

IR/IU Discussion Paper June 2004 Council Meeting

The Council, at the April 2004 meeting, directed staff to prepare three discussion papers for the June 2004 meeting. Specifically, the Council requested staff prepare a paper on splitting the BSAI Pacific cod allocation into separate allocations for the BS and AI, to explore further the concept of groundfish retention pools as a means for bridging the implementation gap between Amendment 79 and 80b, and to examine multiple cooperatives as an option for the non-AFA trawl catcher processor sector cooperative structure under Amendment 80a. The following discussions are the staff's response to the Council's request.

I. Subdividing TACs in the Future

Any management system developed under Amendment 80a must be adaptable to future changes in TAC groupings that may occur. Without devising a plan to allocate the sector allotments, if new TAC groupings are implemented, NMFS' ability to issue future sector allocations in a timely fashion may be at risk. A management structure that provides NMFS direction on how to treat TAC changes would allow them to implement changes without going through a process that requires Council action and public comment. If those procedural steps must be taken to accommodate TAC changes before allocations can be issued, it is unlikely that the sector allocations would be made in time to start fisheries either on January 1st for hook-and-line and pot gear vessels or January 20th for trawl gear vessels.

Proper oversight of the Bering Sea and Aleutian Islands (BSAI) groundfish fisheries could require revising TAC groupings in the future to meet biological or management objectives. Changes to TAC groupings can be made either by altering the list of species assigned a TAC or by altering the geographic regions the TAC for a species represents.

This issue is complicated by the fact that as better genetic information becomes available, for species like rockfish, there are new species being identified and sub-populations may be identified that need to be protected. Pacific ocean perch are showing genetic structure within the ABCs defined in the GOA and roughey rockfish appear as though they may be composed of two sub-species. Given the increased biological information that is becoming available, new management systems that allocate TAC among sectors must acknowledge and make provisions for additional species that may require explicit management. Policy makers must not only consider future management needs from the stand point of breaking up species complexes like 'other species', other rockfish, and other flatfish, but also subdividing current single species ABCs.

Future TAC changes may be foreseeable, or they may not have been considered yet. The BSAI Plan Team has been considering breaking the Pacific cod assessment into two ABC recommendations - one for the Bering Sea subarea and one for the Aleutian Islands subarea. Because the TAC is currently set for the entire BSAI management area, both the current allocations under BSAI Amendment 77 and the allocation formula being developed under Amendment 80a issues sector allotments based on the member's catches in the combined areas. If the TAC definitions are changed in the future, the formula for allocating the new TACs must account for those changes.

Also complicating this issue is whether PSC species will also need to be adjusted if TAC definitions are changed. This issue will only be discussed briefly in this paper, but it may be critical if a goal is rationalizing the BSAI Pacific cod fisheries.

The issue of altering TAC categories has been primarily discussed in terms of the Pacific cod fisheries at the IR/IU Technical Committee and in other forums. Pacific cod has been highlighted because the Plan Team is currently discussing changing the Pacific cod TAC area designations. Discussing this issue using Pacific cod as the primary example seems reasonable since many of the management issues and problems associated with splitting the Pacific cod TAC into finer areas could also potentially apply to altering other species TACs. This paper explores how TAC changes could be implemented, in terms of inseason management, with particular emphasis placed on the impacts sectors could realize under Amendment 80a.

Relevant Background Information on the Pacific Cod Fishery

Consider an example that could have resulted if separate BSAI Pacific cod TACs were set in 2004. The Pacific cod TAC was set at 215,500 mt in 2004 for the BSAI management area. After a 7.5% deduction was taken for the CDQ program, the remaining 199,338 mt were divided among the sectors. The SSC noted, at their December 2003 meeting, that if the 2004 Pacific cod ABC was apportioned to the Aleutian Islands and Bering Sea using the “same multiplier” used for the combined areas, the Aleutian Islands subarea and Bering Sea subarea would have had ABCs of 32,000 mt and 191,000 mt, respectively. Combined, the total ABC for the two areas was 223,000 mt. Differences between the estimated ABCs in the two areas and the TACs that would have been set cannot be determined with certainty. However, if the difference between the TAC and ABC for the entire BSAI were applied to the two areas, TACs of 30,924 mt and 184,576 mt would have been set for the Aleutian Islands subarea and Bering Sea subarea, respectively. After CDQ deductions the Aleutian Islands subarea and Bering Sea subarea would have been allocated 28,605 mt and 170,733 mt, respectively.

Groundfish licenses are currently required to participate in the BSAI groundfish fisheries in Federal waters. Groundfish licenses contain endorsements that define what the vessel using the license can do. Area endorsements define the geographic locations the licenses allow a vessel to fish. Under the Groundfish License Limitation Program, separate endorsements were issued for the Bering Sea subarea and Aleutian Islands subarea. Subarea endorsements were earned based on historic fishing patterns. Licenses may contain endorsements for both subareas, one of the two subareas, or neither of the subareas. Gear endorsements define what type of gear may be used: non-trawl, trawl, or both. Further, gear endorsements are required for vessels >60’ to participate in the BSAI fixed gear Pacific cod fishery: hook-and-line catcher processors, pot catcher processors, hook-and-line catcher vessel, and pot catcher vessel.

Table 1 shows the endorsements that have been issued on groundfish licenses with a Bering Sea and/or Aleutian Islands endorsement. The far right column is the number of licenses that have been issued to fish in the BSAI. The other columns provide information on how the vessels using those licenses may operate. The first two columns on the left side of the table identify the gear endorsements on the licenses. “No” in the column indicates that they are not endorsed to use that gear type; “Yes” in the column means they may legally use that gear type. Using the “Grand Total” column and the “Gear Endorsements” columns we know that 343 of the 563 licenses may be used by vessels deploying only non-trawl gear. The remaining 220 licenses may be used on trawl vessels, with 85 of the 220 also endorsed for non-trawl gear. In the “Fixed Gear Cod Endorsement” columns, licenses are grouped by fixed gear Pacific cod endorsements. The BSAI endorsement section of the table shows whether the license includes an endorsement for the Bering Sea, Aleutian Islands, or both.

Table 1: Groundfish licenses that are endorsed for the Bering Sea/Aleutian Islands.

Gear Endorsements		Fixed Gear Cod Endorsements				BSAI endorsements			Total Licenses			
TRAWL	NON TRAWL	CP HAL	CP POT	CV POT	CV HAL	Both AI & BS	AI Only	BS Only				
No	Yes	No	No	No	No	80	10	135	225			
				Yes	No	5			5			
				Yes	No	9		55	64			
				Yes	Yes			2	2			
				Yes	No	2		3	5			
				Yes	Yes	1			1			
		Yes	No	No	No	No	32		2	34		
					Yes	No	1			1		
					Yes	No	1			1		
				Yes	No	No	No	3			3	
						Yes	Yes	1			1	
						Yes	No	1			1	
		Total Licenses with No Trawl Gear Endorsement						136	10	197	343	
		Yes	No	No	No	No	No	76		59	135	
Yes	No					No	No	No	23	2	50	75
							Yes	Yes		1		1
							Yes	No	1		3	4
Yes	No					No	No	5			5	
Total Licenses with Trawl Gear Endorsement						105	3	112	220			
Grand Total of All Bering Sea/Aleutian Islands Licenses						241	13	309	563			

Source: NMFS Groundfish LLP database.

Information contained in Table 1 shows that 13 licenses are endorsed for the Aleutian Islands subarea only. All of those licenses may be used on non-trawl gear vessels, but only one is endorsed to participate in the directed fixed gear Pacific cod fishery (as a hook-and-line catcher vessel). Three of the 13 licenses are also endorsed for use on trawl vessels. They may participate in the directed Pacific cod fishery, but only with trawl gear.

About 40% of the non-trawl gear licenses are endorsed to fish both subareas, and about 50% of the licenses endorsed for trawl gear are endorsed to fish both subareas. The majority of licenses are endorsed for the Bering Sea subarea only.

Fishing patterns of vessels using the BSAI groundfish licenses will play an important role in determining the economic impacts of the splitting the Pacific cod ABC into Bering Sea and Aleutian Islands subareas. The two figures below are based on 2004 SAFE data and show the Aleutian Islands subarea and Bering Sea subarea Pacific cod catches by gear type from 1998-2003. The information in those figures indicates that in recent years trawl vessels have harvested almost all of the Aleutian Islands Pacific cod whereas, harvest patterns in the Bering Sea appear to be more stable.

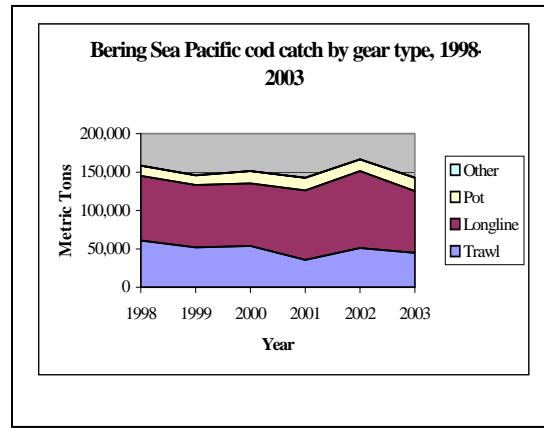
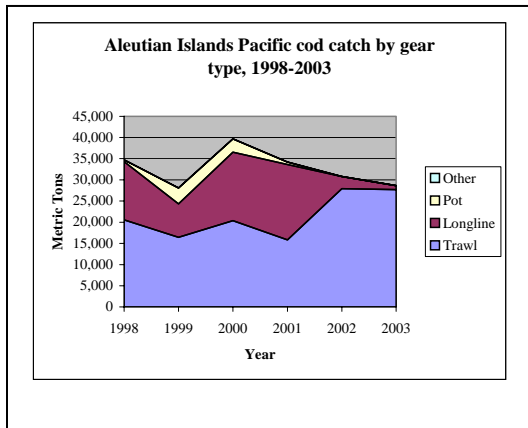


Table 2 shows the historic Pacific cod harvests in the Bering Sea subarea and Aleutian Islands subarea over the years 1995-2002 by fishing sector. Data in Table 2 is not broken out by all the sectors defined in Amendment 80a. The data to provide those breakouts has not yet been compiled by staff. While these categories are, in some cases, broader than those used in Amendment 80a, they provide insights into where sectors have harvested Pacific cod in the Aleutian Islands subarea and Bering Sea subarea over the 1995-2002 time period.

Pacific cod harvests with trawl gear accounted for 63% of the harvest in the Aleutian Islands from 1995 - 2002 (Table 2). In 2002 and 2003, vessels using trawl gear harvested 91% and 97%, respectively (SAFE, 2003). That information indicates that trawl vessels have traditionally harvested the majority of the Pacific cod catch in the Aleutian Islands, and over the past two full fishing years that percentage has dramatically increased. Vessels using hook-and-line gear harvested the remainder of the Aleutian Islands Pacific cod in 2002 and 2003. Based on these observations, the years used to allocate Aleutian Islands and Bering Sea TACs among sectors would greatly impact the distribution. Also recall that if the TAC were divided according to the current gear splits for the combined BSAI, trawl vessels would only be assigned 47% of the Aleutian Islands TAC.

Table 2. Historic fishing patterns of vessels in the Bering Sea and Aleutian Islands Pacific cod fishery by sector, 1995-2002

Year	BS Catch (mt)	AI Catch (mt)	Total Catch (mt)	Percent of Total BS Catch	Percent of Total AI Catch
AFA Trawl Catcher Processors					
1995	11,293	3,621	14,913	4.9%	21.9%
1996	8,170	4,122	12,292	3.9%	13.0%
1997	5,780	4,333	10,113	2.5%	17.3%
1998	5,033	3,973	9,006	3.1%	11.4%
1999	2,836	3,957	6,793	1.9%	14.1%
2000	1,959	1,838	3,797	1.3%	4.6%
2001	2,161	2,192	4,353	1.5%	6.4%
2002	2,633	1,388	4,021	1.6%	4.5%
Avg. 95-02	4,983	3,178	8,161	2.6%	11.7%

Year	BS Catch (mt)	AI Catch (mt)	Total Catch (mt)	Percent of Total BS Catch	Percent of Total AI Catch
Non-AFA Trawl Catcher Processors					
1995	30,770	4,189	34,959	13.5%	25.3%
1996	19,537	9,446	28,983	9.3%	29.9%
1997	28,026	1,820	29,846	12.1%	7.3%
1998	20,281	5,699	25,980	12.6%	16.3%
1999	20,199	5,167	25,366	13.9%	18.4%
2000	21,488	7,302	28,790	14.2%	18.4%
2001	18,831	6,854	25,685	13.2%	20.0%
2002	22,066	11,141	33,207	13.3%	36.2%
Avg. 95-02	22,650	6,452	29,102	12.8%	21.5%
Pot Catcher Processors					
1995	3,608	1,021	4,629	1.6%	6.2%
1996	4,104	3,463	7,567	2.0%	11.0%
1997	4,037	406	4,443	1.7%	1.6%
1998	2,970	348	3,318	1.8%	1.0%
1999	2,256	917	3,174	1.5%	3.3%
2000	1,605	1,041	2,645	1.1%	2.6%
2001	2,649	492	3,141	1.9%	1.4%
2002	2,842	6	2,849	1.7%	0.0%
Avg. 95-02	3,009	962	3,971	1.7%	3.4%
Catcher Processors					
1995	96,126	4,014	100,140	42.1%	24.3%
1996	89,903	5,788	95,692	43.0%	18.3%
1997	117,323	7,284	124,608	50.4%	29.0%
1998	86,260	13,757	100,016	53.7%	39.4%
1999	80,944	7,977	88,921	55.5%	28.4%
2000	81,185	15,508	96,693	53.6%	39.1%
2001	89,809	17,682	107,491	63.0%	51.7%
2002	99,141	2,759	101,900	59.8%	9.0%
Avg. 95-02	92,586	9,346	101,933	52.6%	29.9%
Non-AFA Surimi and Fillet Catcher Processors (Trawl)					
1995	20,431	2,733	23,164	8.9%	16.5%
1996	9,033	5,422	14,455	4.3%	17.2%
1997	4,423	8,590	13,014	1.9%	34.3%
1998	2,144	9,871	12,016	1.3%	28.3%
Avg. 95-02	4,504	3,327	7,831	2.1%	12.0%
Hook-and-line Catcher Vessels					
1995	1,104	920	2,024	0.5%	5.6%
1996	179	31	210	0.1%	0.1%
1997	129	33	163	0.1%	0.1%
1998	45	40	85	0.0%	0.1%
1999	169	142	311	0.1%	0.5%
2000	353	675	1,028	0.2%	1.7%
2001	551	135	686	0.4%	0.4%
2002	311	106	417	0.2%	0.3%
Avg. 95-02	355	260	615	0.2%	1.1%

Year	BS Catch (mt)	AI Catch (mt)	Total Catch (mt)	Percent of Total BS Catch	Percent of Total AI Catch
Pot Catcher Vessels					
1995	15,666	3	15,669	6.9%	0.0%
1996	23,001	1,148	24,149	11.0%	3.6%
1997	17,028	3	17,031	7.3%	0.0%
1998	10,016	37	10,053	6.2%	0.1%
1999	10,426	2,588	13,013	7.2%	9.2%
2000	14,278	2,066	16,344	9.4%	5.2%
2001	13,823	86	13,908	9.7%	0.3%
2002	12,812	0	12,812	7.7%	0.0%
Avg. 95-02	14,631	741	15,372	8.2%	2.3%
Trawl Catcher Vessels					
1995	48,899	31	48,930	21.4%	0.2%
1996	54,870	2,189	57,060	26.2%	6.9%
1997	55,647	2,606	58,253	23.9%	10.4%
1998	33,684	1,214	34,898	21.0%	3.5%
1999	28,869	7,313	36,182	19.8%	26.0%
2000	30,431	11,221	41,652	20.1%	28.3%
2001	14,664	6,746	21,410	10.3%	19.7%
2002	25,927	15,393	41,320	15.6%	50.0%
Avg. 95-02	36,624	5,839	42,463	19.8%	18.1%
Jig Catcher Vessels					
1995	599	0	599	0.3%	0.0%
1996	267	0	267	0.1%	0.0%
1997	173	0	173	0.1%	0.0%
1998	192	0	192	0.1%	0.0%
1999	100	69	169	0.1%	0.2%
2000	38	33	71	0.0%	0.1%
2001	52	19	71	0.0%	0.1%
2002	164	0	164	0.1%	0.0%
Avg. 95-02	198	15	213	0.1%	0.0%

Source: NMFS Blend data, 1995-2002

Options for Managing TAC Modifications

The next sections discuss how sector allocations that result from changes in TAC groupings could be implemented in a timely fashion. A discussion of the impacts that the various allocation alternatives would have on the participants will also be presented.

Three different options will be presented for allocating Bering Sea subarea and Aleutian Islands subarea Pacific cod TACs to the Amendment 80a sectors. The options presented are the author's attempt to provide alternative approaches to dealing with this problem. Other reasonable options could be developed to resolve this problem that has not been considered in this paper. Each option assumes that the current gear allocations remain in place. The Council could select an option that supercedes those splits at the time of final action. However, this assumption was made to simplify this discussion. In other words, the three options are assumed to be subject to the hook-and-line and pot gear (51%), trawl gear (47%), and jig gear (2%) allocations. TAC subdivisions within the hook-and-line and pot gear sector (Amendment 77 allocations) are also assumed to be included under these options.

The first option would calculate the percentage of each TAC based on the sector's historic harvest in each area during the qualification period. This approach would likely result in sectors being allocated different percentages of the Aleutian Islands and Bering Sea TACs. The second option would calculate the percentage of the combined Bering Sea/Aleutian Islands TAC they would be allocated and allow sectors to harvest that percentage from each area. This option would result in a sector being allocated the same percentage of TAC in the Bering Sea and Aleutian Islands areas, without regard to historic harvest patterns. The final option would use the second option to determine the sector allocations, but would not assign a specific amount of catch to the Bering Sea or Aleutian Islands. Instead, sectors would be allowed to harvest their allotment from either area. NMFS would close a subarea to directed fishing when the TAC for that sector is reached. That sector would then be required to move its entire directed Pacific cod fishing activity to the subarea that remains open.

Option 1: Allocations Based on Historic Harvest in Area

Option 1 would define the sector allocations for each area based on the relative percentages of Pacific cod that were harvested by the sectors during the qualifying period. This allocation split would be implemented in conjunction with the gear splits that are currently in place (this assumption was made by the author). The gear splits would be determined at the combined BSAI level and the sector allocations would be calculated at the individual subarea level. This would ensure that current gear allocations for the combined BSAI TAC remain in place, but sectors would be allocated different percentages of each area based on their historic harvest patterns. Because the formula for calculating the sector allocations is predetermined by Amendment 80a, it would be possible for inseason management staff to calculate the sector allocation formulas in a timely manner.

The steps for calculating the Pacific cod allocation under Option 1 are:

1. Multiply the gear allocation percentages, defined prior to Amendment 80a¹, by the combined BSAI region's TACs to determine the overall number of metric tons a gear group will be allowed to harvest.

This example assumes that the combined BSAI Pacific cod TAC is set at 199,338 mt after deductions are made for CDQ and ICAs. The Aleutian Islands TAC is 28,605 mt and the Bering Sea TAC is 170,733 mt, combined they equal 199,338 mt. Given the current allocations by gear type the table below shows the total amount of Pacific cod each group would be allowed to harvest in the two areas combined.

¹ The 51% percent of the BSAI Pacific cod TAC that is allocated to the hook-and-line and pot gear sector was further subdivided under BSAI Amendment 77. Amendment 77 allocated 80% of the hook-and-line and pot gear allocation to hook-and-line catcher/processors, 15% to pot catcher vessels, 3.3% to pot catcher/processors, 0.3% to hook-and-line catcher vessels, and 1.4% to <60' pot/hook-and-line catcher vessels.

	<i>Gear Allocations Metric Tons</i>	
Trawl CV	23.500%	46,844
Trawl CP	23.500%	46,844
Trawl Total	47.000%	93,688
Jig	2.000%	3,987
H&L CP	40.800%	81,330
Pot CV	7.650%	15,249
Pot CP	1.683%	3,355
H&L CV	0.153%	305
<60' H&L - Pot	0.714%	1,423
H&L and Pot Total	51.000%	101,662

Note: The trawl, jig, and H&L and pot totals reflect the gear allocations made under Amendment 67.

- Assign each sector their historic percentage of the Aleutian Islands TAC (this percentage would need to be defined and it could be linked to the sector allocation years). In this example the average of the years 1995-2002 was used. That is not to be considered as a recommendation, it is simply used for illustrative purposes.

<i>Sector</i>	<i>AI Historic %</i>	<i>AI allocation</i>
AFA CP (Trawl)	11.7%	3,333
Non-AFA Trawl CP(Trawl)	21.5%	6,142
Pot CP	3.4%	969
Hook-and-line Catcher Processors	29.9%	8,549
Non-AFA Surimi and Fillet CP (Trawl)	12.0%	3,440
Hook-and-line Catcher Vessels	1.1%	317
Pot CV	2.3%	659
Trawl CV	18.1%	5,183
Jig	0.0%	14
Total	100.0%	28,605

- Adjust each sector's percentage of the Bering Sea TAC to ensure that they are allocated their assigned percentage of the combined Pacific cod TACs. This adjustment is needed to ensure that each sector is given their entire allocation of the combined BSAI quota. The H&L CP sector is assigned 40.8% of the Pacific cod. In this example that equals 81,330 mt in the BSAI. Therefore, because they were assigned 8,549 mt in AI, they are assigned the remainder of their 81,330 mt (72,781 mt) in the BS. In cases where multiple sectors receive their Pacific cod allocation from the same gear allotment, an additional adjustment must be made to account for the relative catches of each sector. For example, in the trawl catcher/processor sector, the AFA and Non-AFA trawl CP sectors would need to divide 23.5% of the TAC (half of the 47% of the Pacific cod TAC allocated to trawl gear vessels). The amount of Pacific cod the sectors were allocated in the Aleutian Islands (in step 2) would be subtracted from the total amount that is available to the two sectors. The remainder of the trawl CP allocation would be allocated in the Bering Sea based on each of the sector's relative harvest amounts in the Bering Sea. For example, the AFA Trawl CPs harvested 18.1% of the trawl CP total in the BSAI, Non-AFA Trawl CPs harvested 64.5%, and the Non-AFA Surimi & Fillet CPs (recall that a decision needs to be made on how to treat this sector's catch) harvested 17.4% from 1995-2002

(based on catches reported in Table 2). Therefore, each sector's allocation for the BS and AI combined is equal to those percentages multiplied by the 46,844 mt available them in this example. That number is reported in the "Total" column in the table below. Their BS allocation is equal to the amount of Pacific cod available to them (as reported in the "Total" column) minus their allocation in the AI. That calculation is reflected in the "BS Allocation" column.

<i>Sector</i>	<i>AI Percent</i>	<i>AI allocation</i>	<i>BS Allocation</i>	<i>Total</i>
AFA CP (Trawl)	11.7%	3,333	5,146	8,475
Non-AFA Trawl CP (Trawl)	21.5%	6,142	24,072	30,214
Pot CP	3.4%	969	2,386	3,355
Longline CP	29.9%	8,549	72,780	81,330
Non-AFA Surimi & Fillet CP (Trawl)	12.0%	3,440	4,712	8,152
Longline CV	1.1%	317	1,412	1,728
Pot CV	2.3%	659	14,591	15,249
Trawl CV	18.1%	5,183	41,661	46,844
Jig	0.0%	14	3,973	3,987
Total	100.0%	28,605	170,733	199,338

An advantage of selecting Option 1 is that it takes into account the percentages of Pacific cod that each sector historically harvested in the most restrictive subarea. Those percentages may not reflect the current fishing patterns, but they could more closely reflect historic reliance on a subarea than assigning catch based on their average harvests in both areas combined. An important decision using this method would be selecting the years to determine the historic dependence in the Aleutian Islands. The example above, allocates trawl CVs only about 30% of their 2002 Aleutian Islands harvest. This shows the importance of selecting the years to be used to calculate the split between the Bering Sea and Aleutian Islands subareas.

One concern that has been expressed regarding Option 1 is that TAC fluctuations would have disproportionate impacts on the sectors that are allocated the greatest percentage of the subarea with the declining TAC. Option 2 mitigates that concern, but creates new issues.

Option 2: Allocate Equal Percentages in Both Areas

NMFS would be directed to allocate sectors the same percentage of the Bering Sea subarea and Aleutian Islands subarea TACs. Therefore, since the hook-and-line CP sector is allocated 40.8% of the BSAI Pacific cod TAC under the current regulations, they would be allocated 40.8% of the Bering Sea TAC and 40.8% of the Aleutian Islands TAC.

Sector allocations in this option are calculated the same as they were under Option 1, except that step 2 would be omitted. In cases where the allocations that are currently in regulation are assigned the same group of vessels as defined in Amendment 80a sectors, the allocation percentages would simply be set at the Bering Sea and Aleutian Islands levels. This is the case for the Hook-and-Line CPs. They would be allocated 40.8% of both subarea's TACs when the current TAC groups are split by subarea. In this example, the Trawl CP allocation would be divided among the Amendment 80a sectors, based on a percentage that must be defined. In Option 1 it was assumed that those percentages were based on relative catch of the sectors in that group. The example used in Option 1 shows that the AFA Trawl CPs harvested 18.1% of the trawl CP total, Non-AFA Trawl CPs harvested 64.5%, and the Surimi & Fillet CPs harvested 17.4% from 1995-2002 (based on catches reported in Table 2). Based on those harvests

the sectors would be allocated their percentage of the group's total catch, multiplied by the 23.5% of the TAC that was available to them.

Option 2 solves the problem of disproportionate impacts that result from TAC fluctuations, but may force vessels to fish areas they have not historically fished and do not want to fish. This issue impacts all sectors, but would likely be most onerous on the sectors comprised of smaller vessels. They would be required to travel greater distances to fish in conditions that may not be well suited for their vessels. When this option was discussed at the IR/IU Committee meetings it was generally considered to be inferior to Option 1.

Option 3: No Allocations by Area

Sectors would not be allocated a specific percentage of the individual Aleutian Islands subarea and Bering Sea subarea TACs. Instead, sectors would continue to be issued an overall amount of Pacific cod that could be harvested from the BSAI. That allocation could be fished from either subarea, if TAC is available and the subareas are open to directed fishing. Once the directed fishing allowance for a TAC is reached, for either the Bering Sea or Aleutian Islands, NMFS would issue a closure notice and all the sectors fishing would be required to fish the open subarea if they wanted to participate in the directed fishery for Pacific cod.

This option provides the greatest flexibility for sectors and is, perhaps, the easiest for inseason management. NMFS would not be required to manage separate subarea allocations for each sector. They would only be required to monitor a single harvest limit for each area and use traditional management tools to open and close fisheries. It would provide flexibility to the fleet since they would be able to fish either subarea if they were open.

A possible drawback of this option is that it could cause sectors to race for Pacific cod in the subarea they expect to close first. This could impact a sector's ability to rationalize their harvest, especially if some members of the sector wanted to fish the subarea that is expected to close later in the year. When considering this option the policy makers will need to weigh the negative impacts of a possible race to catch the Aleutian Islands quota versus the flexibility that sectors would be provided when determining where to fish.

Altering TACs for Other Fisheries

A discussion of how the three options discussed above would be implemented for other fisheries is provided next. An important consideration in this discussion is which species will be allocated to sectors. If the TAC of a species or species group is altered that is not allocated to sectors, the issue is moot. The species would be managed as a non-target species. Management options for non-target species that are currently included in Amendment 80a are the current management system, ICAs managed as soft caps, and ICAs managed as hard caps. It is likely that many of the alterations made to TACs will be for the species defined as "non-target".

Assume that rougheye rockfish are broken into two species (rougheye A and rougheye B) and the Council defines them as target species in Amendment 80a. It is unlikely that they will be defined as target species, but that assumption is made in this example to aid the discussion. TACs are set for the BSAI for the two species, and each of the defined sectors is allocated a percentage of the overall TAC.

Option 1 would rely on the same formula defined in Amendment 80a to allocate the two species. That formula will likely be based on the relative catch of the two species over a set of years defined by the Council. Historic catch data for each sector, relative to the catch of all sectors, based on either annual

averages or for the entire time period, would be the basis for the calculations. NMFS would be able to calculate each sector's allocation based on that direction from the Council, if the historic catch data breaks out those two species. However, if the same years are used to determine the allocation as is defined in Amendment 80a, the data for those years are unlikely to contain the detail necessary to do the calculations. In that case, the allocation may need to be based on Option 2, and the Council could revise the allocation percentages on a slower time line as better harvest information becomes available.

Under Option 2, NMFS would use the same percentage that was used to allocate rougheye rockfish before the TAC was split, to allocate the new species. Therefore, if the Non-AFA Trawl CPs sector was allocated 25% of the rougheye rockfish TAC before the split, they would be allocated 25% percent of the TAC for rougheye A and 25% of rougheye B after the split. The outcome does not take differential harvest rates of the two species, by sector, into account.

Finally, Option 3 would set a limit on the amount of the two species that could be harvested by each sector. That limit would be based on their allocation of the two species combined. NMFS would monitor the removal of each TAC and close those fisheries to directed fishing when the TAC available for directed fishing is harvested. All sectors will be required to stop directed fishing for that species when the fishery is closed. They must then harvest their remaining allocation from the rougheye TAC that is open to directed fishing.

II. Groundfish Retention Pools

This section describes groundfish retention pools for the non-AFA trawl catcher processor sector as a method for meeting the groundfish retention standard (GRS) set out in Amendment 79 and provides some suggestions for applying the GRS pool concept.

Mechanics of Groundfish Retention Pools

Groundfish retention pools, as discussed at the April 2004 meeting, would allow non-AFA trawl catcher processor vessels to form contractual agreements for the purpose of combining each vessel's harvests to calculate groundfish retention rates. The rate from the combined harvests would then be compared to the GRS set out in Amendment 79 to determine if the "pool" of vessels met the required retention rate. To help illustrate the vessel retention pool concept, the following is an example using a pool composed of two fictitious vessels. Vessel A has a year ending total catch of 25,000 mt of which 6,250 mt was not retained. Since the annual retention rate for vessel A is 75 percent, it would be in violation of the GRS of 85 percent that is scheduled to be implemented for the 2008 fishing year. Vessel B had 100,000 mt of catch for the year, of which 10,000 mt was not retained. Vessel B is in compliance with the GRS with an end-of-year retention rate of 90 percent. If these two vessels have formed a contractual agreement to combine their annual harvest and retention, for the purposes of meeting the GRS, the annual retention rate for vessels A and B combined is total retention of the two vessels (108,750 mt) divided by total catch of the two vessels (125,000 mt) or 87 percent. A retention rate of 87 percent is sufficient to meet the 85 percent GRS.

General Requirements Necessary for Groundfish Retention Pools

In June 2003, the Council selected, as the preferred alternative in Amendment 79, a GRS that applies individually to vessels over 125' in the non-AFA trawl catcher processor sector, rather than to vessel pools or the fleet as a whole. In the EA/RIR/IRFA for Amendment 79, it was noted that the vessel pool option presents enforcement problems unless the pool is deemed a "responsible entity." NOAA Fisheries Enforcement indicated that it could not apply a groundfish retention standard to a voluntary cooperative in which all vessels are not legally bound. If a formal cooperative exists, a penalty for a GRS violation

(e.g., a TAC reduction) could be meted out to the cooperative as whole or individually to any member. Members of the cooperative, in turn, would have the ability to determine how the penalty would be borne by members.

In a vessel retention pool, vessels pooling their catch would enter a contractual agreement. To satisfy the concern raised in the Amendment 79 EA/RIR/IRFA, that contractual agreement would be filed with the agency to ensure enforceability of the retention requirements. NMFS likely would require contractual terms that create joint and several liability in vessel pool members (similar to those required of AFA cooperatives). These contractual requirements are similar to those that would be required of Amendment 80B, but would be narrower in scope since vessel pooling would only apply to retention determinations, not other harvesting activity.

Incentives for Vessels to Pool

An owner with multiple vessels could be provided some flexibility in meeting the retention standard through, pooling annual retention of groundfish. The non-AFA trawler catcher processor sector is composed of only 10 companies, of which 7 companies have more than one vessel. For the companies owning more than one vessel, allowing vessels to pool their groundfish retention to meet GRS could provide flexibility. Some participants believe that companies that own only one vessel may have no incentive to pool their groundfish retention with other companies since clean vessels would risk exposing themselves to an enforcement action as a result of the actions of other members of the pool, even if they did not violate the standard. A potential incentive that could provide a rationale for clean vessel owners to pool their retention is monetary or other compensation. For example, a vessel owner could choose not to meet the groundfish retention standard and instead compensate other vessel owners in their pool that have a higher retention levels that offset their substandard retention rate. Combined the pool of vessels could meet the GRS, even if some of the members would not exceed the standard individually.

Under this scenario, vessels within the pool for which retention is relatively costly could maintain their low retention of groundfish and instead purchase the needed retention from other vessels in the pool. If increasing retention would cost more than adding retention through purchase, the vessel will likely purchase retention. In this sense, the vessel pool concept is a market-based approach to optimizing the level of production and discards, that adds flexibility for pool participants.

Using a market-based approach to add flexibility for vessel owners in meeting the GRS is in many ways similar to innovative and successful programs used around the world to reduce pollutants. One such program allows companies the flexibility to best determine how to meet the overall pollution control standards. It does this by creating an imaginary bubble around each plant or group of plants. The companies can undertake the most efficient means of controlling the emissions as a whole. For example, if the cost of controlling emissions from one plant is higher than the cost of controlling emissions at another plant, then the company could choose to reduce emissions at the less costly of the two plants, provided no reduction in overall environmental quality would occur. The bubble approach also creates incentives for development of pollution control technology. For example, if a company develops a new technology that would reduce the emissions substantially below allowable levels, the bubble allows that company to realize a return on its investment by trading emissions with other plants. The “bubble” approach is similar to the vessel retention pool concept because the bubble approach applies an emission standard collectively in the same manner that the retention pool concept, applies a retention standard collectively on a group of vessels.

Disadvantages of Groundfish Retention Pools

While the proposed retention pool concept could offer some advantages to the non-AFA trawl catcher processor sector, retention pools could reduce the overall groundfish retention rate for the sector, and, thus, reduce the benefits of Amendment 79. In June 2003, the Council took final action on Amendment 79 voting to phase in the groundfish retention rate starting in 2005 at 65 percent and gradually increasing to 85 percent in 2008. Under this program, all non-AFA trawl catcher processors over 125' in length will have to meet the minimum groundfish retention standard. As a result, under full compliance the groundfish retention rate for the non-AFA trawl catcher processor over 125' will at a minimum equal 85 percent in 2008 and may exceed 85 percent if some vessels in the fleet have retention rates higher than 85 percent. However, under the vessel retention pool concept, overall retention rates will likely be lower, albeit at or above 85 percent. For example, under Amendment 79 regulations, vessel A may be limited by the standard and retain catch beyond 80 percent retention strictly to comply with the 85 percent retention requirement. Vessel B, on the other hand, might not be limited by the standard, and would have a 90 percent retention rate, regardless of the standard. Assuming the catch for each vessel is equal, the combined retention rate of the two vessels is 87.5 percent. Under retention pooling, vessel A may choose to pool with vessel B rather than to increase retention beyond 80 percent. Vessel B would maintain its retention rate at 90 percent. Combined, the retention rate of the two vessels is 85 percent. This type outcome is more likely when there is a wide degree of variability in production capabilities of the sector's participants or a large number of fisheries with very unique characteristics and retention rates. In general, under full compliance, retention pooling could reduce the fleet wide retention rate, but fleetwide retention would meet or exceed the 85 percent standard.

Monitoring and Enforcement Considerations for Groundfish Retention Pools

The same level of enforcement and monitoring requirements as stipulated under Amendment 79 would be necessary for groundfish retention pools. NOAA Fisheries staff has indicated that to accurately measure total catch, all vessels regulated under Amendment 79 are required to use NOAA Fisheries-approved scales and, either maintain observer coverage for every haul to verify that all fish are being weighed, or use an alternative scale-use verification plan approved by NOAA Fisheries. NOAA Fisheries stated that errors in retention rates estimated from bin volumetrics would be too large for enforcement agents to successfully prosecute suspected violations of a groundfish retention standard. Anything less than NOAA-approved scales and observer coverage of every haul is unworkable. Thus under retention pools, the requirements stipulated by NOAA Fisheries would not change, so regulated vessels will still need NOAA-approved scales and observer coverage of every haul.

One proposal is to include under 125' non-AFA trawl catcher processor vessels in the pools. The Council voted to exempt vessels less than 125' LOA because these vessels have "specific and particular operational concerns" associated with the enforcement and monitoring requirements. Primary among these concerns is the inability to accommodate the additional space necessary for a flow scale and an observer station on board these vessels. However, as noted above, NOAA Fisheries has made it clear that anything less than NOAA-approved scales and observer coverage of every haul is unenforceable. As a result, if the under 125' non-AFA trawl catcher processor vessels were brought into the GRS via retention pools, these vessels would be required to install NOAA-approved scales and to maintain observer coverage of every haul for verification that all fish are being weighed, or use an alternative scale-use verification plan approved by NOAA Fisheries.

Finally, the additional costs of administering groundfish retention pools, in comparison to the administrative costs of Amendment 79, would likely be limited to reviewing cooperative agreements at the beginning of the year and combining annual catch data for pool members at the end of the year.

Procedure for Developing a Program of Groundfish Retention Pools

The Council in April 2004 requested staff to provide some guidance on integrating vessel retention pools into the amendment process in order to bridge the implementation gap between Amendment 79 and Amendment 80. Currently, Amendment 79, which the Council took final action in June 2003, is being reviewed by NOAA Fisheries. Amendment 80, which addresses sector allocations and develops the cooperative structure for the non-AFA trawl catcher processor sector, is scheduled for initial review in October 2004 with final action in December 2004. Although implementation dates for these amendment packages cannot be determined, one can assume that based on their current status of the packages, Amendment 79 would likely be implemented well ahead of Amendment 80.

In order for vessel retention pools to be used to bridge the potential implementation gap between Amendment 79 and 80, the Council could take one of two approaches. The first approach would be to reconsider Amendment 79. Since Amendment 79 has not been formally submitted to the Secretary for approval, the Council could reconsider its June 2003 action. In that amendment, the Council voted to apply the GRS on each individual vessel. The option of applying GRS to vessel pools was considered, but was ruled out because the option lacked formal cooperative structure and thus had enforcement problems. The concept presented in this discussion paper would in theory address the enforcement problems and thus could potentially be a viable option. However, the Council in October 2002, considered a number of different options for reducing groundfish discards, including an option for the non-AFA trawl catcher processor sector to form a cooperative. The Council, recognizing that development of a cooperative for the non-AFA trawl catcher processor sector would be a lengthy process, decided to separate the groundfish reduction program into separate amendments on different tracks. The amendment establishing the groundfish retention standard (Amendment C) was viewed as a more immediate priority whereas the amendment establishing a formal cooperative structure for the non-AFA trawl catcher-processor sector (Amendment A) was viewed by the Council as less of a priority. Any approach that reconsiders Amendment 79 would slow the implementation process considerably. Language would have to be added to Amendment 79 that would allow for formal development of cooperatives, and the EA/RIR/IRFA would also likely require an extensive restructuring. At a minimum, voting to reconsider Amendment 79 for the purposes of allowing vessels to form cooperatives could delay implementation of the amendment package 6 months or more.

The second approach the Council could take is to shift its focus from Amendment 80 to an Amendment 79 trailing amendment. The advantage of this approach is that retention pools cooperatives don't have to deal with allocation issues and thus could be implemented sooner than Amendment 80. The disadvantage of this approach is that it would delay implementation of Amendment 80, which is viewed as a significant step towards rationalizing the BSAI groundfish fisheries. No matter the approach, the Council's time line for Amendment 79 and Amendment 80 would be in jeopardy of being delayed by as much as 6 months to a year if the Council shifts focus to vessel retention pools.

III. Allowing Multiple Cooperatives Under Amendment 80b

Amendment 80a defines the sector allocations for the Bering Sea/Aleutian Islands in Amendment 80. Amendment 80b defines the cooperative structure for the Non-AFA Trawl CP sector that would receive an allocation under Amendment 80a. Depending on the alternatives that are selected, it appears that about 20 vessels will qualify to have the option to join a cooperative in the Non-AFA Trawl CP sector. Given recent discussions regarding cooperatives, the Council is considering whether the alternatives should include an option that would allow the Non-AFA Trawl CP sector to form multiple cooperatives. Those options would be in addition to the options that allow a single cooperative plus a limited access fishery.

Under a single cooperative, the owners of vessels qualified to harvest from the Non-AFA Trawl CP allocation would either join the cooperative or send their vessel and crew to fish from the limited access pool of fish. It is anticipated that vessel owners would elect to participate in the open access pool under two conditions. The first condition is that they would be able to generate less profit within the cooperative than they expect to be able to generate in the limited access fisheries. These vessels likely have had relatively small catch histories during the time period that defines the cooperative allocations relative to their catching ability in the limited access fishery. The second reason for not joining the cooperative would be when vessel owners cannot agree to the terms and conditions defined in the cooperative agreement that do not directly impact profits, and they do not have the power to change those terms and conditions to meet their requirements. For example, the vessel owner may not want to be involved in the internal cooperative politics, adhere to the cooperative's reporting requirements, may have other philosophical differences with a majority of the members of the cooperative, or simply do not want to be part of a cooperative. However, because profits will ultimately determine whether most members of the sector will join the cooperative, balancing the power between the owners and their competing interests is a critical part of developing a cooperative structure.

The power to force changes in a cooperative can be redistributed based on the requirements established for cooperative. Within a program that allows only a single cooperative, changing the percentage of vessels/owners that must join the cooperative before it can form will shift power within the cooperative. For example, if 100% of the Non-AFA Trawl CP sector were required to join the cooperative before it could form, the majority of the sector could be forced to accept more of the demands of owners that hold out from initially joining the cooperative. If the demands by the vessels holding-out from signing the cooperative agreement were too burdensome, the cooperative simply would not form. That may not be a great hardship on owners who feel they have little to gain from a cooperative, but could be very costly for owners that would benefit from joining a cooperative.

Fishing in a share-based fishery, such as a cooperative, will increase profits for participants enough to allow for some amount of compromising between the majority and minority views. The majority may be willing to concede some of the increase in profits to the demands of the other vessel owners to attain the benefits from cooperative fishing. On the other hand, vessel owners that have less to gain from a slower paced fishery (or who hold a different view from the group of owners that control enough votes to form the cooperative) would likely want to require a higher percentage (or even 100%) of the sector to join the cooperative before it could form. The ability to veto the cooperatives' formation could increase their power to negotiate terms and conditions within the cooperative agreement that they could not otherwise.

If the percentage of vessels/owners that are required to form a cooperative were reduced from 100%, then the power structure within the Non-AFA Trawl CP sector would change. For example, if only 80% of the eligible members were required to join a cooperative before it could form, and there are 20 eligible members², only 16 of the 20 need to join the cooperative for it to form. The break-point where power changes from being in the hands of those that have agreed to the terms of the cooperative and those that have not is set at 16 members. That point is critical because before that point is reached the persons that have not agreed to the terms of the cooperative wield a considerable amount of power in the cooperative negotiations. However, after the sixteenth member joins, those that have not joined have very little leverage in cooperative negotiations. In this case the four members that have not joined the cooperative may have to agree to the terms negotiated by the other members of the cooperative or they could be excluded from its membership. Once the threshold for formation is reached, the bargaining power of those vessel owners that have not agreed to its terms decreases, and the bargaining power of the members

² If 20 vessels do qualify to participate in the sector, then each 5% reduction in the percentage required to form a cooperative means that one less vessel is required to join the cooperative. This assumes the percentages are based on the number of vessels and not the number of owners, since some owners have more than one vessel in the sector.

of the cooperative increases. For a cooperative to form the majority needs to meet the minimum demands of the minimum number of members required for cooperative formation. This holds for any of the percentages under consideration, and should result in a cooperative structure that more closely reflects the views of majority, relative to requiring 100% membership, as the percentage required for formation declines. When selecting the minimum percentage required for cooperative formation, the Council should consider the percentage at which the power to control cooperative formation should move from the majority of members to the minority.

The debate within the sector will probably reflect concern over who is allowed to control the terms and conditions of the cooperatives' bylaws. The power to change the bylaws results from several factors³, one of the most important is the percentage of members required to join the cooperative that was discussed above. Now consider individuals within the sector. If we continue the example of requiring 16 of 20 members are required to join the cooperative before it can form, and assume that part way through the negotiation process 15 members have agreed to join and 5 have not agreed to terms. The 15 members can come to terms with the demands of one of the remaining 5 sector members and the cooperative will form. However, the majority is likely to agree to terms with the person that has terms most like the other 15 members (or a person that would fair about the same under the cooperative or open access). That person may be able to improve their position within the cooperative by agreeing to join. People that have different requirements than the majority or with the most to lose from joining the cooperative under the other member's terms are least likely to join.

By allowing multiple cooperatives to form, the bargaining power changes in the cooperative formation process. Depending on the requirements for a cooperative to form, it could shift the power among individuals in the sector. When multiple cooperatives are allowed to form the Council needs to identify the minimum number of participants in a cooperative (the Council also needs to define the alternatives that would set the minimum membership level for a cooperative to form if this alternative is included in the analysis). The smaller the number of members required cooperative formation, the greater the number of cooperatives that can form. If the minimum number of members required for a cooperative to form is one, then it is basically an IFQ program and each individual decides on their own whether to rationalize and also whether coordinating fishing in a cooperative will bring additional benefits. For some members of the sector, IFQs may be the most attractive alternative. For other members, the flexibility to manage quota cooperatively may result in cooperatives with multiple members.

Now consider an example where the minimum number of members required for cooperative formation is four. If there were 20 members in the sector, then 20% of the sector's members would be required to agree to terms before a cooperative could form. It should be relatively easy for a cooperative to form, if the minimum standard is set at 4 members. Other members of the sector could also join that cooperative if they agree to the terms of the cooperative's bylaws. That provision should help to ensure that each vessel is given the opportunity to join a cooperative. However, it may mean that the "odd-person-out" has little voice in deciding the terms of the cooperative agreement. If they did not like the terms of that cooperative, they could review the terms and conditions of the other cooperatives that may form to see which one best meets their needs. Sector members that do not like the conditions for membership in cooperatives that have formed would have the option of finding three other members of the sector willing to form a separate cooperative or join the limited access sector. If there were not three other members that have yet to join a cooperative, that vessel would need to accept⁴ the terms of one of the cooperatives or be forced to fish in the limited access fishery.

³ Other factors could include negotiating skills, charisma of some members, business ties within the sector, etc.

⁴ Because the cooperative had already formed in this case, it is likely that the terms and conditions for membership in the cooperative have already been defined. Persons wishing to join the cooperative would not be precluded from attempting to renegotiate those terms; however, the cooperative members would have control over any changes that were proposed. If this is a

If multiple cooperatives are allowed to form, the above discussion highlights the need for setting up a structure for individuals to negotiate with representatives of the various cooperatives that may form. To facilitate those negotiations the Council will likely need to define a deadline for cooperative formation. Sector members will be given a period of time before that deadline to negotiate with other members of the sector to form a cooperative. At the end of that period, the parties would be required to submit their request to form a cooperative either to the Council, NOAA Fisheries, or both. The cooperative proposals would be reviewed, and if approved NOAA Fisheries would issue the cooperative their allocation, based on the catch history of its members, at the start of the fishing year. The actual steps in this process and the actual timelines would need to be developed by the Council and NOAA Fisheries.

Some members of industry have argued that allowing multiple cooperatives to form would provide a better opportunity for the entire sector to rationalize. They are concerned that the under a single cooperative structure, with less than a 100% membership requirement, the majority of the members of the sector could dictate their will over others that find those terms unpalatable. Those outside of the cooperative would either be forced to accept the will of the majority or become part of a limited access fishery. This highlights the need for the Council to consider the impacts of a percentage threshold for cooperative formation will have on the balance the power within the sector. Too much power within a group, either in the hands of the majority or the minority, is probably not optimal.

Finally, multiple cooperatives could result in problems with management of small quotas. Under a system that allows multiple cooperatives, there is the possibility that a cooperative would not be able to access sufficient amounts of incidentally caught fish to prosecute their target fisheries. Whether this is a problem or not depends on the management structure selected for the non-target species. For example, if only target species are assigned to sectors under Amendment 80a, then only target species will be assigned to cooperatives under 80b⁵. In that case, incidental catch of non-target species will only limit the harvest of target species if their harvest approaches the Over Fishing Level (OFL). At that point, NOAA Fisheries would issue closure notices for all target fisheries that take the species approaching the OFL. If non-target species are assigned to sectors and are managed using “hard caps” then issues with small quotas may arise.

concern, the Council could define the requirements for cooperative formation in more detail to help ensure that all members of the sector have the right to negotiate the terms of a cooperative’s structure before it is formed. For the Council to manage the formation of multiple cooperatives to ensure that everyone was given an opportunity to participate in their formation, they would likely need to devise a set of overall guidelines and set up an approval process for each cooperative that is formed. The approval process would likely require a timeline for negotiating cooperative terms and conditions, a period of time for allowing members to join, and a review process to ensure that everyone was given an opportunity to join their cooperative of choice.

⁵ This may create a race for non-target species that are valuable to harvesters. However, it is anticipated that most of those species will be included in the target species category. Other valuable non-target species catches can be limited by directed fishing standards.