the combined TACs, while the trawl vessels caught 36 percent (Table 15). Most rex sole caught is from the directed fishery. In 2013, 14 fixed gear vessels caught less than 1 mt of rex sole, while 79 trawl vessels caught 3,707 mt of a 9,560 mt TAC (Table 10 and Table 11). Of the rex sole caught in other fisheries, the arrowtooth flounder fishery accounted for the most at 1,340 mt (Table 15). The MRA for rex sole is 20 percent for all basis species. From 2008 through 2013, the average percent of rex sole retained for fixed gear vessels was 6 percent, while trawl gear vessels retained on average 98 percent. Trawl vessels in the 2013 rex sole fishery also caught as incidental catch primarily arrowtooth flounder, Pacific ocean perch, Pacific cod, flathead sole, and big skates. The 2013 rex sole exvessel price for trawl gear vessels was \$0.26 per pound (Table 16). There was no reported 2013 rex sole exvessel price for fixed gear vessels.

The directed fishery for arrowtooth flounder takes place throughout the GOA, but is primarily in the Central GOA (NMFS area 630). Arrowtooth flounder are typically caught with bottom trawl gear as noted in Table 8. Outside of the directed fishery, they are primarily caught as incidental catch in other flatfish fisheries. From 2008 through 2013, 1 percent of the GOA-wide arrowtooth flounder TAC was caught by fixed gear vessels, while trawl vessels caught 39 percent of the GOA-wide TAC (Table 15). In 2013, the TAC for arrowtooth flounder was 103,300 mt, of which 23 fixed gear vessels caught 60 mt of arrowtooth flounder and 83 trawl vessels caught 19,313 mt (Table 10 and Table 11). Other fisheries landing significant amounts of arrowtooth flounder include pollock, flathead sole, rex sole, shallow-water flatfish, rockfish, and Pacific cod (Table 14). The MRA for arrowtooth flounder is 35 percent for all basis species. The average percent retained of arrowtooth flounder from 2008 through 2013 for fixed gear vessels was 8 percent, while trawl vessels retained 69 percent of their arrowtooth flounder catch. Incidental catch species in the arrowtooth flounder fishery include pollock, rex sole, Pacific cod, big skates, and flathead sole. The 2013 arrowtooth flounder exvessel price for fixed gear vessels was \$0.05 per pound and for trawl vessels it was \$0.04 per pound (Table 16).

Flathead sole in the GOA are caught in a directed fishery using bottom trawl gear. Typically 25 or fewer shore-based catcher vessels from 58-125 ft. LOA participate in this fishery, as do 5 catcher-processors vessels (90-130'). Fishing seasons are driven by seasonal halibut PSC apportionments, with approximately 7 months of fishing occurring between January and November. During 2008 through 2013, the fixed gear vessels total catch was less than 1 percent of the GOA flathead sole TAC and averaged 3 percent retention, while vessels using trawl gear harvested 18 percent of the 2008 through 2013 GOA flathead sole TAC and averaged 18 percent retention (Table 15). In 2013, the largest portion of flathead sole was caught in the arrowtooth flounder fishery. In 2013, the arrowtooth flounder fishery caught 922 mt of flathead sole, while the directed fishery only caught 470 mt (Table 14). Other fisheries that caught large amounts of flathead sole include Pacific cod, shallow-water flatfish, pollock, and rex sole. The MRA for flathead sole is 20 percent for all basis species. Incidental catch species in the flathead sole fishery include arrowtooth flounder, pollock, and Pacific cod to name the largest for 2013 (Table 14). The 2013 flathead sole exvessel price for fixed gear vessels was \$0.02 per pound and for trawl vessels it was \$0.15 per pound (Table 16).

The GOA halibut IFQ fishery, similar to the BSAI, is a fixed gear fishery that is regulated by International Pacific Halibut Commission (in compliance with the terms of the North Pacific Halibut Act between the United States and Canada) and the Council. In practice, the Halibut Commission establishes total annual catch limits and other conservation measures, and the Council develops regulations to govern the fishery including limited access, allocation decisions, and PSC limits for groundfish. The MRA for

the halibut IFQ fishery in the GOA is aggregated with other non-groundfish species and is generally 20 percent for most incidental catch species, but is lower for sablefish (1 percent), aggregated rockfish (5 percent), and aggregated forage fish (2 percent) and is higher for arrowtooth flounder (35 percent). Incidental catch in the 2013 halibut IFQ fishery included 2,086 mt of Pacific cod, 1,067 mt of sculpins, 1,004 mt of longnose skates, 972 mt of sablefish, 868 mt of sharks, 740 mt of other skates, and 523 mt of big skates (Table 13).

Pacific ocean perch (POP), northern rockfish, and dusky rockfish are caught primarily in directed bottom trawl fisheries but recent years have seen an increase in the catch using pelagic trawl gear. The majority of these rockfish species are caught in the Central GOA through the Central GOA Rockfish Program. First implemented under the Rockfish Pilot Program from 2007 through 2011, the Central GOA Rockfish Program was implemented in 2012. The program, like its predecessor, allocates exclusive harvest privileges to a specific group of license limitation program license holders who use trawl gear to target POP, dusky rockfish, and northern rockfish. As noted in Table 15, fixed gear vessels caught less than 1 percent of the combined TACs for these three species, while trawl vessels caught 72 percent for dusky rockfish and over 80 percent for POP and dusky rockfish. In 2013, 81 fixed gear vessels caught 2 mt of POP, 147 fixed gear vessels caught 10 mt of northern rockfish, and 392 fixed gear vessels caught 43 mt of dusky rockfish (Table 10). By contrast, 81 trawl vessels caught 13,181 mt, 69 trawl vessels caught 4,869 mt of northern rockfish, and 80 trawl vessels caught 3,115 mt of dusky rockfish (Table 11). Other fisheries that catch large amounts of these rockfish include arrowtooth flounder, rex sole, and pollock. The MRA for these rockfish species, all of which are included in the aggregated rockfish category, is generally 15 percent for most basis species, but is 5 percent for some basis species. The retention rate for all three of these rockfish species is less than 10 percent for vessels using fixed gear and is nearly 100 percent for vessel using trawl gears. The most prominent incidental catch species in these rockfish fisheries during the 2013 fishing year includes Atka mackerel, pollock, arrowtooth flounder, Pacific cod, other rockfish, sablefish, shortraker rockfish, and rougheye rockfish. The 2013 POP exvessel price for fixed gear vessels was \$0.27 per pound and for trawl vessels was \$0.24 per pound (Table 16). For northern rockfish, the 2013 exvessel price was \$0.24 per pound for fixed gear vessels and \$0.21 per pound for trawl vessels. For dusky rockfish, the 2013 exvessel price was \$0.40 per pound for fixed gear vessels and \$0.22 per pound for trawl vessels.

Shortraker rockfish in the GOA are managed as “bycatch” only species, except for trawl C/Ps in the Central GOA Rockfish Program. Shortraker rockfish have been taken in both longline and trawl fisheries and mostly in fisheries targeting on rockfish, sablefish, and Pacific halibut, with less amounts taken in the pollock and other fisheries (Table 13 and Table 14). In 2013, 477 fixed gear vessels caught 369 mt of shortraker rockfish, while 45 trawl vessels caught 354 mt. Nearly all the longline catch of shortraker rockfish appears to be “true” incidental catch in the sablefish and halibut longline fisheries. In the trawl rockfish fisheries, however, some of the shortraker is taken by actual targeting during topping off. Such instances of “topping off” for shortraker rockfish appear to take place in the POP trawl fishery, especially because shortraker rockfish is the most valuable trawl-caught rockfish species in terms of landed price. Starting in 2007 with the Central GOA Rockfish Pilot Program and continuing in the new Central GOA Rockfish Program that was implemented in 2012, shortraker rockfish, an allocated secondary species, catch in the Central GOA by trawl vessels has decreased considerably. Catches of shortraker rockfish in the Central GOA are now at some of their lowest levels since 1991. The 2013 shortraker rockfish exvessel price for fixed gear vessels was \$0.36 per pound and for trawl vessels was \$0.37 per pound (Table 16).

Rougheye rockfish have been managed as “bycatch” only species since the creation of the shortraker/rougheye rockfish management subgroup in the GOA in 1991. Total catch as percent of TAC from 2008 through 2013 for longline vessels was 14 mt, while for trawl vessels it was 23 mt. In 2013, 539 fixed gear vessels caught 251 mt of rougheye rockfish, while 50 trawl vessels caught 335 mt of rougheye rockfish (Table 10 and Table 11). Of the trawl catch, nearly all was from bottom trawlers in the rockfish

directed fisheries. The amount of rougheye rockfish catch taken in the rockfish directed fisheries has more than doubled in the past couple of years, probably due to increased POP TAC allocated to the Central GOA. For longline gear, nearly all the rougheye rockfish catch appears to be “true” bycatch in the sablefish or halibut longline fisheries. Retention of rougheye rockfish is high for both fixed gear and trawl gear. As noted in Table 15, during 2008 through 2013, fixed gear vessels retained on average 52 percent of rougheye rockfish and trawl gear vessels retained on average 87 percent of these species. The 2013 rougheye rockfish exvessel price for fixed gear vessels was \$0.32 per pound and for trawl vessels was \$0.24 per pound (Table 16).

Demersal shelf rockfish (DSR) are managed jointly by Alaska Department of Fish and Game and National Marine Fisheries Service. The directed fishery for DSR is almost entirely prosecuted by longline gear (Table 15) in the Southeast outside area. Outside of the directed fishery in the Southeast Outside, DSR is managed in the “other rockfish” species group as “bycatch” only species. Incidental catch of DSR are caught in the lingcod, Pacific cod, halibut, and sablefish fisheries.

Thornyhead rockfish are managed as “bycatch” only status in the GOA. They are commonly taken by bottom trawls while targeting rockfish directed fisheries and longline gear while targeting sablefish (Table 13 and Table 14). Thornyhead rockfish are a secondary species that has an allocation of quota share which can be caught while fishing for the primary rockfish species in the Central GOA Rockfish Program. Thornyhead rockfish also have a high retention rate. The average retention of thornyhead rockfish from 2008 through 2013 was 73 percent for vessels using fixed gear and 88 percent for vessels using trawl gear (Table 15). The 2013 thornyhead rockfish exvessel price for fixed gear vessels was \$0.84 per pound and for trawl vessels was \$0.56 per pound (Table 16).

Since the mid-1990s, directed fishing has not been allowed for “other rockfish” in the GOA, and the fish can only be retained as “incidentally-caught” species. During 2008 through 2013, trawling in the rockfish directed fisheries has accounted for a substantial majority of the ‘other slope rockfish’ catch, as indicated in Table 14 and Table 15. Average retention of “other rockfish” during 2008 through 2013 was 59 percent for vessels using fixed gear and 39 percent of vessels using trawl gear. The 2013 other rockfish exvessel price for fixed gear vessels was \$0.49 per pound and for trawl vessels it was \$0.09 per pound (Table 16).

Atka mackerel has been managed as “bycatch” only fishery since 1996. As indicated in Table 14, in 2013 nearly all of the Atka mackerel incidental catch in the GOA occurred in the rockfish directed fisheries. Under the Central GOA Rockfish Program, catcher processors who historically would move out of area 610 after the POP fishery closed, are now remaining in the area and targeting northern and pelagic shelf rockfish. This is contributing to greater catches (much of it discarded as noted in Table 15) of Atka mackerel. Average retention of Atka mackerel during the 2008 through 2013 for vessels using fixed gear was 1 percent, while vessels using trawl gear retained 55 percent. The 2013 Atka mackerel exvessel price for fixed gear vessels was \$0.02 per pound and for trawl vessels was \$0.39 per pound (Table 16).

The GOA Skate complex is comprised of at least 15 skate species. Big skates and longnose skates dominate the skate biomass in the GOA. Until 2003, skates were primarily caught as incidental catch in longline and trawl fisheries targeting Pacific halibut and other groundfish. In 2003, vessels began retaining and delivering skates as a target species in federal waters partly because the market for skates had improved and partly because catch of Pacific cod could be retained as incidental catch in a skate target fishery, even though directed fishing for Pacific cod was seasonally closed. Starting in 2005 and continuing today, skates are managed as “bycatch” only. There was a marked increase in incidental catch of skates in the halibut IFQ target fishery. This increase corresponds with increase catch reporting due to fisheries observer deployment into a previously unobserved fishery (NPFMC, 2013). In addition, the 2013 ABC for Central GOA big skates and Western GOA longnose skates were exceeded. As noted in Table 13 and Table 14, the primary fisheries that land big skates as incidental are the halibut IFQ and



Pacific cod fisheries for fixed gear vessels and arrowtooth flounder, Pacific cod, and rex sole fisheries for trawl vessels. Bycatch of longnose skate is primarily from the halibut IFQ, sablefish, and Pacific cod fisheries, and arrowtooth flounder, rex sole, and shallow-water flatfish for trawl vessels. For other skates, the largest portion of incidental catch comes from the halibut IFQ and Pacific cod fisheries for fixed gear vessels, and arrowtooth flounder and rex sole fisheries for trawl vessels. As noted in Table 15, retention of skates varies depending on species and gear. Average retention of big skates from 2008 through 2013 for fixed gear vessels was 61 percent and for trawl vessels was 81 percent. For longnose skates, the average retention rate for fixed gear vessels was 37 percent and for trawl vessels was 78 percent. For other skates, the average retention for fixed gear vessels was 10 percent and for trawl vessels was 21 percent. The 2013 big skate exvessel price for fixed gear vessels was \$0.43 per pound and for trawl vessels was \$0.45 per pound (Table 16). The 2013 exvessel price for longnose skates was also \$0.43 per pound for fixed gear vessels and \$0.44 per pound for trawl vessels. For other skates, the 2013 exvessel price was \$0.34 per pound for fixed gear vessels and \$0.15 per pound for trawl vessels.

GOA Sculpin are currently not open for directed fishing in the GOA, so sculpin catch depends solely on the TAC and spatial temporal limitations placed on target fisheries. Retained catch of sculpin species in the GOA has increased recently from 7 percent in 2003 (SAFE, 2011) to an average of 14 percent for trawl gear during 2008 through 2013 (Table 15). Sculpins are caught incidentally by both fixed gear and trawl gear. The main fisheries that catch sculpins are the trawl shallow-water flatfish fishery, fixed gear Pacific cod fishery, and IFQ halibut fishery (Table 13 and Table 14). The 2013 sculpin exvessel price for fixed gear vessels was \$0.02 per pound and for trawl vessels it was \$0.02 per pound (Table 16).

GOA shark species are currently not open for directed fishing. Historical catches of sharks in the GOA are composed entirely of incidental catch (mostly in the arrowtooth flounder fishery), and nearly all shark catch is discarded. In 2013, 909 fixed gear vessels caught 2,033 mt of sharks, and 67 trawl vessels caught 329 mt of sharks (Table 10 and Table 11). On average, 5 percent of sharks were retained by trawl vessels during 2008 through 2013, while no sharks were retained during this same period for fixed gear vessels (Table 15). The 2013 exvessel price for sharks was \$0.02 per pound for fixed gear vessels and \$0.02 per pound for trawl vessels (Table 16).

GOA squid are currently not open for directed fishing. Squid in GOA are generally taken incidentally in target fisheries for pollock, as noted in Table 14. Squid caught incidentally are generally retained. During 2008 through 2013, the average retention of GOA squid for vessels using fixed gear was 74 percent, while vessels using trawl gear retained 83 percent (Table 15). The 2013 squid exvessel price for fixed gear vessels was \$0.46 per pound and for trawl vessels was \$0.03 per pound (Table 16).

GOA octopus is currently not open for directed fishing. Octopuses are caught incidentally throughout the GOA in both state and federally-managed bottom trawl, longline, and pot fisheries. The majority of incidental catch of octopus comes from Pacific cod fisheries, primarily pot fisheries. Some catch is also taken in trawl fisheries for Pacific cod and other species. Recent increases in global market value have increased retention of incidentally-caught octopus in the GOA. During 2008 through 2013, on average vessels using fixed gear retained 50 percent of the GOA octopus caught, while vessels using trawl gear retained only 20 percent (Table 15). The 2013 octopus exvessel price for fixed gear vessels was \$0.45 per pound and for trawl vessels was \$0.52 per pound (Table 16).

## **IX. Expected effects of alternatives**

This section provides an analysis of two alternatives: (1) Status Quo/No Action and (2) change to the MRA enforcement period for all fisheries in the BSAI and GOA. Assessing the effects of the alternatives involves some degree of speculation. In general, the effects arise from the actions of individual participants in the fisheries, under the incentives created by the different alternatives. Predicting these individual actions and their effects is constrained by incomplete information concerning the fisheries,

including the absence of complete economic information and well-tested models that predict behavior under different institutional structures. In addition, exogenous factors, such as stock fluctuations, market dynamics, and macro condition in the global economy, will influence the responses of the participants under each of the alternatives.

**i. Alternative 1 – No Action/Status Quo.**

Under this alternative, the MRA enforcement period would continue to be enforced on an instantaneous basis, i.e., it is unlawful for a vessel to retain species on MRA status that exceed the MRA percentage at any time during a fishing trip. Maintaining the existing MRA enforcement period would continue to require vessels to discard any groundfish species over the MRA, if those species were closed to directed fishing. This is especially true during the early portion of a trip when a vessel does not have sufficient basis species and incidental caught species must be discarded over the MRA. Once the vessel has sufficient basis species, then the vessel operator could retain incidentally caught groundfish species. For valuable incidental catch species, the required discard over the MRA due to insufficient basis species early in trip is an economic loss to the vessel. It also result in higher mortality of incidental catch species if these same species are caught later in the trip when sufficient basis species are available.

**ii. Alternative 2 – Change to MRA enforcement period for all fisheries**

This alternative would change the enforcement period for all fisheries in the BSAI and GOA to an offload-to-offload period. Outside of non-AFA Pollock, there is currently no definition of “offload”. When creating a definition of offload, factors to keep in mind are: 1) it is common practice for a CV to offload to multiple processors, especially the practice of offloading the basis species at one processor and the incidental catch at another and 2) on rare occasions a CV or CP might offload some but not all of their fish and therefor begin their next fishing trip with fish still on board from their previous trip.

Modifying the enforcement period to an offload-to-offload period would allow vessels that would have otherwise be forced to discard groundfish species on MRA status to retain these groundfish species on MRA status, as long as they were under the MRA percentage at the time of offload. The overall economic impact of changing the MRA enforcement period for all fisheries is expected to be positive.

The main factors that could affect the economic impact for all vessels is the value of the incidental catch species relative to the value of the basis species retained by the vessel, the cost and logistics of retaining and delivering a marketable fishery product, and the strategic behavior of individual vessels. If the incidental catch species has a lower value than the basis species, the change in the enforcement period is unlikely to have any significant economic effect—vessels will continue to discard incidental catch species at current levels. If the incidental catch species has a higher relative value than the basis species, the impact from changing the enforcement period could be positive. Under the current regulations, vessels are likely to be required to discard valuable incidental caught groundfish species during the early part of the fishing trip until they have harvested and retained sufficient amounts of basis species to build up a “ballast” of retained product they can count retained incidental catch against. Then later in the fishing trip they can “top off” if they wish. Thus under the current regulations, vessels may need to catch additional amounts of valuable incidental catch species if they wish to retain the MRA of the species allowed. With the change in regulation, vessels will have the option to keep the valuable incidental catch species in the early part of the fishing trip, even if they have not yet caught and retained sufficient basis species to comply with the MRA. Because they are able to keep valuable incidental catch species as it comes on board, there is unlikely to be a need to “top off” later in the trip. Thus, the proposed action may reduce overall catch of valuable incidental catch species.

With a potential reduction in overall catch of incidentally caught species due to the proposed change in the MRA enforcement period, there also could be an increase in groundfish retention in the BSAI and GOA groundfish fisheries. Regulatory discards may be required when incidental catch species that a vessel wants to retain, but cannot due to not having sufficient basis species on board the vessel. Under the proposed action, vessels would now be allowed to retain this incidental catch species prior to having sufficient basis species on board. Having the ability to retain this incidental catch rather than discard it would likely increase the overall groundfish retention in the fisheries affected by this action.

This alternative could also provide a strong economic incentive to harvest otherwise unavailable high valued species, up to their MRA amounts (i.e., covert targeting of species “closed” to directed fishing) by providing greater operational flexibility during a fishing trip. In general, the development of a “top off” fishery is dependent on a number of issues, including, but not limited to, the prices of the species, whether there is a potential buyer, accessibility of the species, storage availability, the ability to process the species, and the calculation of the MRA enforcement period. In addition, the potential for a vessel to “top off” on a specific species varies across vessels. A vessel with the ability to limit incidental catch or the ability to discard low valued fish provides more discretion for “topping off” on incidental catch species. For vessels that participate in rationalization programs, these vessels can be limited to a degree in their ability to “top off” on many of the directed fisheries due to sideboard limits.

For most groundfish species, the additional flexibility to “top off” early in a fishing trip is not expected to affect most groundfish stocks relative to the status quo since the alternatives would not change the species TACs or the gear type and general location of the fisheries in which groundfish are caught. For some groundfish species though, the greater flexibility to “top off” for a species in combination with other factors like low OFL, ABC, and TAC relative to high total catch, high retention rates for the species, and the high exvessel price for these species could increase risk of exceeding the ABC and TAC, and in some rare cases approach the OFL. Taking into consideration all of these factors, the groundfish species listed in Table 18 are at the greatest risk of exceeding their ABCs and OFLs under the change to the MRA enforcement period. For some species, the Council may want to include options in the proposed action to reduce the MRAs to reduce the risk of exceeding the ABCs and OFLs. Provided below is a description of the situation for each of these species.

**Table 18 List of groundfish species in the BSAI and GOA that when combined with change in MRA enforcement period are at greater risk of exceeding the ABC and OFL**

<b>BSAI</b>	<b>GOA</b>
Greenland turbot	Shortraker rockfish
Kamchatka flounder	Rougheye rockfish
Shortraker rockfish	Thornyhead rockfish
Rougheye rockfish	Other rockfish
Other rockfish	Big skates
Skates	Longnose skates
Octopus	Other skates
	Octopus

**a. BSAI**

**i. Greenland turbot**

In the Greenland turbot fishery, the combination of low ABC and TAC, high retention, and high value with a proposed change to the MRA enforcement period could increase the risk of exceeding the OFL, ABC, and TAC. As noted in the background section, both trawl and longline gears are active participants.

During 2008 through 2013, trawl vessels caught 40 percent of the combined TACs and fixed gear vessels caught 31 percent of the combined TACs. While catch of Greenland turbot for fixed gear vessels mostly occurs in the Greenland turbot directed fishery, for trawl vessels, most of the Greenland turbot is caught as bycatch in the arrowtooth flounder fishery and Kamchatka flounder fishery. In 2013, the OFL for Greenland turbot was 2,540 mt, while the ABC and TAC were equal at 2,060 mt. The combined total catch for all gears during 2013 fishing season was 1,754 mt, which is 85 percent of the TAC and ABC and 69 percent of the OFL. The fishery, which normally opens on May 1, was closed to directed fishing prior on May 1 in 2013 and 2014 due to low ABCs and TACs. To provide an opportunity for a late season fishery for hook-and-line vessels, trawl vessels in 2013 and 2014 have agreed to limit bycatch of Greenland turbot in their arrowtooth flounder and Kamchatka flounder fisheries. For 2013, the Bering Sea directed fishery did open on September 1 and closed on December 11.

The MRA for Greenland turbot is generally 1 percent for most basis species, but it is 7 percent for arrowtooth flounder and Kamchatka flounder, and 35 percent for rock sole, northern rockfish, Pacific ocean perch, shortraker and roughey rockfish, sablefish, and other rockfish. Prior to May 15, 2013, the MRA for arrowtooth flounder and Kamchatka flounder was 35 percent. The intent in reducing the MRA for arrowtooth flounder and Kamchatka flounder was to minimize impacts on the directed fishery for Greenland turbot while allowing some incidental catch of Greenland turbot to be retained when closed to directed fishing. Greenland turbot also has a high retention. During 2008 through 2013, the average retention was 94 percent for fixed gear vessels and 89 percent for trawl vessels. Greenland turbot is also a high valued species. In 2013, the exvessel price was \$0.36 for fixed gear vessels and \$0.60 for trawl vessels. As noted above, the Greenland turbot MRA for these two fisheries is 7 percent. The Council set these MRA percentages during the October 2010 final action.

As indicated in the description of the fishery in recent years, Greenland turbot have a low OFL, ABC, and TAC relative to the total catch for the species and the species can command a high exvessel prices. When these factors are combined with the proposed change in MRA enforcement period there could be an increased risk of exceeding the OFL, ABC, and TAC. One option that could reduce the incentive to “top off” on Greenland turbot is by lowering the MRA from the current levels, which in turn would reduce the risk of exceeding the OFL, ABC, and TAC under the proposed change to MRA enforcement period.

## **ii. Kamchatka flounder**

Kamchatka flounder is also a species that has an increased risk of exceeding its TAC and ABC when combined with the change in MRA enforcement period. Prior to May 2013, for MRA regulations Kamchatka flounder was managed in the arrowtooth flounder. In December 2011, separate OFLs, ABCs, and TACs were established for arrowtooth flounder and Kamchatka flounder to protect the Kamchatka flounder stock, which had been harvested disproportionately (relative to biomass estimates) in the arrowtooth flounder fishery. In 2013, the Kamchatka flounder ABC was 12,200 mt and the TAC was 10,000 mt, while arrowtooth flounder ABC was 152,000 mt and the TAC was 25,000 mt. The difficulty in distinguishing Kamchatka flounder from arrowtooth flounder and the significant difference in Kamchatka flounder ABC with arrowtooth flounder ABC, when combined with the proposed change to the MRA enforcement period, increases the risk of exceeding the TAC and ABC for Kamchatka flounder.

## **iii. Shortraker rockfish**

Shortraker rockfish, with its low OFL, ABC, and TAC relative to its catch and exvessel value would be another MRA species that would likely see increased risk of exceeding OFL, ABC and TAC under the proposed action. As an example, in 2013 the OFL for shortraker rockfish was 493 mt and the ABC and TAC was 370 mt, while the total catch was 374 mt. Of that total catch, 115 fixed gear vessels caught 90 mt and 43 trawl vessels caught 284 mt. All combined, total catch exceeded the ABC and TAC and was 76

percent of the OFL. The largest portion of incidental catch of shortraker rockfish was reported in the POP fishery at 193 mt, followed by the halibut IFQ fishery at 50 mt, arrowtooth flounder fishery at 46 mt, and the Atka mackerel fishery 37 mt. The MRA for shortraker rockfish, which is aggregated with rougheye rockfish, is 2 percent for most basis including halibut IFQ, arrowtooth flounder, and Atka mackerel, and 7 percent for six basis species including POP. Contributing to the demand for this species is the exvessel price. In 2013, the fixed gear exvessel price for shortraker rockfish was \$0.20 per pound and for trawl vessels it was \$0.49 per pound. Given the limited OFL, ABC, and TAC relative to total catch of shortraker rockfish coupled with its high exvessel price, the Council in the past has reduced the incentive for a shortraker rockfish “top off” fishery by keeping the MRAs very low. However, with a change in the MRA enforcement period to an offload to offload calculation, the risk of exceeding the OFL, ABC, and TAC are likely higher. To reduce the potential for exceeding the OFL, ABC, and TAC, the Council could include an option to reduce the shortraker rockfish MRA to 2 percent for those remaining fisheries with a current 7 percent MRA. This would likely reduce the risk of exceeding the OFL, ABC, and TAC for this species through a “top off” fishery.

#### **iv. Rougheye rockfish**

Rougheye rockfish is also an MRA species that would likely also see increased risk of exceeding the OFL, ABC, and TAC under the proposed change in the MRA enforcement period. To illustrate, in 2013, the OFL was 462 mt and the ABC and TAC were 378 mt. During that year, 91 fixed gear vessels caught 26 mt of rougheye rockfish, while 44 trawl vessels caught 297 mt. All combined the total catch of rougheye rockfish for that year was 86 percent of the ABC and TAC, and 70 percent of the OFL. In 2013 the largest portion of rougheye rockfish was caught in the POP directed fishery at 162 mt, followed by the arrowtooth flounder fishery at 60 mt, Kamchatka flounder fishery at 41 mt, and Atka mackerel fishery 29 mt. The MRA for rougheye rockfish, which is aggregated with shortraker rockfish, is 2 percent for most basis including Kamchatka flounder, arrowtooth flounder, and Atka mackerel, and 7 percent for six other basis species including POP. Exvessel price for 2013 was more modest than shortraker rockfish at \$0.11 per pound for fixed gear vessels and \$0.28 per pound for trawl vessels. Similar to other species with low OFL, ABC, and TAC relative to a total catch and high exvessel price, the addition of the proposed change in MRA enforcement period could increase the risk of exceeding the OFL, ABC, and TAC for rougheye rockfish. The MRA for rougheye rockfish are already set low to reduce the incentive for a “top off” fishery, but the Council could include an option to further reduce the MRA to 2 percent for those basis species currently at 7 percent to further reduce the incentive for a “top off” fishery for rougheye rockfish under the proposed action.

#### **v. Other rockfish**

Other rockfish, which is also an ICA species, has a low OFL, ABC, and TAC relative to total catch for the species complex. That, along with high exvessel price likely increases the risk of exceeding the OFL, ABC, and TAC when combined with the proposed change in the MRA enforcement period. For example, in 2013, the OFL, ABC, and TAC for other rockfish were 1,540 mt, 1,159 mt, and 873 mt, respectively. In 2013, 127 trawl vessels caught 573 mt and 156 fixed gear vessels caught 259 mt. Combined, the total catch for 2013 was 95 percent of the TAC and 72 percent of ABC. Contributing to the demand for other rockfish was the high exvessel price. In 2013, the exvessel price for other rockfish was \$0.59 per pound for fixed gear vessels and \$0.53 per pound for trawl vessels. Fisheries contributing to the high catch of other rockfish in 2013 were Atka mackerel fishery at 296 mt, POP fishery at 185 mt, and the fixed gear sablefish fishery at 156 mt. Given the risk of exceeding the OFL, ABC, and TAC, the MRAs for other rockfish are low relative to most groundfish species. For most basis species, the MRA for other rockfish is 5 percent, including Atka mackerel, but is 15 percent for seven basis species, including POP and sablefish. Despite these lower MRAs for other rockfish to reduce the incentive to top off, there is likely an increased risk of exceeding the OFL, TAC, and ABC for other rockfish under the proposed MRA

enforcement change. To reduce the risk of exceeding the OFL, ABC, and TAC under the proposed action, the Council could include an option to reduce the MRA for other rockfish from the current 15 percent to 5 percent for the remaining seven basis species. This reduction in the MRA would likely reduce the risk of exceeding the OFL, ABC, and TAC for other rockfish.

#### **vi. Skates**

Skates are another species with an increased risk of exceeding the OFL, ABC, and TAC under the proposed action to change the MRA enforcement period. For example, in 2013 the OFL for skates was 45,800 mt, the ABC was 38,800 mt and the TAC was 24,000 mt. During that year, the total catch for skates was 27,037 mt, which is 112 percent of the TAC, 70 percent of the ABC, and 59 percent of the OFL. The largest portion of skates catch during 2013 was reported in the fixed gear Pacific cod fishery at 20,192 mt. The MRA for skates, which is included in the other species category, is 20 percent for all basis species except arrowtooth flounder and Kamchatka flounder. The exvessel price for skates in 2013 was \$0.31 per pound for fixed gear vessels, while for trawl vessels the price was \$0.02 per pound. The combination of high total catch relative to the OFL, ABC, and TAC, the high exvessel price for the fixed gear vessels, and the proposed change in the MRA enforcement period could increase the risk of exceeding the OFL, ABC, and TAC. To reduce the risk of exceeding OFL, ABC, and TAC for skates, the Council could include an option to reduce the MRA for the basis species Pacific cod to reduce the incentive to “top off” on skates in the directed Pacific cod fishery, which in turn would likely reduce the risk of exceeding the OFL, ABC, and TAC for skates.

#### **vii. Octopus**

Octopus species are also species that have an increased risk of exceeding the OFL, ABC, and TAC under the proposed change to MRA enforcement period. The 2013 OFL for octopus was 3,450 mt, the ABC was 2,590 mt, and the TAC was 500 mt. Total catch in 2013 was 223 mt, of which most was caught in the fixed gear Pacific cod fishery at 214 mt. The MRA for octopus, which is aggregated with other species, is 20 percent for most basis species including Pacific cod, but is 3 percent for arrowtooth flounder and Kamchatka flounder. The 2013 exvessel price for octopus was \$0.20 per pound for fixed gear vessels and \$0.01 per pound for trawl vessels. Despite the low catch of octopus and the relative low exvessel price, there is an increased risk of exceeding the OFL, ABC, and TAC under the proposed change in the MRA enforcement period.

### **b. GOA**

#### **i. Shortraker rockfish**

For shortraker rockfish, the combination of low OFL, ABC, and TAC in relation to total catch and high fishery value under the proposed change to the MRA enforcement period increases the potential of exceeding the OFL, ABC, and TAC. In 2013, the OFL for shortraker rockfish was 1,441 mt and the ABC and TAC was 1,081 mt. In 2013, 477 fixed gear vessels caught 369 mt and 45 trawl vessels caught 354 mt for a total catch of 723 mt. The catch for 2013 was 67 percent of the ABC and TAC and 50 percent of OFL. The MRA for shortraker rockfish, which is combined with roughey rockfish, is 7 percent for several basis species including northern rockfish, POP, and sablefish and 5 percent for nearly all the remaining basis species. Only arrowtooth flounder fishery has an MRA of zero percent for shortraker rockfish. Utilizing these MRAs, the primary fisheries contributing to the incidental catch of shortraker rockfish during 2013 were aggregate rockfish at 1,162 mt, fixed gear sablefish at 257 mt, and the halibut IFQ at 109 mt. Contributing to the high catch of shortraker rockfish is the exvessel price. During 2013, the exvessel price for shortraker rockfish was \$0.36 per pound for fixed gear vessels and \$0.37 per pound for trawl gear. Despite the lower MRAs for shortraker rockfish to reduce the incentive to “top off” on the

species, there is likely an increased risk of exceeding the OFL, ABC, and TAC for shortraker rockfish under the proposed MRA enforcement change through increased opportunity to “top off.” To reduce the risk of exceeding the OFL, ABC, and TAC under the proposed action, the Council could include an option to reduce the MRA for shortraker rockfish from 7 percent to 5 percent for some or all of the 10 basis species. This would likely reduce the risk of exceeding the OFL, ABC, and TAC for this species by reducing the potential opportunity for vessels to “top off” on shortraker rockfish.

#### **ii. Rougheye rockfish**

Rougheye rockfish is also an MRA species that would likely see an increased risk of exceeding the OFL, ABC, and TAC under the proposed change in the MRA enforcement period. As an example, in 2013 the OFL for rougheye rockfish was 1,482 mt, while the ABC and TAC was 1,232 mt. During that year, 539 fixed gear vessels caught 251 mt of rougheye rockfish, while 50 trawl vessels caught 335 mt of rougheye rockfish. For 2013, the total catch of rougheye rockfish was 586 mt, which was 48 percent of the ABC and TAC, and 40 percent of the OFL. With MRAs for rougheye combined with shortraker as noted above, the primary fisheries contributing to the incidental catch for 2013 were aggregate rockfish at 289 mt and fixed gear sablefish at 210 mt. The 2013 exvessel price for rougheye rockfish was \$0.32 per pound for fixed gear vessels and \$0.24 per pound for trawl vessels. Similar to shortraker rockfish, the reduced MRA for rougheye rockfish inhibits the potential for a “top off” fishery, but the proposed change to the MRA enforcement period would increase the flexibility for vessels to “top off” due to the increased MRA flexibility. The Council could reduce the risk of exceeding the OFL, ABC, and TAC under the proposed action by including an option to reduce the MRA for rougheye rockfish from 7 percent to 5 percent for some or all of the 10 basis species. The reduction in the MRA for these basis species would reduce the potential opportunity for vessels to “top off” on rougheye rockfish, which would reduce the risk of exceeding the OFL, ABC, and TAC for this species.

#### **iii. Thornyhead rockfish**

Another rockfish species, thornyhead rockfish, would also likely see increased risk of exceeding OFL, ABC, and TAC under the proposed action. To illustrate this point, in 2013 the OFL for thornyhead rockfish was 2,220 mt and the ABC and TAC was 1,665 mt. During that year, 572 vessels caught 1,160 mt of thornyhead rockfish. To reduce the incentive for a “top off” fishery, the MRA for thornyhead rockfish, which is included with aggregated rockfish, is 15 percent for most flatfish and rockfish fisheries, including sablefish, and 5 percent for the remaining groundfish fisheries. Despite these lower MRAs for thornyhead rockfish, total catch during 2013 was 70 percent of ABC and TAC, and 52 percent. The primary fisheries contributing to the incidental catch for 2013 was the fixed gear sablefish at 899 mt followed by the rockfish at 274 mt. Contributing to the high incidental catch of thornyhead rockfish, the exvessel price for thornyhead rockfish was the second highest in 2013 at \$0.84 per pound for fixed gear vessels and \$0.56 per pound for trawl vessels. Given the high catch relative to the OFL, ABC, and TAC and the high value of the fishery, the proposed change to the MRA enforcement period could increase the opportunity for vessels to “top off” due to the increased flexibility which could increase the risk of exceeding the OFL, ABC, and TAC. Given this risk of exceeding OFL, ABC, and TAC under the proposed action, the Council could reduce this risk by including an option to reduce the MRA percentages for those basis species that are the primary contributor to incidental catch.

#### **iv. Other rockfish**

For other rockfish, the same issue of low OFL, ABC, and TAC relative to total catch combined with high fishery price likely increases the risk of exceeding the OFL, ABC, and TAC under the proposed alternative. In 2013, the OFL, ABC, and TAC for other rockfish were 5,305 mt, 4,045 mt, and 1,080 mt, respectively. In 2013, 823 fixed gear vessels caught 308 mt and 69 trawl vessels caught 520 mt.

Combined, the catch for 2013 was 77 percent of the TAC and 20 percent of ABC. The 2013 exvessel price for other rockfish was \$0.49 per pound for fixed gear vessels and \$0.09 per pound for trawl vessels. Fisheries contributing to the high catch of other rockfish in 2013 were the halibut IFQ fishery at 206 mt, rockfish at 104 mt, and sablefish at 61 mt. Although the risk of exceeding the OFL, ABC, and TAC for other rockfish is lower than other ICA species, there is a risk given the number of vessels landing other rockfish, the low OFL, ABC, and TAC, and the potential for high exvessel prices. To reduce this risk of exceeding the OFL, ABC, and TAC under the proposed action, the Council could include an option to lower MRA percentages for those basis species that are the primary contributor to incidental catch.

#### **v. Big Skates**

For big skates, the combination of low OFL, ABC, and TAC relative to high catch and high fishery value in conjunction with a change in the MRA enforcement period increases the potential of exceeding the OFL, ABC, and TAC. In 2013, the OFL for big skates was 5,023 mt and the ABC and TAC was 3,767 mt. During that year, 882 fixed gear vessels caught 949 mt of big skates and 44 trawl vessels caught 1,656 mt of big skates. In 2013 the total catch in the Central GOA exceed the ABC. The preponderance of incidental catch of big skates during 2013 were in the arrowtooth flounder fishery at 949 mt, halibut IFQ fishery at 523 mt, fixed gear Pacific cod fishery at 419 mt, pollock fishery 212 mt, trawl Pacific cod fishery at 192 mt, rex sole fishery at 145 mt, and shallow-water flatfish at 139 mt. This high incidental catch is reflected in the MRA for GOA skates, which is 20 percent for all basis species. Contributing to the high catch is the price of the big skates. In 2013, the exvessel price for big skates was \$0.43 per pound for fixed gear vessels and \$0.45 per pound for trawl vessels. Given the high catch relative to the OFL, ABC, and TAC and the price of big skates, the proposed change to the MRA enforcement period could increase the flexibility for vessels to “top off” on big skates thereby increasing the risk to exceed the OFL, ABC, and TAC. The Council could reduce the risk of exceeding the OFL, ABC, and TAC under the proposed action by including an option to reduce the MRA for skates. The Council, at this meeting, is reviewing an analysis to reduce the MRA for skates from 20 percent to either 5 percent, 10 percent, or 15 percent. The reduction of the skates MRA in that action would reduce the incentive to “top off” on big skates, which would reduce the risk of exceeding the OFL, ABC, and TAC under this proposed action.

#### **vi. Longnose skates**

Similar to big skates, longnose skates also has low OFL, ABC, and TAC relative to total catch and longnose skates have a high price, which when combined with a change in the enforcement period could increase the risk of exceeding the OFL, ABC, and TAC. In 2013, the OFL for longnose skates was 3,500 mt and the ABC and TAC were 2,625 mt. Total catch during that year was 1,633 mt from 967 fixed gear vessels and 444 mt from 53 trawl vessels. At the subarea level, the 2013 ABC for longnose skates was exceeded in the Western GOA. With a MRA of 20 percent for all basis species, the greatest share of incidental catch of longnose skates the 2013 can be attributed to the halibut IFQ fishery at 1,004 mt, the fixed gear sablefish fishery at 320 mt, the fixed gear Pacific cod fishery at 309 mt, and the arrowtooth flounder fishery at 224 mt. The 2013 exvessel price was \$0.43 per pound for fixed gear vessels and \$0.44 per pound for trawl vessels. As indicated in this example, longnose skates have a low OFL, ABC, and TAC relative to the total catch for the species and the species can command a high exvessel prices. When these factors are combined with the proposed change in MRA enforcement period there could be an increased risk of exceeding the OFL, ABC, and TAC. One option that could reduce the incentive to “top off” on longnose skates is by lowering the MRA from their current 20 percent. At its October 2014 meeting, the Council is reviewing an analysis that proposes to do that. A reduction in the MRA from that analysis could reduce the incentive for vessels to “top off” on longnose skates, which in turn would reduce the risk of exceeding the OFL, ABC, and TAC under the proposed change to MRA enforcement period.



### **vii. Other Skates**

The other skates species group also has an increased risk of exceeding the OFL, ABC, and TAC under the proposed action. For example, in 2013 the OFL for other skates was 2,706 mt, and the ABC and TAC was 2,030 mt. During 2013, the total catch for other skates was 1,936 mt, which is 95 percent of the ABC and TAC and 72 percent of the OFL. The largest portion of other skates catch during the 2013 fishing year was reported in the fixed gear Pacific cod fishery, halibut IFQ fishery, and fixed gear sablefish fishery. The exvessel price for other skates during 2013 was less than big skates and longnose skates, but was \$0.34 per pound for fixed gear vessels, while for trawl vessels the price was lower at \$0.15 per pound. Similar to the big and longnose skate species groups, the low OFL, ABC, and TAC relative to total catch, the attractive exvessel price, and the high MRA for skates when combined with the proposed change in the MRA enforcement period could increase the risk of exceeding the OFL, ABC, and TAC. At its October 2014 meeting, the Council is reviewing an analysis to reduce the MRA for skates in the GOA. A reduction in the MRA would reduce the potential opportunity for vessels to “top off” on other skates, thereby reducing the risk of exceeding the OFL, ABC, and TAC for other skates under the proposed change to the MRA enforcement period.

### **viii. Octopus**

Octopus is also a species that has an increased risk of exceeding the OFL, ABC, and TAC under the proposed change to MRA enforcement period. Looking at 2013 as an example, the OFL for octopus was 1,941 mt and the ABC and TAC was 1,455 mt. Total catch during the 2013 fishing season was 448 mt, of which most was caught in the fixed gear Pacific cod fishery at 315 mt. The MRA for octopus, which is aggregated with “other species”, is 20 percent for all basis species including Pacific cod. The 2013 exvessel price for octopus was \$0.45 per pound for fixed gear vessels and \$0.52 per pound for trawl vessels. Despite the low catch of octopus in 2013, there is an increased risk of exceeding the OFL, ABC, and TAC under the proposed change in the MRA enforcement period.

## **X. Monitoring and Enforcement**

It is only at offload that NMFS Enforcement is able to actually audit the reported amounts of product to insure that a vessel is complying with the MRA requirement. Due to the difficulty of auditing the reported amounts of product during a random at-sea boarding, a violation of the MRA occurring at the time of such an inspection will typically result in a prosecutable case only if the MRA is egregiously exceeded.

Changing the enforcement period for all groundfish species in all fisheries in the North Pacific is not expected to increase management and enforcement costs as a result of required changes in fisheries data collection and analysis. Data is now mostly provided in electronic form. Although there could be some minor additional costs since data will have to be processed and reviewed at the time of offload to determine if a vessel is in compliance with the MRA, but this cost is likely to be minor since NMFS Enforcement currently audits vessels for MRA compliance at offload.

## **XI. Net Benefits to the Nation**

Overall, net benefits to the Nation have the potential to be positively affected by adoption and implementation of the proposed alternative, as efficiencies in productive resource use are realized, and improvements in natural resource utilization (e.g., groundfish retention) emerge, although our ability to quantify these effects are limited.

**XII. Appendix**

MRA Tables

Table 10 to Part 679—Gulf of Alaska Retainable Percentages

BASIS SPECIES		INCIDENTAL CATCH SPECIES (for DSR caught on catcher vessels in the SEO, see § 679.20 (j) <sup>6</sup> )														
Code	Species	Pollock	Pacific cod	DW Flat (2)	Rex sole	Flathead sole	SW Flat (3)	Arrowtooth	Sablefish	Aggregated rockfish <sup>(8)</sup>	SR/RE ERA (4)	DSR SEO (C/Ps only) (6)	Atka mackerel	Aggregated forage fish <sup>(10)</sup>	Skates <sup>(11)</sup>	Other species <sup>(7)</sup>
110	Pacific cod	20	n/a <sup>(9)</sup>	20	20	20	20	35	1	5	(1)	10	20	2	20	20
121	Arrowtooth	5	5	20	20	20	20	n/a	1	5	0	0	20	2	20	20
122	Flathead sole	20	20	20	20	n/a	20	35	7	15	7	1	20	2	20	20
125	Rex sole	20	20	20	n/a	20	20	35	7	15	7	1	20	2	20	20
136	Northern rockfish	20	20	20	20	20	20	35	7	15	7	1	20	2	20	20
141	Pacific ocean perch	20	20	20	20	20	20	35	7	15	7	1	20	2	20	20
143	Thornyhead	20	20	20	20	20	20	35	7	15	7	1	20	2	20	20
152/ 151	Shortraker/ rougheye <sup>(1)</sup>	20	20	20	20	20	20	35	7	15	n/a	1	20	2	20	20
193	Atka mackerel	20	20	20	20	20	20	35	1	5	(1)	10	n/a	2	20	20
270	Pollock	Na	20	20	20	20	20	35	1	5	(1)	10	20	2	20	20
710	Sablefish	20	20	20	20	20	20	35	n/a	15	7	1	20	2	20	20
Flatfish, deep-water <sup>(2)</sup>		20	20	n/a	20	20	20	35	7	15	7	1	20	2	20	20
Flatfish, shallow-water <sup>(3)</sup>		20	20	20	20	20	n/a	35	1	5	(1)	10	20	2	20	20
Rockfish, other <sup>(4)</sup>		20	20	20	20	20	20	35	7	15	7	1	20	2	20	20
Rockfish, pelagic <sup>(5)</sup>		20	20	20	20	20	20	35	7	15	7	1	20	2	20	20
Rockfish, DSR-SEO <sup>(6)</sup>		20	20	20	20	20	20	35	7	15	7	n/a	20	2	20	20
Skates <sup>(11)</sup>		20	20	20	20	20	20	35	1	5	(1)	10	20	2	n/a	20
Other species <sup>(7)</sup>		20	20	20	20	20	20	35	1	5	(1)	10	20	2	20	n/a
Aggregated amount of non-groundfish species <sup>(12)</sup>		20	20	20	20	20	20	35	1	5	(1)	10	20	2	20	20

Notes to Table 10 to Part 679					
1	Shortraker/rougheye rockfish				
		SR/RE	Shortraker rockfish (152)		
			Rougheye rockfish (151)		
		SR/RE ERA	Shortraker/rougheye rockfish in the Eastern Regulatory Area (ERA).		
Where numerical percentage is not indicated, the retainable percentage of SR/RE is included under Aggregated Rockfish					
2	Deep-water flatfish	Dover sole, Greenland turbot, and deep-sea sole			
3	Shallow-water flatfish	Flatfish not including deep-water flatfish, flathead sole, rex sole, or arrowtooth flounder			
4	Other rockfish	Western Regulatory Area	means slope rockfish and demersal shelf rockfish		
		Central Regulatory Area			
		West Yakutat District			
		Southeast Outside District	means slope rockfish		
	Slope rockfish				
		<i>S. aurora</i> (aurora)	<i>S. variegates</i> (harlequin)	<i>S. brevispinis</i> (silvergrey)	
		<i>S. melanostomus</i> (blackgill)	<i>S. wilsoni</i> (pygmy)	<i>S. diploproa</i> (splitnose)	
		<i>S. paucispinis</i> (bocaccio)	<i>S. babcocki</i> (redbanded)	<i>S. saxicola</i> (stripetail)	
		<i>S. goodei</i> (chilipepper)	<i>S. proriger</i> (redstripe)	<i>S. miniatus</i> (vermillion)	
		<i>S. crameri</i> (darkblotch)	<i>S. zacentrus</i> (sharpchin)	<i>S. reedi</i> (yellowmouth)	
	<i>S. elongatus</i> (greenstriped)	<i>S. jordani</i> (shortbelly)			
In the Eastern GOA only, Slope rockfish also includes <i>S. polyspinis</i> . (northern)					
5	Pelagic shelf rockfish	<i>S. variabilis</i> (dusky)	<i>S. entomelas</i> (widow)	<i>S. flavidus</i> (yellowtail)	
6	Demersal shelf rockfish (DSR)	<i>S. pinniger</i> (canary)	<i>S. maliger</i> (quillback)		
		<i>S. nebulosus</i> (china)	<i>S. helvomaculatus</i> (rosethorn)		
		<i>S. caurinus</i> (copper)	<i>S. nigrocinctus</i> (tiger)		
	DSR-SEO = Demersal shelf rockfish in the Southeast Outside District (SEO)(See § 679.7(b)(4) and § 679.20(j)).				
7	Other species	Sculpins	Octopus	Sharks	
8	Aggregated rockfish	Means rockfish as defined at § 679.2 except in:			
		Southeast Outside District	where DSR is a separate category for those species marked with a numerical percentage		
		Eastern Regulatory Area	where SR/RE is a separate category for those species marked with a numerical percentage		

Notes to Table 10 to Part 679			
9	n/a	Not applicable	
10	Aggregated forage fish (all species of the following taxa)	Bristlemouths, lightfishes, and anglemouths (family <i>Gonostomatidae</i> )	209
		Capelin smelt (family <i>Osmeridae</i> )	516
		Deep-sea smelts (family <i>Bathylagidae</i> )	773
		Eulachon smelt (family <i>Osmeridae</i> )	511
		Gunnels (family <i>Pholidae</i> )	207
		Krill (order <i>Euphausiacea</i> )	800
		Laternfishes (family <i>Myctophidae</i> )	772
		Pacific Sand fish (family <i>Trichodontidae</i> )	206
		Pacific Sand lance (family <i>Ammodytidae</i> )	774
		Pricklebacks, war-bonnets, eelblennys, cockscombs and Shannys (family <i>Stichaeidae</i> )	208
		Surf smelt (family <i>Osmeridae</i> )	515
11	Skates Species and Groups	Big Skates ( <i>Raja binocularata</i> )	702
		Longnose Skates ( <i>R. rhina</i> )	701
		Other Skates (all skates that are not Big Skate or Longnose Skate)	700
12	Aggregated non-groundfish	All legally retained species of fish and shellfish, including IFQ halibut, that are not listed as FMP groundfish in Tables 2a and 2c to this part.	

**Table 11 to Part 679–BSAI Retainable Percentages**

BASIS SPECIES		INCIDENTAL CATCH SPECIES																
Code	Species	Pollock	Pacific cod	Atka mackerel	Alaska plaice	Arrowtooth	Kamchatka	Yellow fin sole	Other flatfish <sup>2</sup>	Rock sole	Flathead sole	Greenland turbot	Sablefish <sup>1</sup>	Shortraker/rougheye	Aggregated rockfish <sup>6</sup>	Squid	Aggregated forage fish <sup>7</sup>	Other species <sup>4</sup>
110	Pacific cod	20	na <sup>5</sup>	20	20	35	35	20	20	20	20	1	1	2	5	20	2	20
121	Arrowtooth	20	20	20	20	na	20	20	20	20	20	7	1	2	5	20	2	3
117	<b>Kamchatka</b>	<b>20</b>	<b>20</b>	<b>20</b>	<b>20</b>	<b>20</b>	<b>na</b>	<b>20</b>	<b>20</b>	<b>20</b>	<b>20</b>	<b>7</b>	<b>1</b>	<b>2</b>	<b>5</b>	<b>20</b>	<b>2</b>	<b>3</b>
122	Flathead sole	20	20	20	35	35	35	35	35	35	na	35	15	7	15	20	2	20
123	Rock sole	20	20	20	35	35	35	35	35	na	35	1	1	2	15	20	2	20
127	Yellowfin sole	20	20	20	35	35	35	na	35	35	35	1	1	2	5	20	2	20
133	Alaska Plaice	20	20	20	na	35	35	35	35	35	35	1	1	2	5	20	2	20
134	Greenland turbot	20	20	20	20	35	35	20	20	20	20	na	15	7	15	20	2	20
136	Northern	20	20	20	20	35	35	20	20	20	20	35	15	7	15	20	2	20
141	Pacific Ocean perch	20	20	20	20	35	35	20	20	20	20	35	15	7	15	20	2	20
152/ 151	Shortraker/ Rougheye	20	20	20	20	35	35	20	20	20	20	35	15	na	5	20	2	20
193	Atka mackerel	20	20	na	20	35	35	20	20	20	20	1	1	2	5	20	2	20
270	Pollock	na	20	20	20	35	35	20	20	20	20	1	1	2	5	20	2	20
710	Sablefish <sup>1</sup>	20	20	20	20	35	35	20	20	20	20	35	na	7	15	20	2	20
875	Squid	20	20	20	20	35	35	20	20	20	20	1	1	2	5	na	2	20
	Other flatfish <sup>2</sup>	20	20	20	35	35	35	35	na	35	35	1	1	2	5	20	2	20
	Other rockfish <sup>3</sup>	20	20	20	20	35	35	20	20	20	20	35	15	7	15	20	2	20
	Other species <sup>4</sup>	20	20	20	20	35	35	20	20	20	20	1	1	2	5	20	2	na
	Aggregated amount non-groundfish species <sup>8</sup>	20	20	20	20	35	35	20	20	20	20	1	1	2	5	20	2	20

<sup>1</sup> **Sablefish:** for fixed gear restrictions, see § 679.7(f)(3)(ii) and (f)(11).

<sup>2</sup> **Other flatfish** includes all flatfish species, except for Pacific halibut (a prohibited species), flathead sole, Greenland turbot, rock sole, yellowfin sole, Alaska plaice, arrowtooth flounder **and Kamchatka flounder**.

<sup>3</sup> **Other rockfish** includes all “rockfish” as defined at § 679.2, except for Pacific ocean perch; and northern, shortraker, and rougheye rockfish.

<sup>4</sup> The **Other species** includes sculpins, sharks, skates and octopus.

<sup>5</sup> **na** = not applicable

<sup>6</sup> **Aggregated rockfish** includes all “rockfish” as defined at § 679.2, except shortraker and rougheye rockfish.

<sup>7</sup> **Forage fish** are defined at Table 2c to this part.

<sup>8</sup> All legally retained species of fish and shellfish, including CDQ halibut and IFQ halibut that are not listed as FMP groundfish in Tables 2a and 2c to this part.