Public Testimony Sign-Up Sheet Salmon
Agenda Item D-1 Bycatch Issues

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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.

Public Testimony Sign-Up Sheet

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Agenda Item ~~D-2 (c) Seabirds~~

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AGENDA D-1
APRIL 2008

MEMORANDUM

TO: Council, SSC and AP Members

FROM: Chris Oliver
Executive Director

ESTIMATED TIME
4 HOURS

DATE: March 27, 2008

SUBJECT: Bycatch Issues

ACTION REQUIRED

(a) Preliminary review of Bering Sea Salmon Bycatch Management EIS; receive scoping report; refine problem statement/alternatives
(b) Review GOA salmon and crab bycatch discussion paper (SSC only).

BACKGROUND

(a) Salmon Bycatch EIS.

Work is proceeding on the Bering Sea Salmon Bycatch Management EIS/RIR/IRFA analysis based upon the draft suite of alternatives modified by the Council in February. At this meeting the Council is scheduled to review and refine the alternatives for the analysis.

The scoping period for the EIS ended on February 15, 2008. The Scoping Report by NMFS summarizes the comments received during the scoping period (12/27/07-2/15/08). This report was mailed to you on March 7th. NMFS staff will provide an overview of the report at this meeting in conjunction with the Council's consideration of the alternatives for analysis.

Several documents have been prepared in order to assist the Council in refining alternatives at this meeting. A draft EIS Chapter 2 (Description of Alternatives) provides a detailed description of all the alternatives currently under consideration by the Council. This includes all modifications made to the alternatives at the February 2008 meeting and provides additional information as to the specific cap levels resulting under each alternative. This paper is attached at Item D-1(a)(1) and was mailed to you on March 14th. Several sections referenced in that Chapter 2 were not finalized at the time of the mailing and are included in the briefing books. These additions include the following:

- **Trigger cap levels for area closure options** (Item D-1(a)(2))
- **Comparison of alternatives**: includes preliminary information on constraints of caps by sector, comparative information about various components and options for alternatives and a summary section to assist in the decision points for building a preferred alternative (Item D-1(a)(3))
- **Chinook salmon bycatch at age assessment**: includes overview of modeling methodology and data utilized in estimating the relative impact of bycatch levels on salmon stocks by river or aggregated area (Item D-1(a)(4))
- **NMFS management discussion paper:** includes discussion of sector transfers and rollovers as well as some additional clarification on provisions for leasing pollock, inclusion of the potential

for an inshore sector open access fishery for vessels that don't join a cooperative, and more information about monitoring recommendations made at the February 2008 meeting.(*Note this paper to be distributed at the meeting*)

The problem statement for the analysis was modified by the Council at the February 2008 meeting. The problem statement and the entire Council motion regarding the alternatives is included as Item D-1(a)(5). The Council may wish to revisit their problem statement to ensure it accords with the suite of alternatives for analysis, as revised at this meeting.

In addition to information included to assist the Council in refining alternatives, the draft Tables of Contents for the analyses (EIS and RIR) are provided as Item D-1(a)(6). A draft timeline for the EIS schedule is attached as Item D-1(a)(7). Initial review is scheduled for June 2008.

(b) GOA salmon and crab bycatch discussion paper (SSC only).

In October 2007, the Council tasked staff to update a previous discussion paper on options for salmon and crab bycatch reduction measures in the GOA. The previous paper was presented to the Council in October 2005, as part of the GOA groundfish rationalization initiative. The SSC will review a staff discussion paper that provides updated information on salmon and crab bycatch, an overview of species abundance, and discusses the previous (2005) alternatives developed to further control and minimize bycatch. This discussion paper was mailed out on March 7th. This issue is scheduled for Council review at the June meeting.

BERING SEA SALMON BYCATCH MANAGEMENT ENVIRONMENTAL IMPACT STATEMENT (EIS)

STAFF DISCUSSION PAPER: REVIEW OF DRAFT ALTERNATIVES

OVERVIEW OF INFORMATION PROVIDED FOR APRIL MEETING

At the April 2008 Council meeting, the Council is scheduled to review and revise the suite of alternatives considered in the draft Bering Sea Salmon Bycatch Management Environmental Impact Statement (EIS). To guide this review, the following staff report describes the alternatives currently under consideration by the Council and provides some preliminary analyses. This draft report will form the basis for Chapter 2: "Description of Alternatives" in the EIS. Also, the scoping report, providing a summary of comments received by NMFS during the scoping period is provided separately.

At the February 2008 Council meeting, the Council directed staff to reorganize the alternatives into separate actions for Chinook salmon (Action 1) and non-Chinook salmon (Action 2) made revisions to the alternatives themselves by changing the range of fishery-level caps under consideration and the methodology for subdividing these caps by sector, and within cooperatives for the inshore catcher vessel sector. The fishery-level caps involve splits by sector and cooperative provisions for straight AFA-sector and CDQ catch percentages as well as percentage break-outs based upon historical catch use by each sector. Also, non-Chinook species caps were recalculated to include only the contribution from the pollock pelagic trawl fishery (previously caps included all gears and target fisheries). Since the February meeting, staff continued to refine the design of area closures for Council consideration. A description of previous area-closure considerations and rationale for the proposed revisions under Council Actions 1 and 2 are provided along with consideration of bycatch rates.

The Council motion from February 2008 is attached to this report as appendix A. The annual and seasonal mortality of salmon by species in pollock pelagic trawl fishery used to calculate the cap levels by species per Council motion in February are attached as Appendix B. These cap levels are included under Action 1: Alternative 2 and Action 2: Alternative 2 in this draft description of alternatives.

Additional information will be provided in the briefing materials for the April Council meeting. To the extent possible, the supplemental documents will include discussions on methods to analyze the status quo alternative, preliminary results from the adult equivalency (AEQ) model, approaches to specify trigger cap levels for proposed area closures, descriptive information on the various rollover and salmon cap transfer provisions, comparisons of alternatives (including flow charts) to assist in the selection of a preliminary preferred alternative, and a draft table of contents of the EIS/RIR/IRFA.

The action before the Council at the April meeting is to review and refine the alternatives as necessary. Pending Council actions in April, an initial review draft of the full analysis is scheduled for June 2008.

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DRAFT DESCRIPTION OF ALTERNATIVES

The following description provides a detailed overview of the revised alternatives and options for the forthcoming EIS analysis. These restructured alternatives incorporate all refinements through the Council's February 2008 motion. Additional refinements to the alternatives through the April Council meeting will be incorporated into this chapter prior to incorporation in the EIS scheduled for initial review in June 2008. The Council may also formulate different alternatives to be analyzed by selecting aspects of the alternatives as listed below. Section 3.0 of this chapter provides additional information and structure for formulating the Council's preferred alternative. [Note section 3.0 will be provided in the April Council briefing materials]

Separate actions are being considered for Chinook salmon and non-Chinook (primarily chum) salmon in this amendment package. The alternative structure is organized accordingly. In choosing their preferred alternatives, the Council may select different alternatives (and components and options) for each action. Action 1 is for alternatives to manage Chinook salmon while Action 2 is for alternatives to manage non-Chinook salmon. For each action 4 alternatives, including the Status quo are considered. There are two options, A and B which apply to specific alternatives. A detailed description of the components elements and options for each of the 4 alternatives under each action is contained below. The description of the alternative level-options is provided below. Also indicated in conjunction with these alternative-level options are the alternatives for which they apply The analysis will consider each of these two options as applied to the respective alternatives in conjunction with the impact analysis of all of the components and options for each specific alternative. However, to avoid unnecessary repetition the description of these options is not included under each alternative in the detailed descriptions of specific components and options by Action. It is understood that these may be applied to any of the alternatives for which they are indicated. Further information on the selection of option A or Option B are contained in section 3.0, discussion of comparison of alternatives and selection of preliminary preferred alternative.

Action 1: Chinook salmon

Alternative 1: Status Quo
Alternative 2: Hard cap
Alternative 3: Fixed closures
Alternative 4: Triggered closures

Option A (applies to Alternatives 2 and 4):
Modify the PSC accounting period to begin at the start of the B season in one calendar year and continue through the A season of the following calendar year. If this option is not selected, the accounting period is the calendar year.

Option B (applies to Alternatives 3 and 4 only):
Exempt those vessels participating in a VRHS system from area closures

Action 2: Non-Chinook salmon (Chum)

Alternative 1: Status Quo
Alternative 2: Hard cap
Alternative 3: Fixed closures
Alternative 4: Triggered closures

Option A (applies to Alternatives 2 and 4):
Modify the PSC accounting period to begin at the start of the B season in one calendar year and continue through the A season of the following calendar year. If this option is not selected, the accounting period is the calendar year.

Option B (applies to Alternatives 3 and 4 only):
Exempt those vessels participating in a VRHS system from area closures

Additional components and options are included under individual alternatives are presented. The ranges of caps under consideration by species (Alternative 2) as well as the sector and cooperative level break-outs are detailed. Per Council motion (February 2008), the impact analysis of implementing a specific cap level will be based on a subset of the range as indicated in the tables under for each component and option. The Council may select any cap levels included in the range of alternatives in choosing its preferred alternative.

Note that these alternatives are not intended to be mutually exclusive and the Council may choose to select elements from each of the alternatives together to formulate their preferred alternative (see section 3.0). Under the description of each alternative below, information is provided on the specific elements and options to the alternatives (for alternatives 2-4) as well as how the CDQ program would be treated under that alternative.

Description of Option A: Modify the PSC Accounting Period
This option applies to cap alternatives under Action 1(Chinook) and Action 2 (Chum) for both hard cap alternatives (alternative 2) and Trigger cap alternatives (Alternative 4). The selection of this option would modify the accounting year for the salmon biological year. This means that the accounting system for salmon species would begin in the B season and continue through the A season, i.e. accounting would begin in June and continue through May. The intention of this option is that it more closely tracks the salmon biological year whereby juvenile salmon (those primarily taken as bycatch) likely enter the Bering Sea in the fall to feed and remain on the grounds throughout the winter. This group then migrates to other locations during the summer months prior to beginning their return to the natal streams (those that are of spawning age) in the summer. Thus, the same cohort of salmon that are being caught in the B season remain on the grounds in the A season and any closure potentially triggered by high B season Chinook catch would protect the same age class of salmon from additional impacts in the A season. This is in contrast to the current accounting system whereby the catch accounting for salmon begins January 1 and tracks through December 31st. A closure which is triggered due to high rates of catch following the A season is then actually protecting a different cohort of salmon in the B season from those that triggered the need for protection following the A season.

Description of Option B: Exemption for participation in VRHS system
This option applies to the area closure alternatives under Action 1(Chinook) and Action 2(non-Chinook) for Alternative 3 (Fixed closures) and Alternative 4 (Triggered closures). The selection of this option in conjunction with new area closures would indicate that pollock cooperatives and CDQ groups who participate in a voluntary rolling "hot spot" (VRHS) closure system to avoid salmon bycatch will be granted an exemption to closures. Cooperatives or other vessels which are not participating in a VRHS system will be subject to the new area closures if triggered or fixed.

1.0 ACTION 1: CHINOOK SALMON

1.1 Alternative 1: Status Quo (Chinook)

Alternative 1 retains the current program of Chinook Salmon Savings Area (SSA) closures triggered by separate non-CDQ and CDQ caps by species with the fleet's exemption to these closures per regulations for amendment 84.

For Chinook salmon, the Chinook Salmon Savings Areas were established under BSAI Amendment 21b and revised under BSAI Amendment 58. These areas close to pollock trawling if 29,000[1] Chinook salmon are taken. The timing of the closure depends upon when the limit is reached:

1. If the limit is triggered before April 15, the areas close immediately through April 15. After April 15, the areas re-open, but are again closed from September 1-December 31.
2. If the limit is reached after April 15, but before September 1, the areas would close on September 1 through the end of the year.
3. If the limit is reached after September 1, the areas close immediately through the end of the year.

BSAI amendment 58 modified the initial Chinook salmon savings area measures (established under amendment 21b, ADF&G 1995a). Modifications from this amendment in 1999 included: a reduced Chinook limit from 48,000 to 29,000 over a four year period, year-round accounting of Chinook bycatch in the pollock fishery beginning on January 1 of each year, revised boundaries of the savings area closures, and new closure dates. The initial Chinook Salmon Savings Areas included an area south of the Pribilof Islands. This area was removed as a savings area under amendment 58 (NMFS 1999). The revision to the closure dates under this amendment specified the additional closure from September 1-December 31 under the conditions listed in bullets 1-3 above.

Amendment 84 to the BSAI groundfish FMP exempted vessels from both the Chum and Chinook SSAs if triggered provided they participate in the salmon bycatch inter-cooperative agreement (ICA) with the voluntary rolling hot spot (VRHS) system (NPFMC 2005). The VRHS enables participants in the pollock fisheries to be responsive to current bycatch rates and fish in areas with relatively lower salmon bycatch rates, rather than rely on static closure areas that were established based on historical bycatch rates.

Under this alternative, the CDQ Program would continue to receive allocations of 7.5 percent of the BS and AI Chinook salmon PSC limits and 10.7 percent of the non-chinook salmon PSC limit as "prohibited species quota reserves" or PSQ reserves. The PSQ reserves are further allocated among the six CDQ groups based on percentage allocations approved by NMFS on August 8, 2005. The salmon savings areas would continue to be closed to vessels directed fishing for pollock CDQ for a particular CDQ group when that group's salmon PSQ is reached. The CDQ groups would continue to be exempt from the salmon savings area closures if they participate in the salmon bycatch intercooperative agreement.

1.2 Alternative 2: Hard Cap (Chinook)

This alternative would establish a Chinook salmon bycatch cap on the pollock fishery upon attainment of which all directed pollock fishing would cease. Only those Chinook caught by the pollock fleet would accrue towards the cap and the cap applies only to the pollock fleet when triggered. Several different means of managing this hard cap are provided under this alternative; at the fishery level (single hard cap for the entire pollock fishery); at the sector level (each of the 4 sectors including CDQ receives a sector-

[1] This number is inclusive of the allocation to CDQ groups. Non-CDQ Chinook salmon limit is 26,825.

specific cap) and at the cooperative level (whereby the sector-level cap for the shore-based CV fleet is further subdivided and managed at the individual cooperative level).

If applied as a single hard cap to all combined sectors, the CDQ Program would receive allocations of 7.5% of any hard cap established for Chinook salmon in the BS. These PSQ reserves would be further allocated among the six CDQ groups based on percentage allocations approved by NMFS on August 8, 2005. Each CDQ group would be prohibited from exceeding its salmon PSQ allocation. This prohibition would require the CDQ group to stop directed fishing for pollock CDQ once its PSQ allocation is reached because further directed fishing for pollock likely would result in exceeding its PSQ allocation.

If the hard cap is subdivided, two options are provided (under component 2) for the allocation to the CDQ program.

1.2.1 Component 1: Hard Cap Formulation

Component 1 establishes the hard cap number by two methodologies, option 1 based upon averages of historical numbers and other considerations as noted below and option 2 which uses a modeling methodology to establish a framework for periodically setting the cap based upon salmon returns. Component 1 sets the formulation for the overall cap which can be either applied to the fishery as a whole, or applying components 2 and 4 may be subdivided by sector (component 2) and to cooperative (component 4).

1.2.1.1 Option 1: Range of numbers for hard cap formulation

A range of numbers is established for consideration as hard caps for Chinook salmon. Table 1 lists the numbers in numerical order highest to lowest for overall caps. Here the CDQ allocation of the cap is 7.5% of the total cap, with the remainder for the combined non-CDQ fishery.

Table 1 Range of suboptions for hard cap with breakout for CDQ allocation (7.5%) and remainder for non-CDQ fleet

Sub Option	Overall Fishery cap #s Chinook	CDQ allocation	Non-CDQ cap (all sectors combined)
i)	87,500	6,563	80,938
ii)	68,392	5,129	63,263
iii)	57,333	4,300	53,033
iv)	47,591	3,569	44,022
v)	43,328	3,250	40,078
vi)	38,891	2,917	35,974
vii)	32,482	2,436	30,046
viii)	29,323	2,199	27,124

The following section provides the rationale (by suboption number) for each cap number listed in Table 1. Suboption i) 87,500 Chinook salmon represents the upper end of the recent range of observations for Chinook bycatch in the BSAI fishery Incidental Take Statement (ITS)(NMFS 1-11-07 supplemental Biological Opinion). An ITS specifies the expected take of an ESA listed species for the activity consulted on. This amount is related to the ESA consultation on the incidental catch of ESA-listed salmonids in the BSAI groundfish trawl fisheries. None of the ESA-listed salmonids are from Western Alaskan stocks. Additional information on the listed stocks, their relative contribution in the overall bycatch of Chinook salmon in the BSAI groundfish fisheries and the ESA consultation are covered in specific chapter on ESA listed species.

Suboptions ii-vi refer to average bycatch numbers by the pollock pelagic trawl fishery over a range of historical year combinations from 1997 through 2006, dropping some years over the period under consideration in some options. Suboption ii) is the three year average from 2004-2006; iii) is the 5 year average (2002-2006); iv) is the 10 year average (1997-2006) with the lowest year (2000) dropped from the years over which average occurred due to the injunction on the fishery in that year. Suboption v) is the straight 10 year average (including all years 1997-2006), while vi) is the average over those 10 years (1997-2006) dropping the highest year of bycatch (2006) for contrast against the 10 year average minus the lowest year under consideration in subption iv.

The final two suboptions under consideration (representing the low end of the range of caps considered) represent the 5 year average from 1997-2001 (suboption vii) and the 10 year average 1992-2001 (suboption viii). These year combinations were chosen specifically in an attempt to be responsive to considerations relative to bycatch levels prior to accession to the Yukon River Agreement (signed in 2002). Additional information on the Yukon River Agreement and the Pacific Salmon Treaty itself are contained in Chapter 1.

For analytical purposes the following range of numbers will be utilized to analyze the impacts of managing the pollock fishery under any of these cap levels (Table 2).

Table 2 Range of Chinook salmon caps for use in the analysis of impacts

	Chinook	CDQ	Non-CDQ
i)	87,500	6,563	80,938
ii)	68,100	5,108	62,993
iii)	48,700	3,653	45,048
iv)	29,300	2,198	27,103

1.2.1.1.1 Suboption: Periodic adjustments to cap based on updated bycatch information.

The Council would reassess updated salmon bycatch information after a certain number of years and determine if adjustments to the hard cap implemented under this action are needed. If the Council selects this option, it would specify when the reassessment of salmon bycatch information would occur. Any revisions to the salmon bycatch management measures would require additional analysis and rulemaking. The Council may reassess any management measure at any time and does not need to specify a particular time for reassessment of the salmon bycatch management measures.

1.2.1.2 Option 2: Framework Cap (cap set relative to salmon returns):

Caps under this option will be based on analysis by species and involve consideration of run-size impacts. Since this approach involves a number of uncertain components (e.g., river-of-origin, ocean survival, future expected run-size) the cap will be derived from estimated probabilities that account for this uncertainty. This option provides a framework so that the cap regulation could be modified as scientific information improves. Such changes in the cap are envisioned on a periodic basis (say every 2-5 years) as data and input variables critical to the model calculations improve and merit revisions to cap levels. Variables and data that are likely to change with improved scientific information include river of origin information on the stock composition of bycatch samples, stock size estimates by river system, and age-specific survival of salmon returning to individual river systems.

The developed modeling methods are designed to account uncertainty due to both natural variability and observation (measurement) errors. The cap formula would be based on the selection of an acceptable impact level (at specified probability) for a set of rivers or systems. This impact level can then be used to back-calculate the cap level. For example, a framework for this option might be to establish a cap that has only a 10% probability of exceeding a 10% impact level to a particular run. The impact measure relates the historical bycatch levels relative to the subsequent returning salmon run k in year t:

$$u_{t,k} = \frac{C_{t,k}}{C_{t,k} + S_{t,k}}$$

where $C_{t,k}$ and $S_{t,k}$ are the bycatch and stock size estimates of Chinook salmon. The calculation of $C_{t,k}$ includes the bycatch of salmon returning to spawn in year t and the bycatch from previous years of the same cohort (i.e., at younger, immature ages). This latter component needs to be decremented by highly uncertain ocean survival rates. Additionally, uncertainty on age-assignments and river-of-origin, as well as uncertainty of run-size impact these values. A complete description of the model, estimation procedure, and input values are detailed in Appendix X [Placeholder for appendix documentation]

A policy decision is required in specifying an acceptable (probability based) run-size impact level by river system in order to calculate a corresponding salmon bycatch cap level. For regulatory purposes, the adopted procedure must be based on objective criteria and may not be discretionary in nature. Clearly, the probability of an acceptable run size impact level is discretionary and therefore must be an approved fixed value that can vary only with completely revised analyses. The value is thus a policy decision before the Council. Other non-discretionary aspects of the approach may be modified as information improves following standard scientific guidelines and review by the SSC. For the present analysis, a range of impact levels and corresponding cap levels are provided to the Council for consideration and comparison with the fixed value cap levels specified under option 1.

1.2.2 Component 2: Sector Allocation

Under this component the hard cap is managed at the sector level for the fishery. This entails separate sector level caps for the CDQ sector, the shoreside catcher vessel (CV) fleet, the mothership fleet and the offshore catch processor (CP) fleet. The catch of salmon would be tabulated on a sector level basis, and if the total catch in that sector reaches specified for that sector, a fishery closure would occur for that sector for the remainder of the season. The remaining sectors may continue to fish unless they too reach their specific sector level cap. Options for hard caps are as specified under component 1, options 1 and 2. However using each of those options (and suboptions) for cap formulation, the cap is then subdivided into sector level caps according to the following formulas:

Divide the final cap by sectors based on:
Option 1) 10% of the cap to the CDQ sector, and the remaining allocated as follows: 50% inshore CV fleet; 10% for the mothership fleet; and 40% for the offshore CP fleet

This option is intended to follow the percentage allocation established for pollock under the AFA. Application of these percentages results in the following range of caps by sector, based upon the range of caps in component 1, option 1. Note that here the CDQ allocation of salmon is higher than under status quo (10% rather thatn.5%).

Table 3 Sector split caps resulting from option 1 percentage allocation: 10% CDQ and the remaining 90% divided 50% inshore CV fleet; 10% for the mothership fleet; and 40% for the offshore CP fleet

Option 1) Sector level caps

Sub Option	Fishery cap #s Chinook	CDQ	Inshore CV	Mothership	Offshore CPs
i)	87,500	8,750	39,375	7,875	31,500
ii)	68,392	6,839	30,776	6,155	24,621
iii)	57,333	5,733	25,800	5,160	20,640
iv)	47,591	4,759	21,416	4,283	17,133
v)	43,328	4,333	19,498	3,900	15,598
vi)	38,891	3,889	17,501	3,500	14,001
vii)	32,482	3,248	14,617	2,923	11,694
viii)	29,323	2,932	13,195	2,639	10,556

For analytical purposes the following ranges will be utilized (Table 4):

Table 4 Range of Sector level Chinook salmon caps for use in the analysis of impacts

	Chinook	CDQ	Inshore CV	Mothership	Offshore CPs
i)	87,500	8,750	39,375	7,875	31,500
ii)	68,100	6,810	30,645	6,129	24,516
iii)	48,700	4,870	21,915	4,383	17,532
iv)	29,300	2,930	13,185	2,637	10,548

Option 2) Historical average of percent bycatch by sector based on:

a) 3 year (2004-2006) average: CDQ 3%; inshore CV fleet 70%; mothership fleet 6%; offshore CP fleet 21%.

b) 5 year (2002-2006) average: CDQ 4%; inshore CV fleet 65%; mothership fleet 7%; offshore CP fleet 24%.

c) 10 year (1997-2006) average: CDQ 4%; inshore CV fleet 62%; mothership fleet 9%; offshore CP fleet 25%.

Under option 2, the subdivision of caps to each sector is now based upon historical average percent bycatch by sector over 3, 5, and 10 year time periods. Similar to the years considered for the overall cap formulation, the historical years do not consider the most recent (and historical high) of 2007.

Option 2a uses the historical averages of percent bycatch by sector from the most recent time period under consideration in this analysis (2004-2006). This results in the following average percentages by sector: CDQ 3%; inshore CV fleet 70%; mothership fleet 6%; offshore CP fleet 21%. Those percentages are applied to the range of caps under consideration in component 1, option 1 (Table 5)

Table 5 Sector level caps based upon historical average percent bycatch from 2004-2006 (option 2a)

Option 2a)
Sector level caps (2004-2006 average historical bycatch)

Sub Option	Fishery cap #s Chinook	CDQ 3%	Inshore CV 70%	Mothership 6%	Offshore CPs 21%
i)	87,500	2,625	61,250	5,250	18,375
ii)	68,392	2,052	47,874	4,104	14,362
iii)	57,333	1,720	40,133	3,440	12,040
iv)	47,591	1,428	33,314	2,855	9,994
v)	43,328	1,300	30,330	2,600	9,099
vi)	38,891	1,167	27,224	2,333	8,167
vii)	32,482	974	22,737	1,949	6,821
viii)	29,323	880	20,526	1,759	6,158

For analytical purposes the following range of sector split caps is shown in Table 6:

Table 6 Range of Sector level Chinook salmon caps (option 2a) for use in the analysis of impacts

	Fishery cap #s Chinook	CDQ	Inshore CV	Mothership	Offshore CPs
i)	87,500	2,625	61,250	5,250	18,375
ii)	68,100	2,043	47,670	4,086	14,301
iii)	48,700	1,461	34,090	2,922	10,227
iv)	29,300	879	20,510	1,758	6,153

Option 2b considers the historical averages of percent bycatch by sector from the 5 year time period (2002-2006). This results in the following average percentages by sector: CDQ 4%; inshore CV fleet 65%; mothership fleet 7%; offshore CP fleet 24%. Those percentages are applied to the range of caps under consideration in component 1, option 1 (Table 7)

Table 7 Sector level caps based upon historical average percent bycatch from 2002-2006 (option 2b)

Option 2b)
Sector level caps (2002-2006 average historical bycatch)

Sub Option	Fishery cap #s Chinook	CDQ 4%	Inshore CV 65%	Mothership 7%	Offshore CPs 24%
i)	87,500	3,500	56,875	6,125	21,000
ii)	68,392	2,736	44,455	4,787	16,414
iii)	57,333	2,293	37,266	4,013	13,760
iv)	47,591	1,904	30,934	3,331	11,422
v)	43,328	1,733	28,163	3,033	10,399
vi)	38,891	1,556	25,279	2,722	9,334
vii)	32,482	1,299	21,113	2,274	7,796
viii)	29,323	1,173	19,060	2,053	7,038

For analytical purposes the following range of sector split caps for this option are shown in Table 8.

Table 8 Range of Sector level Chinook salmon caps (option 2b) for use in the analysis of impacts

	Chinook	CDQ	Inshore CV	Mothership	Offshore CPs
i)	87,500	3,500	56,875	6,125	21,000
ii)	68,100	2,724	44,265	4,767	16,344
iii)	48,700	1,948	31,655	3,409	11,688
iv)	29,300	1,172	19,045	2,051	7,032

Option 2c considers the historical averages of percent bycatch by sector from the 10 year time period (1997-2006). This results in the following average percentages by sector: CDQ 4%; inshore CV fleet 62%; mothership fleet 9%; offshore CP fleet 25%. Those percentages are applied to the range of caps under consideration in component 1, option 1 (Table 9).

Table 9 Sector level caps based upon historical average percent bycatch from 2002-2006 (option 2b)

Option 2c)
Sector level caps (1997-2006 average historical bycatch)

Sub Option	Fishery cap #s Chinook	CDQ 4%	Inshore CV 62%	Mothership 9%	Offshore CPs 25%.
i)	87,500	3,500	54,250	7,875	21,875
ii)	68,392	2,736	42,403	6,155	17,098
iii)	57,333	2,293	35,546	5,160	14,333
iv)	47,591	1,904	29,506	4,283	11,898
v)	43,328	1,733	26,863	3,900	10,832
vi)	38,891	1,556	24,112	3,500	9,723
vii)	32,482	1,299	20,139	2,923	8,121
viii)	29,323	1,173	18,180	2,639	7,331

For analytical purposes the following range of sector split caps for this option will be utilized (Table 10):

Table 10 Range of Sector level Chinook salmon caps (option 2c) for use in the analysis of impacts

	Chinook	CDQ	Inshore CV	Mothership	Offshore CPs
i)	87,500	3,500	54,250	7,875	21,875
ii)	68,100	2,724	42,222	6,129	17,025
iii)	48,700	1,948	30,194	4,383	12,175
iv)	29,300	1,172	18,166	2,637	7,325

1.2.3 Component 3: Sector Transfer

Option 1) Transfer salmon bycatch among sectors (industry initiated)
Option 2) NMFS would rollover unused salmon bycatch to other sectors and other cooperatives still fishing
[placeholder for description of this component]

1.2.4 Component 4: Cooperative provisions

These provisions apply for the in-shore catcher vessels cooperatives. Each cooperative would receive a salmon allocation managed at the cooperative level. In order to allow for effective monitoring and management requirements, except for catcher vessels that deliver unsorted cod ends, participation in the pollock fishery for vessels would require a minimum of 100% observer coverage or video monitoring to

ensure no at-sea discards. If the cooperative salmon cap is reached, the cooperative must stop fishing for pollock.

The initial allocation of salmon by cooperative within the shore-based CV fleet is based upon the percent of total sector pollock catch their co-op allocation represents. The annual pollock quota for this fleet is divided up based upon application of a formula in the regulations for catch by cooperative per the specific sum of the catch history of the vessels the cooperative represents. Under 679.62(e)(1), the individual catch history of each vessel is equal to the vessel's best 2 of 3 years inshore pollock landings from 1995 through 1997 and includes landings to catcher/processors for vessels that made 500 or more mt landings to catcher/processors from 1995 through 1997. Each year fishing permits are issued by cooperative with permit application listing the vessels added or subtracted. Fishing in the open access fishery is possible should a vessel leave their cooperative, and the shore-based CV quota allocation is partitioned to allow for the open access allocation under these circumstances.

The range of cooperative level allocations are based upon the 2008 pollock quota allocations and the options for the range of sector splits for the shore-based CV fleet based upon component 2, options 1 and 2 applied to component 1 options 1 and 2 (Table 11 to Table 14). For analytical purposes, the range of cooperative allocations will be analyzed using the ranges as indicated in Table 15 and Table 16.

Table 11 Inshore cooperative allocations resulting from application of component 2, option 1 allocation to the inshore CV fleet (50% of allocation after 10% to CDQ)

			Inshore cooperative allocation:							
			31.145%	1.146%	9.481%	2.876%	12.191%	24.256%	18.906%	0.000%
Cap Suboption	Overall fishery cap level Chinook	Resulting Inshore sector allocation*	Akutan CV Assoc	Arctic Enterprise Assoc	Northern Victor Fleet coop	Peter Pan Fleet coop	Unalaska coop	Unisea Fleet coop	Westward Fleet coop	open access AFA vessels
i)	87,500	39,375	12,263	451	3,733	1,132	4,800	9,551	7,444	0
ii)	68,392	30,776	9,585	353	2,918	885	3,752	7,465	5,819	0
iii)	57,333	25,800	8,035	296	2,446	742	3,145	6,258	4,878	0
iv)	47,591	21,416	6,670	245	2,030	616	2,611	5,195	4,049	0
v)	43,328	19,498	6,073	223	1,849	561	2,377	4,729	3,686	0
vi)	38,891	17,501	5,451	201	1,659	503	2,134	4,245	3,309	0
vii)	32,482	14,617	4,552	168	1,386	420	1,782	3,545	2,763	0
viii)	29,323	13,195	4,110	151	1,251	379	1,609	3,201	2,495	0

*(50% CV after CDQ)

Table 12 Inshore cooperative allocations resulting from application of component 2, option 2a allocation to the inshore CV fleet (average historical bycatch from 2004-2006)

			Inshore cooperative allocation:							
			31.145%	1.146%	9.481%	2.876%	12.191%	24.256%	18.906%	0.000%
Cap Suboption	Overall fishery cap level Chinook	Resulting Inshore sector allocation*	Akutan CV Assoc	Arctic Enterprise Assoc	Northern Victor Fleet coop	Peter Pan Fleet coop	Unalaska coop	Unisea Fleet coop	Westward Fleet coop	open access AFA vessels
i)	87,500	61,250	19,076	702	5,807	1,762	7,467	14,857	11,580	0
ii)	68,392	47,874	14,910	549	4,539	1,377	5,836	11,612	9,051	0
iii)	57,333	40,133	12,499	460	3,805	1,154	4,893	9,735	7,588	0
iv)	47,591	33,314	10,376	382	3,158	958	4,061	8,081	6,298	0
v)	43,328	30,330	9,446	348	2,876	872	3,697	7,357	5,734	0
vi)	38,891	27,224	8,479	312	2,581	783	3,319	6,603	5,147	0
vii)	32,482	22,737	7,082	261	2,156	654	2,772	5,515	4,299	0
viii)	29,323	20,526	6,393	235	1,946	590	2,502	4,979	3,881	0

*(70% based on 3 year average 2004-2006)

Table 13 Inshore cooperative allocations resulting from application of component 2, option 2b allocation to the inshore CV fleet (average historical bycatch from 2002-2006)

			Inshore cooperative allocation:							
			31.145%	1.146%	9.481%	2.876%	12.191%	24.256%	18.906%	0.000%
Cap Suboption	Overall fishery cap level Chinook	Resulting Inshore sector allocation*	Akutan CV Assoc	Arctic Enterprise Assoc	Northern Victor Fleet coop	Peter Pan Fleet coop	Unalaska coop	Unisea Fleet coop	Westward Fleet coop	open access AFA vessels
i)	87,500	56,875	17,714	652	5,392	1,636	6,934	13,796	10,753	0
ii)	68,392	44,455	13,845	509	4,215	1,279	5,419	10,783	8,405	0
iii)	57,333	37,266	11,607	427	3,533	1,072	4,543	9,039	7,046	0
iv)	47,591	30,934	9,634	355	2,933	890	3,771	7,503	5,848	0
v)	43,328	28,163	8,771	323	2,670	810	3,433	6,831	5,325	0
vi)	38,891	25,279	7,873	290	2,397	727	3,082	6,132	4,779	0
vii)	32,482	21,113	6,576	242	2,002	607	2,574	5,121	3,992	0
viii)	29,323	19,060	5,936	218	1,807	548	2,324	4,623	3,603	0

*(65% based on 5 year average 2002-2006)

Bycatch trigger levels for area closures

This section describes the methodology for bycatch trigger levels that close areas proposed by staff in sections 1.4 (Chinook) and 2.4 (non-Chinook) of the draft Chapter 2 Description of Alternatives for the Salmon Bycatch EIS. These areas are referenced by option numbers as presented in those sections. Area closure diagrams, coordinates and associated tables of pollock and salmon catch by week and season are also contained in the Chapter 2 Description of Alternatives. The information presented here will become part of Chapter 2 following Council action at the April 2008 Council meeting.

Triggered time and area closures for Chinook are proposed by A and B season. In order to formulate trigger caps for area closures by season for Chinook, relative seasonal caps were estimated from annual caps. This was done by taking the average proportion of Chinook catch (A season: B season) over two time periods (2004-2006 and 2002-2006) for comparison. The resulting proportions were 54:46 (A season: B season) for the 2004-2006 time period and 58:42 for the 2002-2006 time period. Both breakouts are shown in Table 1 and Table 2.

The trigger cap by individual area for both Chinook and non-Chinook (chum) is based on the percentage of salmon inside a particular proposed closure area relative to the percentage of salmon inside the *largest* proposed closure area (over the entire season). This fractional contribution is applied to the cap proposal and subdivided into A and B seasonal caps prior to applying the area-specific trigger amounts. Note that A season area closures and caps only apply to Chinook. As with the annual trigger caps, the seasonal caps are scaled from smallest area to the largest area under consideration. Trigger caps can be applied, as indicated, for the single area closure (Table 1 through Table 3), or as a stair-step mechanism for an expanding area closure. For the latter, the individual area caps would form the incremental closure beginning with the smallest and expanding to the largest as proportional bycatch amounts are reached. The allocation of fishery-level caps between the non-CDQ and CDQ fleet is described in sections 1.1 and 2.1 of the draft Chapter 2 document. Subdivision of caps by sectors below is described in sections 1.2 and 2.2.

Chinook:

Table 1 A season Trigger caps for Chinook area closures using the range of annual caps (as specified in section 1.2.1) partitioned seasonally by 2 options (2004-2006 and 2002-2006 average Chinook catch)

Annual cap	87,500		68,100		48,700		29,300	
A season %*	54%	58%	54%	58%	54%	58%	54%	58%
A season cap	47,138	50,710	36,697	39,467	26,236	28,224	15,785	16,981
Option (Area)								
1a (small)	13,155	14,152	10,238	11,014	7,322	7,876	4,405	4,739
1b (medium)	32,339	34,790	25,169	27,076	17,999	19,363	10,829	11,650
1c (large)	47,138	50,710	36,687	39,467	26,236	28,224	15,785	16,981

*based upon average 2004-2006 (54%) or 2002-2006 (58%) catch by season

Table 2 B season Trigger caps for Chinook area closures using the range of annual caps as specified in section 1.2.1) partitioned seasonally by 2 options (2004-2006 and 2002-2006 average Chinook catch)

Annual cap	87,500		68,100		48,700		29,300	
B season %*	46%	42%	46%	42%	46%	42%	46%	42%
B season cap	40,362	36,790	31,413	28,633	22,464	20,476	13,515	12,319
Option (Area)								
2a (small)	15,481	14,111	12,049	10,982	8,616	7,854	5,184	4,725
2b (large)	40,362	36,790	31,413	28,633	22,464	20,476	13,515	12,319

*based upon average 2004-2006 (46%) or 2002-2006 (42%) catch by season

Non-Chinook:

Table 3 Annual Trigger caps for non-Chinook area closures using the range of annual caps as specified in section 2.2.1

Annual cap	488,000	345,000	201,300	58,000
Option (Area)				
1a (small)	175,044	123,750	72,205	20,804
1b (medium)	408,435	288,750	168,479	48,543
1c (large)	488,000	345,000	201,300	58,000

This section to be included in Chapter 2 Description of Alternatives as noted in draft distribution

3.0 Comparison of Alternatives

This section provides an overview comparison across alternatives. This comparative section reviews both general information about the alternatives, specific options of components within alternatives which provide the greatest contrast, and the decision points pertinent to the selection of a preferred alternative. While general impacts of various components and options amongst alternatives are summarized here, specific details of the impacts of each component and option are included in the impact analysis section of the EIS and RIR by resource category or fishery.

Following the summary of comparative elements within and between alternatives, an overview of the decision points for the construction of the preferred alternative is provided. This section summarizes the specific choices by Action (Chinook or non-Chinook) and alternative (including each component, option and suboption) for building a preferred alternative. As described previously, the preferred alternative may be constructed of a combination of elements from the range of alternatives. This section provides the Council and the public a means of understanding step-by-step what each of these decision points are in building a preferred alternative. This section utilizes information provided in materials for this (April) Council meeting and thus will be revised accordingly following Council action.

Table 1 provides an overview comparison of the different elements of the 4 alternatives under consideration, by action (where Action 1 is Chinook and Action 2 is non-Chinook).

Table 1 Elements of the decision, as structured by alternative. Note these apply equally to Action 1 (Chinook) and Action 2 (non-Chinook)

	Salmon Bycatch Cap		Area Closures		Exempt pollock vessels participating in a VRHS system from area closures (Option B)	Change the annual accounting period for salmon bycatch, to begin in the B season (Option A)
	Hard	Trigger	Fixed	Trigger		
Alternative 1: Status quo	--	Yes	--	Yes	Yes	--
Alternative 2: Hard cap	Yes	--	--	--	--	Option
Alternative 3: Fixed closure	--	--	Yes	--	Option	--
Alternative 4: Triggered closure	--	Yes	--	Yes	Option	Option

Two main elements define the alternatives: hard caps and time/area closures. These may be combined into a preferred alternative that includes some aspects of both, or may be considered separately as meeting different objectives for bycatch management. Elements of the status quo alternative may also be folded into a preferred alternative.

Some elements of the hard cap alternatives (Alternative 2) are related to the triggered closure alternatives as well (Alternative 4). There are three main elements to the hard cap alternatives: 1-how the cap is

established; 2-should the cap be allocated to sectors, and if so, how this allocation occurs; and 3-if the cap is reached, what options are available to the fleet to continue harvesting the pollock quota.

The first choice, how to select a fishery-level cap (Component 1), is consistent in methodology for both a hard cap and a triggered closure cap, although should both be considered concurrently, the level of cap selected in the preferred alternative may differ amongst the two. The distinction between options under component 1 for hard cap formulation (option 1 and option 2) have been adequately described in the previous sections [note for option 2, additional materials are included in the briefing materials regarding this methodology, which is also used as the basis for the impact analysis for salmon].

Whether to subdivide caps by sector is a major decision point under Alternative 2. The following section provides additional information on the current suite of allocation options by sector (component 2) and resulting caps (and whether these caps would have constrained the sector's catch had they been in place in recent years). How the caps are subdivided by sector is consistent whether applying to a hard cap or a trigger cap, under either Alternative 2 or Alternative 4. Thus the following discussion comparing sector allocation options (while explicitly referring to hard caps) may be considered to apply to either. However, specific considerations for subdividing trigger caps to the sector level are included at the end of the section.

Comparison of sector allocation options

Component 2: ***Sector Allocation***

Option 1) *10% of the cap to the CDQ sector, and the remaining allocated as follows: 50% inshore CV fleet; 10% for the mothership fleet; and 40% for the offshore CP fleet*

Option 2) *Historical average of percent bycatch by sector based on:*

a) 3 year (2004-2006) average: CDQ 3%; inshore CV fleet 70%; mothership fleet 6%; offshore CP fleet 21%.

b) 5 year (2002-2006) average: CDQ 4%; inshore CV fleet 65%; mothership fleet 7%; offshore CP fleet 24%.

c) 10 year (1997-2006) average: CDQ 4%; inshore CV fleet 62%; mothership fleet 9%; offshore CP fleet 25%.

Component 2 under Alternative 2 (Action 1, Chinook and Action 2, non-Chinook) deals with the sector allocation of any hard cap derived at a fishery-level under component 1. The specific methodology employed to subdivide the fishery-level cap into sector-specific caps has a profound impact on the relative constraint each cap would exercise on the individual sectors. In order to provide some indication of the impact of sector allocation options, a comparison is made below of the resulting sector cap levels against that sector's catch in the years 2003-2007. Note, the discussion here uses only the range of fishery-level bycatch caps that have been determined for this analysis; the full range of caps under consideration can be found in section 1.2 and 2.2 of the draft Chapter 2.

In general for both species, the use of the AFA percentage allocation for pollock applied to salmon bycatch (option 1) tends to favor all sectors (including CDQ) except the inshore CV fleet, while use of the more recent (2004-2006) catch history of salmon for sector allocations (option 2a) tends to favor the inshore CV fleet over the other sectors. The Chinook default allocation of salmon PSC for CDQ is currently 7.5% of any cap; it is increased to 10% in option 1 and decreased substantially below the status quo amount in options 2a-c. For non-Chinook, the default CDQ allocation of salmon PSC of 10.7% of any cap is decreased slightly under option 1 (10%) and decreased substantially below the status quo amount in options 2a-c. For all allocations, as cap levels are decreased, the constraint occurs earlier in the season (in some years as early as the second week of the season for the lowest fishery-level cap under consideration) as well over more years.

Chinook

For the inshore catcher vessel fleet, the sector's allocation under options 1 and 2(a-c) range from a low of 45% (option 1) to a high of 70% (option 2a). The lowest percentage allocation is a result of the application of the pollock AFA specific percentages to salmon bycatch (50% to inshore CVs after 10% to the CDQ Program). This allocation for the inshore CV fleet results in constraints in the B season for 3 of the 5 years considered for the highest fishery-level cap under consideration (87,500) (Table 2). The highest percentage allocation for the inshore fleet (option 2a, 70%,
Table 3) is a result of the average percent Chinook catch by the inshore CV fleet over the time period 2004-2006. This average does not include the most recent year, 2007, which had the highest historical salmon catch. Under option 2a, at the highest fishery-level cap, the inshore fleet is constrained only in 2007, near the end of the B season.

For the mothership fleet, the sector allocations range from a low of 6% (option 2a) to a high of 9% (option 2c and option 1). Here the allocations based upon recent catch history (options 2a and 2b) for Chinook result in a more constraining cap for this fleet. At the highest fishery-level cap under consideration (87,500), using the 5 year example, the fleet is not constrained under options 1 and 2c, but would have reached the cap in 2007 under options 2a and 2b (
Table 3 and
Table 4).

For the offshore catcher processor fleet, the sector allocations range from a low of 21% (option 2a) to a high of 36% (option 1). Here specifically the options based on recent catch history (2a and 2b) not only would have constrained the fleet in recent years, but the highest fishery-level cap under consideration (87,500) allocated in this manner would have constrained the fleet in the A season (
Table 3 and
Table 4).

For the CDQ Program, the sector allocations range from a low of 3% (option 2a) to a high of 10% (option 1). All allocations based upon catch history (options 2a-c) are much more constraining, with limited difference (1%) between the averages over 3, 5 or 10 years. Under option 2a, the CDQ sector would have been constrained in the A season under the highest fishery-level cap under consideration (87,500) (
Table 3).

Table 2 Week ending date where sector Chinook catch (2003-2007) would have reached or exceeded proposed sector Chinook cap, given subdivision of fishery-level cap under option 1. "--" indicates no constraint in that year.

Sector	Fishery level cap	Sector cap (option 1)	Week ending date cap would have been attained 2003	2004	2005	2006	2007
CV	87,500	39,375	--	--	15-Oct	2-Sep	1-Sep
M		7,875	--	--	--	--	--
CP		31,500	--	--	--	--	27-Oct
CDQ		8,750	--	--	--	--	--
CV	68,100	30,645	--	23-Oct	8-Oct	25-Feb	24-Feb
M		6,129	--	--	--	--	27-Oct
CP		24,516	--	--	--	--	17-Mar
CDQ		6,810	--	--	--	--	--
CV	48,700	21,915	11-Oct	2-Oct	24-Sep	18-Feb	10-Feb
M		4,383	25-Oct	--	--	4-Mar	24-Feb
CP		17,532	--	--	--	21-Oct	17-Feb
CDQ		4,870	--	--	--	--	20-Oct
CV	29,300	13,185	15-Mar	21-Aug	19-Mar	11-Feb	3-Feb
M		2,637	23-Aug	2-Oct	--	18-Feb	3-Feb
CP		10,548	1-Mar	11-Sep	4-Mar	4-Mar	10-Feb
CDQ		2,930	--	09-Oct	--	--	17-Mar

Table 3 Week ending date where sector Chinook catch (2003-2007) would have reached or exceeded proposed sector Chinook cap given subdivision of fishery-level cap under option 2a. "--" indicates no constraint in that year.

Sector	Fishery level cap	Sector cap (option 2a)	Week ending date cap would have been attained 2003	2004	2005	2006	2007
CV	87,500	61,250	--	--	--	--	20-Oct
M		5,250	--	--	--	--	8-Sep
CP		18,375	--	--	--	--	24-Feb
CDQ		2,625	--	02-Oct	--	--	10-Mar
CV	68,100	47,670	--	--	29-Oct	7-Oct	6-Oct
M		4,086	18-Oct	--	--	25-Feb	24-Feb
CP		14,301	6-Sep	--	8-Oct	18-Mar	17-Feb
CDQ		2,043	06-Sep	18-Sep	--	--	03-Mar
CV	48,700	21,915	11-Oct	2-Oct	24-Sep	18-Feb	10-Feb
M		4,383	18-Oct	--	--	25-Feb	25-Feb
CP		17,532	--	--	--	21-Oct	17-Feb
CDQ		1,461	15-Mar	04-Sep	20-Aug	18-Mar	24-Feb
CV	29,300	13,185	15-Mar	21-Aug	19-Mar	11-Feb	3-Feb
M		2,637	23-Aug	2-Oct	--	18-Feb	3-Feb
CP		10,548	1-Mar	11-Sep	25-Jun	4-Mar	10-Feb
CDQ		879	22-Feb	13-Mar	26-Feb	04-Mar	17-Feb

Table 4 Week ending date where sector Chinook catch (2003-2007) would have reached or exceeded proposed sector Chinook cap given subdivision of fishery-level cap under option 2b. "--" indicates no constraint in that year.

Sector	Fishery level cap	Sector cap (option 2b)	Week ending date cap would have been attained 2003	2004	2005	2006	2007
CV	87,500	56,875	--	--	--	28-Oct	13-Oct
M		6,125	--	--	--	--	27-Oct
CP		21,000	--	--	--	--	3-Mar
CDQ		3,500	--	--	--	--	29-Sep
CV	68,100	44,265	--	--	22-Oct	23-Sep	22-Sep
M		4,767	--	--	--	4-Mar	24-Mar
CP		16,344	--	--	--	22-Jul	17-Feb
CDQ		2,724	--	02-Oct	--	--	10-Mar
CV	48,700	31,655	--	30-Oct	08-Oct	04-Mar	03-Mar
M		3,409	11-Oct	30-Oct	--	25-Feb	10-Feb
CP		11,688	15-Mar	NC	27-Aug	11-Mar	10-Feb
CDQ		1,948	06-Sep	18-Sep	01-Oct	--	03-Mar
CV	29,300	19.045	4-Oct	18-Sep	3-Sep	11-Feb	3-Feb
M		2,051	8-Mar	4-Sep	3-Sep	11-Feb	3-Feb
CP		7,032	22-Feb	13-Mar	26-Feb	18-Feb	3-Feb
CDQ		1,172	08-Mar	07-Aug	12-Mar	11-Mar	24-Feb

Table 5 Week ending date where sector Chinook catch (2003-2007) would have reached or exceeded proposed sector Chinook cap given subdivision of fishery-level cap under option 2c. "--" indicates no constraint in that year.

Sector	Fishery level cap	Sector cap (option 2c)	Week ending date cap would have been attained 2003	2004	2005	2006	2007
CV	87,500	54,250	--	--	--	21-Oct	13-Oct
M		7,875	--	--	--	--	--
CP		21,875	--	--	--	--	3-Mar
CDQ		3,500	--	--	--	--	29-Sep
CV	68,100	42,222	--	--	29-Oct	16-Sep	15-Sep
M		6,129	--	--	--	--	27-Oct
CP		17,025	--	--	--	16-Sep	17-Feb
CDQ		2,724	--	02-Oct	--	--	10-Mar
CV	48,700	30,194	--	23-Oct	8-Oct	25-Feb	24-Feb
M		4,383	25-Oct	--	--	4-Mar	24-Feb
CP		12,175	15-Mar	--	3-Sep	11-Mar	10-Feb
CDQ		1,948	06-Sep	18-Sep	01-Oct	--	03-Mar
CV	29,300	18,166	27-Sep	18-Sep	27-Aug	11-Feb	03-Feb
M		2,637	23-Aug	2-Oct	--	18-Feb	3-Feb
CP		7,325	22-Feb	13-Mar	26-Feb	18-Feb	3-Feb
CDQ		1,172	08-Mar	07-Aug	12-Mar	11-Mar	24-Feb

Non-Chinook

For the inshore catcher vessel fleet, the sector allocations under options 1 and 2(a-c) range from a low of 45% (option 1) to a high of 86% (option 2a). The lowest percentage allocation is a result of the application of the pollock AFA specific percentages to salmon bycatch (50% to inshore CVs after 10% to

the CDQ Program). This allocation for the inshore CV fleet results in constraints in the B season for 3 of the 5 years considered for the highest fishery-level cap under consideration (488,000) (Table 6). The highest percentage allocation for the inshore fleet (option 2a, 86%,
Table 7) is a result of the average percent non-Chinook catch by the inshore CV fleet over the time period 2004-2006. Under option 2a, at the highest fishery-level cap, the fleet is constrained only in 2005 in the B season. This year (2005) represents the highest historical fleet-wide catch of non-Chinook salmon.

For the mothership fleet, the sector allocations range from a low of 2% (option 2a) to a high of 9% (option 1). The allocations based upon recent catch history (options 2a-c) for non-Chinook result in a more constraining cap for this fleet.

For the offshore catcher processor fleet, the sector allocations range from a low of 11% (option 2a, 2b) to a high of 36% (option 1). The allocations based on catch history vary only by 1% (options 2a-c). Under any of these catch history options, the fleet would have been constrained on at least 2 of the 5 years considered (
Table 7 through Table 9).

For the CDQ Program, the sector allocations range from a low of 1% (option 2a) to a high of 10% (option 1). All allocations based upon catch history (options 2a-c) are much more constraining, with limited difference (1%) between the averages over 3, 5 or 10 years. Under option 2a, the CDQ sector would have been constrained in 4 of the 5 years, using the highest fishery-level cap (488,000) under consideration (Table 7).

Table 6 Week ending date where sector non-Chinook catch (2003-2007) would have reached or exceeded proposed sector non-Chinook cap given subdivision of fishery-level cap under option 1. "--" indicates no constraint in that year.

Sector	Fishery level cap	Sector cap (option 1)	Week ending date cap would have been attained 2003	2004	2005	2006	2007
CV	488,000	219,600	--	18-Sep	30-Jul	12-Aug	--
M		43,920	--	--	--	--	--
CP		175,680	--	--	--	--	--
CDQ		48,800	--	--	--	--	--
CV	345,000	155,250	--	11-Sep	23-Jul	29-Jul	--
M		31,050	--	--	--	--	--
CP		124,200	--	--	--	--	--
CDQ		34,500	--	--	--	--	--
CV	201,300	90,585	20-Sep	28-Aug	16-Jul	01-Jul	--
M		18,117	--	--	--	--	--
CP		72,468	--	11-Sep	--	--	--
CDQ		20,130	--	--	--	--	--
CV	58,000	26,100	09-Aug	07-Aug	09-Jul	17-Jun	01-Sep
M		5,220	20-Sep	04-Sep	02-Jul	--	20-Oct
CP		20,880	04-Oct	10-Jul	27-Aug	--	08-Sep
CDQ		5,800	27-Sep	18-Sep	10-Sep	--	29-Sep

Table 7 Week ending date where sector non-Chinook catch (2003-2007) would have reached or exceeded proposed sector non-Chinook cap given subdivision of fishery-level cap under option 2a. "--" indicates no constraint in that year.

Sector	Fishery level cap	Sector cap (option 2a)	Week ending date cap would have been attained 2003	2004	2005	2006	2007
CV	488,000	419,680	--	--	13-Aug	--	--
M		9,760	04-Oct	16-Oct	10-Sep	--	--
CP		53,680	--	14-Aug	10-Sep	--	--
CDQ		4,880	27-Sep	28-Sep	27-Aug	--	01-Sep
CV	345,000	296,700	--	02-Oct	06-Aug	--	--
M		6,900	20-Sep	25-Sep	13-Aug	--	--
CP		37,950	--	07-Aug	03-Sep	--	--
CDQ		3,450	13-Sep	11-Sep	20-Aug	--	01-Sep
CV	201,300	173,118	--	11-Sep	23-Jul	05-Aug	--
M		4,026	06-Sep	14-Aug	02-Jul	--	08-Sep
CP		22,143	11-Oct	10-Jul	27-Aug	--	22-Sep
CDQ		2,013	06-Sep	21-Aug	20-Aug	--	25-Aug
CV	58,000	49,880	23-Aug	14-Aug	09-Jul	24-Jun	22-Sep
M		1,160	02-Aug	10-Jul	25-Jun	26-Aug	28-Jul
CP		6,380	16-Aug	19-Jun	25-Jun	29-Jul	14-Jul
CDQ		580	02-Aug	24-Jul	06-Aug	26-Aug	10-Feb

Table 8 Week ending date where sector non-Chinook catch (2003-2007) would have reached or exceeded proposed sector non-Chinook cap given subdivision of fishery-level cap under option 2b. "--" indicates no constraint in that year.

Sector	Fishery level cap	Sector cap (option 2b)	Week ending date cap would have been attained 2003	2004	2005	2006	2007
CV	488,000	409,920	--	--	13-Aug	--	--
M		14,640	--	--	08-Oct	--	--
CP		53,680	--	14-Aug	10-Sep	--	--
CDQ		9,760	--	02-Oct	--	--	--
CV	345,000	289,800	--	02-Oct	30-Jul	--	--
M		10,350	04-Oct	16-Oct	10-Sep	--	--
CP		37,950	--	07-Aug	03-Sep	--	--
CDQ		6,900	27-Sep	25-Sep	17-Sep	--	--
CV	201,300	169,092	--	11-Sep	23-Jul	05-Aug	--
M		6,039	20-Sep	11-Sep	06-Aug	--	--
CP		22,143	11-Oct	10-Jul	27-Aug	--	22-Sep
CDQ		4,026	20-Sep	11-Sep	20-Aug	--	01-Sep
CV	58,000	48,720	23-Aug	14-Aug	09-Jul	24-Jun	22-Sep
M		1,740	02-Aug	17-Jul	25-Jun	16-Sep	18-Aug
CP		6,380	16-Aug	19-Jun	25-Jun	29-Jul	14-Jul
CDQ		1,160	30-Aug	21-Aug	13-Aug	07-Oct	23-Jun

Table 9 Week ending date where sector non-Chinook catch (2003-2007) would have reached or exceeded proposed sector non-Chinook cap given subdivision of fishery-level cap under option 2c. "--" indicates no constraint in that year.

Sector	Fishery level cap	Sector cap (option 2c)	Week ending date cap would have been attained 2003	2004	2005	2006	2007
CV	488,000	400,160	--	--	06-Aug	--	--
M		19,520	--	--	--	--	--
CP		58,560	--	21-Aug	17-Sep	--	--
CDQ		9,760	--	02-Oct	--	--	--
CV	345,000	282,900	--	25-Sep	30-Jul	07-Oct	--
M		13,800	--	NC	24-Sep	--	--
CP		41,400	--	07-Aug	03-Sep	--	--
CDQ		6,900	27-Sep	25-Sep	17-Sep	--	--
CV	201,300	165,066	--	11-Sep	23-Jul	05-Aug	--
M		8,052	27-Sep	02-Oct	20-Aug	--	--
CP		24,156	--	17-Jul	27-Aug	--	22-Sep
CDQ		4,026	20-Sep	11-Sep	20-Aug	--	01-Sep
CV	58,000	47,560	23-Aug	14-Aug	09-Jul	24-Jun	22-Sep
M		2,320	23-Aug	24-Jul	25-Jun	--	25-Aug
CP		6,960	23-Aug	19-Jun	02-Jul	29-Jul	21-Jul
CDQ		1,160	30-Aug	21-Aug	13-Aug	07-Oct	23-Jun

Sector allocations for trigger caps

For trigger caps, the same sector allocation options as described previously apply. The trigger caps are seasonal, and the overall annual cap is divided into an A season and a B season cap. The proposed area closures range from small to large, and for the smaller closures, the trigger cap would be a proportion of the seasonal sector cap. Especially for Chinook, this results in substantially lower sector quota caps. The following discussion is provided as an example of the potential issue that subdividing trigger closures to the sector level may result in very small quotas triggering area closures. There are additional issues with respect to the ability of in-season management to effectively manage very small or very numerous fishery-specific quotas, which will be outlined further in the analysis.

The tables below outline scenarios for two options for an A season sector allocation of the trigger caps for Chinook Alternative 4 (option 1 and option 2a). These tables both use the starting fishery-level cap of 87,500 Chinook, the highest cap currently under consideration by the Council under Action 1. Following the methodology described previously(discussion included in briefing materials separately), the overall fishery level cap is subdivided by season using the proportional average from 2004-2006 and then further broken out for each proposed triggered closure area by the fractional contribution (compared to the largest area) of Chinook caught in that area over the entire A season.

Table 10 Sector specific cap levels for A season Chinook proposed area closures. Fishery cap level = 87,500 Chinook. A season trigger cap (54/46 A/B split =>A season cap 47,138) is subdivided by sector using sector allocation option 1 (10%CDQ, 45%CV, 9%mothership, 36%CP).

Area	Trigger level	CDQ	CV	Mothership	CPs
Small	13,155	1,316	5,920	1,184	4,736
Medium	32,339	3,234	14,553	2,911	11,642
Large	47,138	4,714	21,212	4,242	16,970

Table 11 Sector-specific cap levels for A season Chinook proposed area closures. Fishery cap level = 87,500 Chinook. A season trigger cap (54/46 A/B split =>A season cap 47,138) is subdivided by sector using sector allocation option 2a (3%CDQ, 70%CV, 6%mothership, 21%CP)

Area	Trigger level	CDQ	CV	Mothership	CPs
Small	13,155	395	9,209	789	2,763
Medium	32,339	970	22,637	1,940	6,791
Large	47,138	1,414	32,997	2,828	9,899

Note that even for the highest caps under consideration for Chinook, under some options for sector division (option 2a,
Table 11) the caps for the smallest area are less than 400 fish. Using the same example but for the smallest cap under consideration (~29,300 Chinook), the resulting CDQ cap would be only 132 fish, while the mothership sector cap would be only 264 fish. These small quotas might be difficult to manage with precision.

Comparison of accounting period option

Option A modifies the accounting period for salmon species to coincide with the salmon biological year (e.g June through May) rather than the calendar year (as catch accounting is currently structured). The utility of the application of this option varies between Chinook and non-Chinook species as well as with whatever additional management measures are employed.

For Chinook(Action 1), modification of the annual accounting period would have a profound effect on both the fleet and the relative amount of salmon taken from any one cohort of salmon if it was applied in conjunction with an annual cap (triggered or hard cap). If this were applied in conjunction with, for example, a hard cap on Chinook, the fleet (or sectors thereof) would very likely reach their salmon cap prior to or during the early weeks of the A season. Thus they would be constrained in the A season due to bycatch in the previous B season. While the same number of salmon (depending on the hard cap selected) may be caught absent this option (e.g. in a calendar year), in this case the conservation benefits to that particular cohort of salmon are improved by constraining further catch at that time. However the economic impacts to the fleet increase as the fishery is constrained in the more lucrative A season. In order to avoid this scenario, it is likely the fleet would modify their behavior in the B season, possibly abstaining from some of their B season quota in order to conserve their allotted salmon for fishing in the A season instead. Additional information on potential impacts of this option on fleet behavior are contained in the RIR. The aspect for highlighting here is that under an annual hard cap this option has a profound impact by potentially constraining the catch of pollock in the A season. However, with seasonal caps (hard caps or triggered caps) there is limited utility in the application of this modification to the accounting period. Seasonal caps would already convey the appropriate conservation benefits to the salmon stocks of restricted catch in any one time period, thus further modifications of the accounting period would be redundant. The fishery would already be seasonally constrained in their catch of Chinook.

For non-Chinook (Action 2), modification of the annual accounting period is unnecessary. The vast majority of non-Chinook bycatch occurs in the B season, with only very minor amounts occurring on average in the A season. Thus there is no conservation benefit conferred by applying this option for non-Chinook. Should a hard cap or trigger cap be selected for non-Chinook, it would be almost exclusively a function of catch in the B season based upon historical bycatch trends. Thus application of this option to Action 2: Non-Chinook conveys no additional conservation benefit for salmon.

Comparison of area options

Within the area closure alternatives (Alternatives 3 and 4), several options are presented. For Chinook, an option for a fixed closure is included as well as 7 options for triggered closures (4 A season, 3 B season). For non-Chinook, no fixed closure has been identified at present as a candidate for analysis but 4 triggered closure options are presented. One distinction between triggered closure options compared with fixed closure options are that trigger closure areas remain open for fishing in years where bycatch does not reach the established trigger level. Fixed closures are closed for specified time periods regardless of the amount of bycatch in that year.

All time/area closures are specified based upon historical (recent or longer time period by species) patterns of bycatch in conjunction with fishing patterns and thus will always carry the risk of not being responsive to changing conditions. The suboption to update areas based upon more recent bycatch information is included to address this shortcoming. However, with or without this suboption, the Council may always initiate an analysis at any time to evaluate new closure areas. The benefit of the update provision suboption is more as an indication to the public that it is the Council's intent to revisit these designated closures as a priority in the near future.

The area closures included as triggered candidates by species are structured by size, with larger area closures corresponding to higher trigger cap levels. Given the structure of the Council cap formulation and the recommended proportional trigger cap levels, the largest areas under consideration (with the associated cap) could be considered separately as an alternative measure to a hard cap, or considered in conjunction with the smaller areas for an expanding area closure. While none of the alternatives are structured to be mutually exclusive, a large scale area cap in conjunction with an overall fishery cap established at the same levels would be redundant. In selecting a preferred alternative that combines time/area closures and hard caps for the same species (e.g. Action 1 for Chinook), the Council should consider the objective and relative benefits of combining these types of measures as well as the overall cap levels for the largest area closure.

Identifying a Preferred Alternative

Prior to final action, the Council must identify a preferred alternative from amongst the various components and options presented in the range of alternatives. Ideally the Council will begin to identify a preliminary preferred alternative (PPA) as early in the process as possible in order to indicate to the public the direction the Council is considering as well as to assist in framing the focus of subsequent analysis. The PPA does not obligate the Council to proceed in that direction for its preferred alternative (at final action). While not required, it is beneficial to the public to have a preferred alternative identified in the draft EIS which is circulated for public comment. If the EIS proceeds on its current schedule, the Council would ideally indicate its PPA at the June Council meeting. The draft EIS would be made available for a public comment period in mid-July.

The following tables are provided to assist the Council and the public in understanding the decision points that are necessary in order to select a preferred alternative.

Action 1, Chinook salmon: Building a Preferred Alternative. Based on staff recommendations in April 2008.

Do you want to retain the existing triggers and closures? (Alternative 1)	**No**	Existing salmon PSC limits and salmon savings areas will remain in the FMP; exemption from the area closures will continue to apply to vessels participating in VRHS system
	Yes	Existing salmon PSC limits and salmon savings areas will be removed from the FMP

Do you want a hard cap? (Alternative 2)	**No**	No hard cap					
	Yes	**How to formulate it?** (Component 1)	Option 1 (i-viii): Select from a range of numbers				Suboption: adjust periodically based on updated bycatch information
			Option 2: Framework cap is set relative to salmon returns				
		Subdivide among sectors? (CDQ, inshore CV, mothership, offshore CP)	**No**	separate cap only for CDQ Program, otherwise cap applies to all non-CDQ sectors as a whole			
			Yes	**How?** (Component 2)	Option 1: same as pollock allocations, 10% CDQ, 45% inshore CV, 9% mothership, 36% offshore CP		
					Option 2 (a-c): Cap is set based on historical average bycatch use by sector		
				Allow bycatch transfers among sectors? (Component 3)	Option 1: yes, industry may initiate transfers		
					Option 2: NMFS may rollover unused salmon bycatch to sectors that are still fishing		
				Subdivide inshore CV cap among cooperatives? (Component 4)	**No**	Inshore CV cap applies at sector level	
					Yes	Inshore CV cap will be subdivided among cooperatives based on the cooperative's pollock allocation	
						Allow bycatch transfers among cooperatives?	Option 1: no, cooperatives may lease pollock to another cooperative
							Option 2: yes, industry may initiate transfers
							Suboption: NMFS may rollover unused salmon bycatch to cooperatives that are still fishing
		Apportion by season	**Yes**	Use the average A to B season proportion of Chinook catch for the whole pollock fishery, calculated using the last three (54%:46%) or five years (58%:42%)			
			No	Cap is annual			
		Change the accounting period? (Option A)	**No**	status quo, accounting period is calendar year			
			Yes	bycatch accounting period begins with B season, continues through A season of following year			

Do you want a fixed closure? (Alternative 3)	**No**	No fixed closures			
	Yes	**What area?** (Component 1)	Option 1: area along shelf break west of Unimak Island	Suboption: adjust periodically based on updated bycatch information	
		Duration? (Component 1)	Option 1: entire A season		
		Allow exemption from area closure for vessels participating in the VRHS system? (Option B)	**No**	closure applies to all pollock vessels	
			Yes	vessels participating in the VRHS system are exempt from the fixed closure	
Do you want a new triggered closure? (Alternative 4)	**No**	No trigger caps and closures			
	Yes	**How to formulate cap?** (Component 1; same options as for hard cap)	Option 1 (i-viii): Select from a range of numbers	Suboption: adjust periodically based on updated bycatch information	
			Option 2: Framework cap is set relative to salmon returns		
		Subdivide cap among sectors? (CDQ, inshore CV, mothership, offshore CP)	**No**	separate cap only for CDQ Program, otherwise cap applies to all non-CDQ sectors as a whole	
			Yes	**How?** (Component 2; same options as for hard cap)	Option 1: same as pollock allocations, 10% CDQ, 45% inshore CV, 9% mothership, 36% offshore CP
					Option 2 (a-c): Cap is set based on historical average bycatch use by sector
				Allow transfer among sectors? (Component 3; same options as for hard cap)	Option 1: yes, industry may initiate transfers
					Option 2: NMFS may rollover unused salmon bycatch to sectors that are still fishing
		Apportion by season? (staff recommendation)	Yes, use the average A to B season proportion of Chinook catch for the whole pollock fishery, calculated using the last three (54%:46%) or five years (58%:42%)		
		What areas? (Component 4; Council may select both A and B season closures)	Option 1: A season closures	(a) small (b) medium (c) large (d) expanding closure (stairsteps from small to large with each trigger)	Suboption: adjust periodically based on updated bycatch information
			Option 2: B season closures	(a) small (b) large (c) expanding closure (stairsteps from small to large with each trigger)	Suboption: adjust periodically based on updated bycatch information
		How to apply seasonal caps to areas? (staff recommendation)	Seasonal trigger cap for each sector will apply to the large proposed closure; caps for the small and medium closures are determined as a fraction of the total number, based on the percentage of salmon inside the proposed closure area relative to the percentage of salmon inside the large proposed closure area (over the entire season)		
		Duration of closures? (Component 4)	once triggered, areas remain closed for remainder of season		
		Change the accounting period? (Option A)	**No**	status quo: accounting period is calendar year	
			Yes	bycatch accounting period begins with the B season and continues through the A season of the following year	
		Allow exemption from area closure for vessels participating in the VRHS system? (Option B)	**No**	closure applies to all pollock vessels	
			Yes	vessels participating in the VRHS system are exempt from the fixed closure	

Action 2, Non-Chinook (chum) salmon: Building a Preferred Alternative. Based on staff recommendations in April 2008.

Do you want to retain the existing triggers and closures? (Alternative 1)	**No**	Existing salmon PSC limits and salmon savings areas will remain in the FMP; exemption from the area closures will continue to apply to vessels participating in VRHS system
	Yes	Existing salmon PSC limits and salmon savings areas will be removed from the FMP

Do you want a hard cap? (Alternative 2)	**No**	No hard cap					
	Yes	**How to formulate it?** (Component 1)	Option 1 (i-viii): Select from a range of numbers				Suboption: adjust periodically based on updated bycatch information
			Option 2: Framework cap is set relative to salmon returns				
		Subdivide among sectors? (CDQ, inshore CV, mothership, offshore CP)	**No**	separate cap only for CDQ Program, otherwise cap applies to all non-CDQ sectors as a whole			
			Yes	**How?** (Component 2)	Option 1: same as pollock allocations, 10% CDQ, 45% inshore CV, 9% mothership, 36% offshore CP		
					Option 2 (a-c): Cap is set based on historical average bycatch use by sector		
				Allow bycatch transfers among sectors? (Component 3)	Option 1: yes, industry may initiate transfers		
					Option 2: NMFS may rollover unused salmon bycatch to sectors that are still fishing		
				Subdivide inshore CV cap among cooperatives? (Component 4)	**No**	Inshore CV cap applies at sector level	
					Yes	Inshore CV cap will be subdivided among cooperatives based on the cooperative's pollock allocation	
						Allow bycatch transfers among cooperatives?	Option 1: no, cooperatives may lease pollock to another cooperative
							Option 2: yes, industry may initiate transfers
							Suboption: NMFS may rollover unused salmon bycatch to cooperatives that are still fishing
		Change the accounting period? (Option A)	**No**	status quo, accounting period is calendar year			
			Yes	bycatch accounting period begins with the B season and continues through the A season of the following year			

Staff recommends deleting options for Alternative 3, a fixed closure for chum salmon.

(Action 2, Non-Chinook (chum) salmon: Building a Preferred Alternative – continued)

Do you want a new triggered closure? (Alternative 4)	**No**	No trigger caps or closures			
	Yes	**How to formulate cap?** (Component 1; same options as for hard cap)	Option 1 (i-viii): Select from a range of numbers		Suboption: adjust periodically based on updated bycatch information
			Option 2: Framework cap is set relative to salmon returns		
		Subdivide cap among sectors? (CDQ, inshore CV, mothership, offshore CP)	**No**	separate cap only for CDQ Program, otherwise cap applies to all non-CDQ sectors as a whole	
			Yes	**How?** (Component 2; same options as for hard cap)	Option 1: same as pollock allocations, 10% CDQ, 45% inshore CV, 9% mothership, 36% offshore CP
					Option 2 (a-c): Cap is set based on historical average bycatch use by sector
				Allow transfer among sectors? (Component 3; same options as for hard cap)	Option 1: yes, industry may initiate transfers
					Option 2: NMFS may rollover unused salmon bycatch to sectors that are still fishing
		What areas? (Component 4)	Option 1: B season closures	(a) small (b) medium (c) large (d) expanding closure (stairsteps from small to large with each trigger)	Suboption: adjust periodically based on updated bycatch information
		How to apply caps to areas? (staff recommendation)	Trigger cap for each sector will apply to the large proposed closure; caps for the small and medium closures are determined as a fraction of the total number, based on the percentage of salmon inside the proposed closure area relative to the percentage of salmon inside the large proposed closure area (over the entire season)		
		Duration of closures? (Component 4)	once triggered, areas remain closed for remainder of season		
		Change the accounting period? (Option A)	**No**	status quo: accounting period is calendar year	
			Yes	bycatch accounting period begins with the B season and continues through the A season of the following year	
		Allow exemption from area closure for vessels participating in the VRHS system? (Option B)	**No**	closure applies to all pollock vessels	
			Yes	vessels participating in the VRHS system are exempt from the fixed closure	

Chinook salmon bycatch-at-age evaluation

1.1 Introduction

The incidental catch (bycatch) of salmon in Alaska groundfish fisheries varies a function of the abundance of salmon, the amount of effort, the temporal-spatial pattern of fishing, and environmental conditions. Salmon bycatch in the Alaska groundfish fisheries is closely monitored and regulated by NMFS through "prohibited species catch" (PSC) allowances (ADFG 1995a and ADFG 1995b). These regulations currently include closures of fixed areas that traditionally had high incidental salmon catches. Recent initiatives to further reduce bycatch levels have included cooperative rolling hot-spot closures and industry-based incentives. These and other tools are used to advise the managers on best practices. To evaluate these practices, methods that appropriately account for the impact incidental catches have on salmon populations are required.

In this study a stochastic "adult equivalence" model is developed that accounts for sources of uncertainty. This extends from Witherell et al.'s (2002) evaluation from early evaluations. Such stochastic simulation approaches for evaluating management measures provide insight on the types of data required to better achieve objectives (e.g., Criddle 1996). Management measures to minimize bycatch levels require approaches that are effective at minimizing bycatch while being robust uncertainty and variability. Additionally, management measures require practicality. Currently, accurate in-season salmon abundance levels are unavailable and management must rely on analyses of historical data for developing alternatives. A single value as an overall salmon bycatch limit could be selected based on estimates of likely run size impacts (with associated range of probabilities). This approach requires consideration of acceptable run-size impacts. Alternatively, given a set of catch limits the model presented could provide a basis for evaluating the impacts on salmon runs.

In 2007, the Council reviewed the methodology and encouraged refinements. In particular, issues related to providing better

a) estimates of the salmon bycatch age composition,
b) realistic salmon maturation schedules which consider historical brood-year data,
c) updated genetics information on stock origin,
d) using updated run size information, and
e) refining the adult equivalent model to include a broader range of inputs (e.g., brood-year maturation rates and age specific natural mortality rates)

Significant improvements on these fronts have occurred thanks to valuable efforts from a number of biologists from ADFG, the University of Washington, and NMFS. The following contains a description of the methods and data and a preliminary examination of AEQ results relative to selected stock reporting region returns.

1.2 Methods

Overall salmon bycatch levels are estimated based on extensive observer coverage. For the pollock fishery, the vast majority of tows are observed either directly at sea or based on offloading locations aboard motherships or shore-based processing plants. The observer data is used to allow inseason manager evaluate when to open and close all groundfish fisheries based on catch levels of prohibited species bycatch, such as salmon and halibut, and of target groundfish species. The process of applying observer data (in addition to other landings information) to evaluate fishery season length has relied on a pragmatic approach that expands the observed bycatch levels to extrapolate to unobserved fishing operations. More statistically rigorous estimators have been developed (Miller 2005) that can be applied to the North Pacific groundfish fisheries but these so far have not been implemented for inseason management purposes. Nonetheless, these estimators suggest that for the Eastern Bering Sea pollock fishery, the levels of salmon bycatch are precisely estimated with coefficients of variation of around 5%. This indicates that, assuming that the observed fishing operations are unbiased relative to unobserved

tows, the total salmon bycatch levels are precisely estimated for the fleet as a whole. For the purposes of this analysis, imprecision on the total annual salmon bycatch is considered negligible.

1.2.1 Salmon catch-at-age estimation methods

In order to appropriately account for the impact of salmon bycatch in the groundfish fisheries it is desirable to correct for the age composition of the bycatch. For example, the impact a bycatch level of 10,000 adult mature salmon would have is likely greater than the impact of 10,000 incidentally caught salmon that just emerged from rivers and expected to return for spawning in several years time. Hence, estimation of the age composition of the bycatch (and the measure of uncertainty) is critical.

Estimates of both length and age composition and their variance estimates were approximated using at two-stage bootstrap method. For a given year the first stage samples, with replacement, among all tows from which salmon were measured. Given this collection of tows, the individual fish measurements were resampled with replacement and all stratum-specific information was carried with each record. A separate process was carried out on the samples from which age data were collected following a similar two-stage approach. Once a sample of lengths and ages were obtained, age-length keys were constructed and applied to the catch-weighted length frequencies to compute age composition estimates. This process was repeated 100 times and the results stored to obtain a distribution of both length and age compositions.

Three years of length-at-age data were available from Myers et al. (2003). These data are based on salmon scale samples collected by the NMFS groundfish observer program from 1997-1999 and processed for age determination (and river of origin) by scientists at the University of Washington (Table 1). Extensive salmon bycatch length frequency data are available from the NMFS groundfish observer program since 1991 (Table 2). The age data were used to construct age length keys for nine spatio-temporal strata (one area for winter, two areas for summer-fall, for each of three fishery sectors). Each stratum was weighted by the NMFS Regional Office estimates of salmon bycatch (Table 3). To the extent possible, sex-specific age-length keys within each stratum were created and where cells were missing, a "global" sex-specific age-length key was used. The global key was simply computed over all strata within the same season. For years other than 1997-1999, a combined-year age-length key was used (based on all of the 1997-1999 data). This method was selected in favor of simple (but less objective) length frequency slicing based on evaluations of using the combined key on the individual years and comparing age-composition estimates with the estimates derived using annual age-length keys. The reason that the differences were minor are partially due to the fact that there are only a few age classes in the salmon bycatch and these are fairly well determined by their length at-age distribution (Fig. 1).

1.2.1 Genetics sample composition

Scientists with Alaska Department of Fish and Game have developed a DNA baseline to resolve the stock composition mixtures of Chinook salmon in the Bering Sea (Templin et al. In prep.). This baseline includes 24,100 individuals sampled from over 175 rivers from the Kamchatka Peninsula, Russia, to the Central Valley in California. The genetic stock identification (GSI) study used classification criteria whereby the accuracy of resolution to region-of-origin is must be greater than or equal to 90%. This analysis identified 15 regional groups for reporting results. For this report, minor components in the bycatch are combined into the "other" category for clarity which results in a total of 9 stock units.

This study analyzed samples taken from the bycatch during the 2005 B season, both A and B seasons during 2006, and a sample from an excluder test fishery during the 2007 A season. Where possible, the genetics samples from the bycatch were segregated by major groundfish bycatch regions. Effectively, this entailed a single region for the entire fishery during winter (which is typically concentrated in space to the region east of 170°W) and two regions during the summer, a NW region (west of 170°W) and a

southeast region (east of 170°W). The genetic sampling distribution varies considerably by season and region compared to the level of bycatch (as reported by NMFS Regional Office; Table 3).

The samples used in the analysis were obtained during a feasibility study to evaluate using scales and other tissues as collected by the NMFS observer program for genetic sampling. Unfortunately, during this feasibility study, the collected samples failed to cover the bycatch in groundfish fisheries in a comprehensive manner. For example, in 2005 most sampling was completed prior to the month (October) when most of the bycatch occurred (Fig. 2).

For the purposes of assigning the bycatch to region of origin, the level of uncertainty is important to characterize. While there are many approaches to implement assignment uncertainty, the method chosen here assumes that the stratified stock composition estimates are unbiased and that the assignment uncertainty based on a classification algorithm (Seeb and Templin, In Prep; Table 4) adequately represents the uncertainty (i.e., the estimates and their standard errors are used to propagate this component of uncertainty). Inter-annual variability is also introduced in two ways: 1) by accounting for inter-annual variability in bycatch among strata; and 2) by using the point estimates (and errors) from the data (Table 4) over the different years (2005-2007) while weighting appropriately for the sampling intensity. The 2005 B-season results were given one third of the weight since sampling effort was low during October of that year (relative to the bycatch) while the 2006 B-season stock composition data was given two-thirds of the weight in simulating stock apportionments. For the A season, the 2007 data (collected from a limited number of tows) were given one fifth the weight while the 2006 was weighted 4 times that value.

The procedure for introducing variability in regional stock assignments of bycatch followed a Monte Carlo procedure with the point estimates and their variances used to simulate beta distributed random variables (which have the desirable property of being bounded by 0.0 and 1.0) and applied to the catch weightings (for the summer/fall (B) season) where areas are disaggregated. Areas were combined for the winter fishery since the period of bycatch by the fishery is shorter and from a more restricted area.

1.2.2 Estimating adult equivalence

The impact of bycatch on salmon runs is the primary output statistic. This measure relates the historical bycatch levels relative to the subsequent returning salmon run k in year t as:

$$u_{t,k} = \frac{C_{t,k}}{C_{t,k} + S_{t,k}} \qquad (1)$$

where $C_{t,k}$ and $S_{t,k}$ are the bycatch and stock size (run return) estimates of the salmon species in question. The calculation of $C_{t,k}$ includes the bycatch of salmon returning to spawn in year t and the bycatch from previous years for the same brood year (i.e., at younger, immature ages). This latter component needs to be decremented by ocean survival rates and maturity schedules. This sum of catches (at earlier ages and years) can thus be represented as:

$$C_{t,k} = \sum_{a=1}^{A} c_{i,a,k}\, s_a \gamma_{a,k} \qquad i = t - A + a \qquad (2)$$

where $c_{i,a,k}$ is the catch of age a fish in year i, A is the oldest age of their ocean phase, $s_{i,a,k}$ is the proportion of salmon surviving from age a to $a+1$, and $\gamma_{a,k}$ is the proportion of salmon at sea that will return to spawn at age a. Maturation rates vary over time and among stocks detailed information on this is available from a wide variety of sources. For the purpose of this study, an average over putative stocks was developed based on a variety of studies (Table 5)

To carry out the computations in a straightforward manner, the numbers of salmon that remain in the ocean (i.e., they put off spawning for at least another year) are tracked through time until age 7 where for this model, all Chinook in the ocean at that age are considered mature and will spawn.

Stochastic versions of the adult equivalence calculations acknowledge both run-size inter-annual variability and run size estimation error, as well as uncertainty in maturation rates, the natural mortality rates (oceanic), river-of-origin estimates, and age assignments. The variability in run size can be written as (with $\dot{S}_{t,k}$ representing the stochastic version of $S_{t,k}$):

$$\dot{S}_{t,k} = \bar{S}_k e^{\varepsilon_t + \delta_t} \quad \varepsilon_t \sim N\left(0, \sigma_1^2\right), \quad \delta_t \sim N\left(0, \sigma_2^2\right) \tag{3}$$

where σ_1^2, σ_2^2 are specified levels of variability in inter-annual run sizes and run-size estimation variances, respectively.

The stochastic survival rates were simulated as:

$$\dot{s}_{a,k} = 1 - \exp\left(-M_a + \delta\right), \qquad \delta \sim N\left(0, 0.1^2\right) \tag{4}$$

whereas the maturity in a given year and age was drawn from beta-distributions:

$$\dot{\gamma}_{a,k} \sim B\left(\alpha_a, \beta_a\right) \tag{5}$$

with parameters α_a, β_a specified to satisfy the expected value of age at maturation (Table 5) and a pre-specified coefficient of variation term (provided as model input).

Similarly, the parameter responsible for assigning bycatch to river-system of origin was modeled using a combination of years and "parametric bootstrap" approach, also with the beta distribution:

$$\dot{p}_k \sim B\left(a_k, b_k\right) \tag{6}$$

again with α_a, β_a specified to satisfy the expected value the estimates and variances shown in Table 4. For the purposes of this study, the estimation uncertainty is considered as part of the inter-annual variability in this parameter. The steps (implemented in a spreadsheet) for the AEQ analysis can be outlined as follows:

1. Select a bootstrap sample of salmon bycatch-at-age ($\phi_{t,a}$) for all years and strata
2. Sum the bycatch-at-age for each year and proceed to account for year-of-return factors (e.g., stochastic maturation rates and ocean survival (Eqs. 2-5)
3. Partition the bycatch estimates to stock proportions (by year and area) drawn randomly from each parametric bootstrap
4. Sum over all bycatch years and compare with run-size estimates for impact rate calculations
5. Repeat 1-3 200 times
6. Compile results over all years and compute frequencies from which relative probabilities can be estimated.
7. Based on updated genetics results, assign to river of origin components ($\dot{p}_k$)

Sensitivity analyses on maturation rates by brood year were conducted and contrasted with alternative assumptions about natural mortality schedules during their oceanic phase as follows:

Model	3	4	5	6	7
1 - None	0.0	0.0	0.0	0.0	0.0
2 - Variable	0.3	0.2	0.1	0.1	0.0
3 - Constant	0.2	0.2	0.2	0.2	0.0

1.3 Results

1.3.1 Chinook salmon catch-at-age

The uncertainty in the distribution of seasonal length frequencies have improved over time (Fig. 3). Applying these length frequencies (and associated uncertainty based on bootstrap sampling) results in annual totals of Chinook salmon bycatch by age as shown in Table 6. When broken out by season there is some correlation between B season levels at one age and subsequent A season levels of the next age group (Table 7). Estimates of uncertainty due to age-specific bycatch sampling (for age and length) varied by season but showed some improvement (smaller values of coefficients of variation) for the main bycatch age groups in recent years (Table 8; Fig. 4). For the evaluations of uncertainty in age assignments and impact analysis, the bootstrap samples of age composition were used and has the added advantage that the covariance structure is retained (e.g., Fig. 5).

1.3.2 Chinook salmon bycatch stock composition

Application of GSI to estimate the composition of the bycatch by reporting region suggests that, if the goal is to provide estimates on the stock composition of the bycatch, there need is to adjust for the magnitude of bycatch occurring within substrata (e.g., east and west of 170°W during the B season, top panels of Fig. 6). Applying the stock composition results presented in Table 4 over different years and weighted by catch gives stratified proportions that have similar characteristics to the raw genetics data (Table 9). Importantly, these stratified stock composition estimates can be applied to bycatch levels in other years which will result in overall annual differences in bycatch proportions by salmon stock region. This approach assumes that the salmon from early years were of similar stock composition, until planned investigations analyzing historical scale samples are complete, the degree of temporal variation in stock composition within season and spatial strata are unknown. These simulations can be characterized graphically in a way that shows the covariance structure among regional stock composition estimates (e.g., Fig. 7).

Given the bycatch by strata estimates, it is possible to use the genetic composition data to estimate the historical expected stock proportions. **However, this assumes the genetics data collected from 2005-2007 adequately represents the historical pattern. Clearly, it is preferable to have genetics samples for the historical period analyzed rather than assuming the stratum-specific stock composition estimates from the recent period reflect the past.** That caveat stated, it is still interesting to note how historical annual bycatch composition varies depending on the locales of where Chinook are taken as bycatch (Fig. 8). To gain an appreciation of the impact, the Pacific Northwest group (PNW, also noted in some figures as BC+WA+OR) and the Upper Yukon river annual proportions in the bycatch are strongly affected by the locales and seasons of where the bycatch occurred (Fig. 9). Myers et al (2004) found similar area-specific patterns in their bycatch.

1.3.3 Adult equivalents estimation

Using the weighted mean maturation schedule and the variable age-specific ocean mortality, the adult equivalents due to salmon mortality induced by the pollock fishery averaged about two thirds of the nominal (reported) annual bycatch in recent years (Fig. 10). This figure also shows that including the error due to the age composition of the bycatch had little impact on the AEQ uncertainty. The AEQ model was shown to be sensitive to natural mortality assumptions but had little qualitative difference in the trend over time (Fig. 11). For the stochastic version, under Model 2 assumptions (decreasing mean age-specific natural mortality with age) resulted in a fair amount of uncertainty in the estimates of AEQ mortality (Fig. 12).

Applying the stochastic (via the parametric bootstrap) time series of genetic stock components (**see caveat above about extending stock composition estimates over an earlier period**) to available run-size estimates allows computation of an *impact* or exploitation rate due to the pollock fishery bycatch. For the Upper Yukon River, this impact rate was well below 0.7% (Fig. 13). For the "Coastal west Alaska" group, the impact rate estimates were considerably higher and have increased in recent years (Fig. 14). Overall, from this analysis it appears that there is about a 10% chance that the coastal west Alaska group has experienced an exploitation rate greater than 3.5%. However, the apparent increasing trend (consistent with increases in overall bycatch levels) warrants further monitoring.

For groups of Chinook stocks where run size information is incomplete it is possible to simply present the estimates of total adult equivalent mortality due to bycatch. For example, the estimates of Chinook mortalities that originated from stocks south of Alaska (Canada and the lower 48 states) range from around 3,000 fish during 2000, to as high as 13,000 fish in recent years (Fig. 15).

1.4 Discussion

One of Myers' et al. recommendations were to have NMFS estimate the variance of bycatch-at-age. Miller (2006) developed estimators on total salmon bycatch by the EBS trawl fleet and found that the CVs (coefficients of variation) of the estimates under the current sampling regime were on the order of 5% (assuming that hauls from unobserved vessels had the same bycatch pattern as that of observed vessels). This study provides an additional component of sampling variability attributed to length and age collections.

The samples from which Myers' et al. (2003) estimated ages were out of proportion relative to the bycatch. For example, in 1997 some 51% of the scale samples were from the A season whereas this represented only about 11% of the overall bycatch for that year (Table 10). Myers et al. corrected for the bycatch levels and achieved proportions at age similar to what was found in this study. However, during this period (1997-1999) the observers sampled over 41,500 Chinook salmon for lengths (compared to the estimated total Chinook bycatch over this period of 107,500 salmon). In this study, these length frequencies are combined with the age data to have a more complete sampling frame. An added benefit of including the length frequency samples is that scale sampling is impacted by the size of the fish. Fish that lose scales more easily are more often rejected for sample quality and scale loss tends to be higher for smaller fish. Having a complete length frequency set (where such sample rejection is unlikely to occur) should enhance the reliability of the age composition estimates. Having age structures read over more years would improve the estimates shown here and would help if further multi-stock models are constructed.

The time series of bycatch age composition estimates have only been briefly evaluated. Application extensions to these data can be explored with in-river brood year variability (e.g., Fig. 16).

The stock composition estimates based on the genetics are qualitatively very similar to the scale-pattern study presented by Myers et al. (2004). The age composition, genetics, and modeling approach presented here should help to provide some foundation for evaluating the EIS that is being developed by NMFS and the Council and provide guidance for decisions on appropriate measures to reduce bycatch impacts. For example, it is possible to examine how a cap would have changed the impact rates historically. This can serve to illustrate the expected result of future cap regulation alternatives.

1.5 Literature Cited

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FIGURES

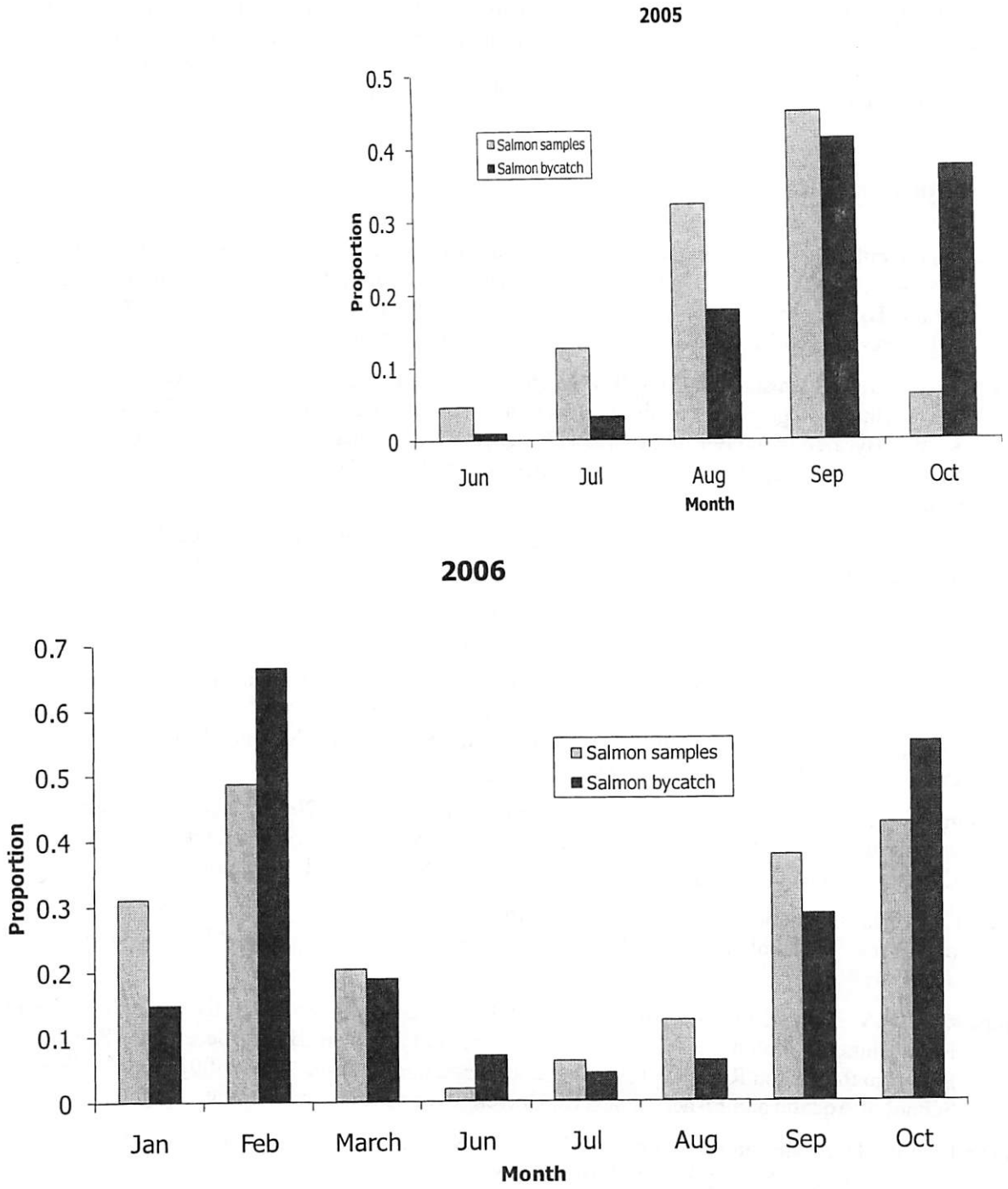

Figure 1. Proportion of Chinook salmon samples collected for genetics compared to the proportion of bycatch by month for 2005 B-season only (top panel) and 2006 A and B season combined (bottom panel).

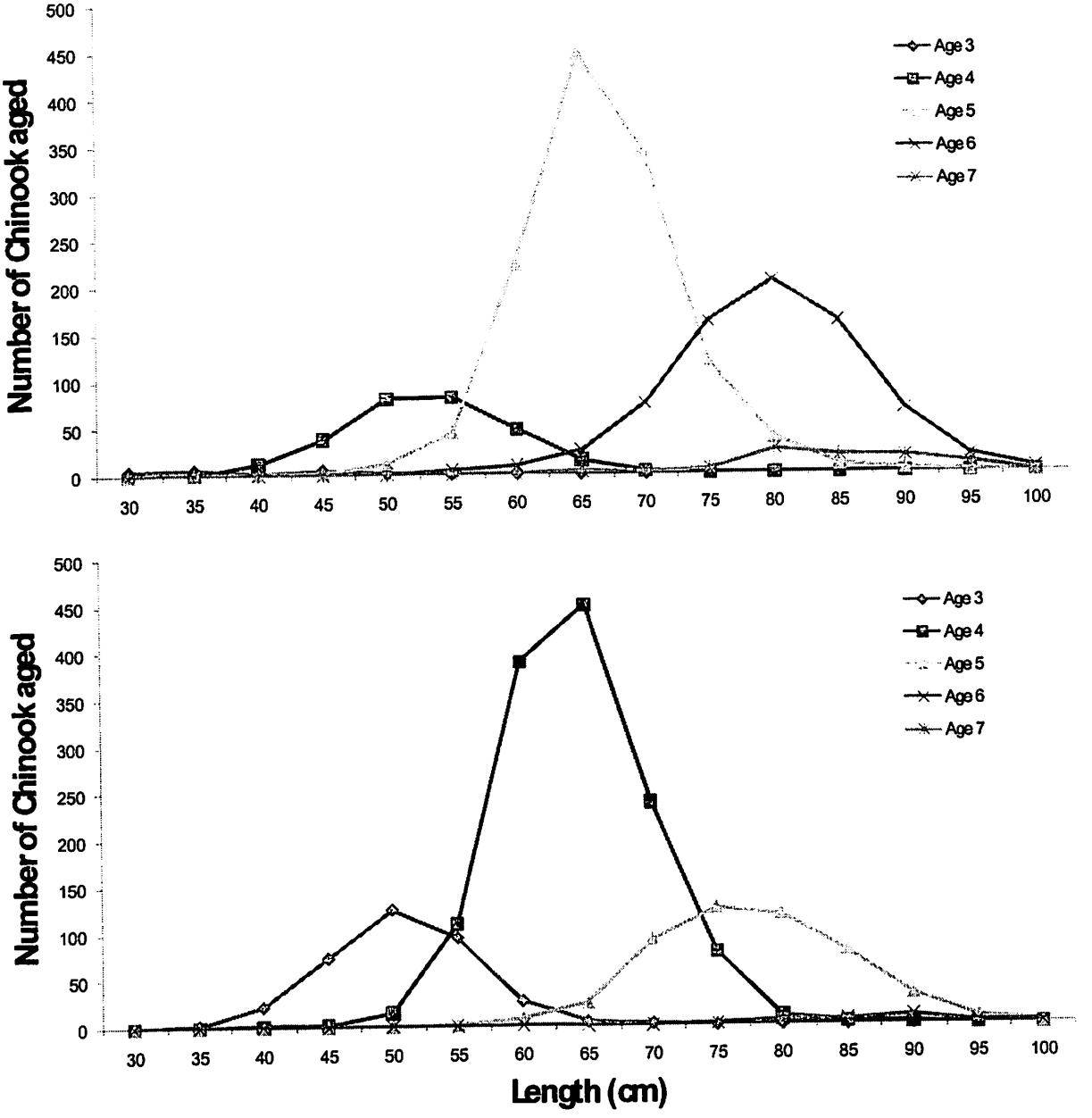

Figure 2. Summary distribution of age samples by length collected by the NMFS groundfish observer program during 1997-1999 and analyzed by University of Washington scientists (Myers et al. (2003) for the A-season (top panel) and B season (bottom panel).

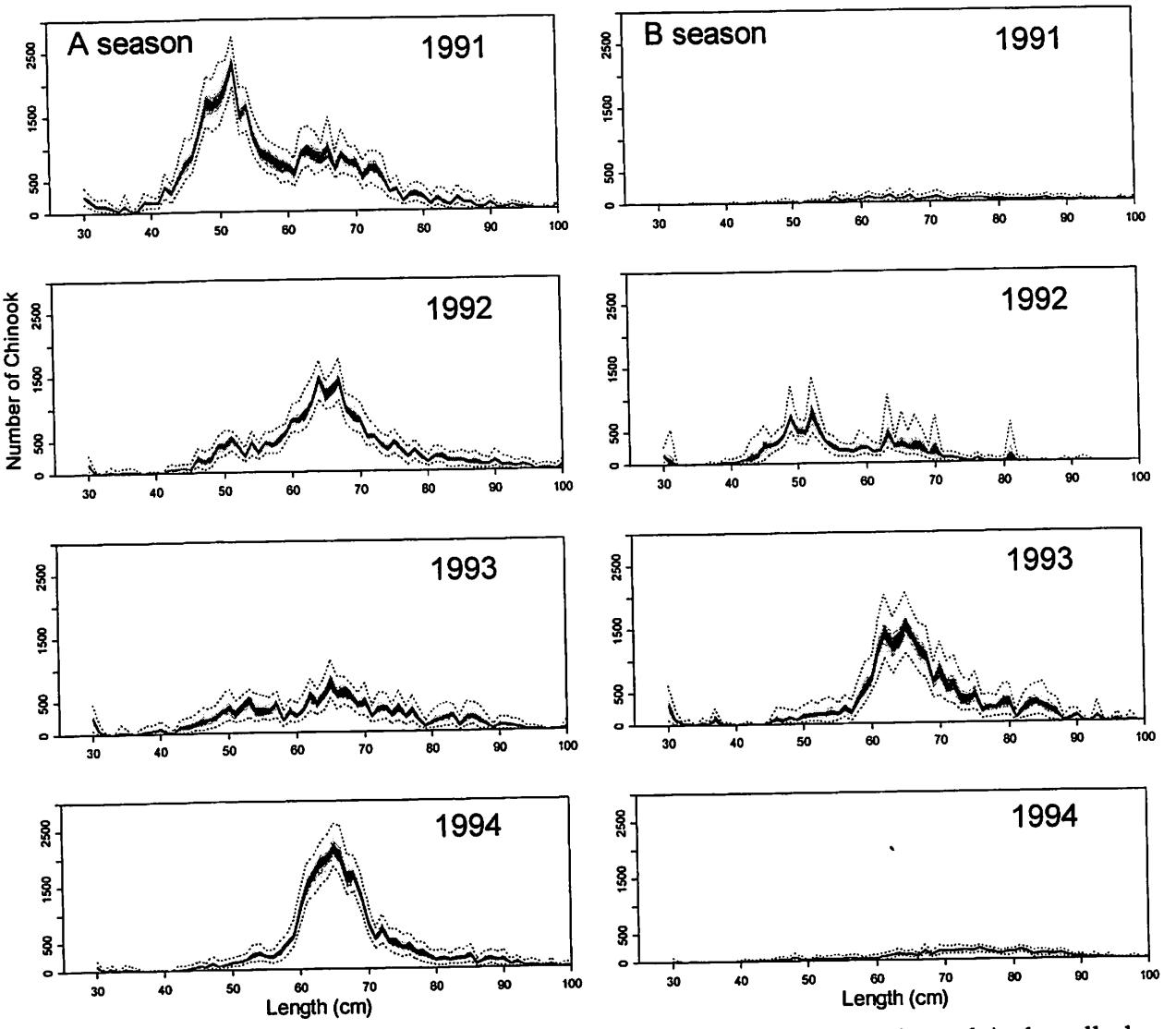

Figure 3. Length frequency by season and year of Chinook salmon occurring as bycatch in the pollock fishery. Error distributions based on two-stage bootstrap re-sampling procedure.

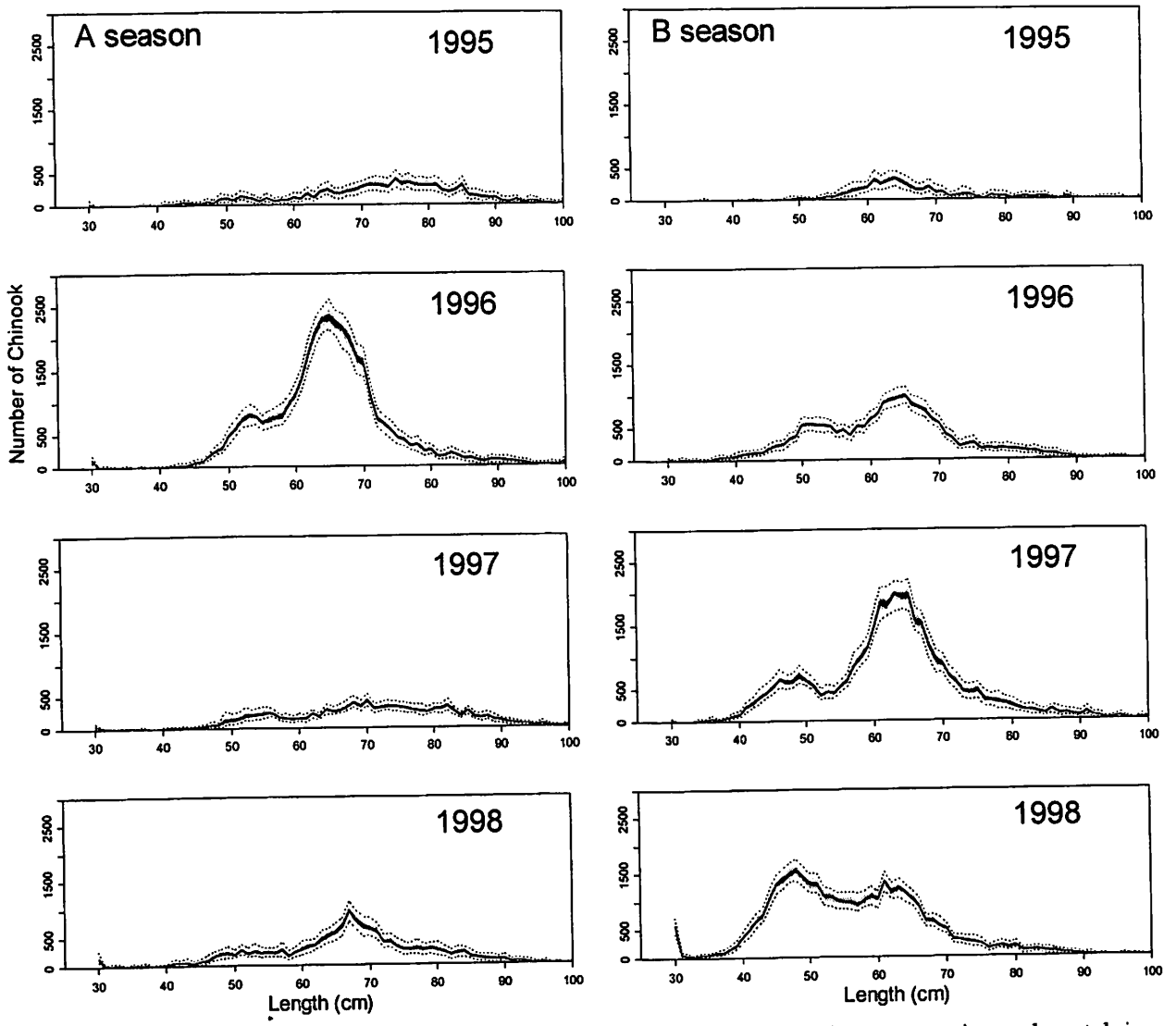

Figure 3. (continued) Length frequency by season and year of Chinook salmon occurring as bycatch in the pollock fishery. Error distributions based on two-stage bootstrap re-sampling procedure.

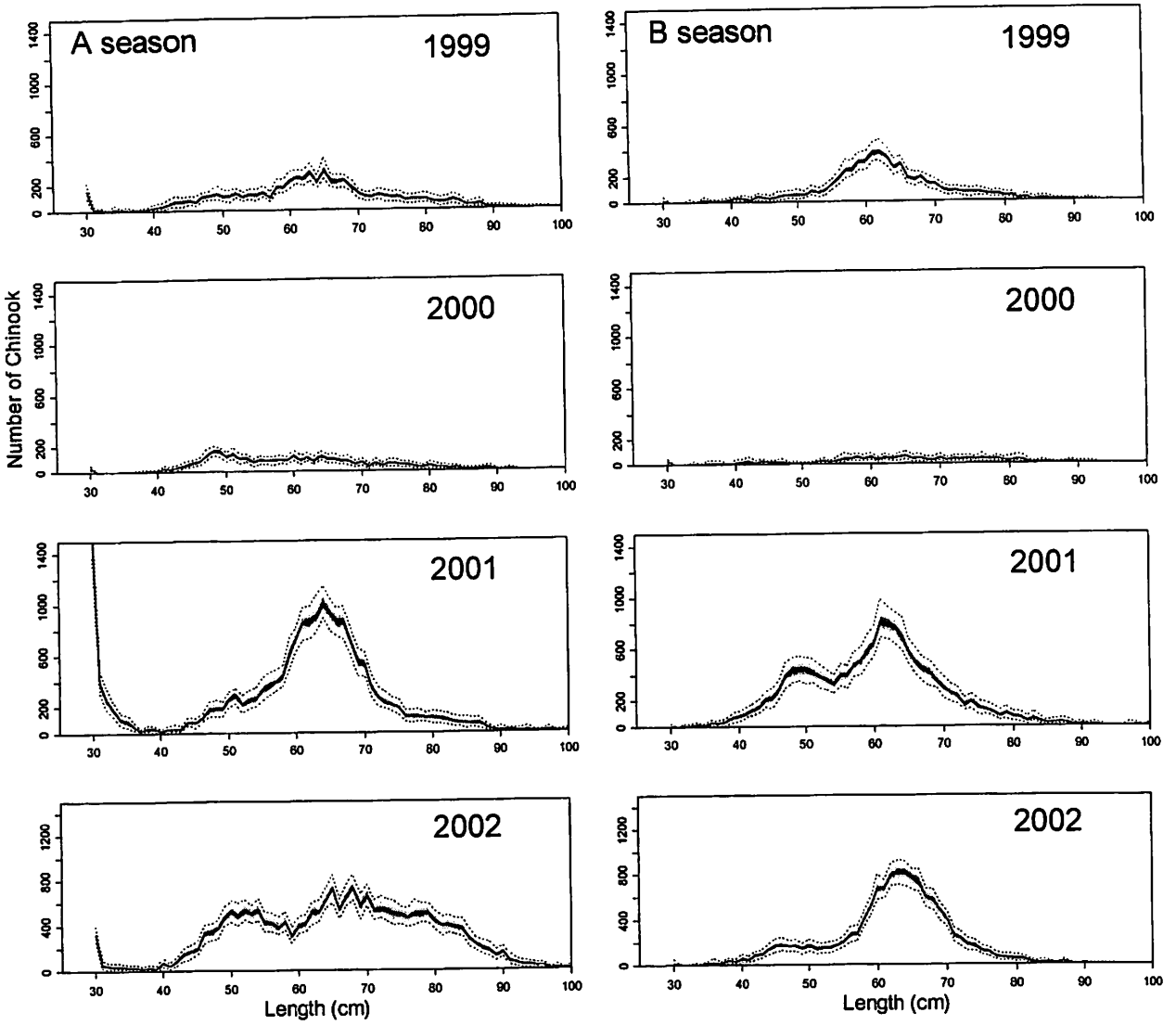

Figure 3. (continued) Length frequency by season and year of Chinook salmon occurring as bycatch in the pollock fishery. Error distributions based on two-stage bootstrap re-sampling procedure.

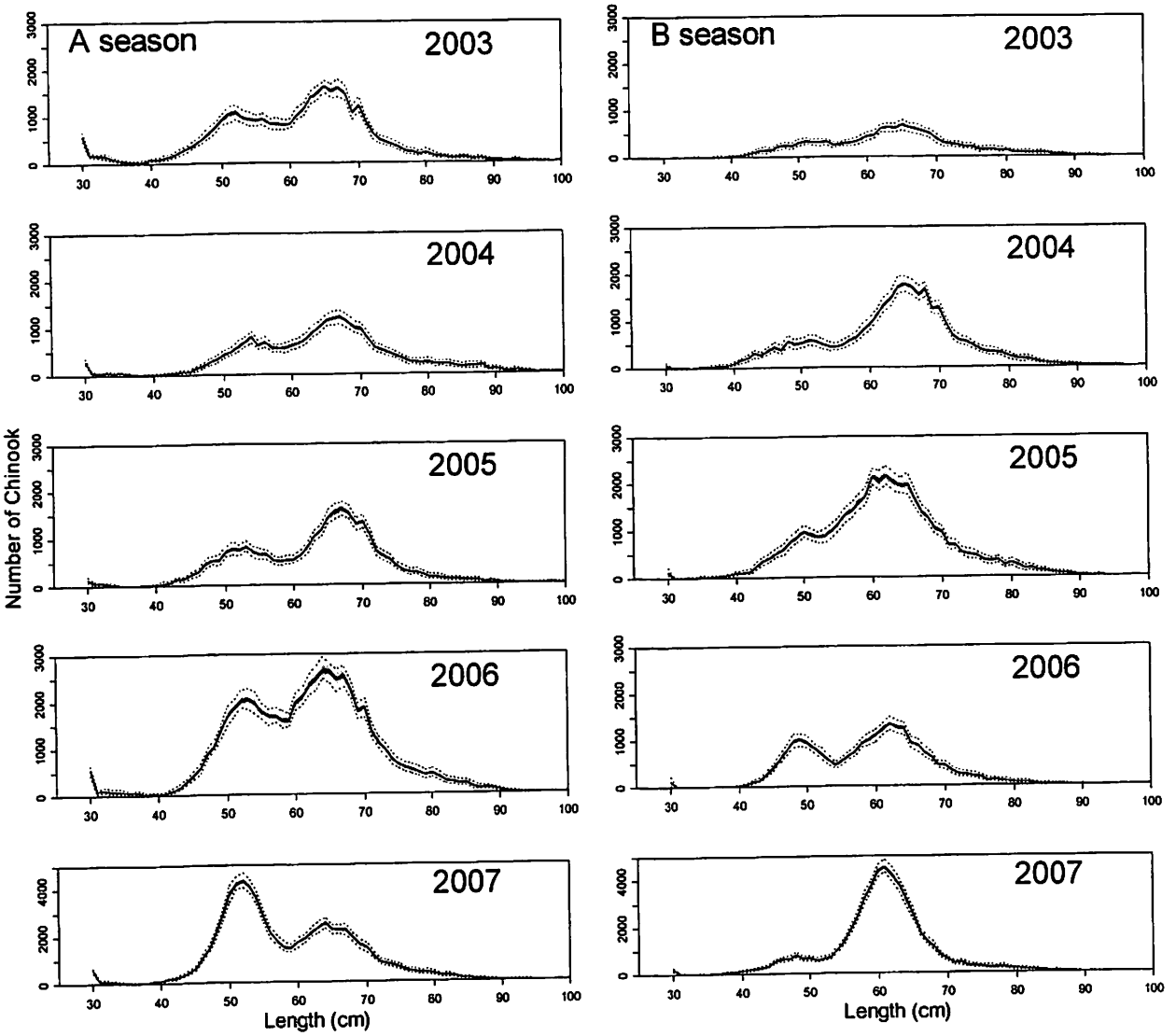

Figure 3. (continued) Length frequency by season and year of Chinook salmon occurring as bycatch in the pollock fishery. Error distributions based on two-stage bootstrap re-sampling procedure.

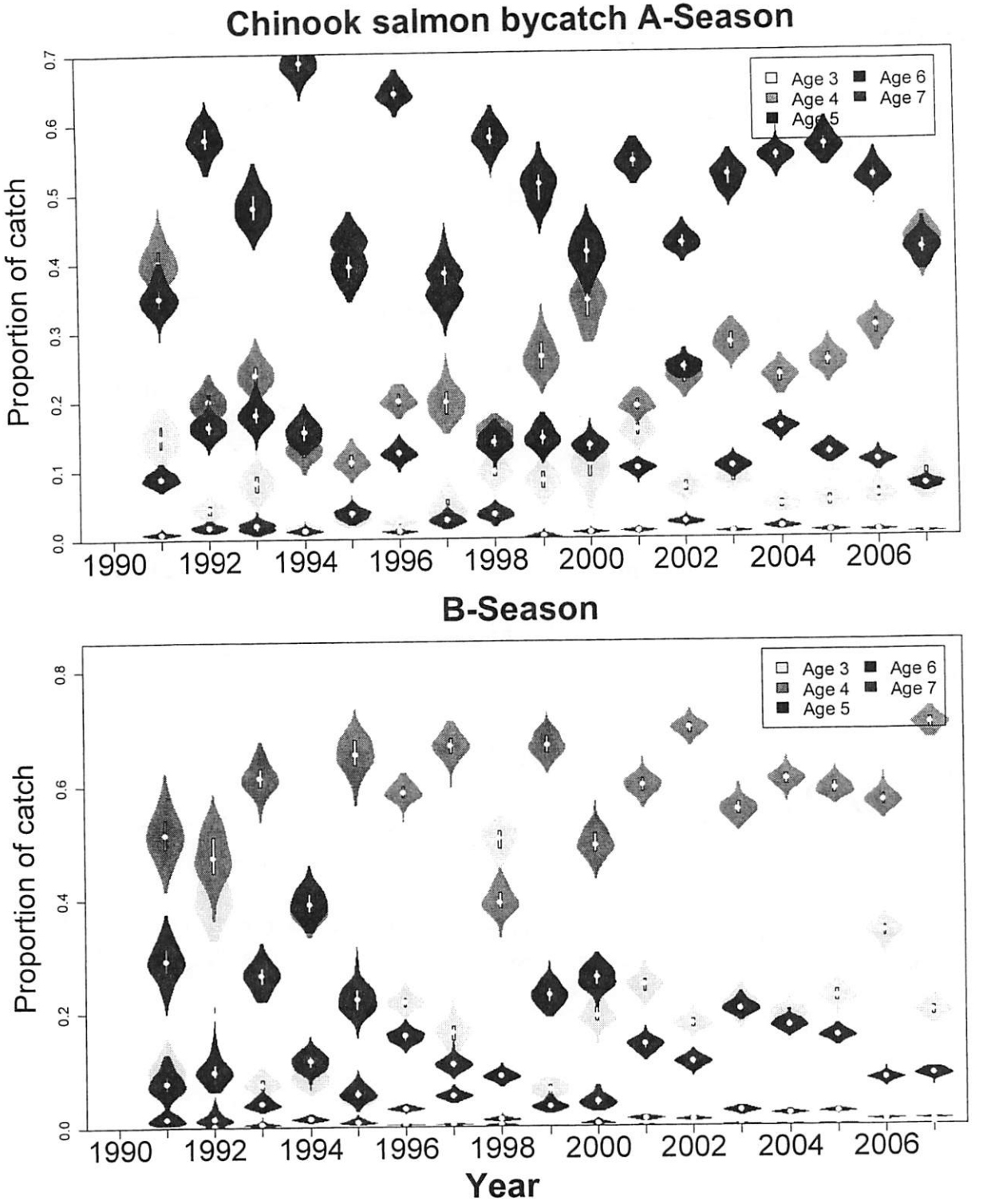

Figure 4. Chinook salmon bycatch age composition by year and A-season (top) and B-season (bottom). Vertical spread of blobs represent uncertainty as estimated from the two-stage bootstrap re-sampling procedure.

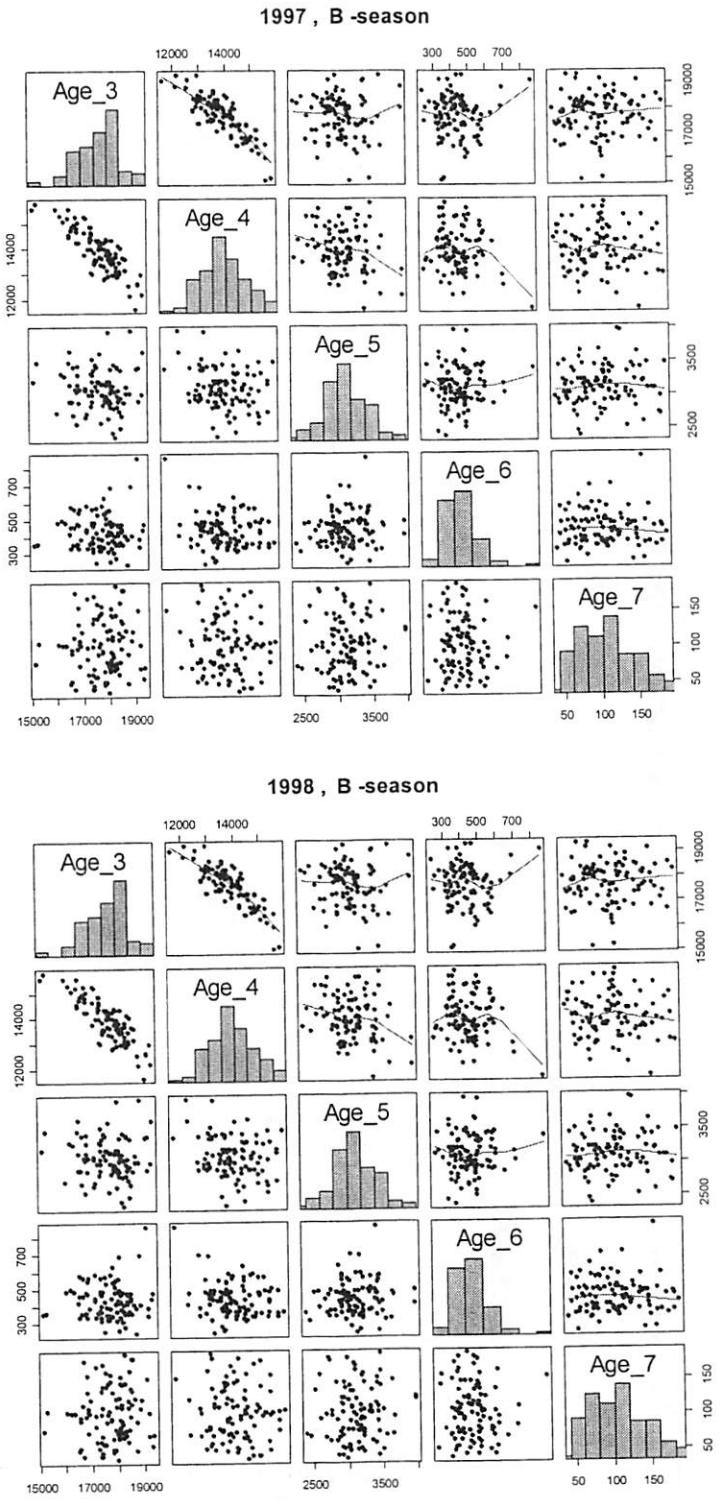

Figure 5. Bootstrap estimates of Chinook salmon bycatch example showing correlation of bycatch at different ages for the B-season in 1997 (top) and 1998 (bottom).

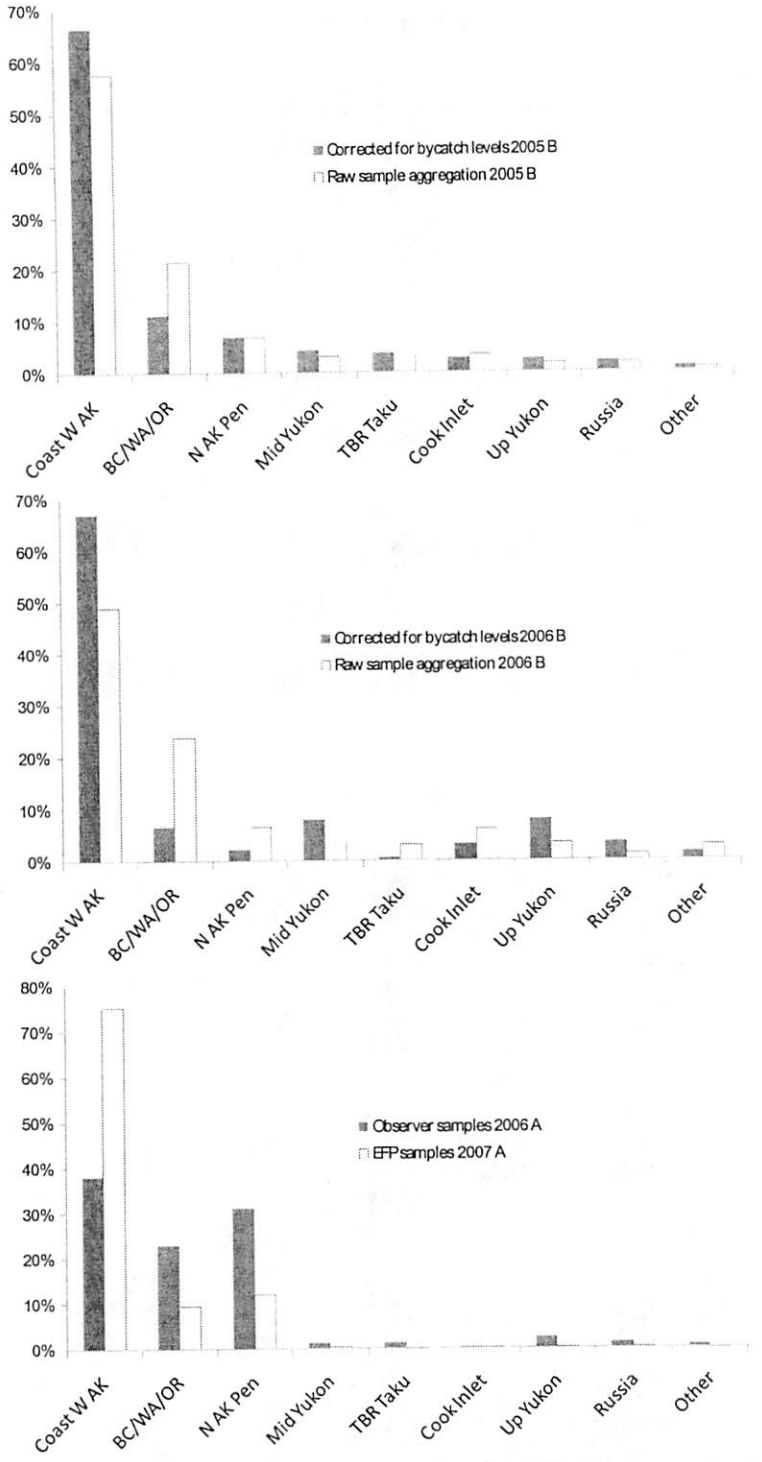

Figure 6. Chinook salmon bycatch results by reporting region for 2005 B season (top), 2006 B season (middle), and the 2006 and (partial sample) of 2007 A seasons (bottom). The top two panels include uncorrected results where bycatch differences between regions (east and west of 170°W) are ignored (empty columns).

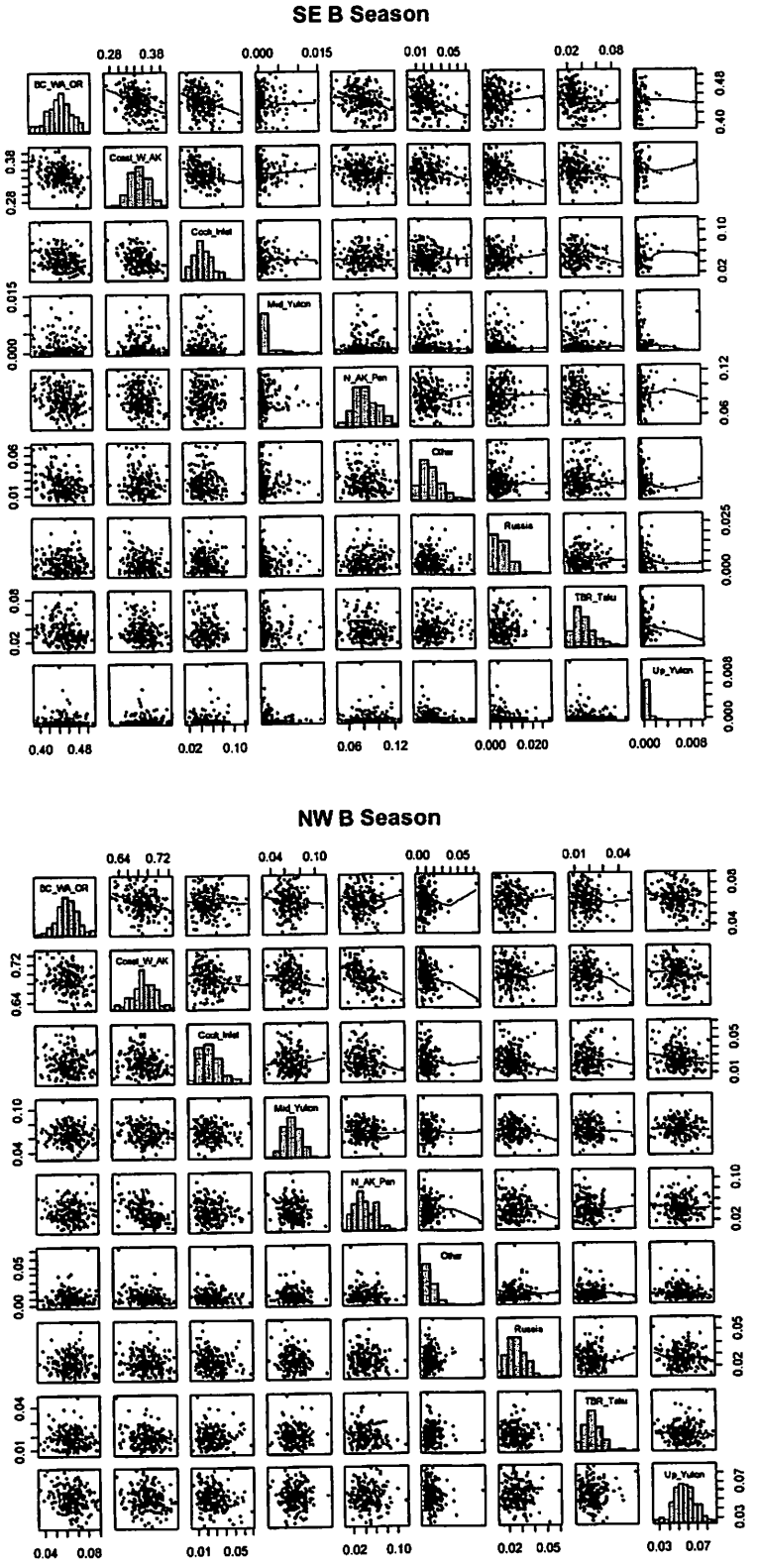

Figure 7. Simulated Chinook salmon stock proportion by region for the B season based on reported standard error values from ADFG analyses and assuming that the 2006 data has better coverage and is hence weighted 2:1 compared to the 2005 B-season data.

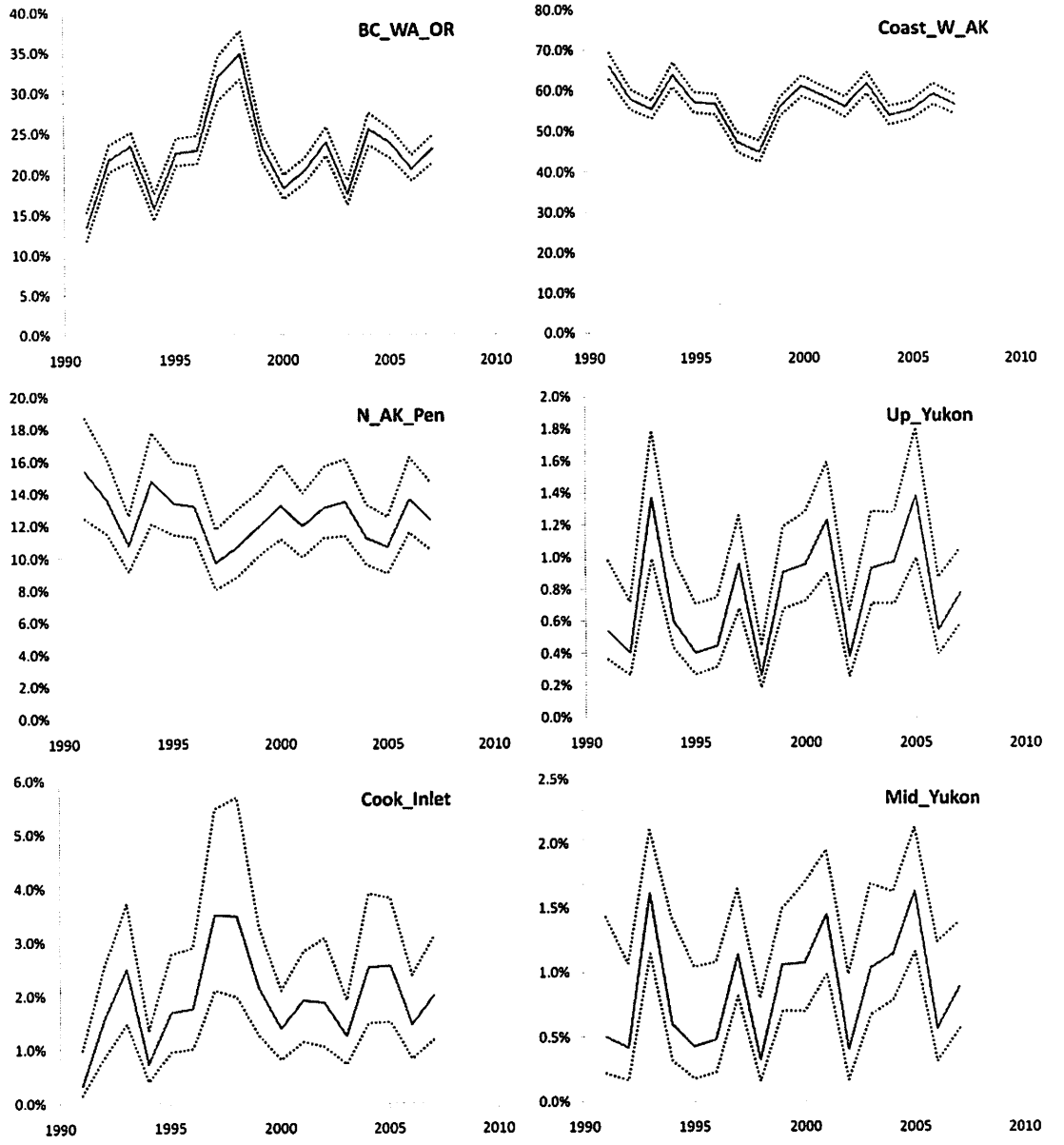

Figure 8. Chinook salmon bycatch results by genetics reporting regions for 2005 B season (top), 2006 B season (middle) and 2006 and (partial sample) of 207 season (bottom). The top two panels include uncorrected results where bycatch differences between regions (east and west of 170°W) are ignored (empty columns).

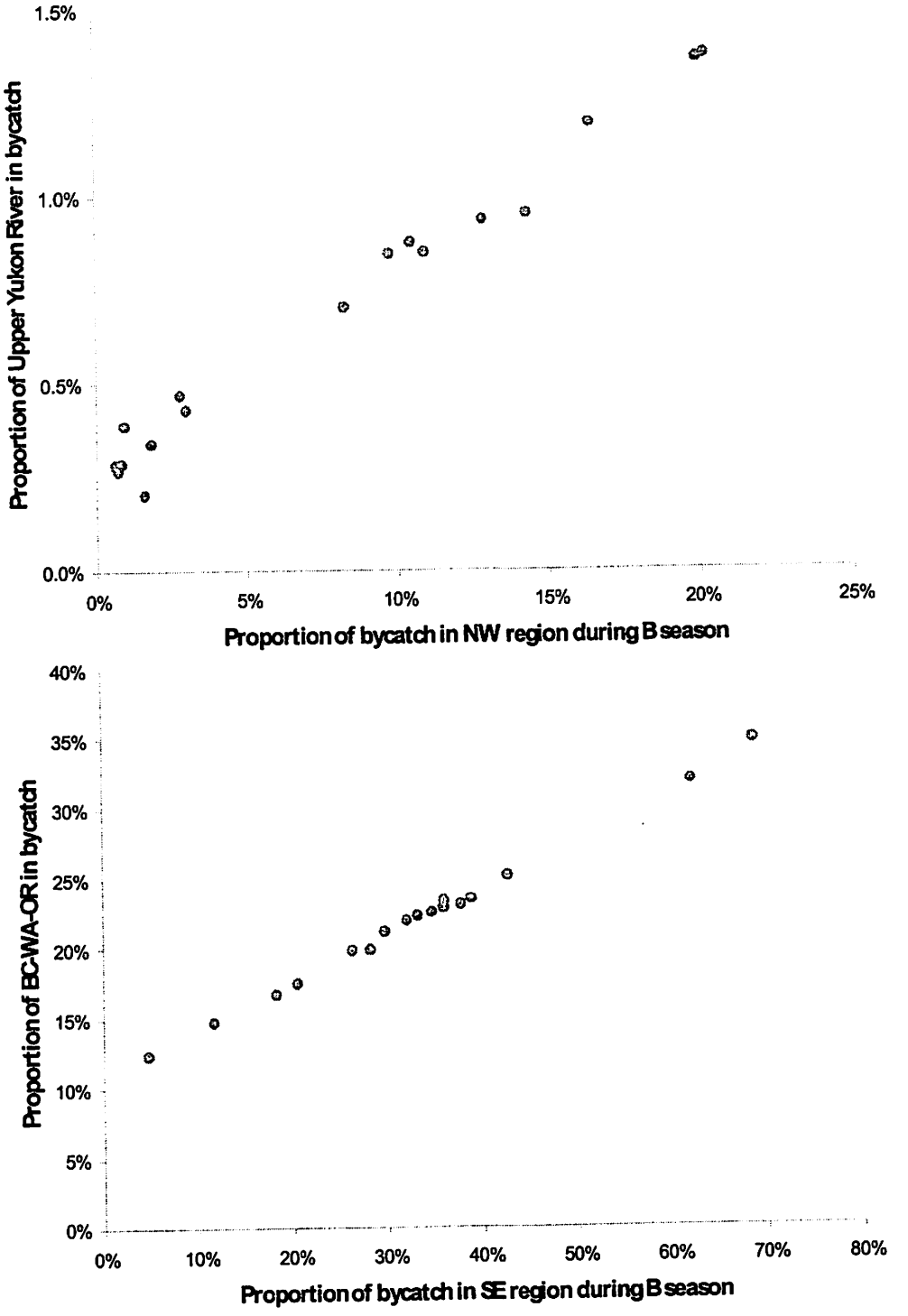

Figure 9. Figure showing how the overall proportion of Upper Yukon River relates to the bycatch proportion that occurs in the NW region (west of 170°W; top panel) and how the proportion of the BC-WA-OR (PNW) relates to the SE region (east of 170°W; bottom panel) during the summer-fall pollock fishery, 1991-2007.

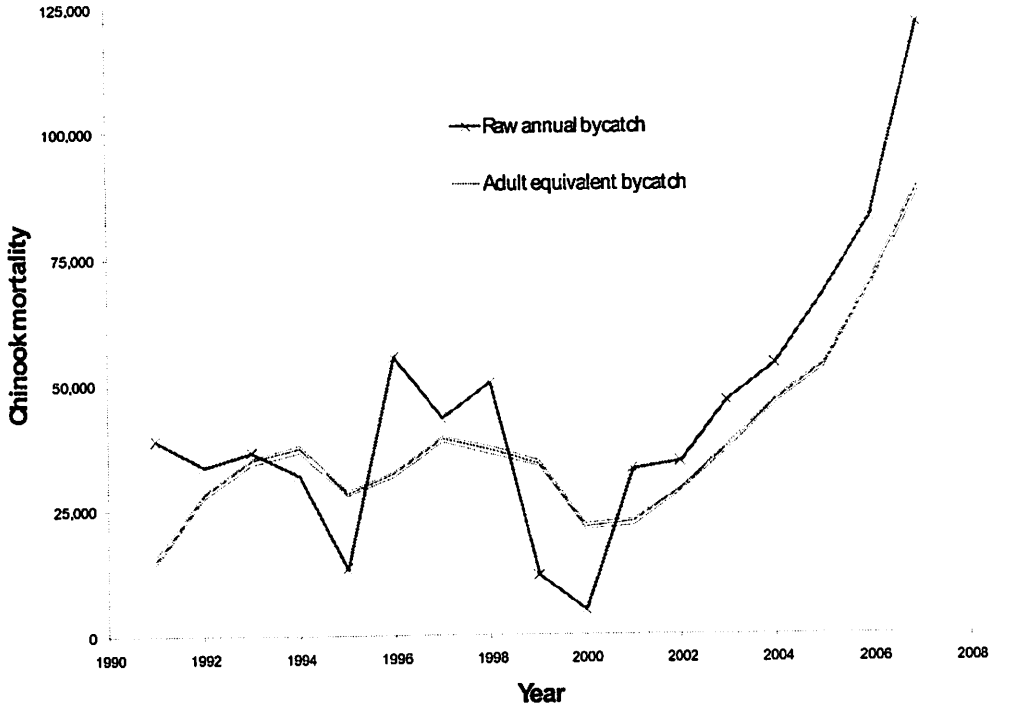

Figure 10. Time series of Chinook adult equivalent bycatch from the pollock fishery, 1991-2007 compared to the annual totals. The dashed lines represent the 90th percentiles due to uncertainty in age-assignments.

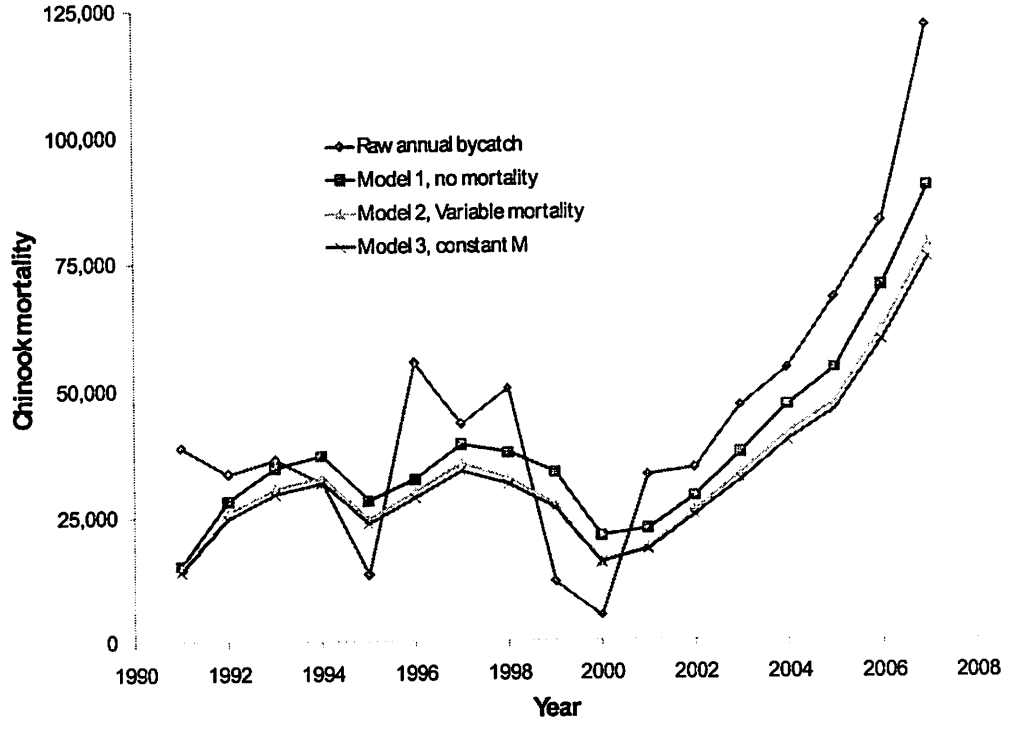

Figure 11. Time series of Chinook adult equivalent bycatch from the pollock fishery, 1991-2007 compared to the annual totals under different assumptions about ocean mortality rates.

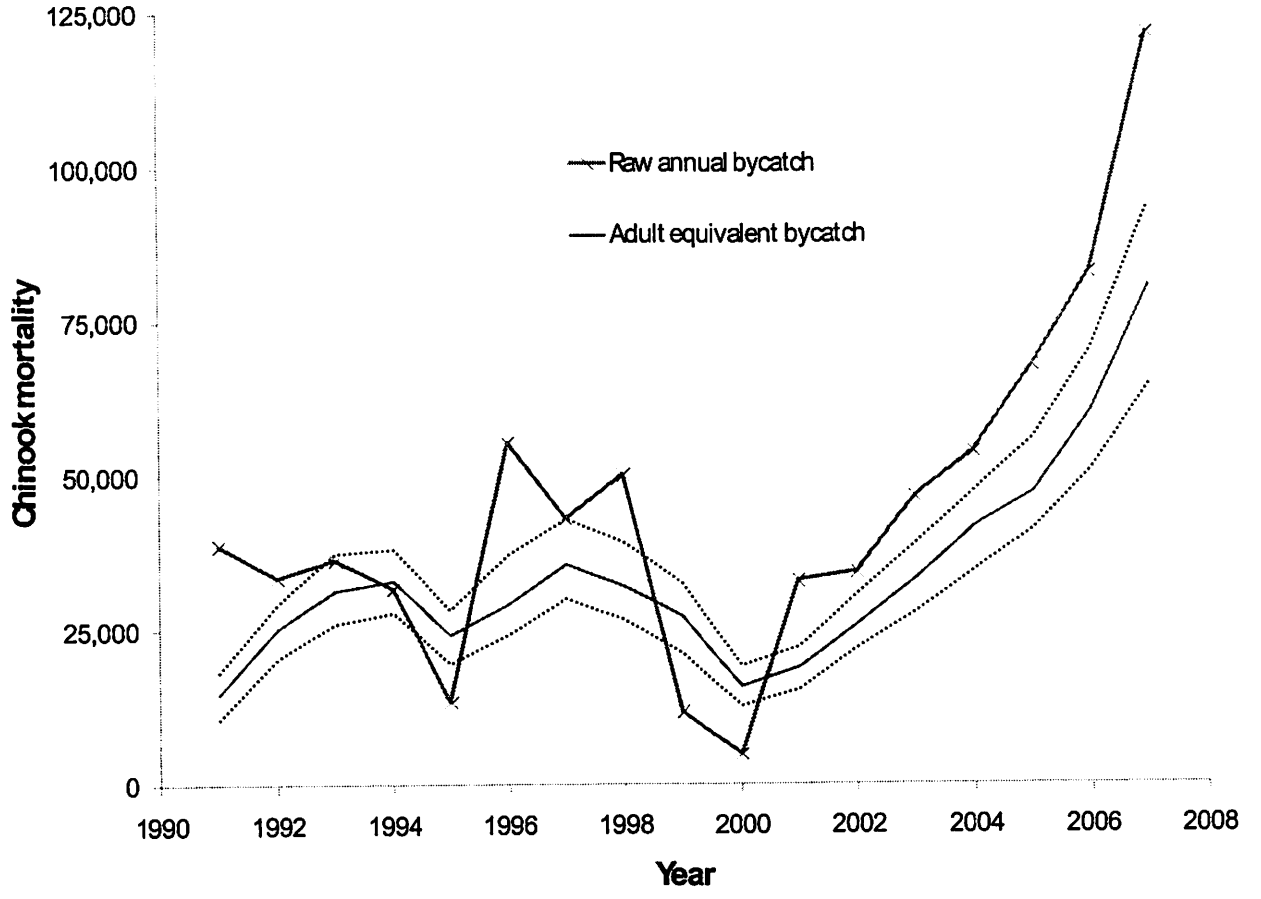

Figure 12. Time series of Chinook adult equivalent bycatch from the pollock fishery, 1991-2007 compared to the annual totals with stochasticity in the bycatch age composition (via bootstrap samples), maturation rate (CV=0.1), natural mortality (Model 2, CV=0.1).

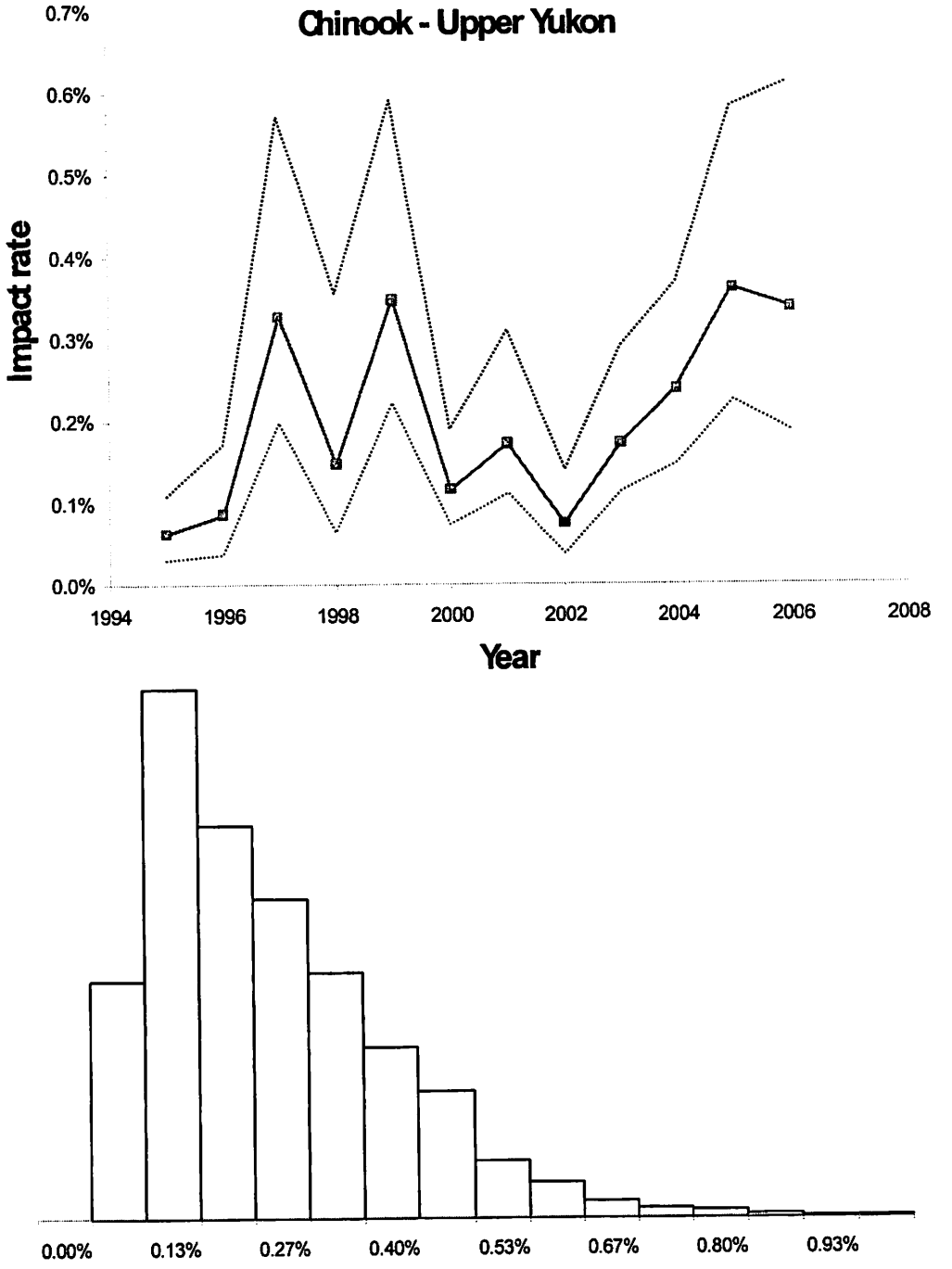

Figure 13. Annual estimates of pollock fishery impacts on Upper Yukon returns, 1995-2006 (top panel) with stochasticity in natural mortality (Model 2, CV=0.1), maturation rate (CV=0.1), stock composition (as detailed above), and run size. The lower panel shows relative frequency of different impact levels given the simulations and bycatch history.

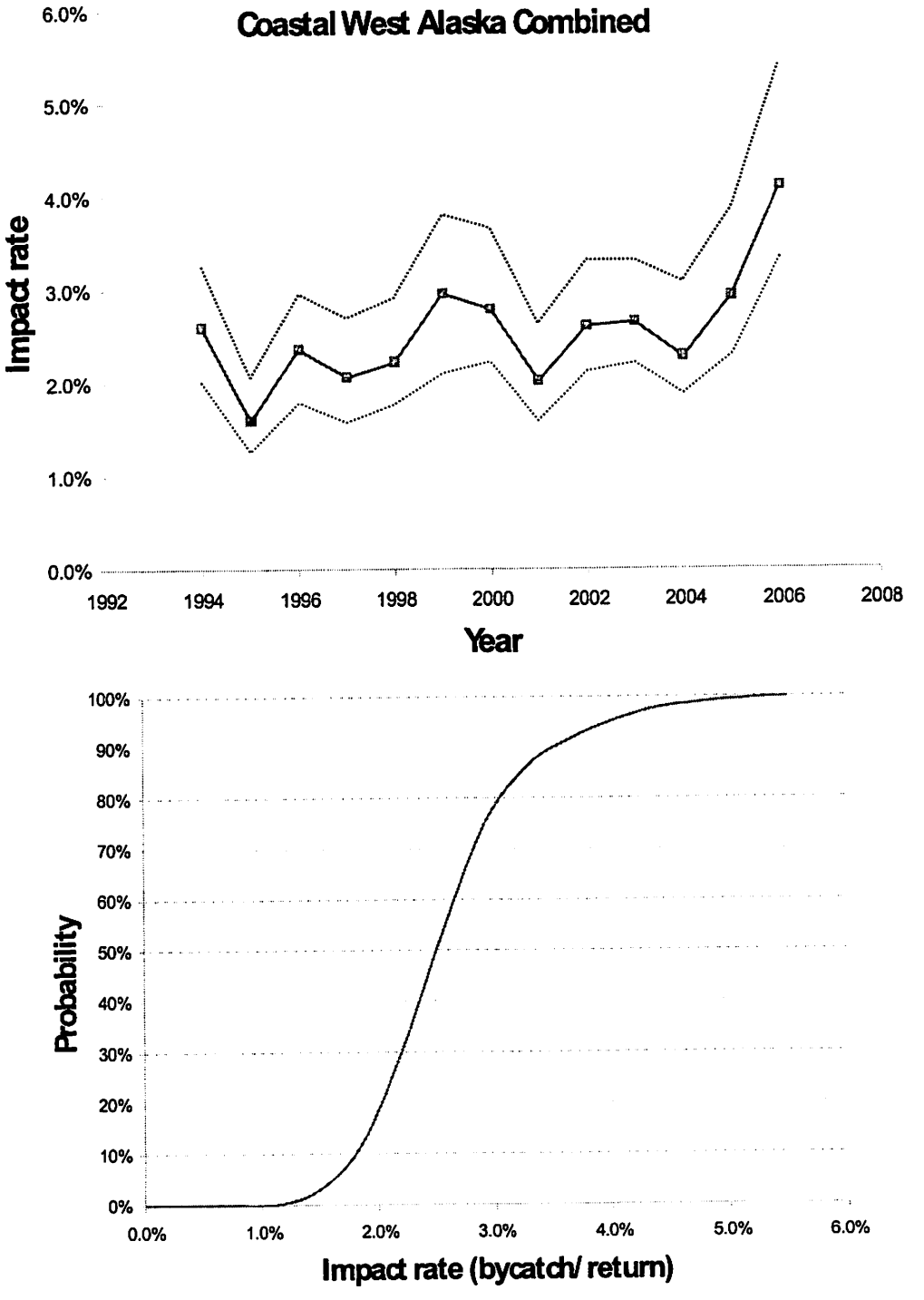

Figure 14. Annual estimates of pollock fishery impacts on Coastal west Alaska returns, 1994-2006 (top panel) with stochasticity in natural mortality (Model 2, CV=0.1), bycatch age composition (via bootstrap samples), maturation rate (CV=0.1), stock composition (as detailed above), and run size. The lower panel shows cumulative frequency of different impact levels given the simulations and bycatch history.

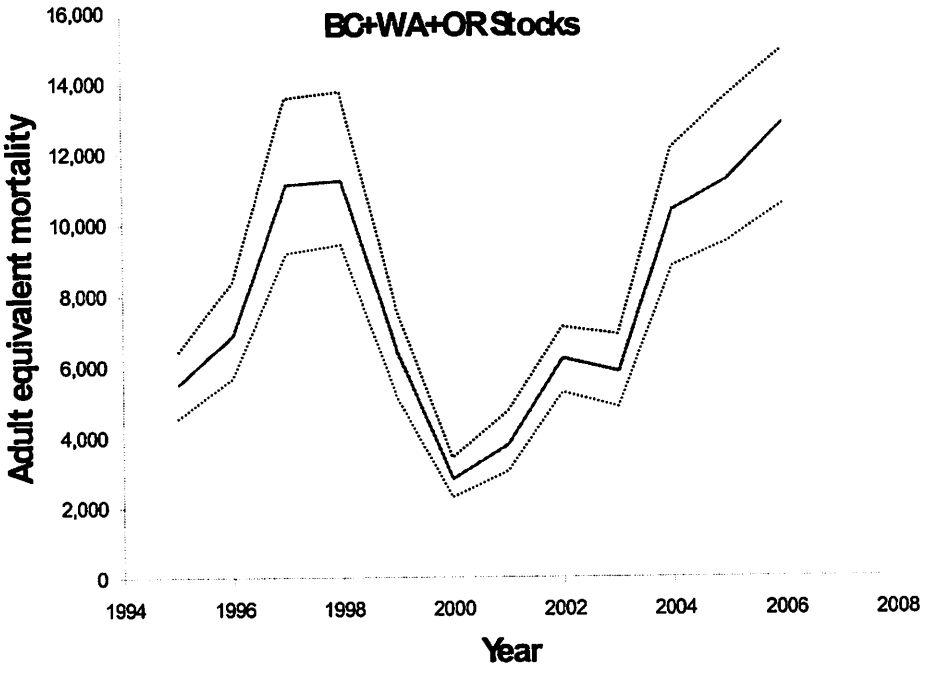

Figure 15. Annual estimated pollock fishery adult equivalent removals on stocks from the BC, WA, and Oregon returns, 1995-2007 with stochasticity in natural mortality (Model 2, CV=0.1), bycatch age composition (via bootstrap samples), maturation rate (CV=0.1), and stock composition (as detailed above).

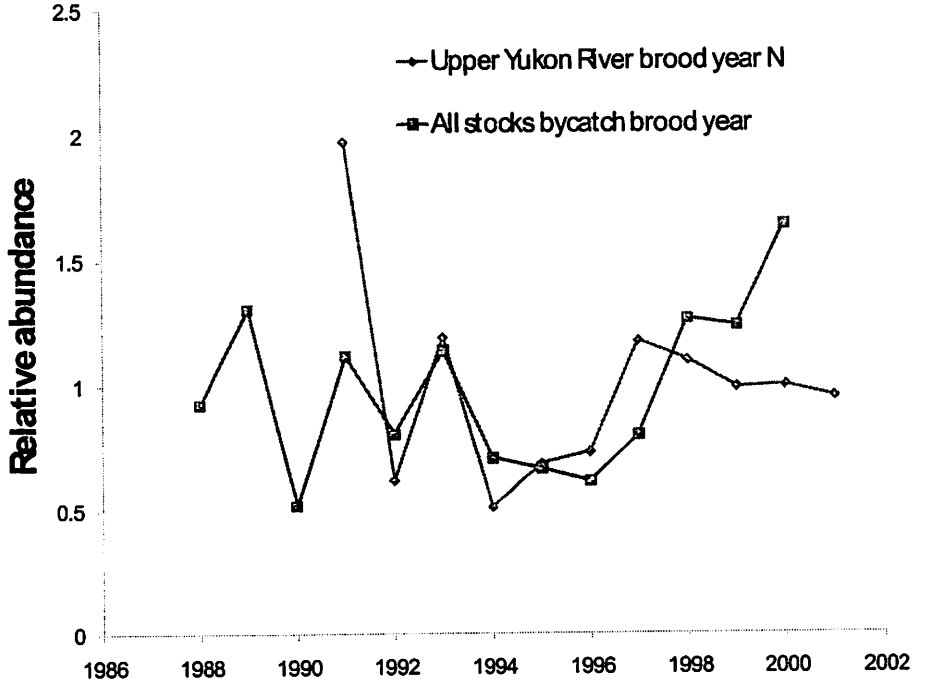

Figure 16. Chinook bycatch brood-year relative strength compared to the brood year variability observed in the Upper Yukon.

TABLES

Table 1. Summary of Chinook salmon bycatch age data from Myers et al (2003) used to construct age-length keys for this analysis.

Year	A	B	Total
1997	842	756	1,598
1998	873	826	1,699
1999	645	566	1,211
Total	2,360	2,148	4,508

Table 2. The number of Chinook salmon measured for lengths in the pollock fishery by season (A and B), area (NW=east of 170°W; SE=west of 170°W), and sector (S=shorebased catcher vessels, M=mothership operations, CP=catcher-processors). *Source: NMFS Alaska Fisheries Science Center observer data.*

Season	A	A	A	B	B	B	B	B	B	
Area	All	All	All	NW	NW	NW	SE	SE	SE	
Sector	S	M	CP	S	M	CP	S	M	CP	Total
1991	2,227	302	2,569		25	87	221	10	47	5,488
1992	2,305	733	889	2	4	14	1,314	21	673	5,955
1993	1,929	349	370	1	11	172	298	255	677	4,062
1994	4,756	408	986	3	93	276	781	203	275	7,781
1995	1,209	264	851		8	31	457	247	305	3,372
1996	9,447	976	2,798		17	161	5,658	1,721	493	21,271
1997	3,498	423	910	12	303	839	12,126	370	129	18,610
1998	3,124	451	1,329		38	191	8,277	2,446	1,277	17,133
1999	1,934	120	1,073		1	627	1,467	97	503	5,822
2000	608	17	1,388	4	40	179	564	3	120	2,923
2001	4,360	268	3,583		25	1,816	1,597	291	1,667	13,607
2002	5,587	850	3,011		23	114	5,353	520	494	15,952
2003	9,328	1,000	5,379	258	290	1,290	4,420	348	467	22,780
2004	7,247	594	3,514	1,352	557	1,153	8,884	137	606	24,044
2005	9,237	694	3,998	4,081	244	1,610	10,336	45	79	30,324
2006	17,875	1,574	5,716	685	66	480	12,757	3	82	39,238
2007	16,008	1,802	9,012	881	590	1,986	21,725	2	801	52,807

Table 3. Chinook salmon bycatch in the pollock fishery by season (A and B), area (NW=east of 170°W; SE=west of 170°W), and sector (S=shorebased catcher vessels, M=mothership operations, CP=catcher-processors). *Source: NMFS Regional Office, Juneau.*

Season	A	A	A	B	B	B	B	B	B	
Area	All	All	All	NW	NW	NW	SE	SE	SE	
Sector	S	M	CP	S	M	CP	S	M	CP	Total
1991	10,192	9,001	17,645	0	48	318	1,667	103	79	39,054
1992	6,725	4,057	12,631	0	26	187	1,604	1,739	6,702	33,672
1993	3,017	3,529	8,869	29	157	7,158	2,585	6,500	4,775	36,619
1994	8,346	1,790	17,149	0	121	771	1,206	452	2,055	31,890
1995	2,040	971	5,971		35	77	781	632	2,896	13,403
1996	15,228	5,481	15,276		113	908	9,944	6,208	2,315	55,472
1997	4,954	1,561	3,832	43	2,143	4,172	22,508	3,559	1,549	44,320
1998	4,334	4,284	6,500		309	511	27,218	6,052	2,037	51,244
1999	3,103	554	2,694	13	12	1,284	2,649	362	1,306	11,978
2000	878	19	2,525	4	230	286	714	23	282	4,961
2001	8,555	1,664	8,264	0	162	5,346	3,779	1,157	4,517	33,444
2002	10,336	1,976	9,481	0	38	211	9,560	1,717	1,175	34,495
2003	16,488	2,892	14,428	764	864	2,962	6,437	1,076	1,081	46,993
2004	12,376	2,092	9,492	2,530	1,573	2,844	21,171	503	1,445	54,028
2005	14,097	2,111	11,421	8,873	744	4,175	26,113	144	168	67,847
2006	36,039	5,408	17,306	936	175	1,373	21,718	25	178	83,159
2007	35,458	5,860	27,943	1,672	3,494	4,923	40,079	50	2,225	121,704

Table 4. ADFG estimates of stock composition based on genetic samples stratified by year, season, and region (SE = east of 170°W, NW = west of 170°W). Standard errors of the estimates are shown in parentheses and were used to evaluate uncertainty of stock composition. *Source: ADFG preliminary data.*

Year / Season / Area	PNW	Coast W AK	Cook Inlet	Middle Yukon	N AK Penin	Russia	TBR	Upper Yukon	Other
2005 B SE	45.3%	34.2%	5.3%	0.2%	8.8%	0.6%	3.3%	0.0%	2.4%
N = 282	(0.032)	(0.032)	(0.019)	(0.003)	(0.021)	(0.005)	(0.016)	(0.001)	(0.015)
2005 B NW	6.5%	70.9%	2.2%	4.7%	6.7%	2.0%	3.5%	2.8%	0.7%
N = 489	(0.012)	(0.047)	(0.011)	(0.013)	(0.042)	(0.007)	(0.012)	(0.009)	(0.008)
2006 B SE	38.4%	37.2%	7.5%	0.2%	7.0%	0.6%	4.3%	0.1%	4.7%
N = 304	(0.029)	(0.032)	(0.020)	(0.004)	(0.019)	(0.005)	(0.017)	(0.002)	(0.020)
2006 B NW	6.4%	67.3%	3.0%	8.0%	2.1%	3.3%	0.5%	8.0%	1.4%
N = 286	(0.016)	(0.035)	(0.020)	(0.020)	(0.016)	(0.013)	(0.007)	(0.019)	(0.014)
2006 A All	22.9%	38.2%	0.2%	1.1%	31.2%	1.1%	1.1%	2.3%	1.9%
N = 801	(0.015)	(0.038)	(0.004)	(0.005)	(0.039)	(0.004)	(0.007)	(0.006)	(0.011)
2007 A All	9.4%	75.2%	0.1%	0.5%	12.0%	0.2%	0.1%	0.1%	2.4%
N = 360	(0.016)	(0.031)	(0.004)	(0.005)	(0.025)	(0.003)	(0.002)	(0.003)	(0.014)

Table 5. Range of estimated mean age-specific maturation by brood year used to compute adult equivalents. The weighted mean value is based on the relative Chinook run sizes between the Nushagak and Yukon Rivers since 1997. *Sources: Healey 1991, ADFG pers. Comm., Rishi Sharma (CRITFC, pers. Comm..).*

	Weight	Age 3	Age 4	Age 5	Age 6	Age 7
Yukon	2.216	0%	5%	29%	58%	8%
Nushagak since 82	1.781	1%	21%	38%	39%	2%
Nushagak since 66	0	0%	17%	36%	43%	3%
Goodnews	0	0%	20%	31%	45%	4%
SE Alaska	0.3	0%	18%	40%	37%	5%
PNW (BC+WA+OR+CA)	0.7	3%	28%	53%	14%	1%
Weighted mean		1%	15%	36%	44%	5%

Table 6. Calendar year age-specific Chinook salmon bycatch estimates based on the mean of 100 bootstrap samples of available length and age data. Age-length keys for 1997-1999 were based on Myers et al. (2003) data split by year while for all other years, a combined-year age-length key was used.

Year	Age 3	Age 4	Age 5	Age 6	Age 7	Total
1991	5,624	15,901	13,486	3,445	347	38,802
1992	5,136	9,528	14,538	3,972	421	33,596
1993	2,815	16,565	12,992	3,673	401	36,446
1994	849	5,300	20,533	4,744	392	31,817
1995	498	3,895	4,827	3,796	367	13,382
1996	5,091	18,590	26,202	5,062	421	55,366
1997	5,855	23,972	7,233	5,710	397	43,167
1998	19,168	16,169	11,751	2,514	615	50,216
1999	870	5,343	4,424	1,098	21	11,757
2000	662	1,923	1,800	518	34	4,939
2001	6,512	12,365	11,948	1,994	190	33,009
2002	3,843	13,893	10,655	5,469	489	34,349
2003	5,703	16,723	20,124	3,791	298	46,639
2004	6,935	23,740	18,371	4,406	405	53,858
2005	10,466	30,717	21,886	4,339	304	67,711
2006	11,835	31,455	32,452	6,636	490	82,869
2007	16,174	66,024	33,286	5,579	357	121,419

Table 7. Age specific Chinook salmon bycatch estimates by season and calendar age based on the mean of 100 bootstrap samples of available length and age data.

Year/season	Age 3	Age 4	Age 5	Age 6	Age 7	Total
1991	**5,624**	**15,901**	**13,486**	**3,445**	**347**	**38,802**
A	5,406	14,764	12,841	3,270	313	36,593
B	218	1,137	646	174	34	2,209
1992	**5,136**	**9,528**	**14,538**	**3,972**	**421**	**33,596**
A	1,017	4,633	13,498	3,798	408	23,355
B	4,119	4,895	1,040	174	13	10,241
1993	**2,815**	**16,565**	**12,992**	**3,673**	**401**	**36,446**
A	1,248	3,654	7,397	2,778	290	15,368
B	1,567	12,910	5,595	895	111	21,078
1994	**849**	**5,300**	**20,533**	**4,744**	**392**	**31,817**
A	436	3,519	18,726	4,211	326	27,218
B	413	1,781	1,807	533	66	4,599
1995	**498**	**3,895**	**4,827**	**3,796**	**367**	**13,382**
A	262	1,009	3,838	3,534	327	8,969
B	236	2,885	989	263	40	4,413
1996	**5,091**	**18,590**	**26,202**	**5,062**	**421**	**55,366**
A	863	7,187	23,118	4,431	349	35,947
B	4,228	11,403	3,085	632	71	19,418
1997	**5,855**	**23,972**	**7,233**	**5,710**	**397**	**43,167**
A	456	2,013	3,595	3,899	271	10,234
B	5,399	21,958	3,638	1,811	126	32,933
1998	**19,168**	**16,169**	**11,751**	**2,514**	**615**	**50,216**
A	1,466	2,254	8,639	2,079	512	14,950
B	17,703	13,915	3,112	435	103	35,266
1999	**870**	**5,343**	**4,424**	**1,098**	**21**	**11,757**
A	511	1,639	3,151	898	18	6,217
B	360	3,704	1,272	200	3	5,540
2000	**662**	**1,923**	**1,800**	**518**	**34**	**4,939**
A	365	1,167	1,406	453	26	3,416
B	298	757	395	66	8	1,522
2001	**6,512**	**12,365**	**11,948**	**1,994**	**190**	**33,009**
A	2,840	3,458	9,831	1,798	171	18,098
B	3,672	8,907	2,117	196	19	14,910
2002	**3,843**	**13,893**	**10,655**	**5,469**	**489**	**34,349**
A	1,580	5,063	9,234	5,328	478	21,683
B	2,263	8,830	1,421	141	11	12,666
2003	**5,703**	**16,723**	**20,124**	**3,791**	**298**	**46,639**
A	2,941	9,408	17,411	3,437	267	33,464
B	2,763	7,315	2,713	354	31	13,175
2004	**6,935**	**23,740**	**18,371**	**4,406**	**405**	**53,858**
A	1,111	5,520	13,090	3,763	354	23,838
B	5,824	18,220	5,282	643	51	30,020
2005	**10,466**	**30,717**	**21,886**	**4,339**	**304**	**67,711**
A	1,407	6,993	15,563	3,361	226	27,550
B	9,059	23,724	6,323	978	78	40,161
2006	**11,835**	**31,455**	**32,452**	**6,636**	**490**	**82,869**
A	3,604	17,574	30,447	6,404	465	58,494
B	8,231	13,881	2,005	232	25	24,374
2007	**16,174**	**66,024**	**33,286**	**5,579**	**357**	**121,419**
A	5,791	29,269	28,648	5,059	317	69,084
B	10,384	36,755	4,638	520	40	52,336

Table 8. Estimates of coefficients of variation of Chinook salmon bycatch estimates by season and calendar age based on the mean of 100 bootstrap samples of available length and age data.

A season	Age 3	Age 4	Age 5	Age 6	Age 7
1991	14%	6%	6%	10%	31%
1992	20%	9%	4%	9%	27%
1993	22%	9%	5%	10%	37%
1994	27%	12%	3%	10%	30%
1995	25%	12%	5%	6%	22%
1996	19%	6%	2%	9%	21%
1997	35%	12%	6%	7%	28%
1998	16%	9%	3%	10%	23%
1999	19%	10%	5%	11%	91%
2000	25%	9%	6%	9%	27%
2001	10%	6%	3%	7%	22%
2002	15%	6%	3%	4%	16%
2003	14%	6%	3%	8%	21%
2004	15%	6%	2%	5%	20%
2005	18%	6%	3%	7%	23%
2006	17%	5%	3%	7%	22%
2007	22%	5%	4%	8%	25%
B season	**Age 3**	**Age 4**	**Age 5**	**Age 6**	**Age 7**
1991	23%	8%	12%	27%	67%
1992	9%	9%	25%	69%	87%
1993	19%	4%	9%	20%	65%
1994	17%	6%	6%	14%	27%
1995	21%	5%	12%	23%	48%
1996	6%	3%	7%	11%	29%
1997	12%	3%	10%	12%	39%
1998	5%	6%	9%	23%	36%
1999	16%	3%	8%	22%	149%
2000	9%	5%	8%	25%	49%
2001	7%	3%	8%	20%	52%
2002	6%	2%	8%	17%	43%
2003	8%	3%	5%	15%	32%
2004	6%	2%	5%	12%	30%
2005	5%	2%	5%	10%	23%
2006	4%	3%	8%	15%	33%
2007	6%	2%	7%	13%	28%

Table 9. Comparison of sampling levels from Myers' et al. (2003) study and NMFS regional office estimates of Chinook bycatch levels from the pollock fishery, 1997-1999.

Year	Area	Season	Myers' age samples	Bycatch Estimate	Myers' age samples	Bycatch Estimate
1997	All	A	874	11,857	51%	11%
1997	SE	B	651	59,070	39%	54%
1997	NW	B	158	38,808	9%	35%
1998	All	A	906	15,762	51%	14%
1998	SE	B	730	93,186	41%	83%
1998	NW	B	138	2,973	8%	3%
1999	All	A	652	6,693	53%	12%
1999	SE	B	456	48,198	37%	84%
1999	NW	B	122	2,337	10%	4%

Table 10. NMFS regional office estimates of Chinook salmon bycatch in the pollock fishery compared to genetics sampling levels by season and region, 2005-2006 (SE=east of 170°W, NW=west of 170°W).

			Area			Area	
		Season	SE	NW	Total	SE	NW
Bycatch	2005	B	26,425	13,793	40,217	66%	34%
	2006	B	21,922	2,484	24,405	90%	10%
	2006	A			58,753		
Genetic Samples	2005	B	489	282	771	63%	37%
	2006	B	286	304	590	48%	52%
	2006	A			801		

Table 11. Mean values of catch-weighted stratified proportions of stock composition based on genetic sampling by season, and region (SE=east of 170°W, NW=west of 170°W). Standard errors of the estimates (in parentheses) were derived from 200 simulations based on the estimates from Table 4 and weighting annual results as explained in the text.

Season / Area	PNW	Coast W AK	Cook Inlet	Middle Yukon	N AK Penin	Russia	TBR	Upper Yukon	Other
B SE	45.0%	34.7%	5.1%	0.1%	8.6%	0.6%	3.4%	0.0%	2.4%
	(0.025)	(0.024)	(0.017)	(0.002)	(0.016)	(0.004)	(0.014)	(0.001)	(0.014)
B NW	6.4%	68.9%	2.6%	6.6%	4.4%	2.7%	1.8%	5.6%	1.0%
	(0.010)	(0.023)	(0.012)	(0.011)	(0.019)	(0.007)	(0.006)	(0.012)	(0.008)
A All	12.1%	67.7%	0.1%	0.6%	16.0%	0.4%	0.2%	0.6%	2.3%
	(0.012)	(0.021)	(0.003)	(0.004)	(0.019)	(0.002)	(0.002)	(0.003)	(0.010)

Council Motion on Salmon Bycatch: February 2008

D-1(a) BSAI Salmon Bycatch Motion

The Council forwards the problem statement and alternatives and options as provided in the February 2008 D-1(a) staff discussion paper for analysis with the following revisions. Additions are underlined and deletions are shown in strikethrough.

Replace the current problem statement present in December analysis with the following:

An effective approach to salmon prohibited species bycatch reduction in the Bering Sea pollock trawl fishery is needed. Current information suggests these harvests include stocks from Asia, Alaska, Yukon, British Columbia, and lower-48 origin. Chinook salmon are a high-value species extremely important to Western Alaskan village commercial and subsistence fishermen and also provide remote trophy sport fishing opportunities. Other salmon (primarily made up of chum salmon) harvested as bycatch in the Bering Sea pollock trawl fishery also serve an important role in Alaska subsistence fisheries. However, in response to low salmon runs, the State of Alaska has been forced to close or greatly reduce some commercial, subsistence and sport fisheries in Western Alaska. Reasons for reductions in the number of Chinook salmon returning to spawn in Western Alaska rivers and the Canadian portion of the Yukon River drainage are uncertain, but recent increases Bering Sea bycatch may be a contributing factor.

Conservation concerns acknowledged by the Council during the development of the Salmon Savings Areas have not been resolved. Continually increasing Chinook salmon bycatch indicates the VRHS under the salmon bycatch intercooperative agreement approach is not yet sufficient on its own to stabilize, much less, reduce the total bycatch. Hard caps, area closures, and/or other measures may be needed to reduce salmon bycatch to the ~~maximum~~ extent practicable under National Standard 9 of the MSA. We recognize the MSA requires use of the best scientific information available. The Council intends to develop an adaptive management approach which incorporates new and better information as it becomes available. Salmon bycatch must be reduced to address the Council's concerns for those living in rural areas who depend on local fisheries for their sustenance and livelihood and to contribute towards efforts to reduce bycatch of Yukon River salmon under the U.S./Canada Yukon River Agreement obligations.

Option 1 (applies to Alternatives 2 and 4):

Modify the PSC accounting period to begin at the start of the B season in one calendar year and continue through the A season of the following calendar year (if this option is not selected, the accounting period is the calendar year).

Option 2 (applies to Alternatives 3 and 4 only):

Exempt those vessels participating in a VRHS system from area closures.

Alternative 1: Status Quo

Alternative 2: Hard Cap

Option 1: Hard cap based upon average historical bycatch (1997-2006)

Sub-option	Description	Chinook	Chum
i)	3 year average (2004-2006)	68,392	498,733
ii)	5 year average (2002-2006)	57,333	355,194
iii)	10 year average (1997-2006)	43,328	207,620
iv)	10 year average (1997-2006): drop lowest year	47,591	225,515
v)	10 year average (1997-2006): drop highest year	38,891	151,585
~~vi)~~	~~10% increase of historical average (3 years, 2004-2006)~~	~~75,231~~	~~548,607~~
~~vii)~~	~~20% increase of historical average (3 years, 2004-2006)~~	~~82,070~~	~~598,480~~
~~viii)~~	~~30 % increase of historical average (3 years, 2004-2006)~~	~~88,909~~	~~648,353~~
~~ix)~~	~~10% increase of highest year (pre-2007)~~	~~91,583~~	~~783,133~~
~~x)~~	~~20% increase of highest year (pre-2007)~~	~~99,908~~	~~854,327~~
~~xi)~~	~~30% increase of highest year (pre-2007)~~	~~108,234~~	~~925,521~~

Option 2: Cap set relative to salmon returns

Option 3: Cap set based on Incidental Take ~~Permit~~ amount

This involves setting the Chinook (only) cap at 87,500 fish.

Option 4: Set cap ~~in accordance with International treaty considerations~~ relative to bycatch levels pre-accession to the Yukon River Agreement (1992-2001, based on average historical bycatch pre-2002)

Sub-option	Description	Chinook	Chum
~~i)~~	~~3 year average (1999-2001)~~	~~16,795~~	~~55,542~~
ii)	5 year average (1997-2001)	29,323	60,046
iii)	10 year average (1992-2001)	32,482	77,943

Analysis of hard cap levels

For analysis, spread the range of estimated bycatch under Options 1, 3, and 4 and select four equally spaced numbers for analysis, approximately as follows:

	Chinook	Chum
Analysis point 1	29,323	60,046
Analysis point 2	48,715	206,275
Analysis point 3	68,108	352,504
Analysis point 4	87,500	498,733

Option 5: Divide the final cap by sectors based on

i) 10% of the cap to the CDQ sector, and the remaining allocated as follows: 50% shore based CV fleet; 10% for the mothership fleet; and 40% for the offshore CP fleet
ii) Historical average of percent bycatch by sector based on 3, 5, and 10 year averages (see Alternative 2, Option 1 for range of years)

Transfer suboptions:
i) Transfer salmon bycatch among sectors (industry initiated)
ii) NMFS will rollover unused salmon bycatch to other sectors and ~~inshore~~ **other** cooperatives still fishing

Option 6: Divide the sector cap by cooperative based upon the percent of total sector pollock catch their coop allocation represents. Except for catcher vessels that deliver unsorted cod end, participation in pollock fishery for vessels will require a minimum of 100% observer coverage or video monitoring to ensure no at-sea discards. When ~~the Chinook~~ a salmon coop cap is reached, the coop must stop fishing for pollock and may:

i) Lease their remaining pollock to another coop (inter-cooperative transfer) within their sector for that year (or similar method to allow pollock harvest with individual coop accountability)
ii) ~~Purchase~~ Transfer salmon bycatch from other inshore cooperatives

Rollover suboption: NMFS will rollover unused salmon bycatch to other sectors and inshore cooperatives still fishing

Option 7: Periodic adjustment for updated bycatch information

A time period may be specified after which caps may be re-specified with updated bycatch data.

Alternative 3: Fixed closures

Option 1: Timing options

i. A season (Chinook only)
ii. B season (Chinook and Chum)

Option 2: Area options

Option 3: Periodic adjustment for updated bycatch information

A period may be specified after which areas may be re-specified with updated bycatch data.

Alternative 4: Triggered closures

Option 1: Timing options

i. A season
ii. B season

Option 2: Area options

i. Adjust area according to the number of salmon caught
ii. Single area closure
iii. Multiple area closures

Option 3: Periodic adjustment for updated bycatch information

A time period may be specified after which areas may be re-specified with updated bycatch data.

Option 4: Trigger Cap formulation

See Alternative 2 for description of cap formulation options.

Option 5: Divide the final cap by sectors based on:

i) 10% of the cap to the CDQ sector, and the remaining allocated as follows: 50% shore based CV fleet; 10% for the mothership fleet; and 40% for the offshore CP fleet

ii) Historical average of percent bycatch by sector based on 3, 5, and 10 year averages (see Alternative 2, Option 1 for range of years)

Transfer suboptions:

i) Transfer salmon bycatch among sectors (industry initiated)

ii) NMFS will rollover unused salmon bycatch to other sectors and inshore cooperatives still fishing

~~**Option 6: Divide the sector cap by cooperative based upon the percent of total sector pollock catch their coop allocation represents. When the Chinook salmon coop cap is reached, the coop must stop fishing for pollock and may:**~~

~~i) Lease their remaining Pollock to another coop (inter-cooperative transfer) within their sector for that year (or similar method to allow pollock harvest with individual coop accountability)~~

~~ii) Purchase salmon bycatch from other cooperatives.~~

Candidate closures for Alternatives 3 and 4

1) Closures areas defined by historic effort

1a) Fixed A season closure (Chinook)

1b) Sequential two-week A season closures (Chinook)

1c) Sequential two-week B season closures (Chinook)

1d) August B season closure (Chum)

2) Candidate Closure areas defined by rate-based criteria

2a) Rate-based criteria 0.10 Chinook/pollock (t)

2b) Rate-based criteria 0.125 Chinook/pollock (t)

2c) Rate-based criteria 0.15 Chinook/pollock (t)

2d) Rate-based criteria 0.175 Chinook/pollock (t)

2~~b~~e) Rate-based criteria 0.20 Chinook/pollock (t)

~~2c) Rate-based criteria 0.30 Chinook/pollock (t)~~

~~2d) Rate-based criteria 0.40 Chinook/pollock (t)~~

3) Candidate Closure areas defined by percent bycatch reduction criteria

3a) 50% bycatch reduction closure

3b) 75% bycatch reduction closure

The Council request staff further develop a discussion paper to reduce BSAI salmon bycatch in the pollock trawl fishery through market mechanisms ~~such as~~ **including, but not limited to,** per salmon fees (likely administered by industry) or forced transfer of some increment of pollock for each salmon harvested. This discussion paper should include an overview of legal concerns, possible fee collection and use options, and management/administrative concerns.

The Council requests that industry present additional candidate closure areas at the April 2008 meeting.

Bering Sea Salmon Bycatch Management Environmental Impact Statement (EIS)

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draft 3/26/08 version

Table of Contents for Appendix A (Regulatory Impact Review)

Draft Salmon Bycatch EIS Timeline (assumes that all key events and document releases occur on schedule)

Project Components	2008 jan	feb	mar	apr	may	jun	jul	aug	sep	oct	nov	dec
Council Meetings		Scoping period occurs during February Council meeting. Council refines alternatives.		Council (1) reviews scoping report, and (2) may further refine alternatives and identify preliminary preferred alt., if possible.		Council (1) reviews initial draft EIS/RIR/IRFA, (2) identifies prelim. pref. alt., and (3) recommends release for public review.						Council takes FINAL ACTION based on (1) Comment Analysis Report, (2) draft EIS/RIR/IRFA, and (3) results of ESA consultation.
Salmon Bycatch Workgroup review alternatives as tasked by Council												
ESA Documentation					ESA Consultation with NWR starts when preliminary preferred alternative is identifed		ESA Consultation with NWR starts when preliminary preferred alternative is identifed				Send consultation results to Council	Present results of ESA consultation to Council
NEPA, Regulatory Flexability Act, and EO 12866 Documentation	Publish NOI for EIS, 45-day scoping period (12/26/07)	Scoping period ends 2/15/08. Develop draft EIS/RIR/IRFA and scoping report. Send scoping report to Council prior to April Council meeting.			Initial review draft EIS/RIR/IRFA sent to Council-May 9		Publish DEIS/RIR/IRFA, 45-day comment period		Develop Comment Analysis Report (CAR) and submit to Council			
Rule making												
FMP approval												Council recommends FMP amendments as part of final action.

revised 1/13/08

2009												2010
jan	feb	mar	apr	may	jun	jul	aug	sep	oct	nov	dec	jan
Revise EIS/RIR/IRFA to incorporate final action and CAR	Publish Final EIS/RIR/IRFA				Sign ROD at time of FMP approval.							
Develop proposed rule (requires Council final action)		Publish proposed rule, 60-day public comment period		Respond to comments and develop final rule.			Publish final rule	Some provisions of the final rule could be effective 30 days after rule is published in Federal Register				Some provisions may be effective at beginning of 2010
Prepare DEIS/RIR/IRFA		Publish NOA, 60-day public comment period			FMP amendment approval (30 days after end of comment period)							

Do you want a fixed closure? (Alternative 3)	**No**	No fixed closures			
	Yes	**What area?** (Component 1)	Option 1: area along shelf break west of Unimak Island	Suboption: adjust periodically based on updated bycatch information	
		Duration? (Component 1)	Option 1: entire A season		
		Allow exemption from area closure for vessels participating in the VRHS system? (Option B)	**No**	closure applies to all pollock vessels	
			Yes	vessels participating in the VRHS system are exempt from the fixed closure	
Do you want a new triggered closure? (Alternative 4)	**No**	No trigger caps and closures			
	Yes	**How to formulate cap?** (Component 1; same options as for hard cap)	Option 1 (i-viii): Select from a range of numbers	Suboption: adjust periodically based on updated bycatch information	
			Option 2: Framework cap is set relative to salmon returns		
		Subdivide cap among sectors? (CDQ, inshore CV, mothership, offshore CP)	**No**	separate cap only for CDQ Program, otherwise cap applies to all non-CDQ sectors as a whole	
			Yes	**How?** (Component 2; same options as for hard cap)	Option 1: same as pollock allocations, 10% CDQ, 45% inshore CV, 9% mothership, 36% offshore CP
					Option 2 (a-c): Cap is set based on historical average bycatch use by sector
				Allow transfer among sectors? (Component 3; same options as for hard cap)	Option 1: yes, industry may initiate transfers
					Option 2: NMFS may rollover unused salmon bycatch to sectors that are still fishing
		Apportion by season? (staff recommendation)	Yes, use the average A to B season proportion of Chinook catch for the whole pollock fishery, calculated using the last three (54%:46%) or five years (58%:42%)		
		What areas? (Component 4; Council may select both A and B season closures)	Option 1: A season closures	(a) small (b) medium (c) large (d) expanding closure (stairsteps from small to large with each trigger)	Suboption: adjust periodically based on updated bycatch information
			Option 2: B season closures	(a) small (b) large (c) expanding closure (stairsteps from small to large with each trigger)	Suboption: adjust periodically based on updated bycatch information
		How to apply seasonal caps to areas? (staff recommendation)	Seasonal trigger cap for each sector will apply to the large proposed closure; caps for the small and medium closures are determined as a fraction of the total number, based on the percentage of salmon inside the proposed closure area relative to the percentage of salmon inside the large proposed closure area (over the entire season)		
		Duration of closures? (Component 4)	once triggered, areas remain closed for remainder of season		
		Change the accounting period? (Option A)	**No**	status quo: accounting period is calendar year	
			Yes	bycatch accounting period begins with the B season and continues through the A season of the following year	
		Allow exemption from area closure for vessels participating in the VRHS system? (Option B)	**No**	closure applies to all pollock vessels	
			Yes	vessels participating in the VRHS system are exempt from the fixed closure	

D-1 NPFMC STAFF

Action 1, Chinook salmon: Building a Preferred Alternative. Based on staff recommendations in April 2008.

Do you want to retain the existing triggers and closures? (Alternative 1)	**No**	Existing salmon PSC limits and salmon savings areas will be removed from the FMP
	Yes	Existing salmon PSC limits and salmon savings areas will remain in the FMP; exemption from the area closures will continue to apply to vessels participating in VRHS system

Do you want a hard cap? (Alternative 2)	**No**	No hard cap					
	Yes	**How to formulate it?** (Component 1)	Option 1 (i-viii): Select from a range of numbers				Suboption: adjust periodically based on updated bycatch information
			Option 2: Framework cap is set relative to salmon returns				
		Subdivide among sectors? (CDQ, inshore CV, mothership, offshore CP)	**No**	separate cap only for CDQ Program, otherwise cap applies to all non-CDQ sectors as a whole			
			Yes	**How?** (Component 2)	Option 1: same as pollock allocations, 10% CDQ, 45% inshore CV, 9% mothership, 36% offshore CP		
					Option 2 (a-c): Cap is set based on historical average bycatch use by sector		
				Allow bycatch transfers among sectors? (Component 3)	Option 1: yes, industry may initiate transfers		
					Option 2: NMFS may rollover unused salmon bycatch to sectors that are still fishing		
				Subdivide inshore CV cap among cooperatives? (Component 4)	**No**	Inshore CV cap applies at sector level	
					Yes	Inshore CV cap will be subdivided among cooperatives based on the cooperative's pollock allocation	
						Allow bycatch transfers among cooperatives?	Option 1: no, cooperatives may lease pollock to another cooperative
							Option 2: yes, industry may initiate transfers
							Suboption: NMFS may rollover unused salmon bycatch to cooperatives that are still fishing
		Apportion by season	**Yes**	Use the average A to B season proportion of Chinook catch for the whole pollock fishery, calculated using the last three (54%:46%) or five years (58%:42%)			
			No	Cap is annual			
		Change the accounting period? (Option A)	**No**	status quo, accounting period is calendar year			
			Yes	bycatch accounting period begins with B season, continues through A season of following year			

AGENDA D-1
Supplemental
APRIL 2008

YUKON RIVER DRAINAGE FISHERIES ASSOCIATION

725 Christensen Drive, Suite 3B, Anchorage AK 99501 Tel: 1-877-99-YUKON
www.yukonsalmon.org • info@yukonsalmon.org

March 20, 2008

Chris Oliver
North Pacific Fishery Management Council
605 West 4th, Suite 306
Anchorage, AK 99501

Dear Mr. Oliver:

The Yukon River Drainage Fisheries Association (YRDFA) held its 18th Annual Meeting in Grayling, Alaska, February 25 – February 28, 2008. The YRDFA Board of Directors passed several resolutions regarding issues affecting Yukon River fisheries, and specifically directed that you receive the enclosed resolution supporting the work of the Bering Sea Elders' Advisory Group. A summary of the meeting can be found on our website, www.yukonsalmon.org. If you have any questions about the resolutions, meeting outcomes, or YRDFA in general please do not hesitate to contact me.

Sincerely,

Jason Hale
Communications and Outreach Coordinator

Enclosure

YUKON RIVER DRAINAGE FISHERIES ASSOCIATION

725 Christensen Drive, Suite 3-B, Anchorage, Alaska 99501
Tel: 907-272-3141 Fax: 907-272-3142

Resolution: 2008-08

Bering Sea Elders' Advisory Group

WHEREAS Yukon River Drainage Fisheries Association (YRDFA) represents subsistence, commercial and sport fishers from over 40 communities within the U.S. portion of the Yukon River drainage who depend on wild salmon for subsistence and income; and

WHERAS warming is occurring at an accelerated rate in the northern latitudes and fish and wildlife species are moving farther north; and

WHEREAS fish stocks are moving into the northern Bering Sea region and the bottom trawl fleet is likely to prosecute fisheries in this region; and

WHEREAS local coastal communities of Western Alaska are concerned about the potential impacts of expanding the northern bottom-trawl boundary; and

WHEREAS the Bering Sea Elders' Advisory Group is participating in the North Pacific Fishery Management Council's Northern Bering Sea Research Area research plan; therefore

BE IT RESOLVED that YRDFA supports the work of the Bering Sea Elders' Advisory Group.

COPIES of this resolution will be sent to Alaska Marine Conservation Council, Bering Sea Elders' Advisory Group, and the North Pacific Fishery Management Council.

APPROVED unanimously this 27th day of February 2008 by the Board members and Delegates of YRDFA assembled at their Eighteenth Annual Meeting held in Grayling, Alaska.

Attest:

Richard Burnham, YRDFA Co-Chair

William Alstrom, YRDFA Co-Chair

YUKON RIVER DRAINAGE FISHERIES ASSOCIATION

March 25, 2008

Mr. Eric Olson, Chair
North Pacific Fishery Management Council
605 West 4th Avenue, Suite 306
Anchorage, AK 99501

Mr. Doug Mecum, Acting Regional Administrator
NOAA Fisheries, Alaska Region
PO Box 21668
Juneau, AK 99802

Re: Agenda Item D-1(a)BSAI Salmon Bycatch

Dear Mr. Olson, Mr. Mecum and Council members:

The Yukon River Drainage Fisheries Association (YRDFA) appreciates the opportunity to comment again on the issue of salmon bycatch. As you are well aware, Chinook salmon bycatch was at a record high in 2007 with over 122,000 Chinook salmon caught as bycatch. While the numbers are considerably lower so far this year, it is imperative that a limit be placed on salmon bycatch such that these dangerously high levels of bycatch cannot occur again. The YRDFA Board of Directors passed a resolution to this effect at their recent annual meeting in Grayling, Alaska. The resolution (attached) requests "...**management measures at the North Pacific Fishery Management Council that will effectively reduce the number of wild salmon caught as bycatch, including explicit limits on the total number of wild salmon that may be caught as bycatch.**" In moving towards this goal, we ask the Council to maintain the current range of alternatives which is consistent with reducing salmon bycatch.

While Chinook salmon bycatch this year appears to be returning to numbers closer to the historical averages, the need for a hard cap on salmon bycatch in the pollock fishery is no less urgent. Western Alaska Chinook stocks continue to decline, with a forecast for the Yukon for a 2008 run which is expected to be below average. While the run is expected to provide for escapement and subsistence, managers have warned that "the run may not be large enough to support even a small directed commercial fishery."[1] If a commercial harvest is allowed, it will be limited to 5,000-30,000 Chinook salmon, including the incidental harvest from the chum salmon fishery.

[1] United States Fish and Wildlife Service, 2008 Yukon River Salmon Season Outlook (March 2008).

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As Western Alaska salmon stocks continue to struggle, it is imperative that limits be placed on the pollock fishery to ensure that sacrifices are not borne by in-river fishermen and women alone. It is essential that the Council maintains the current alternative structure in which a hard cap could be applied in addition to the Voluntary Rolling Hot Spot (VRHS) system, and that no exemptions from the hard cap are allowed. While we commend the pollock fleet's ongoing efforts to perfect the VRHS program, and are happy to see the changes that were made to this year's agreement, it is essential that there is an overarching limit on salmon bycatch to ensure actual reductions in bycatch are made. Western Alaska salmon stocks simply cannot bear the impacts from another year of bycatch at the levels we have seen over the past three years. In-river users are faced with absolute restrictions on catch, and once the set harvest has been reached, no further fishing is allowed. The pollock fishery must be held to this same standard through a hard cap, and not be allowed to merely make a good faith effort to reduce bycatch with no limit imposed.

Additionally, in finalizing the range of alternatives for this action, the Council should maintain the range of hard caps as set forth at the February 2008 meeting. We have stated previously that the 2006 Chinook salmon bycatch amount of 87,500, which represents the high end of the current range of alternatives, poses significant threats to Western Alaska salmon. There is no need or justification, in an action intended to reduce salmon bycatch, to include levels above this amount. The 2007 Chinook salmon bycatch number was more than double the 10-year average, and therefore far beyond the bounds of reasonable alternatives for reducing salmon bycatch. The Council and NMFS have received recommendations from the Federal Subsistence Board, U.S. Fish and Wildlife Service, Yukon River Panel and several Regional Advisory Councils requesting a hard cap on Chinook salmon of 21,000-38,000. Given the hard cap recommendations from these agencies and entities with management responsibilities for in-river fisheries, the current range of alternatives is certainly adequate, if not too high, even at 87,500.

Finally, because the timeline for implementing regulations through the Council process, with final regulations going into effect in January 2010, is so lengthy, we respectfully request that the Council use its emergency rule authority, as specified at 62 FR 44421, to implement a hard cap in the interim. This will ensure that Western Alaska salmon are adequately protected until regulations implemented through the Council process can take effect.

Thank you for your continued efforts on this important issue.

Sincerely,

Rebecca Robbins Gisclair
Acting Executive Director

YUKON RIVER DRAINAGE FISHERIES ASSOCIATION

725 Christensen Drive, Suite 3-B, Anchorage, Alaska 99501
Tel: 907-272-3141 Fax: 907-272-3142

Resolution: 2008-01

Salmon Bycatch

WHEREAS Yukon River Drainage Fisheries Association (YRDFA) represents subsistence, commercial and sport fishers from over 40 communities within the U.S. portion of the Yukon River drainage who depend on wild salmon for subsistence and income; and

WHEREAS YRDFA has been working on reducing wild salmon bycatch in the Bering Sea/Aleutian Islands Pollock fishery since 1994; and

WHEREAS the Bering Sea Aleutian Islands Pollock fishery continues to catch increasingly high numbers of wild Chinook and wild chum salmon as bycatch; and

WHEREAS the pollock fleet caught over 122,000 wild Chinook salmon and 97,000 wild chum salmon in 2007; and

WHEREAS approximately 23,000 of those wild Chinook salmon were likely of Yukon River origin, which represents 68% of the 2007 commercial catch, or 46% of the 2007 subsistence catch, or 70% of the Canadian border passage goal; and

WHEREAS the current Voluntary Rolling Hot Spot system has not been shown to effectively reduce bycatch; therefore

BE IT RESOLVED that YRDFA supports the continued monitoring of wild salmon bycatch; increased understanding of stock composition, wild salmon distribution and the relationship between wild salmon abundance and wild salmon bycatch; and management measures at the North Pacific Fishery Management Council that will effectively reduce the number of wild salmon caught as bycatch, including explicit limits on the total number of wild salmon that may be caught as bycatch.

COPIES of this resolution will be sent to the North Pacific Fishery Management Council, Bering Sea Fishermen's Association, Association of Village Council Presidents, Tanana Chiefs Conference and other Western Alaska salmon groups.

APPROVED unanimously this 27th day of February 2008 by the Board members and Delegates of YRDFA assembled at their Eighteenth Annual Meeting held in Grayling, Alaska.

Attest:

Richard Burnham, YRDFA Co-Chair

William Alstrom, YRDFA Co-Chair

World Wildlife Fund
Kamchatka/Bering Sea Ecoregion
406 G. Street, Suite 303
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March 26, 2008

Mr. Eric Olson, Chair
North Pacific Fishery Management Council
605 W. 4th Street, Suite 306
Anchorage, AK 99501-2252

Mr. Doug Mecum
Acting Regional Administrator
NOAA Fisheries, Alaska Region
709 W. 9th Street
Juneau, AK 99802-1668

Re: Salmon Bycatch D-1(a)

Dear Mr. Olson and Mr. Mecum,

The World Wildlife Fund (WWF) appreciates the opportunity to comment on the salmon bycatch reduction measures being considered for analysis by the North Pacific Fishery Management Council (Council). We submit this letter in continued support of salmon bycatch reduction efforts in the Bering Sea and Aleutian Islands (BSAI) pollock fisheries. We continue to recommend that the Council expedite the analysis of caps and other mechanisms to minimize and reduce salmon bycatch in the BSAI pollock fishery.

As of the writing of this letter, Chinook salmon bycatch appears to be retreating closer to historical averages. Nonetheless, this does not diminish the need for a cap on Chinook salmon bycatch in the pollock fishery. The Voluntary Rolling Hotspot Agreement (VRHS) represents a commendable voluntary effort by the pollock fleet to address salmon bycatch. We encourage the pollock fleet to continue to seek measures and techniques to reduce salmon bycatch. However, current Chinook salmon bycatch, even at historic levels, has reached a level at which voluntary efforts are simply insufficient and additional measures are urgently required to ensure continued adequate Chinook salmon returns to Western Alaska.

WWF supports a rigorous analysis of a reasonable range of reasonable alternatives to reduce salmon bycatch while minimizing the economic impact to the pollock fleet. We support the current range of alternatives that includes 87,500 Chinook salmon as a maximum cap for the purpose of analysis. However, we recommend that the Council not consider the proposed 87,500 maximum cap as a goal to be met, but an absolute value in a range that must not be exceeded under any circumstance. The Council should carefully consider the recommendations of the Yukon River Panel, Federal Subsistence Board, the US Fish and Wildlife Service, the Community Development Quota groups, and the Regional Advisory Councils in developing the maximum cap for salmon bycatch.

Having suffered from years of steady declines in Chinook salmon stocks, Western Alaska residents face forecasts of another bleak, and potentially disastrous, Chinook salmon run this summer.[1] Therefore, in the absence of decisive and immediate action by the Council and in the event of further excessive salmon bycatch, the Council and NOAA Fisheries should be prepared to promulgate an emergency rule to impose interim measures that reduce salmon

[1] United States Fish and Wildlife Service, 2008 Yukon River Salmon Season Outlook (March 2008).

bycatch and ensure the biological and economic viability of Western Alaska salmon stocks. By statute, "if the Secretary finds that an emergency exists...he may promulgate emergency regulations or interim measures necessary to address the emergency" independently or at the request of the Council.[2] The current situation in Western Alaska represents the extremely urgent, special circumstances contemplated by the policy recommendations for an emergency rule, which observe the need for an emergency rule in the event of substantial harm to or disruption of the resource, fishery, or community.[3] With respect to the Chinook salmon bycatch issue, an emergency exists involving the Chinook salmon fishery that: (1) results from a recent, unforeseen increase in Chinook salmon bycatch in the pollock fishery; (2) presents serious management problems in the Chinook salmon and pollock fishery; and (3) can be addressed through emergency regulations for which the immediate benefits outweigh the value of advance notice, public comment, and deliberative consideration of the impacts on participants to the same extent as would be expected under the normal rulemaking process. Furthermore, an emergency rule is clearly justified under the economic and social standards of the policy to prevent significant direct economic loss or to preserve a significant economic opportunity that otherwise might be foregone; and to prevent significant community impacts or conflict between user groups.[4]

We continue to endorse the inclusion of separate sector cap considerations in the analysis as an effort to minimize the economic impacts of a potential cap strategy. We also support efforts to flexibly engineer inter-cooperative transfers and quota markets to minimize adverse economic effects on the pollock industry. However, first and foremost, action must be taken quickly to achieve a reduction in Chinook salmon bycatch. A prolonged negotiation over allocation issues within the pollock fishery should not detract from the Council's responsibility to first minimize or reduce salmon bycatch. Additionally, any alternative that divides the cap among sectors, cooperatives, or vessels must not allow the pollock fishery to exceed the hard cap individually or in sum. Furthermore, cap considerations should be implemented in a way that rewards low salmon bycatch while penalizing high salmon bycatch, whether current or historic.

In conclusion, WWF encourages the Council to move quickly to finalize alternatives for the Salmon Bycatch agenda item D-1(a) in order to achieve an effective solution as soon as possible. Flexibility in the strategy is important to minimize adverse effects on the pollock fishery, but should not preclude decisive action to protect salmon stocks and the communities, commercial fisheries, and subsistence fisheries that depend on them.

Thank you for your time and consideration of these comments.

Respectfully,

Alfred Lee "Bubba" Cook Jr.
Kamchatka/Bering Sea Ecoregion Senior Fisheries Program Officer
World Wildlife Fund

[2] Magnuson-Stevens Fishery Conservation and Management Act § 305(c), 16 U.S.C. § 1855(c)(1) (2007).
[3] 62 Fed. Reg. 44421 (August 21, 1997).
[4] 62 Fed. Reg. 44422 (August 21, 1997).

BERING SEA SALMON BYCATCH MANAGEMENT ENVIRONMENTAL IMPACT STATEMENT (EIS)

STAFF DISCUSSION PAPER: REVIEW OF DRAFT ALTERNATIVES

OVERVIEW OF INFORMATION PROVIDED FOR APRIL MEETING

At the April 2008 Council meeting, the Council is scheduled to review and revise the suite of alternatives considered in the draft Bering Sea Salmon Bycatch Management Environmental Impact Statement (EIS). To guide this review, the following staff report describes the alternatives currently under consideration by the Council and provides some preliminary analyses. This draft report will form the basis for Chapter 2: "Description of Alternatives" in the EIS. Also, the scoping report, providing a summary of comments received by NMFS during the scoping period is provided separately.

At the February 2008 Council meeting, the Council directed staff to reorganize the alternatives into separate actions for Chinook salmon (Action 1) and non-Chinook salmon (Action 2) made revisions to the alternatives themselves by changing the range of fishery-level caps under consideration and the methodology for subdividing these caps by sector, and within cooperatives for the inshore catcher vessel sector. The fishery-level caps involve splits by sector and cooperative provisions for straight AFA-sector and CDQ catch percentages as well as percentage break-outs based upon historical catch use by each sector. Also, non-Chinook species caps were recalculated to include only the contribution from the pollock pelagic trawl fishery (previously caps included all gears and target fisheries). Since the February meeting, staff continued to refine the design of area closures for Council consideration. A description of previous area-closure considerations and rationale for the proposed revisions under Council Actions 1 and 2 are provided along with consideration of bycatch rates.

The Council motion from February 2008 is attached to this report as appendix A. The annual and seasonal mortality of salmon by species in pollock pelagic trawl fishery used to calculate the cap levels by species per Council motion in February are attached as Appendix B. These cap levels are included under Action 1: Alternative 2 and Action 2: Alternative 2 in this draft description of alternatives.

Additional information will be provided in the briefing materials for the April Council meeting. To the extent possible, the supplemental documents will include discussions on methods to analyze the status quo alternative, preliminary results from the adult equivalency (AEQ) model, approaches to specify trigger cap levels for proposed area closures, descriptive information on the various rollover and salmon cap transfer provisions, comparisons of alternatives (including flow charts) to assist in the selection of a preliminary preferred alternative, and a draft table of contents of the EIS/RIR/IRFA.

The action before the Council at the April meeting is to review and refine the alternatives as necessary. Pending Council actions in April, an initial review draft of the full analysis is scheduled for June 2008.

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DRAFT DESCRIPTION OF ALTERNATIVES

The following description provides a detailed overview of the revised alternatives and options for the forthcoming EIS analysis. These restructured alternatives incorporate all refinements through the Council's February 2008 motion. Additional refinements to the alternatives through the April Council meeting will be incorporated into this chapter prior to incorporation in the EIS scheduled for initial review in June 2008. The Council may also formulate different alternatives to be analyzed by selecting aspects of the alternatives as listed below. Section 3.0 of this chapter provides additional information and structure for formulating the Council's preferred alternative. [Note section 3.0 will be provided in the April Council briefing materials]

Separate actions are being considered for Chinook salmon and non-Chinook (primarily chum) salmon in this amendment package. The alternative structure is organized accordingly. In choosing their preferred alternatives, the Council may select different alternatives (and components and options) for each action. Action 1 is for alternatives to manage Chinook salmon while Action 2 is for alternatives to manage non-Chinook salmon. For each action 4 alternatives, including the Status quo are considered. There are two options, A and B which apply to specific alternatives. A detailed description of the components elements and options for each of the 4 alternatives under each action is contained below. The description of the alternative level-options is provided below. Also indicated in conjunction with these alternative-level options are the alternatives for which they apply The analysis will consider each of these two options as applied to the respective alternatives in conjunction with the impact analysis of all of the components and options for each specific alternative. However, to avoid unnecessary repetition the description of these options is not included under each alternative in the detailed descriptions of specific components and options by Action. It is understood that these may be applied to any of the alternatives for which they are indicated. Further information on the selection of option A or Option B are contained in section 3.0, discussion of comparison of alternatives and selection of preliminary preferred alternative.

Action 1: Chinook salmon

Alternative 1: Status Quo
Alternative 2: Hard cap
Alternative 3: Fixed closures
Alternative 4: Triggered closures

Option A (applies to Alternatives 2 and 4):
Modify the PSC accounting period to begin at the start of the B season in one calendar year and continue through the A season of the following calendar year. If this option is not selected, the accounting period is the calendar year.

Option B (applies to Alternatives 3 and 4 only):
Exempt those vessels participating in a VRHS system from area closures

Action 2: Non-Chinook salmon (Chum)

Alternative 1: Status Quo
Alternative 2: Hard cap
Alternative 3: Fixed closures
Alternative 4: Triggered closures

Option A (applies to Alternatives 2 and 4):
Modify the PSC accounting period to begin at the start of the B season in one calendar year and continue through the A season of the following calendar year. If this option is not selected, the accounting period is the calendar year.

Option B (applies to Alternatives 3 and 4 only):
Exempt those vessels participating in a VRHS system from area closures

Additional components and options are included under individual alternatives are presented. The ranges of caps under consideration by species (Alternative 2) as well as the sector and cooperative level break-outs are detailed. Per Council motion (February 2008), the impact analysis of implementing a specific cap level will be based on a subset of the range as indicated in the tables under for each component and option. The Council may select any cap levels included in the range of alternatives in choosing its preferred alternative.

Note that these alternatives are not intended to be mutually exclusive and the Council may choose to select elements from each of the alternatives together to formulate their preferred alternative (see section 3.0). Under the description of each alternative below, information is provided on the specific elements and options to the alternatives (for alternatives 2-4) as well as how the CDQ program would be treated under that alternative.

Description of Option A: Modify the PSC Accounting Period
This option applies to cap alternatives under Action 1(Chinook) and Action 2 (Chum) for both hard cap alternatives (alternative 2) and Trigger cap alternatives (Alternative 4). The selection of this option would modify the accounting year for the salmon biological year. This means that the accounting system for salmon species would begin in the B season and continue through the A season, i.e. accounting would begin in June and continue through May. The intention of this option is that it more closely tracks the salmon biological year whereby juvenile salmon (those primarily taken as bycatch) likely enter the Bering Sea in the fall to feed and remain on the grounds throughout the winter. This group then migrates to other locations during the summer months prior to beginning their return to the natal streams (those that are of spawning age) in the summer. Thus, the same cohort of salmon that are being caught in the B season remain on the grounds in the A season and any closure potentially triggered by high B season Chinook catch would protect the same age class of salmon from additional impacts in the A season. This is in contrast to the current accounting system whereby the catch accounting for salmon begins January 1 and tracks through December 31st. A closure which is triggered due to high rates of catch following the A season is then actually protecting a different cohort of salmon in the B season from those that triggered the need for protection following the A season.

Description of Option B: Exemption for participation in VRHS system
This option applies to the area closure alternatives under Action 1(Chinook) and Action 2(non-Chinook) for Alternative 3 (Fixed closures) and Alternative 4 (Triggered closures). The selection of this option in conjunction with new area closures would indicate that pollock cooperatives and CDQ groups who participate in a voluntary rolling "hot spot" (VRHS) closure system to avoid salmon bycatch will be granted an exemption to closures. Cooperatives or other vessels which are not participating in a VRHS system will be subject to the new area closures if triggered or fixed.

1.0 ACTION 1: CHINOOK SALMON

1.1 Alternative 1: Status Quo (Chinook)

Alternative 1 retains the current program of Chinook Salmon Savings Area (SSA) closures triggered by separate non-CDQ and CDQ caps by species with the fleet's exemption to these closures per regulations for amendment 84.

For Chinook salmon, the Chinook Salmon Savings Areas were established under BSAI Amendment 21b and revised under BSAI Amendment 58. These areas close to pollock trawling if 29,000[1] Chinook salmon are taken. The timing of the closure depends upon when the limit is reached:

1. If the limit is triggered before April 15, the areas close immediately through April 15. After April 15, the areas re-open, but are again closed from September 1-December 31.
2. If the limit is reached after April 15, but before September 1, the areas would close on September 1 through the end of the year.
3. If the limit is reached after September 1, the areas close immediately through the end of the year.

BSAI amendment 58 modified the initial Chinook salmon savings area measures (established under amendment 21b, ADF&G 1995a). Modifications from this amendment in 1999 included: a reduced Chinook limit from 48,000 to 29,000 over a four year period, year-round accounting of Chinook bycatch in the pollock fishery beginning on January 1 of each year, revised boundaries of the savings area closures, and new closure dates. The initial Chinook Salmon Savings Areas included an area south of the Pribilof Islands. This area was removed as a savings area under amendment 58 (NMFS 1999). The revision to the closure dates under this amendment specified the additional closure from September 1-December 31 under the conditions listed in bullets 1-3 above.

Amendment 84 to the BSAI groundfish FMP exempted vessels from both the Chum and Chinook SSAs if triggered provided they participate in the salmon bycatch inter-cooperative agreement (ICA) with the voluntary rolling hot spot (VRHS) system (NPFMC 2005). The VRHS enables participants in the pollock fisheries to be responsive to current bycatch rates and fish in areas with relatively lower salmon bycatch rates, rather than rely on static closure areas that were established based on historical bycatch rates.

Under this alternative, the CDQ Program would continue to receive allocations of 7.5 percent of the BS and AI Chinook salmon PSC limits and 10.7 percent of the non-chinook salmon PSC limit as "prohibited species quota reserves" or PSQ reserves. The PSQ reserves are further allocated among the six CDQ groups based on percentage allocations approved by NMFS on August 8, 2005. The salmon savings areas would continue to be closed to vessels directed fishing for pollock CDQ for a particular CDQ group when that group's salmon PSQ is reached. The CDQ groups would continue to be exempt from the salmon savings area closures if they participate in the salmon bycatch intercooperative agreement.

1.2 Alternative 2: Hard Cap (Chinook)

This alternative would establish a Chinook salmon bycatch cap on the pollock fishery upon attainment of which all directed pollock fishing would cease. Only those Chinook caught by the pollock fleet would accrue towards the cap and the cap applies only to the pollock fleet when triggered. Several different means of managing this hard cap are provided under this alternative; at the fishery level (single hard cap for the entire pollock fishery); at the sector level (each of the 4 sectors including CDQ receives a sector-

[1] This number is inclusive of the allocation to CDQ groups. Non-CDQ Chinook salmon limit is 26,825.

specific cap) and at the cooperative level (whereby the sector-level cap for the shore-based CV fleet is further subdivided and managed at the individual cooperative level).

If applied as a single hard cap to all combined sectors, the CDQ Program would receive allocations of 7.5% of any hard cap established for Chinook salmon in the BS. These PSQ reserves would be further allocated among the six CDQ groups based on percentage allocations approved by NMFS on August 8, 2005. Each CDQ group would be prohibited from exceeding its salmon PSQ allocation. This prohibition would require the CDQ group to stop directed fishing for pollock CDQ once its PSQ allocation is reached because further directed fishing for pollock likely would result in exceeding its PSQ allocation.

If the hard cap is subdivided, two options are provided (under component 2) for the allocation to the CDQ program.

1.2.1 Component 1: Hard Cap Formulation

Component 1 establishes the hard cap number by two methodologies, option 1 based upon averages of historical numbers and other considerations as noted below and option 2 which uses a modeling methodology to establish a framework for periodically setting the cap based upon salmon returns. Component 1 sets the formulation for the overall cap which can be either applied to the fishery as a whole, or applying components 2 and 4 may be subdivided by sector (component 2) and to cooperative (component 4).

1.2.1.1 Option 1: Range of numbers for hard cap formulation

A range of numbers is established for consideration as hard caps for Chinook salmon. Table 1 lists the numbers in numerical order highest to lowest for overall caps. Here the CDQ allocation of the cap is 7.5% of the total cap, with the remainder for the combined non-CDQ fishery.

Table 1 Range of suboptions for hard cap with breakout for CDQ allocation (7.5%) and remainder for non-CDQ fleet

Sub Option	Overall Fishery cap #s Chinook	CDQ allocation	Non-CDQ cap (all sectors combined)
i)	87,500	6,563	80,938
ii)	68,392	5,129	63,263
iii)	57,333	4,300	53,033
iv)	47,591	3,569	44,022
v)	43,328	3,250	40,078
vi)	38,891	2,917	35,974
vii)	32,482	2,436	30,046
viii)	29,323	2,199	27,124

The following section provides the rationale (by suboption number) for each cap number listed in Table 1. Suboption i) 87,500 Chinook salmon represents the upper end of the recent range of observations for Chinook bycatch in the BSAI fishery Incidental Take Statement (ITS)(NMFS 1-11-07 supplemental Biological Opinion). An ITS specifies the expected take of an ESA listed species for the activity consulted on. This amount is related to the ESA consultation on the incidental catch of ESA-listed salmonids in the BSAI groundfish trawl fisheries. None of the ESA-listed salmonids are from Western Alaskan stocks. Additional information on the listed stocks, their relative contribution in the overall bycatch of Chinook salmon in the BSAI groundfish fisheries and the ESA consultation are covered in specific chapter on ESA listed species.

Suboptions ii-vi refer to average bycatch numbers by the pollock pelagic trawl fishery over a range of historical year combinations from 1997 through 2006, dropping some years over the period under consideration in some options. Suboption ii) is the three year average from 2004-2006; iii) is the 5 year average (2002-2006); iv) is the 10 year average (1997-2006) with the lowest year (2000) dropped from the years over which average occurred due to the injunction on the fishery in that year. Suboption v) is the straight 10 year average (including all years 1997-2006), while vi) is the average over those 10 years (1997-2006) dropping the highest year of bycatch (2006) for contrast against the 10 year average minus the lowest year under consideration in subption iv.

The final two suboptions under consideration (representing the low end of the range of caps considered) represent the 5 year average from 1997-2001 (suboption vii) and the 10 year average 1992-2001 (suboption viii). These year combinations were chosen specifically in an attempt to be responsive to considerations relative to bycatch levels prior to accession to the Yukon River Agreement (signed in 2002). Additional information on the Yukon River Agreement and the Pacific Salmon Treaty itself are contained in Chapter 1.

For analytical purposes the following range of numbers will be utilized to analyze the impacts of managing the pollock fishery under any of these cap levels (Table 2).

Table 2 Range of Chinook salmon caps for use in the analysis of impacts

	Chinook	CDQ	Non-CDQ
i)	87,500	6,563	80,938
ii)	68,100	5,108	62,993
iii)	48,700	3,653	45,048
iv)	29,300	2,198	27,103

1.2.1.1.1 Suboption: Periodic adjustments to cap based on updated bycatch information.

The Council would reassess updated salmon bycatch information after a certain number of years and determine if adjustments to the hard cap implemented under this action are needed. If the Council selects this option, it would specify when the reassessment of salmon bycatch information would occur. Any revisions to the salmon bycatch management measures would require additional analysis and rulemaking. The Council may reassess any management measure at any time and does not need to specify a particular time for reassessment of the salmon bycatch management measures.

1.2.1.2 Option 2: Framework Cap (cap set relative to salmon returns):

Caps under this option will be based on analysis by species and involve consideration of run-size impacts. Since this approach involves a number of uncertain components (e.g., river-of-origin, ocean survival, future expected run-size) the cap will be derived from estimated probabilities that account for this uncertainty. This option provides a framework so that the cap regulation could be modified as scientific information improves. Such changes in the cap are envisioned on a periodic basis (say every 2-5 years) as data and input variables critical to the model calculations improve and merit revisions to cap levels. Variables and data that are likely to change with improved scientific information include river of origin information on the stock composition of bycatch samples, stock size estimates by river system, and age-specific survival of salmon returning to individual river systems.

The developed modeling methods are designed to account uncertainty due to both natural variability and observation (measurement) errors. The cap formula would be based on the selection of an acceptable impact level (at specified probability) for a set of rivers or systems. This impact level can then be used to back-calculate the cap level. For example, a framework for this option might be to establish a cap that has only a 10% probability of exceeding a 10% impact level to a particular run. The impact measure relates the historical bycatch levels relative to the subsequent returning salmon run k in year t:

$$u_{t,k} = \frac{C_{t,k}}{C_{t,k} + S_{t,k}}$$

where $C_{t,k}$ and $S_{t,k}$ are the bycatch and stock size estimates of Chinook salmon. The calculation of $C_{t,k}$ includes the bycatch of salmon returning to spawn in year t and the bycatch from previous years of the same cohort (i.e., at younger, immature ages). This latter component needs to be decremented by highly uncertain ocean survival rates. Additionally, uncertainty on age-assignments and river-of-origin, as well as uncertainty of run-size impact these values. A complete description of the model, estimation procedure, and input values are detailed in Appendix X [Placeholder for appendix documentation]

A policy decision is required in specifying an acceptable (probability based) run-size impact level by river system in order to calculate a corresponding salmon bycatch cap level. For regulatory purposes, the adopted procedure must be based on objective criteria and may not be discretionary in nature. Clearly, the probability of an acceptable run size impact level is discretionary and therefore must be an approved fixed value that can vary only with completely revised analyses. The value is thus a policy decision before the Council. Other non-discretionary aspects of the approach may be modified as information improves following standard scientific guidelines and review by the SSC. For the present analysis, a range of impact levels and corresponding cap levels are provided to the Council for consideration and comparison with the fixed value cap levels specified under option 1.

1.2.2 Component 2: Sector Allocation

Under this component the hard cap is managed at the sector level for the fishery. This entails separate sector level caps for the CDQ sector, the shoreside catcher vessel (CV) fleet, the mothership fleet and the offshore catch processor (CP) fleet. The catch of salmon would be tabulated on a sector level basis, and if the total catch in that sector reaches specified for that sector, a fishery closure would occur for that sector for the remainder of the season. The remaining sectors may continue to fish unless they too reach their specific sector level cap. Options for hard caps are as specified under component 1, options 1 and 2. However using each of those options (and suboptions) for cap formulation, the cap is then subdivided into sector level caps according to the following formulas:

Divide the final cap by sectors based on:
Option 1) 10% of the cap to the CDQ sector, and the remaining allocated as follows: 50% inshore CV fleet; 10% for the mothership fleet; and 40% for the offshore CP fleet

This option is intended to follow the percentage allocation established for pollock under the AFA. Application of these percentages results in the following range of caps by sector, based upon the range of caps in component 1, option 1. Note that here the CDQ allocation of salmon is higher than under status quo (10% rather thatn.5%).

Table 3 Sector split caps resulting from option 1 percentage allocation: 10% CDQ and the remaining 90% divided 50% inshore CV fleet; 10% for the mothership fleet; and 40% for the offshore CP fleet

Option 1) Sector level caps

Sub Option	Fishery cap #s Chinook	CDQ	Inshore CV	Mothership	Offshore CPs
i)	87,500	8,750	39,375	7,875	31,500
ii)	68,392	6,839	30,776	6,155	24,621
iii)	57,333	5,733	25,800	5,160	20,640
iv)	47,591	4,759	21,416	4,283	17,133
v)	43,328	4,333	19,498	3,900	15,598
vi)	38,891	3,889	17,501	3,500	14,001
vii)	32,482	3,248	14,617	2,923	11,694
viii)	29,323	2,932	13,195	2,639	10,556

For analytical purposes the following ranges will be utilized (Table 4):

Table 4 Range of Sector level Chinook salmon caps for use in the analysis of impacts

	Chinook	CDQ	Inshore CV	Mothership	Offshore CPs
i)	87,500	8,750	39,375	7,875	31,500
ii)	68,100	6,810	30,645	6,129	24,516
iii)	48,700	4,870	21,915	4,383	17,532
iv)	29,300	2,930	13,185	2,637	10,548

Option 2) Historical average of percent bycatch by sector based on:

a) 3 year (2004-2006) average: CDQ 3%; inshore CV fleet 70%; mothership fleet 6%; offshore CP fleet 21%.

b) 5 year (2002-2006) average: CDQ 4%; inshore CV fleet 65%; mothership fleet 7%; offshore CP fleet 24%.

c) 10 year (1997-2006) average: CDQ 4%; inshore CV fleet 62%; mothership fleet 9%; offshore CP fleet 25%.

Under option 2, the subdivision of caps to each sector is now based upon historical average percent bycatch by sector over 3, 5, and 10 year time periods. Similar to the years considered for the overall cap formulation, the historical years do not consider the most recent (and historical high) of 2007.

Option 2a uses the historical averages of percent bycatch by sector from the most recent time period under consideration in this analysis (2004-2006). This results in the following average percentages by sector: CDQ 3%; inshore CV fleet 70%; mothership fleet 6%; offshore CP fleet 21%. Those percentages are applied to the range of caps under consideration in component 1, option 1 (Table 5)

Table 5 Sector level caps based upon historical average percent bycatch from 2004-2006 (option 2a)

Option 2a)
Sector level caps (2004-2006 average historical bycatch)

Sub Option	Fishery cap #s Chinook	CDQ 3%	Inshore CV 70%	Mothership 6%	Offshore CPs 21%
i)	87,500	2,625	61,250	5,250	18,375
ii)	68,392	2,052	47,874	4,104	14,362
iii)	57,333	1,720	40,133	3,440	12,040
iv)	47,591	1,428	33,314	2,855	9,994
v)	43,328	1,300	30,330	2,600	9,099
vi)	38,891	1,167	27,224	2,333	8,167
vii)	32,482	974	22,737	1,949	6,821
viii)	29,323	880	20,526	1,759	6,158

For analytical purposes the following range of sector split caps is shown in Table 6:

Table 6 Range of Sector level Chinook salmon caps (option 2a) for use in the analysis of impacts

	Fishery cap #s Chinook	CDQ	Inshore CV	Mothership	Offshore CPs
i)	87,500	2,625	61,250	5,250	18,375
ii)	68,100	2,043	47,670	4,086	14,301
iii)	48,700	1,461	34,090	2,922	10,227
iv)	29,300	879	20,510	1,758	6,153

Option 2b considers the historical averages of percent bycatch by sector from the 5 year time period (2002-2006). This results in the following average percentages by sector: CDQ 4%; inshore CV fleet 65%; mothership fleet 7%; offshore CP fleet 24%. Those percentages are applied to the range of caps under consideration in component 1, option 1 (Table 7)

Table 7 Sector level caps based upon historical average percent bycatch from 2002-2006 (option 2b)

Option 2b)
Sector level caps (2002-2006 average historical bycatch)

Sub Option	Fishery cap #s Chinook	CDQ 4%	Inshore CV 65%	Mothership 7%	Offshore CPs 24%
i)	87,500	3,500	56,875	6,125	21,000
ii)	68,392	2,736	44,455	4,787	16,414
iii)	57,333	2,293	37,266	4,013	13,760
iv)	47,591	1,904	30,934	3,331	11,422
v)	43,328	1,733	28,163	3,033	10,399
vi)	38,891	1,556	25,279	2,722	9,334
vii)	32,482	1,299	21,113	2,274	7,796
viii)	29,323	1,173	19,060	2,053	7,038

For analytical purposes the following range of sector split caps for this option are shown in Table 8.

Table 8 Range of Sector level Chinook salmon caps (option 2b) for use in the analysis of impacts

	Chinook	CDQ	Inshore CV	Mothership	Offshore CPs
i)	87,500	3,500	56,875	6,125	21,000
ii)	68,100	2,724	44,265	4,767	16,344
iii)	48,700	1,948	31,655	3,409	11,688
iv)	29,300	1,172	19,045	2,051	7,032

Option 2c considers the historical averages of percent bycatch by sector from the 10 year time period (1997-2006). This results in the following average percentages by sector: CDQ 4%; inshore CV fleet 62%; mothership fleet 9%; offshore CP fleet 25%. Those percentages are applied to the range of caps under consideration in component 1, option 1 (Table 9).

Table 9 Sector level caps based upon historical average percent bycatch from 2002-2006 (option 2b)

Option 2c)
Sector level caps (1997-2006 average historical bycatch)

Sub Option	Fishery cap #s Chinook	CDQ 4%	Inshore CV 62%	Mothership 9%	Offshore CPs 25%
i)	87,500	3,500	54,250	7,875	21,875
ii)	68,392	2,736	42,403	6,155	17,098
iii)	57,333	2,293	35,546	5,160	14,333
iv)	47,591	1,904	29,506	4,283	11,898
v)	43,328	1,733	26,863	3,900	10,832
vi)	38,891	1,556	24,112	3,500	9,723
vii)	32,482	1,299	20,139	2,923	8,121
viii)	29,323	1,173	18,180	2,639	7,331

For analytical purposes the following range of sector split caps for this option will be utilized (Table 10):

Table 10 Range of Sector level Chinook salmon caps (option 2c) for use in the analysis of impacts

	Chinook	CDQ	Inshore CV	Mothership	Offshore CPs
i)	87,500	3,500	54,250	7,875	21,875
ii)	68,100	2,724	42,222	6,129	17,025
iii)	48,700	1,948	30,194	4,383	12,175
iv)	29,300	1,172	18,166	2,637	7,325

1.2.3 Component 3: Sector Transfer

Option 1) Transfer salmon bycatch among sectors (industry initiated)
Option 2) NMFS would rollover unused salmon bycatch to other sectors and other cooperatives still fishing
[placeholder for description of this component]

1.2.4 Component 4: Cooperative provisions

These provisions apply for the in-shore catcher vessels cooperatives. Each cooperative would receive a salmon allocation managed at the cooperative level. In order to allow for effective monitoring and management requirements, except for catcher vessels that deliver unsorted cod ends, participation in the pollock fishery for vessels would require a minimum of 100% observer coverage or video monitoring to

ensure no at-sea discards. If the cooperative salmon cap is reached, the cooperative must stop fishing for pollock.

The initial allocation of salmon by cooperative within the shore-based CV fleet is based upon the percent of total sector pollock catch their co-op allocation represents. The annual pollock quota for this fleet is divided up based upon application of a formula in the regulations for catch by cooperative per the specific sum of the catch history of the vessels the cooperative represents. Under 679.62(e)(1), the individual catch history of each vessel is equal to the vessel's best 2 of 3 years inshore pollock landings from 1995 through 1997 and includes landings to catcher/processors for vessels that made 500 or more mt landings to catcher/processors from 1995 through 1997. Each year fishing permits are issued by cooperative with permit application listing the vessels added or subtracted. Fishing in the open access fishery is possible should a vessel leave their cooperative, and the shore-based CV quota allocation is partitioned to allow for the open access allocation under these circumstances.

The range of cooperative level allocations are based upon the 2008 pollock quota allocations and the options for the range of sector splits for the shore-based CV fleet based upon component 2, options 1 and 2 applied to component 1 options 1 and 2 (Table 11 to Table 14). For analytical purposes, the range of cooperative allocations will be analyzed using the ranges as indicated in Table 15 and Table 16.

Table 11 Inshore cooperative allocations resulting from application of component 2, option 1 allocation to the inshore CV fleet (50% of allocation after 10% to CDQ)

			Inshore cooperative allocation:							
Cap Suboption	Overall fishery cap level Chinook	Resulting Inshore sector allocation*	31.145% Akutan CV Assoc	1.146% Arctic Enterprise Assoc	9.481% Northern Victor Fleet coop	2.876% Peter Pan Fleet coop	12.191% Unalaska coop	24.256% Unisea Fleet coop	18.906% Westward Fleet coop	0.000% open access AFA vessels
i)	87,500	39,375	12,263	451	3,733	1,132	4,800	9,551	7,444	0
ii)	68,392	30,776	9,585	353	2,918	885	3,752	7,465	5,819	0
iii)	57,333	25,800	8,035	296	2,446	742	3,145	6,258	4,878	0
iv)	47,591	21,416	6,670	245	2,030	616	2,611	5,195	4,049	0
v)	43,328	19,498	6,073	223	1,849	561	2,377	4,729	3,686	0
vi)	38,891	17,501	5,451	201	1,659	503	2,134	4,245	3,309	0
vii)	32,482	14,617	4,552	168	1,386	420	1,782	3,545	2,763	0
viii)	29,323	13,195	4,110	151	1,251	379	1,609	3,201	2,495	0

*(50% CV after CDQ)

Table 12 Inshore cooperative allocations resulting from application of component 2, option 2a allocation to the inshore CV fleet (average historical bycatch from 2004-2006)

Cap Suboption	Overall fishery cap level Chinook	Resulting Inshore sector allocation*	Inshore cooperative allocation: 31.145% Akutan CV Assoc	1.146% Arctic Enterprise Assoc	9.481% Northern Victor Fleet coop	2.876% Peter Pan Fleet coop	12.191% Unalaska coop	24.256% Unisea Fleet coop	18.906% Westward Fleet coop	0.000% open access AFA vessels
i)	87,500	61,250	19,076	702	5,807	1,762	7,467	14,857	11,580	0
ii)	68,392	47,874	14,910	549	4,539	1,377	5,836	11,612	9,051	0
iii)	57,333	40,133	12,499	460	3,805	1,154	4,893	9,735	7,588	0
iv)	47,591	33,314	10,376	382	3,158	958	4,061	8,081	6,298	0
v)	43,328	30,330	9,446	348	2,876	872	3,697	7,357	5,734	0
vi)	38,891	27,224	8,479	312	2,581	783	3,319	6,603	5,147	0
vii)	32,482	22,737	7,082	261	2,156	654	2,772	5,515	4,299	0
viii)	29,323	20,526	6,393	235	1,946	590	2,502	4,979	3,881	0

*(70% based on 3 year average 2004-2006)

Table 13 Inshore cooperative allocations resulting from application of component 2, option 2b allocation to the inshore CV fleet (average historical bycatch from 2002-2006)

			Inshore cooperative allocation:							
			31.145%	1.146%	9.481%	2.876%	12.191%	24.256%	18.906%	0.000%
Cap Suboption	Overall fishery cap level Chinook	Resulting Inshore sector allocation*	Akutan CV Assoc	Arctic Enterprise Assoc	Northern Victor Fleet coop	Peter Pan Fleet coop	Unalaska coop	Unisea Fleet coop	Westward Fleet coop	open access AFA vessels
i)	87,500	56,875	17,714	652	5,392	1,636	6,934	13,796	10,753	0
ii)	68,392	44,455	13,845	509	4,215	1,279	5,419	10,783	8,405	0
iii)	57,333	37,266	11,607	427	3,533	1,072	4,543	9,039	7,046	0
iv)	47,591	30,934	9,634	355	2,933	890	3,771	7,503	5,848	0
v)	43,328	28,163	8,771	323	2,670	810	3,433	6,831	5,325	0
vi)	38,891	25,279	7,873	290	2,397	727	3,082	6,132	4,779	0
vii)	32,482	21,113	6,576	242	2,002	607	2,574	5,121	3,992	0
viii)	29,323	19,060	5,936	218	1,807	548	2,324	4,623	3,603	0

*(65% based on 5 year average 2002-2006)

Table 14 Inshore cooperative allocations resulting from application of component 2, option 2c allocation to the inshore CV fleet (average historical bycatch from 1997-2006)

			Inshore cooperative allocation:							
Cap Suboption	Overall fishery cap level Chinook	Resulting Inshore sector allocation*	31.145% Akutan CV Assoc	1.146% Arctic Enterprise Assoc	9.481% Northern Victor Fleet coop	2.876% Peter Pan Fleet coop	12.191% Unalaska coop	24.256% Unisea Fleet coop	18.906% Westward Fleet coop	0.000% open access AFA sels
i)	87,500	54,250	16,896	622	5,143	1,560	6,614	13,159	10,257	0
ii)	68,392	42,403	13,206	486	4,020	1,220	5,169	10,285	8,017	0
iii)	57,333	35,546	11,071	407	3,370	1,022	4,333	8,622	6,720	0
iv)	47,591	29,506	9,190	338	2,798	849	3,597	7,157	5,578	0
v)	43,328	26,863	8,367	308	2,547	773	3,275	6,516	5,079	0
vi)	38,891	24,112	7,510	276	2,286	693	2,940	5,849	4,559	0
vii)	32,482	20,139	6,272	231	1,909	579	2,455	4,885	3,807	0
viii)	29,323	18,180	5,662	208	1,724	523	2,216	4,410	3,437	0

*62% based on 10 year average 1997-2006

Table 15 Cap ranges for analysis of hard cap component 2, option 1 for component 4, cooperative provisions

			Inshore cooperative allocation:							
			31.145%	1.146%	9.481%	2.876%	12.191%	24.256%	18.906%	0.000%
Cap Suboption	Overall fishery cap level Chinook	Resulting Inshore sector allocation	Akutan CV Assoc	Arctic Enterprise Assoc	Northern Victor Fleet coop	Peter Pan Fleet coop	Unalaska coop	Unisea Fleet coop	Westward Fleet coop	open access AFA vessels
i)	87,500	39,375	12,263	451	3,733	1,132	4,800	9,551	7,444	0
ii)	68,100	30,645	9,544	351	2,905	881	3,736	7,433	5,794	0
iii)	48,700	21,915	6,825	251	2,078	630	2,672	5,316	4,143	0
iv)	29,300	13,185	4,106	151	1,250	379	1,607	3,198	2,493	0

Table 16 Cap ranges for analysis of hard cap component 2, option 2 (a-c) for component 4 cooperative provisions

			Inshore cooperative allocation:							
			31.145%	1.146%	9.481%	2.876%	12.191%	24.256%	18.906%	0.000%
Cap Suboption	Overall fishery cap level Chinook	Resulting Inshore sector allocation	Akutan CV Assoc	Arctic Enterprise Assoc	Northern Victor Fleet coop	Peter Pan Fleet coop	Unalaska coop	Unisea Fleet coop	Westward Fleet coop	open access AFA vessels
2a(i)	87,500	61,250	19,076	702	5,807	1,762	7,467	14,857	11,580	0
2a(ii)	68,100	47,670	14,847	546	4,520	1,371	5,811	11,563	9,012	0
2a(iii)	48,700	34,090	10,617	391	3,232	980	4,156	8,269	6,445	0
2a(iv)	29,300	20,510	6,388	235	1,945	590	2,500	4,975	3,878	0
2b(i)	87,500	56,875	17,714	652	5,392	1,636	6,934	13,796	10,753	0
2b(ii)	68,100	44,265	13,786	507	4,197	1,273	5,396	10,737	8,369	0
2b(iii)	48,700	31,655	9,859	363	3,001	910	3,859	7,678	5,985	0
2b(iv)	29,300	19,045	5,932	218	1,806	548	2,322	4,620	3,601	0
2c(i)	87,500	54,250	16,896	622	5,143	1,560	6,614	13,159	10,257	0
2c(ii)	68,100	42,222	13,150	484	4,003	1,214	5,147	10,241	7,982	0
2c(iii)	48,700	30,194	9,404	346	2,863	868	3,681	7,324	5,708	0
2c(iv)	29,300	18,166	5,658	208	1,722	522	2,215	4,406	3,434	0

When a salmon coop cap is reached, the coop must stop fishing for pollock and may:
Option 1) Lease their remaining pollock to another coop (inter-cooperative transfer) within their sector for that year (or similar method to allow pollock harvest with individual coop accountability)
[placeholder for NOAA GC description of specific provisions under which this can apply]
Option 2) Transfer salmon bycatch from other inshore cooperatives
[placeholder for inserting information on how cooperative transfers]
Rollover suboption: NMFS will rollover unused salmon bycatch to other sectors and inshore cooperatives still fishing [pull from component 3 option 2 discussion]

1.3 Alternative 3: Fixed closures (Chinook)

Fixed closure management measures are pre-defined regulatory times and areas where pelagic pollock trawling would be prohibited.

The CDQ groups would be required to comply with any fixed closures that were established to reduce salmon bycatch. This alternative does not include salmon bycatch PSC limits or allocations to the CDQ Program or among the CDQ groups.

Note per discussion and preliminary analysis below by option, staff has the following recommendations for fixed area closure option revisions.

Staff recommendations for revised Alternative 1.3 components:

1.3.1 Component 1: A season

One fixed closure option is proposed for the A season. This closure option was brought forward to the Council in February 2008 in conjunction with the industry's adoption of this closure region as a salmon savings conservation area under the 2008 ICA agreement.

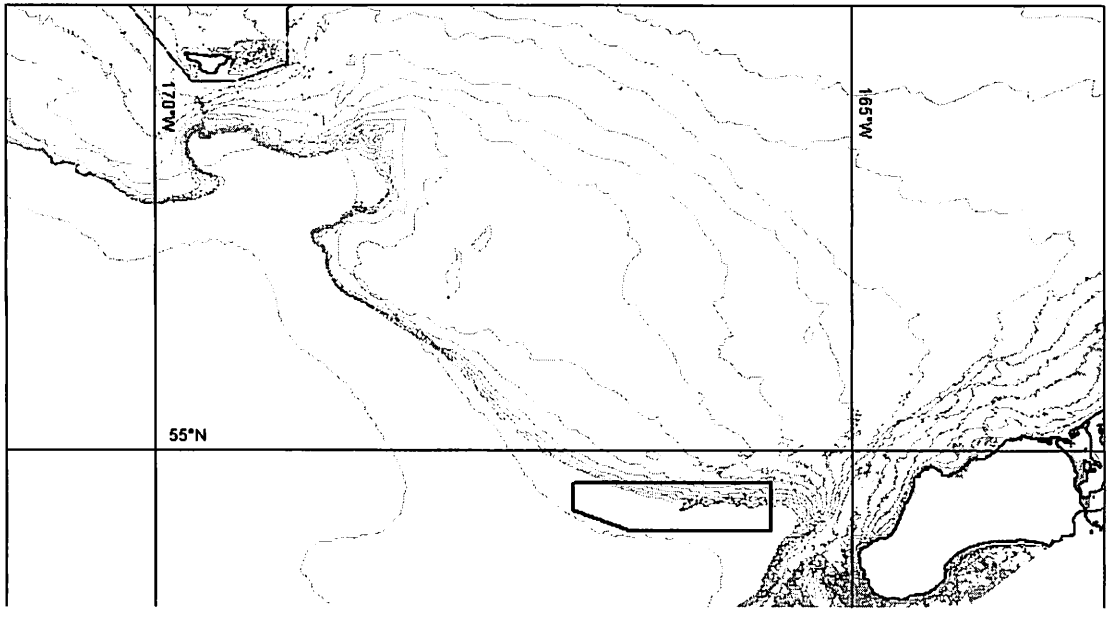


Table 17 A season fixed closure coordinates

55° 0'	166° 30'	56° 8'	170° 0'
55° 0'	165° 30'	56° 8'	168° 15'
55° 53'	165° 30'	56° 8'	168° 0'
55° 53'	165° 0'	55° 30'	166° 0'
54° 45'	165° 0'	55° 30'	165° 30'
54° 15'	165° 15'	56° 30'	165° 30'
54° 30'	166° 30'	56° 30'	170° 0'
56° 0'	169° 15'	56° 8'	170° 0'
56° 0'	168° 15'		
55° 0'	166° 30'		

This duration of this closure would be for the entire A season. Table 18 below shows the relative seasonal pollock catch as compared to the overall Chinook catch in the A season as well as the break-outs by week within this area and outside of it. This closure is a very small defined area with relatively limited pollock catch effort by week and occasionally high rates of Chinook catch.

Table 18 A season rates (Chinook/t of pollock) in and outside of proposed closures relative to the proportion of pollock, Chinook and effort observed inside of proposed area based on 2004-2006 NMFS observer data broken out by week.

Period	Closure	Rate In	Rate Outside	Pollock inside	Chinook inside	Effort inside
A-season	ICA	0.752	0.057	1%	8%	1%
Jan 20-25	ICA	-	0.046	0%	0%	0%
Jan 26-31	ICA	-	0.044	0%	0%	0%
Feb 1-7	ICA	0.780	0.061	5%	37%	3%
Feb 8-14	ICA	0.661	0.075	1%	6%	1%
Feb 15-30	ICA	-	0.065	0%	0%	0%
Feb 22-28	ICA	-	0.054	0%	0%	0%
March 1-7	ICA	0.450	0.049	0%	2%	1%

~~1.3.1 Component 1: Timing options~~

~~**Option 1)** Closure during portion or all of A season~~
~~**Option 2)** Closure during portion of all of B season~~
Staff comments: The timing associated with the closure options are indicated in conjunction with specific closures themselves thus this component as structured is unnecessary

~~1.3.2 Component 2: Area options~~

~~**Option 1)** Closures areas defined by historic effort~~
~~1a) Fixed A season closure (Chinook)~~ Note this is folded into the staff recommendation for fixed

1(c)? Strikeout

comprised of ADF&G statistical areas and vary by week based upon weekly analysis of the highest bycatch by stat areas over ther ar timeframe considered (2004-2006). Further analysis and consideration of this option ind tes that the catch rates are not as high (for salmon or as low for pol ck) in these areas as previously considered in February. Closure of these areas is not likely to achieve desirable bycatch reduction. **For these reasons, staff recommends striking this closure option from further consideration at this time.**

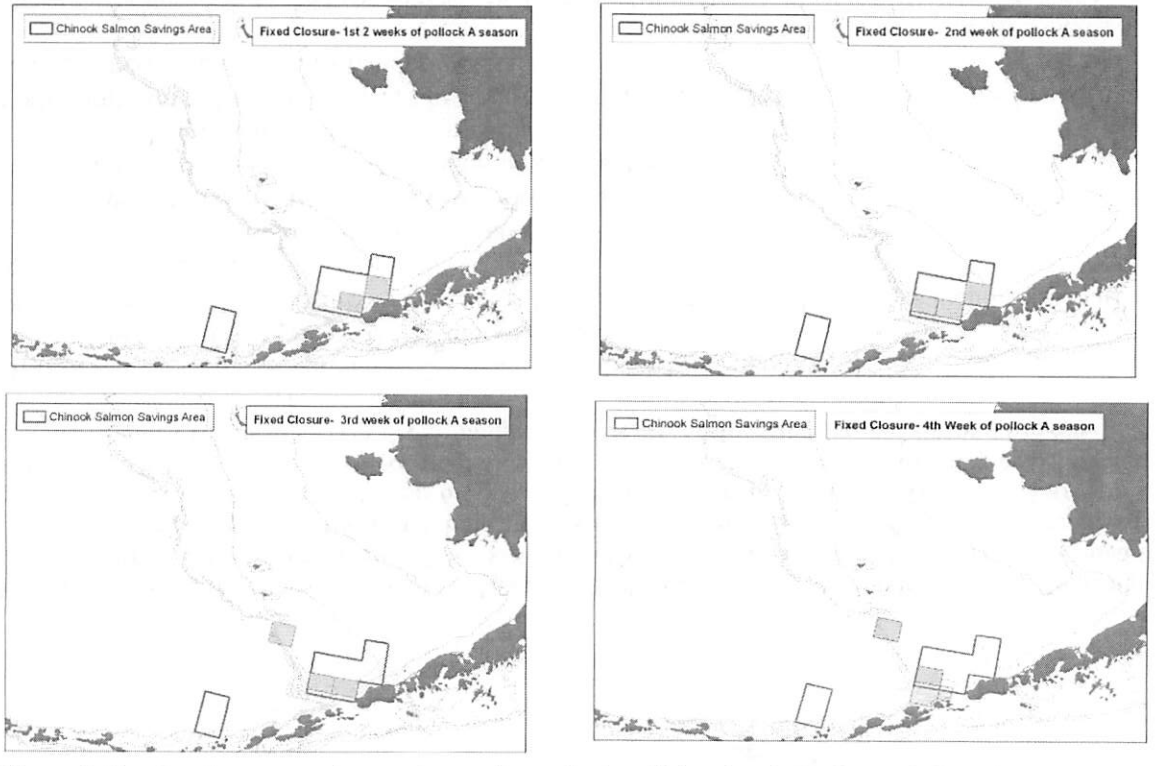


Figure 2 Previously proposed area closure for reducing Chinook salmon bycatch for BS pelagic trawlers during the pollock A season[Note these closures are no longer recommended for includsion in the alternatives at this time]. Panel a) Area closures for 1st two weeks of Pollock A season. Areas are composed by ADF&G statistical areas 645501 and 655430. Panel b) Area closures for 2nd week of pollock A season. Areas are composed by ADF&G statistical areas 645501, 655430 and 665430. Panel c) Area closures for 3rd week of pollock A season. Areas are composed by ADF&G statistical areas 655430, 665430, and 685530. Panel d) Area closures for 4th week of pollock A season. Areas are composed by ADF&G statistical areas 665430, 685530, 665401, and 655409.

~~1c) Sequential two-week B season closures (Chinook)~~

This closure was indicated by staff in February to be undesirable as currently configured due to the lack of consideration of existing and competing closure over the time period under consideration in the B season for this closure. Staff have proposed B season closures that attempt to account for the closure consideration over the time period being evaluated**. This closure is not recommended by staff for inclusion in the analysis as it is likely mis-specified and thus unlikely to achieve desirable bycatch reduction.**

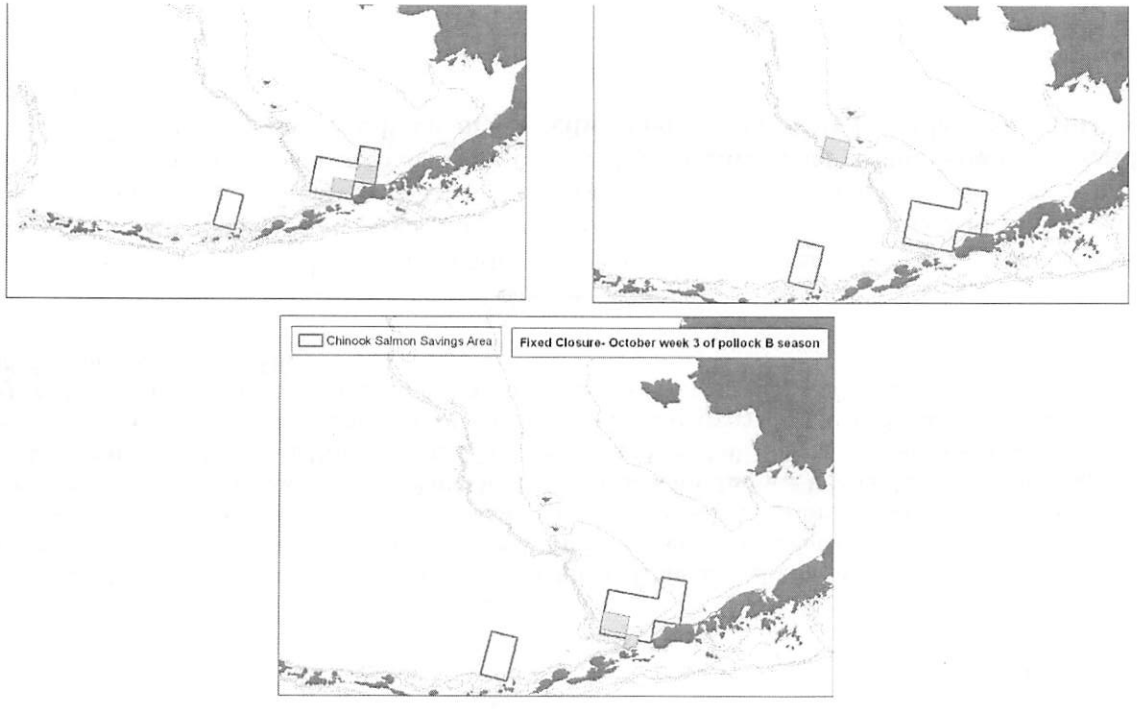


Figure 3 Previously proposed fixed area closure for reducing Chinook salmon bycatch for BS pelagic trawlers during 1st week of October Pollock B season[Note these areas are no longer recommended for inclusion as area closures at this time]. Panel a) Areas closed during 1st week of pollock B season. Areas are composed by ADF&G statistical areas 645501 and 655430. Panel b) Area closed during 2nd week of pollock B season Area is composed by ADF&G statistical area 705600. Panel c) Areas closed during 3rd week of October Pollock B season. Areas are composed by ADF&G statistical areas 655409 and 665430.

~~**Option 2)** Candidate Closure areas defined by rate-based criteria~~

~~2a)~~ Rate-based criteria 0.10 Chinook/pollock (t)

Staff comments: This closure configuration has been modified slightly and is included in staff recommendations below.

~~2b) Rate-based criteria 0.125 Chinook/pollock (t)~~

~~2c) Rate-based criteria 0.15 Chinook/pollock (t)~~

~~2d) Rate-based criteria 0.175 Chinook/pollock (t)~~

~~2e)~~ Rate-based criteria 0.20 Chinook/pollock (t)

Staff comments: Note this rate has been utilized to define an area closure but results in a different configuration than that previously proposed.

These four rates as indicated above were analyzed in 10km square blocks with associated rate-break cutoffs and are shown in the trigger closure section. However, the higher rate-break closures as indicated for suboption 2e) in February as shown in Figure 4 resulted in a closure configuration of combined patchwork-like small, disassociated closures. Given the known difficulty in managing and enforcing a closure of this type, staff reevaluated both the large and small scale area closures using the rate-based criteria and proposed alternati nfigurations (under Alternative 4, Triggered closures). The revis closures are intended by staff to provide a more realistic closure scenario for management and

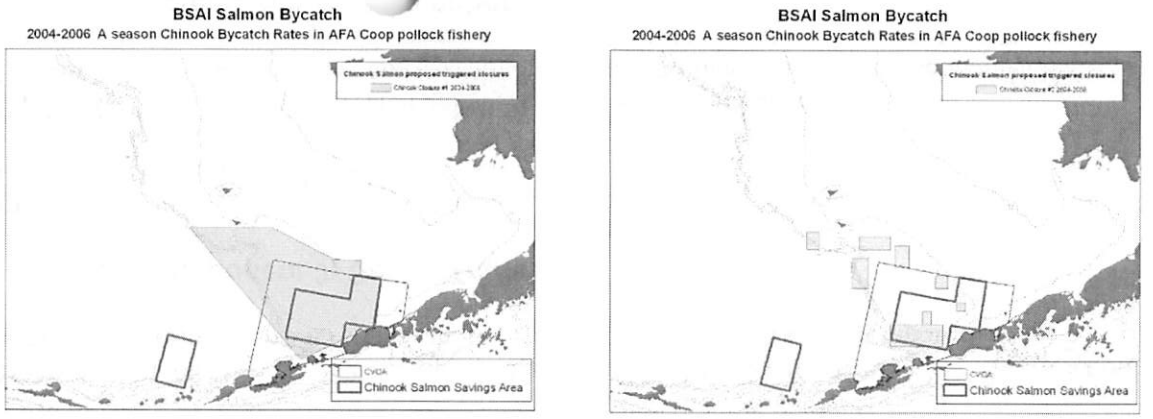


Figure 4 Previously recommended closure configuration based upon rate based closure configurations[Note revised closures to replace these are included in Alternative 4 staff suggestions]: panel a) threshold criteria of 0.10 Chinook/t of pollock using 2004-2006 observer estimates in the pollock A season. Panel b) threshold bycatch rate 0.20 Chinook/t of pollock using 2004-2006 observer estimates in the pollock A season.

~~**Option 3**) Candidate Closure areas defined by percent bycatch reduction criteria~~

~~3a) 50% bycatch reduction closure~~

~~3b) 75% bycatch reduction closure~~

Staff comments: These closure configurations have some problems with the data utilized to formulate the closure itself and are not thought to achieve the desired bycatch reduction goal as currently configured (**Figure 5**). Equivalent bycatch reduction goals can be met instead by the triggered closure configurations proposed by staff in the recommendations to follow. Further these closure configurations as recommended by staff are also categorized to indicate the relative percentage bycatch reduction achieved over time with the closure and hence meets the equivalent goal of bycatch reduction as perceived in these options.

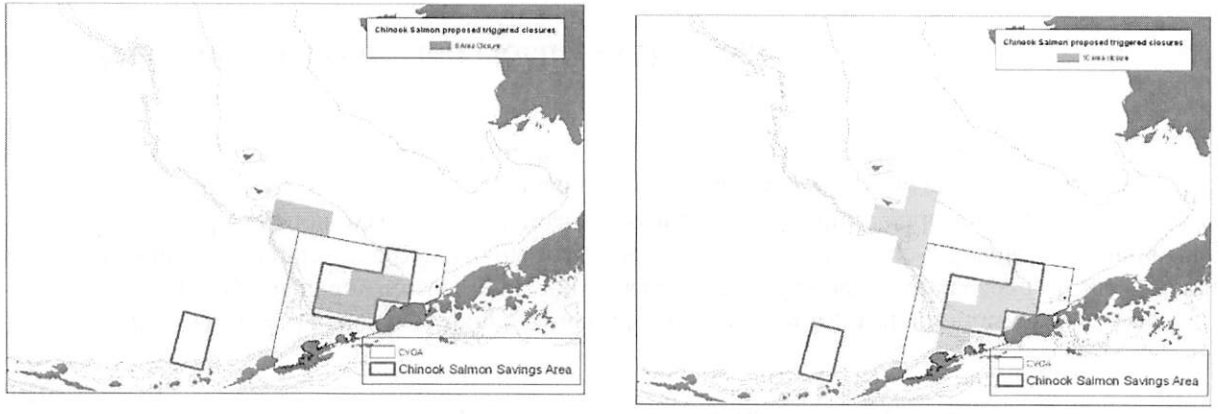


Figure 5 Previously recommended closure configurations based on overall bycatch reduction goals[Note

1.3.2.1.1 Suboption: Periodic adjustments to areas based on updated bycatch information.

The Council will reassess updated salmon bycatch information after a certain number of years and determine if adjustments to any closure areas implemented under this action are needed. If the Council selects this option, it would specify when the reassessment of salmon bycatch information would occur. Any revisions to the salmon bycatch management measures would require additional analysis and rulemaking. The Council may reassess any management measure at any time and does not need to specify a particular time for reassessment of the salmon bycatch management measures.

1.4 Alternative 4: Triggered closures (Chinook)

Triggered closures are regulatory time area closures that are invoked when cap levels are reached. Cap levels for triggered closures would be formulated in a way similar to those specified under alternative 2. The duration of the closure may vary according to stair-stepped cap levels whereby additional areas close (or reopen) depending on seasonal thresholds for species specific bycatch levels. Closures may involve a single area or multiple areas. Additional details on candidate closure areas and times are presented below.

Absent a subdivided cap, the CDQ Program would receive allocations of 7.5 percent of any BS Chinook salmon trigger cap and 10.7 percent of any non-Chinook salmon trigger cap as PSQ reserves. These PSQ reserves would be further allocated among the six CDQ groups based on percentage allocations approved by NMFS on August 8, 2005. Areas would close to directed pollock fishing for a particular CDQ group when that group's trigger cap is reached.

1.4.1 Component 1: Trigger Cap Formulation

Cap formulation for trigger caps is equivalent to those under consideration for hard caps. See section 1.2.1 for additional information on how caps are to be formulated for this component.

1.4.2 Component 2: Sector Allocation

Sector allocations are equivalent to those under consideration for hard caps. See section 1.2.2 for additional information on how caps are to be allocated by sector for this component.

1.4.3 Component 3: Sector Transfer

[placeholder in case there are any necessary changes to sector transfer provisions under this component from hard cap component]

Option 1) Transfer salmon bycatch among sectors (industry initiated)
Option 2) NMFS will rollover unused salmon bycatch to other sectors and other cooperatives still fishing

1.4.4 Component 4: [illegible] options

compared against longer-term historical data (1992-2007) and individual years, particularly those years in which the exemption to regular closures was in place (2007 A season, 2006-2007 B seasons).

~~**Option 1: Timing options**~~

~~i. A season~~

~~ii. B season~~

~~**Option 2: Area options**~~

~~i. Adjust area according to the number of salmon caught~~

~~ii. Single area closure~~

~~iii. Multiple area closures~~

~~Candidate areas (need to fold into option 2 above)~~

~~1) Closures areas defined by historic effort~~

~~1a) Fixed A season closure (Chinook)~~

~~1b) Sequential two-week A season closures (Chinook)~~

~~1c) Sequential two-week B season closures (Chinook)~~

~~2) Candidate Closure areas defined by rate-based criteria~~

~~2a) Rate-based criteria 0.10 Chinook/pollock (t)~~

~~2b) Rate-based criteria 0.125 Chinook/pollock (t)~~

~~2c) Rate-based criteria 0.15 Chinook/pollock (t)~~

~~2d) Rate-based criteria 0.175 Chinook/pollock (t)~~

~~2e) Rate-based criteria 0.20 Chinook/pollock (t)~~

~~3) Candidate Closure areas defined by percent bycatch reduction criteria~~

~~3a) 50% bycatch reduction closure~~

~~3b) 75% bycatch reduction closure~~

Staff recommendations for triggered Chinook closures:

Three A season and two B season closures are put forward as triggered closure options for Chinook salmon. Further details on the areas, amount of pollock per Chinook catch seasonally and by week as well as the proposed proportion of the trigger and timing of closure thereof are listed for each configuration. Closures are reorganized as A and B season options. Each closure option as presented may be considered as a single closure option as listed, as well as a part of a package of expanding area closure option as noted in the options listed.

The following table summarizes by season the rates and relative catch inside the proposed closure area by season (Table 19 A-season and B-season rates (Chinook/t of pollock) in and outside of proposed closures relative to the proportion of pollock, Chinook, and effort, observed inside proposed areas based on 2004-2006 NMFS observer data.). Additional information on the weekly catch and effort are contained in the summary tables for each closure section below.

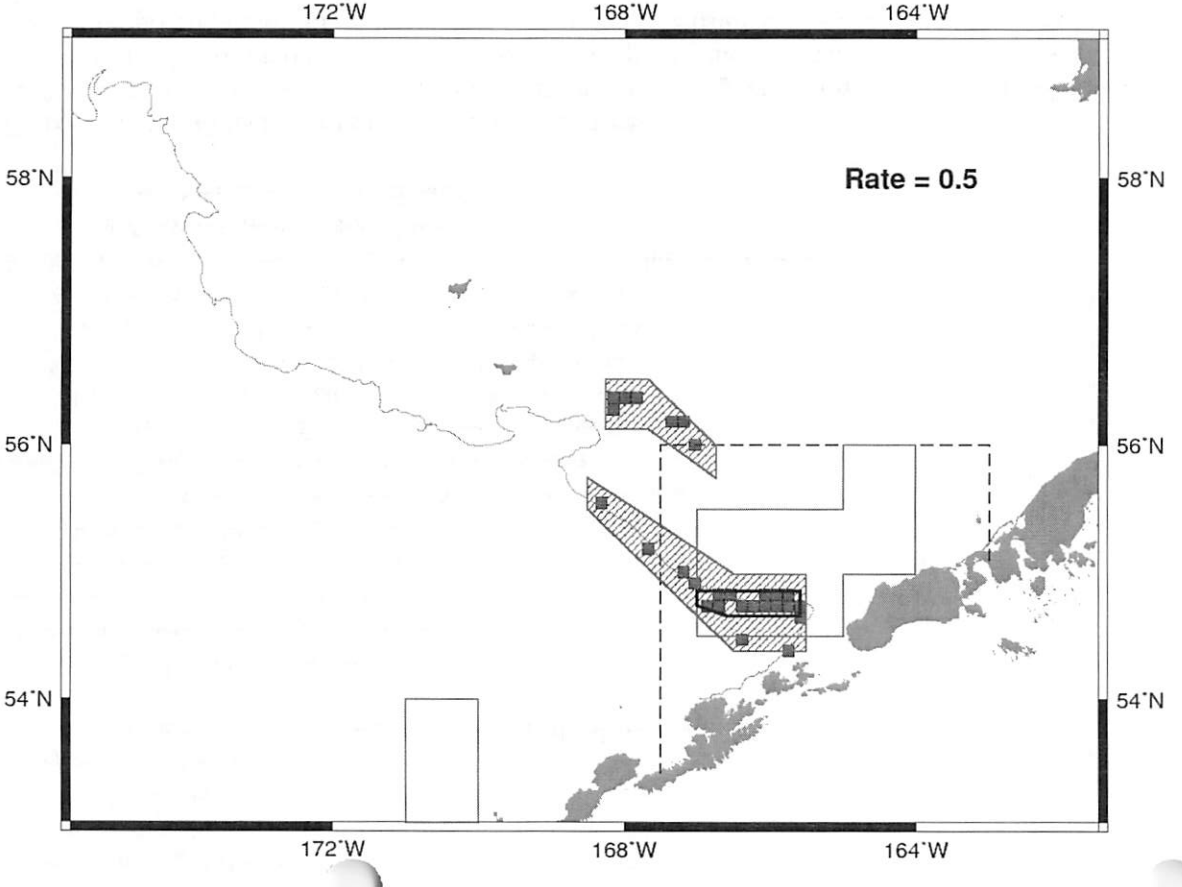
the proportion of pollock, Chinook, and effort, observed inside proposed areas based on 2004-2006 NMFS observer data.

Season	Closure	Rate In	Rate Outside	Pollock inside	Chinook inside	Effort Inside
A	ICA	0.752	0.057	1%	8%	1%
A	Small	0.300	0.049	5%	24%	5%
A	Med	0.121	0.036	30%	59%	31%
A	Big	0.089	0.020	59%	86%	59%
B	Small	0.295	0.023	3%	28%	5%
B	Big	0.078	0.012	29%	73%	41%

Option 1: A season closures

Option 1a) Small closure.

This closure was identified by rate-based analysis delineating regions where average bycatch rates summarized by 10 km square blocks exceeded 0.5 Chinook per ton of pollock(Figure 6).



5% of the total pollock catch from 2004-2006 (Table 19). By week the area has the highest amounts of Chinook catch throughout the [illegible]h of February (Table 23 A-season rates (Chinook/t of pollock) i[illegible] outside of proposed closures re[illegible]e to the proportion of pollock, Chinook, and effort, observed insi[illegible] proposed areas based on 2004-2006 NMFS observer data broken out by week.). The coordinates of the closure are the following (Table 20):

Table 20 Option 1a) Small area A-season coordinates

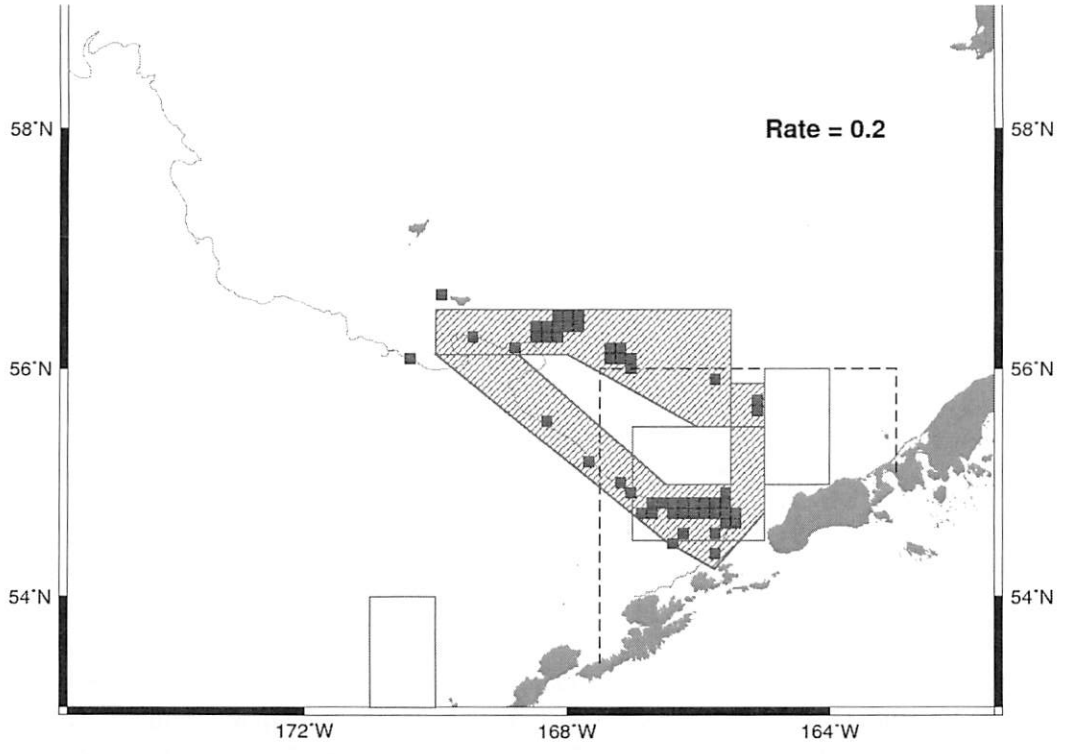
55° 00'	166° 30'	56° 08'	168° 15'
55° 00'	165° 30'	56° 30'	168° 15'
54° 23'	165° 30'	56° 30'	167° 41'
54° 23'	165° 30'	56° 00'	166° 45'
54° 23'	166° 30'	55° 45'	166° 45'
55° 30'	168° 30'	56° 08'	167° 41'
55° 45'	168° 30'	56° 08'	168° 15'
55° 00'	166° 30'	56° 08'	168° 15'

As a single closure, the trigger for this closure is proposed as follows:
[Additional information on the proportional trigger cap level for all closures will be provided in the Council briefing materials].

If included as a multiple area closure (option for A season stairstep) this would be the first step of the area closure. More information on that is contained in the description of option 1d.

Option 1b) Medium closure

This closure was identified by rate-based analysis delineating regions where average bycatch rates summarized by 10 km square blocks exceeded 0.2 Chinook per ton of pollock (Figure 7). Here the area comprised by the closure accounts for 59% of the Chinook and 30% of the pollock on average over the



2006

Figure 7 Proposed A season medium area closure (option 1b)

By week this closure encompasses consistently high Chinook (>20% by week, ranging as high as 79% in mid-February) with percentages of pollock catch ranging by week from 10-44% (Table 23). This particular area was constructed to include a range of areas comprised of finer-scale rate-based 10km square grids as requested by the Council in their February 2008 motion. This broader-scale area closure encompassing the finer-scale rate breakouts (as indicated in Figure 8) is recommended rather than consideration of individual, smaller-scale, disassociated small block closures by rate-based criteria which increase analytical burden and are more difficult to both manage and enforce.

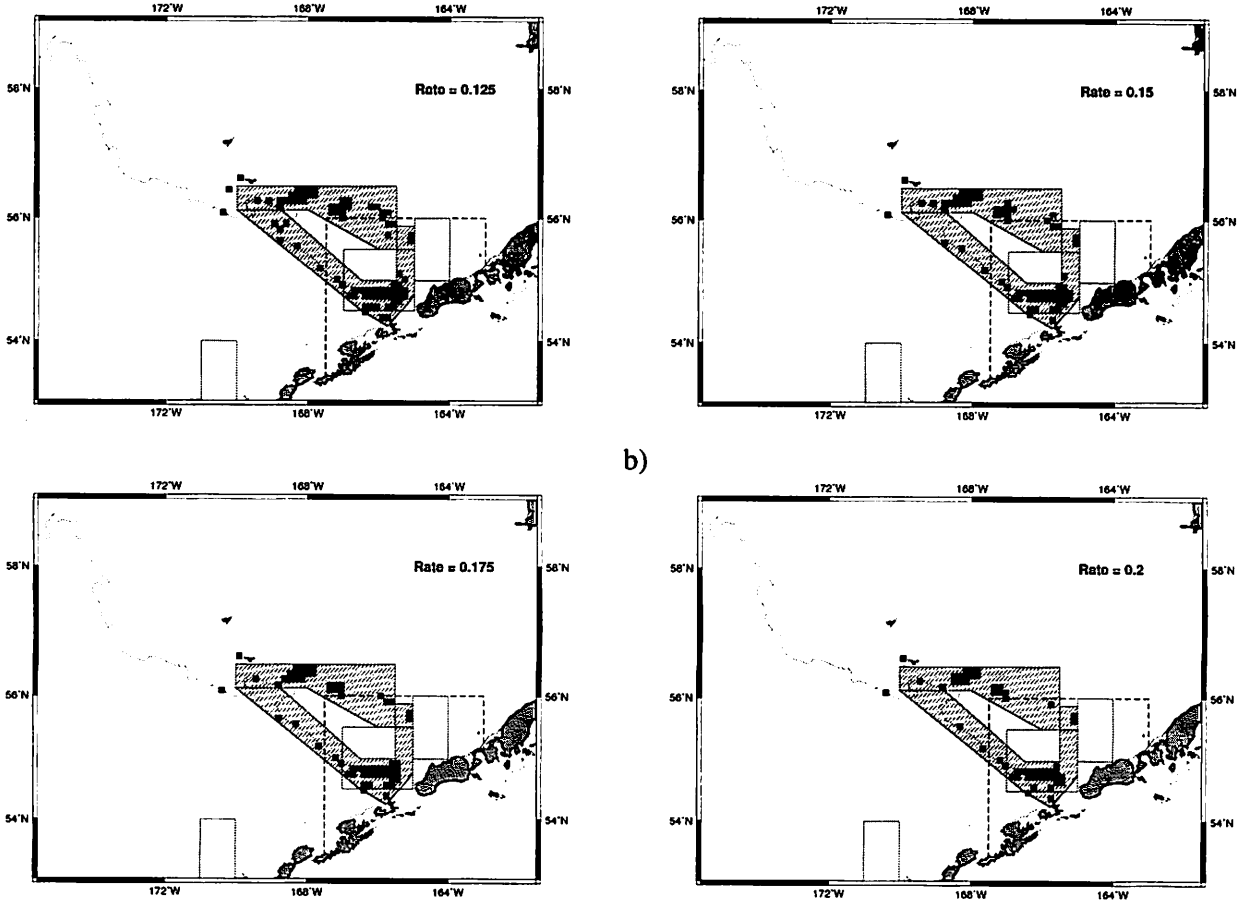
The coordinates of this closure are shown in Table 21.

Table 21 Option 1b A-season area closure coordinates

55° 00'	166° 30'	56° 08'	170° 00'
55° 00'	165° 30'	56° 08'	168° 45'
55° 53'	165° 30'	56° 08'	168° 00'
55° 53'	165° 00'	55° 30'	166° 00'
54° 45'	165° 00'	55° 30'	165° 30'
54° 15'	165° 45'	56° 30'	165° 30'
54° 30'	166° 30'	56° 30'	170° 00'
56° 08'	170° 00'	56° 08'	170° 00'
56° 08'	168° 45'		
55° 00'	166° 30'		

Council briefing materials).

If included as a multiple area c.. .re (option 1d for A season stair-step expanding area closure) this would be the second step of the expanding area closure option. More information on that is contained in the description of option 1d.



a) b)

c) d)

Figure 8 Range of rate-based area for consideration as candidate closures per February 2008 Council motion panel a) 0.125 Chinook/t of pollock; panel b)0.15 Chinook/t of pollock; panel c) 0.175 Chinook/t of pollock; panel d) 0.2 Chinook/t of pollock. For reference the proposed option 1b area closure is shown in dappled shading.

In February 2008, the Council reviewed candidate closures using a rate-based methodology that included rate-based cutoffs of 0.1 Chinook/ton pollock and 0.2 Chinook/ton pollock. At that time the Council requested that staff evaluate a range of options between these two end points with the intent to evaluate if these would provide for additional closure configurations. Figure 8 shows the relative 10km square blocks with rate cutoffs based on the following ranges, 0.125, 0.15, 0.175 and 0.2. For comparison against the closure designed on the rate-based cutoff of 0.2, the shaded area is included in all of the snapshots. As this figure demonstrates, the distinction between closure configurations based on the mid-range of orates between 0.1 to -.2 Chinook/t pollock does not appear substantial enough to merit additional closures for these break-outs at this time. **Staff does not recommend continuing to include**

Option 1c) Large area

This closure was identified by rate-based analysis delineating regions where average bycatch rates summarized by 10 km square blocks exceeded 0.1 Chinook per ton of pollock (Figure 9). Here the area comprised by the closure accounts for 85% of the Chinook and 59% of the pollock on average over the entire A season for the 3 year time period 2004-2006 (Table 23).

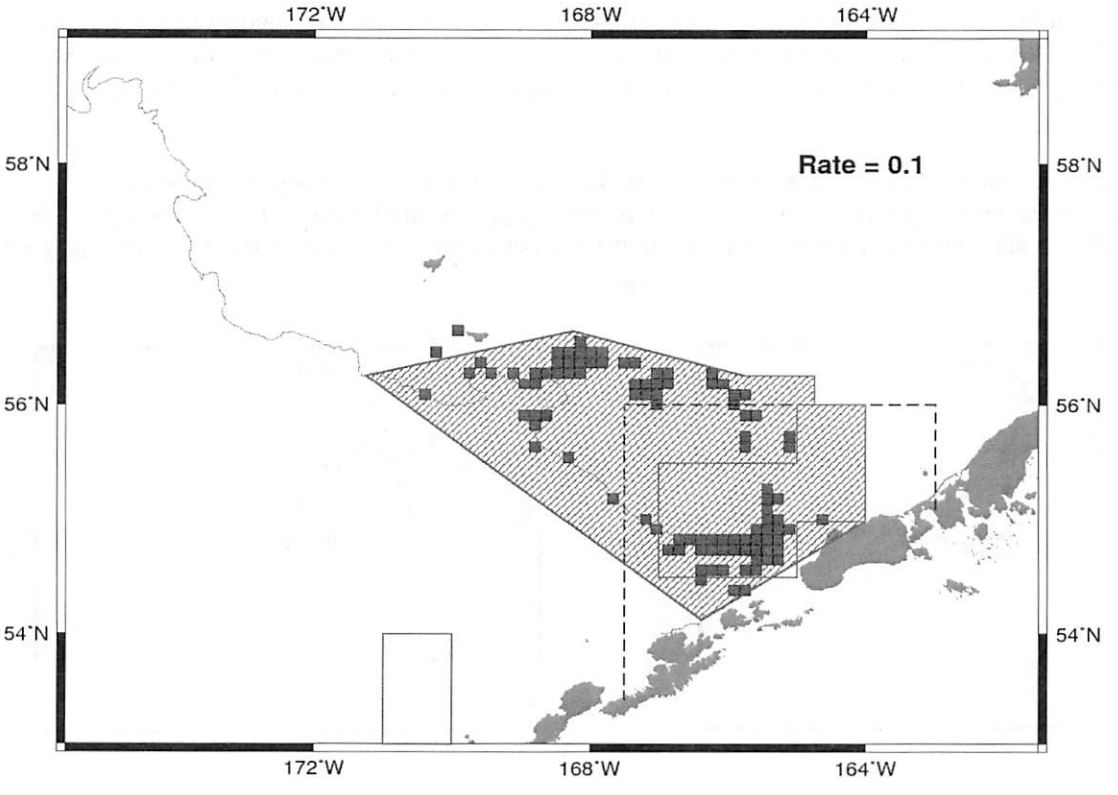


Figure 9 Option 1c large A season proposed are closure in conjunction with 10km sq blocks indicating bycatch rates in excess of 0.1 rates based on 2004-2006 NMFS observer data.

The coordinates of this closure are the following (Table 22):

Table 22 Option 1c)A-season large area coordinates

56° 15'	171° 15'	56° 00'	164° 45'
56° 38'	168° 15'	56° 00'	164° 00'
56° 15'	165° 45'	55° 00'	164° 00'
56° 15'	164° 45'	54° 08'	166° 23'
		56° 15'	171° 15'

By week this closure encompasses consistently high Chinook (>73% by week, ranging as high as 97%) with very high percentages of pollock catch ranging by week from 46-83% (Table 23)).

As a single closure option, the ' er for this region would be formulated as follows:
[Additional information on the p portional trigger cap level for all closures will be provided in the

description of option 1d.

Table 23 A-season rates (Chinook/t of pollock) in and outside of proposed closures relative to the proportion of pollock, Chinook, and effort, observed inside proposed areas based on 2004-2006 NMFS observer data broken out by week.

Period	Closure	Rate In	Rate Outside	Pollock inside	Chinook inside	Effort
All A-season	**ICA**	**0.752**	**0.057**	**1%**	**8%**	**1%**
Jan 20-25	ICA	-	0.046	0%	0%	0%
Jan 26-31	ICA	-	0.044	0%	0%	0%
Feb 1-7	ICA	0.780	0.061	5%	37%	3%
Feb 8-14	ICA	0.661	0.075	1%	6%	1%
*Feb 15-30	ICA	-	0.065	0%	0%	0%
*Feb 22-28	ICA	-	0.054	0%	0%	0%
*March 1-7	ICA	0.450	0.049	0%	2%	1%
All A-season	**Small**	**0.300**	**0.049**	**5%**	**24%**	**5%**
Jan 20-25	Small	0.129	0.045	1%	1%	0%
Jan 26-31	Small	0.156	0.044	0%	1%	0%
Feb 1-7	Small	0.560	0.060	7%	41%	4%
Feb 8-14	Small	0.166	0.063	15%	32%	16%
*Feb 15-30	Small	0.247	0.046	10%	36%	10%
*Feb 22-28	Small	0.381	0.044	3%	20%	4%
*March 1-7	Small	0.231	0.048	1%	5%	2%
All A-season	**Medium**	**0.121**	**0.036**	**30%**	**59%**	**31%**
Jan 20-25	Medium	0.109	0.039	10%	24%	10%
Jan 26-31	Medium	0.067	0.040	14%	21%	11%
Feb 1-7	Medium	0.245	0.047	24%	62%	23%
Feb 8-14	Medium	0.131	0.037	44%	74%	46%
*Feb 15-30	Medium	0.134	0.022	39%	79%	41%
*Feb 22-28	Medium	0.092	0.025	44%	74%	46%
*March 1-7	Medium	0.076	0.036	36%	55%	39%
All A-season	**Big**	**0.089**	**0.020**	**59%**	**86%**	**59%**
Jan 20-25	Big	0.053	0.009	83%	97%	75%
Jan 26-31	Big	0.058	0.016	67%	88%	66%
Feb 1-7	Big	0.126	0.017	71%	95%	69%
Feb 8-14	Big	0.104	0.017	71%	94%	71%
*Feb 15-30	Big	0.115	0.014	51%	90%	51%
*Feb 22-28	Big	0.084	0.020	54%	83%	57%
*March 1-7	Big	0.079	0.026	46%	73%	51%

*Note that in 2006 directed fishing for pollock in the non-CDQ trawl fishery in the Chinook Salmon Savings Area closed on February 15th until April 15th.

reached (Figure 10). This stair-step begins with the closure of area 1a at trigger level 1, then if bycatch continues and trigger level 2 is reached, area 1b closes. If bycatch continues high enough to reach trigger level 3, then area 1c closes. Here closures once triggered are considered to remain closed for the remainder of the season. Additional information will be provided in the Council briefing materials with respect to how these specific proportional trigger levels would be formulated.

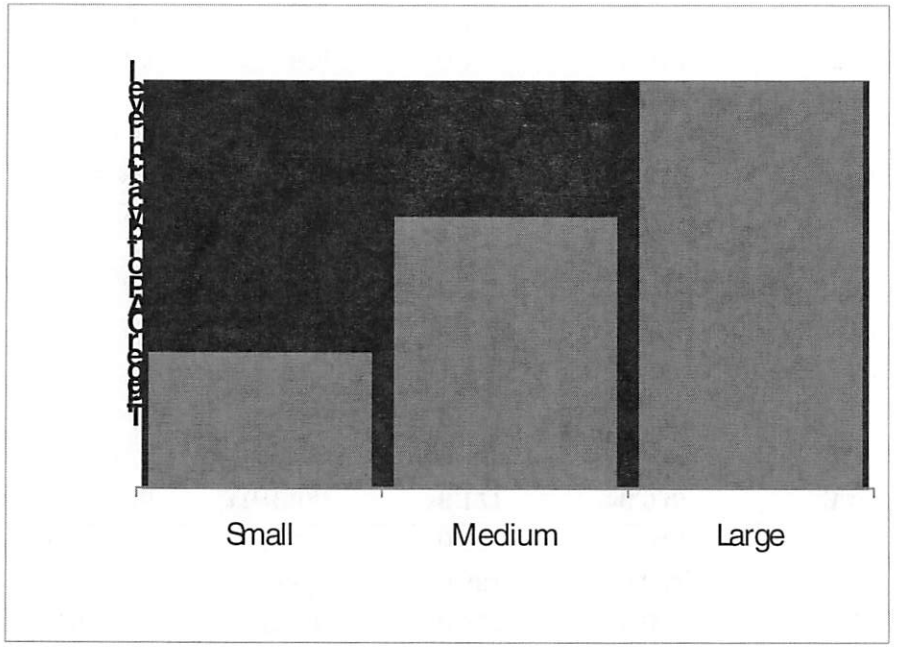


Figure 10: Diagram of example cap thresholds (Y axis) and resulting area closures (x axis) under the option 1d expanding area closure option.

Option 2: B season area closure options:
Two different closure configurations are proposed as B season closure options. These closures could be considered as separate triggered closures options as described in the suboptions below or considered as a combined stairstep closure beginning with the smaller closure and moving to the larger area closure dependant upon reaching the appropriate trigger threshold.

Option 2a) Small closure:

This closure was identified by rate-based analysis delineating regions where average bycatch rates in the 10 km square blocks exceeded 0.5 Chinook salmon per ton of pollock (Figure 11). Over the entire B season the area defined from this closure contained 28% of the Chinook catch and only 3% of the total pollock catch from 2004-2006 (Table 19). Weekly rates on average over the time period considered show relatively high Chinook catch by week compared to pollock catch in this area throughout September to October (Table 26).

Table 24 Option 2a) Small area B-season coordinates

56° 08'	171° 30'	5	5' 167° 00'
56° 24'	171° 30'	56° 00'	170° 00'
56° 15'	170° 15'	56° 00'	170° 00'
55° 00'	166° 45'	56° 08'	171° 30'

As a single closure, the trigger for this closure is proposed as follows:
[Additional information on the proportional trigger cap level for all closures will be provided in the Council briefing materials].

If included as a multiple area closure (option 2c for B season stair-step area closure) this would be the first step of the area closure. More information on that is contained in the description of option 2c. .

Option 2b) Large closure
This closure was identified by rate-based analysis delineating regions where average bycatch rate exceeded 0.1 Chinook salmon per ton of pollock (Figure 11). Over the entire B season the area defined from this closure contained 73% of the Chinook catch and only 29% of the total pollock catch from 2004-2006 (Table 19). Weekly rates on average over the time period considered show relatively high Chinook catch by week compared to pollock catch in this area throughout September to October (Table 26).

The coordinates of the closure are the following:
Table 25 Option 2b Big area B-season coordinates

58° 30'	175° 00'	54° 20'	165° 30'
59° 00'	175° 00'	53° 53'	166° 30'
56° 30'	171° 00'	54° 30'	167° 00'
56° 30'	165° 30'	56° 00'	170° 00'
55° 53'	165° 30'	56° 00'	170° 00'
54° 45'	165° 30'	56° 00'	171° 30'
		58° 30'	175° 00'

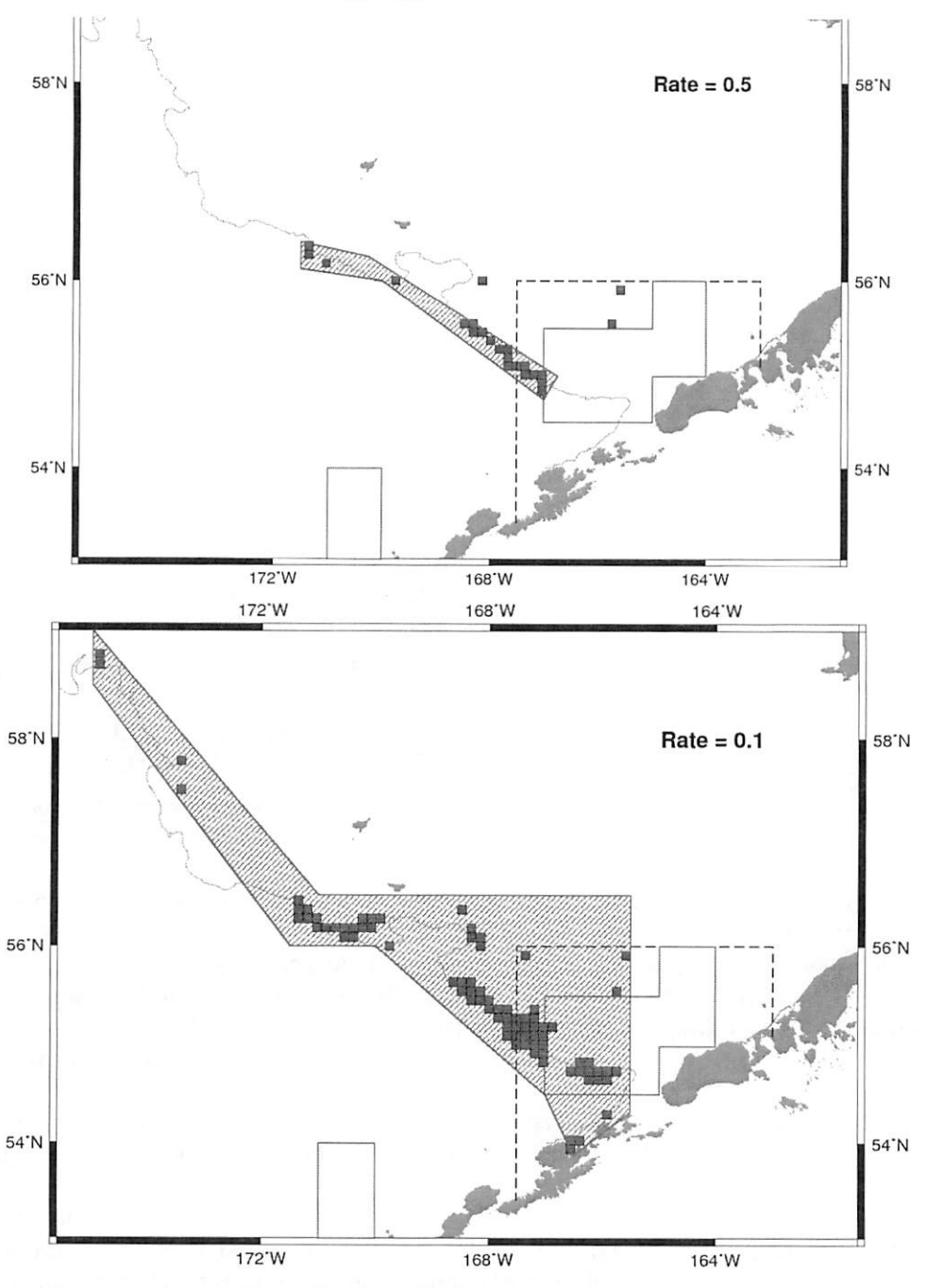


Figure 11 Comparisons of the proposed B-season Chinook closed areas (big, and small) and 10km cells where the Chinook bycatch catch per t of pollock exceeded the average indicated by "Rate = …" legends. Values based on 2004-2006 NMFS observer data.

As a single closure, the trigger for this closure is proposed as follows: [Additional information on the proportional trigger cap level f closures will be provided in the Council briefing materials].

option 2c.

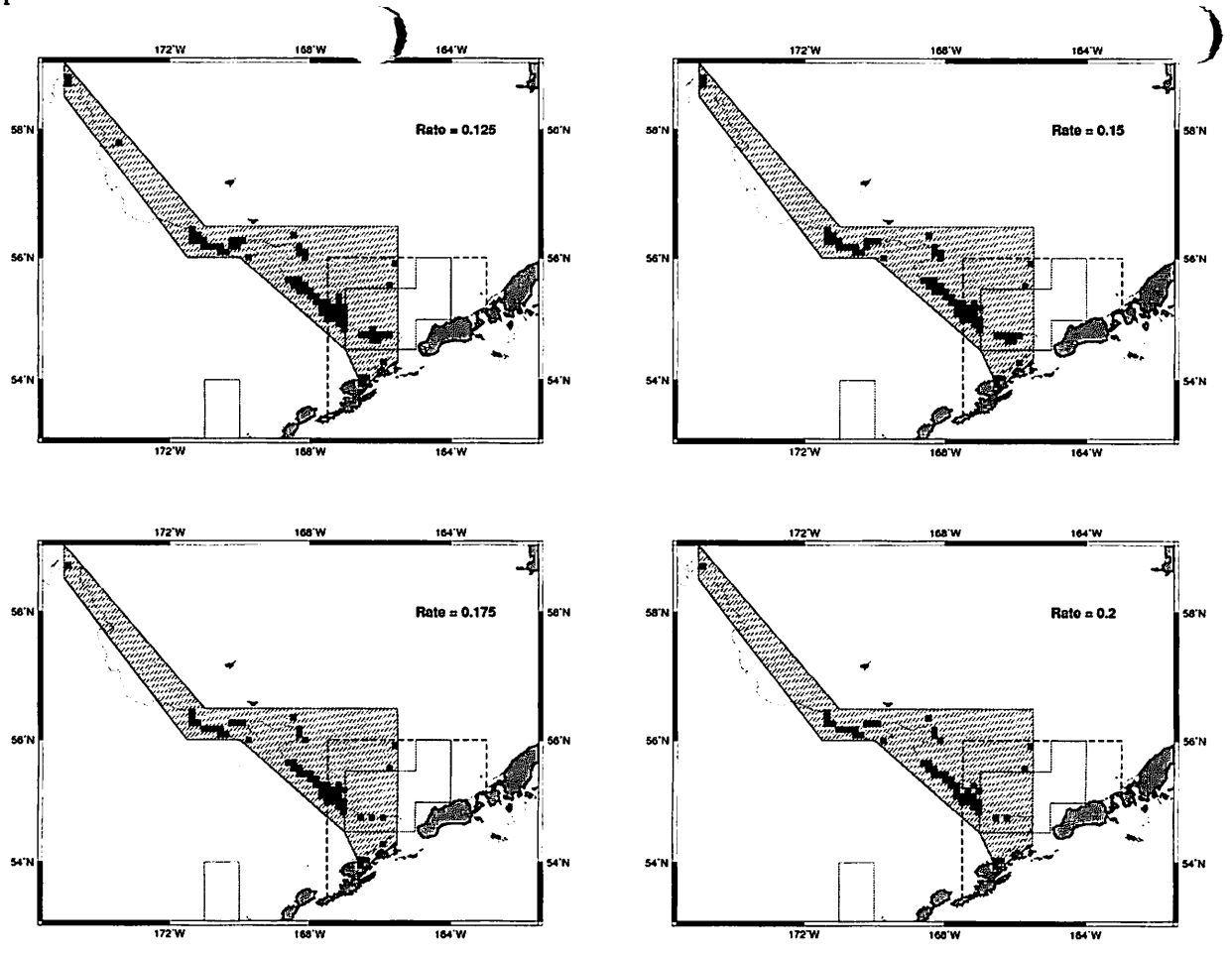


Figure 12 Range of rate-based area for consideration as candidate closures per February 2008 Council motion panel a) 0.125 Chinook/t of pollock; panel b)0.15 Chinook/t of pollock; panel c) 0.175 Chinook/t of pollock; panel d) 0.2 Chinook/t of pollock. For reference the proposed option 2b area closure is shown in dappled shading.

Similar to the discussion under the range of rate-based considerations for A season closures, in February 2008, the Council reviewed candidate closures using a rate-based methodology that included rate-based cutoffs of 0.1 Chinook/ton pollock and 0.2 Chinook/ton pollock. At that time the Council requested that staff evaluate a range of options between these two end points with the intent to evaluate if these would provide for additional closure configurations. Figure 12 shows the relative 10km square blocks with rate cutoffs based on the following ranges, 0.125, 0.15, 0.175 and 0.2. For comparison, the option 2b closure designed on the rate-based cutoff of 0.1 (i.e., the shaded area) is included in all of the snapshots. As this figure demonstrates, the distinction between closure configurations based on the mid-range of rates between 0.1 to 0.2 Chinook/t pollock does not appear substantial enough to merit additional closures for these break-outs at this time. **Staff does not recommend continuing to include these rate-based closure considerations (0.125, 0.15, 0.175 Chinook/t pollock) in the suite of alternatives at this time.**

broken out by week. Note that in September during the years 2004-2006 the Chinook Salmon Savings Area closed to directed non-CDQ pollock fishing. During 2006 the fleet operated under an exemption to regulatory closures.

Period	Closure	Rate Inside	Rate Outside	Pollock inside	Chinook inside	Effort inside
B-season	**Small**	**0.295**	**0.023**	**3%**	**28%**	**5%**
Sept 1-7	Small	0.069	0.022	4%	12%	5%
Sept 8-14	Small	0.239	0.041	4%	19%	7%
Sept 15-21	Small	0.239	0.036	3%	16%	6%
Sept 22-30	Small	0.276	0.038	3%	17%	6%
Oct 1-7	Small	0.437	0.085	5%	20%	9%
Oct 8-14	Small	0.927	0.123	11%	48%	16%
Oct 15-21	Small	0.515	0.148	10%	28%	14%
B-season	**Big**	**0.078**	**0.012**	**29%**	**73%**	**41%**
Sept 1-7	Big	0.059	0.017	17%	43%	31%
Sept 8-14	Big	0.097	0.029	29%	57%	45%
Sept 15-21	Big	0.103	0.025	21%	52%	38%
Sept 22-30	Big	0.156	0.021	17%	60%	33%
Oct 1-7	Big	0.348	0.042	19%	66%	36%
Oct 8-14	Big	0.498	0.027	39%	92%	58%
Oct 15-21	Big	0.309	0.025	56%	94%	72%

Option 2c: Expanding area closure. This closure option takes both B season areas together as an expanding area closure. A stair-step trigger cap limit closes each area as threshold trigger levels are reached (figure x). This stair-step begins with the closure of area 2a at trigger level 1. If bycatch continues and trigger level 2 is reached, area 2b closes. Here closures once triggered are considered to remain closed for the remainder of the season. Additional information will be provided in the Council briefing materials with respect to how these specific proportional trigger levels would be formulated.

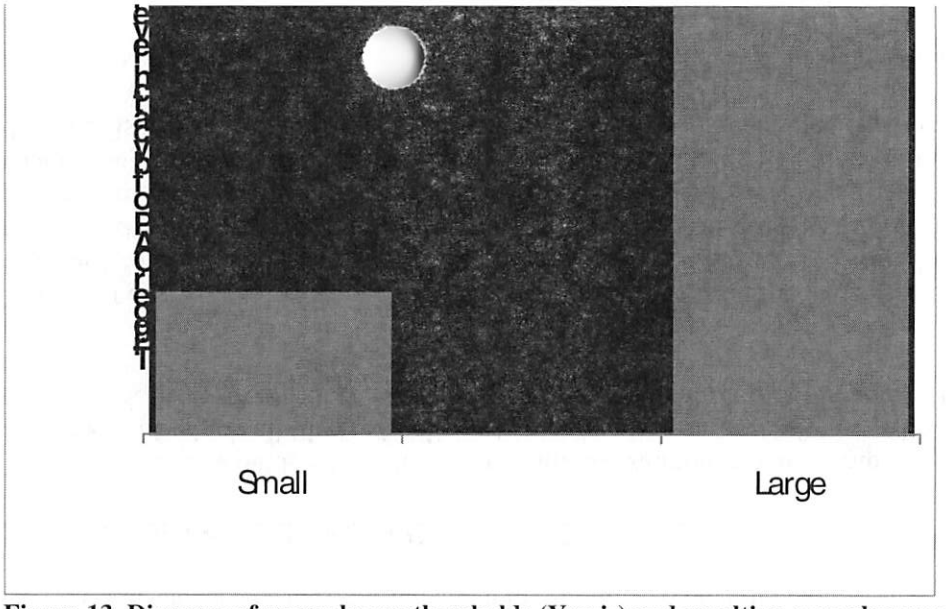


Figure 13 Diagram of example cap thresholds (Y axis) and resulting area closures (x axis) under the option 2c expanding area closure option.

1.4.4.1.1 Suboption: Periodic adjustments to areas based on updated bycatch information.

The Council will reassess updated salmon bycatch information after a certain number of years and determine if adjustments to the area closures implemented under this action are needed. If the Council selects this option, it would specify when the reassessment of salmon bycatch information would occur. Any revisions to the salmon bycatch management measures would require additional analysis and rulemaking. The Council may reassess any management measure at any time and does not need to specify a particular time for reassessment of the salmon bycatch management measures.

2.0 ACTION 2: NON-CHINOOK SALMON (CHUM)

This action is for non-Chinook salmon species. For catch accounting and PSC limits all 4 species are aggregated into an 'other salmon' or non-Chinook salmon species category. Chum salmon continues to comprise over 99.6% of the total catch in this category (Table 27).

Table 27 Composition of bycatch by species in the non-Chinook salmon category from 2001-2007

Year	sockeye	coho	pink	chum	Total	% chum
2001	12	173	9	51,001	51,195	99.6%
2002	2	80	43	66,244	66,369	99.8%
2003	29	24	72	138,772	138,897	99.9%
2004	13	139	107	352,780	353,039	99.9%
2005	11	28	134	505,801	505,974	100.0%
2006	11	34	235	221,965	222,245	99.9%

Chapter 6 will likewise focus upon on the biology and impacts for chum salmon species only understanding that the remaining species, comprise collectively less than 0.04% of the total catch in any year in this category.

2.1 Alternative 1: Status Quo (non-Chinook)

Alternative 1 retains the current program of Chum Salmon Savings Area (SSA) closures triggered by separate non-CDQ and CDQ caps by species with the fleet's exemption to these closures per regulations for Amendment 84.

For chum salmon, the Chum Salmon Savings Area was established in 1994 by emergency rule, and then formalized in the BSAI Groundfish FMP in 1995 under Amendment 35 (ADF&G 1995b). This area is closed to pollock trawling from August 1 through August 31. Additionally, if 42,000[2] 'other" salmon are caught in the Catcher Vessel Operational Area (CVOA) during the period August 15-October 14, the area remains closed to pollock trawling for the remainder of the period September 1 through October 14 in the Chum Salmon Savings Area. 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.

Amendment 84 to the BSAI groundfish FMP exempted vessels from both the Chum and Chinook SSAs if triggered provided they participate in the salmon bycatch inter-cooperative agreement (ICA) with the voluntary rolling hot spot (VRHS) system.

Under this alternative, the CDQ Program would continue to receive allocations of 7.5 percent of the BS and AI Chinook salmon PSC limits and 10.7 percent of the non-chinook salmon PSC limit as "prohibited species quota reserves" or PSQ reserves. The PSQ reserves are further allocated among the six CDQ groups based on percentage allocations approved by NMFS on August 8, 2005. The salmon savings areas would continue to be closed to vessels directed fishing for pollock CDQ for a particular CDQ group when that group's salmon PSQ is reached. The CDQ groups would continue to be exempt from the salmon savings area closures if they participate in the salmon bycatch intercooperative agreement.

2.2 Alternative 2: Hard Cap (non-Chinook)

This alternative would establish a non-Chinook salmon bycatch cap on the pollock fishery upon attainment of which all directed pollock fishing would cease. Only those BSAI non-Chinook caught by the pollock fleet would accrue towards the cap and the cap applies only to the pollock fleet when triggered.

If applied as a single hard cap to all sectors, the CDQ Program would receive an allocation of 10.7% of any hard cap established for non-Chinook salmon. The PSQ reserve would be further allocated among the six CDQ groups based on percentage allocations approved by NMFS on August 8, 2005. Each CDQ group would be prohibited from exceeding its salmon PSQ allocation. This prohibition would require the CDQ group to stop directed fishing for pollock CDQ once its PSQ allocation is reached because further directed fishing for pollock likely would result in exceeding its PSQ allocation.

If the hard cap is subdivided, t ptions are provided (under component 2) for the allocation to the Q program.

Component 1 establishes the ')cap number by two methodologies, option 1 based upon avera)f historical numbers and other)nsiderations as noted below and option 2 which uses a mo. .ng methodology to establish a framework for periodically setting the cap based upon salmon returns. Component 1 sets the formulation for the overall cap which can be either applied to the fishery as a whole, or applying components 2 and 4 may be subdivided by sector (component 2) and to cooperative (component 4).

Option 1: Range of numbers for hard cap formulation

A range of numbers is established for consideration as hard caps for non-Chinook salmon. Table 1 lists the numbers in numerical order lowest to highest for overall caps. Here the CDQ allocation of the cap is 10.7% of the total cap, with the remainder for the combined non-CDQ fishery.

Table 28 Range of suboptions for hard cap for non-Chinook with breakout for CDQ allocation (10.7%) and remainder for non-CDQ fleet

Sub Option	Non-Chinook	CDQ	Non-CDQ
i)	58,176	6,225	51,951
ii)	76,252	8,159	68,093
iii)	147,204	15,751	131,453
iv)	203,080	21,730	181,350
v)	220,614	23,606	197,008
vi)	347,984	37,234	310,750
vii)	488,045	52,221	435,824

The following section provides the rationale (by suboption number) for each cap number listed in Table 28. Suboption i-ii (58,176 and 76,252, the low end of the range of caps considered) represent the 5 year average from 1997-2001 (i) and the 10 year average 1992-2001 (suboption ii). These year combinations were chosen specifically in an attempt to be responsive to considerations relative to bycatch levels prior to accession to the Yukon River Agreement (signed in 2002).

Suboptions iii-vii refer to average bycatch numbers by the pollock pelagic trawl fishery over a range of historical year combinations from 1997 through 2006, dropping some years over the period under consideration in some options. Suboption iii) is the 10 year average (1997-2006) with the highest year (2005) dropped from the years over which average occurred while suboption iv) is the 10 year average (1997-2006) with the lowest year (1999) dropped from the years over which average occurred. Suboption v) is the straight 10 year average (including all years 1997-2006), vi) is the 5 year average (2002-2006) and vii) is the three year average for the most years under consideration (2004-2006).

	Non-Chinook	CDQ	Non-CDQ
i)	58,000	6,206	51,794
ii)	206,300	22,074	184,226
iii)	353,000	37,771	315,229
iv)	488,000	52,216	435,784

Option 2: Framework Cap (cap set relative to salmon returns):

Caps under this option will be based on analysis by species and involve consideration of run-size impacts. Since this approach involves a number of uncertain components (e.g., river-of-origin, ocean survival, future expected run-size) the cap will be derived from estimated probabilities that account for this uncertainty. This option provides a framework so that the cap regulation could be modified as scientific information improves. Such changes in the cap are envisioned on a periodic basis (say every 2-5 years) as data and input variables critical to the model calculations improve and merit revisions to cap levels. Variables and data that are likely to change with improved scientific information include river of origin information on the stock composition of bycatch samples, stock size estimates by river system, and age-specific survival of salmon returning to individual river systems.

The developed methods are designed to account uncertainty due to both natural variability and observation (measurement) errors. The choice of management alternative can be based on the selection of an acceptable impact level (at specified probability) for a set of rivers or systems. This impact level can then be used to back-calculate the cap level. For example, a framework for this alternative might be to establish a cap that has only a 10% probability of exceeding a 10% impact level to a particular run. The impact measure relates the historical bycatch levels relative to the subsequent returning salmon run k in year t:

$$u_{t,k} = \frac{C_{t,k}}{C_{t,k} + S_{t,k}}$$

where $C_{t,k}$ and $S_{t,k}$ are the bycatch and stock size estimates of chum salmon. The calculation of $C_{t,k}$ includes the bycatch of salmon returning to spawn in year t and the bycatch from previous years of the same cohort (i.e., at younger, immature ages). This latter component needs to be decremented by highly uncertain ocean survival rates. Additionally, uncertainty on age-assignments and river-of-origin, as well as uncertainty of run-size impact these values. A complete description of the model, estimation procedure, and input values are detailed in Appendix X.

A policy decision is required in specifying an acceptable (probability based) run-size impact level by river system in order to calculate a corresponding salmon bycatch cap level. For regulatory purposes, the adopted procedure must be based on objective criteria and may not be discretionary in nature. Clearly, the probability of an acceptable run size impact level is discretionary and therefore must be an approved fixed value that can vary only with completely revised analyses. The value is thus a policy decision before the Council. Other non-discretionary aspects of the approach may be modified as information improves following standard scientific guidelines and review by the SSC. For the present analysis, a range of impact levels and corresponding cap levels are provided to the Council for consideration and comparison with the fixed value cap levels specified under option 1.

The Council will reassess updated salmon bycatch information after a certain number of years and determine if adjustments to the hard cap implemented under this action are needed. If the Council selects this option, it would specify when the reassessment of salmon bycatch information would occur. Any revisions to the salmon bycatch management measures would require additional analysis and rulemaking. The Council may reassess any management measure at any time and does not need to specify a particular time for reassessment of the salmon bycatch management measures.

2.2.2 Component 2: Sector Allocation

Under this component the hard cap is managed at the sector level for the fishery. This entails separate sector level caps for the CDQ sector, the inshore catcher vessel (CV) fleet, the mothership fleet and the offshore catch processor (CP) fleet. The catch of salmon would be tabulated on a sector level basis, and if the total catch in that sector reaches specified for that sector, a fishery closure would occur for that sector for the remainder of the season. The remaining sectors may continue to fish unless they too reach their specific sector level cap. Options for hard caps are as specified under component 1, options 1 and 2. However using each of those options (and suboptions) for cap formulation, the cap is then subdivided into sector level caps according to the following formulas:

Divide the final cap by sectors based on:
Option 1) 10% of the cap to the CDQ sector, and the remaining allocated as follows: 50% inshore CV fleet; 10% for the mothership fleet; and 40% for the offshore CP fleet.

This option is intended to follow the percentage allocation established for pollock under the AFA. Application of these percentages results in the following range of caps by sector, based upon the range of caps in component 1, option 1. Note that here the CDQ allocation of salmon is slightly lower than that assumed as a default under component 1 (10% rather than 10.7%).

Table 30 Sector split caps resulting from option 1 percentage allocation: 10% CDQ and the remaining 90% divided 50% inshore CV fleet; 10% for mothership fleet; 40% for the offshore CP fleet

Option 1) Sector level caps

Sub Option	Fishery cap #s Non-Chinook	CDQ	Inshore CV	Mothership	Offshore CPs
i)	58,176	5,818	26,179	5,236	20,943
ii)	76,252	7,625	34,313	6,863	27,451
iii)	147,204	14,720	66,242	13,248	52,993
iv)	203,080	20,308	91,386	18,277	73,109
v)	220,614	22,061	99,276	19,855	79,421
vi)	347,984	34,798	156,593	31,319	125,274
vii)	488,045	48,805	219,620	43,924	175,696

Table 31 Range of sector level non-Chinook caps for use in the analysis of alternatives

	Non- Chinook	CDQ	Inshore CV	Mothership	Offshore CPs
i)	58,000	5,800	26,100	5,220	20,880
ii)	201,300	20,130	90,585	18,117	72,468
iii)	345,000	34,500	155,250	31,050	124,200
iv)	488,000	48,800	219,600	43,920	175,680

Option 2) Historical average of percent bycatch by sector based on:

a) 3 year (2004-2006) average CDQ 1%; inshore CV fleet 86%; mothership fleet 2%; offshore CP fleet 11%

b) 5 year (2002-2006) average: CDQ 2%; inshore CV fleet 84%; mothership fleet 3%; offshore CP fleet 11%.

c) 10 year (1997-2006) average: CDQ 2%; inshore CV fleet 82%; mothership fleet 4%; offshore CP fleet 12%.

Under option 2, the subdivision of caps to each sector is now based upon historical average percent bycatch by sector over 3, 5 and 10 year time periods. Similar to the years considered for the overall cap formulation, the historical years do not consider the most recent (and historical high) of 2007.

Option 2a uses the historical averages of percent bycatch by sector from the most recent time period under consideration in this analysis (2004-2006). This results in the following average percentages by sector: CDQ 1%; shore-based CV fleet 86%; mothership fleet 2%; offshore CP fleet 11%. Those percentages are applied to the range of caps under consideration in component 1, option 1 (Table 32).

Table 32 Sector level caps based upon historical average percent bycatch from 2004-2006 (option 2a)

Option 2a) Sector level caps (2004-2006 average)

Sub Option	Fishery cap #s Non-Chinook	CDQ 1%	Inshore CV 86%	Mothership 2%	Offshore CPs 11%
i)	58,176	582	50,031	1,164	6,399
ii)	76,252	763	65,577	1,525	8,388
iii)	147,204	1,472	126,595	2,944	16,192
iv)	203,080	2,031	174,649	4,062	22,339
v)	220,614	2,206	189,728	4,412	24,268
vi)	347,984	3,480	299,266	6,960	38,278
vii)	488,045	4,880	419,719	9,761	53,685

For analytical purposes the following range of sector split caps will be utilized for this option:

Table 33 Range of sector level caps (option 2a) for use in the analysis of impacts

	Non-Chinook	CDQ	Inshore CV	Mothership	Offshore CPs
i)	58,000	580	49,880	1,160	6,380
ii)	201,300	013	173,118	4,026	22
iii)	345,000	3,450	296,700	6,900	37,950

84%; mothership fleet 3%; offshore CP fleet 11%. Those percentages are applied to the range of caps under consideration in compor , option 1 (Table 34).

Table 34 Sector level caps based upon historical average percent bycatch from 2002-2006 (option 2b)

Option 2b) Sector level caps (2002-2006 average)

Sub Option	Fishery cap #s Non-Chinook	CDQ 2%	Inshore CV 84%	Mothership 3%	Offshore CPs 11%
i)	58,176	1,164	48,868	1,745	6,399
ii)	76,252	1,525	64,052	2,288	8,388
iii)	147,204	2,944	123,651	4,416	16,192
iv)	203,080	4,062	170,587	6,092	22,339
v)	220,614	4,412	185,316	6,618	24,268
vi)	347,984	6,960	292,307	10,440	38,278
vii)	488,045	9,761	409,958	14,641	53,685

For analytical purposes the following range of sector split caps for this option will be utilized (Table 35):

Table 35 Range of sector level non-Chinook salmon caps (option 2b) for use in the analysis of impacts

	Non-Chinook	CDQ	Inshore CV	Mothership	Offshore CPs
i)	58,000	1,160	48,720	1,740	6,380
ii)	201,300	4,026	169,092	6,039	22,143
iii)	345,000	6,900	289,800	10,350	37,950
iv)	488,000	9,760	409,920	14,640	53,680

Option 2c considers the historical averages of percent bycatch by sector from the 10 year time period (1997-2006). This results in the following average percentages by sector: CDQ 2%; inshore CV fleet 82%; mothership fleet 4%; offshore CP fleet 12%. Those percentages are applied to the range of caps under consideration in component 1, option 1 (Table 36).

Table 36 Sector level caps based upon historical percent bycatch from 1997-2006 (option 2c)

Option 2c) Sector level caps (1997-2006 average)

Sub Option	Fishery cap #s Non-Chinook	CDQ 2%	Inshore CV 82%	Mothership 4%	Offshore CPs 12%
i)	58,176	1,164	47,704	2,327	6,981
ii)	76,252	1,525	62,527	3,050	9,150
iii)	147,204	2,944	120,707	5,888	17,664
iv)	203,080	4,062	166,526	8,123	24,370
v)	220,614	4,412	180,903	8,825	26,474
vi)	347,984	6,960	285,347	13,919	41,758
vii)	488,045	9,761	400,197	19,522	58,565

Table 37 Range of sector level non-Chinook caps for use in the analysis of impacts (option 2c)

	Non-Chinook	CDQ	Inshore CV	Mothership	Offshore CPs
i)	58,000	1,160	47,560	2,320	6,960
ii)	201,300	4,026	165,066	8,052	24,156
iii)	345,000	6,900	282,900	13,800	41,400
iv)	488,000	9,760	400,160	19,520	58,560

2.2.3 Component 3: Sector Transfer

Option 1) Transfer salmon bycatch among sectors (industry initiated)
Option 2) NMFS will rollover unused salmon bycatch to other sectors and other cooperatives still fishing [placeholder for NMFS description of option]

2.2.4 Component 4: Cooperative provisions

These provisions apply for the in-shore catcher vessel cooperatives. Each cooperative receives a salmon allocation managed at the cooperative level. In order to allow for effective monitoring and management requirements, except for catcher vessels that deliver unsorted cod ends, participation in the pollock fishery for vessels will require a minimum of 100% observer coverage or video monitoring to ensure no at-sea discards. If the cooperative salmon cap is reached, the cooperative must stop fishing for pollock.

The initial allocation of salmon by cooperative within the inshore CV fleet is based upon the percent of total sector pollock catch their co-op allocation represents. The annual pollock quota for this fleet is divided up based upon application of a formula in the regulations for catch by cooperative per the specific sum of the catch history of the vessels the cooperative represents. Under 679.62(e)(1), the individual catch history of each vessel is equal to the vessel's best 2 of 3 years inshore pollock landings from 1995 through 1997 and includes landings to catcher/processors for vessels that made 500 or more mt landings to catcher/processors from 1995 through 1997. Each year, fishing permits are issued by cooperative with permit application listing the vessels added or subtracted. Fishing in the open access fishery is possible should a vessel leave their cooperative, and the shore-based CV quota allocation is partitioned to allow for the open access allocation under these circumstances.

The range of cooperative level allocations are based upon the 2008 pollock quota allocations and the options for the range of sector splits for the inshore CV fleet based upon component 2, options 1 and 2 applied to component 1 options 1 and 2 (Table 38–Table 41). For analytical purposes, the range of cooperative allocations will be analyzed using the ranges as indicated in Table 42 and Table 43.

Table 38 Inshore cooperative allocations resulting from application of component 2, option 1 allocation to the inshore CV fleet (50% of allocation after 10% to CDQ)

			Inshore cooperative allocation:							
			31.145%	1.146%	9.481%	2.876%	12.191%	24.256%	18.906%	0.000%
Cap Suboption	Overall fishery cap level Non-Chinook	Resulting Inshore sector allocation	Akutan CV Assoc	Arctic Enterprise Assoc	Northern Victor Fleet coop	Peter Pan Fleet coop	Unalaska coop	Unisea Fleet coop	Westward Fleet coop	open access AFA vessels
i)	58,176	26,179	8,154	300	2,482	753	3,192	6,350	4,949	0
ii)	76,252	34,313	10,687	393	3,253	987	4,183	8,323	6,487	0
iii)	147,204	66,242	20,631	759	6,280	1,905	8,076	16,068	12,524	0
iv)	203,080	91,386	28,462	1,047	8,664	2,628	11,141	22,167	17,277	0
v)	220,614	99,276	30,920	1,138	9,412	2,855	12,103	24,080	18,769	0
vi)	347,984	156,593	48,771	1,795	14,847	4,504	19,090	37,983	29,605	0
vii)	488,045	219,620	68,401	2,517	20,822	6,316	26,774	53,271	41,521	0

Table 39 Inshore cooperative allocation resulting from application of component 2, option 2a allocation to the inshore CV fleet (average historical bycatch from 2004-2006)

			Inshore cooperative allocation:							
			31.145%	1.146%	9.481%	2.876%	12.191%	24.256%	18.906%	0.000%
Cap Suboption	Overall fishery cap level Non-Chinook	Resulting Inshore sector allocation	Akutan CV Assoc	Arctic Enterprise Assoc	Northern Victor Fleet coop	Peter Pan Fleet coop	Unalaska coop	Unisea Fleet coop	Westward Fleet coop	open access AFA vessels
i)	58,176	50,031	15,582	573	4,743	1,439	6,099	12,136	9,459	0
ii)	76,252	65,577	20,424	752	6,217	1,886	7,994	15,906	12,398	0
iii)	147,204	126,595	39,428	1,451	12,003	3,641	15,433	30,707	23,934	0
iv)	203,080	174,649	54,394	2,001	16,558	5,023	21,291	42,363	33,019	0
v)	220,614	189,728	59,091	2,174	17,988	5,457	23,130	46,020	35,870	0
vi)	347,984	299,266	93,206	3,430	28,373	8,607	36,484	72,590	56,579	0
vii)	488,045	419,719	130,721	4,810	39,794	12,071	51,168	101,807	79,352	0

Table 40 Inshore cooperative allocation resulting from application of component 2, option 2b allocation to the inshore CV fleet (average historical bycatch from 2002-2006)

			Inshore cooperative allocation:							
			31.145%	1.146%	9.481%	2.876%	12.191%	24.256%	18.906%	0.000%
Cap Suboption	Overall fishery cap level Non-Chinook	Resulting Inshore sector allocation	Akutan CV Assoc	Arctic Enterprise Assoc	Northern Victor Fleet coop	Peter Pan Fleet coop	Unalaska coop	Unisea Fleet coop	Westward Fleet coop	open access AFA vessels
i)	58,176	48,868	15,220	560	4,633	1,405	5,957	11,853	9,239	0
ii)	76,252	64,052	19,949	734	6,073	1,842	7,809	15,536	12,110	0
iii)	147,204	123,651	38,511	1,417	11,723	3,556	15,074	29,993	23,378	0
iv)	203,080	170,587	53,129	1,955	16,173	4,906	20,796	41,378	32,251	0
v)	220,614	185,316	57,717	2,124	17,570	5,330	22,592	44,950	35,036	0
vi)	347,984	292,307	91,039	3,350	27,714	8,407	35,635	70,902	55,263	0
vii)	488,045	409,958	127,681	4,698	38,868	11,790	49,978	99,439	77,507	0

Table 41 Inshore cooperative allocation resulting from application of component 2, option 2c allocation to the inshore CV fleet (average historical bycatch from 1997-2006)

			Inshore cooperative allocation:							
			31.145%	1.146%	9.481%	2.876%	12.191%	24.256%	18.906%	0.000%
Cap Suboption	Overall fishery cap level Non-Chinook	Resulting Inshore sector allocation	Akutan CV Assoc	Arctic Enterprise Assoc	Northern Victor Fleet coop	Peter Pan Fleet coop	Unalaska coop	Unisea Fleet coop	Westward Fleet coop	open access AFA vessels
i)	58,176	47,704	14,858	547	4,523	1,372	5,816	11,571	9,019	0
ii)	76,252	62,527	19,474	717	5,928	1,798	7,623	15,166	11,821	0
iii)	147,204	120,707	37,594	1,383	11,444	3,472	14,715	29,279	22,821	0
iv)	203,080	166,526	51,864	1,908	15,788	4,789	20,301	40,392	31,483	0
v)	220,614	180,903	56,342	2,073	17,151	5,203	22,054	43,880	34,202	0
vi)	347,984	285,347	88,871	3,270	27,054	8,207	34,787	69,214	53,948	0
vii)	488,045	400,197	124,641	4,586	37,943	11,510	48,788	97,072	75,661	0

Table 42 Range of cooperative level caps for use in analysis of impacts of component 4 as applied to component 2, option 1

			Inshore cooperative allocation:							
Cap Suboption	Overall fishery cap level Non-Chinook	Resulting Inshore sector allocation	31.145% Akutan CV Assoc	1.146% Arctic Enterprise Assoc	9.481% Northern Victor Fleet coop	2.876% Peter Pan Fleet coop	12.191% Unalaska coop	24.256% Unisea Fleet coop	18.906% Westward Fleet coop	0.000% open access AFA vessels
i)	58,000	26,100	8,129	299	2,475	751	3,182	6,331	4,934	0
ii)	206,300	90,585	28,213	1,038	8,588	2,605	11,043	21,972	17,126	0
iii)	353,000	155,250	48,353	1,779	14,719	4,465	18,927	37,657	29,352	0
iv)	488,000	219,600	68,394	2,517	20,820	6,316	26,771	53,266	41,518	0

Table 43 Cap ranges for analysis of hard cap component 2, option 2 (a-c) for component 4 cooperative provision

			Inshore cooperative allocation:							
Cap Suboption	Overall fishery cap level Non-Chinook	Resulting Inshore sector allocation	31.145% Akutan CV Assoc	1.146% Arctic Enterprise Assoc	9.481% Northern Victor Fleet coop	2.876% Peter Pan Fleet coop	12.191% Unalaska coop	24.256% Unisea Fleet coop	18.906% Westward Fleet coop	0.000% open access AFA vessels
2a(i)	58,000	49,880	15,535	572	4,729	1,435	6,081	12,099	9,430	0
2a(ii)	206,300	173,118	53,918	1,984	16,413	4,979	21,105	41,992	32,730	0
2a(iii)	353,000	296,700	92,407	3,400	28,130	8,533	36,171	71,968	56,094	0
2a(iv)	488,000	419,680	130,709	4,810	39,790	12,070	51,163	101,798	79,345	0
2b(i)	58,000	48,720	15,174	558	4,619	1,401	5,939	11,818	9,211	0
2b(ii)	206,300	169,092	52,664	1,938	16,032	4,863	20,614	41,015	31,969	0
2b(iii)	353,000	289,800	90,258	3,321	27,476	8,335	35,330	70,294	54,790	0
2b(iv)	488,000	409,920	127,670	4,698	38,865	11,789	49,973	99,430	77,499	0
2c(i)	58,000	47,560	14,813	545	4,509	1,368	5,798	11,536	8,992	0
2c(ii)	206,300	165,066	51,410	1,892	15,650	4,747	20,123	40,038	31,207	0
2c(iii)	353,000	282,900	88,109	3,242	26,822	8,136	34,488	68,620	53,485	0
2c(iv)	488,000	400,160	124,630	4,586	37,939	11,509	48,784	97,063	75,654	0

2.2.4.1 Cooperative transfer options

When a salmon coop cap is reached, the coop must stop fishing for pollock and may:

Option 1) Lease their remaining pollock to another coop (inter-cooperative transfer) within their sector for that year (or similar method to allow pollock harvest with individual coop accountability)
[placeholder for NOAA GC guidance on the specific provisions under which this can occur]

Option 2) Transfer salmon bycatch from other inshore cooperatives
[placeholder for inserting information from NMFS on how cooperative transfers would work]

Rollover suboption: NMFS will rollover unused salmon bycatch to other sectors and inshore cooperatives still fishing
[pull from component 3 option 2 discussion, NMFS]

2.3 Alternative 3: Fixed closures (non-Chinook)

Fixed closure management measures are pre-defined regulatory times and areas where pelagic pollock trawling would be prohibited.

The CDQ groups would be required to comply with any fixed closures that were established to reduce salmon bycatch. No salmon bycatch PSC limits would be established, so no allocations would be made to the CDQ Program or among the CDQ groups.

Option 1: Area options
August B season candidate closure

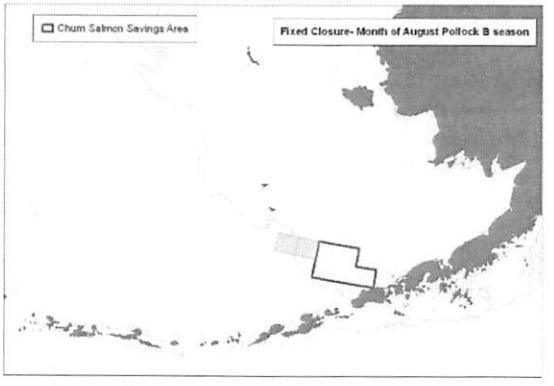


Figure 14 Previously proposed fixed area closure for August Pollock B season[Note areas no longer recommended for inclusion in alternatives]. Areas are composed by ADF&G statistical areas 685530 and 675530.

Staff comments: This closure configuration did not take into account the existing Chum SSA closure existing at the same time and therefore may be mis-specified. No August closures in addition to status quo (i.e retaining existing Chum SSAs) are proposed by staff at this time based upon catch rates for non-Chinook salmon and the timing of catch in the fishery. No fixed closures for non-Chinook salmon are proposed by staff at this time.

2.3.1.1.1 Suboption: Periodic adjustments to areas based on updated bycatch information.

The Council will reassess updated salmon bycatch information after a certain number of years and determine if adjustments to any area options implemented under this action are needed. If the Council selects this option, it would specify when the reassessment of salmon bycatch information would occur. Any revisions to the salmon bycatch management measures would require additional analysis and rulemaking. The Council may reassess any management measure at any time and does not need to specify a particular time for reassessment of the salmon bycatch management measures.

2.4 Alternative 4: Triggered closures (non-Chinook)

Triggered closures are regulatory time area closures that are invoked when cap levels are reached. Cap levels for triggered closures would be formulated in a way similar to those specified under alternative 2. The duration of the closure may vary according to stair-stepped cap levels whereby additional areas close (or reopen) depending on seasonal thresholds for species specific bycatch levels. Closures may involve a single area or multiple areas. Additional details on candidate closure areas and times are presented below.

Absent a subdivided cap, the CDQ Program would receive allocations of 7.5 percent of any BS Chinook salmon trigger cap and 10.7 percent of any non-Chinook salmon trigger cap as PSQ reserves. These PSQ reserves would be further allocated among the six CDQ groups based on percentage allocations approved by NMFS on August 8, 2005. Areas would close to directed pollock fishing for a particular CDQ group when that group's trigger cap is reached.

2.4.1 Component 1: Trigger Cap Formulation

Cap formulation for trigger caps is equivalent to those under consideration for hard caps. See section 2.2.1 for additional information on how caps are to be formulated for this component.

2.4.2 Component 2: Sector Allocation

Sector allocations are equivalent to those under consideration for hard caps. See section 2.2.2 for additional information on how caps are to be allocated by sector for this component.

2.4.3 Component 3: Sector Transfer

Option 1) Transfer salmon bycatch among sectors (industry initiated)
Option 2) NMFS will rollover unused salmon bycatch to other sectors and other cooperatives still fishing
[NMFS discussion on sector transfers to come]

2.4.4 Component 4: Area options

Staff proposals for non-Chinook salmon closure configurations were based on spatial analysis of historical bycatch rates summarized by 10km square blocks. Here a longer time period was considered in designing closures (1991-2007) in order to account for the impact of various closures during this period, especially the Chum SSA closures in August, as well as closures during the period September 14-October 14 since 2002. In addition, data were broken out by periods prior to the invocation of regulatory closures (Figure 15) and also examined by individual year, particularly for years in which the exemption to regulatory closures were in place (2007 A season, 2006-2007 B seasons) as well as particular individual years of notable high bycatch (e.g., 1993, 2003, 2004, 2005 and 2006).

Staff recommendations for triggered Chinook closures:
Three B season closures are put forward as triggered closure options for non-Chinook salmon. Further details on the areas, amount of pollock per Chinook catch seasonally and by week as well as the proposed proportion of the trigger and timing of closure thereof are listed for each configuration. Closures are reorganized as B season options. Each closure option as presented may be considered as a single closure option as listed, as well as a part of a package of expanding area closure option as noted in the options listed.

Option 1: Areas (note all B season closures for non-Chinook)

~~i. Adjust area according to the number of salmon caught~~

~~ii. Single area closure~~

~~iii. Multiple area closures~~

~~Candidate areas (need to fold into above)~~

~~i. August B season candidate closure~~

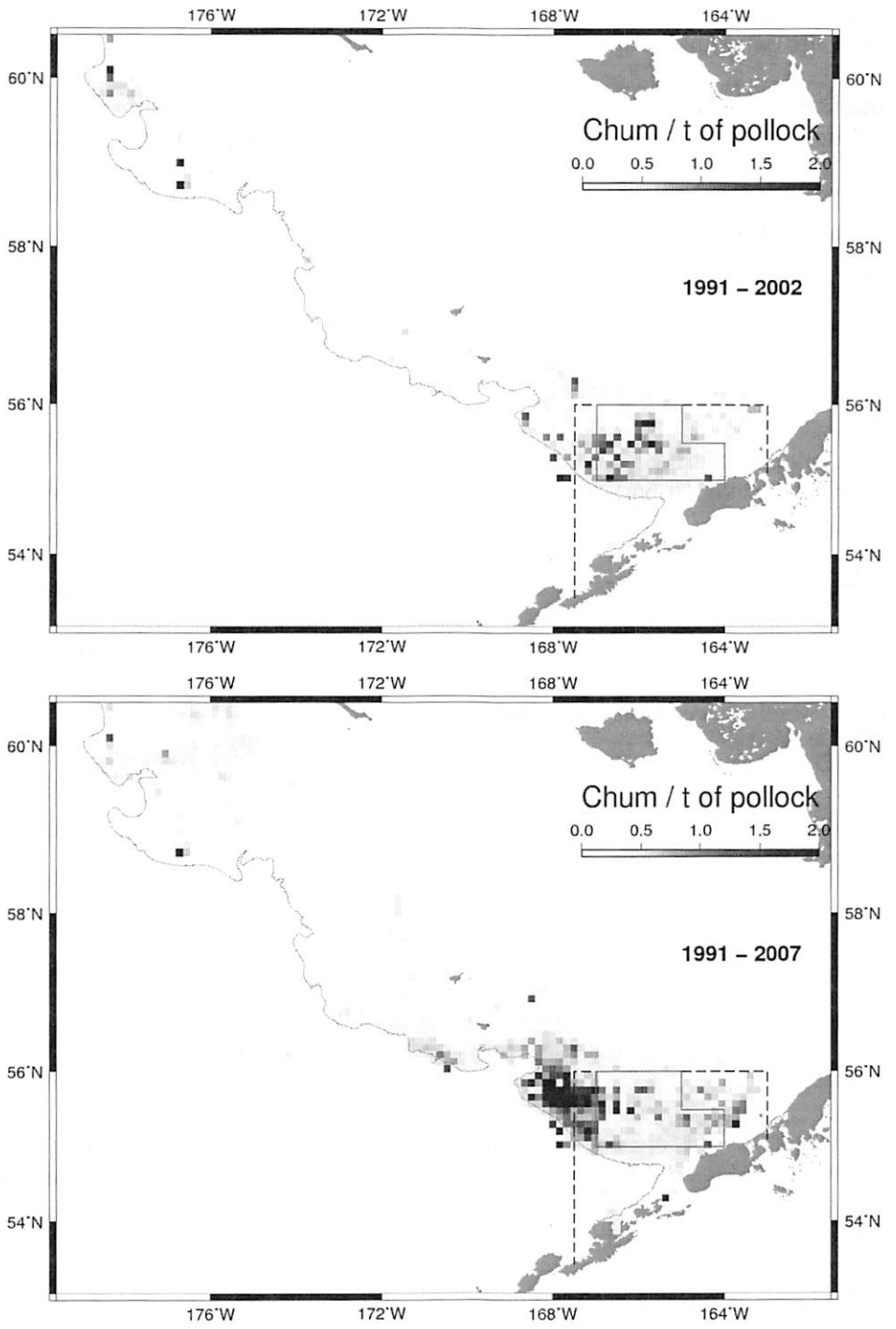


Figure 15 Historical chum B-season bycatch rates 1991-2002 (top panel) relative to CVOA and Chum salmon savings area (similar to data used to derive original area determination) compared to data from 1991-2007 (lower panel).

Given additional analysis of chum bycatch rates over the historical and recent time periods and in consideration of years of variable bycatch of non-Chinook salmon, **staff recommends the following three closure areas be folded into the analysis as triggered closures for non-Chinook salmon.** These

closures would be considered as separate triggered closures individually as well as collectively as a stair-step expanding closure option in the alternatives.

Option 1a) Small closure. This closure was identified by rate-based analysis delineating regions where average bycatch rate exceeded 0.9 chum salmon per ton of pollock (Figure 16). Over the entire B season, this area accounts for 49% of the chum salmon on average (1994-2007) and only 12% of the pollock catch (Table 50)

Table 44 Option 1a) Small area closure coordinates

55° 53'	165° 30'	56° 00'	169° 15'
55° 00'	166° 38'	56° 23'	167° 23'
55° 00'	167° 45'	55° 53'	167° 00'
55° 23'	168° 15'	55° 53'	165° 30'

As a single closure option, the trigger for this region would be formulated as follows:
[Additional information on the proportional trigger cap level for all closures will be provided in the Council briefing materials].

Option 1b) Medium closure. This closure was identified by rate-based analysis delineating regions where the average bycatch rate exceeded 0.5 chum salmon per ton of pollock over the time period considered (Figure 16). Over the entire B season, this area accounts for 77% of the chum salmon on average (1993-2007) and 45% of the pollock catch (Table 49).

Table 45 Option 1b) Medium area closure coordinates

56° 08'	163° 00'	56° 53'	171° 8'
54° 53'	164° 8'	56° 30'	170° 00'
54° 23'	166° 8'	56° 45'	167° 53'
56° 00'	169° 23'	56° 15'	165° 30'
56° 00'	170° 53'	56° 38'	164° 8'
56° 30'	172° 30'	56° 08'	163° 00'

As a single closure option, the trigger for this region would be formulated as follows:
[Additional information on the proportional trigger cap level for all closures will be provided in the Council briefing materials].

Option 1c) Large closure. This closure was identified by rate-based analysis delineating regions where the average bycatch rate exceeded 0.1 chum salmon per ton of pollock over the time period considered (Figure 16). Over the entire B season, this area accounts for 92% of the chum salmon on average (1993-2007) and 84% of the pollock catch (Table 48).

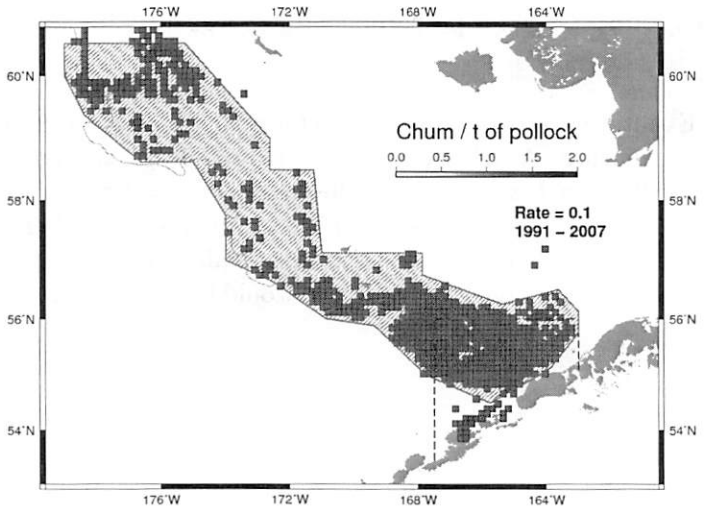
Table 46 Option 1c) Large area closure coordinates

57° 08'	171° 00'	55° 08'	163° 53'	57° 45'	174° 00'	60° 30'	175° 15'
57° 08'	167° 53'	54° 30'	165° 45'	58° 38'	175° 00'	59° 00'	172° 38'
56° 45'	167° 53'	55° 00'	167° 45'	58° 38'	176° 38'	58° 30'	172° 38'
56° 15'	165° 23'	55° 53'	169° 23'	59° 23'	178° 23'	58° 30'	171° 15'
56° 30'	163° 38'	56° 00'	170° 53'	60° 00'	179° 00'	57° 08'	171° 00'
56° 08'	163° 00'	56° 38'	172° 30'	60° 30'	179° 00'		
55° 45'	163° 00'	57° 00'	174° 00'				

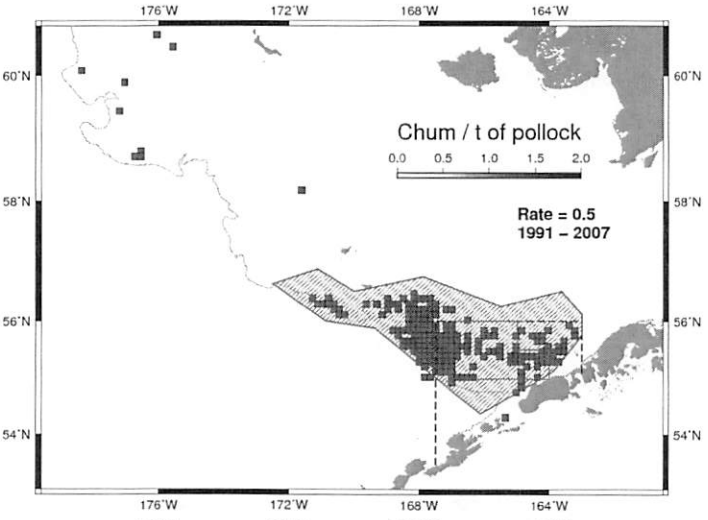
As a single closure option, the trigger for this region would be formulated as follows: [Additional information on the proportional trigger cap level for all closures will be provided in the Council briefing materials].

Option 2) Expanding area closure. This closure option takes all three areas collectively as an expanding area closure. A stair-step trigger cap limit closes each area as threshold trigger levels are reached. This stair-step begins with the closure of area 1a at trigger level 1, then if bycatch continues and trigger level 2 is reached, area 1b closes. If bycatch continues high enough to reach trigger level 3, then area 1c closes. Additional information will be provided in the Council briefing materials with respect to how these specific proportional trigger levels would be formulated.

Big area



Medium area



Small area

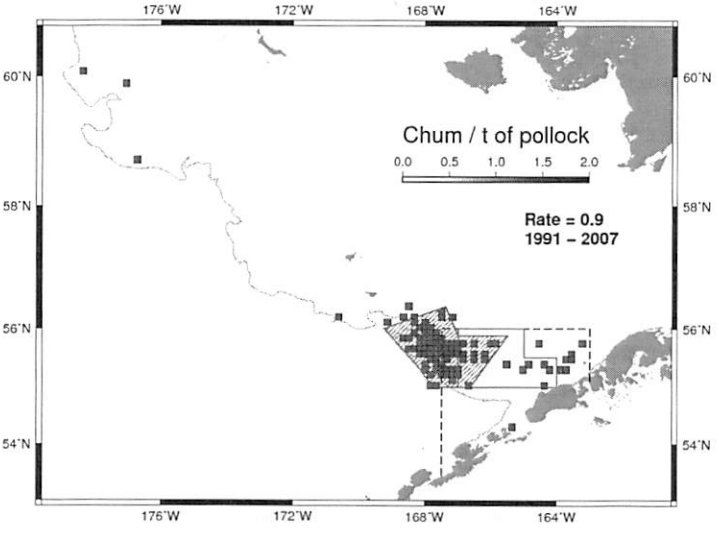


Figure 16 B-season chum salmon proposed closures over different rates based on 1991-2007 NMFS observer data. Filled in 10x10km cells represent locations where the average bycatch rate exceeded 0.1 chum salmon

per t of pollock (top panel), 0.5 chum per t of pollock (middle panel) and 0.9 (bottom panel).

Table 47 Average seasonal proportions by periods for 1993-2007 based on NMFS observer data (effort is relative hours towed, salmon are relative numbers, and pollock are relative tons).

Periods	Seasonal pollock proportion	Seasonal "other" salmon proportion	Seasonal effort proportion
Jun 1-7	0%	1%	1%
Jun 8-14	1%	1%	1%
Jun 15-21	2%	2%	2%
Jun 22-30	4%	3%	3%
Jul 1-7	4%	4%	3%
Jul 8-14	4%	2%	4%
Jul 15-21	4%	6%	3%
Jul 22-31	7%	6%	6%
Aug 1-7	5%	9%	5%
Aug 8-14	6%	5%	5%
Aug 15-21	7%	10%	7%
Aug 22-31	11%	7%	11%
Sep 1-7	9%	9%	9%
Sep 8-14	8%	9%	9%
Sep 15-21	8%	9%	9%
Sep 22-30	8%	5%	9%
Oct 1-7	5%	5%	6%
Oct 8-14	4%	4%	4%
Oct 15-21	2%	2%	3%
Oct 22-31	2%	1%	2%

Table 48 Average 1993-2007 seasonal pattern of other salmon bycatch per t of pollock in and outside of candidate closure areas (big, medium, and small) by different periods.

Area	Periods	Rate In	Rate Outside	Pollock inside	Chum Inside	Effort Inside
Big	**All of B season**	**0.222**	**0.099**	**84%**	**92%**	**81%**
Big	Jun 1-7	0.000	0.339	0%	0%	0%
Big	Jun 8-14	0.191	0.160	82%	85%	63%
Big	Jun 15-21	0.285	0.166	91%	94%	82%
Big	Jun 22-30	0.176	0.087	90%	95%	89%
Big	Jul 1-7	0.185	0.822	91%	68%	86%
Big	Jul 8-14	0.101	0.527	94%	76%	90%
Big	Jul 15-21	0.321	0.234	95%	96%	93%
Big	Jul 22-31	0.182	0.051	93%	98%	93%
Big	Aug 1-7	0.416	0.065	89%	98%	89%
Big	Aug 8-14	0.201	0.045	93%	98%	92%
Big	Aug 15-21	0.302	0.034	89%	99%	88%
Big	Aug 22-31	0.143	0.057	89%	95%	87%
Big	Sep 1-7	0.235	0.052	80%	95%	78%
Big	Sep 8-14	0.247	0.056	80%	94%	77%
Big	Sep 15-21	0.253	0.083	77%	91%	75%
Big	Sep 22-30	0.152	0.088	78%	86%	76%
Big	Oct 1-7	0.222	0.080	69%	86%	66%
Big	Oct 8-14	0.260	0.057	71%	92%	68%
Big	Oct 15-21	0.245	0.068	74%	91%	72%
Big	Oct 22-31	0.178	0.018	83%	98%	79%

Table 49 Average 1993-2007 seasonal pattern of other salmon bycatch per t of pollock in and outside of candidate closure areas (big, medium, and small) by different periods.

Area	Periods	Rate In	Rate Outside	Pollock inside	Chum Inside	Effort Inside
Medium	All of B	0.350	0.084	45%	77%	46%
Medium	Jun 1-7	0.000	0.339	0%	0%	0%
Medium	Jun 8-14	0.217	0.124	66%	78%	47%
Medium	Jun 15-21	0.376	0.117	61%	83%	54%
Medium	Jun 22-30	0.290	0.034	52%	90%	51%
Medium	Jul 1-7	0.375	0.152	42%	64%	41%
Medium	Jul 8-14	0.220	0.063	40%	70%	40%
Medium	Jul 15-21	0.794	0.049	36%	90%	35%
Medium	Jul 22-31	0.454	0.033	33%	87%	35%
Medium	Aug 1-7	0.978	0.035	36%	94%	38%
Medium	Aug 8-14	0.422	0.031	41%	90%	42%
Medium	Aug 15-21	0.487	0.125	41%	73%	45%
Medium	Aug 22-31	0.192	0.091	42%	60%	43%
Medium	Sep 1-7	0.318	0.108	43%	69%	44%
Medium	Sep 8-14	0.292	0.133	47%	66%	49%
Medium	Sep 15-21	0.317	0.102	52%	77%	53%
Medium	Sep 22-30	0.210	0.079	45%	68%	47%
Medium	Oct 1-7	0.298	0.072	47%	78%	48%
Medium	Oct 8-14	0.325	0.059	54%	86%	54%
Medium	Oct 15-21	0.302	0.053	59%	89%	58%
Medium	Oct 22-31	0.206	0.049	65%	89%	62%

Table 50 Average 1993-2007 seasonal pattern of other salmon bycatch per t of pollock in and outside of candidate closure areas (big, medium, and small) by different periods.

Area	Periods	Rate In	Rate Outside	Pollock inside	Chum Inside	Effort Inside
Small	All of B	1.216	0.144	5%	33%	5%
Small	Jun 1-7	-	0.338	0%	0%	0%
Small	Jun 8-14	0.221	0.186	0%	0%	0%
Small	Jun 15-21	0.034	0.283	3%	0%	3%
Small	Jun 22-30	0.372	0.161	3%	6%	3%
Small	Jul 1-7	0.040	0.255	5%	1%	4%
Small	Jul 8-14	0.289	0.104	12%	27%	11%
Small	Jul 15-21	2.473	0.118	8%	66%	8%
Small	Jul 22-31	0.965	0.131	5%	28%	5%
Small	Aug 1-7	3.137	0.138	8%	66%	7%
Small	Aug 8-14	0.607	0.166	6%	18%	6%
Small	Aug 15-21	1.363	0.200	6%	32%	7%
Small	Aug 22-31	0.833	0.109	3%	21%	4%
Small	Sep 1-7	0.970	0.148	6%	30%	7%
Small	Sep 8-14	2.199	0.137	3%	37%	4%
Small	Sep 15-21	1.519	0.128	6%	44%	6%
Small	Sep 22-30	0.963	0.108	4%	25%	4%
Small	Oct 1-7	0.940	0.128	6%	33%	6%
Small	Oct 8-14	1.538	0.153	3%	26%	3%
Small	Oct 15-21	0.817	0.152	7%	29%	7%
Small	Oct 22-31	0.383	0.111	14%	37%	12%

2.4.4.1.1 Suboption: Periodic adjustments to areas based on updated bycatch information.

The Council will reassess updated salmon bycatch information after a certain number of years and determine if adjustments to any area options implemented under this action are needed. If the Council selects this option, it would specify when the reassessment of salmon bycatch information would occur. Any revisions to the salmon bycatch management measures would require additional analysis and rulemaking. The Council may reassess any management measure at any time and does not need to specify a particular time for reassessment of the salmon bycatch management measures.

3.0 COMPARISON OF ALTERNATIVES

This section will be provided in the briefing materials for the April Council meeting. It will contain comparative information across alternatives, components and options pertinent to the impact analysis of these alternatives as well as graphic information (e.g. tables and flowcharts) intended to assist the Council in identifying a preferred alternative by species.

APPENDIX 1: COUNCIL MOTION FROM FEBRUARY 2008

D-1(a) BSAI Salmon Bycatch Motion

The Council forwards the problem statement and alternatives and options as provided in the February 2008 D-1(a) staff discussion paper for analysis with the following revisions. Additions are underlined and deletions are shown in strikethrough.

Replace the current problem statement present in December analysis with the following:

An effective approach to salmon prohibited species bycatch reduction in the Bering Sea pollock trawl fishery is needed. Current information suggests these harvests include stocks from Asia, Alaska, Yukon, British Columbia, and lower-48 origin. Chinook salmon are a high-value species extremely important to Western Alaskan village commercial and subsistence fishermen and also provide remote trophy sport fishing opportunities. Other salmon (primarily made up of chum salmon) harvested as bycatch in the Bering Sea pollock trawl fishery also serve an important role in Alaska subsistence fisheries. However, in response to low salmon runs, the State of Alaska has been forced to close or greatly reduce some commercial, subsistence and sport fisheries in Western Alaska. Reasons for reductions in the number of Chinook salmon returning to spawn in Western Alaska rivers and the Canadian portion of the Yukon River drainage are uncertain, but recent increases Bering Sea bycatch may be a contributing factor.

Conservation concerns acknowledged by the Council during the development of the Salmon Savings Areas have not been resolved. Continually increasing Chinook salmon bycatch indicates the VRHS under the salmon bycatch intercooperative agreement approach is not yet sufficient on its own to stabilize, much less, reduce the total bycatch. Hard caps, area closures, and/or other measures may be needed to reduce salmon bycatch to the ~~maximum~~ extent practicable under National Standard 9 of the MSA. We recognize the MSA requires use of the best scientific information available. The Council intends to develop an adaptive management approach which incorporates new and better information as it becomes available. Salmon bycatch must be reduced to address the Council's concerns for those living in rural areas who depend on local fisheries for their sustenance and livelihood and to contribute towards efforts to reduce bycatch of Yukon River salmon under the U.S./Canada Yukon River Agreement obligations.

Option 1 (applies to Alternatives 2 and 4):
Modify the PSC accounting period to begin at the start of the B season in one calendar year and continue through the A season of the following calendar year (if this option is not selected, the accounting period is the calendar year).

Option 2 (applies to Alternatives 3 and 4 only):
Exempt those vessels participating in a VRHS system from area closures.

Alternative 1: Status Quo

Alternative 2: Hard Cap

Option 1: Hard cap based upon average historical bycatch (1997-2006)

Sub-option	Description	Chinook	Chum
i)	3 year average (2004-2006)	68,392	498,733
ii)	5 year average (2002-2006)	57,333	355,194
iii)	10 year average (1997-2006)	43,328	207,620
iv)	10 year average (1997-2006): drop lowest year	47,591	225,515
v)	10 year average (1997-2006): drop highest year	38,891	151,585
~~vi)~~	~~10% increase of historical average (3 years, 2004-2006)~~	~~75,231~~	~~548,607~~
~~vii)~~	~~20% increase of historical average (3 years, 2004-2006)~~	~~82,070~~	~~598,480~~
~~viii)~~	~~30 % increase of historical average (3 years, 2004-2006)~~	~~88,909~~	~~648,353~~
~~ix)~~	~~10% increase of highest year (pre-2007)~~	~~91,583~~	~~783,133~~
~~x)~~	~~20% increase of highest year (pre-2007)~~	~~99,908~~	~~854,327~~
~~xi)~~	~~30% increase of highest year (pre-2007)~~	~~108,234~~	~~925,521~~

Option 2: Cap set relative to salmon returns

Option 3: Cap set based on Incidental Take ~~Permit~~ amount
This involves setting the Chinook (only) cap at 87,500 fish.

Option 4: Set cap ~~in accordance with International treaty considerations~~ relative to bycatch levels pre-accession to the Yukon River Agreement (1992-2001, based on average historical bycatch pre-2002)

Sub-option	Description	Chinook	Chum
~~i)~~	~~3 year average (1999-2001)~~	~~16,795~~	~~55,542~~
ii)	5 year average (1997-2001)	29,323	60,046
iii)	10 year average (1992-2001)	32,482	77,943

Analysis of hard cap levels

For analysis, spread the range of estimated bycatch under Options 1, 3, and 4 and select four equally spaced numbers for analysis, approximately as follows:

	Chinook	Chum
Analysis point 1	29,323	60,046
Analysis point 2	48,715	206,275
Analysis point 3	68,108	352,504
Analysis point 4	87,500	498,733

Option 5: Divide the final cap by sectors based on
i) 10% of the cap to the CDQ sector, and the remaining allocated as follows: 50% shore based CV fleet; 10% for the mothership fleet; and 40% for the offshore CP fleet

ii) Historical average of percent bycatch by sector based on 3, 5, and 10 year averages (see Alternative 2, Option 1 for range of years)

Transfer suboptions:
i) Transfer salmon bycatch among sectors (industry initiated)
ii) NMFS will rollover unused salmon bycatch to other sectors and ~~inshore~~ **other** cooperatives still fishing

Option 6: Divide the sector cap by cooperative based upon the percent of total sector pollock catch their coop allocation represents. Except for catcher vessels that deliver unsorted cod end, participation in pollock fishery for vessels will require a minimum of 100% observer coverage or video monitoring to ensure no at-sea discards. When ~~the Chinook~~ a salmon coop cap is reached, the coop must stop fishing for pollock and may:

i) Lease their remaining pollock to another coop (inter-cooperative transfer) within their sector for that year (or similar method to allow pollock harvest with individual coop accountability)
ii) ~~Purchase~~ Transfer salmon bycatch from other inshore cooperatives

Rollover suboption: NMFS will rollover unused salmon bycatch to other sectors and inshore cooperatives still fishing

Option 7: Periodic adjustment for updated bycatch information

A time period may be specified after which caps may be re-specified with updated bycatch data.

Alternative 3: Fixed closures

Option 1: Timing options

i. A season (Chinook only)
ii. B season (Chinook and Chum)

Option 2: Area options

Option 3: Periodic adjustment for updated bycatch information

A period may be specified after which areas may be re-specified with updated bycatch data.

Alternative 4: Triggered closures

Option 1: Timing options

i. A season
ii. B season

Option 2: Area options

i. Adjust area according to the number of salmon caught
ii. Single area closure
iii. Multiple area closures

Option 3: Periodic adjustment for updated bycatch information

A time period may be specified after which areas may be re-specified with updated bycatch data.

Option 4: Trigger Cap formulation

See Alternative 2 for description of cap formulation options.

Option 5: Divide the final cap by sectors based on:

i) 10% of the cap to the CDQ sector, and the remaining allocated as follows: 50% shore based CV fleet; 10% for the mothership fleet; and 40% for the offshore CP fleet
ii) Historical average of percent bycatch by sector based on 3, 5, and 10 year averages (see Alternative 2, Option 1 for range of years)

Transfer suboptions:

i) Transfer salmon bycatch among sectors (industry initiated)
ii) NMFS will rollover unused salmon bycatch to other sectors and inshore cooperatives still fishing

~~**Option 6: Divide the sector cap by cooperative based upon the percent of total sector pollock catch their coop allocation represents. When the Chinook salmon coop cap is reached, the coop must stop fishing for pollock and may:**~~

~~i) Lease their remaining Pollock to another coop (inter-cooperative transfer) within their sector for that year (or similar method to allow pollock harvest with individual coop accountability)~~
~~ii) Purchase salmon bycatch from other cooperatives.~~

Candidate closures for Alternatives 3 and 4

1) Closures areas defined by historic effort

1a) Fixed A season closure (Chinook)
1b) Sequential two-week A season closures (Chinook)
1c) Sequential two-week B season closures (Chinook)
1d) August B season closure (Chum)

2) Candidate Closure areas defined by rate-based criteria

2a) Rate-based criteria 0.10 Chinook/pollock (t)
2b) Rate-based criteria 0.125 Chinook/pollock (t)
2c) Rate-based criteria 0.15 Chinook/pollock (t)
2d) Rate-based criteria 0.175 Chinook/pollock (t)
2~~b~~e) Rate-based criteria 0.20 Chinook/pollock (t)
~~2c) Rate-based criteria 0.30 Chinook/pollock (t)~~
~~2d) Rate-based criteria 0.40 Chinook/pollock (t)~~

3) Candidate Closure areas defined by percent bycatch reduction criteria

3a) 50% bycatch reduction closure
3b) 75% bycatch reduction closure

The Council request staff further develop a discussion paper to reduce BSAI salmon bycatch in the pollock trawl fishery through market mechanisms ~~such as~~ **including, but not limited to,** per salmon fees (likely administered by industry) or forced transfer of some increment of pollock for each salmon harvested. This discussion paper should include an overview of legal concerns, possible fee collection and use options, and management/administrative concerns.
The Council requests that industry present additional candidate closure areas at the April 2008 meeting.

APPENDIX 2: SALMON MORTALITY BY SPECIES 1992-2007

Written Comment and Testimony
04/04/08

Francis Thompson
P.O. Box 111
St. Mary's, Alaska 99658
Phone (907) 436-2023
E-Mail amaar_culi@yahoo.com

Mr. Chairman and members of the Council:

Waqaa! My name is Francis Thompson, I am a Subsistence/Commercial Fisherman from St. Mary's which is located on the Lower Yukon River, a Panel member of the U.S/Canada Yukon River Panel since 2001 to present and was an Advisory Member from 1996 to 2000.

This testimony addresses my concern with the Bering Sea Salmon Bycatch by the Bering Sea trawl fishery
The Board of Fisheries in 2001 implemented fisheries management strategies for ADF&G to implement because the Chinook salmon was classified as a Yield Concern
I would also like to mention that the U.S/Canada Panel agreement was signed in 2001 after 16 years of hard negotiations by both countries. Since the agreement, both countries have worked very hard to rebuild the Yukon River Chinook salmon stocks and both the Department of Fisheries and Oceans - Canada and ADF&G have managed the fisheries very conservatively in providing the recommended BEG and SEG's into salmon tributaries in both countries.
The U.S. Yukon River Salmon Panel is composed of six Panel Members, six Alternate Panel Members and 8-12 Advisors
"The Yukon River Salmon Agreement outlines steps to ensure the future for the Yukon River salmon fishery through harvest sharing, research and habitat protection. Ultimately, the Agreement was the work of the people who depend upon salmon for subsistence, cultural, commercial or recreational purposes. There would have been no forward movements in the negotiations for the Agreement without the people's dedication and hard work to preserve the Yukon River way of life. The people of the Yukon River should take great pride in the Yukon River Salmon Agreement set in place to protect their salmon resources." Quote taken from the Yukon River Salmon Agreement Handbook.
Mr. Chairman and members of the Council
My father John Thompson Sr., who is now 86 years old and others many whom have passed on or have aged, expressed their concern of salmon bycatch (Chinook, chum) by first the high seas drift net fishermen, foreign trawl fleets and just recently with the domestic trawl fleet (since the inception of the Magnusson/Stevens Act). They battled for 30 plus years for the federal government to reduce bycatch so that the Western Alaska salmon fisheries would rebound back to historical levels. What has been done? The State of Alaska and the Federal Subsistence Board have managed the people and the salmon within the river systems by reducing subsistence harvest opportunity by placing windows fishing, creating tier systems and reducing/eliminating commercial fisheries within the river systems. All this has created economic and social hardship, reduced opportunity for subsistence and commercial fishing for approximately 18,000 People within the Alaska side of the Yukon River and about 12,000 people in the Yukon Territory of Canada. A lot of people on the Yukon River both in Alaska and the Yukon Territory have not or have had a difficult time harvesting their AMOUNT NEEDED for SUBSISTENCE for Salmon and have not had a commercial fisheries for to long, your

emergency action and attention on this issue of bycatch need to be immediate, not next year, not in 2010 but now. For every year you delay that is 5 to 7 years that we may see if your action is positive for the rebuilding of the salmon resources within our river system. (2 year delay 10 to14 years and so on)

Commercial Fishing of our Salmon resource for families in the Lower Yukon River and for many families throughout the Yukon River Drainage is our only source of income and what little we earn **supplements our subsistence lifestyle.** We once harvested 80 to 120,000 Chinook (valued at approx 5-8million dollars)and now it is 0 – 35,000 (Approx. 2 millionDollars). Subsistence use to be 7 days a week now it is two 36 hour periods. (2008 Subsistence fishing Schedule and Fisheries outlook enclosed)

Mr. Chairman and members of the Council

I and many people of the Yukon River are up against a brick wall and we cannot give no more and your action to help us restore our resource is needed.

Sure you can blame the people of the in river systems for their demise but, we all know that the interception of salmon by the high seas fisheries and the trawl industry is the major problem as you have seen in many reports that you have received by state and federal agencies and people such as my father and many others who have testified before the council all these years. You can also relate this kind of destruction with the East Coast of the United States

The trawl fisheries should not have been started only after an EVIRONMENTAL IMPACT STATEMENT was completed. This process of assessment is needed before any new fisheries or game harvest is started within the river and game management units in Alaska or any where in the United States as to what affect it will have on the resource and people within the area. If it will have a negative impact it will not be created or continued.

In conclusion, the recommendation is to:

1) **Close the Bering Sea Pollock Fishery until such time the Environmental Impact Statement is Completed**
2) **Enlarge the Savings Area to protect the Chinook and other salmon species**
3) **Implement a MANDATORY ROLLING HOTSPOT SYSTEM**
4) **Incorporate a hard cap of 37,000 Chinook and 70,000 non-Chinook**
5) **Reduce Pollock Quota to 800,000 metric tonnes Proposed 1mil mt will only bring quota back down to what it us to be.**

Quyana

_____

Francis Thompson

2008 Yukon River Salmon Fisheries Outlook

This information sheet describes the anticipated management strategies of the 2008 season. State and Federal fishery managers will coordinate management of the Yukon River subsistence salmon fishery.

RUN AND HARVEST OUTLOOK

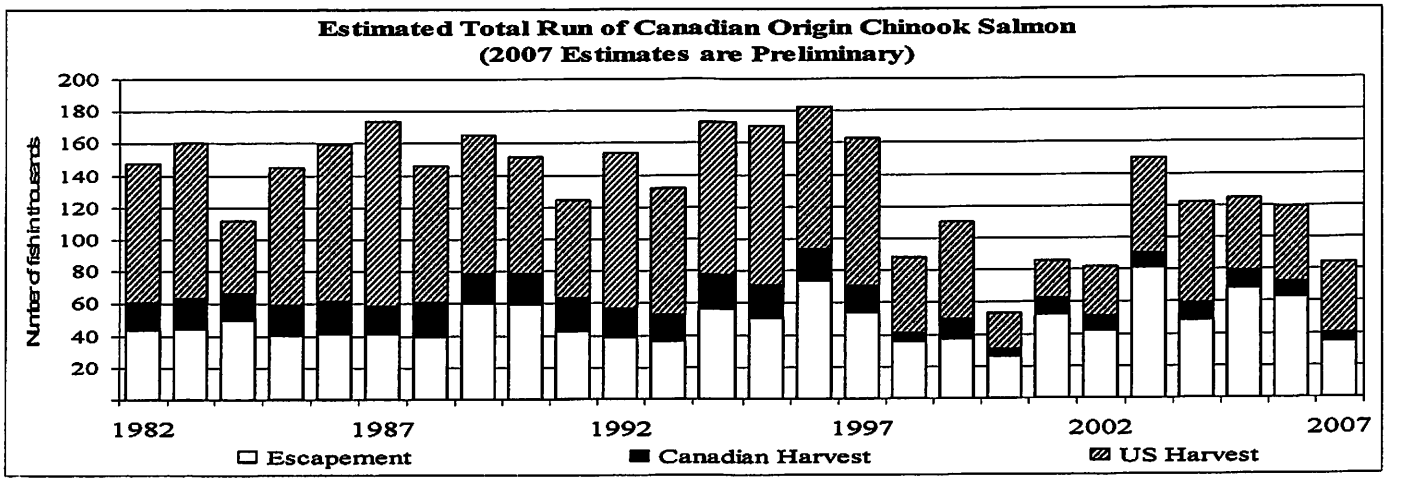
Chinook Salmon
Below average run is projected to provide for escapement and subsistence uses.
2008 Chinook salmon run is anticipated to be similar to 2007.
Commercial harvest is anticipated to be between 5,000 and 30,000 fish.

Chum Salmon
Average run is projected to provide for escapement and subsistence uses.
Summer chum commercial harvest is anticipated to be between 500,000 and 900,000 fish.
Fall chum commercial harvest is anticipated to be between 50,000 and 400,000 fish.

Coho Salmon
Average to above average run is projected to provide for escapement and subsistence uses.
Runs have been increasing due to improved production.
Commercial harvest is anticipated to be between 50,000 and 70,000 fish.

MANAGEMENT STRATEGIES

- Initial management will be based on preseason projections and shifted to inseason project information as the runs develop.
- Continue the regulatory subsistence salmon fishing schedule until run assessment indicates there is a harvestable surplus for additional subsistence opportunity and other uses.
- Because of the unexpected weak Chinook run in 2007, the department will be delaying Chinook directed commercial fishing in 2008 until the midpoint of the run to ensure that escapement and subsistence needs and Canadian border obligations will be met. At that time, Chinook directed openings may occur if a surplus is identified beyond escapement and subsistence needs.
- If a surplus of summer chum salmon is identified above escapement and subsistence needs, there may be directed chum commercial fishing with gillnets restricted to 6 inch maximum mesh size. The actual commercial harvest of summer chum will likely be dependent on market conditions and may be affected by a potentially poor Chinook run.
- The US/Canada Yukon River Panel agreed to a one year Canadian Interim Management Escapement Goal (IMEG) of >45,000 Chinook salmon based on the Eagle sonar program and set a 3 year IMEG for the Fishing Branch River of 22,000 to 49,000 fall chum salmon based on the Fishing Branch River weir count.
- The US/Canada Yukon River Panel agreed to a Canadian Yukon River fall chum salmon mainstem escapement objective of >80,000 fish based on the Eagle sonar program.



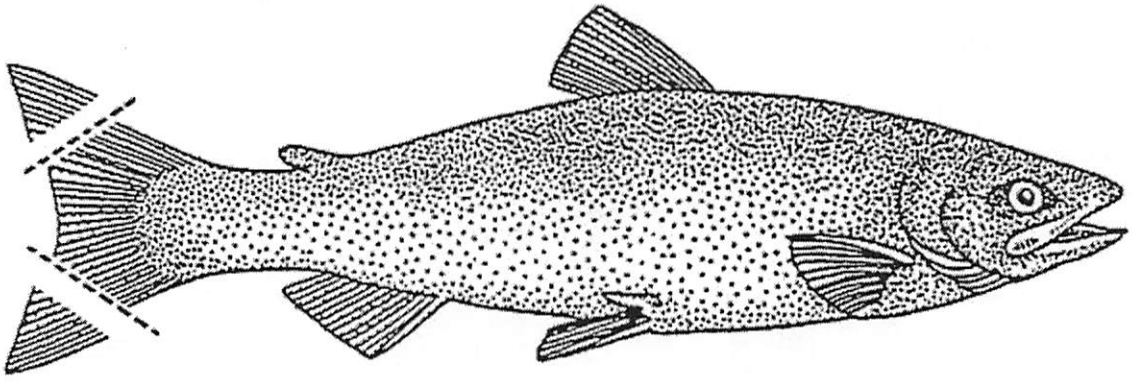
2008 Subsistence Fishing Schedule

The subsistence salmon fishing schedule will be used early in the season until the salmon run size is projected to be of sufficient strength to warrant discontinuing the schedule. The schedule is intended to reduce harvest impacts during years of low salmon runs on any particular run component and to spread subsistence harvest opportunity among users. The schedule is based on current, or past, fishing schedules and should provide reasonable opportunity for subsistence users to meet their needs. Please Note: this schedule is subject to change depending on run strength.

Area	Regulatory Subsistence Fishing Periods	Schedule to Begin	Days of the Week
Coastal District	7 days/week	By Regulation	M/T/W/TH/F/SA/SU – 24 hours
District 1	Two 36-hour periods/week	May 26, 2008	Mon. 8 pm to Wed. 8 am /Thu. 8 pm to Sat. 8 am
District 2	Two 36-hour periods/week	May 28, 2008	Wed. 8 pm to Fri. 8 am / Sun. 8 pm to Tue. 8 am
District 3	Two 36-hour periods/week	May 30, 2008	Fri. 8 am to Sat. 8 pm / Tue. 8 am to Wed. 8 pm
District 4	Two 48-hour periods/week	June 8, 2008	Sun. 6 pm to Tue. 6 pm / Wed. 6 pm to Fri. 6 pm
Koyukuk River	7 days/week	By Regulation	M/T/W/TH/F/SA/SU – 24 hours
Subdistricts 5-A, B, C	Two 48-hour periods/week	June 17, 2008	Tue. 6 pm to Thu. 6 pm /Fri. 6 pm to Sun. 6 pm
Subdistrict 5-D	7 days/week	By Regulation	M/T/W/TH/F/SA/SU – 24 hours
District 6	Two 42-hour periods/week	By Regulation	Mon. 6 pm to Wed. Noon /Fri. 6 pm to Sun. Noon
Old Minto Area	5 days/week	By Regulation	Friday 6 pm to Wednesday 6 pm

All subsistence salmon fishing with gillnets and fish wheels must be stopped during subsistence salmon fishing closures.

NOTICE: In **Districts 1-3**, from **June 1 to July 15** a person may not possess king salmon taken for subsistence uses unless **both tips (lobes) of the tail fin** have been removed. Marking must be done before the person conceals the salmon from plain view or transfers the salmon from the fishing site. A person may not sell or purchase salmon from which both lobes of the tail fin have been removed.



For additional information:

ADF&G Steve Hayes in Anchorage 907-267-2383; Fred Bue, Fairbanks 907-459-7274; or Emmonak 907-949-1320
Subsistence Fishing Schedule-1-866-479-7387 (toll free outside of Fairbanks); in Fairbanks, call 459-7387
USFWS: Russ Holder in Fairbanks 907-455-1849 or 1-800-801-5108; or in Emmonak 907-949-1798

February 25, 2008

Southern Norton Sound Fish and Game Committee
Art Conrad Ivanoff
Box 49
Unalakleet, Alaska 99684

North Pacific Fishery Management Council
Attention: Eric Olsen
605 West 4th Avenue, Suite 306
Anchorage, Alaska 99501

RE: PETITION CALLING FOR ZERO TOLERANCE OF ALL BY CATCH OF SALMON SPECIES AND IMPLEMENTING A NEW PROCESS TO REGULATE BY CATCH OF THE SALMON SPECIES.

Dear Mr. Olsen:

The Southern Norton Sound Fish and Game Advisory Committee (SNSAC) met in February of 2008. A call to action was agreed upon by the SNSAC to address bycatch of king salmon in the Bering Sea Aleutian Islands Region (BSAI). SNSAC is compelled to come before you, without prejudice nor malice, but with a deep sense of conviction for new measures that we deem are justifiable. These new measures are based on hard facts and are warranted. The bycatch will and potentially is having a major impact on the fisheries in the Arctic Yukon Kuskokwim region (AYK). We are calling on new regulations that discourage and reduce bycatch of all salmon species. This, in our view, is a precautionary course of action.

SNSAC is calling on the North Pacific Fisheries Management Council to adopt a zero tolerance policy of bycatch of all salmon species. This measure is **imperative** to ensure the conservation of renewable wild salmon resources for river systems across Arctic Yukon Kuskokwim. Basic conservation issues and subsistence needs in the AYK are under threat with the current bycatch rate. A zero tolerance approach needs teeth to ensure full compliance and enforcement.

SNSAC is recommending a new process to include fines that discourage bycatch of all salmon species. SNSAC is proposing a new regulation that levies a fine of $100,000 for every 1,000 salmon taken in the BSAI. This includes bycatch of chinook, coho, chum, or sockeye salmon. Fines levied against the industry must be obligated to the AYK region using the Bering Sea Fishermen's Association or other fishery related institutions.

1,000 chinook may appear to be small in numbers, but that 1,000 will have a major impact on any small tributary in the AYK region. The current bycatch shows that 130,000 chinook salmon were taken. This is a staggering figure to contemplate and the rate has steadily increased over the years. SNSAC believes new measures are needed to discourage and reduce bycatch. It is important to remember that these figures are impacting villages that rely on salmon for subsistence as well as carrying on age-old customs. Indigenous societies are being negatively impacted. It is clearly evident that meeting basic escapement goals have been plaguing the Norton Sound Subdistricts 5 and 6 which has impacted commercial, sport and subsistence uses. (see below)

The Alaska Department of Fish and Game, Sport Fish Division released four (4) Emergency Orders beginning on July 02, 2003 and running up to July 6, 2007. (See description below)

1. **DEPARTMENT PROHIBITS THE RETENTION OF KING AND CHUM SALMON IN ALL WATERS OF THE UNALAKLEET AND SHAKTOOLIK RIVERS.** The Emergency Order was based on escapement counts along both rivers systems as outlined;

   Escapement counts of king and chum salmon at the North River tower on the Unalakleet River have been low with only 78 king and 88 chum salmon counted through June 30, 2003. During 2001 and 2002, an average of 229 king and 477 chum salmon had been counted by this date. The resulting escapement goal for king salmon were 1,337 (2001) and 1,484 (2002) king salmon, achieving the escapement goal for king salmon of 1,200-2,400 past the tower. Although it is still early in the run, it appears that the escapement goal for king salmon will not be reached in 2003.

2. **Emergency Order No. 3-KS-06-04**-Prohibits the retention of king salmon in all waters of the Unalakleet River drainage, effective July 10 through December 31, 2004, and prohibits the use of bait while sport fishing these waters

3. **Emergency Order No. 3-KS-01-06**-Prohibits the retention of king salmon in all waters of the Unalakleet and Shaktoolik river drainages, effective July 8 through August 15, 2006, and prohibits the use of bait while sport fishing these waters.

4. **Emergency Order No. 3-KS-01-07**-Prohibits the retention of king salmon in all waters of the Unalakleet and Shaktoolik river drainages, effective July 6 through August 15, 2007, and prohibits the use of bait while sport fishing these waters.

This was in fact the case, the Norton Sound Subdistricts 5 and 6 have not been able to reach escapement of between 1,200-2,400 kings until in 2007. Doubt remains by local residents whether Norton Sound Subdistricts 5 and 6 reached the escapement goals as indicated by the Alaska Department of Fish and Game.

> The Department does not have a stock assessment project in the Shaktoolik River, but runs of king and chum salmon generally cycle in accordance with Unalakleet stocks. Subsistence catches at both locations have been lower than in the past years both in the ocean and respective rivers.

Since 2003, the Alaska Department of Fish and Game resorted closing down subsistence fishing due to efforts in reaching escapement goals. The Alaska Department of Fish and Game approached the community of Unalakleet in December of 2008 suggesting a moratorium on subsistence fishing of king salmon. The commercial fleet from the sub-districts of Shaktoolik and Unalakleet have not fully participated and benefited in the chinook salmon fisheries since 1998. Since that time period, commercial fisheries have been nearly non-existent. Sport fishing along the river systems has been severely impacted and reduced.

In 2006, the Alaska Department of Fish and Game, Division of Commercial Fisheries released a report entitled; **Norton Sound Shaktoolik and Unalakleet Subdistricts Chinook Salmon Stock Status and Action Plan, 2007; A Report to the Alaska Board of Fisheries.** The report has clearly documented problems meeting basic escapement goals along the Unalakleet and

Shaktoolik River systems. This has impacted all consumptive users, be that commercial, sport and subsistence users. The report documents the following;

> In response to the guidelines established in the *Policy For Management of Sustainable Fisheries* (SSFP; 5 ACC 39.222), the Alaska Board of Fisheries (BOF) classified the Norton Sound Subdistricts 5 (Shaktoolik) and Subdistrcits 6 (Unalakleet) Chinook salmon *Oncorhynchus tshawytscha* stock as a stock of concern, specifically a yield stock concern arising from a chronic inability, despite the use of specific management measures, to maintain expected yields, or harvestable surpluses, above a stock's escapement needs;

To sum up justifications for these new measures and fines associated with new regulations, SNSAC found the following based on facts from reports from the Alaska Department of Fish and Game;

1. Since 2003, the Unalakleet River has not made escapement.

2. The Unalakleet River Chinook salmon have been designated a stock of yield concern since 2004.

3. In 2007, the Alaska Board of Fisheries continued this designation and adopted a new management plan that incorporates a restrictive subsistence-fishing schedule.

Due to the urgency, SNSAC is calling for these measures to ensure: 1) Conservation of the salmon species and 2) Subsistence, sport and commercial needs are attainable for generations to come. These new precautionary measures and punitive actions will have a positive effect ensuring basic escapement goals for the Shaktoolik and Unalakleet Rivers systems are met. The strength of the salmon runs along the Arctic Yukon Kuskokwim is, more then likely, dependent on the decision of the North Pacific Fisheries Management Council to do the right thing, the just thing. The residents appeal to your better judgment.

Sincerely,

Art Conrad Ivanoff
Southern Norton Sound AC

Cc: Senator Ted Stevens
Senator Lisa Murkowski
Congress Don Young
Governor Sarah Palin
Dirk Kempthorne, DOI
Mike Fleagle, Federal Subsistence Board
Julie Kitka, AFN
Heather Kendal-Miller, Native American Rights Fund
Associated Press

Date: April 4, 2008
To: North Pacific Fisheries Management Council

From: Julie Raymond-Yakoubian
Anthropologist
Kawerak, Inc.
PO Box 948
Nome, AK 99762

Re: Testimony regarding Agenda Item D-1, salmon bycatch EIS

Mr. Chairman and Council members,

My name is Julie Raymond-Yakoubian. I am an anthropologist with Kawerak in Nome. Kawerak is an Alaska Native regional non-profit that represents 20 tribal governments in the Bering Strait/Norton Sound region. At this point in time we only have one subject to comment on and that is the issue of Tribal Consultation.

Over the past two days I have heard it claimed that consultation has been commenced because some 600+ letters were mailed out to tribes and associated tribal organizations. However, mailing letters with no formal protocol for follow-up or other actions to be taken cannot, in good faith, be considered Tribal Consultation. The fact that only 12 tribal comments were received in response to over 600 letters should obviously indicate that this approach is not working. Letters may, of course, be a component of Tribal Consultation, but in and of themselves do not constitute consultation. It is also not appropriate to put the onus on tribes by noting in such a letter that if they want more detailed information, explanations, or community visits regarding this EIS that they should be the ones to initiate all future contact. It is the responsibility of the Federal entity to ensure that Tribal concerns are addressed and that they are addressed in a meaningful and timely manner so that communities have ample time to consider all the issues and can in fact be involved in the process from start to finish.

We certainly would not want the lack of written responses from Northwest Alaska communities to be interpreted as a lack of interest because that would be dead wrong. Communities in our region have been experiencing low salmon returns and restrictions on subsistence salmon fishing for years. The issue of salmon bycatch is of great interest to and has a huge impact on the communities of our region. This is not just an issue of economic survival, but is also an issue of family, community and cultural survival.

We would also like to note that while Kawerak, along with the communities of our region, believe that immediate action needs to be taken regarding the salmon bycatch issue, we are very concerned about the proposed timeline for this EIS. It seems very unlikely that meaningful consultation can be carried out within this timeline. As such, we recommend that a hard cap be immediately put in place and that EIS timeline be modified so that Tribal Consultation and any other analysis of issues can be addressed as fully and completely as possible.

The Department of Commerce currently has an American Indian and Alaska Native Policy (1995) and a Secretarial Order (1997) which directs that government-to-government consultations will be carried out with Alaska Native tribes. I would like to point out that these documents refer specifically to federally recognized tribes and not "ANCSA corporations." I assume that the policy and order apply to NMFS and the NPFMC because they indicate that they are directed at "all Commerce agencies, bureaus and their components."

We strongly encourage the Council, as well as NMFS, to formally acknowledge these directives and commit to implementing them by developing appropriate protocols outlining the process that all future consultations will follow. These protocols should also be formulated with the input of Alaska Native tribes. We hope that this issue will be taken very seriously and that immediate action will be taken to implement a comprehensive, sensitive and respectful consultation policy and associated protocols.

Thank you for your time.

April 2008

TO THE HONORABLE BOARD OF DIRCTORS OF NPFMC

THANK YOU FOR THE OPPORTUNITY TO TESTIFY BEFORE YOU. I ALSO THANK AZACHOROK INC. FOR OPPORTUNITY TO ATTEND THIS VERY IMPORTANT MEETING.

I AM PAUL BEANS FROM MOUNTAIN VILLAGE 70 MILES UP FROM THE MOUTH OF THE YUKON RIVER. I AM A SUBSISTENCE AND COMMERCIAL FISHERMAN. MOUNTAIN VILLAGE IS LOCATED IN THE Y-2 DISTRICT. I WOULD LIKE TO EXPRESS MY OPINION ON COMMERCIAL FISHING ON THE YUKON. I DISCLOSE THAT MOUNTAIN VILLAGE IS A MEMBER OF YUKON DELTA FISHERIES DEVELOPMENT ASSOCIATION.

EVERY SPRING WE WAIT FOR THE FIRST SALMON TO ARRIVE IN THE VILLAGE. THE FAMILIES PREPARE THEIR FISH CAMPS AND GEAR TO CUT FISH FOR THE COMING WINTER. COMMERCIAL FISHERMAN WAIT FOR THE FIRST OPENING WILL BE FOR CHINOOK SALMON. WHICH HAS BECOME INCREASINGLY LATE EACH SUMMER IN RECENT YEARS. THE DIFFERENT VILLAGERS TALK ON THE VHF AND WONDER EACH DAY AND HOUR THAT THE DEPARTMENT OF FISH AND GAME WILL ALLOW A FIRST OPENING. THE OPENINGS ARE VERY SHORT WHEN OPEN BY EMERGENCY ORDER FOR ONLY 12 HOURS A WEEK. FISH ARE NOT ALWAYS THERE WHEN WE OPEN AND WHEN WE MISS THE PULSES OF CHINOOK WE DO NOT MAKE ENOUGH AT ALL TO COVER OUR BILLS AND NO MAINTENANCE DONE ON OUR GEAR. WHEN THE BOATS COME ITO MOUNTAIN VILLAGE AFTER A CLOSURE TO DELIVER AT THE KWIKPAK BARGE RIDING HIGH WE KNOW THAT THERE IS NO FISH AND THE FISHERMAN ARE IN MORE OR LESS LIKE IN A DAZE. WE HEAR THE DISAPPOINTMENT BY THE VHF RADIOS THAT THERE WAS NO FISH DURING THE SHORT OPENING.

IT HAS BEEN GETTING INCREASINGLY DIFFICULT SINCE THE NINETIES FOR OUR COMMERCIAL FISHERMAN TO DO GOOD FROM THE RIVER. THERE IS POINTING OF FINGERS ALONG THE YUKON OF WHY THE FISH ARE DEMINISHING EACH YEAR. DURING THE SUMMER OF 2006 43,000 KINGS WERE CAUGHT COMMERCIALLY AND DURING 2007 ONLY A LITTLE OVER 30,000 WERE CAUGHT. WE WERE TOLD LAST YEAR THAT THERE WILL BE VERY LIMITED CHINOOK COMMERCIAL FISHING IN 2008 DUE TO DECREASE IN THE NUMBER OF CHINOOKS ENTERING THE YUKON. THE NEWS IS VERY DEVASTING TO US THAT DO COMMERCIAL FISH FOR MANY YEARS ON THE YUKON. THE NEWS IS NOT SINKING IN MY MIND AND PROBABLY MANY OTHERS. SINCE IT HAS BEEN CUSTOMARY THAT WE FISH FOR CHINOOK EACH YEAR FOR MANY YEARS.

IN MARCH 26. 2008 I WATCHED ON TV. A ROUND TABLE DISCUSSION BY THE HOUSE FISHERIES COMMITTEE IN JUNEAU REGARDING THE BYCATCH OF CHINOOK OUT IN THE OCEAN AND A NUMBER OF 130,000 WAS MENTIONED FOR 2007. WHAT WAS MENTIONED THAT WILL BE VERY LIMITED COMMERCIAL FISHING FOR CHINOOK OR NOT AT ALL ON THE YUKON THIS COMING SUMMER.WITHOUT KING OPENING IT WILL BE DIFFICULT TO MAKE UP THE DIFFERENCE WITH TARGETING SMALL FISH SUCH AS CHUM. FALL CHUM, OR THE COHO. SMALL FISH PRICES HAVE BEEN VERY LOW IN PAST YEARS DUE TO NO DEMAND FOR SMALL FISH.

WE FISHERMAN DO NOT RECEIVE DIRECT CASH BENEFIT FROM BEING A MEMBER VILLAGE FROM YDFDA. THEY DO RUN THE KWIKPAK FISHERY AND THEY ARE HELPING TO ENHANCE THE ECONOMY OF THE LOWER YUKON VILLAGES. THEY ISSUE SCHOLARSHIPS TO OUR YOUNGER GENERATION TO FURTHER THEIR EDUCATION. YDFDA HIRES MANY LOCAL PEOPLE IN THE HIGH SEAS FISHERY AND KWIKPAK FISHERIES. THE ECONOMICT ENHANCEMENT IS GREATLY APPRECIATED IN THE LOWER YUKON.

WHAT I WOULD NOT WANT TO SEE IS WE THE YUKON COMMERCIAL AND SUBSISTENCE FISHERMAN SACRIFICE OUR YUKON FISH SO ANOTHER FISHERY WILL PROSPER. THERE MUST BE A HARD CAP CONSIDERED BY THE NORTH PACIFIC FISHERIES MANAGEMENT COUNCIL SO THAT OUR YUKON CHINOOK FISH ENTER THE RIVER AND THE OCEAN FISH BOATS ARE ABLE TO CONTINUE THEIR OPERATION OUT IN THE BERING SEA. AT THE PRESENT RATE OF THE BYCATCH RISING THE YUKON CHINOOK WHICH IS CONSIDERED ONE OF THE BEST IN THE WORLD BE NON-EXISTENT. IT IS SAD.

THE MOUNTAIN VILLAGE WORKING GROUP DREW UP RESOLUTION 07-04 REGARDING THE BYCATCH OF CHINOOK SALMON TO NPFMC. THIS RESOLUTION IS A PLEA TO PROVIDE A HARD CAP ON THE CHINOOK BYCATCH IN ORDER FOR THE FISH TO RETURN TO THE YUKON EACH YEAR. STATUS QUO OF CHINOOK BYCATCH CANNOT BE CONSIDERED AT ALL DUE TO UNCERTAIN FUTURE OF ESCAPEMENT OF THIS VALUABLE RESOURCE TO THE YUKON VILLAGES FROM Y-1 TO Y-6 AND CANADA.

Paul Beans

April 1, 2008

My name is Alexie Walters Sr. from Mtn. Village which is located on the Lower Yukon River. I am a lifelong subsistence fisherman. We value our Chinook, summer and fall Chum, and Coho salmon that enter the Yukon River each year. Every summer we cut and dry our salmon to help us get through the winter months. It is getting increasingly harder each year due to the high cost of gasoline, gear and food to make ends meet these days.

We are getting extremely concerned about the bycatch of Chinook in the Bering Sea Pollock fishery. The bycatch must be limited in order for our fish to return each year. Bycatch for 2007 is over 100,000 Chinook and the best estimate is the majority of the fish caught out there is Western Alaska stock. A hard cap of 40,000 is needed immediately to protect the Yukon Chinook salmon.

Alexie Walters Sr.

Alexie Walters, Sr.

City of Mountain Village
P.O. Box 32085
Mountain Village, AK 99632

Asa'carsarmiut Tribal Council
P.O. Box 32249
Mountain Village, AK 99632

Azachorok, Inc.
P.O. Box 32213
Mountain Village, AK 99632

JOINT RESOLUTION 07-04

A RESOLUTION REQUESTING THE NORTH PACIFIC FISHERIES MANAGEMENT COUNCIL IMPLEMENT TIMELY AND EFFECTIVE MEASURES TO REDUCE SALMON BYCATCH

WHEREAS, the City of Mountain Village is a second class municipal government incorporated in 1967; and

WHEREAS, the Asa'carsarmiut Tribe is a sovereign entity and federally recognized Tribal government representing the Asa'carsarmiut Tribe; and

WHEREAS, the Azachorok, Inc. is a village corporation incorporated after the passage of the Alaska Native Claims Settlement Act of 1971; and

WHEREAS, the Chinook salmon is extremely vital to our health, our social and economic well-being and our culture; and

WHEREAS, the Subsistence Way of Life is an inalienable right of all Alaskans; and

WHEREAS, our entities and other communities in Western Alaska rely heavily on the Subsistence and commercial salmon fisheries, as they are both very much intertwined; and

WHEREAS, the current Chinook salmon bycatch rates are at a record all time high and are more than 2 times higher than the recent 10-year average of 49,500; and

WHEREAS, the Chinook salmon returns to many of our rivers in Western Alaska, especially evident in the Yukon River, in 2007 did not meet expectations; and

WHEREAS, we are deeply concerned with the increasing trends of salmon bycatch rates, with no real preventive measures in place for Industry to avoid salmon; and

NOW THEREFORE BE IT RESOLVED, that the City of Mountain Village, Asa'carsarmiut Tribe, and Azachorok, Inc., urges the North Pacific Fisheries Management Council to move forward quickly in significantly reducing salmon bycatch, and;

BE IT FURTHER RESOLVED, that representatives from all three entities support the October 2007 motion to limit the upper range for caps at 40,000 and considering the sector split idea as a useful tool for reducing bycatch while maximizing benefits for Industry.

ADOPTED THIS 23rd day of November, 2007 at Mountain Village, AK at which duly constituted quorums of council/board members were present.

City Council:

Peter M. Andrews, Mayor

Ella M. Peterson, Sec/Treas

Absent
Tammy Aguchak, Council Member

Absent
Fred Lamont, Council Member

Bibiana F. Sage, Vice-Mayor

Pete Peterson, Council Member

Absent
Alexie Walters, Council Member

Attest:
Nova Moses, City Clerk

Tribal Council:

James Landlord, 1st Chief

John M. Joe, Sec/Treas

Agnes L. Brown, Council Member

Dorothy G. Johnson, Council Member

Absent
William Beans, 2nd Chief

Loren G. Peterson, Council Member

Corporation Board:

Absent
Felix Hess, Chairman

Absent
Francis Hess, Sec/Treas

Harry Wilde Sr., Board Member

Alexie Walters, Board Member

Paul Beans, Vice-Chair

Absent
Catherine Moses, Board Member

David Blanket, Board Member

TO: Chairman Eric Olson
North Pacific Fishery Management Council

2 April 2008

FROM: Majority of the Minority
NPFMC Advisory Panel

Re: BSAI Salmon Bycatch

Dear Chairman Olson:

Many representatives of Alaskan subsistence communities, as well as individuals representing sport fishing, conservation groups and other Alaskans have voiced strong support for reducing salmon bycatch in the pollock fisheries as soon as possible. In their view, establishing a **hard cap** immediately, while leaving the fleets flexibility in meeting the bycatch cap, is the highest priority.

History indicates that without a HARD CAP, the pollock fleet's behavior is unlikely to change sufficiently to achieve a reduction in actual salmon bycatch to an acceptable level. In fact, although pollock TACs have declined in recent years, both the total *and* the rate of salmon bycatch have increased markedly!

These views were again expressed by the public in the recent Advisory Panel discussion on this agenda item. A minority of Advisory Panel members supported these views. Due to implementation of a new Council policy requiring 25% of voting members of the AP to be recognized as a "minority" and allowed to submit a minority report, the Council will not receive such a report in the April 2008 minutes.

Were the original policy in place, the following minority report would have been submitted:

*The minority feels that focused alternatives that establish a **hard cap** on salmon bycatch in the BSAI pollock fisheries need be advanced at this time. Alternatives which lead to moving the fleet in and out of boxes drawn in the ocean that are based on past fish distributions have not been effective in reducing salmon bycatch to an acceptable level and are less likely to do so during the rapidly changing climate conditions in the future. These and other excessively complex alternatives, which are not focused directly on the objective of achieving salmon bycatch below an acceptable level, should not be in the current package. (3 voting members of the AP)*

For your information, the full text of the failed AP motion that was supported by the minority is attached.

JOHN MOLLER

MICHELE RIDGWAY

REX MURPHY

AP Minority Position: BSAI Salmon Bycatch

(FAILED THROUGH SUBSTITUTION) Advisory Panel Motion 2 April 2008

Agenda Item D-1 BSAI Salmon Bycatch

The AP recommends that the Council advance a streamlined suite of alternatives focused on reducing Chinook and Chum salmon bycatch in the BSAI pollock fisheries. Toward this end, the AP supports the following:

(Council's February Problem Statement, unchanged)

An effective approach to salmon prohibited species bycatch reduction in the Bering Sea pollock trawl fishery is needed. Current information suggests these harvests include stocks from Asia, Alaska, Yukon, British Columbia, and lower-48 origin. Chinook salmon are a high-value species extremely important to Western Alaskan village commercial and subsistence fishermen and also provide remote trophy sport fishing opportunities. Other salmon (primarily made up of chum salmon) harvested as bycatch in the Bering Sea pollock trawl fishery also serve an important role in Alaska subsistence fisheries. However, in response to low salmon runs, the State of Alaska has been forced to close or greatly reduce some commercial, subsistence and sport fisheries in Western Alaska. Reasons for reductions in the number of Chinook salmon returning to spawn in Western Alaska rivers and the Canadian portion of the Yukon River drainage are uncertain, but recent increases Bering Sea bycatch may be a contributing factor.

Conservation concerns acknowledged by the Council during the development of the Salmon Savings Areas have not been resolved. Continually increasing Chinook salmon bycatch indicates the VRHS under the salmon bycatch intercooperative agreement approach is not yet sufficient on its own to stabilize, much less, reduce the total bycatch. Hard caps, area closures, and/or other measures may be needed to reduce salmon bycatch to the ~~maximum~~ extent practicable under National Standard 9 of the MSA. We recognize the MSA requires use of the best scientific information available. The Council intends to develop an adaptive management approach which incorporates new and better information as it becomes available. Salmon bycatch must be reduced to address the Council's concerns for those living in rural areas who depend on local fisheries for their sustenance and livelihood and to contribute towards efforts to reduce bycatch of Yukon River salmon under the U.S./Canada Yukon River Agreement obligations.

AP Minority Position: BSAI Salmon Bycatch

Reference: Staff Report on BSAI Salmon Bycatch, April 2008

ACTION 1 Chinook Bycatch

Alternative 1: Status Quo

Alternative 2. Hard Cap

Component 1. Hard Cap Formulation
- Option 1. Range of numbers in table 2, page 10
- Option 2. Framework cap using calculations on page 11

Component 2. Sector Allocation
- Option 1. Sector level caps
- Option 2. Historical average of percent bycatch by sector
- Option 2a. (table 5, page 13)
- Option 2b. (table 7, page 13)

ACTION 2 Chum Bycatch

Component 1. Hard Cap Formulation
- Option 1. Range of Numbers, page 41
- Option 2. Framework cap, page 42

Component 2. Sector Allocation
- Option 1. Sector level caps
- Option 2. Historical average of percent bycatch by sector
- Option 2a. (table 32, page 44)
- Option 2b. (table 34, page 45)

Finally, it is intended that the industry remain exempted from the previous geographic closure areas (as in Amendment 84), but **not** be required to participate in a regulated hotspot management program, in order to provide fleets maximum flexibility in attaining bycatch reduction goals.

UCB
4/5/08

2007 Shore-based Hake Fishery

At-Sea Electronic Monitoring Program

March 2007

Introduction

In order to stay within rebuilding plans and establish a standardized bycatch reporting method, an at-sea monitoring program is being established for the shore-based hake fishery. After considering various options, NOAA Fisheries has decided to apply electronic monitoring (EM) technology to monitor on the shore-based hake fleet.

Electronic monitoring has been tested over the last three years and many of the vessels are familiar with the technology and program. For those new to the program this document is intended to provide a brief overview of the project, the technology, explain where your involvement is needed and identify contact persons for further information.

Project Goal

NOAA's overall goal is to ensure high quality catch information in the shore-based component of the hake fishery. As well, NOAA seeks to ensure that the fleet complies with maximized catch retention to the greatest extent practical.

Why Are We Doing This?

NOAA is charged with ensuring that we stay within rebuilding plans for over fished species and with ensuring that bycatch reporting for the groundfish fishery meets certain standards. Fishery catch data come from sampling activities at shore side plants. An effective at-sea monitoring program is needed for the fishery to demonstrate with certainty that bycatch data from the plants accurately represents true catch levels at sea.

The at-sea monitoring program will be in place primarily to verify that fishing vessels comply with maximized catch retention requirements as outlined in Section F of the Exempted Fishing Permit (EFP) permit. If there is to be discard in the fishery, it should be minimal, non-selective and unsorted. At-sea monitoring will be also be in place to ensure that all instances of discarding are accurately recorded in fishing logbooks.

The most cost-effective at-sea monitoring method is with the use of EM System. At-sea monitoring with observers is less preferred due to greater cost and logistical difficulties with deploying observers for short trips on short notice.

What Is The Impetus For Fishing Vessels To Participate In This Program?

The terms of the 2007 Exempted Fishing Permit (EFP) includes the requirement for vessels to have electronic monitoring equipment supplied by a NMFS-specified EM system provider. Currently, NMFS has only specified Archipelago Marine Research Ltd. as providing EM systems

capable of providing the full complement of data necessary to attain the goals of this EFP. In seasons past, NOAA Fisheries has funded the entire EM program and this year NOAA plans to cost share the program with industry. The industry (EFP holders) will fund EM system rental as well as the EM system installation, maintenance and removal project components while NOAA Fisheries will continue to fund overall project administration, analysis and release of the data collected by EM systems. In 2005, NOAA Fisheries awarded a multi-year contract to Archipelago Marine Research Ltd. as a result of an open bid process. Despite the change to a co-funded program, Archipelago will continue to provide the EM program service to the fleet, adhering to the cost framework as specified in their contract with NOAA. As a condition of the EFP, vessels will be required to make arrangements with Archipelago for securing EM services.

Project Overview

The EM project for the shore-based hake fishery has seven components:

Outreach – Issues that will be presented include the goal of the project, why the project is taking place, the equipment being installed (including a demonstration), what is needed/expected of the fishers, what information is being collected, the data analysis, minimizing the disturbance to the vessel's operations, and data confidentiality concerns. As well, a summary of the past performance of the fleet targets will be discussed. This process includes public meetings and preparation of resource materials, such as this document.

EM System Provision – Archipelago will provide all EM Systems for all the vessels participating in the shore-based hake fishery, including the early season fishery in California.

Installation of EM System on Fleet – Archipelago staff will provide technical assistance to install EM Systems on all vessels participating in the fishery.

EM System Service – When promptly informed by the fleet, Archipelago staff will be available to repair (and maintain) any malfunctioning systems.

EM System Data Analysis and Reporting – All EM System data will be analyzed according to a structured routine. Summary data from the EM System will be compiled and reported to NOAA.

EM System Removal – All EM Systems will be removed from fishing vessels upon completion of the fishery.

Project Report – Upon completion of the fishing season, a report will be prepared to summarize the project results and highlighting the functionality of this technology for monitoring maximized retention in this fleet, and comments and feedback from stakeholders involved in the program.

Plan Of Action

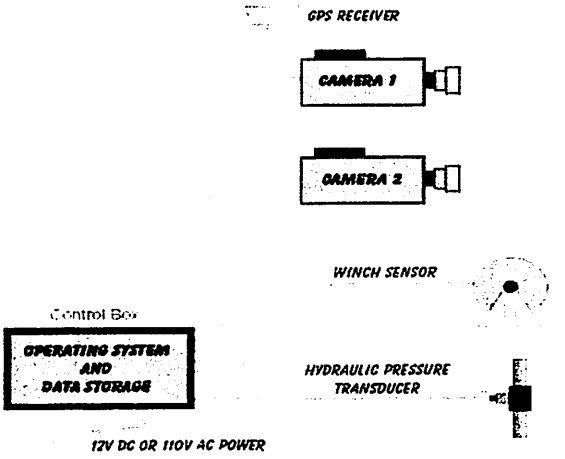
California – The EM project will be outlined at the March 15 meeting with fishing industry stakeholders. Installation of EM Systems is expected to commence late March.

Oregon and Washington – The EM project will be outlined at industry meetings in Newport and Astoria with EM System installations starting late in May.

Archipelago's project operations will be based from its head office in Victoria, BC. NOAA's project operations will be based from the Northwest Fisheries Office in Seattle, Washington.

Overview of EM Systems

The EM System is shown in the schematic diagram and components are described in the following sections.



Control Box - The heart of the EM System is a metal tamper-proof control box (approx. 15x10x8" = 0.7 cubic feet) that houses data storage and computer circuitry. Data from the EM System is recorded on a removable drive, mounted within the control box. An array of lights mounted externally on the control box will display the system operational status to the operator at all times. A laminated handout will describe the status lights and other EM System operation issues.

Cameras – Each vessel will be equipped with as many as three closed circuit television cameras to provide imagery of the trawl deck and the area astern of the vessel. The cameras are lightweight, compact and quickly attach to the vessel's standing structure with a universal stainless steel mount and band straps. These cameras have been successfully used in Canadian and American fisheries programs along the Pacific coast and in the Bering Sea.

GPS Receiver - An independent GPS receiver will be installed with each EM System. The GPS receiver and antenna are packaged together in a plastic dome that is easily mounted in the vessel rigging. The GPS delivers an accurate time base as well as vessel position, speed, heading, and position fix quality. The GPS antenna mounts on the cabin top away from any from other GPS or radio antennas.

Hydraulic Pressure Transducer – A pressure transducer mounts on the supply side of the warp winch hydraulic system to measure pressure and hence, work performed by winches.

Drum Rotation Sensor - A photoelectric drum rotation sensor mounts on the warp winch or net drum of each vessel. The small waterproof sensor can be mounted in an out of the way location on the winch frame where it will neither impact nor be impacted by regular hauling and setting operations.

EM System Data Capture Specifications

Sensor data is recorded and stored in the control box several times per minute. The operating system is designed to start automatically and reset itself after power interruptions or system lockups.

The stored data includes date, time, position, GPS positional error, vessel speed, vessel heading, winch rotation status, and hydraulic pressure. In addition to storing these data, the control box operating system interprets the sensor signals on the fly to initiate video recording on one or more cameras. Cameras are triggered by winch activity; therefore, they will not record imagery until fishing operations commence. Image capture begins during fishing operations and continues until the vessel lands to offload the catch. Whenever video is actively being captured the data logger sends a GPS caption sentence to the video computer to provide a geo-reference title for each frame of imagery.

EM System Installation

Prior to the EM installation the technician will meet with the vessel master to go over the EM System components, and discuss the best strategy for EM System installation on the vessel. The EM System installation process will usually be carried out two technicians and will take four to six hours. We will require crewmember assistance periodically for the installation of certain components and for system power up and testing. The installation process is greatly increased with consideration to the following:

Control Box Location - The control box must be mounted in a dry interior cabin location near a source of electrical power and where wires can be easily routed to the outside.

Control Box Electrical Supply - Crewmember assistance will be needed for setting up and testing the electrical supply. The control box must be continuously powered with 120 volts AC, or 12 volts DC. Inverted AC power is preferable but AC generator power is acceptable as long as the vessel computers have been proven to operate reliably from that source. If the control box is to be powered with a 12 volt DC source, it should be on a separately fused 15-ampere circuit. The maximum AC power draw of the control box is about the same as a desktop PC - 300 watts or less.

Wire Routing - Wire runs between the control box sensors should be accessible and located where they are out of the way, free from damage. There should be a minimum 1½ inch hole to feed wires between the cabin space and outside, preferably in a weather protected location. These modifications should be done by a crewmember.

Hydraulic Pressure Transducer – The sensor requires a ¼" National Pipe Thread female port, identical to what is required for mounting a pressure gauge. The transducer can be installed along with an existing pressure gauge or by installing a "T" fitting into a flexible hydraulic line. The transducer should be mounted anywhere on the supply side that powers the warp winches and clear of areas where the wire or transducer could be damaged. We will require crewmember assistance for the installation of this component.

System Run Up and Testing – Upon completion of the installation we will require crewmember assistance to enable us to run up and test the EM system. This involves starting the engine, powering the hydraulics and operating the winches.

EM System Operation

The EM System will operate automatically without any operator involvement. We will provide a single laminated page of EM System operation instructions. Included on the page are simple steps to ensure the EM System is operating properly and contact information if the equipment needs service. The following are basic requirements for EM System operation:

- While EM equipment is aboard the vessel, the system must not be interfered with, damaged, or the power source turned off. If the EM system is interfered with, damaged, or the power source turned off, it will be a violation of the terms and conditions of the EFP.

- The vessel operator must check status lights located on the EM system control box at least once per day to confirm that the EM system is functioning properly. If status lights indicate an EM system malfunction, the vessel must contact Archipelago immediately.
- Changes to the location of an EM System on or between fishing vessels is not permitted without the prior consent of Archipelago;
- During night time fishing operations, the camera field of view should be sufficiently illuminated to enable clear and accurate recording of imagery;
- Vessel personnel should take reasonable precautions to keep the EM System secure and free from damage while it is on the Vessel; and
- Vessel personnel are required to contact Archipelago as soon as possible if there is loss or damage to the EM System, or if the EM System does not appear to be operating properly.

EM System Service Schedule

EM data in the 2007 fishery will be collected once to twice during the fishery. Archipelago staff will arrange service times while vessels are in port.

Data Analysis Procedures

Archipelago has an important role of balancing the privacy concerns of fishing vessel crews and ensuring that EM System data are used effectively to addressing the following monitoring issues:

- Ensuring compliance with maximized catch retention;
- Ensuring that fishing logbooks accurately reflect fishing activities;
- Ensuring fishing activities occur in permitted fishing areas; and
- Ensuring that fishing vessels comply with EM System operation requirements.

For General Questions about the EFP Please Contact:

Becky Renko (Becky.Renko@noaa.gov)
NOAA Fisheries, Northwest Regional Office
7600 Sand Point Way NE
Seattle, WA 98115
Telephone: (206) 526-6140

For Questions Specific to the Electronic Monitoring Systems, Please Contact:

Howard McElderry (howardm@archipelago.ca) or
Morgan Dyas (morgand@archipelago.ca)
Archipelago Marine Research, Ltd. (www.archipelago.ca)
525 Head Street, Victoria, BC V9A 5S1 Canada
Telephone: (250) 383-4535 or 1-(888) 383-4535 Fax: (250) 383-0103

OCEANA | Protecting The World's Oceans

175 South Franklin Street, Suite 418 +1.907.586.4050
Juneau, AK 99801 USA www.oceana.org

March 31, 2008

Dr. Jim Balsiger, Director
NOAA Fisheries Service
Bldg 3, 14th floor, Front office
1315 East West Hwy
Silver Spring, MD 20910

Dear Dr. Balsiger:

Thank you for your letter of January 29th. Your letter along with subsequent additional bycatch information raises several issues if not ire. We know your job is not easy. But your obligations are clear under the law and interests of the country. Oceana is very concerned about the extremely high—and, in many situations, increasing—levels of bycatch in our nation's commercial fisheries. Bycatch is glaring evidence of wasteful fishing practices: it threatens the health of our ecosystems and robs other stakeholders of subsistence, commercial, and recreational fishing opportunities. Bycatch unfortunately is indicative of the failure of our nation's fisheries management.

The National Marine Fisheries Service (NMFS) has a moral and legal responsibility to do more. Current actions are clearly inadequate to comply with NMFS' obligations under domestic laws and international treaties to prevent bycatch. We must: **1. Count, 2. Cap,** and **3. Control** the bycatch associated with commercial fisheries. This effort must be undertaken in a systematic, comprehensive way on an ongoing basis, not in response to crises such as rockfish previously or the salmon crisis currently in the Pacific and North Pacific in the groundfish fisheries. Current bycatch mitigation measures are neither effective nor sufficient.

Overview

Bycatch is a significant problem in many fisheries around the country. While we are highlighting specific examples on the West Coast in this letter, there are equally egregious problems in the Gulf and on the East Coast. In the North Pacific and Pacific, increasing or problematic bycatch trends indicate failures in fisheries management. To name a few examples: sea turtles, dolphins, sea lions, and whales get entangled and drown in gillnets; rockfish, corals, crabs, halibut, and eulachon are killed in trawl nets; and salmon are intercepted by trawl gear and discarded before they reach their spawning streams.

Fortunately, we can address these and other bycatch problems by following an aforementioned three-step process. We must: **1. Count, 2. Cap,** and **3. Control** the bycatch associated with commercial fisheries. The three steps build upon each other, and all three must be implemented to manage bycatch effectively. For example, it is insufficient to simply count bycatch. Without consequences for catching non-target species, there is no incentive for the fleets to change behavior. In addition, the agency should have a dedicated bycatch research program to collect data, evaluate, and suggest other management measures for reducing fishery bycatch. It would be irresponsible to grant Experimental Fishing Permits to accomplish this that would exceed ABC levels and in essence reward further take of bycatch.

As an initial stage in this plan, each Council must appoint a dedicated bycatch committee, or if the Councils fail to do so, NMFS must appoint those committees. Each region's bycatch committee would be charged with ensuring that measures to count, cap and control bycatch are implemented for all fisheries, and that concerns are brought to the Councils at the first sign of a problem. In this way, the Councils and agency would take proactive steps to prevent bycatch, rather than ignoring bycatch problems until they become emergencies. Salmon bycatch in the Pacific and North Pacific regions' whiting and pollock fisheries is a glaring example of this problem, and NMFS's failures to prevent it.

Pacific Salmon Crisis
Appallingly low salmon returns to the Sacramento, Klamath, and Columbia Rivers, to name a few, have resulted in severely decreased opportunities for both recreational fishermen and commercial troll fishermen. The causes of this decrease range from dams, to water flow, to predators, to fishing pressures, but the current attempts to solve this problem focus only on shutting down the directed salmon fisheries and shooting sea lions. There is a blatant failure to address the dams and diversion of water flow from the river systems—the primary destructive force on Pacific salmon stocks.

While the Pacific Fishery Management Council and NMFS are balancing the salmon crisis on the backs of the commercial troll and recreational salmon fishermen, salmon bycatch in the Pacific whiting fishery continues to be managed without a hard cap. The Incidental Take Statement pursuant to the 1999 biological opinion defined the expected bycatch of Chinook salmon as 11,000 Chinook per year in the whiting fishery and 6,000-9,000 Chinook per year in the bottom trawl fishery. These incidental take limits trigger Endangered Species Act section 7 consultation, not fishery closures, and may not be adequate given the current projected low returns of ESA listed Chinook to the Sacramento River and other West Coast rivers. We request the expected salmon bycatch in the whiting fishery be accounted for fully and that an appropriate hard cap be established. Moreover, all salmon taken as bycatch in the whiting fisheries must be retained for full accounting and genetic sampling for stock of origin identification.

This whiting fishery is prosecuted in part by the same boats trawling for pollock in the Bering Sea/ Aleutian Islands region. The fact that the same boats are catching the same fish as bycatch in two different regions is further evidence that NMFS must take a more holistic approach to prevent bycatch.

North Pacific Salmon Crisis
In the meantime, of course, there is an emergency with regard to salmon bycatch in the Bering Sea/Aleutian Islands (BSAI) pollock fishery. Here we have fisheries touted as 'the best-managed in the world' operating without a cap on the number of salmon they can kill. Frankly, it is embarrassing. To address this problem—now that the agency has not acted proactively—there must be an immediate absolute cap on salmon bycatch by the groundfish fisheries based on a conservative recommendation from NMFS. We appreciated your letter dated January 29, 2008 in response to our earlier letters on this topic. However, neither NMFS nor the North Pacific Fishery Management Council has taken effective action to curb salmon bycatch. While it appears that salmon bycatch in the pollock fishery is lower than the record numbers of 2007, at the same time, however, halibut bycatch has increased dramatically. This 'pelagic' pollock fishery has steadily increased its bycatch of Pacific halibut by over 300% compared within the same time period over the last few years (see Addendum to this letter for further explanation). The Alaskan pollock fisheries are also catching anadromous eulachon (also called 'smelt' or 'hooligan') in amounts that dwarf the few remaining directed eulachon subsistence and commercial fisheries. There has been no work to date on the eulachon bycatch stock-of-origin and no management actions that have responded to the increasing bycatch for these important forage species. These examples demonstrate that trading bycatch of one species for another is not effective management.

The MSA explicitly requires that NMFS "to the extent practicable and in the following priority—(A) minimize bycatch; and (B) minimize the mortality of bycatch which cannot be avoided." 16 U.S.C. § 1853(a)(11). This requirement is reinforced in National Standard 9, with which all FMPs must be consistent and which states the requirement to minimize bycatch to the extent practicable. *See id.* § 1851(a)(9). When it added these provisions to the MSA, Congress was very clear that its intent was to halt the "shameful waste" occurring in the nation's fisheries. 142 Cong. Rec. S10,794, at 10,820 (1996). "When we see the possibility of hundreds of millions of pounds of fish being wasted because of fishing practices that could be avoided, we believe it is time for the Congress to act." *Id.* at 10,811 (statement of Sen. Stevens). Indeed, Senator Stevens stated that, in enacting the bill, Congress "had a singular purpose, and that is to stop the wasteful practices." *Id.* at 10,810. Accordingly, Congress declared that it is "the policy of the Congress . . . to assure that the national fishery conservation and management program . . .

considers the effects of fishing on immature fish and encourages development of practical measures that minimize bycatch and avoid unnecessary waste of fish . . ." 16 U.S.C. § 1801(c).

NMFS has not complied with that obligation. Instead, the policies put in place by the North Pacific Fishery Management Council and NMFS have allowed salmon bycatch to increase to more than 130,000 fish last year. Clearly, the Voluntary Rolling Hotspot System (VRHS) authorized by Amendment 84 does not constitute all "practicable" actions to reduce bycatch. Moreover, the process begun to change Amendment 84 and the accompanying environmental analysis will not be completed in time to protect salmon and those who depend on them this year. To meet its obligations under the MSA, NMFS must take immediate action to reduce salmon bycatch from the pollock trawl fishery.

You asserted in your January 2008 letter that:
We have implemented management measures to reduce salmon bycatch in the pollock fishery and believe these measures have reduced salmon bycatch rates compared with what they would have been without the measures.

Whether or not those actions have reduced the rate of salmon bycatch is questionable at best, and NMFS has taken no direct action to reduce the total number of salmon caught as bycatch. The total number of salmon caught is the obvious and necessary measure of successful salmon bycatch management, and no regulations or programs address it. Indeed, the Scientific and Statistical Committee (SSC) noted that while the Voluntary Rolling Hotspot System may have reduced salmon catch rates based on simple extrapolation, "*. . . it has clearly failed to reduce the absolute amount of Chinook salmon bycatch.*"[1] In the past, the SSC has criticized the VRHS's efficacy in controlling salmon bycatch. As the SSC stated in its October 2006 minutes: "*. . . the SSC notes that the goal should be to reduce the number of salmon caught, whereas the VRHS closure system focuses on salmon per ton of pollock.*"[2] Thus, your assertion that NMFS is complying with its obligation to reduce salmon bycatch to the extent practicable does not survive even the most superficial scientific scrutiny. And we do not believe the façade of "practicability" supersedes the obligation of conservation.

In addition, you asserted in your letter that NMFS is complying with the ESA with regard to Chinook salmon from the listed Upper Willamette River and Lower Columbia River stocks. Given that the incidental take statements issued by NMFS for the groundfish fisheries have been violated every year since 2003, it is difficult to understand this position. Moreover, the number of salmon caught as bycatch in the groundfish fisheries in 2007 violated the incidental take statement for that year by nearly 50,000 fish, and we understand that, as the ESA requires, NMFS has reinitiated consultation. During the consultation period, Section 7(d) of the Endangered Species Act prohibits the agency from making any irreversible or irretrievable commitment of resources. 16 U.S.C. § 1536(d). In fulfilling its obligation under that provision, NMFS should not rely on an incidental take statement that has already been violated in authorizing the groundfish fisheries in Alaska.

Further, the existing analysis of the salmon bycatch problem is not comprehensive. This issue has been addressed in several biological opinions. Most recently, NMFS prepared two supplemental biological opinions: in 2006, the Northwest Region issued a supplemental biological opinion addressing salmon bycatch in the whiting fishery; and, in 2007, the Alaska Region issued a supplemental biological addressing Chinook salmon bycatch in the Alaskan groundfish fisheries. These analyses, while purporting to address impacts to the same stocks from related activities do not so much as mention each other. The whiting opinion does not mention potential effects from bycatch in Alaskan trawl fisheries, and the Alaskan groundfish supplemental biological opinion does not mention impacts from lower 48

[1] Draft Report of the Scientific and Statistical Committee to the North Pacific Fishery Management Council February 4-6, 2008
[2] Report of the Scientific and Statistical Committee to the North Pacific Fishery Management Council October 2-5, 2006

trawl fishing. Moreover, the Alaskan groundfish opinion does not mention hydropower projects in the lower 48.

In addition, while the problems inherent in rebuilding these critically important Oregon and Washington stocks are caused in large part by escapement-return failures, they certainly may be exacerbated by bycatch in groundfish fisheries in both the Pacific and North Pacific. These combined effects on salmon stocks are having impacts not just in the lower 48 and Alaska, but also internationally. As we made clear in our earlier letter, the fact that fewer fish are escaping across the Canadian border calls into question U.S. compliance with the Pacific Salmon Treaty and the Yukon River Salmon Agreement. In response, you state that the existing measure complies with the treaties "because it is an element of the Council's efforts to reduce bycatch of salmon in the BSAI groundfish fisheries." This statement, of course, amounts to little more than an assertion that, any action taken by the Council designed to minimize bycatch—no matter how ineffective—complies with the treaty. It does not address the simple fact that fewer salmon are escaping to Canada and that the United States has an international obligation to reduce bycatch in order to meet the escapement goals in the treaties. NMFS must do more to try to meet these obligations.

Accordingly, it is clear that the agency must take immediate action to address salmon bycatch in the pollock fishery. With respect to counting bycatch, we have heard from NMFS staff that while they are relatively confident that they retrieve every coded wire tagged salmon of the salmon that are sampled and handled by observers, they are less confident of the proportion of catch that is sampled. It is likely that salmon are missed at the processing plants and on vessels at sea. In other words, there is potential inaccuracy in the estimates of the total number of salmon caught as bycatch, as well as the subset of that total that are endangered salmon that are caught as bycatch. Current estimates for both are likely underestimated. Increasing the number of observers at shoreside processing plants, ensuring a greater proportion of salmon are sampled by observers, and enforcing the prohibition on discarding salmon bycatch at sea would help supply the information necessary to effectively manage salmon bycatch.

There also must be a dedicated program of data collection and evaluation of the stock composition of salmon bycatch taken in the pollock and whiting fisheries. This could be a cooperative program between NMFS, the Alaska Department of Fish and Game, and West Coast states, but currently such a program does not exist. Luckily, the Alaska-Yukon-Kuskokwim Sustainable Salmon Initiative funded a project to analyze the stock composition of Bering Sea salmon bycatch. This project is now a crucial source of information for the issue of salmon bycatch in the Bering Sea pollock fishery. However, it is not adequate to rely on ad-hoc funding sources for issues of this magnitude, when it is NMFS' responsibility in the first place to know this information. The stock composition of salmon bycatch must be fully integrated into the fishery management process. A program must be developed that uses bycatch data for analyzing, evaluating, and making management decisions based upon up-to-date information on salmon bycatch.

Conclusion

Salmon and salmon fishermen are facing hard times up and down the Pacific coast. Given the importance of salmon to people from the Yukon to the Sacramento Rivers, as well as the ecosystems of oceans and watersheds, we must address the threats that we can control. We are confident that the challenges of fishery bycatch management are surmountable, and that responsible bycatch management can ensure that commercial, recreational, and subsistence fishing opportunities, as well as the health of the ecosystem, are maintained.

In sum, **NMFS must do more to count, cap, and control bycatch.** As a first step, each Council must have a dedicated bycatch committee to ensure that measures are implemented to prevent bycatch before emergency situations arise. With regard to the present emergency, NMFS must take immediate action to address salmon bycatch in the groundfish fisheries. It must:

- Dedicate a research program to collect data, including stock of origin identification; evaluate that information; and suggest management measures for reducing fishery bycatch
- Set an immediate emergency cap on salmon bycatch in the Pacific whiting fishery
- Set an immediate emergency cap on salmon bycatch in the BSAI pollock fishery

Equally importantly, the dams and water diversions must become a priority for NMFS. Jim, we know you have a difficult job, but it would be irresponsible for us to fail to continue to bring these matters of bycatch as well as dam and water diversions to your attention. Salmon management in the Pacific is in a crisis and warrants the highest level of attention and action. We will be requesting information to help us and the public fully comprehend the magnitude of this crisis. We look forward to working with you on this issue, and meeting with you or your designee as soon as possible.

Sincerely,

Jim Ayers
Vice President
Oceana

cc: Eric Olson, Chair, North Pacific Fishery Management Council
cc: Doug Mecum, Acting Administrator, Alaska Region, NOAA Fisheries
cc: Donald Hansen, Chair, Pacific Fishery Management Council
cc: D. Robert Lohn, Administrator, Northwest Region, NOAA Fisheries

Addendum: Halibut bycatch in the Bering Sea pollock fishery

Halibut are flatfish that generally dwell close to the seafloor. However, the bycatch of halibut in the Bering Sea 'pelagic' pollock fishery has steadily increased in the last several years. Is pollock fishing truly 'pelagic', or 'off-bottom' in practice? The increasing bycatch of bottom-dwelling animals indicates that the pollock fishery in practice is not truly pelagic or off-bottom.

Notwithstanding the obvious habitat impacts of trawling on seafloor habitat, the increasing bycatch of halibut in the pollock fishery is of concern. Halibut, much like salmon, are extremely important to Alaska fishermen and fishing communities. Of particular concern is that existing halibut bycatch caps for the groundfish fisheries are 'fixed', and are not re-evaluated annually based on the abundance of halibut in the ocean. Given that we have stock assessments and annual biomass estimates for halibut, the bycatch cap should be tied to the amount of halibut in the ocean.

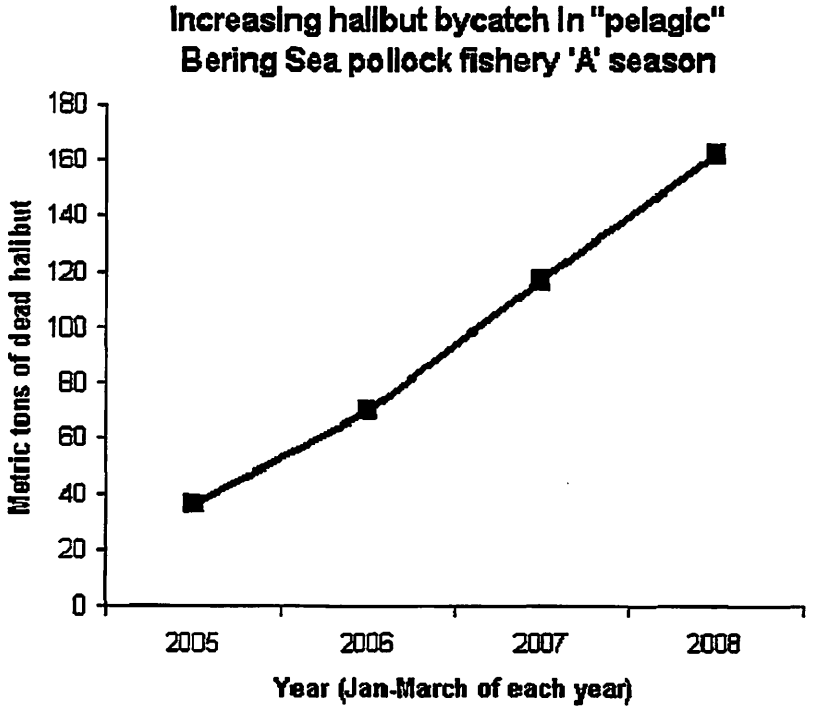


Figure 1: Increasing halibut bycatch in pelagic Bering Sea pollock fishery 'A' season. Data from NMFS, Alaska Region, Sustainable Fisheries, Catch Accounting, BSAI Prohibited Species Report, March 2008

April 4, 2008

Eric Olson, Chair
North Pacific Fishery Management Council
605 W. 4th Ave.
Anchorage, AK 99501

RE: Agenda Item D-1 – Salmon bycatch

Dear Chairman Olson and Council Members:

The Bering Sea Elders Advisory Council is made up of Elders appointed by over 20 participating Tribes in the Kuskokwim region. Our purpose is to promote protection for our subsistence way of life in fishery management decisions such as solutions to Bering Sea salmon bycatch. Our Executive Committee met last week in Kipnuk where we discussed this issue.

King salmon bycatch has long been a concern for our villages because we rely on salmon for our local fisheries and subsistence harvest. We eat salmon all winter in many forms – dried, salted and smoked. We do not go the grocery store to buy very much food but depend on abundant natural resources to feed our families. It is our way of life. Salmon wasted as bycatch in the pollock fishery are fish that should return to our rivers to support the needs of our people and to spawn.

Our leaders succeeded in the past to ban high seas driftnets. Villages have worked with their neighbors up and down the rivers to share the fish. We have supported research to support good management. Many Tribes promoted the king salmon bycatch cap for the king salmon savings area in 1998. But salmon bycatch has reached an all time high of 122,000 fish in 2007. It is time for the North Pacific Fishery Management Council to resolve salmon bycatch by setting a hard cap on how many fish can be taken. No other voluntary methods have worked to bring the numbers down. Without a hard king salmon bycatch cap, we can see no other way to bring this problem under control.

We appreciate that the Council is working toward a solution. We urge you to consider the subsistence traditions and needs of Alaska Native Tribes and to implement effective solutions quickly. Our in-river salmon fisheries have absolute restrictions on how much fish may be harvested. We believe the fleets with high bycatch should also be held to a conservation limit.

Sincerely,
David Bill

David Bill, Sr.
Chair, Bering Sea Elders Advisory Group

Eagle Advisory Council
Eagle, Alaska.

January 20 2008

Mr. Eric Olsen, Chair
North Pacific Fishery Management Council
605 West 4th Avenue Suite 306
Anchorage, AK. 99501

Jim Balsiger, Regional Administrator
NOAA Fisheries, Alaska Region
709 W 9th Street
Juneau, AK. 99802

Re: BSAI Salmon Bycatch

Dear Mr. Olsen, Mr. Balsiger, and Council Members

My Name is Andrew Bassich, and I have lived along the Yukon River near the Town of Eagle Alaska since 1983. I am a Subsistence user of both Fish (King & Chum Salmon) and Game (Caribou & Moose) and I rely completely on these resources for my food.

I serve as Eagle AC Chairman, as well as being a Panel member of the Yukon River Panel, Council member of the Eastern Interior RAC, and a life member of YRDFA.

Since 2000 I have dedicated Thousands of hours of my time towards working on Rebuilding, and providing for long Term Viability of Yukon River King and Chum Salmon for All of the People of the Yukon River Drainage.

The People in the Eagle area both Han Athabaskan, and others have a very long history of dependence on the Yukon River King Salmon as a major source of Sustenance during the long winter in the interior. Caribou is the second most important food in the region.

Devastating fires in the migration routes, and traditional hunting areas in both 2004 and 2005 have had a severe negative impacted our access to Caribou as a reliable food source, and prediction for Habitat restoration is estimated to take Decades.

This has intensified our need and dependence of Yukon River King. I cannot emphasize enough how important this resource is to us.

We have very few other reliable food sources available to us in our region; King salmon and Caribou are our food.

There is no commercial harvest of fish in our region and the fishers in the Upper Yukon are being forced to work harder every year to meet their basic food needs for the year.

The 2008 run predictions are not strong for this coming year and may even include some restrictions to Subsistence fishers along the Yukon.

Since the Chinook crash of 2000 the people of the Yukon and especially the Upper Yukon have sacrificed a great deal. In Teslin the upper most reaches of the Yukon River the People have seen so few retuning Salmon that they have for the past two years Voluntary foregone harvest for the first time in their long history as users of the Salmon. Less then 5000 Chinook were harvested in the entire Yukon Territory for Subsistence or as they call it Aboriginal Fisheries. There was No commercial harvest of Chinooks in the Yukon Territory this past year.

US obligations for border escapement were not met.

There is no way to put a Dollar value to the Subsistence way of life. It is a Philosophy and a deep spiritual way of life. Subsistence Users only ask to have a reasonable access to the resources. We feel our way of life is being sacrificed for the economic gain of others. Salmon are crucial to our way of life.

The recent years of Record high Bycatch of King Salmon in the Pollock fleet are having a dramatic negative impact on the people of the Yukon River both Commercial and most importantly the Subsistence Users who rely on this resource for food.

This year Bycatch of 116,000 Chinook Salmon, which is more then Double the 10-year average is completely unacceptable to the people in our region. Studies by Dr Kate Meyers (1997-99) have put estimates of up to 57% of the bycatch as bound for Western Alaska Rivers, and this years estimate of over 22,000 Yukon River Chinook Salmon caught as bycatch represents over 44 % of in River Subsistence harvest needs and 50% of the Treaty Obligations for passage of Chinook to Canada at 45,000 as set as the Minimum for Boarder passage.

To a fleet that deal in Hundreds of metric tons of fish, 22,000 fish may not sound like much But this is a Very Big number on the Yukon River Fisheries. We cannot Rebuild a long-term sustainable fisheries in River with Continued Record High Bycatch. We cannot Emphasized this enough.

The United States Obligations to the Pacific Salmon Agreement and the Yukon River Agreement, States to " increase the in river run of YUKON RIVER ORIGIN SALMON by Reducing marine catches and By-catches of Yukon River Salmon"

We fully wish to Support the Honor of the United States and its obligation to up hold it's end of the Treaty to the fullest extent possible.

We recognizes the efforts by the industry through the VRHS to reduce By-catch of Salmon and support continued efforts to refine fishing techniques, and opening, However the industry has not demonstrated the ability to self regulate and reduce by-catch of Salmon.

The people of the upper Yukon River Strongly supports a measure to put a Hard Cap on Chinook Salmon bycatch of less than 37,000, and 70,000 non Chinook as bycatch

We strongly request that refinements be made to the Sampling protocols and procedures in the Observer programs

We also feel the burden of research and DNA analysis should be placed on the industry, not on the Taxpayers of the United States.

The burden of Conservation should not be place on the backs of Subsistence users of the Resource. By Fedral law ANILCA PROVIDES FOR THIS.

Conservation is the key to our Efforts on the Yukon River to rebuild our stocks to Historical Averages, and provide for a long term Viable Chinook Fisheries for the Subsistence Fishers in our area.

Thank you for this opportunity to Address the Council regarding our concerns.

Respectfully,

Andrew W Bassich
Chairman Eagle Advisory Council
907-547-2390
abassich@gmail.com
PO Box 11
Eagle, AK. 99738

STATEMENT AND INVITATION TO THE NPFMC
04/04/2008

Good morning/afternoon Mr. Chair and Council members:

My name is Don Rivard. I am a Fish Biologist with the Office of Subsistence Management, Federal Subsistence Management Program. One of my duties is to track the salmon bycatch issue for the Federal Subsistence Board.

I direct my comments today to both the North Pacific Fishery Management Council and the staff of the National Marine Fisheries Service involved with the Salmon Bycatch Environmental Impact Statement.

The affected in-river and coastal rural users of the salmon resources are acutely aware of the salmon bycatch issue and are watching it closely, as evidenced by the many letters you have recently received in response to the Notice of Intention for the EIS.

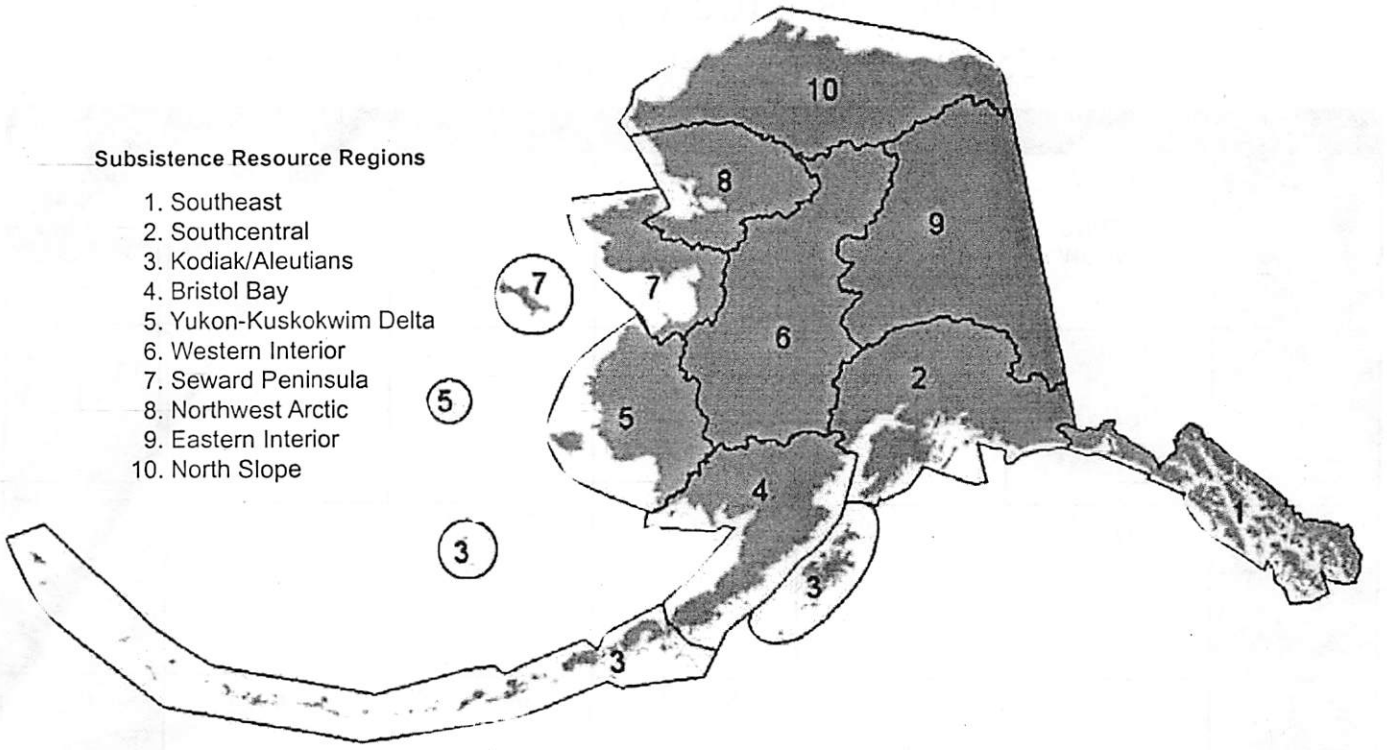
The Federal Subsistence Management Program includes ten (10) Regional Advisory Councils throughout the State, including the Yukon-Kuskokwim Delta, Western Interior Alaska and Eastern Interior Alaska Subsistence Regional Councils, with which I have worked very closely over the past 8 years. These 3 councils are located in the drainages of the Yukon and/or Kuskokwim Rivers. Over the past few years, these councils have sent you several letters expressing their concerns with the increasing salmon bycatch levels and how these levels are impacting the affected stocks and the people who rely on them as their primary subsistence food resources.

After your meeting in Seattle in February, we were informed that you acknowledged the importance of, and need for, conducting more public outreach with affected users of actions taken by you. I have a suggestion and invitation to help accomplish that objective in the short term. I believe it would serve you well to send a representative to, at a minimum, the upcoming public meetings of the Yukon-Kuskokwim Delta, Western Interior Alaska and Eastern Interior Alaska Subsistence Regional Advisory Councils, and consider doing the same for the meetings of the Kodiak/Aleutians, Bristol Bay and Seward Peninsula Subsistence Regional Advisory Councils. All of these councils will be meeting between 26 September and 22 October 2008. Attendance at these meetings would provide an excellent opportunity for you to more fully explain the alternatives, the rational for the (preliminary) preferred alternative, and to hear and obtain comments directly from many affected in-river and coastal rural users.

While the ambitious timeline to complete the EIS in order to have new regulations in place by the 2010 pollock fishing season is commendable, it would be of great benefit to take advantage of meeting with the aforementioned Federal regional advisory councils this fall, as part of the public review of the draft EIS, which is currently proposed to occur during a 45-day comment period in July and August 2008. (NOTE: Attendance at these meetings could still take place after the comment period, with enough time to incorporate the comments received at the meetings into the Comment Analysis Report, scheduled to be completed by 30 November 2008)

Copies of my statement and invitation, along with a graphic of the boundaries of the 10 Regional Advisory Councils and their Fall 2008 meeting dates, are available.

Thank you.



Federal Subsistence Regional Advisory Councils

The Federal Subsistence Management Program divides Alaska into ten subsistence resource regions, each represented by a Subsistence Regional Advisory Council. These ten Councils provide an opportunity for rural Alaskans to participate in the management of subsistence resources. Resource users have the opportunity to comment and offer input on subsistence issues at Council meetings. Each Council meets at least twice a year. The Councils develop proposals to change Federal subsistence regulations and review proposals submitted by others.

Council Membership

The Secretaries of the Interior and Agriculture appoint Council members. Members must reside in the region they wish to represent and have knowledge of subsistence uses and needs. Each year the Office of Subsistence Management accepts applications and nominations for membership during October-December. If you are interested in applying for membership, please contact Ann Wilkinson or the regional coordinator for your region.

Criteria for Council membership

Applicants and nominees must be residents of the region they wish to represent and have:

- Knowledge of fish and wildlife resources in the region;
- Knowledge of subsistence uses, customs, and traditions in the region;
- Knowledge of recreational, commercial, and other uses in the region;
- Leadership skills and experience with local and/or regional organizations;
- The ability to communicate effectively;
- A willingness to travel to and attend Council meetings at least two times each year, usually in October and February. Although Council members are volunteers, members' official travel expenses for meetings are paid through the Office of Subsistence Management.
- A willingness to occasionally attend Federal Subsistence Board meetings.

Fall 2008 Regional Advisory Council Fisheries Meeting Calendar

August 25–October 17, 2008 current as of 03/03/08

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
Aug 24	Aug 25 MEETING WINDOW OPENS	Aug 26 **NS - Barrow**	Aug. 27	Aug. 28	Aug. 29	Aug. 30
Aug. 31	Sept. 1 **Holiday**	Sept. 2	Sept. 3	Sept. 4	Sept. 5	Sept. 6
Sept. 7	Sept. 8	Sept. 9	Sept. 10	Sept. 11	Sept. 12	Sept. 13
Sept. 14	Sept. 15	Sept. 16	Sept. 17	Sept. 18	Sept. 19	Sept. 20
Sept. 21	Sept. 22	Sept. 23 **SE - Juneau** **KA - Cold Bay** (Anchorage)	Sept. 24	Sept. 25	Sept. 26	Sept. 27
Sept. 28	Sept. 29	Sept. 30	Oct. 1	Oct. 2 **SP - Nome** **YKD - Bethel**	Oct. 3	Oct. 4
Oct. 5	Oct. 6 **BB - Naknek**	Oct. 7 **SC - Glennallen**	Oct. 8	Oct. 9 **NWA - Kotzebue**	Oct. 10	Oct. 11
Oct. 12	Oct. 13 **Holiday**	Oct. 14 **EI - Ft. Yukon**	Oct. 15	Oct. 16	Oct. 17 MEETING WINDOW CLOSES	Oct. 18
Oct 19	Oct 20	Oct 21 **WI - McGrath**	Oct 22	Oct 23	Oct 24	Oct 25