

## Bering Sea non-Chinook (Chum) Salmon Bycatch Alternatives

Three alternatives are considered for minimizing Bering Sea non-Chinook (chum) salmon prohibited species catch, including detailed options and suboptions for each alternative. These management alternatives are for the Bering Sea pollock fishery.

**Alternative 1: Status Quo (No Action)**

**Alternative 2: Hard cap**

**Alternative 3: Triggered closure with intercooperative exemption**

### **Alternative 1: Status Quo (No Action)**

Alternative 1 retains the current program of Chum Salmon Savings Area (SSA) closure (Figure 1) in the BS triggered by separate non-CDQ and CDQ non-Chinook salmon prohibited species catch (PSC) limits, along with the exemption to these closures by pollock vessels participating in the Rolling Hot Spot intercooperative agreement (RHS ICA). This area is closed to all trawling from August 1 through August 31. Additionally, if 42,000 ‘other’ salmon are caught in the Catcher Vessel Operational Area (CVOA) during the period August 15-October 14, the area remains closed for the remainder of the period September 1 through October 14. As catcher processors are prohibited from fishing in the CVOA during the ‘B’ season unless they are participating in a CDQ fishery, only catcher vessels and CDQ fisheries are affected by the PSC limit. Under this system, the pollock fishery can continue to harvest pollock outside of the closed areas. Pollock vessels participating in the RHS ICA, under regulations implemented for BSAI FMP Amendment 84, are exempt from these closures altogether.

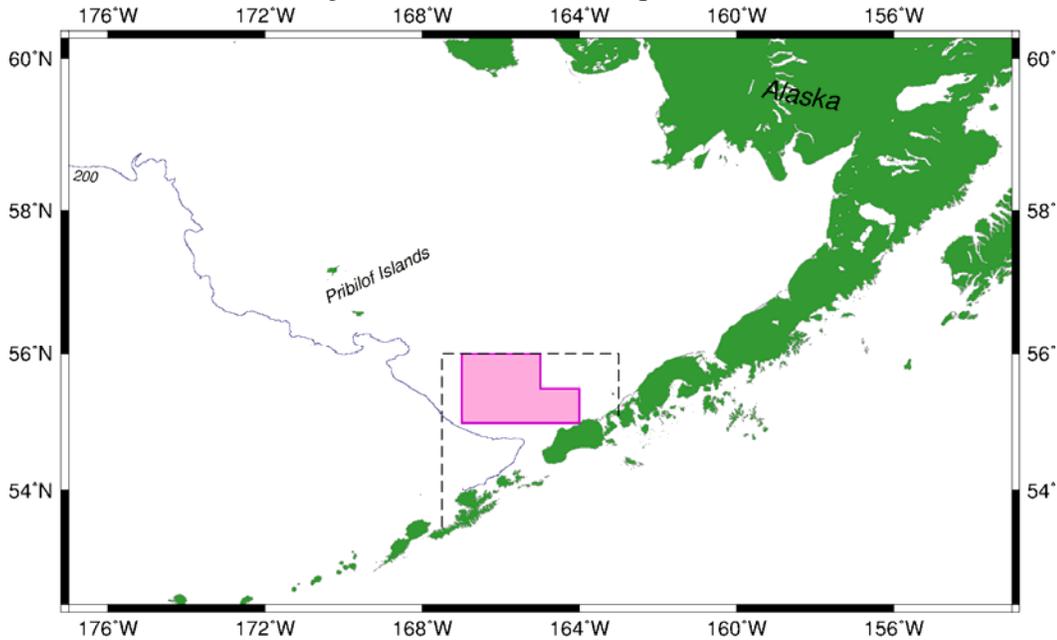


Figure 1. Chum salmon savings area (CSSA) under Alternative 1 (shaded), Status Quo. Note dashed line represents the catcher vessel operational area (CVOA).

**Alternative 2: Hard cap**

Alternative 2 would establish separate chum salmon PSC caps for the pollock fishery in the B season. When the hard cap is reached, all directed fishing for pollock must cease for either (1a) the remainder of the year or (1b) until August 1. Only those non-Chinook salmon caught by vessels participating in the directed pollock fishery would accrue towards the cap. When the cap is reached, directed fishing for pollock would be prohibited during the applicable time frame.

Alternative 2 contains components, and options for each component, to determine (1) the total hard cap amount and time frame over which the cap is applied, (2) whether and how to allocate the cap to sectors, (3) whether and how salmon bycatch allocations can be transferred among sectors, and (4) whether and how the cap is allocated to and transferred among CV cooperatives.

**Component 1: Setting the Hard Cap**

There are two options considered under the establishment of a non-Chinook PSC limit for vessels fishing in the directed pollock fishery. These options differ by whether the cap is established for the entire B season (option 1a) or for June and July only (option 1b).

*Option 1a: Apply a non-Chinook PSC limit to vessels participating in the directed pollock fishery for the entire B season*

Under this option the hard cap (non-Chinook PSC limit) would be established for vessels fishing in the directed pollock fishery according to the range of suboptions as shown below and would be applicable for the entire B season. Once reached, this cap would require all vessels affected by the cap to stop fishing for the remainder of the season.

The range of non-Chinook salmon PSC hard caps considered is shown below. As shown below, the CDQ Program would be allocated 10.7% of the fishery level cap with the remainder allocated to the combined non-CDQ fishery.

Range of suboptions for option 1A cap for non-Chinook with allocations for CDQ Program (10.7%) and remainder for non-CDQ fishery (89.3 %)

	Non-Chinook	CDQ	Non-CDQ
i)	<b>50,000</b>	5,350	44,650
ii)	75,000	8,025	66,975
iii)	125,000	13,375	111,625
iv)	<b>200,000</b>	21,400	178,600
v)	300,000	32,100	267,900
vi)	<b>353,000</b>	37,771	315,229

For analytical purposes only, a subset of the cap numbers included in the six suboptions will be used in the impact analysis to assess the impacts of operating under a given hard cap. This subset approximates the upper and lower endpoints of the suboption range, and a midpoint (in **bold** above).

*Option 1b: Apply a non-Chinook PSC limit to vessels participating in the directed pollock fishery during June and July*

Under this option the hard cap (non-Chinook PSC limit) would be established for vessels fishing in the directed pollock fishery during June and July. Once reached, this cap would require all vessels affected by the cap to stop fishing until August 1.

The range of cap suboptions under option 1b are shown in the table below. They represent the proportion of non-Chinook PSC caught in June and July relative to the B-season total during 2003-2011. **Bolded** suboptions represent the subset for the analysis.

Range of suboptions for option 1B cap for non-Chinook with allocations for CDQ Program (10.7%) and remainder for non-CDQ fishery (89.3 %)

	Non-Chinook	CDQ	Non-CDQ
1)	<b>15,600</b>	<b>1,669</b>	<b>13,931</b>
2)	23,400	2,504	20,896
3)	39,000	4,173	34,827
4)	<b>62,400</b>	<b>6,677</b>	<b>55,723</b>
5)	93,600	10,015	83,585
6)	<b>110,136</b>	<b>11,785</b>	<b>98,351</b>

**Components 2 and 4: Apportioning the hard cap**

The hard caps could be apportioned as:

- fishery level caps for the CDQ fishery and the non-CDQ fishery (component 1 only);
- sector level caps for the three non-CDQ sectors: the inshore CV sector, the mothership sector, and the offshore CP sector (Component 2); and
- cooperative level caps for the inshore CV sector (component 4).

A fishery level cap would be managed by NMFS with inseason actions to close the fishery (for the season under option 1a or until August 1 under option 1b) once the cap is reached. The CDQ fishery caps would be allocated and managed at the CDQ group level, as occurs under status quo. The hard caps could be apportioned to sectors as sector level caps based on the percentages in the table below. Non-CDQ sector level caps would be managed by NMFS with inseason actions to close the fishery once the cap is reached.

Under Component 4, the inshore CV sector level cap could be allocated to cooperatives and the inshore CV limited access fishery. The cooperative transferable allocation amounts would be based on the proportion of pollock allocations received by the cooperatives.

For analytical purposes, a subset of the sector level cap options (shown in bold) providing the greatest contrast is used for detailed analysis.

Sector percentage allocations considered. The allocation included for analytical purposes are shown in **bold**.

Time Period for Average	Option	% historical: pro-rata	CDQ	Inshore CV	Mothership	Offshore CPs
NA (AFA)	1	0:100	10.0%	45.0%	9.0%	36.0%
2007-2009	2i	100:0	4.4%	75.6%	5.6%	14.4%
	3i	75:25	5.8%	67.9%	6.5%	19.8%
	4i	50:50	7.2%	60.3%	7.3%	25.2%
	5i	25:75	8.6%	52.6%	8.2%	30.6%
<b>2005-2009</b>	<b>2ii</b>	<b>100:0</b>	<b>3.4%</b>	<b>81.5%</b>	<b>4.0%</b>	<b>11.1%</b>
	3ii	75:25	5.0%	72.4%	5.3%	17.3%
	<b>4ii</b>	<b>50:50</b>	<b>6.7%</b>	<b>63.3%</b>	<b>6.5%</b>	<b>23.6%</b>
	5ii	25:75	8.3%	54.1%	7.8%	29.8%
2000-2009	2iii	100:0	4.4%	76.0%	6.2%	13.4%
	3iii	75:25	5.8%	68.3%	6.9%	19.1%
	4iii	50:50	7.2%	60.5%	7.6%	24.7%
	5iii	25:75	8.6%	52.8%	8.3%	30.4%
1997-2009	2iv	100:0	4.4%	74.2%	7.3%	14.1%
	3iv	75:25	5.8%	66.9%	7.8%	19.5%
	4iv	50:50	7.2%	59.6%	8.2%	25.0%
	5iv	25:75	8.6%	52.3%	8.6%	30.5%
<b>Suboption (10.7% to CDQ)</b>	<b>6</b>	<b>NA</b>	<b>10.7%</b>	<b>44.77%</b>	<b>8.77%</b>	<b>35.76%</b>

### Component 3 Sector Transfers and Rollovers

To provide sectors and cooperatives more opportunity to fully harvest their pollock allocations, Alternative 2 could include the ability to transfer sector and cooperative allocations and/or rollover unused salmon bycatch (Component 3, see options under Table below).

If the Council determines that sector level caps should be issued as transferable allocations, then these entities could request NMFS to move a specific amount of a salmon bycatch allocation from one entity’s account to another entity’s account during a fishing season. Transferable allocations would not constitute a “use privilege” and, under the suboptions, only a portion of the remaining salmon bycatch could be transferred. If NMFS issues the sector level cap as a transferable allocation to a legal entity representing all participants in that sector, that entity would be prohibited from exceeding its allocation and would be subject to an enforcement action if it exceeded its allocation.

Under the sector rollover option, rollovers would occur when a sector has harvested all of its pollock allocation but has not reached its seasonal sector level Chinook salmon bycatch cap. NMFS would move the unused portion of that sector’s cap to the sectors still fishing in that season.

Transfers and rollovers options under Component 3 for sector (component 2) and cooperative (component 4) allocated caps under Alternative 2.

	Option	Provision		
<b>No transfer of salmon</b>				
<b>Sector transfers</b>	Option 1	Caps are transferable among sectors in a fishing season		
	Suboption	Maximum amount of transfer limited to the following percentage of salmon remaining:	a	50%
			b	70%
c			90%	
<b>Sector rollover</b>	Option 2	NMFS rolls over unused salmon bycatch to sectors still fishing in a season, based on proportion of pollock remaining to be harvested		
<b>Cooperative transfers</b>	Option 1	Lease pollock among cooperatives in a season or a year		
	Option 2	Transfer salmon bycatch in a season		
	suboption	Maximum amount of transfer limited to the following percentage of salmon remaining:	a	50%
b			70%	
c			90%	

Summary of Alternative 2 components, options, and suboptions for analysis.

<b>Setting the hard cap (Component 1)</b>	Option 1a: Cap established for B season. Select cap from a range of numbers*	<b>Non-Chinook total</b>	<b>CDQ</b>		<b>Non-CDQ</b>		
		50,000	5,350	44,650			
		200,000	21,400	178,600			
	Option 1b: Cap established for June and July. Select cap from a range of numbers*	353,000	37,771	315,229			
		15,600	1,669	13,931			
		62,400	6,677	55,723			
	110,136	11,785	98,351				
<b>Sector allocation (Component 2)*</b>	Range of sector allocations*	CDQ	Inshore CV	Mothership	Offshore CP		
	Option 2ii	6.7%	63.3%	6.5%	23.6%		
	Option 4ii	3%	70%	6%	21%		
	Option 6	10.7%	44.77%	8.77%	35.76%		
<b>Sector transfers and rollovers (Component 3)</b>	No transfers (Component 3 not selected)						
	Option 1	Caps are transferable among sectors and CDQ groups within a fishing season					
		Suboption: Maximum amount of transfer limited to:	a	50%			
			b	70%			
c	90%						
Option 2	NMFS rolls over unused salmon PSC to sectors still fishing in a season, based on proportion of pollock remaining to be harvested.						
<b>Cooperative Allocation and transfers (Component 4)</b>	No allocation	Allocation managed at the inshore CV sector level. (Component 4 not selected)					
	Allocation	Allocate cap to each cooperative based on that cooperative's proportion of pollock allocation.					
	Option: Cooperative Transfers	Option 1	Lease pollock among cooperatives in a season or a year				
		Option 2	Transfer salmon PSC (industry initiated)				
		Suboption: Maximum amount of transfer limited to the following percentage of salmon remaining:	a	50%			
b			70%				
c	90%						

\*Table reflects subset of numbers for analysis.

**Alternative 3: Closure with RHS exemption**

Alternative 3 would create new boundaries for the Chum Salmon Savings Area. The existing Chum Salmon Savings Area and associated trigger cap would be removed from regulation. The new boundaries encompass the area of the Bering Sea where historically 80% of non-Chinook prohibited species catch occurred from 2003-2011 (Figure 2). The trigger caps that would close this area are described below. The area closure would apply to pollock vessels that are not in a RHS system when total non-Chinook salmon PSC from all vessels (those in a RHS system and those not in a RHS system) reaches the trigger cap level. The trigger cap would be allocated between the CDQ and non-CDQ pollock fisheries, as currently is done under status quo. The non-CDQ allocation of the trigger cap would not be further allocated among the AFA sectors or inshore cooperatives, unless options to do so were selected under Components 4 and 6.

Component 1 of this alternative sets the trigger PSC cap level for this large scale closure. PSC from all vessels will accrue towards the cap level selected. However if the cap level is reached, the triggered closure would not apply to participants in the RHS program. Under Component 2 however, in addition to the large closure for non-participants, a select triggered area closure would apply to RHS participants. Four options of triggered closure areas and time frames are provided under Component 2. Component 3 then sets the trigger PSC cap level for the area selected under Component 2.

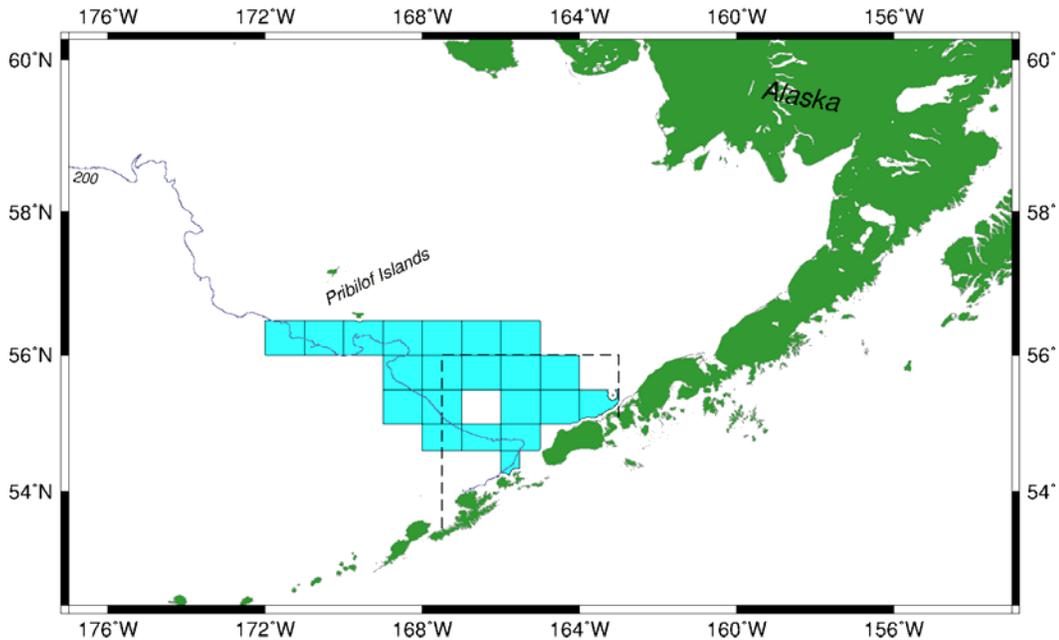


Figure 2. Selected area closures covering 80% of **B-season** 2003-2011 chum bycatch.

**Component 1: 80% Closure aggregate trigger PSC cap levels:**

The range of non-Chinook salmon PSC caps considered is shown below. As listed here, the CDQ sector allocation of the fishery level cap would be 10.7%, with the remainder apportioned to the combined non-CDQ fishery.

Range of suboptions for trigger PSC cap levels for non-Chinook with allocations for CDQ (10.7%) and remainder for non-CDQ fishery.

	Non-Chinook	CDQ	Non-CDQ
1)	<b>25,000</b>	<b>2,675</b>	<b>22,325</b>
2)	50,000	5,350	44,650
3)	<b>75,000</b>	<b>8,025</b>	<b>66,975</b>
4)	125,000	13,375	111,625
5)	<b>200,000</b>	<b>21,400</b>	<b>178,600</b>

For analytical purposes only, a subset of the cap levels included in the six suboptions were used in this document to assess the impacts of operating under a given hard cap. This subset approximates the upper and lower endpoints of the suboption range, and a midpoint (**bolded**).

**Component 2: Trigger closure areas and timing for RHS participants:**

In addition to the RHS, vessels in the RHS system would be subject to:

*Option 1: a trigger closure encompassing 80% of historical non-Chinook salmon PSC estimates.*

Suboption 1a) Trigger closure would only apply in June and July (Figure 3).

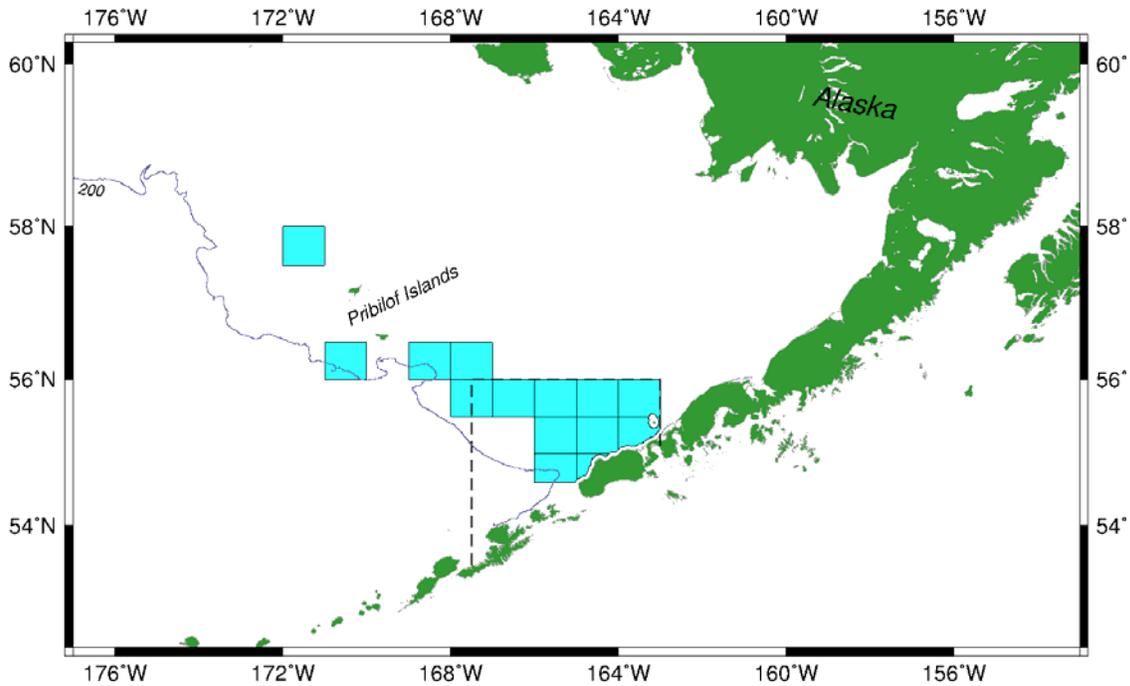


Figure 3. Selected area closures covering 80% of **June-July** 2003-2011 chum bycatch.

Suboption 1b) Trigger closure would apply for the B season (June-October) (Figure 4)

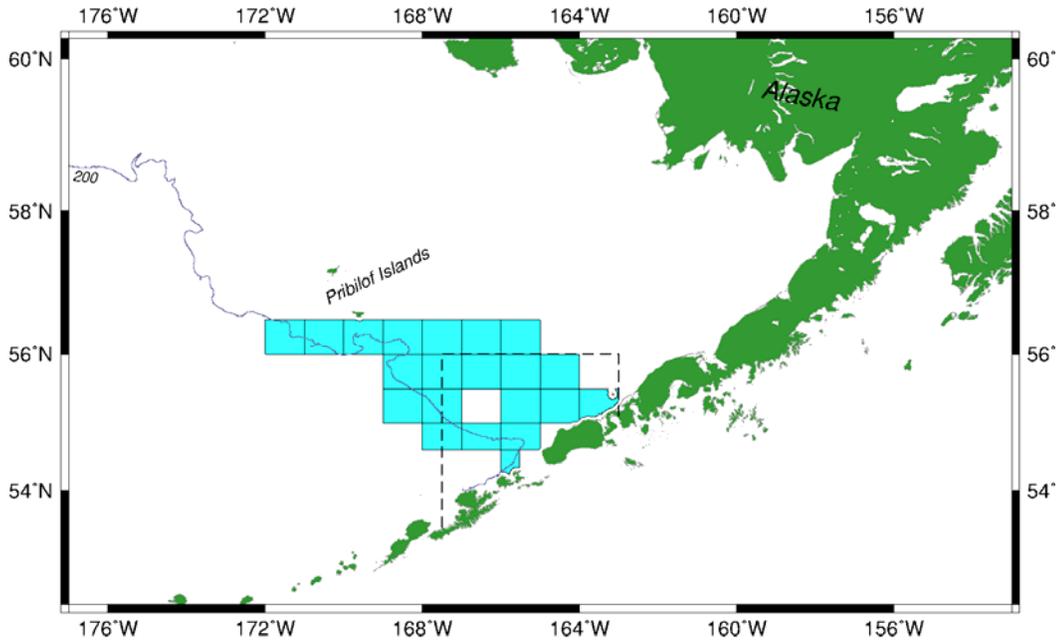


Figure 4. Selected area closures covering 80% of **B-season** 2003-2011 chum bycatch.

*Option 2: a trigger closure encompassing 60% of historical non-Chinook salmon PSC estimates*

Suboption 2a) Trigger closure would only apply in June and July (Figure 5).

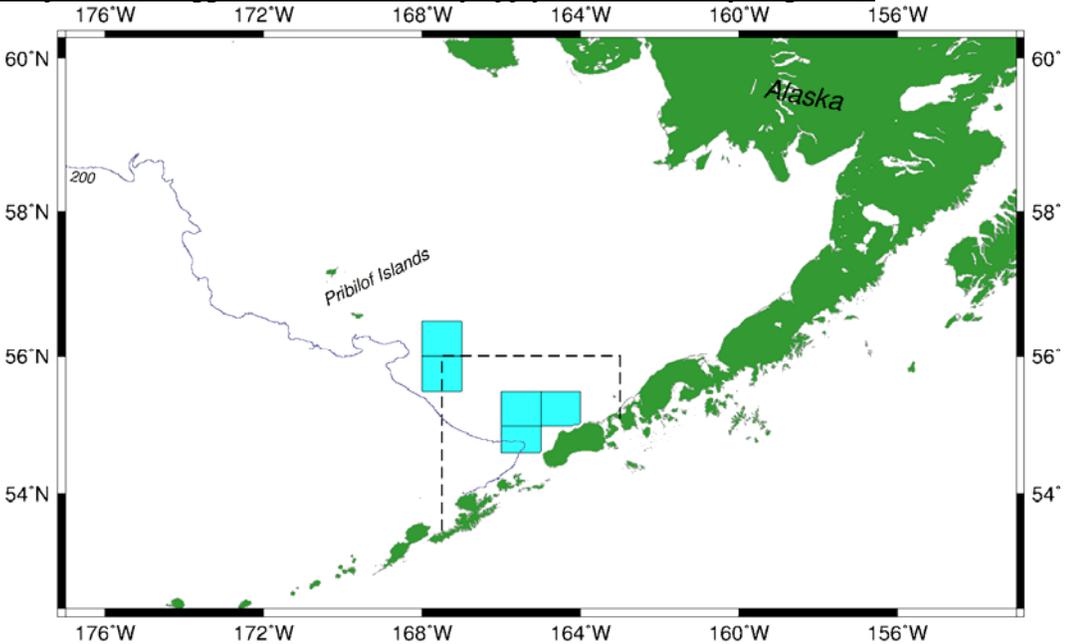


Figure 5. Selected area closures covering 60% of **June-July** 2003-2011 chum bycatch.

Suboption 2b) Trigger closure would apply for the B season (June-October) (Figure 6).

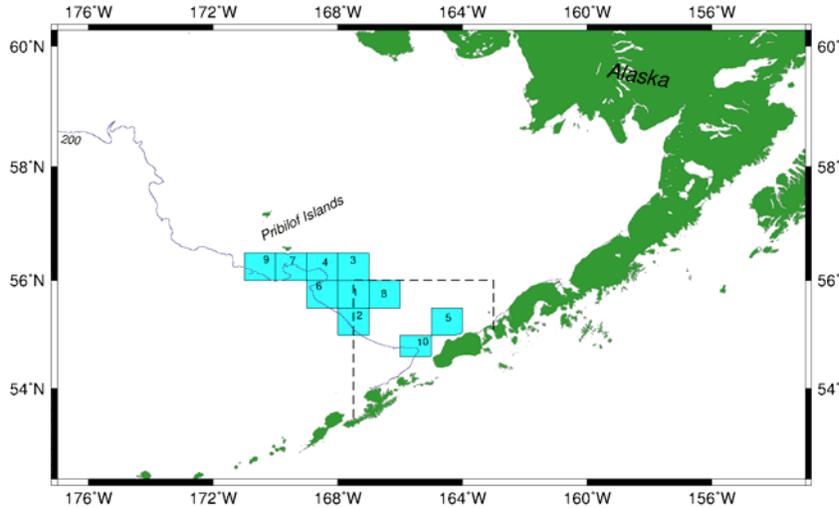


Figure 6. Selected area closures covering 60% of B-season 2003-2011 chum bycatch.

**Component 3: PSC cap levels for trigger closures:**

PSC cap level options for a given closure selected under Component 2 are shown below. Note that caps for both Option 1 and Option 2 under component 2 are shown. If suboption 1a or 2a is selected, then the June-July cap would reflect the proportion of bycatch in June and July.

Range of suboptions for trigger PSC cap levels for non-Chinook with allocations for CDQ (10.7%) and remainder for non-CDQ fishery.

	Total Annual cap (option 1B or 2B)	CDQ	Non-CDQ	June-July cap(option 1A or 2A)		
				Total June/July	CDQ	Non-CDQ
1)	25,000	2,675	22,325	7,800	835	6,965
2)	50,000	5,350	44,650	15,600	1,669	13,931
3)	75,000	8,025	66,975	23,400	2,504	20,896
4)	125,000	13,375	111,625	39,000	4,173	34,827
5)	200,000	21,400	178,600	62,400	6,677	55,723

**Component 4: Sector allocation of trigger cap for RHS participants:**

The trigger cap selected along with the applicable trigger closure under Component 2 could be allocated to the sector level. Sector allocations are identical to the options as shown under Alternative 2 Component 2.

**Component 5: Sector level rollovers and transferability provisions**

Transferability and rollover options by sector are the same as listed under Alternative 2, Component 3.

**Component 6: Cooperative allocation of trigger cap for inshore CV RHS participants:**

The trigger cap selected along with the applicable trigger closure under component 2 and 3 could be further allocation within the inshore sector to the cooperative level. Transferability options are the same as listed under Alternative 2, Component 4.

Alternative 3 components and options

<b>Component 1: Fleet PSC management with non-participant triggered closure</b>	Area	Triggered closure encompassing 80% of historical PSC. Participants in RHS would be exempt from the regulatory closure if triggered.				
	Option 1: cap	Select a cap from a range of numbers: 25,000 –200,000				
<b>Component 2: Trigger Closure area and timing for RHS participants</b>	<b>Option 1:</b> Area 80%	Triggered closure encompassing 80% of historical PSC for all RHS participants				
	Suboption a: timing	Applies in June and July if triggered				
	Suboption b: Timing	Applies to remainder of B season if triggered				
	<b>Option 2:</b> Area 60%	Triggered closure encompassing 60% of historical PSC for all RHS participants				
	Suboption a: timing	Applies in June and July if triggered				
	Suboption b: timing	Applies to remainder of B season if triggered				
<b>Component 3: PSC Cap levels for closure selected under Component 2</b>	Option 1a: PSC cap established for B season closure	Select cap from range of numbers: 25,000 – 200,000				
	Option 1b: PSC cap established for June/July proportion	Select cap from range of numbers: 7,800 – 62,400				
<b>Component 4: Allocating the trigger cap to sectors</b>	Range of sector allocations*:	CDQ	Inshore CV	Mothership	Offshore CP	
	Option 1	10.0%	45.0%	9.0%	36.0%	
	Option 2ii	6.7%	63.3%	6.5%	23.6%	
	Option 4ii	10.7%	44.77%	8.77%	35.76%	
	Option 6	3.4%	81.5%	4.0%	11.1%	
<b>Component 5: Sector transfers and rollovers</b>	No transfers (Component 3 not selected)					
	Option 1	Caps are transferable among sectors and CDQ groups within a fishing season				
		<u>Suboption:</u> Maximum amount of transfer limited to:			a	50%
					b	70%
			c	90%		
Option 2	NMFS rolls over unused salmon PSC to sectors still fishing in a season, based on proportion of pollock remaining to be harvested.					
<b>Component 6: Cooperative Allocation and transfers</b>	No allocation	Allocation managed at the inshore CV sector level. (Component 4 not selected)				
	Allocation	Allocate cap to each cooperative based on that cooperative’s proportion of pollock allocation.				
	Option: Cooperative Transfers	Option 1	Lease pollock among cooperatives in a season or a year			
		Option 2	Transfer salmon PSC (industry initiated)			
		<u>Suboption</u> Maximum amount of transfer limited to the following percentage of salmon remaining:			a	50%
			b	70%		
			c	90%		

### Comparison of alternatives

Alternative	Timing	Management action		
1-Status quo	B-season	Exemption to regulatory closure of CSSA (Fig. 1) provided participation in RHS program		
2-Hard cap	B-season (Component 1, option 1a)	Fishery sectors close for the season when sector-specific cap level is reached		
	June /July (Component 1, option 1b)	Fishery sectors close until July 31 when sector-specific cap level is reached		
3-Closure area with RHS exemption	B-season (Component 1)	<i>Closure area applies to</i>	<i>Closure Area</i>	<i>Basis period</i>
		Non-participants of RHS program when <b>fishery level</b> caps <sup>1</sup> reached	80% of chum (Fig. 2)	B season
	B season (Component 2, suboption 1b)	Participants of RHS program when <b>sector-level</b> caps reached	80% of chum (Fig. 2)	B season
	June/July (Component 2, suboption 1a)	Participants of RHS program when <b>sector-level</b> caps reached	80% of chum (Fig. 3)	June-July
	B season (Component 2, suboption 2b)	Participants of RHS program when <b>sector-level</b> caps reached	60% of chum (Fig. 4)	B season
	June/July (Component 2, suboption 2a)	Participants of RHS program when <b>sector-level</b> caps reached	60% of chum (Fig. 5)	June-July

<sup>1</sup>Note that under Alternative 3: Component 1 caps can be different than those of Component 3