

MEMORANDUM

TO: Council, SSC and AP Members

FROM: Chris Oliver
Executive Director



ESTIMATED TIME 6 HOURS (All C-3 items)
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DATE: May 31, 2012

SUBJECT: BSAI Crab Rebuilding

ACTION REQUIRED

(b) Final Action on Pribilof Island blue king crab (PIBKC) rebuilding plan.

BACKGROUND

On September 23, 2002, the Secretary of Commerce notified the Council that the PIBKC stock biomass was below the minimum stock size threshold MSST¹ and was overfished. A rebuilding plan was implemented in 2003 that included a provision prohibiting directed fishing until the stock was rebuilt. The PIBKC fishery has been closed since 1999 and bycatch in 2010/11 was below the overfishing level.

NMFS notified the Council on September 29, 2009, that the current rebuilding plan has not achieved adequate progress to rebuild the stock by 2014. To comply with section 304(e)(7) of the Magnuson-Stevens Act, the Council is amending the PIBKC rebuilding plan to add measures to address bycatch in groundfish fisheries, the primary source of fishing mortality.

Under the Magnuson-Stevens Act, the Council has two years from notification to develop and implement a revised rebuilding plan for the PIBKC stock. However, development of additional rebuilding measures has required more time due to a number of difficulties and data limitations, including defining appropriate stock boundaries, identifying which groundfish fisheries to restrict, and determining the appropriate way to analyse the existing data on PIBKC bycatch in the groundfish fisheries. Therefore, the Council has taken the time necessary to address these issues and develop appropriate alternatives, recognizing that the current PIBKC protections remain in place.

Pursuant to the Magnuson-Stevens Act section 304(e)(4)(A) and the National Standard 1 Guidelines, the purpose of this proposed action is to develop an amended rebuilding plan to reduce the risk of overfishing and to rebuild the PIBKC stock in as short a time as possible with the understanding that the biology of this stock and environmental conditions will likely dictate that the time needed to rebuild will exceed 10 years. This action under any of the alternatives would amend the current rebuilding plan to minimize bycatch of blue king crab in the federally managed groundfish fisheries, in compliance with the Magnuson-Stevens Act and the National Standard 1 Guidelines. In minimizing PIBKC bycatch to the

¹ Under the BSAI king and Tanner crab FMP MSST is defined as ½ the biomass of maximum sustained yield (B_{MSY}) (NPFMC 2009).

extent practicable, the Council intends to provide the maximum potential for rebuilding this very depressed stock.

A draft environmental assessment (EA)/regulatory impact review (RIR)/initial regulatory flexibility analysis (IRFA) was mailed to you on May 18th. The executive summaries of the EA and RIR are attached as Item C-3(b)(1). This analysis evaluates six proposed alternative rebuilding measures for the Pribilof Islands blue king crab (*Paralithodes platypus*) stock. The Pribilof Islands blue king crab stock remains overfished and the current rebuilding plan has not achieved adequate progress towards rebuilding the stock by 2014. Four of the alternatives are different closure configurations to restrict groundfish fisheries in the areas of the stock distribution. The fifth alternative considers trigger caps and associated area closures in specific groundfish fisheries while the sixth consists of a combination of a triggered closure for groundfish fisheries combined with a year-round closure to Pacific cod pot fishing. The Council has indicated that Alternative 2b, a closure of the Pribilof Island Habitat Conservation Zone is the preliminary preferred alternative (PPA). A summary of the alternatives and a comparison across them is attached at Item C-3(b)(2). The impacts of these alternatives on rebuilding the Pribilof Island blue king crab stock as well as the environmental and social/economic impacts of these measures are considered in this analysis.

The Council will take final action at this meeting to select a final preferred alternative. Depending upon the complexity of the preferred alternative chosen, implementation of this action would be expected in 2013.

Executive Summary (Environmental Assessment)

The king and Tanner crab fisheries in the Exclusive Economic Zone (EEZ) (3 to 200 miles offshore) of the Bering Sea and Aleutian Islands (BSAI) off Alaska are managed under the Fishery Management Plan for Bering Sea and Aleutian Islands King and Tanner Crabs (FMP). The FMP establishes a State/Federal cooperative management regime that defers crab fisheries management to the State of Alaska (State) with Federal oversight. State regulations are subject to the provisions of the FMP including its goals and objectives, the Magnuson-Stevens Act, and other applicable Federal laws.

This proposed action is a revised rebuilding plan for the Pribilof Islands blue king crab (PIBKC) stock. The PIBKC stock remains overfished. While the directed fishery for this stock has been closed since 1999, and bycatch in the crab fisheries has been minimized, PIBKC are currently caught as bycatch in the groundfish fisheries. The purpose of this proposed action is to reduce the risk of overfishing the PIBKC stock by amending the rebuilding plan to minimize bycatch of blue king crab in the federally managed groundfish fisheries, in compliance with the Magnuson-Stevens Act and the national standard guidelines. In minimizing PIBKC bycatch to the extent practicable, the Council intends to provide the maximum potential for rebuilding this very depressed stock.

Six alternatives are considered in this analysis. Four of the alternatives consider year-round area closures to better protect the PIBKC stock. The fifth and sixth alternatives consider trigger caps and associated time and area closures in groundfish fisheries which have contributed historically to bycatch of this stock. Alternatives 2-6 retain all of the current protection measures in place for the PIBKC stock and apply additional measures as described in the specific alternatives and options. For each of Alternatives 2-6, there is the option of increasing observer coverage, either to all fisheries to which a limit or closure applies (Option 1), or to specific fisheries (Option 2).

- **Alternative 1** retains the current Pribilof Islands Habitat Conservation Zone (PIHCZ) trawl closure around the Pribilof Islands.
- **Alternative 2** applies the PIHCZ closure additionally to those groundfish fisheries contributing to PIBKC bycatch above a threshold criteria (Option 2a) or to fishing for Pacific cod (*Gadus macrocephalus*) with pot gear (Option 2b) or to fishing for Pacific cod with pot gear when triggered (Option 2c). Alternative 2b, a closure of the Pribilof Island Habitat Conservation Zone is the preliminary preferred alternative (PPA).
- **Alternative 3** proposes to apply the existing State of Alaska (State) crab closure areas to those groundfish fisheries contributing to PIBKC bycatch above a threshold criteria (Option 3a) or to fishing for Pacific cod with pot gear (Option 3b).
- **Alternative 4** proposes two closure configurations to cover the distribution of the PIBKC stock. These closures are then proposed to apply to either those groundfish fisheries contributing to PIBKC bycatch above a threshold criteria (Option 4a) or to fishing for Pacific cod with pot gear (Option 4b).
- **Alternative 5** proposes a range of trigger caps on those groundfish fisheries contributing to PIBKC bycatch above a threshold criteria that, if reached, would close that area to fishing (Options 5a-5d). An additional option would allocate the trigger cap amongst gear types for applicable fisheries.
- **Alternative 6** combines elements of Alternative 2b (Component 1, year-round closure of PIHCZ to pot gear) with a triggered closure of Area 5d to Pacific cod pot gear, hook and line gear as well as non-pelagic trawl fishing for yellowfin sole (Component 2). An option to establish the limit in number of crabs based on the average weight in the previous season (option a) or based on a five-year rolling average weight (option b). Options are also included for the allocation of the PSC limit to gear types (option 1) or for all fisheries by seasonal allocations (option 2).

Prior to the selection of Alternative 2b as the PPA, the Council had selected Alternative 6. In February 2012, based on additional analysis, the Council noted concerns with trigger closure component due to management issues, data limitations, and the difficulties in defining the appropriate boundary for the PIBKC stock at this time. In deference to the current issues with respect to the appropriate stock boundary for the PIBKC stock, and the impact modifying the stock boundary would have upon the qualified fisheries, the Council modified their PPA to reflect only the Pacific cod pot cod closure under Alternative 2b as a move to constrain known sources of bycatch mortality while continuing to move forward to address issues of additional bycatch and stock boundaries. The Council further noted that it may consider additional measures to minimize PIBKC bycatch once the stock boundary is resolved.

Any action taken to decrease the mortality on this stock is likely to increase the likelihood that this stock may rebuild. Analysis of the impacts of the alternative closure configurations on the rebuilding potential for the PIBKC stock shows limited effect on rebuilding between the ranges of alternative closures. This is based on the assumptions of the projection model and the lack of observed recruitment for this stock in multiple years. The PPA would close the PIHCZ, the area known have key habitat components important to PIBKC, to fishing for Pacific cod pot gear, the gear type with the highest observed bycatch. This would decrease the mortality on this stock and greatly reduce the potential for overfishing due to bycatch.

RIR Executive Summary

The analysis of potential socioeconomic effects of the alternatives is presented in the Regulatory Impact Review (RIR) and a summary of effects is re-presented here. These effects will apply to all entities, large and small, operating in the BSAI Pacific cod and flatfish fisheries.

Alternative 1, the status quo, includes a directed Pribilof Islands blue king crab fishery closure until the stock is completely rebuilt, and the closure to all trawl gear of the Pribilof Island Habitat Conservation Zone (PIHCZ). These measures; however, have failed to rebuild the PIBKC stock sufficiently thus necessitating a new rebuilding plan, including additional PIBKC protection measures, as required under the MSA.

Tables 1-24 through 1-26 of the RIR provide a comparison of the potential impacts, in terms of tons and gross revenue at risk, of each of the Proposed annual closure areas (Alt. 2, 3, and 4) on the Pacific Cod pot gear fishery. As one would expect, the tons at risk increase with the size of the closure area and that finding is consistent across all years. Non-confidential tonnage put at risk ranges from 125 metric tons (Alt. 2, 2010) to as much as 4,212 metric tons (Alt. 4-1, 2008). Gross revenue effects range from near zero to \$9 million and the range of impacts in terms of percent of total gross revenue earned in the BSAI Pacific Cod pot fishery is from .89 percent to more than 22 percent (Alt. 4-1, 2008) of total fishery gross revenue. These values are also depicted graphically in Figure 4. These potential impacts would accrue, nearly entirely, upon directly regulated small entities.

Tables 1-27 through 1-29 of the RIR provide a comparison of the potential impacts, in terms of tons and gross revenue at risk, of each of the proposed closure areas on the all groundfish fisheries combined. In contrast to the Pacific cod pot fishery, the distribution of groundfish effort in the flatfish fisheries within the ADF&G area results in larger tons at risk tabulations in the Alternative 3 ADF&G areas than occurs in the Alternative 1 PIHCZ area in several, but not all, years. Though there are a few exceptions, tons at risk tend to increase with the size of the closure area and that finding is consistent across all years. Non-confidential tonnage put at risk ranges from 337 metric tons (Alt. 3, 2009) to more than 96,000 metric tons (Alt. 4-1, 2005). Gross revenue effects range from near zero to \$106 million and the range of impacts in terms of percent of total gross revenue earned in the BSAI Pacific Cod and flatfish fisheries is

from .14 percent to approximately 29.5 percent (Alt. 4-1, 2005) of total fishery gross revenue. These values are also depicted graphically in RIR Figure 5.

Tables 1-30 through 1-32 and Figures 6 through 8 of the RIR provide comparisons of the effect of the various options of Alternative 5 triggered area closures on potentially affected fisheries. Unfortunately, all impacts associated with the flatfish fisheries are confidential and cannot be divulged. In the Pacific cod fishery, the greatest impacts of the triggered closure would have occurred in the hook and line combined CP+CV grouping where 1,312 tons are put at risk were a closure in the largest stock distribution area (A5c) and this option would also result in the largest total impacts of 2,414 metric tons across all of the Pacific cod fisheries potentially affected. The Alternative 5d option, which is the second largest triggered closure area under consideration, would have had the second highest total impact of 1,182 tons, most of which comes from the hook and line CP+CV grouping. Due to confidentiality, only a combined Pacific cod hook and line group could be reported, with 143 metric tons put at risk. Extending the existing trawl closure in the PIHCZ to all groundfish fisheries, as a triggered closure, would have put 272 and 386 tons (658 total) at risk in the Pacific cod pot CP+CV group and the Pacific cod hook and line CP+CV group, respectively. These tonnages, when converted to gross revenue at risk, result in total potential impacts ranging from \$0.292 million (ADF&G area) up to just over \$3 million (PIBKC75 area). Most of the potential impact estimates, in specific gear and target fisheries, approach or exceed a half a million dollars, while the largest potential gross revenue at risk impacts exceed \$1.6 million in the Pacific cod hook and line CP+CV grouping.

In percentage terms, these potential impacts of the Alternative 5 triggered closures are, with the exception of the Pacific cod pot fishery, all less than one percent of the overall target fishery level and the Pacific cod pot fishery impacts are less than two percent of target fishery gross revenue in all areas. However, it is important to recognize that while these values are small, in percentage of overall target fishery gross revenue and aggregate total gross revenue, the potential impacts may be concentrated in a small number of operators.

Figure 9 of the RIR provides a graphical representation of the tonnage and gross revenue effects of threshold based triggered closure of the area associated with the revised PIBKC stock distribution from 1984 to 2009 (As defined in Alternative 5d option 4, and Alternative 6) in the weeks following triggering of the closure in affected fisheries. This information was previously discussed and is shown in RIR Tables 1-22 and 1-23

Under the 20 percent allocation threshold in the Pacific Cod hook and line fishery closures would have been triggered in 2004, 2006, and 2009 on September 4th, 2nd, and 26th, respectively, with the 2009 triggered closure also applying to Alternative 6, option 2. These triggered closures would have respectively put 3,001, 1,301, and 482 tons at risk, with associated gross revenue at risk of \$3.5 million, \$2.3 million, and \$.6 million which would have represented 2.7 percent, 1.3 percent, and .47 percent of annual gross revenue in each of those years. The impacts would have accrued to both the open access and CDQ Pacific Cod hook and line fisheries and upon both CVs and CPs.

Under the 40 percent allocation threshold in the Pacific Cod Pot fishery closures would have been triggered in 2005 and 2007 in the week ending February 12th and September 22nd respectively, with both closures also applying under Alternative 6, option 2. These triggered closures would have respectively put 1,464 and 331 tons at risk, with associated gross revenue at risk of \$2 million and \$.7 million, which would have represented 10.46 percent and 1.84 percent of annual gross revenue. The impacts would have accrued in the open access Pacific Cod Pot fishery and upon both CVs and CPs.

Under the 40 percent trawl allocation threshold in the yellowfin sole fishery closures would have been triggered in 2004 and 2006 in the week ending August 7th and August 19th, respectively, and on June 19th under Alternative 6, option 2. However, the potential effects of these triggered closures in terms of catch and revenue at risk cannot be divulged due to confidentiality restrictions (fewer than 3 vessels).

Figure 10 of the RIR provides a graphical representation of the tonnage and gross revenue effects of threshold based triggered closure of the area associated with the PIHCZ under the PSC limit thresholds of Alternative 2c. This information was previously discussed and is shown in RIR Table 1-5.

Under the 20 percent of PSC limit threshold fishery closures would have been triggered in 2005 and 2007 on February 5th and May 12th, respectively. These triggered closures would have put 2,161, and 677 tons at risk, with associated gross revenue at risk of \$3 million, and \$1.38 million, which would have represented 15.44 percent, and 3.76 percent of annual gross revenue in 2005 and 2007, respectively. The impacts would have accrued to both the open access and CDQ Pacific Cod hook and line fisheries and upon both CVs and CPs. The 2007 closure potential effects also apply to the 30 percent threshold trigger even though the triggering date occurs two weeks later, while the 50 percent threshold would have triggered a closure following September 8th of 2007. The potential effects of the 50 percent threshold triggered closure are 538 tons of catch at risk or just over \$1 million in gross revenue at risk, which represents approximately 3 percent of total annual target fishery gross revenue.

Finally, the RIR includes an extensive analysis of catch reprojection from closed to open areas based on historically recorded catch quantities and locations. That analysis is documented within the RIR, for triggered closures, and in Appendix A for more extensive treatment of annual closures. The potential effects of the catch rejections are discussed under each alternative within the RIR. In general, the reprojection analysis has shown that it is likely that the fleet has the ability, based on past fishing locations, to harvest catch put at risk outside of the closure area albeit with considerable potential for increased operating costs due to the relative dispersion of catch outside of the areas proposed for closure. This is most prevalent with the large distribution areas of Alternatives 4, options 1 and 2; however catch reprojection dispersion is identified in many cases, including the Preliminary Preferred Alternative (Alt. 2b).

This analysis concludes that it is likely that some or all of the catch can be made up outside of the smallest proposed closure areas (e.g. PIHCZ and ADF&G areas) and under the triggered closures and/or threshold based triggered closures. The larger closure areas, based on historic stock distribution and catch reprojection analysis contained herein, would create potential impacts on catch and gross revenue of more than ten percent of total fishery gross revenue in several years and nearly 30 percent in the worst case under examination here. Redeployment to recover small amounts of catch, while potentially increasing operating cost, won't have appreciable impacts on landings, fishing communities, markets, or consumers. However, as impacts increase with the size of the closure area it is less likely that all catch can be made up and, thus, there may be decreased landing and gross revenue, decreased tax gross revenue and vessel expenditures in fishing communities, and potentially contraction in supply to fish markets potentially affecting consumers via increased prices. A comprehensive treatment of these potential effects would require information on vessel operating costs, spatial modeling of effort location choice, vessel port expenditure information, as well as comprehensive domestic market supply and demand models. Unfortunately, these kinds of information are not available at present and, thus, this analysis has relied on analysis of gross revenue at risk as the best available proxy. Nonetheless, the potential effects of each alternative on secondary operations will scale with the potential effects, in percent of gross revenue terms, on those fishing entities directly affected by the proposed action as analyzed herein.

Description of Alternatives: Pribilof Islands Blue King Crab Rebuilding Plan

Includes Council modifications in February 2012; Note see figure 1 at end for comparisons of Alternatives 1-6 closures

Alternative 1: Status Quo

Alternative 1 retains the current protections for PIBKC stock. Pribilof Islands blue king crab is currently managed under the rebuilding plan that was implemented in 2004.

Provisions of the rebuilding plan in the Crab FMP (and ADF&G management): Directed fishery closure until the stock is completely rebuilt. ADF&G has also closed the following to further protect the PIBKC stock by minimizing bycatch: Directed fishery closure of the PI red king crab; area closure to snow crab fishing.

Provisions of the rebuilding plan in the BSAI Groundfish FMP: 1) blue king crab is a prohibited species and must be avoided while fishing for groundfish, and must be returned to the sea with minimum of injury; 2) Pribilof Islands Habitat Conservation Zone (PIHCZ) is closed to all trawl gear.

Alternative 2: Expand the current Pribilof Islands Habitat Conservation Zone closure to apply to additional select groundfish fisheries or expand to apply to Pacific cod pot fishing.

Option 2a: In addition to the trawl fisheries, closure in the PIHCZ (Figure 1) would apply to all groundfish fisheries which have contributed greater than a designated threshold to bycatch of PIBKC. The PIHCZ closure would apply to a fishery based whether PIBKC bycatch in that fishery from 2003 to 2010 met either a threshold of greater than 5 percent of ABC or greater than 10 percent of ABC. The non-trawl groundfish fisheries that exceed the 5 percent threshold are pot and hook-and-line Pacific cod fisheries. No fisheries currently have bycatch greater than 10 percent of ABC¹.

Option 2b (PPA): In addition to the existing trawl closure in the PIHCZ, all Pacific cod pot fishing would be prohibited in this zone year-round.

Option 2c: In addition to the existing trawl closure in the PIHCZ, vessels fishing for Pacific cod with pot gear in the PIHCZ must carry 100% observer coverage. Pacific cod pot fishing in the PIHCZ will be closed for the year if total PIBKC bycatch across all fisheries in all areas reaches X% of the overall trigger closure cap (75% ABC):

- i) 20%
- ii) 30%
- iii) 50%

¹ Previously rock sole trawl was included in the fisheries that met the 10% threshold, however it was later removed from consideration due to all observed catch occurring outside of the defined Pribilof District.

Alternative 3: ADF&G crab closure areas applied select groundfish fishing and just Pacific cod pot fishery.

Option 3a: Closure applies to all groundfish fisheries which have contributed greater than a designated threshold to bycatch of PIBKC since 2003. The closure to a fishery would be based on bycatch of PIBKC in that fishery between 2003 and 2010 meeting either a threshold of greater than 5 percent of ABC or greater than 10 percent of ABC. Under the five percent criteria threshold the closure would apply to the following fisheries: yellowfin sole trawl, Pacific cod pot and Pacific cod hook and line fisheries. No fisheries met the 10% criteria²

Option 3b: Under this option no federal Pacific cod fishing with pot gear would be allowed within the confines of the closure.

Alternative 4: Closure that covers the entire distribution of the Pribilof Islands blue king crab stock.

There are two year-round closure options under Alternative 4:

Option 4a: Closure applies to all groundfish fisheries which have contributed greater than a designated threshold to bycatch of PIBKC since 2003. The closure to a fishery would be based on bycatch of PIBKC in that fishery between 2003 and 2010 meeting either a threshold of greater than 5 percent of ABC or greater than 10 percent of ABC. Under the five percent criteria threshold the closure would apply to the following fisheries: yellowfin sole trawl, Pacific cod pot, and Pacific cod hook and line fisheries.

Option 4b: Closure area applied only to pot fishing for Pacific cod. Under this option no federal Pacific cod fishing with pot gear would be allowed within the confines of the closure shown shown in Figure 1.

Alternative 5: Trigger closures with cap levels established for PIBKC in all groundfish fisheries.

Cap sub-option	Cap description	Cap (lb)	Cap (numbers of crab)
1	OFL	2,557	957
2	ABC	2,301	862
3	90% ABC	2,071	775
4	75% ABC	1,726	646

There are 4 closure options under Alternative 5:

Option 5a: The existing PIHCZ, as described in Alternative 1), would be modified to apply to additional fisheries (i.e., rather than just to the trawl fisheries as under the status quo). The fisheries to which this closure would apply would be Pacific cod pot and hook and line as the non-exempt trawl fisheries are already closed form

² Previously rock sole trawl was included in the fisheries that met the 10% threshold, however it was later removed from consideration due to all observed catch occurring outside of the defined Pribilof District.

this area year-round. The closure would be triggered by attainment of a fishery-wide PSC limit set at the options below. PSC limit options are the following:

- Sub-option 1: PSC limit = OFL
- Sub-option 2: PSC limit = ABC
- Sub-option 3: PSC limit = 90% ABC
- Sub-option 4: PSC limit = 75% ABC

Option 5b:

The existing ADF&G crab closure areas between 168° and 170° West longitude, and between 57° and 58° North latitude (Figure 1) would be closed to additional fishing effort Figure 1. The fisheries to which this closure would apply are Pacific cod pot and hook-and-line, and yellowfin sole trawl. The closure would be triggered by attainment of a fishery-wide PSC limit set at the options below. PSC limit options are the following:

- Sub-option 1: PSC limit = OFL
- Sub-option 2: PSC limit = ABC
- Sub-option 3: PSC limit = 90% ABC
- Sub-option 4: PSC limit = 75% ABC

Option 5c:

The closure area consists of the full distribution of the Pribilof Islands stock aggregated from 1975 to 2009 based on the NMFS EBS bottom trawl survey (Figure 1). The fisheries to which this closure would apply are Pacific cod pot and hook-and-line, and yellowfin sole trawl. The closure would be triggered by attainment of a fishery-wide PSC limit set at the options below. PSC limit options are the following:

- Sub-option 1: PSC limit = OFL
- Sub-option 2: PSC limit = ABC
- Sub-option 3: PSC limit = 90% ABC
- Sub-option 4: PSC limit = 75% ABC

Option 5d:

The closure area consisting of the full distribution of the Pribilof Islands stock aggregated from 1984 to 2009 without the portion which extends east of the 168 Pribilof District boundary (Figure 1). The fisheries to which this closure would apply are Pacific cod pot and hook-and-line, and yellowfin sole trawl. The closure would be triggered by attainment of a fishery-wide PSC limit. PSC limit options are the following:

- Sub-option 1: PSC limit = OFL
- Sub-option 2: PSC limit = ABC
- Sub-option 3: PSC limit = 90% ABC
- Sub-option 4: PSC limit = 75% ABC

Under **Option 5d**, **suboptions 3 and 4**, there is an additional option for allocation of the PSC limit by gear types. This allocation is as follows:

- Trawl gear: 40%
- Pot gear: 40%
- Hook and Line gear: 20%

Alternative 6: PIHCZ closure to Pacific cod pot fishery and triggered area closure to qualified fisheries

Component 1: The first component of this alternative is a year-round closure of the PIHCZ to fishing for Pacific cod with pot gear (Figure 1). This closure would be in addition to the existing closure to all trawl gear of the PIHCZ. Thus only fishing with hook and line gear would be allowable inside the PIHCZ.

Component 2: The second component of this alternative is a triggered closure of the area representing the distribution of the PIBKC stock between 1984-2009 (see Figure 1). The PSC limit associated with this closure is established as a fishery-wide level at 75% of the ABC

Option a: Set bycatch cap in numbers of crab based on the average weight in the previous season.

Option b: Set bycatch cap in numbers of crab based on a rolling five year average weight.

Option 1: This PSC limit is then further allocated to sectors by gear type as follows:
Trawl Gear – 45% of trigger cap
Pot Gear – 45% of trigger cap
H&L Gear – 30% of trigger cap

This allocation notably over-allocates the cap which is specifically intended to allow for greater fishing flexibility by gear type. Nevertheless, when the overall aggregate cap is reached the closure would be triggered regardless if some gear types have not yet reached their individual sector allocation. Furthermore as with alternative 5, bycatch accrual is by all fisheries in the PI District and not restricted to those fisheries which are not exempted from the closures themselves.

Option 2: The trigger cap is seasonally allocated to all fisheries in aggregate. Any unused PSC will roll to the following season.

- a) 25% to first quarter, 25% to second quarter, 50% to last half of year
- b) 50% to first half of year, 50% to last half of year
- c) 75% to first half of year, 25% to second half of year

Option for Increased Observer Coverage

Option 1: Apply increased observer coverage to fisheries which contributed to PIBKC bycatch above a threshold criteria since 2003 for which a cap (PSC or trigger) or closure applies;

Option 2: Apply increased observer coverage to specific fisheries.

Sub-option (applies to both options 1 and 2): This would sunset under implementation of the restructured observer program.

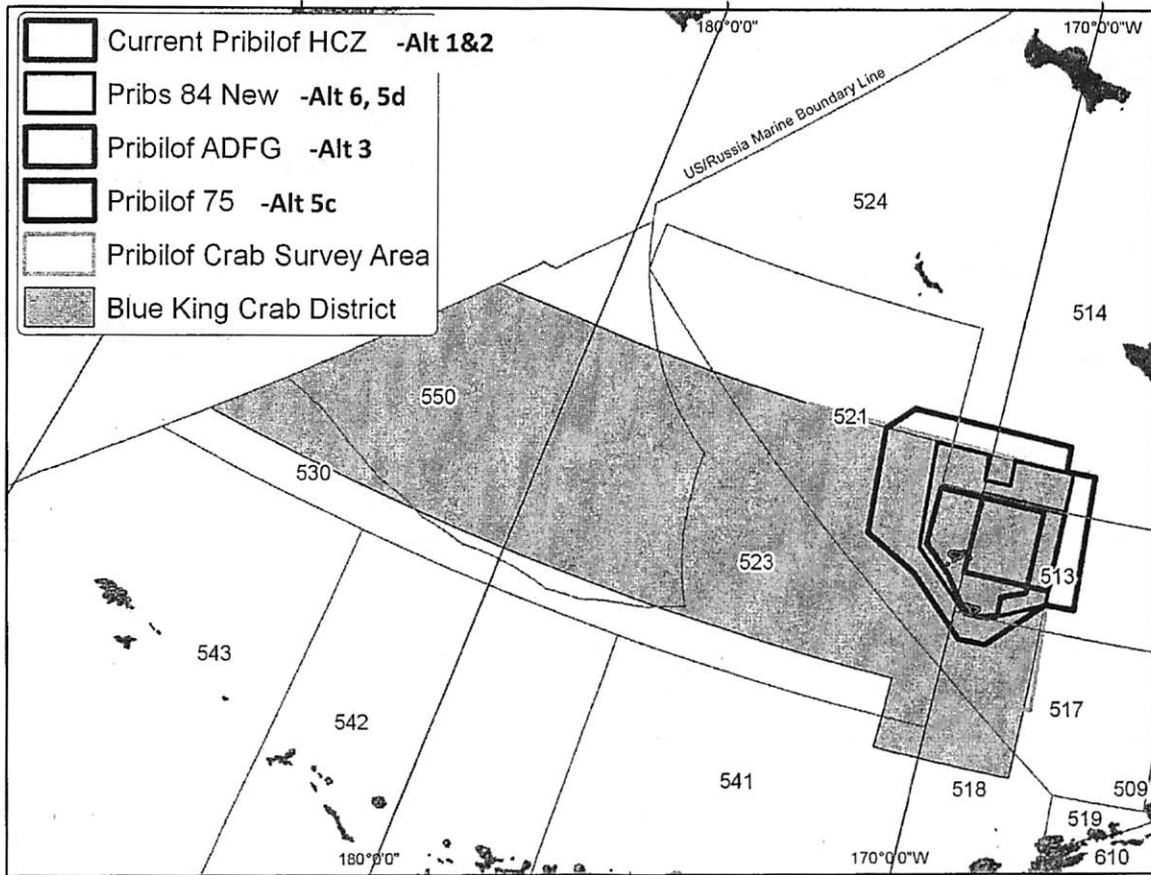


Figure 1: Comparison of alternative closure configurations under alternatives 1-6 with NMFS reporting areas (numbered) and the PI District (shaded area). Note that Alternative 6 is the area labeled "Pribilof 84 New".

Comparison of Alternatives

Alternatives 1-6 all address different closure configurations applied to either the trawl-only fisheries (Alternative 1) or to include Pacific cod pot, Pacific cod hook-and-line, or yellowfish sole fisheries. A comparison of the relative extent of the closures across these alternatives is shown in Figure 1 while the Table 1 shows a comparison of the different features of all 6 alternatives.

Table 1 Comparison of major features of Alternatives 1 through 6

Alternative	Area Closure	Fisheries	Timing and Triggers
1 Status Quo	PIHCZ	All groundfish trawl	Year-round
2 Year round closure (PPA)	PIHCZ	(a) Pacific cod pot, hook-and-line Pacific cod (b) Pacific cod pot (PPA)	Year-round
2 Area closure triggered by a portion of the 75% of ABC PSC limit		(c) Pacific cod pot ³	When bycatch by all fisheries (i) > 20% of PSC limit (ii) > 30% of PSC limit (iii) > 50% PSC limit
3 Year round closure	ADF&G	(a) Yellowfin sole, Pacific cod pot, hook-and-line Pacific cod (b) Pacific cod pot	Year-round
4 Year round closure	(a) 1975-2009 distribution	(1) Yellowfin sole, Pacific cod pot, hook-and-line Pacific cod (2) Pacific cod pot	Year-round
	(b) 1984-2009 distribution		
5 Area closure triggered by PSC limit	(a) PIHCZ	(1) Pacific cod pot, hook-and-line Pacific cod ¹ (2) Yellowfin sole, Pacific cod pot, hook-and-line Pacific cod	(i) PSC limit = OFL (ii) PSC limit = ABC (iii) PSC limit = 90%ABC (iv) PSC limit= 75 % ABC Suboption: Allocate PSC limit: 40% Trawl 40% Pot 20% Hook and line
	(b) ADF&G		
	(c) 1975-2009 distribution		
	(d) Revised 1984-2009 distribution		
6 (1) Year-round closure to Pacific cod pot fishing <i>and</i>	PIHCZ	Pacific cod pot	Year-round
(2) PSC limit that triggers a larger area closure to additional fisheries; PSC limit allocated by gear type	Revised 1984-2009 distribution	Yellowfin sole, Pacific cod pot, hook-and-line Pacific cod	PSC limit =75% ABC (1) allocated: 45% Trawl 45% Pot 30% Hook and line (2)seasonally allocated by quarter aggregate fisheries (a) 25%, 25%, 50% (b)50%, 50% (c)75% , 25%

³ 100% observer requirement to fish inside PIHCZ. Under the option for increased observer coverage, this provision could be added to other alternatives as well but as yet the Council has not specified any increased outside of Alternative 2c for Pacific cod pot fishing.

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May 29, 2012

Mr. Eric A. Olson, Chairman
Chris Oliver, Executive Director
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RE: Agenda item C-3(b) Final Action on Pribilof Islands Blue King Crab Rebuilding Plan

Dear Chairman Olson:

Recommendations for action: The ACC recommends the Council adopt Alternative Alternative 2, Option 2b, the Preliminary Preferred Alternative, to close the Pribilof Islands Habitat Conservation Zone (PIHCZ) to fishing for Pacific cod with pot gear. The Pacific cod pot fishery comprises the highest amounts of bycatch of Pribilof Island Blue King Crab over the timeframe examined (2003-2010), despite the limitations of observer coverage in the fishery (Analysis, Table 2-2, page 10).

Purpose and Need:

The PIBKC stock remains overfished. On September 23, 2002, the Secretary of Commerce notified the Council that the PIBKC stock biomass was below the minimum stock size threshold (MSST) and was overfished. A rebuilding plan was implemented in 2003 that included a provision prohibiting directed fishing until the stock was rebuilt. The PIBKC fishery has been closed since 1999 and bycatch in 2010/11 was below the overfishing level.

NMFS notified the Council on September 29, 2009, that the current rebuilding plan has not achieved adequate progress to rebuild the stock by 2014. To comply with section 304(e)(7) of the M-S Act, the Council is amending the PIBKC rebuilding plan to add measures to address bycatch in groundfish fisheries, the primary source of fishing mortality. Under the M-S Act, the Council has two years from notification to develop and implement a revised rebuilding plan for the PIBKC stock. However, development of additional rebuilding measures required more time due to a number of difficulties and data limitations, including defining appropriate stock boundaries, identifying which groundfish fisheries to restrict, and determining the appropriate way to analyze the existing data on PIBKC bycatch in the groundfish fisheries. Therefore, the Council has

taken the time necessary to address these issues and develop appropriate alternatives, recognizing that the current PIBKC protections remain in place. The Council intends to take final action in 2012 for implementation in 2013.

Pursuant to the M-S Act section 304(e)(4)(A) and the National Standard Guidelines, the purpose of this proposed action is to develop an amended rebuilding plan to reduce the risk of overfishing and to rebuild the PIBKC stock in as short a time as possible with the understanding that the biology of this stock and environmental conditions will likely dictate that the time needed to rebuild will exceed 10 years (Analysis, p. 1-2).

A discussion of National Standard 1 Guidelines is contained in the Analysis, pages 2-6. Amending the PIBKC rebuilding plan to reduce the impacts of groundfish fisheries is an example of the inherent complexities managers of the nation's fisheries confront to meet the rigid mandates of National Standard 1 guidelines which govern overfishing, overfished stocks and rebuilding plans. **The Analysis on p. 3, notes that NS 1 in regards to Rebuilding Overfished Fisheries requires that the rebuilding plan "specify a time period for ending overfishing and rebuilding the fishery that shall— (I) be as short as possible"...."(ii) not exceed 10 years, except in cases where the biology of the stock of fish, other environmental conditions, or management measures under an international agreement in which the United States participates dictate otherwise;"**.

Background of NPFMC and ADFG management actions to protect PIBKC: Two management measures in the BSAI groundfish FMP minimize blue king crab bycatch. First, blue king crab is a prohibited species and must be avoided while fishing for groundfish, and must be returned to the sea with minimum of injury (NPFMC 2010)j. Second, the PIHCZ is closed to all trawl gear as shown in Figure 2-1 (Analysis, p. 9). The PIHCZ was implemented in January 1995. Amendment 21a to the BSAI groundfish FMP established the PIHCZ, a year-round closure to prohibit the use of all trawl gear in a specified area around the Pribilof Islands. The intent of this closure was to protect the unique habitat and ecosystem surrounding the Pribilof Islands so the islands could contribute long term benefits to the fisheries surrounding the waters of the Pribilof Islands area (NPFMC, 1994).

The area was established based upon the distribution and habitat of the blue king crab in the NMFS annual trawl surveys and on observer data. Blue king crabs do not exist uniformly across the Bering Sea and are instead found in isolated populations. The PIHCZ was intended to protect a majority of the crab habitat in the Pribilof Islands area (NPFMC, 1994, Analysis p. 8).

Under Section 2.1, Alternative 1: Status Quo (p.8), there is a summary of additional protections for PIBKC stock, that are provided under the BSAI King and Tanner Crab FMP. PIBKC is currently managed under the rebuilding plan that was implemented in 2004. The rebuilding plan closes the directed fishery until the stock is completely rebuilt. Since 1999, ADFG has also closed the PI red king crab fishery to minimize bycatch of blue king crab. The PIBKC directed fishery has been closed since 1999 also. ADFG

directed fishery closures to protect Pribilof Island blue king crab actually began long before 1999, as the Analysis states. ADFG closed the fishery from 1987-1995, then opened it from 1996-1998, simultaneously with PIRKC. Then it was closed in 1999 and it has remained closed through 2012. Thus in the recent 25 year period, the directed fisheries for PIBKC and PIRKC have been closed 22 out of 25 years. ADFG also closes a core area of blue king crab habitat to the snow crab fishery to minimize blue king crab bycatch. As a result, the bycatch of blue king crab in the crab fisheries is minimal (Analysis, p. 8).

Impacts of Alternatives on Pribilof Islands Blue King Crab: (Analysis p. 77, 78)

Significance Criteria: The significance criteria used to evaluate the effects of the action on PIBKC are in Table 5-5 (Analysis p.77). These criteria have been adopted from the 2006-2007 groundfish harvest specifications environmental/final regulatory flexibility analysis (EA/FRFA) (NMFS 2006b).

In summary, no significant impacts (beneficial or adverse) on PIBKC were identified for any of the alternatives. However, under Alternative 1, (status quo), the potential for PIBKC bycatch to exceed the OFL exists and there are no measures to prevent overfishing. Therefore, there is the potential for significant adverse impacts. Alternatives 2-6 would reduce this potential and reduce the risk of bycatch exceeding the OFL. As shown in the Analysis, Alternative 2b, which would close the existing PIHCZ to fishing for Pacific cod with pot gear would eliminate the vast majority of PIBKC in the area of known BKC habitat.

Stock Rebuilding:

The impacts of the six alternatives on stock rebuilding have been considered by using the draft assessment model for projection purposes to estimate stock rebuilding. The stock assessment model used is described in section 4.1 (Analysis p.41-46). The impact of PIBKC bycatch in groundfish fisheries as a limiting factor on stock recovery was estimated by conducting a sensitivity analysis on the rebuilding time frame under different catch scenarios. As noted however, rebuilding simulations indicate that none of the alternatives rebuild the PIBKC stock in less than 50 years.

While the projection model currently represents the best available science for estimating rebuilding, there is clearly uncertainty in the model projections due to assumptions of recruitment, biomass estimation, and model formulation. The PIBKC stock most likely has declined below a critical threshold for rebuilding. The causes of this decline are thought to be predominately due to environmental changes that inhibit blue king crab reproduction. Measures are being considered to restrict any additional bycatch of this stock and prevent overfishing to further protect this stock and allow it the opportunity to rebuild. However, for this stock to rebuild, in addition to these protection measures, the stock would likely benefit from multiple years of above average recruitment and/or a change in environmental conditions to increase larval productivity around the Pribilofs. Nevertheless, any measures which

would reduce current mortality on this stock should benefit the stock and allow an opportunity for stock rebuilding (Analysis, p. 77,78).

To assess the impacts of alternatives on rebuilding the PIBKC stock, four scenarios were considered where groundfish bycatch was reduced by a specified amount that brackets the reduction in bycatch corresponding to the closure configurations in the analysis: no reduction; 50% reduction; 80% reduction; and 100% reduction.

The probability of being overfished decreased very little across scenarios from 1 to 0.08, 0.07, and 0.06 for the status quo, 80% reduction, 50% reduction, and 0% reduction alternatives, respectively (Figure 5-18) (Analysis p. 79). A similar decrease was observed for the pot cod only bycatch reduction (option b under each alternative) (Figure 5-19, Analysis, p. 80). In summary, the model results show that all of the alternatives would have similar impacts on PIBKC stock abundance in the long term (Analysis p. 78).

The extent of the problem with this National Standard 1 driven analysis and mandate for regulatory action is that the action will have an almost non-significant benefit on rebuilding Pribilof Island blue king crab. NPFMC SSC Minutes from April 12, 2000 predicted this regulatory dilemma, following its discussion of Bering Sea crab stocks as follows:

“Finally, the SSC noted in several previous minutes several problems with the current NMFS overfishing guidelines. Consequently, the SSC has prepared a draft letter to NMFS from (the) NPFMC explaining the problems with the current NMFS guidelines and requesting greater flexibility in the development of overfishing definitions and status determination criteria. The letter also calls for NMFS to convene a workshop comprised of SSC and assessment scientists from around the country to craft a better set of procedures that have scientific credibility. If NMFS does not change its current guidelines, the SSC believes that (1) the perception will be created that NPFMC and (Alaska) Board of Fish management practices led to the decline of certain NPFMC populations because NMFS determined they were “overfished”, even though fishing had no demonstrable effect; (2) the deserved reputation of the NPFMC for its conservative management practices will be damaged, and (3) much time and energy of NPFMC members, staff, advisory bodies, and agency personnel will be squandered on meaningless overfishing compliance activities, which would be better spent on improved science and management.”

On December 1, 2011, Mr. Chris Oliver, the Executive Director of the NPFMC in his testimony before the Committee on Natural Resources, United States House of Representatives had these comments to make about requirements in rebuilding plans and referenced PIBKC: “While we have no overfished groundfish stocks in the North Pacific, this crab stock is considered overfished and in need of a rebuilding plan, even though no directed fisheries have occurred for nearly two decades, and the species is only occasionally taken as bycatch in other fisheries. We are facing the prospect of curtailing certain groundfish fisheries, (and crab fisheries) because this is the only source of

mortality we can affect, even though our analyses and models indicate that the expected bycatch savings will not positively effect, or affect, rebuilding success.”

“I cite these examples as recognition that the ACL and rebuilding requirements are not perfect and some adjustments to these requirements may well be in order.”

Arni Thomson
Executive Director
Alaska Crab Coalition

Supplemental information for PIBKC EA/RIR/IRFA:

Alternative 2(a): Additional impact of closing PIHCZ to fishing for Pacific cod with pot AND hook and line gear year-round.

Note that analysis in the EA/RIR/IRFA document provides similar information on crab rates and savings for the PPA (Alternative 2b) for estimation of the impacts of closing the PIHCZ to fishing for Pacific cod with pot gear. This document provides additional information to compare Alternatives 2a and 2b in terms of PIBKC crab PSC. Economic impacts of Alternative 2b are provided in the RIR.

Alternative 2 supplemental information for analysis. Alternative 2(a): Impact of closing PIHCZ to fishing for Pacific cod with hook and line gear year-round.

Under Alternative 2a the PIHCZ would be closed to groundfish fisheries above a threshold criteria. Two trawl fisheries meet the threshold criteria, however under the status quo, the PIHCZ is already closed to trawl fisheries. The non-trawl fisheries that meet that threshold criteria are the Pacific cod fishery with pot gear and the Pacific cod fishery with hook and line gear. The impact of closing the PIHCZ to Pacific cod fishing with pot gear is described in section 5.5.5.1. This supplement describes the impact of closing the PIHCZ additionally to Pacific cod fishing with hook and line gear using the same methodology employed for the PPA (Alternative 2(b)). Here the impacts are estimated using observer data using the same methodology described in section 5.5.5.1.

The highest PIBKC rates in the hook and line Pacific cod fishery occurred in the PIHCZ and the rates range from 0 to 0.41 crabs per metric ton of groundfish (Figure 1). The average rate inside the PIHCZ was 0.0176 from 2005-2011 (Table 1). The average bycatch rate for the open area was 0.00015 crabs per metric ton of groundfish and substantially lower rate results in higher estimated PIBKC in the closure area (Table 2). When the fishing effort is displaced to the open area (Figure 2), the potential savings of the closure area is estimated be 344 crabs for the period between 2005 and 2011, with 2005 and 2006 accounting for half of the savings.

Table 1. Summary of the observer and CIA information used to estimate the number of crabs caught inside the PIHCZ.

Year	Observed Groundfish Catch (mt)	Observed PIBKC (#)	Estimated Groundfish Catch from CIA (mt)	Estimated Crab (#)
2005	4,301	87	5,950	105
2006	2,106	109	3,998	70
2007	1,630	41	2,444	43
2008	972	12	1,479	26
2009	860	0	1,171	21
2010	2,410	0	3,189	56
2011	2,507	11	1,476	26
Total	14,786	260	19,706	347

Average Crab Rate 0.0176 crab per metric ton of groundfish used for each year.

Table 2. Summary of the observer and CIA information used to estimate the number of crabs caught outside the PIHCZ when fishing effort is displaced outside of the closure.

Year	Observed Groundfish Catch (mt)	Observed PIBKC (#)	Estimated Groundfish Catch from CIA (mt)	Estimated Crab (#)
2005	18,276	6	5,950	1
2006	19,388	6	3,998	1
2007	12,609	0	2,444	<1
2008	10,212	0	1,479	<1
2009	11,389	0	1,171	<1
2010	14,922	0	3,189	<1
2011	15,068	4	1,476	<1
Total	105,729	16	19,706	3

Average Crab Rate 0.00015 crab per metric ton of groundfish used for each year.

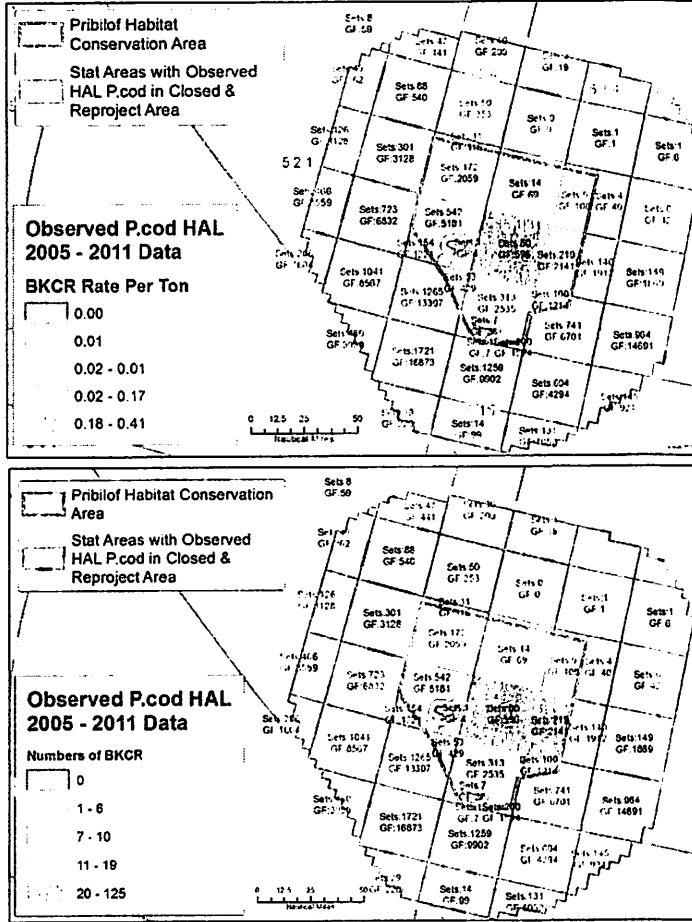


Figure 1. Summary of the PIBKC caught in observed sets in the Pacific cod hook and line fishery between 2005 and 2011. The colors indicate either numbers of crab (lower map) or rate (# crab per ton of groundfish; upper map) for each ADFG state statistical area inside and outside of the PIHCZ that had observer data. In addition, the amount of observed groundfish and number of observed sets are shown by state statistical area.

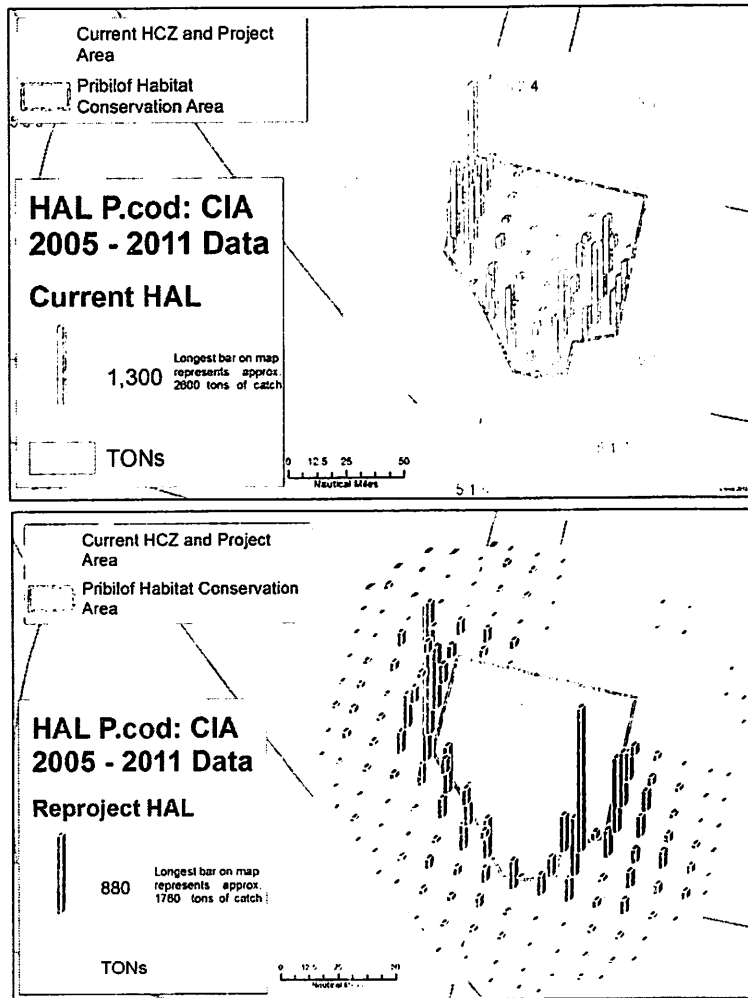


Figure 2. Comparison of the historical catch inside of the PIHCZ (top) with the spatial distribution of re-projected catch if the PIHCZ was closed to fishing with hook and line gear for the years 2005-2011. The bars indicate the amount of groundfish catch per 20 km² unit and the green line indicates the boundary of the PIHCZ.

PUBLIC TESTIMONY SIGN-UP SHEET

Agenda Item: C-3(b) Pribilof BKC Rebldeg Plan

NAME (PLEASE PRINT)	TESTIFYING ON BEHALF OF:
1 Kenny Down	Freezer Longline Coalition
2 Mateo Paz-Soldan/Heather McCarty	City of St. Paul / BSFA
3 Merrick Burdson	Marine Conservation Alliance
4 Stephanie Madsen	At-sea Processors
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NOTE to persons providing oral or written testimony to the Council: Section 307(1)(I) of the Magnuson-Stevens Fishery Conservation and Management Act prohibits any person "to knowingly and willfully submit to a Council, the Secretary, or the Governor of a State false information (including, but not limited to, false information regarding the capacity and extent to which a United State fish processor, on an annual basis, will process a portion of the optimum yield of a fishery that will be harvested by fishing vessels of the United States) regarding any matter that the Council, Secretary, or Governor is considering in the course of carrying out this Act.

C-3 (b) Pribilof BKC Rebuilding Plan

Adopt Alternative 2b (Preferred Alternative) for final action. Change the problem statement to read as follows.

The Pribilof Islands blue king crab stock remains overfished and the current rebuilding plan has not achieved adequate progress to rebuild the stock by 2014. In order to comply with provisions of the Magnuson-Stevens Fishery Conservation and Management (MSA) an amended rebuilding plan must be implemented prior to the start of the 2011/2012 fishing season.

The directed blue king crab fishery has been closed since 1999 and action has been taken to limit bycatch mortality in other crab and groundfish fisheries occurring near the Pribilof Islands. ~~Additional action to reduce bycatch in groundfish fisheries may be necessary.~~ ^{add} Recent trends in crab bycatch suggest that groundfish fisheries occurring near the Pribilof Islands have the potential to exceed the annual overfishing level and acceptable biological catch for this stock.

This action is necessary to facilitate compliance with requirements of the MSA to end and prevent overfishing, rebuild overfished stocks and achieve optimum yield.