

**Discussion Paper on Apportionment of BSAI Pacific Cod Sector
Allocations to BS and AI Subareas
September 15, 2006**

In April 2006, the Council removed Part II of Amendment 85, which would have provided direction on how to apportion the various BSAI cod sector allocations, should the TAC be split during a future specifications process. The primary reason for this decision was the considerable concerns associated with all of the alternatives. The Council received extensive public testimony of this issue, almost all of which recommended that additional or new alternatives were needed. Recognizing the importance of the issue, the Council tasked staff to prepare a discussion paper on the existing alternatives and analysis for the October 2006 meeting in order to develop new alternatives or variations of the existing alternatives. The following discussion paper, which is lifted almost entirely from the public review draft of BSAI Amendment 85, provides updated information on the existing alternatives, the historical background on the issue, and a summary of the impacts of each of the alternatives. By providing an updated analysis of the existing alternatives, the Council can better determine the priority of this issue at this time. In addition, the Council can review the existing alternatives and if necessary adopt additional alternatives and/or give notice to the public that alternative approaches should be developed.

I. Problem Statement and Existing Alternatives

Problem Statement: Apportionment of BSAI Pacific cod Sector Allocations between BS and AI

In the event that the BSAI Pacific cod ABC/TAC is apportioned between the BS and the AI management areas, a protocol needs to be established that would continue to maintain the benefits of sector allocations and minimize competition among gear groups; recognize differences in dependence among gear groups and sectors that fish for Pacific cod in the BS and AI; and ensure that the distribution of harvest remains consistent with biomass distribution and associated harvest strategy.

The following are the existing alternatives that were included in Amendment 85 prior to Council removal:

ALTERNATIVE 1: No action. A methodology to apportion the BSAI Pacific cod allocations to the jig, trawl, and fixed gear sectors between the BS and AI subareas would not be selected.

ALTERNATIVE 2: Sector allocations remain as BSAI (with BS and AI TACs)

No allocation to a sector of a specific percentage of a sub-area. Sectors would have a BSAI allocation to fish in either sub-area (BS and AI) if the sub-area is open for directed fishing and TAC is available.

ALTERNATIVE 3: BS and AI sector allocations based on equal percentage from BSAI sector allocations
This alternative provides an allocation to a sector of equal percentage in both sub-areas. The allocation percentage of BSAI TAC a sector receives would result in that same percentage being applied to both the BS and AI sub-areas so that a sector would have the same percentage in both sub-areas.

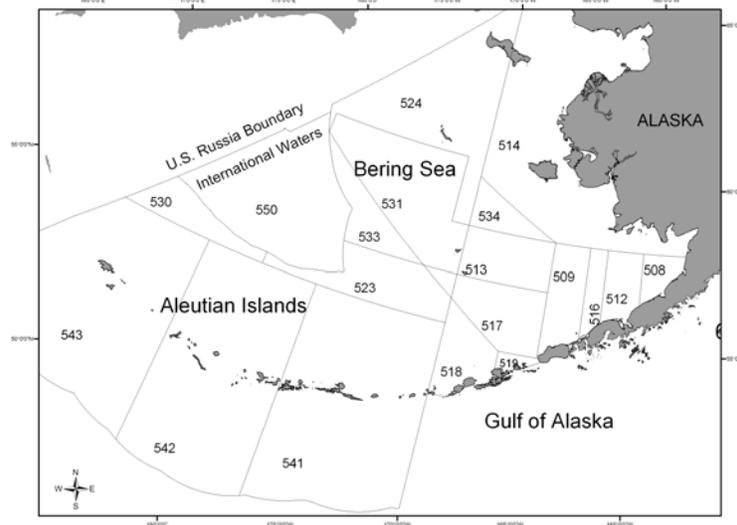
ALTERNATIVE 4: (Selected as preliminary preferred alternative in February 06). BS and AI sector allocations based on a sector's historic harvest in the AI with remainder of sector's overall BSAI allocation to be caught in the BS. Sector's BSAI allocation is maintained and used in annual calculation.

- Option 4.1 1995–2002
- Option 4.2 1997–2003
- Option 4.3 2000–2003
- Option 4.4 2002–2003

II. Background

The BS and AI management areas are comprised of the Federal management areas shown below in Figure 1. The AI is comprised of Areas 541, 542, and 543. The BSAI Pacific cod ABC is currently based on an Eastern Bering Sea assessment model and expanded by a multiplier into a BSAI-wide amount.

Figure 1 BSAI Federal management areas



The issue of whether to split the combined BSAI ABC (and TAC) by subarea has been raised at Plan Team, SSC, and Council meetings during the last several years. In December 2003, the SSC recommended that the ABC should be split between BS and AI subareas, but noted that management implications may preclude the Council from adopting separate subarea TACs in the specifications process. The SSC requested that the assessment authors evaluate potential methods for splitting the ABC and their potential management implications, so that specific recommendations could be made to the Council in the future. In the November 2005 BSAI Pacific cod SAFE report, the stock assessment authors noted the following:

At present, ABC of BSAI Pacific cod is not allocated by area. Pacific cod is something of an exception in this regard. Based on a Kalman filter analysis of the shelf bottom trawl survey time series in the EBS and AI, last year's assessment concluded that the best estimate of the BSAI Pacific cod biomass distribution was 85% EBS and 15% AI (Thompson and Dorn, 2004). The analysis was not repeated for this year's assessment, because no AI survey was conducted this year...if there were no other management complications, setting a separate ABC for the AI would be expected to impose only a modest new constraint on the existing fishery while helping to control future expansion of the fishery in this area. However, at present, there are potentially significant management complications arising from certain allocation formulas (by gear type, CDQ, etc.) pertaining to Pacific cod in the Fishery Management Plan. Until such time as these complications can be resolved, specification of separate ABCs for the EBS and AI is not recommended. [excerpt from 2005 BSAI SAFE]

While the decision to split the BSAI cod TAC into BS and AI subarea TACs is not part of of this action, at the February 2006 Council meeting, the SSC requested that the Amendment 85 analysis include additional background information on the biological basis for managing cod as separate BS and AI stocks

rather than as a single BSAI stock (SSC minutes, February 2006). The SSC specifically asked whether evidence suggests that the BS and AI stocks are separate and that cod form a single stock throughout the AI, or whether evidence suggests that cod form a suite of independent or partially independent stocks along the length of the AI. The following response from stock assessment scientists at the Alaska Fisheries Science Center indicates that there is not sufficient evidence at this time that Pacific cod stocks in the BS and AI are separate:

At present, there is insufficient evidence to confirm or refute the hypotheses that the BS and AI stocks are separate, that cod form a single stock throughout the AI, or that cod form a suite of independent or partially independent stocks along the length of the Aleutian Islands. The available data, or lack thereof, may be summarized as follows:

- 1) *Size Composition. The size compositions of catches taken from the AI are typically more heavily weighted toward large fish than the size compositions of catches taken from the BS. However, this could be evidence of a difference in fishing mortality rates or gear selectivities between the two areas rather than evidence of biological structure.*
- 2) *Length at Age. Although a good collection of age data are available for Pacific cod in the BS, very few (<100) age data are available for Pacific cod in the AI, making it difficult to draw firm conclusions about possible differences in length at age between the two areas. More age data from Pacific cod in the AI should be available within a few weeks.*
- 3) *Tagging. In a study described by Shimada and Kimura (1994, Fishery Bulletin 92:800-816), substantial numbers of Pacific cod were tagged in both the AI and BS management areas. Over 300 fish tagged in the BS management area were recovered. The vast majority of these were recovered in the BS management area, although there were isolated cases of BS-tagged fish being recovered in the AI management area. Two fish tagged in the vicinity of Unimak Pass were recovered near Seguam Pass within 250 days. Very few recoveries were made of AI-tagged fish. However, two fish tagged in Tanaga Pass near Adak Island were captured on the outer northwest shelf in the BS management area (above 57°N) after 3 and 5 years at liberty. In a separate study, AFSC's Fisheries Interaction Team tagged large numbers of Pacific cod in the vicinity of Unimak Pass. Out of 2,609 tag returns, only 1 was recovered in the AI management area.*
- 4) *Genetics. Grant et al. (1987, Can. J. Fish. Aquat. Sci. 44:490-498) showed clear differentiation between Pacific cod in the Asian and North American portions of the species' range, but little differentiation within the North American portion. A new study, using more powerful methodology, is currently underway at the AFSC. Although final results will not be available for a few months, preliminary results confirm Grant et al.'s finding of a distinct break between Asian and North American populations, and also indicate the potential for stock structure on scales finer than the species' North American range. Unfortunately, very few data from the Bering Sea were available for the new analysis. Once the present study is completed, the authors hope to conduct further studies (pending availability of funds), including expanded coverage of the Bering Sea portion of the species' range (Thompson, March 2, 2006).*

As noted in the summary above, there are a few ongoing research studies of BSAI Pacific cod, but at the time of writing this discussion paper (September 14), Grant Thompson via email has indicated that no further information is available that would shed any new light on the biology of splitting BSAI Pacific cod TAC between BS and AI.

It is thus uncertain whether the Plan Team and/or SSC would recommend splitting the BSAI Pacific cod ABC/TAC into separate BS and AI subarea ABCs/TACs in the future. While Pacific cod is currently managed as a single unit in the BS and AI, historically, the great majority of the BSAI Pacific cod catch has come from the BS management subarea. The stock assessment model for Pacific cod is configured to

represent the portion of the Pacific cod population inhabiting the BS survey area. The model projections are then adjusted to include biomass in the AI survey area. **As stated above, the best estimate of long-term average biomass distribution is 85% in the BS and 15% in the AI** (Thompson and Dorn). Consider the example that results if separate BS and AI TACs were set in 2006. Using the 2006 TAC of 194,000 mt, if the subarea split was implemented as described above, the BS and AI TACs would be 164,900 mt and 29,100 mt, respectively.¹ After deduction of the CDQ reserve (7.5%), the BS and AI subarea ITACs would be 152,533 mt and 26,918 mt, respectively.

Given the management implications related to the numerous sector allocations in the BSAI, the Pacific cod TAC has continued to be established for the entire BSAI management area. However, if the Council determines that it is likely that the TAC groupings will be modified in the foreseeable future, it would be beneficial to provide direction to NMFS regarding the formula for establishing new subarea allocations to each sector. This discussion paper provides three alternative approaches for this action in addition to a brief discussion on alternative approaches. The intent is to provide direction to NMFS regarding how to establish sector allocations in the BS and AI management areas prior to separate TACs being issued in the annual specifications process. Absent this direction, there is concern that the time necessary to undergo an analysis and notice and comment rulemaking after the TAC is divided would cause significant disruption of the cod fisheries. **Absent any action on this issue, NMFS could likely only implement equal allocations in both areas (e.g., if a sector receives a 40% BSAI allocation, it would receive 40% of the BS TAC and 40% of the AI TAC upon a TAC split).** While this is one of the methodologies evaluated (Alternative 2), the public and the Council raised concerns about this methodology being the only potential solution by default. The primary concern being that it does not reflect recent historical catch by sector in the Aleutian Islands subarea.

Note that methods to apportion the BSAI Pacific cod CDQ reserve between the BS and AI subareas are not included in this discussion paper. Alternatives 1–4 only apply to the non-CDQ fisheries. The regulations for the CDQ reserves are at 50 CFR 679.20(b)(1)(iii). Paragraph (C)(1) addresses the apportionment of the overall CDQ groundfish reserves by TAC category, and (C)(2) addresses how to modify the CDQ reserves if overall TACs are split or combined during the final harvest specifications. NMFS has operated such that if a new TAC is established, the CDQ Program receives its 7.5% allocation, unless a species is explicitly allocated at a different percentage (e.g., pollock under the AFA) or explicitly not allocated to the program (e.g., squid). Note that Section 305(i) of the Magnuson Stevens Act was recently amended by the Coast Guard and Maritime Transportation Act of 2006 (Public Law 109-241). This Act made numerous changes to several fisheries management and government oversight elements of the CDQ program, but the Act also increases the CDQ Program Pacific cod allocation from 7.5 percent to 10 percent upon establishment of new Pacific cod sector allocations and makes it a directed fishery allocation. Thus, if the BSAI Pacific cod TAC is split into BS and AI subarea TACs, under the status quo allocations, the CDQ Program would receive 10% of the BS TAC and 10% of the AI TAC for directed fishing. An additional percentage would be allocated as an incidental catch allowance. For illustrative purposes, the remainder of this paper uses a 10% CDQ allocation. The effect of making the split on the CDQ Program and its participants would need to be addressed in the final TAC-setting EA.

III. LLP area endorsements by sector

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 is allowed to do. Area endorsements define the geographic locations the licenses allow a vessel to fish. **Under the groundfish LLP, separate BS subarea and AI subarea endorsements were issued and earned based**

¹ Does not include the 3% deduction for State water AI Pacific cod fishery implemented for 2006 and 2007.

on historic fishing patterns. Looking just at BSAI, licenses may contain endorsements for both subareas (BS and AI), 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, cod gear endorsements are required for non-trawl vessels $\geq 60'$ 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. As stated previously, vessels fishing with jig gear in the BSAI are exempt from the LLP, provided they comply with gear limitations. Table 1 shows the number of groundfish LLPs with a Bering Sea and/or Aleutian Islands endorsement by sector, as of December 2005. Generally, this table shows the number of licenses associated with each eligible sector that may currently fish in the Federal BS and AI management areas for Pacific cod. **Regardless of whether the BSAI TAC is split into separate subarea TACs, only those vessels with an AI endorsement may fish in Federal waters in the AI.**

In the **trawl CP** sectors, the majority of licenses are endorsed for the BSAI, with very few vessels endorsed in only one area, and only one non-AFA trawl CP vessel endorsed only for the AI. In the **AFA trawl CV** sector, more than half of the total LLPs (59) are endorsed only for the BS; the remaining licenses (43) are endorsed for the BSAI. None are endorsed only for the AI. The AFA sectors also benefit from the cooperative structure in place under the AFA. The non-AFA trawl CP sector will also potentially benefit from a similar structure under Amendment 80. Thus, it is expected that these sectors have the ability to manage their allocations internally with the existing LLP area endorsements.

In the **non-AFA trawl CV** sector, the majority (44 of 50) of eligible licenses are endorsed only for the BS. Four are endorsed for the BSAI and two are endorsed for the AI only. Thus, only six LLPs in this sector can be used to fish in the AI. Note that three of these vessels harvested more than half of the total non-AFA trawl CV sector Pacific cod catch during 1995 to 2003, so any alternative that would apportion a majority of the sector's BSAI Pacific cod in the AI, these three vessels would be substantially affected. Under that scenario, these vessels would need to purchase an LLP with an AI endorsement in order to continue their historical level of Pacific cod catch.

In the **hook-and-line** sectors, the majority of the eligible vessels (CP and $\geq 60'$ CV) are endorsed for the BSAI, with only 2 CPs and 1 CV endorsed only in the BS, and only 1 CV endorsed only for the AI. In the pot CP sector, there are only 8 eligible LLPs, 5 of which are endorsed for the BSAI and 3 for the BS only. In the **$\geq 60'$ pot CV** sector, the great majority (48 of 53) of licenses are endorsed only for the BS, with only 5 licenses endorsed for the BSAI. In the **$< 60'$ fixed gear** sector, of the 116 total licenses being used on $< 60'$ vessels, 90 are endorsed only for the BS, 2 only for the AI, and 24 for the BSAI.

Table 1 shows that only six licenses are endorsed for the AI subarea only. Note that because a vessel is not limited to participating in one sector if it has the appropriate license and/or permit, the number of licenses across sectors is not necessarily additive nor does it represent the number of unique vessels. The number of LLPs is higher than the number of unique vessels, as one vessel may carry more than one license or a vessel may not yet have been designated for use on a license. Regardless of the resulting BS and AI sector allocations established under this part, only the vessels with AI endorsements in each sector are allowed to fish in that Federal management area.

Overall, about 46% of the licenses endorsed for trawl gear are endorsed to fish both subareas. About 36% of the non-trawl gear licenses are endorsed to fish both subareas. The majority of licenses are endorsed for the BS subarea only.

For those sectors with a majority of participants that hold only a BS endorsement, a relatively small proportion of the fleet would be allowed to harvest the AI sector cod allocation. Based on the table below, this appears to be an issue primarily for the non-AFA trawl CV sector, $\geq 60'$ pot CV sector, and $< 60'$ fixed gear sector. Of these three sectors, however, only the non-AFA trawl CV sector has

had a substantial percentage of its overall Pacific cod catch in the AI in recent years. Thus, the possibility that a substantial portion of a sector’s overall BSAI allocation is attributed to the AI allocation but only a small portion of the eligible vessels in the sector have AI endorsements appears primarily an issue for the non-AFA trawl CV sector.

Note that this situation, in which only a subset of the sector (vessels with AI endorsements) could fish a portion of the TAC that is established only for the AI, is a factor of the decision to split the BSAI TAC by subarea. That decision is not part of this action, as it is part of the annual specifications process. Unless the LLP program is modified, only those vessels with an AI endorsement will continue to be able to fish in the AI in Federal waters. The Council’s decision under this action is limited to determining how to apportion each sector’s BSAI allocation into the BS and AI subareas, should the TAC split occur in the future. Recall, however, that the AI endorsements are based on an individual’s history in the AI. Thus, if the BS and AI sector allocations are based on actual harvest history (as proposed under Alternative 4), this alternative should serve to mirror actual harvest history by sector in the AI subarea. **Recall that LLPs are not required to fish within State waters, thus, all eligible vessels would continue to be allowed to fish in the BS or AI in the parallel Pacific cod fishery within 3 nm and/or in the State water AI Pacific cod fishery for specific gears and vessels sizes.**

Table 1 Number of BS, AI and BSAI LLPs in the BSAI Pacific cod sectors

Sector	BS only LLP	AI only LLP	BSAI LLP	Total # of valid LLPs
AFA Trawl CP	1	0	19	20
Non-AFA Trawl CP	5 (1 interim)	1	23 (2 interim)	29 LLPs (on 26 vessels) ¹
AFA Trawl CV	60	0	51 (1 interim)	111
Non-AFA Trawl CV	44 (2 interim)	2	4	50
Hook-and-line CP	2	0	42 (5 interim)	40
Hook-and-line CV > 60'	1	1	7	9
Pot CP	3	0	5 (2 interim)	8
Pot CV > 60'	48 (2 interim)	0	24 (3 interim)	53
Hook-and-line/Pot < 60'	90 (3 interim)	2	N/A	116
Jig CV	N/A	N/A		N/A

¹Note that 44 BSAI trawl CP licenses exist (that are not associated with AFA vessels), but only 26 vessels (on which 29 LLPs are used) qualify under the eligibility criteria to participate in the non-AFA trawl CP sector for BSAI groundfish authorized in the Consolidated Appropriations Act of 2005. Of the remaining 15 trawl CP licenses currently being used on vessels ineligible for the non-AFA trawl CP sector, 9 are being used on AFA CVs and 5 others have a BSAI hook-and-line CP cod endorsement and are accounted for in the hook-and-line CP sector.

IV. State water Aleutian Islands Pacific cod fishery

At its December 2005 meeting, the Alaska Board of Fisheries (Board) generated a proposal (BOF proposal 399) to create a new regulation establishing a State waters Pacific cod fishery in the Aleutian Islands west of 170° W longitude. To date, the Pacific cod fishery in State waters has been managed as a parallel fishery to the Federal fishery; the Federal government manages all harvests (inside or outside State waters) against the Federal BSAI Pacific cod TAC and allocations, opens and closes seasons, establishes gear restrictions, etc. Upon request of the Council, the Board and the Council met jointly to discuss the proposal on February 3 in Anchorage, and the Board took action on this proposal during its February 23–25, 2006 meeting in Ketchikan.

The Board voted to establish a State waters Pacific cod fishery in the Aleutian Islands west of 170° W longitude, which would start on or after March 15, and only after the Federal Pacific cod trawl CV A season is closed. The primary elements of the fishery include:

1. The guideline harvest level (GHL) for the state waters fishery will be an amount calculated as 3% of the Federal BSAI Pacific cod ABC. The future calculation (the “source” of the GHL) will be the Council’s decision should the BSAI ABC be split into separate AI and BS ABCs in a future TAC specifications process. The State water fishery, however, would remain the equivalent of 3% of the combined BS and AI ABC.
2. The fishery will only be authorized for 2006 and 2007. The fishery may occur only from March 15 through December 31 each year, or until the GHL is taken.
3. Legal fishing gear will be pot, jig, hand troll, non-pelagic trawl, and longline gear. Non-pelagic trawl and longline gear may not be used during May 1–September 15, unless these vessels are operating in the <60’ vessel size limitation areas near Adak Island. (In Sitkin Sound, near Adak Island, the vessel size limit is in effect year-round for all gear types.)
4. The fishery will start only on or after March 15, and also only after the Federal Pacific cod trawl catcher vessel A season is closed.
5. A maximum of 70% of the GHL may be harvested prior to June 10. Any unharvested GHL during the first season can be rolled into the second season such that not more than 70% of the total annual GHL can be harvested in the first season.
6. During the year, the Commissioner of ADF&G may determine that a portion of the GHL may be left unharvested. The Commissioner will notify NMFS and the Council of that amount so that it may be reallocated to the Federal fisheries that are still open at that time.
7. The fishery requires registration with ADF&G of the type of gear to be used.
8. The daily trip limit is 150,000 lbs of Pacific cod; there is also a limit of up to 300,000 lbs of unprocessed Pacific cod onboard the vessel. A vessel may not have more processed fish onboard than the round weight equivalent of the fish reported on ADF&G fishtickets during the AI state waters Pacific cod fishery. Participants must notify ADF&G daily of the amount harvested and the total amount on board.
9. All Pacific cod harvested must be retained. If a participant harvests an amount in excess of the daily trip limit, that excess amount of product must be forfeited to the State. No penalty for overages will be assigned to a participant who immediately reports the overage.
10. The Commissioner of ADF&G may impose bycatch limitations or retention requirements.

The State regulations authorizing this fishery allow the fishery to begin on or after March 15, 2006, upon closure of the Federal BSAI trawl CV cod A season. NMFS closed the directed trawl CV Pacific cod fishery in the BSAI on March 8, 2006, in order to avoid exceeding the A season allocation, thus, the State water AI fishery began at noon on March 15. As the 2006 TAC had already been specified and sectors were fishing under the existing allocations, NMFS effected an inseason adjustment under Federal regulations (50 CFR 679.25) to re-specify the TAC on March 14, to account for the 3% reduction for the

GHL. This necessitated re-calculating the sector allocations and seasonal apportionments that are currently published in Federal regulations.²

This action also necessarily affects the 2006 BSAI Pacific cod CDQ reserve, as that allocated is calculated as a percentage of the BSAI Pacific cod TAC. Thus, all sectors realized a proportional reduction of 3% of their current Federal allocations as a result of this action. Three percent of the 2006 ABC of 194,000 mt represents about 5,820 mt (or 12,830,772 lbs). Note that the State fishery is limited to 70% of the total GHL in the first half of the year (prior to June 10) and any unharvested quota from the first season is rolled over to the second season (on or after June 10). Under a 5,820 mt GHL, this equates to 4,074 mt in the first season and 1,746 mt in the second season. This provision mirrors the overall Pacific cod seasonal apportionments in place under the current Steller sea lion mitigation measures.

The overall effect of a State waters Pacific cod fishery in the Aleutian Islands west of 170° W longitude is that all sectors, including the CDQ fishery, will realize a proportional reduction of 3% of their current Federal allocations. Because the same gear types are allowed to fish the GHL as are allowed in the Federal fishery, recognizing that trawl and hook-and-line are excluded from the AI State water fishery during May 1–September 15, it is not clear to what extent each sector will participate in and benefit from the State water fishery in the Aleutians. The first season of the fishery opened on March 15 and ended on March 24, 2006. Twenty-six vessels registered and participated in the fishery, including one large trawl CP, five hook-and-line CPs, one pot CV $\geq 60'$, sixteen trawl CVs $\geq 60'$, and three trawl CVs $< 60'$. In addition, two floating processors and two shorebased processors (located in Dutch Harbor and Adak) participated. About 94% of the first season GHL of 8.98 million pounds was harvested.

It is anticipated that while the intent is to allow additional harvests by the identified sectors in State waters west of 170° W longitude, the overall effect will be a redistribution of cod harvests and associated revenues from vessels of all gear types that fish in Federal waters in the AI or in the Bering Sea (within Federal or State waters) and from ports east of 170° W. Thus, there will likely be a disproportionate negative effect on those participants that do not desire to fish in State waters in the Aleutian Islands, compared to those participants that have harvested and want to continue to harvest Pacific cod in the Aleutians and within State waters. In general, the fixed gear and jig gear sectors have reduced the AI share of their total BSAI Pacific cod harvest in recent years, while the trawl sectors have generally increased the AI share of their total BSAI Pacific cod harvest.

The press release announcing the AI State Pacific cod fishery states that bycatch limits that apply in the parallel fishery will apply in the State waters fishery (ADF&G news release, 3/1/06). Halibut mortality from a State waters groundfish fishery cannot be deducted from a Federal fishery category, thus, the PSC allowances for the Federal Pacific cod fisheries will not be modified as a result of this action. The State could choose to enforce Federal closures that result from reaching PSC limits in State waters, but that decision is at the Commissioner's discretion. Note that both trawl and longline gear are prohibited from participating in the State water AI fishery from May 1–September 15; these are the only gear sectors that are subject to PSC bycatch allowances in the Federal Pacific cod fishery. Pot and jig gear are exempt from PSC limits due to very low bycatch rates. However, the A season GHL was harvested in ten days, primarily by trawl vessels. The B season, which started on June 10 with a GHL of a little over 4 million pounds, closed on September 1. The State held back 0.5 million pounds for a possible reopening later in the year.

²See Table 5 (2006 and 2007 Gear Shares and Seasonal Allowances of the BSAI Pacific cod TAC) in 71 FR 10870, March 3, 2006.

Note that observer coverage is not required under a State water fishery. However, it is assumed that this fishery will operate similarly to the Gulf of Alaska State Pacific cod fishery, in that if the vessel in the State fishery has a Federal Fisheries Permit (FFP), then any time the vessel operates in the State fishery it is subject to observer coverage requirements, and any time an observer is onboard in the State fishery can be counted toward the Federal observer coverage requirements. One presumes that this is based on the premise that any time a vessel has an FFP, it is authorized to fish in the EEZ when the fishery is open. When the Federal GOA Pacific cod fishery closes, generally, the majority of the fleet surrenders the FFP in order to relieve itself of observer coverage requirements. A few vessels, however, sometimes choose to continue to keep their FFP and carry observers in the State water cod fishery, in order to satisfy their observer coverage requirements. In the fishery's first season, six vessels voluntarily carried a Federal observer.

Finally, a proposal to modify the existing State water AI Pacific cod fishery is scheduled for consideration by the Board in October 14 and 15, 2006. The proposed modifications would extend the fishery beyond the original 2006 and 2007 years to any subsequent year in which the Council has not subdivided the BSAI Pacific cod TAC between the Aleutian Islands and Bering Sea management areas. Participation would be limited to fixed gear vessels less than 60' and trawl vessels less than 125'. Sixty percent of the A and B season allocations will be allocated to vessels under 60', while the remaining portion would be allocated to vessels greater than 60'. Finally, for each year the under 60' vessels group harvest their entire allocation, their allocation the following year would increase by 20%. This allocation process for the under 60' vessels would continue until 100% of the State water AI Pacific cod fishery is reserved for the under 60' vessels.

V. Data used in discussion paper

The data in this analysis are, with few exceptions, retained harvests, excluding meal, from 1995 through 2003. Retained harvest data for CPs are from NMFS Weekly Production Reports; retained harvest data for CVs are from Alaska Department of Fish and Game electronic fish tickets. One exception is the total catch figures in Table 4; these are from the NMFS catch accounting database.

The Council's intent in Amendment 85 was to allocate Pacific cod based upon retained harvest, as its retention is required in both the directed fishery and up to the maximum retainable allowance when the directed cod fishery is closed. However, the 100% retention requirement did not begin until January 3, 1998, so that in the years 1995-1997 Pacific cod could be (and were) legally discarded. Rewarding sectors by crediting them with Pacific cod discards was not deemed appropriate by the Council in February 2005.

What has occurred after the 100% retention standards for Pacific cod were in effect is less clear-cut. For example, some catcher vessel deliveries contained fish in poor condition which could not be processed for human consumption. Often, these fish were processed into fish meal, as the fish could not be discarded. These 'destined for meal production' fish from catcher vessels and catcher processors have not been included in the retained harvests provided in the discussion paper.

Among the C/Ps, the exclusion of Pacific cod meal products affects the AFA trawl CP sector, as a large portion of the Pacific cod harvested by this sector is taken incidentally in the BSAI pollock fishery. There are some AFA CPs whose sole Pacific cod product has been meal, so that if meal were included, the number of eligible vessels in this sector would increase.

Only a portion of the AFA CP sector process meal, as the processing infrastructure (and space on board) required for this type of product is substantial. None of the non-AFA trawl CP sector, have meal plants onboard. Of the existing alternatives, only Alternative 4 would be impacted by the inclusion of fish meal in the catch data.

Although the Council staff intended to include two sets of tables, with and without meal, it was not possible to do so in time for the October meeting. Future discussion papers can include data from meal should the Council want to allocate staff time to do so.

VI. Harvest distribution between BS and AI by sector

In considering the division of the BSAI Pacific cod sector allocations between BS and AI management areas upon a TAC split, it is useful to consider the historic harvests from those areas. This section provides a general description of historic harvests from 1995 to 2003. Table 2 shows the amount and division of retained catch between the BS and AI subareas during 1995–2003.

Table 2 Pacific cod retained catch in the Aleutian Islands and Bering Sea from 1995 to 2003 (in metric tons and percent of total)

Area		1995	1996	1997	1998	1999	2000	2001	2002	2003	Total
Aleutian Islands	Retained catch	9,782	21,603	13,169	25,187	24,441	29,793	30,410	27,442	29,384	211,210
	Percent of BSAI	5.5	11.2	6.2	15.3	17.0	18.5	19.9	16.5	16.2	13.6
Bering Sea	Retained catch	167,255	171,798	200,245	139,382	119,643	131,434	122,141	138,795	151,496	1,342,190
	Percent of BSAI	94.5	88.8	93.8	84.7	83.0	81.5	80.1	83.5	83.8	86.4
BSAI	Retained catch	177,037	193,402	213,414	164,569	144,084	161,228	152,551	166,236	180,880	1,553,400

The table above shows that retained catch from the Aleutian Islands fluctuated from 1995 through 1997, then stabilized from 1999 through 2003 at between 15% and 20% of the combined BSAI retained catch. From 2000 to 2003, approximately 17.7% of the BSAI retained harvests were from the Aleutian Islands area.

Table 3 shows, for each sector, the average annual retained catch in each subarea and the BSAI as a whole, the percent of the sector's catch from each subarea, and the number of unique vessels with Pacific cod catches in each subarea and in the BSAI as a whole for two time periods, 1995–1999 and 2000–2003. In general all sectors for which allocations are being considered under this action have some history in both the Aleutian Islands and Bering Sea Pacific management areas. For two sectors, the AFA trawl CP sector and the non-AFA trawl CV sector, which is combined with AFA trawl CV sector, data are shown for the periods from 1995–1998 and from 1999–2003, because of confidentiality limitations. Vessel counts in all cases are for the years 1995–1999 and 2000–2003.

Table 3 shows significant differences in participation levels in the two areas by the different sectors, as well as some variation in participation across the two time periods. That table shows retained harvest in the non-CDQ BSAI Pacific cod fishery by sector and the percentage of each sector's harvest taken in BS and AI during two aggregated time periods: 1995–1999 and 2000–2003. Only retained catch is included and the data are refined on an individual vessel basis and aggregated by sector. Table 3 represents the most recent data available for this refined data set and is used to determine the BS and AI sector allocations proposed in Alternative 4.

A summary of Table 3 shows overall harvest by AFA CP and trawl CV sectors has decreased since 1999, but the trawl CV sector has more than tripled its annual catch from the Aleutian Islands during the 2000 to 2003 period. The non-AFA trawl CP sector has increased its annual catch slightly in the Bering Sea from the first to the second period, but has more than doubled its Aleutian Islands catch. Annual Pacific cod harvest by the hook-and-line CP sector and the $\geq 60'$ pot CV sector are stable and largely from the BS in both time periods. Pacific cod harvest by the jig CV sector and $\geq 60'$ hook-and-line CV sector are relatively small in both areas. Catches in these sectors are heavily weighted toward the BS. Harvest by fixed gear vessels $< 60'$ has increased substantially across the two periods (likely due to the separate allocation established for this sector in 2000), but are predominantly from the Bering Sea in both periods.

Table 3 Retained Pacific cod catch in the Bering Sea and Aleutian Islands by sector and percent of each sector's catch by area, 1995–1999 and 2000–2003

		1995–1999			2000–2003		
		Average annual catch (mt)	Percent of sector BSAI catch	Unique Vessels	Average annual catch (mt)	Percent of sector BSAI catch	Unique Vessels
AFA Trawl CPs	BS	1,590*	38.7*	18	577**	30.3**	12
	AI	2,518*	61.3*	9	1,328**	69.7**	3
	BSAI	4,107*		20	1,905**		16
Longline CPs	BS	80,248	93.1	55	75,849	91.8	47
	AI	5,967	6.9	33	6,768	8.2	27
	BSAI	86,215		58	82,617		49
Non-AFA Trawl CPs	BS	15,814	81.1	39	18,774	69.9	25
	AI	3,676	18.9	21	8,069	30.1	15
	BSAI	19,491		40	26,843		25
Pot CPs	BS	3,491	73.1	22	1,893	83.5	9
	AI	1,283	26.9	12	375	16.5	9
	BSAI	4,774		24	2,268		12
Hook and Line and Pot CVs < 60 feet	BS	235	90.0	70	1,095	96.3	76
	AI	26	10.0	19	42	3.7	27
	BSAI	261		79	1,137		93
Trawl CVs	BS	43,212*	95.0*	139	22,894**	66.0**	130
	AI	2,589*	0.1*	42	11,807**	34.0**	59
	BSAI	45,574		141	34,700**		142
Jig CVs	BS	259	92.6	67	108	86.1	45
	AI	21	7.4	6	17	13.9	10
	BSAI	280		73	126		52
Longline CVs > 60 feet	BS	22	71.4	25	400	88.0	27
	AI	9	28.6	12	55	12.0	17
	BSAI	31		34	454		34
Pot CVs > 60 feet	BS	13,684	94.2	183	14,350	95.7	115
	AI	848	5.8	42	646	4.3	34
	BSAI	14,532		189	14,997		134

* Non-AFA trawl CV retained catch and percent are for 1995-1998.

** Non-AFA trawl CV retained catch and percent are for 1999-2003.

Although the existing alternatives and options developed do not include harvest data beyond 2003, it is important to consider the most recent data available by sector. Table 4 below provides total catch by sector, as reported from the NMFS catch accounting database, which utilizes observer data, shoreside processor landings data, and weekly production reports. Note that confidential data for the <60' fixed gear and jig gear sectors are not provided in the table, thus, the totals for each year also do not include those confidential data.

Table 4 below indicates that about 14.4% and 11.3% of the total BSAI Pacific cod harvest was taken in the AI in 2004 and 2005, respectively. While these totals do not include harvest from the <60' fixed gear or jig sectors, those sectors had very little harvest in the AI. Note that Table 2 from the previous section showed that from 1999 to 2003, approximately 16%–20% of the BSAI retained harvests were from the AI. **Thus, while the two data sets are not exactly comparable, it appears that the Pacific cod harvest in the AI is a slightly smaller share of the overall BSAI Pacific cod harvest than realized in 1999–2003.**

Table 4 Pacific cod total catch by sector in the BS, AI, and BSAI areas

2004						
SECTOR	BS (mt)	BS (%)	AI (mt)	AI (%)	BSAI (mt)	% of total BSAI
Hook-and-line CP	93,866	97.0%	2,921	3.0%	96,786	48.9%
Hook-and-line CV	272	100.0%	-	0.0%	272	0.1%
Hook-and-line and Pot CVs < 60'	1,970	*	*	*	1,970*	1.0%*
Hook-and-line and Pot Gear ICA	346	69.8%	150	30.2%	496	0.3%
Jig Gear	231	100.0%	-	0.0%	231	0.1%
Pot CP	3,234	100.0%	-	0.0%	3,234	1.6%
Pot CV	12,364	100.0%	-	0.0%	12,364	6.3%
Trawl CP	29,352	71.0%	11,980	29.0%	41,332	20.9%
Trawl CV	27,576	67.1%	13,517	32.9%	41,093	20.8%
Total*	169,211	85.6%	28,567	14.4%	197,778	100.0%
2005						
SECTOR	BS (mt)	BS (%)	AI (mt)	AI (%)	BSAI (mt)	% of total BSAI
Hook-and-line CP	97,925	97.9%	2,128	2.1%	100,054	52.6%
Hook-and-line CV	235	100.0%	-	0.0%	235	0.1%
Hook-and-line and Pot CVs < 60'	2,234	*	*	*	2,234*	1.2%*
Hook-and-line and Pot Gear ICA	824	86.3%	131	13.7%	955	0.5%
Jig Gear	104	*	*	*	104*	0.1%*
Pot CP	3,339	100.0%	-	0.0%	3,339	1.8%
Pot CV	12,205	100.0%	-	0.0%	12,205	6.4%
Trawl CP	24,187	68.2%	11,281	31.8%	35,467	18.6%
Trawl CV	27,740	77.6%	8,007	22.4%	35,747	18.8%
Total*	168,792	88.7%	21,547	11.3%	190,339	100.0%

Source: NMFS catch accounting database, 2004 - 2005.

*Totals exclude confidential data.

Generally, while the two data sets are not exactly comparable, the data in Table 4 indicate that the overall BSAI harvest share by sector is similar to what has occurred during 1995–2003. The ≥60' pot CV share of Pacific cod harvest decreased slightly in the past two years compared to 1995–2003. Although a small portion of the <60' fixed gear harvest is confidential and thus not reported in the above table, it is clear that the <60' fixed gear share of the total BSAI Pacific cod harvest has increased slightly in the past two years, likely due to additional quota reallocated from the jig sector starting in 2004. Excluding confidential data, the table shows that this sector harvested about 1.0% and 1.2% of the 2004 and 2005 total BSAI Pacific cod harvest. All sectors, with the exception of the <60' fixed gear sector and the combined trawl CP sector, had harvests in 2004 and 2005 that fall within the range of the catch shares during 1995–2003. Harvests attributed to the trawl CP sector would be slightly lower if only retained harvest was counted. Thus, while these data are not comparable to the retained only harvest data in the previous tables, they provide a general view of the fishery in the two most recent years.

The data in Table 4 are important to consider in determining whether the distribution of harvest by sector in the two subareas has changed in recent years. The overall trend discussed previously in this section is that the trawl sectors have generally increased the percentage of their Pacific cod harvest in the AI compared to the BS over time, while the fixed gear sectors have generally decreased their share harvested

in the AI. **The data provided for 2004 and 2005 follows this trend, as the trawl sectors appear to continue to take more of their total harvest in the AI than they did in 1995–1999.**

The table above shows that the combined trawl CP sectors harvested about 29% and 32% of their total BSAI Pacific cod harvest in the AI in 2004 and 2005, respectively. This can be roughly compared to about 32% of their total BSAI Pacific cod harvest taken in the AI during 2000–2003 (see Table 3). The combined trawl CV sectors harvested about 33% and 22% of their total BSAI Pacific cod harvest in the AI in 2004 and 2005, respectively. This can be roughly compared to about 34% of their total BSAI Pacific cod harvest taken in the AI during 2000–2003 (see Table 3).

While the fixed gear sectors have not harvested a significant amount of cod in the AI during any of the years considered, they continue to harvest less of their total cod share in the AI in the most recent years. The hook-and-line CP sector harvested about 3% and 2% of its total cod catch in the AI during 2004 and 2005, respectively. This compares to an estimated 8% in 2000–2003. Hook-and-line and pot catcher vessels of any length, as well as jig vessels, harvested little to none of their total BSAI Pacific cod harvest in the AI in 2004 and 2005, and less than was harvested on average in 2000–2003.

VII. Alternative 1: No action

Under Alternative 1, a methodology to apportion the BSAI Pacific cod allocations to the jig, trawl, and fixed gear sectors between the BS and AI subareas would not be selected. Note that selecting no action under Alternative 1 does not mean that the BSAI TAC will not be split into the BS and AI subareas in a future specifications process, however, the likelihood of the Council recommending this split without having a methodology to apportion the numerous industry sector allocations by subarea is uncertain. As noted above, the only approach that could be implemented without a new regulatory amendment is an equal percentage of both the BS and AI subarea TAC by sector. The implications of that potential action are described under Alternative 3.

Alternative 1 effectively means that the Council would explicitly not select a method of apportioning by subarea the numerous sector allocations determined under Amendment 85 that were established for the entire BSAI area. In the event the BSAI TAC is split by subarea in the future, it is likely that NMFS would implement equal percentages of each sector's BSAI allocation in each area (e.g., if a sector receives a 40% BSAI allocation, it would receive 40% in the BS and 40% in the AI upon a TAC split) under the current regulations. It is likely that this management system would not be satisfactory to most participants, as it would not reflect each sector's recent harvest history by subarea (see Table 3 above). In general, the trawl sectors have increased the percentage of their total harvest taken from the AI in recent years, and the fixed gear sectors have reduced their share in the AI.

Thus, Alternative 1 may effectively mean that a separate, new regulatory amendment would be initiated following the TAC split, in order to allocate each sector's BSAI allocation by subarea in a manner that reflects recent harvest patterns. The primary intent of the proposed action is provide direction in the regulations prior to separate TACs being issued in the annual specifications process, in order to avoid expediting an analysis to mitigate these circumstances. As the action would require notice and comment rulemaking under the current amendment process, it would likely require a minimum of six months to a year to implement new subarea sector allocations.

VIII. Alternative 2: Sector allocations remain BSAI

Under Alternative 2, sectors would not be allocated a specific percentage of the individual AI subarea TAC or BS subarea TAC. Instead, sectors would continue to be issued an overall amount of BSAI Pacific cod, as determined in Amendment 85, that could be harvested anywhere in the BSAI. In effect, a sector's allocation could be fished from either the BS or AI subarea, as long as TAC was available in that subarea

and the area was open to directed Pacific cod fishing. Once the Pacific cod TAC for either the BS or AI was reached, NMFS would issue a closure notice and all sectors would be required to stop directed Pacific cod fishing in the closed subarea. The sectors would then only be permitted to continue directed fishing in the open subarea.

This alternative provides the greatest flexibility for sectors and may be the simplest alternative for inseason management to monitor. NMFS would not be required to manage two separate subarea allocations for each of the ten proposed sectors. They would instead be required only to monitor each sector's overall BSAI allocation and a single harvest limit for each subarea, using the existing tools to open and close fisheries. Alternative 2 would also provide maximum flexibility to the fleet since the sectors would be able to fish in either subarea if it was open. Thus, regardless of historical harvest patterns, sectors could move in and out of a subarea as desired on an inseason or annual basis, and focus their efforts in the area in which they can optimize their harvest at that point in time. Thus, while some sectors have not had substantial participation in the AI in the past, if this area became more advantageous due to shifts in the stock or a desire to deliver to a new port, these sectors would be able to shift more of their fishing to the AI. Note, however, that only vessels with an AI endorsement earned on their LLP would be eligible to fish in the AI under any of the alternatives.

Under Alternative 2, it is assumed that each sector would attempt to fish in its preferred area first, especially if that area is the most constrained by TAC, such as the Aleutian Islands. A possible disadvantage of this alternative is that it could cause sectors (both within sectors and among sectors) to race for Pacific cod in the subarea they expect to close first. This could affect 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. The sectors that operate under a cooperative structure (e.g., the AFA sectors and in the future, the non-AFA trawl CP sector) will manage their sector's Pacific cod harvest through internal agreements and thus will be much better positioned to strategize and fish in the subarea they expect to close first.

The level of risk in creating a race for fish in the AI under Alternative 2 is difficult to characterize; it is speculative and dynamic, depending on each sector's participation in the AI each year. As stated previously, the best estimate of long-term average biomass distribution is 85% in the BS and 15% in the AI. During the past nine years for which data is available (1995–2003), the AI share of BSAI Pacific cod retained harvest was 13.6%, and the BS share was 86.4%. Under this long-term average, it does not appear that a race for fish in the AI would be inevitable. However, if the time frame is shortened to the most recent years (2000–2003), the share percentages change to 17.7% in the AI and 82.3% in the BS. In addition, the annual share taken in the AI has ranged from a low of 5% (1995) to a high of 20% (2001) during 1995–2003 (see Table 2). Thus, while the long-term average share taken in the AI does not exceed the 15% projected, the average of a subset of the most recent harvest years slightly exceeds 15%. In addition, each individual year during the past five years (1999–2003) also exceeded 15%.

Generally, the trawl sectors have increased their share of AI harvest as a percentage of their overall BSAI harvest and the fixed gear sectors have decreased their share of AI harvest as a percentage of their overall BSAI harvest, in the past several years. As stated above, because three of the four trawl sectors (AFA and non-AFA CP sectors) operate, or will operate, under a cooperative structure, these sectors should be better positioned to manage their harvest between subareas within their respective sectors. If the AI subarea is expected to close first, Alternative 2 may result in the trawl sectors fishing first in the AI, in order to ensure their historical level of harvest in the AI. Since the trawl sectors generally have been increasing their harvest in the AI, this may mean that the race for fish in the AI may be an issue among the trawl sectors more so than with or among the fixed gear sectors. At the same time, with the exception of the non-AFA trawl CV sector, the trawl sectors are better able to plan their fishing year and react to closures than the sectors operating under a limited access regime.

In addition, NMFS has expressed some concern with this alternative relative to the 2001 Biological Opinion. Because Alternative 2 does not establish sector allocations in each subarea, there are thus no gear specific seasonal apportionments by subarea. While the overall guideline for the BSAI in the 2001 Biological Opinion is a 70%–30% seasonal split, the seasonal apportionments vary by gear type. Thus, absent specific sector allocations in the AI, if any gear type was allowed to fish in the AI until the TAC was taken, this approach risks harvesting all of the AI TAC in the first half of the year. No guidelines currently exist for establishing AI seasonal apportionments by gear type or overall. Thus, NMFS is concerned that this alternative deviates from what was consulted on in the 2001 Biological Opinion.

Note that NMFS is undertaking another ESA Section 7 consultation on the BSAI and GOA groundfish FMPs in 2006. The consultation team has initiated the preparation of a consultation package which will consist of a series of documents, one of which is a Biological Opinion that summarizes information on the proposed action (the groundfish FMPs). The process should provide additional information on guidelines for managing the BSAI fisheries in such a manner that does not adversely affect Steller sea lions or their habitat.

In sum, when considering this alternative, the Council may want to weigh the negative effects of a possible race for fish to harvest the AI TAC and the risk of harvesting all of the AI TAC in the first half of the year with the flexibility that sectors would be provided when determining where to fish on an inseason and annual basis. This alternative provides maximum flexibility for the sectors to change their fishing patterns in reaction to a shifting stock, preferable fishing location, or market conditions.

IX. Alternative 3: Equal percentages in BS and AI subareas

Under Alternative 3, NMFS would be directed to allocate sectors the same percentage of the BS subarea and AI subarea TACs, as determined by the BSAI sector allocations determined in Amendment 85. For example, if the hook-and-line CP sector is allocated 48.7% of the BSAI Pacific cod ITAC under Amendment 85, this sector would be allocated 48.7% of the BS ITAC and 48.7% of the AI ITAC. Note that this alternative also reflects the default scenario under the current regulations, should the Council choose to take no action (Alternative 1).

Table 5 shows the range of BSAI allocations proposed under Amendment 85 for each sector, and the annual average of each sector’s BSAI harvest that was taken in the BS and AI subareas during 2000–2003. **In effect, under Alternative 3 and a BSAI TAC split, each sector would be allowed 85% of its BSAI Pacific cod allocation in the Bering Sea and 15% of its BSAI Pacific cod allocation in the AI, using the stock assessment projections of an 85%–15% split between areas.** Refer to the last two columns in Table 5 to compare the proposed split and each sector’s historical split as a percentage of its annual average BSAI Pacific cod harvest.

Table 5 Percentage of BSAI Pacific cod harvest taken in BS and AI subareas by sector, average 2000–2003

Sector	BSAI allocations under AM 85 (% of P. cod ITAC)	% of sector’s BSAI cod allocation allocated to BS	% of sector’s BSAI cod allocation allocated to AI	% of sector’s BSAI cod harvest in BS, Avg. 2000–2003	% of sector’s BSAI cod harvest in AI, Avg. 2000–2003
AFA trawl CP	2.3%	85%	15%	30.3%	69.7%*
Non-AFA trawl CP	13.4%	85%	15%	69.9%	30.1%
Hook-and-line CP	48.7%	85%	15%	91.8%	8.2%
Pot CP	1.5%	85%	15%	83.5%	16.5%
*Trawl CV	22.1%	85%	15%	67.1%	32.9%

Sector	BSAI allocations under AM 85 (% of P. cod ITAC)	% of sector's BSAI cod allocation allocated to BS	% of sector's BSAI cod allocation allocated to AI	% of sector's BSAI cod harvest in BS, Avg. 2000–2003	% of sector's BSAI cod harvest in AI, Avg. 2000–2003
Hook-and-line CV ≥60'	0.2%	85%	15%	88.0%	12.0%
Pot CV ≥60'	8.4%	85%	15%	95.7%	4.3%
<60' fixed gear	2.0%	85%	15%	96.3%	3.7%
Jig CV	1.4%	85%	15%	86.1%	13.9%

Source: ADF&G fishtickets and WPRs, 2000–2003. *Retained catch and percentages are for 1999–2003, to avoid confidentiality concerns.

Due to confidentiality restrictions, the AFA trawl CP and the non-AFA trawl CV (combined with AFA trawl CV sector to form trawl CV sector) sectors' harvest includes 1999. Only the AFA trawl CV data includes 1999 data.

Table 5 shows that most sectors' recent harvest patterns in the BS and AI do not exactly mirror an 85% (BS) and 15% (AI) split. The fixed gear sectors harvested 84% to 96% of their harvest in the BS during the past several years (2000–2003). However, the trawl sectors harvested noticeably less than 85% of their total harvest in the BS during this time period: AFA trawl CP sector – 30%; non-AFA trawl CP sector – 70%; trawl CV sector – 68%. Note that due to confidentiality restrictions, the AFA trawl CP and non-AFA trawl CV (combined with AFA trawl CV sector to form trawl CV sector) sectors' harvest includes 1999 in the time period shown (1999–2003). In general, the individual trawl sectors have increased the percentage of their total retained BSAI cod catch harvested in the AI in recent years, and the fixed gear sectors have taken less of their total retained BSAI cod catch from the AI.

Table 6 provides the potential BS and AI allocations by sector, by converting percentage allocations to metric tons, based on the 2006 BSAI Pacific cod ITAC and the projected split of 85% (BS) and 15% (AI). The first data column provides the BSAI allocations to each sector from Amendment 85. These represent percentage shares of the BSAI Pacific cod ITAC. The next column provides the projected BS allocation to that sector under Alternative 3, followed by the average annual BS Pacific cod harvest by that sector in 2000–2003. Finally, the last two columns show the same information by sector for the AI.

Table 6 Projected BS and AI allocations by sector under Alternative 3, using the 2006 BSAI Pacific cod ITAC and the range of allocations from Amendment 85

Sector	Allocation under AM 85 (% of BSAI Pcod ITAC)	Estimation of BS allocation using 2006 ITAC (mt)	Average annual BS cod retained harvest (mt) 2000-2003	Estimation of AI allocation using 2006 ITAC (mt)	Average annual AI cod retained harvest (mt) 2000-2003
AFA trawl CP	2.3%	3,413	577*	602	1,328*
Non-AFA trawl CP	13.4%	19,887	18,774	3,509	8,069
Hook & line CP	48.7%	72,276	75,849	12,755	6,768
Pot CP	1.5%	2,226	1,893	393	375
Trawl CV	22.1%	32,799	22,894*	5,788	11,797*
Hook & line CV>60'	0.2%	297	400	52	55
Pot CV>60'	8.4%	12,466	14,350	2,200	646
<60' fixed gear	2.0%	2,968	1,095	524	42
Jig CV	1.4%	2,078	108	367	17

Source: ADF&G fishtickets, 1995-2003 and weekly processor reports, 1995-2003.

Note: The 2006 BSAI Pacific TAC = 194,000 mt. Applying a 10% CDQ allocation results in a BSAI ITAC = 174,600 mt. This does not account for the 3% State water AI fishery.

The BS/AI TAC split is projected to be 85% and 15% AI, which means the projected BS ITAC = 148,410 mt and the AI ITAC = 26,190 mt.

CDQ reserve will include a directed fishing allowance of 10% plus additional unknown amount for incidental catch of Pcod in other directed fisheries. Incidental catch allowance will be determine annually during final specifications.

* Due to confidentiality restrictions, the combined trawl CV sector (AFA trawl CP and the non-AFA trawl CV) includes 1999.

Note that Table 6 uses the 2006 BSAI Pacific cod TAC of 194,000 mt³, and assumes the 85% (BS) and 15% (AI) split occurs in the future to determine the projected BS and AI TACs. This table also assumes that the CDQ Pacific cod directed fishing allocation would be 10% recognizing that an additional amount will be deducted for an incidental allowance during annual specification processes. In effect, 10% (plus an incidental catch allowance) is removed from the BS and AI TACs to determine the subarea ITACs allocated among the various (non-CDQ) sectors. Table 6 above uses a 10% CDQ allocation to simplify the illustration.

Table 6 compares the potential BS and AI allocations to each sector under Alternative 3 to each sector's average annual harvest in the BS and AI. With the exception of the Pot CP and hook and line CV > 60' sectors, the remaining fixed sectors, estimated allocation would be more than 50% higher than the annual average harvest by sector in the AI (2000–2003). In hook-and-line CP sector, for example, the AI allocation would be 47% higher, and in the pot CV sector the AI allocation would be 71% higher than the recent harvest. For the <60' fixed gear CV and jig sectors, with the smallest allocations, this percentage difference exceeds 90%. In the trawl sectors, the opposite is true; generally, the AI allocation to each sector is more than 50% lower than the annual average harvest by trawl sector in the AI (2000–2003). In the non-AFA trawl CP and trawl CV sectors in particular, the estimate of the AI allocation would be 130% and 104% lower than the recent harvest in that area.

The problem statement for the proposed action references the need to recognize differences in dependence among gear groups and sectors that harvest Pacific cod in the BS and AI management areas. While Alternative 3 would mitigate the problem of disproportionate impacts that result from TAC fluctuations, it may force vessels to fish in areas they have very limited historical participation and do not want to fish. This issue impacts all sectors, but would likely be most onerous on the sectors comprised of smaller vessels, as they would be required to travel greater distances to fish in conditions that may not be well suited for their vessels.

Given the data above, Alternative 3 does not result in an allocation scheme between the two subareas that reflects current harvest patterns by sector. In general, Alternative 3 would allocate a lower share of the trawl sectors' BSAI allocations to the AI than has been harvested in the AI in the recent past. In contrast, Alternative 3 would allocate a higher share of the fixed gear sectors' BSAI allocations to the AI than has been harvested in the AI in the recent past. In sum, Alternative 3 does not appear to meet the concerns described in the problem statement.

X. Alternative 4: AI allocation based on historic harvest

In February 2006, the Council identified Alternative 4 as the preliminary preferred alternative for how to apportion the various BSAI Pacific cod allocations from Amendment 85 between the BS and the AI. Alternative 4 would define the sector allocations for each area based on the relative percentages of Pacific cod that were harvested by the sectors during the identified series of years. Thus, the overall sector splits determined at the combined BSAI level in Amendment 85 remain in place, and the sector allocations are then calculated at the individual subarea level. Alternative 4 divides the Aleutian Islands ITAC among the sectors based upon each sector's relative historic harvest in the Aleutian Islands. The remainder of each sector's overall BSAI allocation is allocated in the Bering Sea, after accounting for the respective allocation for the Aleutian Islands.

This alternative allows the BSAI sector allocations to be maintained, but sectors would be allocated different percentages of each area based on their historic harvest patterns in the AI. It also allows the overall BSAI allocations to each sector to be based on a different series of years than the years on which

³ Excludes 3% deduction for State water AI Pacific cod fishery.

the AI allocations are based. This is because the Council may want to base the BSAI subarea sector allocations on a smaller subset of (recent) years than the overall BSAI sector allocations, in order to reflect the fact that sectors generally tended to fish more or less in the AI in recent years.

The general intent under Alternative 4 is thus to base the percentage AI allocations for each sector on recent harvest shares in the AI. **Thus, in the case that the Council chooses an option under Alternative 4 as its preferred alternative, and a BSAI TAC split between the BS and AI subareas does not occur for several years, it may be preferable at that time to consider whether the preferred alternative continues to reflect recent AI harvest shares by sector.** For instance, if the harvest distribution between the BS and AI changes dramatically for one or more sectors between now and when a TAC split occurs, the Council may want to consider initiating a new amendment to revise the sector AI allocations resulting from this part.

The original year combination options from Amendment 85 for determining each sector's allocation in the AI were as follows:

Option 1	1995–2002
Option 2	1997–2003
Option 3	2000–2003
Option 4	2002–2003

As stated in earlier sections, the trawl sectors have generally increased their share of AI harvest as a percentage of their overall BSAI harvest in the past several years. By contrast, the fixed gear sectors have generally decreased their share of AI harvest as a percentage of their overall BSAI harvest in the past several years. Because of this variation in AI harvest by sectors, the time period selected for the allocations largely determines whether certain fixed gear sectors, primarily the pot sectors and the hook-and-line CV sector, will be significant participants in the AI Pacific cod fishery in the future. Other sectors would also be impacted by the years selected as the historic base period, but in most cases would be less likely to be effectively excluded from the AI fishery.

The calculations for the AI harvest by sector under Alternative 4 are made using the four options above. In completing the allocation calculations, it was necessary to make several adjustments to overcome potential problems with confidential data. It was necessary to combine the <60' hook-and-line and pot catcher vessel sector with the jig catcher vessel sector. Under Option 3 (2000–2003), it was necessary to estimate allocations to the AFA trawl catcher processor sector and non-AFA trawl catcher vessel sector based on those sectors' average annual harvests during the years 1999–2003.⁴ The estimates for all other sectors are unaffected, as this calculation was only undertaken for the AFA trawl catcher processor and non-AFA trawl catcher vessel sectors.

The first step in evaluating the Aleutian Islands and Bering Sea allocations resulting from the options under Alternative 4 was to calculate each sector's AI historic retained Pacific cod harvest share, as a percentage of the historical AI harvests for all CV and CP sectors, during the years identified. These estimates are shown in Table 7. The first column for each option shows the retained catch of Pacific cod in the Aleutian Islands by each sector during the years specified in the options, while the second column shows the percent of the total Aleutian Islands retained catch by the sector during that period.

⁴These allocations were estimated independently of the allocations to the other sectors by crediting these sectors with 4 years of their average annual harvests for the period 1999 through 2003.

Table 7 Aleutian Islands Pacific cod catch (mt) and percent of the total Aleutian Islands allocation to each sector under Alternative 4, Options 1–4

Sector	1995-2002		1997-2003		2000-2003		2002-2003	
	mt	percent	mt	percent	mt	percent	mt	percent
HAL and Pot CVs < 60 feet and Jig CVs	456	0.3	468	0.3	237	0.2	76***	0.1***
AFA Trawl CPs	15,704	9.1	12,063	6.9	5,310*	4.6*	22,108†	38.9†
Trawl CVs	45,158	26.2	60,986	35.1	47,227*	36.0*	32,122*	56.6*
Longline CPs	56,230	32.6	49,059	28.2	27,072	23.1	2,519‡	4.4‡
Longline CVs > 60 feet	261	0.2	245	0.1	218	0.2	†	†
Non-AFA Trawl CPs	39,979	23.2	41,956	24.1	32,275	27.6	†	†
Pot CPs	7,912	46.0	3,753	2.2	1,500	13.0	***	***
Pot CVs > 60 feet	6,825	4.0	5,226	3.0	2,585	2.2	***	***
Denominator	172,526		173,757		117,028**		56,825	

* Non-AFA trawl CVs of the Trawl sector estimated based on average annual catch from 1999-2003.

** Denominator is based on actual catch from 2000-2003.

*** Aggregation includes HAL and Pot CVs<60 feet and Jig and Pot CPs and Pot CVs > 60 feet.

† Aggregation includes AFA Trawl CPs and Non-AFA Trawl CPs.

‡ Aggregation includes Longline Cps and Longline CVs > 60 feet.

Recall that each sector’s overall BSAI allocation is maintained under Alternative 4. Thus, to represent the AI percentage estimates above as a potential allocation to each sector requires the use of an allocation option from Amendment 85 as this part determines each sector’s allocation of the overall BSAI ITAC.

Table 8 and Table 9 show estimated allocations using Option 1 and 2 together with Amendment 85 allocation percentages.

The first column of Table 8 shows the BSAI allocation to each sector, as a percent of the BSAI ITAC. The second column shows the estimated allocation to each sector in metric tons, based on a 2006 BSAI ITAC of 174,600 mt. The third column shows the Aleutian Islands allocation to each sector, as a percent of the Aleutian Islands ITAC, based on Option 1. The third column shows each sector’s Aleutian Islands allocation in metric tons, based on a projected Aleutian Islands ITAC of 26,190 mt. The fourth column shows each sector’s remaining Bering Sea allocation in metric tons (i.e., each sector’s overall BSAI allocation minus its AI allocation). The last two columns show the respective percentages of each sector’s total BSAI allocation that is from the BS subarea and the AI subarea, based on the previous estimates. In reviewing this table, it is important to bear in mind that the division of a sector’s allocation between the BS and AI will vary annually with the respective ITACs.

Table 8 Example of BSAI, AI, and BS allocations by sector using 1995–2002 catch history

Sector	BSAI allocation (as percent of ITAC)	BSAI allocation (mt)	AI allocation (as percent of ITAC - 1995 - 02)	AI allocation (mt)	BS allocation (mt) (remaining portion of sector's allocation)	BS allocation (as percent of sector BSAI allocation)	AI allocation (as percent of sector BSAI allocation)
HAL and Pot CVs < 60 feet and Jig CVs	3.4	6,101	0.3	71	6,030	98.8	1.2
AFA Trawl CPs	2.3	4,127	9.1	2,450	1,677	40.6	59.4
Trawl CVs	22.1	39,658	26.2	7,053	32,606	82.2	17.8
Longline CPs	48.7	87,392	32.6	8,773	78,619	90.0	10.0
Longline CVs > 60 feet	0.2	359	0.2	41	318	88.6	11.4
Non-AFA Trawl CPs	13.4	24,046	23.2	6,238	17,809	74.1	25.9
Pot CPs	1.5	2,692	4.6	1,234	1,457	54.1	45.9
Pot CVs > 60 feet	8.4	15,074	4.0	1,065	14,009	92.9	7.1

Example assumes a projected 2006 BS ITAC of 148,410 mt and AI ITAC of 26,190 mt. This does not account for the 3% State water AI fishery.

Table 9 Example of BSAI, AI, and BS allocations by sector using 1997–2003 catch history

Sector	BSAI allocation (as percent of ITAC)	BSAI allocation (mt)	AI allocation (as percent of ITAC - 1997 - 03)	AI allocation (mt)	BS allocation (mt) (remaining portion of sector's allocation)	BS allocation (as percent of sector BSAI allocation)	AI allocation (as percent of sector BSAI allocation)
HAL and Pot CVs < 60 feet and Jig CVs	3.4	6,101	0.3	73	6,029	98.8	1.2
AFA Trawl CPs	2.3	4,127	6.9	1,869	2,259	54.7	45.3
Trawl CVs	22.1	39,658	35.1	9,448	30,210	76.2	23.8
Longline CPs	48.7	87,392	28.2	7,600	79,792	91.3	8.7
Longline CVs > 60 feet	0.2	359	0.1	38	321	89.4	10.6
Non-AFA Trawl CPs	13.4	24,046	24.1	6,500	17,547	73.0	27.0
Pot CPs	1.5	2,692	2.2	581	2,110	78.4	21.6
Pot CVs > 60 feet	8.4	15,074	3.0	810	14,264	94.6	5.4

Example assumes a projected 2006 BS ITAC of 148,410 mt and AI ITAC of 26,190 mt. This does not account for the 3% State water AI fishery.

Table 10 and Table 11 below show estimated allocations under Options 3 and 4, respectively, using the same allocation example as shown in the above tables. Again, the selection of this example allocation option is for illustrative purposes only.

Table 10 Example of BSAI, AI, and BS allocations by sector using 2000–2003 catch history

Sector	BSAI allocation (as percent of ITAC)	BSAI allocation (mt)	AI allocation (as percent of ITAC - 2000 - 03)	AI allocation (mt)	BS allocation (mt) (remaining portion of sector's allocation)	BS allocation (as percent of sector BSAI allocation)	AI allocation (as percent of sector BSAI allocation)
HAL and Pot CVs < 60 feet and Jig CVs	3.4	6,101	0.2	54	6,047	99.1	0.9
AFA Trawl CPs	2.3	4,127	4.6*	1,238	2,889	70.0	30.0
Trawl CVs	22.1	39,658	40.4	10,875	28,784	72.6	27.4
Longline CPs	48.7	87,392	23.1	6,227	81,165	92.9	7.1
Longline CVs > 60 feet	0.2	359	0.2	50	309	86.0	14.0
Non-AFA Trawl CPs	13.4	24,046	27.6	7,424	16,623	69.1	30.9
Pot CPs	1.5	2,692	1.3	345	2,347	87.2	12.8
Pot CVs > 60 feet	8.4	15,074	2.2	595	14,479	96.1	3.9

Example assumes a projected 2006 BS ITAC of 148,410 mt and AI ITAC of 26,190 mt. This does not account for the 3% State water AI fishery.

*Estimated based on average annual catch from 1999–2003, due to confidentiality rules.

Table 11 Example of BSAI, AI, and BS allocations by sector using 2002–2003 catch history

Sector	BSAI allocation (as percent of ITAC)	BSAI allocation (mt)	AI allocation (as percent of ITAC - 2002 - 03)	AI allocation (mt)	BS allocation (mt) (remaining portion of sector's allocation)	BS allocation (as percent of sector BSAI allocation)	AI allocation (as percent of sector BSAI allocation)
HAL and Pot CVs < 60 feet and Jig CVs and Pot CPs and Pot CVs >60'	13.3	23,867	0.1	27	23,840	99.9	0.1
Trawl CPs (AFA and non-AFA)	15.7	28,174	38.9	10,471	17,703	62.8	37.2
Trawl CVs	22.1	39,658	56.6	15,236	24,423	61.6	38.4
Longline CPs & Longline CVs >60 feet	48.9	87,751	4.4	1,184	86,567	98.7	1.3

Example assumes a projected 2006 BS ITAC of 148,410 mt and AI ITAC of 26,190 mt. This does not account for the 3% State water AI fishery.

Note: Several sectors had to be aggregated due to confidentiality rules.

Note that under Option 4, because only two years are used to determine the AI allocations, several of the sectors need to be aggregated due to confidentiality rules. In Table 11, the <60' fixed gear, jig gear, and pot gear sectors are aggregated, resulting in an AI allocation of 0.1% of the AI ITAC combined. This represents about 27 mt using an estimated 2006 AI ITAC of 26,190 mt. Thus, under Option 4, about 27 mt would be divided among the four sectors. **Because the fixed gear sectors have been taking less of their total Pacific cod harvest in the AI in the most recent years, and because all of the fixed gear sectors except for the hook-and-line CP sector receive a relatively small percentage of the overall BSAI ITAC, using 2002–2003 to determine the AI allocations will result in relatively small**

allocations to these sectors under every allocation scenario. This result may not represent a concern to these sectors, unless and until they desire to increase their Pacific cod share in the AI in the future.

In summary, if the Council wants to mirror the most recent sector shares of the AI Pacific cod harvest, it may want to simply choose percentages that fall within the range provided under Options 1–4. Selecting AI percentage allocations to each sector that fall within the range analyzed would allow the Council to choose percentages that do not result in a negative BS allocation to each sector under the current projected TAC levels, but could also provide for an AI allocation that mirrors the most recent harvest levels by sector in that area. However, as pointed out at the April 2006 Council meeting, because 1) the BSAI TAC split has not yet occurred, 2) it is uncertain how TACs in the BS and AI would fluctuate relative to one another in the future, and 3) the subarea allocations under Alternative 4 are dependent first on maintaining the overall BSAI allocation to each sector, **it is possible that Alternative 4 could result in negative allocations in the BS subarea for one or more sectors.** This is because the BSAI allocation by sector is established at final action and implemented through rulemaking, and would not vary by year. Each sector's percentage share of the AI ITAC also would be established in regulation. The actual allocation (in metric tons) would vary depending on the AI ITAC. **Thus, it is possible, depending on TAC fluctuations, that a sector could have an AI allocation that is greater (in mt) than its overall BSAI allocation.** If the Council wants to provide for this concern, the following language could potentially be added under Alternative 4:

If, in a particular year, the AI allocation to a sector is greater than the BSAI allocation to that sector, set the sector's AI allocation equal to the sector's BSAI allocation and set the BS allocation equal to zero. All other sector AI allocations would be adjusted (increased) proportionately to allocate the full AI ITAC.

Also noted at the April 2006 Council meeting, Alternative 4 could result in sectors having no allocation in the Bering Sea, and all of the allocation in the Aleutian Islands. Recall also from Table 1 that in many sectors, including the non-AFA trawl CV sector, the majority of the LLPs are endorsed only for the Bering Sea area. In the case of the non-AFA trawl CV sector, there are 50 valid LLPs, and only 6 have AI endorsements. Thus, selecting an allocation option that would result in no allocation in the Bering Sea could severely affect the ability of eligible vessels to continue participating in this sector for Pacific cod. While the tables indicate that other sectors, such as the smaller fixed gear sectors, could receive a relatively small BSAI allocation, there is less likely the possibility for a negative or zero BS allocation as a result of Alternative 4 since these sectors have taken very little of their overall harvest in the AI in 2002 and 2003.

In addition, the AI allocations would also be seasonally apportioned, resulting in extremely small AI seasonal allocations to some sectors. Thus, implementing BS and AI allocations for each of ten sectors of the Pacific cod fishery may be more difficult to manage than it appears on an aggregate gear level. However, in such case that (1) allocations are refined to four trawl sectors as opposed to the current two; (2) there exist relatively small allocations to most of the fixed gear sectors with the exception of the hook-and-line CP sector; and (3) seasonal apportionments of the AI allocations are implemented, the result is very small allocations to particular sectors (e.g., non-AFA trawl CV, <60' fixed gear, hook-and-line CV, and pot CP sectors). This effect is exacerbated as the overall BSAI TAC declines. **It is thus possible that some sector AI allocations will be so small that inseason management could not open a directed fishery.**

In sum, all options under Alternative 4 would base each sector's AI allocation on recent AI harvest. Because it is uncertain how TACs in the BS and AI would fluctuate relative to one another in the future, and because the subarea allocations under Alternative 6 are dependent first on maintaining the overall BSAI allocation to each sector, it is possible that Alternative 4 could result in negative allocations in the

BS subarea for one or more sectors. This concern is most prominent under Option 4, but it exists under every option under Alternative 4.

XI. Other Alternative Approaches

In April 2006, the Council received extensive public testimony recommending that additional alternatives be developed for allocation of BSAI Pacific cod if TAC area split. The alternatives described above are the original alternatives from Amendment 85 prior to April 2006. These alternatives are the most obvious, but they are not the only alternatives. For example, an alternative approach could be some variation of Alternatives 2 thru 4. One simple approach would be to combine Alternatives 3 and 4 in equal proportions. Half of the allocation would be based on the sector's catch history in the Aleutian Islands and the other half would be based on equal percentages of BS and AI subareas TACs. The results of this alternative approach are shown in Table 12. With the exception of the hook and line CV >60' sector, sector allocations under this alternative would be at the mid-point between Alternative 3 and Alternative 4. The effects of this alternative would be to dampen any disproportional allocation a sector would receive under either Alternatives 3 or 4.

Table 12 AI and BS allocations for Alternatives 3, 4 and X

	AI Allocation			BI Allocation		
	Alt 3	Alt 4	Alt X	Alt 3	Alt 4	Alt X
AFA trawl CP	602	1,205	904	3,413	2,811	3,112
Non-AFA trawl CP	3,509	7,228	5,369	19,887	16,168	18,027
Hook & line CP	12,755	6,050	9,402	72,276	78,980	75,628
Pot CP	393	340	367	2,226	2,279	2,252
Trawl CV	5,788	10,581	8,184	32,799	28,006	30,402
Hook & line CV>60'	52	52	52	297	297	297
Pot CV>60'	2,200	576	1,388	12,466	14,090	13,278
<60' fixed gear & Jig CVs	890	52	471	5,046	5,884	5,465

Other alternatives could be some variation of the above approach or some entirely new approach. For example, it might be possible to design an alternative that would allocate Pacific cod for a sector or a group of sectors using one approach, while using another approach for the remaining sectors as long as the overall BSAI allocations were maintained and the percent allocated in each area summed to 100%. If changing TACs for one subarea or both are a factor, it might be possible to design an alternative approach that shifts subarea allocations based on changing subarea TACs. In the end, there are likely a myriad of different alternative approaches the Council could consider for apportioning BSAI Pacific cod sector allocations to the BS and AI subareas, so the Council might want to request public input on alternative approaches.

XII. Summary

In April 2006, the Council removed the action addressing the apportionment of BSAI Pacific cod sector allocations between BS and AI from Amendment 85 and initiated a new, separate analysis that examines alternative approaches to apportion the BSAI Pacific cod sector allocations between the BS and AI subareas. Each of the existing alternatives triggered concerns such that the Council agreed that additional analysis is warranted. This discussion paper provides information on the existing alternatives for apportionment of BSAI Pacific cod sector allocations between BS and AI, the historical background on this issue, and a summary of the impacts of each of the alternatives. At the October 2006 meeting, the Council could adopt additional alternatives for analysis and/or give notice to the public that additional alternatives should be developed.

In summary, none of the existing alternatives were a good solution to the problem. The concern with Alternative 1 is that it does not reflect recent historical catch by sector in the Aleutian Islands subarea. Although Alternative 2 provides the greatest flexibility for sectors and may be the easiest for NMFS in season management to monitor, the alternative risks creating a race for fish. Additionally, there is no gear specific seasonal apportionment by subarea, which is an area of concern for NMFS. Similar concerns exist for Alternative 3 since it is virtually the same as Alternative 1. Finally, Alternative 4, identified as the preliminary preferred alternative in February 2006, also has a couple areas of concern. One concern is that TAC fluctuations will have disproportionate impacts on sectors that are allocated the greatest percentage of the subarea with the declining TAC. A related concern is that some of the resulting AI sector allocations may not be large enough to open a directed fishery in the AI.

Other alternatives or options could be developed to apportion BSAI Pacific cod sector allocations between the BS and AI. If more flexibility for the sectors is needed, an approach similar to Alternative 2 would be more in order. An alternative that is more dynamic in relation to changing TAC for the BS and AI could be developed by including an apportionment methodology that shifts sector allocations between subareas depending on the relative TAC in each subarea. Alternatives or options based on catch history in one or both subareas could be developed to fit with any of the above alternative approaches similar to Alternative X in Table 12.