

Overview of Apportionment of BSAI Pacific Cod Sector Allocations Between BS and AI Areas and AI Pacific Cod Processing Sideboards

Discussion Paper

April 2013

During its consideration of recommendations for the Steller sea lion EIS in December 2012, the Council requested a discussion paper on the implications of pending SSC advice to set separate ABCs in 2014 for Bering Sea and Aleutian Islands Pacific cod, particularly in the context of current alternatives in the Steller sea lion EIS. The Council, also concerned with shoreside processing protections, requested the discussion paper include an updated summary of the December 2009 AI Pacific cod processing sideboard analysis. Below is an updated discussion paper for both the BS and AI Pacific cod sector split and AI Pacific cod processing sideboards.

I. Bering Sea/Aleutian Islands Pacific Cod Split

Recent History of this Action

For several years, the Council has considered potential alternatives to manage Pacific cod (non-CDQ) sector allocations in the BSAI, should the BSAI ABC and TAC be split into separate BS and AI ABCs and TACs in the future harvest specifications process. In February 2011, the Council reviewed a discussion paper which provided data and background information on the management implications of establishing separate Pacific cod sector allocations in the BS and AI. The paper provided a description of the problem statement and existing alternatives followed by an overview of past Council action on BSAI Pacific cod allocations. The discussion paper also included an overview of License Limitation Program (LLP) permit area endorsements by sector, an update on the State water Aleutian Islands Pacific cod fishery, a brief description of the harvest distribution for Pacific cod between BS and AI by sector, a description of halibut PSC mortality in the BSAI Pacific cod fishery, an overview of Steller sea lion issues associated with proposed action, and finally, a description of the effects of the existing alternatives on the sectors. This paper included harvest data through 2009.

At the February 2011 meeting, the Council reviewed the most recent cod biomass estimates from the 2010 SAFE, which indicated that the proportion of the combined BSAI biomass that the AI represented was smaller than previously estimated (i.e., 9% versus the previous estimate of 16%). Some Council members were concerned with the change in the biomass estimate, citing a revision to the stock assessment method in 2010 and the 2010 AI trawl survey biomass estimate. The Council was made aware that the Pacific cod stock assessment author planned to develop a separate Tier 5 assessment for AI Pacific cod in the future, and a Center for Independent Experts (CIE) review of the BSAI (and GOA) Pacific cod stock assessment would take place in March 2011, both of which might have implications for the assessment model in the future. The Council also recognized the dynamic nature of the AI Pacific cod fishery and the difficulty in predicting the likely outcomes of a TAC split, given that 1) all gear sectors have varied the proportion of their total Pacific cod harvest they take from the AI over time; 2) SSL protection measures reduce a large portion of the fishable area in the AI; and 3) it is unknown how sectors will change their fishing patterns and redeploy in response to the RPA.

Upon review, the Council determined that alternatives to establish separate BS and AI allocations to each individual sector were not viable management alternatives, potentially creating significant winners and losers and increasing the potential for some sectors' allocations to become inaccessible.

After taking into consideration the discussion paper, biomass estimates, and public testimony, the Council approved initiating a formal analysis for review to evaluate the impacts of Alternative 1 (no action) and Alternative 2 from the discussion paper. Alternative 2 was to maintain the existing nine non-CDQ BSAI sector allocations in regulation, and to allow each sector to fish in the BS and/or AI, as long as the area had TAC available and was open to a directed fishing. The Council noted that it did not intend to force a conservation decision on this issue at a particular time, but that the intent was to have a clear default position with regard to the sector allocations, should an ABC/TAC split be determined necessary in the future.

At the October 2011 meeting, the Council reviewed a discussion paper of the two alternatives. The paper concluded that Alternatives 1 and 2 were, for analytical purposes, the same alternative. This was because the 'default' scenario described to the Council under Alternative 1 (i.e., NMFS' probable course of action under a BSAI Pacific cod TAC split and no further direction from the Council on how to address the non-CDQ sector allocations) was clarified to effectively result in Alternative 2. Absent further Council action buy upon an ABC/TAC split, NMFS would maintain the current sector allocations and allow each sector to fish in the BS and/or AI, as long as TAC was available.

Based on the interpretation of Alternative 1, and the removal of the other action alternatives in February 2011, no further action was required by the Council to implement its intent to maintain the status quo allocations under a TAC split. No substantive changes to the regulations or BSAI FMP are required.

Updated Stock Assessment

Throughout the history of management under the Magnuson-Stevens Fishery Conservation and Management Act (MSA), Pacific cod in the BS and AI have been managed as a unit. A single OFL, ABC, and TAC are set for the BSAI management area. However, since at least as far back as the mid-1980s, the stock assessment model has been based on the EBS only. BSAI Pacific cod is currently managed as a single Tier 3 stock. The EBS abundance estimate is expanded to the entire BSAI according to a survey-based estimate of the proportion of the total biomass located in the AI. Prior to 2011, the AI proportion of total Pacific cod biomass was estimated at 16%. The 2012 Bering Sea trawl survey biomass estimate for Pacific cod was almost the same as in 2011, while the estimate of abundance in number was up by 18%. The EBS survey biomass estimate has increased by more than 100% since 2005. For 2012 and 2013, the AI biomass estimate declined to 9% and 7%, respectively, using the same approach.

Recommendation to split the BSAI harvest specifications - In 2008, the SSC first noted that there was sufficient justification for a precautionary approach to split the BSAI Pacific cod ABC into a separate ABC for the EBS and AI. The SSC and BSAI Groundfish Plan Team have recommended developing a separate age-structured assessment for the AI, with separate harvest specifications. The assessment author presented preliminary versions of an AI model in November 2012, which produced estimates of ABC substantially lower than recent catches.

The following is excerpted from Attachment 2.2 to Chapter 2 of the 2012 BSAI Groundfish SAFE Report.

“Several white papers and a stock structure report provide various lines of evidence suggesting that Pacific cod in the EBS and AI should be viewed as separate stocks. Building on earlier genetic studies by Canino et al. (2005), Cunningham et al. (2009), and

Canino et al. (2010), Spies (*in press*) concluded that her “study provides the most comprehensive evidence to date for genetic distinctiveness and lack of gene flow between the Aleutian Islands and Eastern Bering Sea.” The importance of recognizing stock distinctions in management of gadids in general has also received attention in recent years (e.g., Fu and Fanning 2004, Hutchinson 2008).

In light of this evidence, in 2010 the SSC requested that a separate assessment be prepared for Pacific cod in the AI. In response, the 2011 assessment contained a Tier 5 assessment of Pacific cod in the AI (Thompson and Lauth 2011). This attachment, including the preliminary assessment (Annex 2.2.1), marks the first time that an age-structured model of Pacific cod in the AI has been presented in the context of the annual BSAI groundfish management cycle.”

The SSC gave notice in December 2012 that it will adopt set separate AI and EBS Pacific cod OFLs and ABCs for the 2014 fishing season even if a separate age-structured assessment model for the AI has not been accepted by the SSC. The SSC previously withheld its recommendations while the Council addressed the management implications of area ABCs and TACs for BSAI Pacific cod.

Area biomass estimates – From 2006 through 2009, Pacific cod stock assessments for the BSAI estimated the biomass at about 84% in the BS and 16% in the AI. However, incorporation of the 2010 AI survey estimate revised those proportions to 91% and 9%, respectively. The 2012 AI bottom trawl survey resulted in a revised and lower biomass estimate of 7% in the AI. These changes resulted from an increasing BS Pacific cod biomass estimate and a declining AI Pacific cod biomass estimate. The 2012 Pacific cod stock assessment chapter states the following (p.254):

Year	Survey Type	Biomass	Coefficients of variation
1980	U.S.-Japan	146,093	0.20
1983	U.S.-Japan	215,823	0.14
1986	U.S.-Japan	254,698	0.26
1991	U.S.	188,456	0.14
1994	U.S.	184,499	0.18
1997	U.S.	83,590	0.13
2000	U.S.	136,991	0.17
2002	U.S.	83,152	0.15
2004	U.S.	114,183	0.17
2006	U.S.	92,316	0.27
2010	U.S.	68,576	0.16
2012	U.S.	65,868	0.14

The 2010 and 2012 AI biomass estimates are the lowest in the time series. For many years, the assessments of Pacific cod in the BSAI have used a weighted average formed from EBS and AI survey biomass estimates to provide a conversion factor which is used to translate model projections of EBS catch and biomass into BSAI equivalents. Prior to the 2004 assessment, the weighted average was based on the sums of the biomass estimates from the EBS shelf and AI survey biomass time series. However, in December of 2003 the SSC requested that alternative methods of estimating relative biomass between the EBS and AI be explored. Following a presentation of some possible alternatives (Thompson and Dorn 2004), the SSC recommended that an approach based on a simple Kalman filter be used. Applying this approach to the updated (through 2012)

time series indicates that the best estimate of the current biomass distribution is 93% EBS and 7% AI, replacing the previous proportions of 91% and 9% respectively.

Historically, the great majority of the BSAI catch has come from the EBS area. During the most recent complete five-year period (2007-2011), the EBS accounted for an average of about 85% of the BSAI catch. In the EBS, Pacific cod are caught throughout much of the continental shelf, with NMFS statistical areas 521, 509, 517, 513, 524, and 519 each accounting for catches of at least 10,000 t on average from 2006-2011, and more than 95% of the total catch from that same time period. In the AI, the majority of the Pacific cod catch has been taken in NMFS statistical area 541 in 9 out of the last 10 years. Concentration of the AI fishery in area 541 has increased even more since area 543 was closed to directed fishing for Pacific cod in 2011 (over 95% of the AI catch to date in 2012 was taken from area 541).

The BSAI Pacific cod stock assessment author concluded that the exploration of age-structured modeling for Pacific cod in the AI in 2012 indicates that model structure can have a large impact on the estimated status of the stock. While this is characteristic of stock assessment modeling in general, it may also be a product of the degree to which the available data for Pacific cod in the AI are uninformative. Relative to Pacific cod in the EBS, Pacific cod in the AI have much larger survey coefficients of variation, much smaller length composition sample sizes, and virtually no age data.

In its December 2012 report, the SSC summarized its review of the draft age-structured models of the Pacific cod stock in the AI. While none of the models were approved for setting harvest specifications due to their preliminary nature, the SSC noted that the results and the estimates of catch in the AI raise a conservation concern (see excerpt below).

The author continued to explore an age-structured model for the Aleutian Islands but did not bring forward a full assessment. Model 1 for the AI is similar to Model 1 for EBS Pacific cod, except that it assumes a single season and fishery per year, does not include age data, and the catchability coefficient is tuned to a higher value (because of the difference in survey net configurations between the two areas, Nichol et al. 2007). Model 2 is similar to Model 1, except that it allows temporal variability in two of the growth parameters. Model 3 is identical to Model 1, except that all input sample sizes for length composition data are multiplied by 1/3 in response to a Plan Team request to use a smaller average sample size. Model 4 differs from Model 1 in that it: 1) excludes US-Japanese joint survey data from before 1990 because of concerns over their reliability, 2) allows survey catchability to vary randomly among surveys, 3) forces selectivity to be asymptotic for the survey but not for the fishery, 4) estimates input sample sizes for length composition data iteratively, 5) allows several selectivity parameters to vary randomly, and 6) estimates the standard deviation for log-recruitment internally.

All models except Model 4 overestimate survey abundances substantially and result in relatively poor fits to the fishery size composition data, particularly in early years when sample sizes were low. All of the models achieved a reasonable fit to the survey size composition data. Recruitment deviations differed considerably for Model 4 and, as the authors noted, the recruitment deviations are very different from those in the eastern Bering Sea and Gulf of Alaska models, while recruitment in the latter two regions is highly synchronous. It is unclear whether that reflects a true difference in recruitment dynamics or suggests a problem with the exploratory AI assessment models.

A number of issues and data gaps were identified by the author that may need to be resolved before the present model can be adopted for stock status determinations for AI Pacific cod. In particular, the authors question whether the data to support an age-structured assessment for AI Pacific cod are adequate given large survey coefficients of variation and small sample sizes for length composition data. The SSC encourages further model development but had no specific suggestions beyond those identified in plan team discussions and the possibility of obtaining additional age composition data from archived otoliths.

While these models are still exploratory, the range of models examined appears to provide strong evidence for a substantial decline in biomass in the Aleutian Islands since the early 1990s. This decline, unlike in the Eastern Bering Sea, has continued in recent years and is consistent with observed declines in fishery CPUE in the AI for both longline and trawl fisheries (Fig. 2.3b of the assessment). The model estimates of maxABC ranged from 2,990 to 8,690 for the four exploratory models fit to the AI data and were substantially below the actual catches taken in recent years (29,000 t in 2010, 10,862 t in 2011, and 12,991 t through Nov 3). Therefore the current approach of setting a single ABC for the entire BSAI area raises potentially serious conservation concerns for Pacific cod in the AI. As noted in the SAFE introduction, the SSC has put the Council on notice for some time that it expects to adopt an area-specific ABC and OFL for the Aleutians. Given the heightened conservation concern, the SSC intends to set separate ABC/OFL for EBS Pacific cod and AI Pacific cod for the 2014 fishing season based on the best available information at that time, regardless of whether the age-structured model is adequate for stock status determinations. **Therefore, the Council should initiate preparation of any background supporting documents such as a supplemental NEPA document that may be required for specification of separate ABCs/OFLs in 2014** (emphasis added).

Management strategy evaluation

Although genetic population structure has been documented in many marine fish species, no clear method exists to use this information in management strategies. Spies and Punt (personal communication) simulated the effects of fishing under different management strategies on the genetic diversity as well as yield and conservation status of marine fish populations. Simulations are based on a spatially-structured individual-based model that includes a multi-locus genotype for each fish and a traditional fish population dynamics model which models numbers by cohort, with parameters based on Pacific cod in the BS and AI. Population dynamics and genetic population structure were projected under several different management strategies, with annual stock assessments and fishing pressure, for 100 years. General conclusions are as follows:

1. Managed fishing can result in loss of genetic diversity and reduction in stock sizes below the limit reference point of $B_{20\%}$ when distinct stocks are not managed individually.
2. Standard genetic tests usually (>80%) detect population structure correctly when the true level of stock structure and differentiation is similar to that estimated for Pacific cod.
3. Stocks that decline and experience a subsequent reduction in genetic diversity can recover in size when appropriate management methods are implemented, but some measures of genetic diversity may not return to initial values for many years.
4. Dispersal rates on the order of those hypothesized between BS Pacific cod and AI Pacific cod do not provide sufficient migrants to replace stocks depleted by fishing pressure.

This study provides evidence that “separated” management should be considered as the optimal strategy to maintain the persistence of the AI Pacific cod stock and retain remaining heterozygosity in the population under Tier 3 management. If “separated” management is implemented, the model predicts that spawning biomass of the AI Pacific cod population will recover to target levels in less than 10 years. The model indicates that catches will increase in the AI when the population increases, and that inbreeding effective size will begin to increase as well, if it is depleted.

Council consideration of policy implications of spatial management In December 2012 the Council identified management and policy issues that it recommended that the Plan Teams and SSC incorporate into their recommendations for spatial management of groundfish in general. BSAI Pacific cod will be one of several case studies to be addressed in a workshop the Council is planning. The workshop will address consideration of conservation, management, and policy in spatial management of catch limits on April 16, 2013 at the AFSC in Seattle. The identification of unique spatial structure within the broader distribution of a marine species raises the question of the appropriate spatial scale at which to establish harvest limits for that species. This decision making process assumes a tolerance for risk that reflects a fundamental balance of managing for both conservation and yield. This workshop is intended to:

- clarify the process by which stock structure determinations are made in the context of risk, costs, and benefits;
- explore existing and potential management tools that are responsive to discreet spatial catch limits or which can mitigate risk associated with broader stock management; and
- identify a process of incorporating considerations of policy, management, and fishery yield in future stock structure considerations.

NMFS Management under BSAI Sector Allocations

The following is how NMFS would address separate OFLs and ABCs for Pacific cod in the BS and AI areas recommended by the Plan Team and SSC, and separate TACs recommended by the Council, during the harvest specifications process.

First, the AI State water GHLL would be calculated (step 2 below). The GHLL is calculated at 3% of the BSAI ABC; under an ABC split it would be calculated as 3% of the combined BS ABC and AI ABC. It is expected that the Council would recommend that the amount resulting from this calculation would be deducted only from the AI ABC to determine the AI TAC (step 3 below). Note that this calculation could theoretically result in a situation in which the AI State water Pacific cod GHLL exceeds the amount allocated to the AI as a whole (e.g., in the case that the AI ABC is ever equal to less than 3% of the combined BS and AI ABCs). One way to prevent such potential is for the State of Alaska to implement a control rule such that the GHLL would be set equal to the AI ABC if the AI ABC is less than 3% of the combined BSAI ABC, although this still would not allow for any incidental catch of Pacific cod in the Federal fisheries.

After calculating the GHLL and establishing the TACs, the BS and AI ITACs would be calculated by deducting 10.7% from each TAC for the CDQ allocations. Once the BS ITAC and AI ITAC are calculated, a sector’s allocation would be based on the percentage of the BSAI Pacific cod ITAC they receive under Amendments 85/80, multiplied by the combined BS and AI ITACs. In effect, the catch limit for Pacific cod for each area would be determined through the Plan Team, SSC, and Council harvest specifications process, but the sector allocations would continue to be applied to a combined BSAI Pacific cod limit.

1. Harvest specifications process → sets OFLs, ABCs, TACs for BS and AI Pacific cod

2. GHL calculation → $3\% \times (\text{BS ABC} + \text{AI ABC}) = \text{AI Pacific cod GHL}$
3. TAC calculations (maximum possible) → $\text{BS ABC} = \text{BS TAC}$
 $\text{AI ABC} - \text{GHL} = \text{AI TAC}$
4. CDQ allocations → $\text{BS TAC} \times 10.7\% = \text{CDQ BS allocation}$
 $\text{AI TAC} \times 10.7\% = \text{CDQ AI allocation}$
5. Non-CDQ ITACs → $\text{BS TAC} \times 89.3\% = \text{BS ITAC}$
 $\text{AI TAC} \times 89.3\% = \text{AI ITAC}$
6. Non-CDQ sector allocations → $(\text{sector allocation \% under Am.80/85}) \times (\text{BS ITAC} + \text{AI ITAC}) = \text{sector allocation of combined BS and AI ITAC}$

If an ABC/TAC split occurred, and the (combined) BSAI Pacific cod allocations continued, NMFS would manage each area to a separate ITAC and CDQ allocation. Each non-CDQ sector would continue to receive its current BSAI Pacific cod allocation (determined under Amendment 85/80), and that allocation could be harvested anywhere in the BSAI open to Pacific cod fishing. In effect, a sector's allocation could be fished in either the BS or AI, as long as TAC was available in that area. NMFS would be responsible for monitoring each sector's overall BSAI allocation and a single catch limit for each area, using the existing tools to open and close fisheries. Once the Pacific cod ITAC for either the BS or AI was reached, NMFS would issue a closure notice and all non-CDQ sectors would be required to stop directed fishing for Pacific cod in the closed area. The sectors with remaining allocation would then only be allowed to continue directed fishing in the open area. CDQ Program would have a specific allocation of the TAC in each area, managed separately.

No changes are anticipated in the process to reallocate Pacific cod among the non-CDQ sectors inseason. If, during the fishing year, NMFS determines that a non-CDQ sector will be unable to harvest the entire amount of its combined BS and AI Pacific cod allocations, NMFS would reallocate the projected unused amount to another sector, per the hierarchy for reallocations provided in current regulations (50 CFR 679.20 (a)(7)(iii)). The reallocated Pacific cod could be taken in either area if open to directed fishing for Pacific cod.

Seasonal Allowances

A combined BSAI sector allocation would maintain all of the existing BSAI Pacific cod allocations, including the seasonal allowances applicable to $\geq 60'$ vessels using pot gear, $\geq 60'$ catcher vessels using hook-and-line gear, hook-and-line catcher processors, jig vessels, trawl catcher vessels, and trawl catcher processors. Because there are no sector allocations specific to each area, there would also not be any *gear specific seasonal allowances by each area*. This is because there would not be separate BS or AI allocations to apportion on a seasonal basis under a combined BSAI sector allocation, there would only be one BSAI Pacific cod allocation per sector. While the overall guideline for the BSAI Pacific cod fishery continues to be a 70%–30% seasonal split, the seasonal allowances vary by gear type (Table 1).

Table 1 BSAI Pacific cod seasonal allowances

Pot	Jan 1 – June 10 (51%), Sept 1 – Nov 1* (49%) Pot catcher vessels <60' do not have seasonal allowances.	Trawl CV	Jan 20 – April 1 (74%), April 1 – June 10 (11%); June 10 – Nov 1 (15%)
Hook and Line	Jan 1 – June 10 (51%), June 10 – Nov 1* (49%) Hook-and-line catcher vessels <60' do not have seasonal allowances.	Trawl CP	Jan 20 – April 1 (75%), April 1 – June 10 (25%); June 10 – Nov 1 (0%)
Jig	Jan 1 – Apr 30 (60%) Apr 30 – Aug 31 (20%) Aug 31 – Nov 1* (20%)		

*Note: The 2011 SSL RPA prohibits retention of Pacific cod by Federally permitted vessels of all gear types in Area 543 of the AI. In Areas 541 and 542, directed fishing for Pacific cod is prohibited from Nov. 1 – Jan.1. Previous to the 2011 RPA, pot, hook-and-line, and jig gear were allowed to fish Pacific cod until Dec. 31.

Under a continued BSAI sector allocation, this approach would theoretically allow harvest of all of the AI TAC in the first half of the year, which is effectively no different under status quo. No guidelines currently exist for establishing AI seasonal allowances by gear type or overall, and while the Steller Sea Lion EIS proposes different seasons for BSAI trawl limited access and Amendment 80 CPs, it does not mandate seasonal allowances by gear type in the AI. Thus under combined BSAI sector allocations would continue to be subject to their BSAI seasonal allowances.

Harvest distribution between BS and AI by sector

The background data provided here are retained harvests from 1995 through 2012, which includes Pacific cod destined for meal production. Sector data through 2012 are also provided. Retained harvest data for CPs are from NMFS Production Reports; retained harvest data for CVs are from ADF&G fish tickets. The 2010 through 2012 data are from the NMFS catch accounting system.

Generally, in the past several years, the Pacific cod TAC has ranged from 170,000 mt to over 260,000 mt. The 2012 TAC was 261,000 mt, and accounting for the 10.7% CDQ allocation, the amount of TAC remaining for allocation to the non-CDQ sectors (ITAC) was 233,073 mt. The 2012 BSAI Pacific cod ABC and TAC are substantially higher compared to recent years, and the 2013 ABC is estimated to be even slightly higher.

Table 2 shows the amount and proportion of retained catch between the BS and AI areas in the Federal Pacific cod fishery from 1995 through 2012, including cod destined for meal production, and including CDQ harvest. The data in Table 2 show that retained catch from the AI was relatively low and fluctuated from 1995 through 1997, and then from 1998 through 2004 it varied between 13% and 20% of the combined BSAI retained catch. In 2005 and 2006, retained catch from the AI declined to about 11% each year. From 2007 through 2010 period, retained catch in the AI relatively to the total BSAI increased, ranging from 15% to almost 17%. In 2011 and 2012, harvest from the AI declined significantly due to the implementation of the Steller sea lion RPA and other factors. In 2011, retained harvest from the AI accounted for 5% of the total, while in 2012 the AI accounted for 6% of the total harvest, which is below the current 7% biomass estimate for the AI.

Table 3 provides the estimated 2013 AI ITAC using a 7% AI biomass apportionment. Using the 2013 OFL, ABC, and TAC from the latest harvest specification tables, a 7% AI apportionment would yield an

AI ITAC of 12,280 mt, after deducting the 3% GHL and the 10.7% CDQ allocation. In discussions with NMFS, an ITAC of this level would not result in immediate closure to directed fishing. However, a GHL of 4.5%, per an October 2013 Alaska Board of Fisheries proposal, would yield an estimated AI ITAC of 7,675 mt, which could result in NMFS closing the Federal AI Pacific cod fishery to directed fishing until later in the fishing season to allow for incidental catch. In the fall, NMFS would likely open Pacific cod for directed fishing for a short period if there appeared to be enough Pacific cod for a directed fishery.

Table 2 Pacific cod retained catch in the Aleutian Islands and Bering Sea from 1995 through 2012 (in metric tons and percent of total)

Year	AI (mt)	AI as % of BSAI	BS (mt)	BS as % of BSAI	BSAI (mt)
1995	10,123	5.6	171,482	94.4	181,605
1996	21,608	11.1	172,598	88.9	194,205
1997	13,170	6.1	201,090	93.9	214,260
1998	25,536	14.9	146,154	85.1	171,691
1999	24,646	15.6	133,766	84.4	158,412
2000	34,480	19.6	141,361	80.4	175,841
2001	31,340	19.0	133,589	81.0	164,929
2002	28,313	15.5	154,584	84.5	182,897
2003	29,628	15.0	167,237	85.0	196,865
2004	26,905	13.0	179,573	87.0	206,477
2005	20,660	10.6	173,614	89.4	194,274
2006	19,669	10.9	160,300	89.1	179,969
2007	26,167	16.2	135,601	83.8	161,768
2008	26,619	16.7	133,186	83.3	159,805
2009	27,299	16.2	140,730	83.8	168,029
2010	24,959	15.1	140,114	84.9	165,073
2011	10,517	4.8	206,877	95.2	217,395
2012	14,578	6.0	230,010	94.0	244,588
1995 - 2010	416,218	12.5	2,921,866	87.5	3,338,082

Source: WPR and fish ticket data, 1995-2009, including cod for meal production.

Data from 2010 - 2012 is from NMFS catch accounting system. Includes CDQ harvest.

Table originates from BSAI_PCOD_SECTOR(03-05)

Table 3 2013 OFL, ABC, AI GH, TAC, ITAC, and CDQ for AI and BS Pacific cod using a 7% AI apportionment and 3% and 4.5% GH

Area	OFL	ABC	AI GH (3% of BSAI ABC)	TAC	ITAC	CDQ
AI (7% of BSAI)	25,130	21,490	9,210	12,280	10,966	1,314
BS (93% of BSAI)	333,870	285,510		247,720	221,214	26,506
BSAI	359,000	307,000		260,000	232,180	27,820
Area	OFL	ABC	AI GH (4.5% of BSAI ABC)	TAC	ITAC	CDQ
AI (7% of BSAI)	25,130	21,490	13,815	7,675	6,854	821
BS (93% of BSAI)	333,870	285,510		252,325	225,326	26,999
BSAI	359,000	307,000		260,000	232,180	27,820

Table originates from BSAI_PCOD_SECTOR(03-05)

Table 4 shows the average annual retained catch in each area and the BSAI combined, the percent of the sector's catch from each area, and the number of unique vessels with Pacific cod catch in each area and the BSAI as a whole for time periods, 1995 through 1999 and 2000 through 2009. The two time periods were selected to protect confidential data. In general, all sectors have some Pacific cod history in both the Bering Sea and Aleutian Islands subareas. For the AFA trawl CP sector, retained catch data is not shown for the period 2000 through 2009 because of confidentiality limitations. Table 4 data exclude CDQ

harvests of BSAI Pacific cod, primarily because the original objective of this table was to show the non-CDQ sectors' distribution of catch between the BS and AI, recognizing that a future CDQ allocation in the AI would come off the top of the AI TAC, and that the CDQ Pacific cod allocation has only been harvested by hook-and-line CPs in the past.

Table 4 shows annual average BSAI Pacific cod harvest by the AFA trawl CP and trawl CV sectors decreased in the 2000 through 2009 period compared to 1995 through 1999, but the trawl CV sector substantially increased its average annual AI Pacific cod catch, and its proportion of catch harvested in the AI, during the 2000 through 2009 period. The non-AFA trawl CP sector has a higher average annual BSAI Pacific cod harvest in 2000 through 2009 compared to 1995 through 1999, and almost doubled its average annual catch in the AI in the latter time period. In addition, the proportion of catch harvested in the AI during 2000 through 2009 increased substantially.

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 sector and $\geq 60'$ hook-and-line CV sector are relatively small in both areas, with most of the catch coming from the BS. Harvest by hook-and-line 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 4 Average retained Pacific cod catch in the Bering Sea and Aleutian Islands by sector and percent of each sector's catch by area, 1995 through 1999 and 2000 through 2009

Sector	Area	1995-1999			2000-2009		
		Average annual catch (mt)	Percent of sector BSAI catch	Unique vessels	Average annual catch (mt)	Percent of sector BSAI catch	Unique vessels
Hook and line and Pot CVs <60'	AI	24	8.2%	18	54	1.9%	44
	BS	269	91.8%	71	2,759	98.1%	157
	BSAI	293		80	2,813		166
Longline CVs $\geq 60'$	AI	10	5.9%	13	22	11.1%	24
	BS	159	94.1%	27	176	88.9%	40
	BSAI	169		34	198		48
Jig	AI	15	4.7%	6	*	*	22
	BS	304	95.3%	70	*	*	64
	BSAI	319		76	120		83
Pot CPs	AI	1,283	26.9%	12	652	21.1%	13
	BS	3,491	73.1%	22	2,432	78.9%	11
	BSAI	4,774		24	3,084		17
Pot CVs $\geq 60'$	AI	833	5.7%	42	298	2.4%	37
	BS	13,721	94.3%	183	12,297	97.6%	127
	BSAI	14,555		189	12,596		141
Trawl CVs	AI	2,627	5.6%	42	11,823	33.9%	76
	BS	44,004	94.4%	139	23,063	66.1%	140
	BSAI	46,632		140	34,886		151
Hook and Line CPs	AI	5,955	6.9%	33	4,584	5.6%	35
	BS	80,329	93.1%	55	77,017	94.4%	51
	BSAI	86,285		56	81,601		53
Non-AFA Trawl CPs	AI	3,527	18.8%	18	7,375	27.3%	16
	BS	15,194	81.2%	28	19,653	72.7%	24
	BSAI	18,721		28	27,029		24
AFA Trawl CPs	AI	2,607	51.2%	10	*	*	2
	BS	2,486	48.8%	25	*	*	17
	BSAI	5,093		25	2,977		17

Source: WPR and fish ticket data

Table originates from BSAI_PCOD_SECTOR(03-05)

* Not shown due to restrictions on confidential data

Table 5 shows 2010, 2011, and 2012 retained Pacific cod harvest data by sector and area, excluding CDQ harvest. Much of these data are not provided due to confidentiality; other data are masked to protect

confidential data that would otherwise be evident due to simple subtraction. The 2010 data show that while the great majority of the sectors harvest is from the BS, there continue to be several sectors with a notable portion of catch in the AI, whether directed harvest or incidental harvest in other target fisheries. The longline CP sector (7,505 mt) and Amendment 80 sector (3,538 mt) harvested 9% and 15% of their total retained BSAI Pacific cod harvest from the AI in 2010, respectively. The trawl CV sector had the most Pacific cod harvest from the AI in terms of metric tons and percentage, at 12,754 mt, which comprised 45% of their BSAI harvest. While the pot CP sector has a much lower total annual harvest and allocation than the trawl CV sector, it also typically harvests a significant portion of its BSAI Pacific cod in the AI. This harvest cannot be reported due to confidentiality.

While past trends are important to consider, all sectors fishing for Pacific cod in the AI must comply with the 2011 RPAs, which substantially changed Pacific cod operations in the AI starting in 2011. Since 2011, the harvests in the AI are relatively low for all sectors compared to previous years. The overall harvest distribution between the two areas was 5% in the AI and 95% in the BS for 2011 and 6% in the AI and 94% in the BS for 2012. The hook-and-line CP sector harvest for AI Pacific cod relative to total BSAI cod dropped from 9% in 2010 to 1% in 2011 and 2% in 2012. For the Amendment 80 sector, the percentage of BSAI Pacific cod harvested in the AI was 6% in 2011 and 7% in 2012. The trawl CV sector also experienced a dramatic decline in AI harvest of cod. In 2011 and 2012, the trawl CV sector's percentage of AI Pacific cod relative to total BSAI Pacific cod was 20% and 16%, respectively. One surprise was the increase in AI Pacific cod harvest during 2012 by the under 60' pot/hook-and-line CV sector. During that year, the sector harvested 1,511 mt, which is 12% of the AI total Pacific cod harvested. In the previous ten years, the sector's average AI harvest was 2% of the total BSAI Pacific cod harvested.

Table 5 Retained Pacific cod catch (mt) and percent of total Pacific cod catch in the Bering Sea and Aleutian Islands areas, by sector, 2010 through 2012

Year	Sector	AI			BS			Total catch (mt)
		Catch (mt)	% of total catch	Count	Catch (mt)	% of total catch	Count	
2010	Amendment 80	3,538	15	12	20,462	85	26	23,999
	AFA Trawl CP	*	*	1	*	*	26	4,569
	Longline CP	7,505	9	16	79,854	91	50	87,359
	Longline CV >=60	11	36	14	20	64	16	31
	Jig	0	0	0	344	100	7	344
	Pot CP	*	*	2	*	*	3	3,426
	Pot CV >=60	0	0	0	11,558	100	31	11,558
	Pot/longline CV <60	6	0	4	5,741	100	41	5,747
Trawl CV	12,754	45	26	15,280	55	96	28,034	
Total		24,958	15	75	140,109	85	296	165,068
2011	Amendment 80	1,560	6	15	23,995	94	28	25,555
	AFA Trawl CP	0	0	0	7,465	100	31	7,465
	Longline CP	1,152	1	7	114,509	99	42	115,660
	Longline CV >=60	*	*	8	*	*	15	31
	Jig	0	0	0	505	100	11	505
	Pot CP	*	*	1	*	*	4	3,102
	Pot CV >=60	0	0	0	16,373	100	33	16,373
	Pot/longline CV <60	38	0	7	8,932	100	40	8,971
Trawl CV	7,749	20	16	31,983	80	106	39,732	
Total		10,516	5	54	206,877	95	310	217,393
2012	Amendment 80	2,139	7	13	26,471	93	26	28,610
	AFA Trawl CP	*	*	2	*	*	31	8,093
	Longline CP	3,140	2	7	126,112	98	42	129,253
	Longline CV >=60	*	*	10	*	*	12	25
	Jig	0	0	0	85	100	5	85
	Pot CP	0	0	0	5,370	100	7	5,370
	Pot CV >=60	0	0	0	12,708	100	29	12,708
	Pot/longline CV <60	1,511	12	15	11,179	88	39	12,690
Trawl CV	7,688	16	20	40,065	84	107	47,753	
Total		14,578	6	67	230,010	94	298	244,588
Source: NMFS catch accounting database								
Table originates from BSAI_PCOD_SECTOR(03-05)								
*denotes confidentiality								

Effects of an ABC and TAC Split on Sectors

Maintaining the existing combined BSAI sector allocations was determined the most feasible approach because it provides the greatest flexibility for sectors and is the simplest for NMFS to monitor relative to previous alternatives considered in the past. NMFS would not be required to manage two separate area allocations for each of the nine non-CDQ sectors. NMFS would be responsible for monitoring each sector's overall BSAI allocation and a single catch limit for each area, using the existing tools to open and close fisheries. The combined BSAI sector allocation approach also provides flexibility to the sectors since they would be able to fish in an area as long as it remained open. Thus, regardless of historical harvest patterns, a vessel could move in and out of an area during the open season as desired, focusing its effort in the area in which it believes it can optimize its returns. Thus, while some sectors have not had substantial participation in the AI in the past, if that area becomes more advantageous due to changes in stocks or stock compositions or availability of markets, these sectors would likely shift more of their fishing to the AI during the open season. Note that only vessels with an AI endorsement on the LLP license would be eligible to fish in the AI (in Federal waters).

Under a combined BSAI sector allocation, each sector would attempt to fish in its preferred area first, especially if that area is likely to be constrained by TAC (understanding that this may change in response to the Steller sea lion protection measures under the 2013 EIS). A disadvantage of this approach is that it could cause participants (both within sectors and among sectors) to race for Pacific cod if racing could increase returns. This could disadvantage certain sectors and could affect a sector's ability to obtain reasonable returns from its allocation, especially if some members of the sector would realize greater returns from fishing in an area that closes due to the effort of another sector. In addition, sectors that operate under a cooperative structure (e.g., the AFA sectors, the Amendment 80 sector, and the hook-and-line CP sector) manage their Pacific cod harvests through internal agreements, which may allow them to strategize directing effort in the area they expect to close first.

During the 1995 through 2010 period, the AI amount of Federal BSAI Pacific cod retained harvest was almost 14%, and the BS amount was about 86% (see Table 2). More recently (2007 through 2010), the harvest distribution averaged 16% in the AI and 84% in the BS. However, the Steller sea lion RPA significantly reduced the area in the AI that is open to Pacific cod fishing for all gear types. The RPA also modified the seasons in which the Steller sea lion critical habitat is open to Pacific cod fishing in the AI. Since implementation of the RPA in 2011, most sectors have decreased their AI Pacific cod harvest as a percentage of their overall BSAI Pacific cod catch. In 2011, the distribution of Pacific cod harvest between the two areas was 5% in the AI and 95% in the BS (excluding CDQ), with a total retained catch of 10,383 mt. In 2012, AI accounted for 6% of the BSAI Pacific cod, while the BS accounted for 94%. The retained catch of Pacific cod in the AI during that year was 13,160 mt.

Despite a January 1 opener for non-trawl sector and January 20 opener for trawl sectors for AI and BS Pacific cod, the majority of AI Pacific cod is harvested in March, while the BS Pacific cod harvest starts out strong in January then declines over the period of the A season (see Figures 1 and 2). Given that the current seasonal allowances vary by gear type in the BSAI, they have important implications for which sectors would be allowed to fish in the limiting area (whether BS or AI) under a combined BSAI sector allocation. While each sector would be allocated an exclusive allocation of Pacific cod, depending upon area TAC availability and seasonal restrictions, a sector may still be forced to fish in an area that it would not choose to fish in otherwise, or forego a portion of its Pacific cod allocation.

For example, the pot sectors' B seasons, which are allocated half of their annual allocation do not start until September 1, while the other sectors have B and C seasons that start on June 10. Thus, other sectors

would be allowed to fish in the limiting area well before the pot sectors B season, which may serve to limit the pot sectors’ access to the AI.

In the Amendment 80 sector, Pacific cod is a limiting factor in the harvest of its allocations; and unlike the other non-CDQ sectors, Pacific cod is managed as a hard cap.¹ In 2009, 2010, and 2012 the Amendment 80 cooperative received reallocations of Pacific cod from the trawl catcher vessel sector. The most significant concern for the Amendment 80 sector under a TAC split and combined BSAI allocations would be that another sector’s fishing would close directed fishing for Pacific cod in the AI. This would limit the retention of Pacific cod for the Amendment 80 sector to the maximum retainable amount, but allow them to continue directed fishing for other species.² Most Amendment 80 vessels have not been targeting Pacific cod, so this sector would likely not be severely affected if AI Pacific cod was maintained on ‘bycatch’ status (i.e., allow for maximum retainable amount).

Typically, the trawl CV sector and one AFA trawl CP that targets Pacific cod operate in the AI in the early part of the A season (January 20 – April 1), which has continued under the Steller sea lion RPA. Given the continued focus during the A season by these vessels, this may allay concerns about Pacific cod availability in the B season in the AI. Concerns will depend heavily on the level of the AI TAC and the level of A season catch. The 2011 and 2012 data show notably lower harvests in the AI compared to previous years during the A season (see Figure 1 and Table 5).

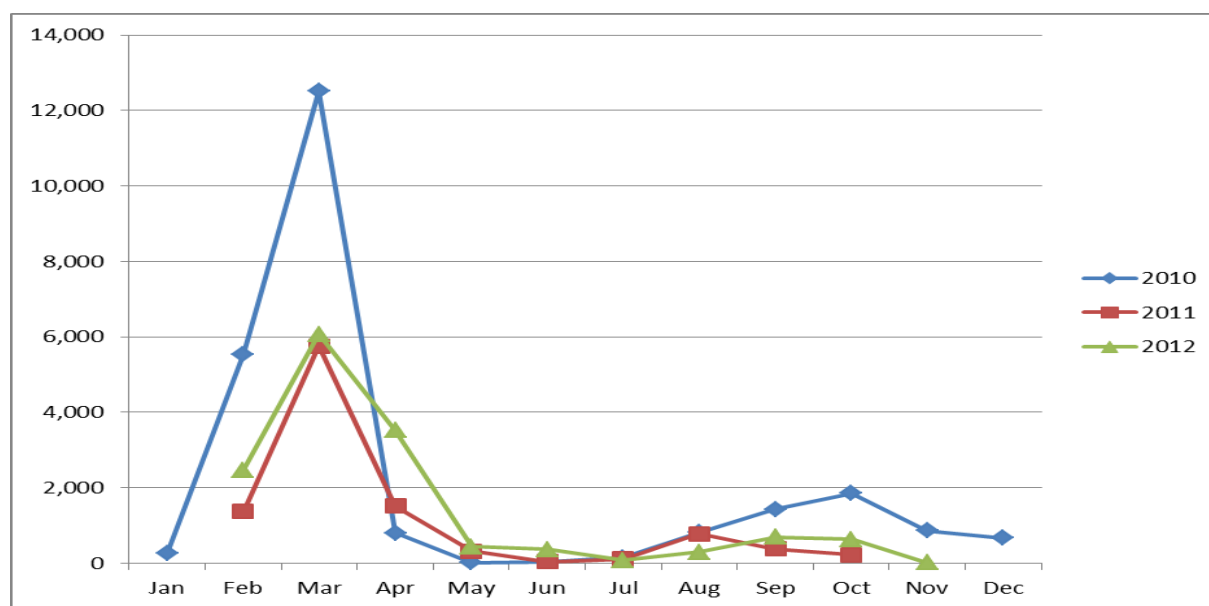


Figure 1 Total retained harvest of Aleutian Islands Pacific cod by month, 2010 through 2012

¹ In this context, ‘hard cap’ means that if the Amendment 80 cooperatives reach their quota share they are prohibited from exceeding their quota share.

² In the past, the Amendment 80 sector has targeted Pacific cod Perch, Atka mackerel, arrowtooth flounder, and Kamchatka flounder in the AI.

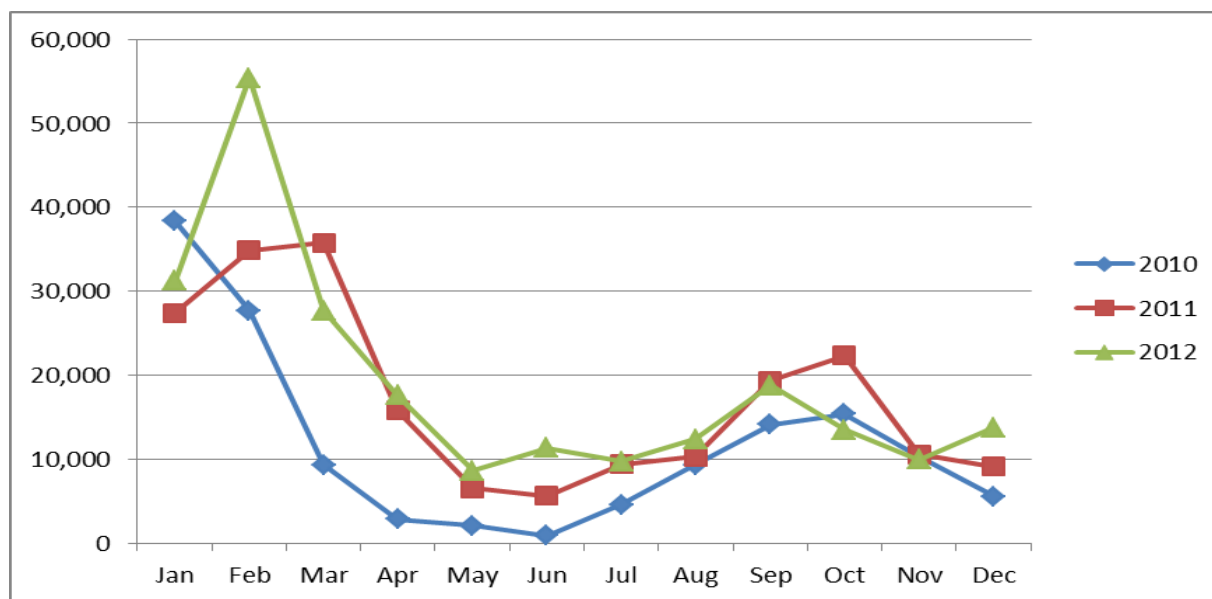


Figure 2 Total retained harvest of Bering Sea Pacific cod by month, 2010 through 2012

The Steller sea lion RPAs closed most of the Pacific cod fishing grounds for the hook-and-line CPs in the AI until March 1 (critical habitat from 0 nm – 20 nm is closed to directed fishing for Pacific cod by vessels using nontrawl gear from January 1 – March 1; 0 nm – 6 nm is closed March 1 to November 1). Historically, this sector targets Pacific cod in the AI during the March through April period and August through November period and has continued this fishing behavior since implementation of the Steller sea lion RPAs, albeit with reduced harvest.

The Steller sea lion EIS, that is scheduled for initial review at the April 2013 Council meeting, includes area limits among Areas 541, 542, and 543 (Alternatives 2 and 3). These measures treat Area 543 independently and group Areas 541 and 542 together, and base the catch limits in proportion to the Area 543 and Area 541/542 biomasses, to be estimated during the annual stock assessment process. Based on information contained in Table 8-95 of the *Steller Sea Lion Protection Measures, Preliminary Draft EIS/RIR/IRFA*, the Pacific cod volume in Area 543 ranges between 24.5% and 26.4% of the whole AI, and the Pacific cod volume in Area 541/542 consequently ranges between 73.6% and 74.6%. Using the 3% State GHL and applying the AI area percentages to the 2013 BSAI Pacific cod ABC would yield an area limit for Area 541/542 of 9,037 mt and 3,243 mt for Area 543. Utilizing a 4.5% State GHL, would yield a limit of 5,649 mt for Area 541/542 and a limit of 2,026 mt for Area 543 (Table 6).

Alternatives 2 and 3 of the Steller sea lion EIS also include provisions that place limits on trawl and non-trawl CP sector catches. These sector limits are not allocations, but limits on the amounts that may be caught by the sectors to which they are assigned. Other sectors, not subject to these limits, could conceivably fully harvest the available Pacific cod. These sector limits are based on historical average catches from 2006 through 2010. Catcher vessels are not subject to sector limits in these areas, although they are subject to the overall area limits. Estimated catch limits for trawl and non-trawl CP sectors are located in Table 8-96 and Table 8-115 of the *Steller Sea Lion Protection Measures, Chapter 8: Regulatory Impact Review*. As noted in Table 6, the 2013 estimated sector limit for trawl and non-trawl CPs in Area 541/542, assuming a 3% GHL, would be 4,248 mt and 1,738 mt, respectively. For Area 543 during the same time period, the trawl CP limit would range from 909 mt to 2,196 mt, while the non-trawl limit would be 1,045 mt. Assuming a 4.5% GHL, the 2013 sector limits for Area 541/542 would be 2,656 mt and 1,086 mt for trawl and non-trawl CP, respectively. For Area 543, the trawl CP limit would range

from 567 mt to 1,372 mt, while the non-trawl CP limit would be 1,086 mt. Table 7 shows the amount of Area 543 and Areas 541/542 Pacific cod area limit available assuming the trawl and non-trawl CP sectors harvest the full sector limits available, which are based on a 60.23% limit for the combined CP limits in Area 543 and a 47.83% for the combined CP limits in Areas 541/542.

Table 6 Estimated area limits and trawl and non-trawl CP sector limits under Alternatives 2 and 3 Steller sea lion protection measures for 2013 utilizing 3% and 4.5% GHL scenarios

State GHL	Sector	Area limit		Area 543 sector limit			Areas 541/542 sector limit	
		543	541/542	Alt 2 O1	Alt 2 O2	Alt 3	Alt 2	Alt 3
3%	Trawl CP	3,243	9,037	909	2,196	2,196	4,248	4,248
	Non-trawl CP			1,045	1,045	1,045	1,738	1,738
4.50%	Trawl CP	2,026	5,649	567	1,372	1,372	2,646	2,656
	Npn-trawl CP			653	653	653	1,086	1,086

Source: Table 8-96 and Table 8-115 of the Steller Sea Lion Protection Measures, Preliminary Draft EIS/RIR/IRFA, March 2013

Table originates from BSAI_PCOD_SECTOR(03-05)

Table 7 Estimated area limits and available Pacific cod for trawl and non-trawl CV sectors if CPs harvest the full amounts available to them under their area-sector limits for 2013 utilizing 3% and 4.5% GHL scenarios

State GHL	Sector	Area limit		Area 543 sector limit			Areas 541/542 sector limit	
		543	541/542	Alt 2 O1	Alt 2 O2	Alt 3	Alt 2	Alt 3
3%	Trawl and non-trawl CV	3,243	9,037	1,290	1,290	1,290	4,715	4,715
4.50%	Trawl and non-trawl CV	2,026	5,649	806	806	806	2,947	2,947

Source: Table 8-131 of the Steller Sea Lion Protection Measures, Preliminary Draft EIS/RIR/IRFA, March 2013

Table originates from BSAI_PCOD_SECTOR(03-05)

The narrowing of the AI ITAC into subarea specific catch limits and sector catch limits for the CP sectors could further exacerbate the potential for a race for fish in the AI. The CV sectors in Area 543 and in Areas 541/542 are not subject to similar limits, and could, potentially, harvest both area limits completely themselves. As noted in the *Steller Sea Lion Protection Measures EIS, Chapter 8: Regulatory Impact Review*, trawl fishing for Pacific cod in the area is concentrated during March and April, although trawl CP harvests may occur in February or late January. Non-trawl catches take place throughout the year, and summer and fall catches of this sector are significant in comparison with its winter-spring catches. Thus, as a practical matter, the trawl CP catch limit will probably constrain the sector from harvesting the entire area limits of Pacific cod prior to the trawl catcher vessels entering the fishery. However, the non-trawl CP sector, which harvests later in the year, is vulnerable in the AI. Of course, under a BSAI-wide sector allocation, if a sector fails to catch part of its allocation in the AI, their remaining allocation is reserved for them in the BS.

Under Alternatives 1 and 4 in the SSL EIS, with an AI and BS split, and in the absence of other area-sector limits, fishing by vessels from different sectors would continue in the AI, until the directed fishing allowance for the year were taken. The fisheries in the AI would be closed, leaving enough incidental catch allowance to meet fishery MRA needs for the remainder of the year. Since cod would be continued to be allocated as a combined BSAI allocation, these sectors could continue fishing for their sector BSAI allocations in the BS, should the AI close.

II. AI Pacific Cod Shoreside Processing Sideboards

Introduction

In December 2009, an initial draft EA/RIR/IRFA was prepared that proposed establishing processing sideboards on processing vessels eligible under the BSAI crab rationalization program, American Fisheries Act (AFA), and BSAI Amendment 80 that receive deliveries of Pacific cod harvested in the

Eastern and Central Aleutian Islands (Areas 541 and 542, respectively). In effect, catcher processors, floating processors, and motherships in the three catch share programs above would be limited in the amount of catcher vessel deliveries they could receive of Pacific cod harvested in Area 541 and/or 542 on an annual basis, or prohibited from taking deliveries prior to a specific date. The impetus for the proposed action is to ensure that the historical share of Pacific cod delivered shoreside, primarily to Adak, would continue.

The Council reviewed two discussion papers in December 2008 and February 2009, and then requested that an initial review draft analysis be prepared for a future Council meeting, emphasizing the general need to ensure that it fully explores the ability to protect communities from the additional offshore processing capacity resulting from rationalization programs. The Council originally requested that initial review be scheduled for late 2009, in order to coincide with the review of the ongoing Biological Opinion (BiOp), which among other things, addressed the effects of the status quo BSAI Pacific cod fishery on Steller sea lions. As the BiOp was rescheduled for release in late 2010, the Council rescheduled review of the AI processing sideboard action in early 2011. A supplement to the initial review draft analysis was prepared for the February 2011 Council meeting, but was postponed and not reviewed since.

Problem statement and alternatives

Generally, the problem statement states that recent rationalization programs provide benefits to processing vessels participating in three catch share programs and afford opportunities for consolidation, thus freeing some processing capacity to target the non-rationalized BSAI Pacific cod catcher vessel fishery. This is one of the few remaining primary fisheries in the BSAI that is not operating under a rationalization program. While there are limitations on the amount of Pacific cod harvested by the rationalized sectors, there are no limits on the amount harvested by catcher vessels that can be delivered to catcher processors or floating processors that operate under these rationalized programs. The purpose of the action is to limit the amount of AI cod delivered to rationalized vessels acting as motherships to their historical share, in order to protect shoreside processing opportunities.

Problem Statement:

The American Fisheries Act, BSAI crab rationalization program, and BSAI Amendment 80 program each provide benefits to processing vessels that were intended to protect investments in and dependence on the respective fishery resource. Each of these rationalization programs has afforded opportunities for consolidation, thus freeing some processing capacity to target the non-rationalized BSAI Pacific cod fishery at the expense of other industry and community investments.

Affected resource and areas:

Pacific cod harvested in Areas 541 and 542 from the Federally-managed and State parallel fisheries.

Affected vessels:

Vessels that received benefits under a rationalization program with a processing element, including: AFA catcher processors and motherships that have not shown continuous processing participation as motherships in the Area 541 and 542 Pacific cod fishery since the implementation of the AFA; processing vessels that contributed history to C. opilio BSAI crab processing quota share allocations, and catcher processors that qualified under Amendment 80.

The sideboard proposed was in the form of a limit on metric tonnage delivered to the affected sectors, and/or as a date before which catcher vessel Pacific cod deliveries could not be made to the rationalized processing vessels. All limits were based on the past history of catcher vessel deliveries to these sectors.

The combination of components essentially creates a multitude of options for consideration. See the appendix for a copy of the alternatives and options.

Distribution of AI Pacific cod processing

This section provides an update of key tables on Pacific cod processing history in Areas 541 and 542 with 2011 and 2012 data. The updated tables provide background information only, and context for the problem statement. These tables do not affect the calculations of the sideboards that were included in the initial review draft, as none of the various sets of qualifying years include data as recent as 2008 through 2012. The intent of the qualifying years was to base the sideboard on the level of cod processing that each rationalized sector was doing prior to the implementation of the respective catch share program and the ability to consolidate processing.

Historically, a portion of the BSAI Pacific cod ITAC allocated to catcher vessels has been harvested in Area 541 and 542. During 2000 – 2008, this amount has ranged from 12% to 26% of the catcher vessel sectors' total harvest of BSAI Pacific cod. A portion of this AI harvest is typically processed offshore, by motherships, floating processors, or catcher processors acting as motherships. However, from 2000 through 2009, the majority has been delivered shoreside, primarily to the plant in Adak. Recall that Adak and Atka are the only two communities in the AI (Area 541) with shoreside processing plants, and these are the processing opportunities that the action was intended to protect, by limiting the amount of Pacific cod that can be delivered to offshore processing vessels. Adak is the only plant, at this time, located in the AI with the current potential to process Pacific cod. The plant in Atka does not currently have Pacific cod processing operations, but Aleutian Pribilof Island Community Development Association has indicated they are planning to add a Pacific cod line sometime in the future; in the past, Atka has used a floating processor to provide a market for Pacific cod and other species.

The proposed sideboard would apply to all three rationalized processing sectors combined. While the data cannot be provided on an individual sector level due to confidentiality, Table 6 shows how much of the total catcher vessel Pacific cod harvest from Area 541 and 542 has been delivered to the rationalized sectors in aggregate versus shoreside. Data prior to 2003 are not provided due to confidentiality issues when combined with other tables in the December 2009 initial review draft analysis, and the potential for providing misleading data due to substantial aggregation.

The “percent of BSAI” column in Table 8 shows the retained harvest by each sector in Areas 541 and 542 as a percentage of the total CV Pacific cod catch in the BSAI. The processing sideboards are calculated as a percentage of the total CV Pacific cod catch in the BSAI, since it is assumed they would be applied annually to the combined BSAI CV Pacific cod allocations.³ Thus, retained area 541/542 catch divided by the total BSAI catch appears to be the most appropriate approach. Because there is not currently an AI specific TAC for Pacific cod to which a sideboard could be applied, the sideboard is currently proposed to be applied to the non-CDQ BSAI Pacific cod catcher vessel TAC on an annual basis. If a TAC split occurred and a separate AI TAC was established, the sideboard amount would still be calculated as an amount of Pacific cod harvested in Area 541 and/or 542 Pacific cod and delivered to the rationalized processing sectors during the qualifying years, but it would be converted to a percentage of the total CV catch of Pacific cod in the AI, and applied to the AI Pacific cod CV allocations on an annual basis in order to determine the annual processing limit.

Table 8 shows that the shoreside sector received an increasing share of the Area 541 and 542 Pacific cod deliveries during 2003 through 2007, from 52% in 2003 to 76% in 2007, with an average share across

³ Note that some, but not all, of the Pacific cod CV sectors have a separate incidental catch allowance. Hook-and-line and pot gear (CP and CV sector combined) have a 500 mt annual ICA.

those years of about 69%. The rationalized mothership/floater sector received a high of 48% in 2003 and a low of 16% in 2007, with an average share across those years of about 26%.

Table 8 Amount of CV Pacific cod harvested in Areas 541 and 542, by processing sector, 2003 through 2011

Year	CV deliveries to AFA/Crab/AM80 motherships and floaters (Areas 541 & 542)			Shoreside landings (Areas 541 & 542)			CV cod landings in Areas 541 & 542	Total CV cod catch in BSAI
	mt	% of AI	% of BSAI	mt	% of AI	% of BSAI		
2003	8,209	48%	13%	9,033	52%	14%	17,242	65,353
2004	4,153	31%	7%	9,345	69%	17%	13,498	55,700
2005	1,521	19%	3%	6,478	81%	13%	8,000	50,574
2006	1,324	21%	3%	4,879	79%	10%	6,203	50,242
2007	2,147	17%	5%	10,163	83%	22%	12,310	46,743
2008	6,514	58%	14%	4,764	42%	10%	11,278	47,384
2009	3,307	29%	8%	8,272	71%	20%	11,579	40,533
2010	8,016	96%	18%	291	4%	1%	8,307	45,460
2011	7,728	99%	12%	43	1%	0%	7,770	64,619
Average 2003-2007	3,471	27%	6%	7,980	73%	15%	11,451	53,722
Average 2003-2011	4,769	46%	9%	5,919	54%	12%	10,688	51,845

Source: NMFS catch accounting
Table originates from BSAI_PCOD_SECTOR(03-05)

In 2008, the shoreside share was reduced to about 33% and 45% delivered to the rationalized processing sectors. In 2009, the processing distribution was more like the year previous to 2008. The shoreside share was about 55% and the remaining 22% delivered to the rationalized processing sectors. The plant in Adak received the great majority of the shoreside deliveries. In 2010 and 2011, the closure of the shoreside plant in Adak significantly affected the distribution of landings to shoreside plants and rationalized processing vessels. The shoreside share was about 2% in 2010 and 1% in 2011, with 63% delivered to the rationalized processing sectors in 2010 and 99% in 2011.

Sideboard limits and SSL EIS Alt 2 and 3 catch limits

Table 9 provides an updated summary of the processing Pacific cod sideboard limits for Areas 541/542 from the December 2009 initial review analysis and compares these updated sideboard limits with the AI Areas 541/542 limits and sector limits proposed in Alternative 2 and 3 of the Steller sea lion EIS scheduled for initial review at the April 2013 Council meeting.

The originally proposed AI processing sideboards were intended to limit the AFA, crab, and Amendment 80 sectors' mothership processing activity of CV Pacific cod harvested in Area 541 and 542 to its historical share. In effect, the action was designed to limit the percentage of Pacific cod delivered to these vessels so that it mirrors a year or series of years, similar to the status quo. Applying Option 1, Suboption 1 (greatest amount delivered), the 2013 sideboard limit for Areas 541 and 542 combined would range from 2,358 mt to 3,627 mt. Utilizing Option 1, Suboption 2 (average amount delivered) would yield a 2013 sideboard limit ranging from 1,451 mt to 3,265 mt.

In contrast to AI processing sideboards for rationalized offshore vessels, the Steller sea lion EIS, which is scheduled for initial review at the April 2013 Council meeting, includes harvest limits for Areas 541/542 combined and sector limits for trawl and non-trawl CPs. The proposed sector limits are not allocations, so other sectors not subject to limits, could fully harvest the available Pacific cod, leaving nothing for the CP sectors. However, the opposite is also true; a sector with its own limit could not catch more of the area limit than its sector limit permits.

As shown in Table 9, area-sector limits from the SSL EIS can be quite small in some areas, especially under a 4.5% State GHF fishery scenario. Once catch has been set aside for incidental catch of Pacific cod in other groundfish fisheries, low area-sector limits may preclude directed fishing for Pacific cod by that sector, in some areas, during some years.

Table 9 Estimated 2013 Pacific cod sector catch limits in Areas 541/542 from Steller sea lion EIS and AI Pacific cod processing sideboards for Option 1, Suboption 1 and 2

Program	Alternative/option	2013 limit (mt)	
SSL EIS	Alt 2&3	Trawl (3.0% GHF)	4,248
		Non-Trawl (3.0% GHF)	1,738
		Trawl (4.5% GHF)	2,656
		Non-Trawl (4.5% GHF)	1,086
AI Processing Sideboards	Option 1 Suboption 1 (greatest amt delivered) sideboard limit for 541 & 542	a. 2005-2007	2,358
		b. 2003-2007	-
		c. 3 yrs prior to program implementation	3,627
		d. 5yrs prior to program implementation	3,627
	Option 1 Suboption 2 (average amt delivered) sideboard limit for 541 & 542	a. 2005-2007	1,451
		b. 2003-2007	3,265
		c. 3 yrs prior to program implementation	2,267
		d. 5yrs prior to program implementation	2,086
Source: Combines elements from Table 6 and Table 9			
Table originates from BSAI_PCOD_SECTOR(03-05)			

Despite the appearance that both AI processing sideboards and area-sector limits for Areas 541/542 and Area 543 could provide benefits to shorebased processors in these areas, for a number of reasons it is not clear either approach would result in the intended action.

First, it is not clear that processing sideboards would provide the intended benefits to shoreside processors. The proposed processing sideboards were intended to limit deliveries to AFA, crab rationalization, and Amendment 80 CPs/floaters/motherships. However, CVs could continue to deliver to motherships or floating processors not in one of these rationalized sectors, or other shoreside processors outside of Area 541, without regulatory limits. Area-sector limits proposed in the Steller sea lion EIS avoid this issue by establishing a sector limit for all CPs, including CPs acting as motherships. Under the Steller sea lion EIS Alternatives 2 and 3, CVs delivering to any mothership, including CPs acting as motherships, or floating processors would be restricted by the sector limit, while CVs delivering to shorebased processors would be restricted by the area limits only and not sector limits.

Second, with the likelihood of a BSAI Pacific cod TAC split in 2014, concerns exist regarding the potential for stranding fish in the Aleutians, in the event that the Adak plant is not operating in a given year, and ‘other’ floaters are not available, and/or the plant in Atka is not processing Pacific cod under processing sideboard approach or a sector limit approach. This concern is magnified given the difficulty the Adak plant has had over the past three years. In 2010 and 2011, financial difficulties surrounding the Adak shoreplant resulting in no processing of Pacific cod during those years. In 2012, the Adak shoreplant now owned by Icicle Seafoods, is scheduled to close for the summer due to the high operating cost during the slower fishing months.

Maintaining CV harvest of AI Pacific cod could become even more prevalent as the speed of the Pacific cod trawl CV fishery in the BS increases. As noted in Table 10, the BSAI Pacific cod fishery is speeding up for the trawl CV sector during the first 5 weeks of the year. As the fishery speeds up for the trawl CV sector in the BS during the first month or two, there is the potential for the trawl CV sector to close on its BSAI allocation before the sector starts to move into the AI in late February or March (see Figure 1).

Creating sideboard limits, area limits, and sector limits only serves to limit markets available to all catcher vessels harvesting Pacific cod in Areas 541/542 and 543, which may also reduce the operational flexibility and negotiating leverage of AI catcher vessels, which could potentially lead to a lower price for their catch.

Table 10 Annual AI and BS Pacific cod catch and weekly catch rate for the trawl CV sector during the first 5 weeks of the year (January 20 start date)

Year	AI catch (mt)	BS catch (mt)	BSAI catch (mt)	Average per week (mt)
2003	1,433	9,318	10,751	2,150
2004	2,490	11,349	13,839	2,768
2005	2,703	14,907	17,610	3,522
2006	3,304	16,749	20,054	4,011
2007	3,336	9,704	13,039	2,608
2008	5,797	9,364	15,161	3,032
2009	3,757	8,106	11,863	2,373
2010	3,838	11,616	15,454	3,091
2011	1,355	13,800	15,155	3,031
2012	2,464	28,439	30,903	6,181
2013	1,697	27,980	29,677	5,935

Source: NMFS catch accounting
Table originates from BSAI_PCOD_SECTOR(03-05)

Finally, although area-sector limits associated with Alternatives 2 and 3 limits the total percentage of Pacific cod that can be harvested by CPs (including motherships) in Areas 541/542, it is not clear these alternatives provide greater deliveries to the processing plant in Adak. While there are not large differences in catch vessel Pacific cod production between Alternatives 2, 3 and status quo, Alternative 2 tends to produce its results by restricting fishing area in the eastern half of Area 541, while lifting restrictions to a great extent in the western half of Area 541, where Adak is located. Alternative 2 also includes options to allow catcher vessels fishing for Pacific cod in Area 543 to deliver their harvest to motherships, and prohibiting these catcher vessels from delivering to motherships. The impact of these options on Adak is unclear.

List of Prepares

Jon McCracken, NPFMC
Jane DiCosimo, NPFMC
Mike Fey, NPFMC

Persons Consulted

Grant Thompson, NMFS
Ingrid Spies, NMFS
Mary Furuness, NMFS
Nicole Kimball, ADFG
Ben Muse, NMFS
Steve MacLean, NPFMC
Mark Fina, U.S. Seafoods, LLC

Appendix

Alternatives and options from the December 2009 Initial Review Draft RIR/EA/IRFA to Establish Aleutian Islands Pacific Cod Processing Sideboards.

Alternative 1. No action

Alternative 2. Establish a processing sideboard on Pacific cod harvested by catcher vessels in Area 541 or 542

Component 1. Establishing processing sideboard

Option 1. Sideboard limit

All affected processing vessels that accept deliveries of Pacific cod harvested in Areas 541 or 542 would be combined under a single sideboard. Limit the amount of Pacific cod harvested in Areas 541 or 542 that may be delivered to the affected Federally permitted processing vessels by other vessels to:

- Suboption 1. the greatest amount delivered within the range of qualifying years
- Suboption 2. the average annual amount delivered within the range of qualifying years

Option 2. Sideboard date

Limit the date that the affected Federally permitted processing vessels may begin taking deliveries of Pacific cod harvested in Areas 541 or 542 to:

- Suboption 1. the earliest date a delivery was taken in any qualifying year
- Suboption 2. the average earliest date a delivery was accepted in each year, across all qualifying years

Option 3. The sideboard limit and/or date would only be established in Area 542.

Component 2. Qualifying years

Option 1. Recent history

- Suboption 1. 2005 – 2007 (3-year period prior to 2008)
- Suboption 2. 2003 – 2007 (5-year period prior to 2008)

Option 2. Years prior to implementation of the respective rationalization program

- Suboption 1. 3-year period prior to program implementation
- Suboption 2. 5-year period prior to program implementation