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

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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.

AGENDA D-1
FEBRUARY 2008

MEMORANDUM

TO: Council, SSC and AP Members

FROM: Chris Oliver
Executive Director

ESTIMATED TIME
4 HOURS

DATE: January 28, 2008

SUBJECT: Bycatch Issues

ACTION REQUIRED

(a) BSAI salmon bycatch: Review EFP results; Review stream of origin information; Refine BSAI salmon bycatch alternatives; other action as necessary.
(b) GOA salmon and crab bycatch: Review GOA salmon and crab bycatch discussion paper (SSC only).

BACKGROUND

(a) BSAI Salmon Bycatch:

Salmon Bycatch EFP results

The BSAI pollock Intercoop final report covering the rolling hotspot exempted fishing permit (EFP) will be presented to the Council by John Gruver (Intercoop Manager) and Karl Haflinger (Sea State). A written report covering the EFP for the 2007 A and B seasons will be made available at the meeting. As stipulated by the EFP, that report will include:

1. Number of salmon taken by species during the experiment.
2. Estimated number of salmon avoided as demonstrated by the movement of fishing effort away from salmon hot-spots.
3. A compliance and enforcement report including the results of an external audit performed by Alaska Biological Research (ABR Inc).

Review information on stock compositon of bycatch samples

In conjunction with the on-going analysis and at the request of the Council, Dr. Jim Seeb (UW) and Bill Templin (ADF&G) will provide a presentation of current investigations into the stock composition of incidentally-caught Chinook salmon from BSAI pollock trawl fisheries. This work focuses upon samples from the 2005 B season, 2006 A and B seasons, and the 2007 A season (only excluder samples for the 2007 A season were available). Preliminary information on stock composition, by season and area, of the bycatch samples will be provided to the Council.

Also in conjunction with the forthcoming EIS, Dr. Jim Ianelli (AFSC) will provide the Council with an update on his methodological approach to evaluate run-size impacts by salmon species. This approach

may be formulated both to establish a cap relative to salmon returns (per alternative 2, option 2), as well as to evaluate the impact of various cap level on returns to individual river systems. The latter aspect will form the basis of the salmon stock-specific impact analysis for the forthcoming EIS. This work has been presented previously both to the SSC as well as the Council's Salmon Bycatch Workgroup.

Refine Salmon Bycatch EIS Alternatives

To move forward with a defined suite of alternatives for analysis in a forthcoming EIS, the Council needs to continue to refine the alternatives under consideration for salmon bycatch reduction measures. A discussion paper is attached as Item D-1(a)(1) which provides additional information on aspects of the alternatives in need of further refinement. This discussion paper was mailed to you on January 18th. Aspects of the Council's December 2007 motion have been incorporated into the alternative structure. Alternatives have been reorganized to facilitate the Council's review and further refinement. Specific aspects of the alternative structure that are highlighted in this paper include the following:

- **Revised alternative structure**: A new alternative structure is proposed using the approved elements from the Council's previous motions.
- **Cap formulation** (Alternative 2: Hard cap): Preliminary numbers are presented in conjunction with the Council's December motion on cap formulation. *Note revised Chinook numbers are provided in attachment D-1(a)(4).*
- **Area closure options**: Candidate closure options are presented for incorporation into the alternatives. *Note: revised information on area closure options will be provided at the Council meeting.*
- **Sector split on salmon cap**: A discussion paper is provided which addresses the specific aspects of the cooperative-level bycatch caps as included per the December Council motion ("Addressing salmon bycatch through salmon bycatch quota trading among pollock cooperatives").

Another discussion paper is attached as Item D-1(a)(2) which addresses some monitoring and enforcement considerations with respect to sub-divided caps. Tables of updated historical salmon mortality by species in the BSAI groundfish fisheries and the pollock trawl fishery separately from 1991-2007 are included as Item D-1(a)(3). An updated table of resulting Chinook cap numbers (per alternative 2 option 1 and option 4) and revised chum numbers is attached as Item D-1(a)(4).

A draft timeline for the EIS schedule is attached as Item D-1(a)(5). This schedule was mailed to you on January 18th. NMFS staff will provide an overview of the major milestones and decision-points for the Council and the Agency in order to maintain the schedule as currently drafted.

(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 which provides updated information on salmon and crab bycatch, an overview of species abundance, and discusses the previous (2005) alternatives. This discussion paper was mailed out on January 18th. This agenda item is scheduled for Council review at the April meeting.

BSAI Salmon Bycatch

February 2008

Staff Discussion Paper

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INTRODUCTION

In order to move forward with a defined suite of alternatives for analysis in a forthcoming EIS, the Council needs to continue to refine the alternatives under consideration for salmon bycatch reduction measures. Aspects of the Council's December 2007 motion (attached as Appendix 1) have been incorporated into the alternative structure. Alternatives have been reorganized to facilitate the Council's review and further refinement. Specific aspects of the alternative structure that are highlighted in this paper include the following:

- **Revised alternative structure**: A new alternative structure is proposed using the approved elements from the Council's previous motions
- **Cap formulation** (Alternative 2: Hard cap): Preliminary numbers are presented in conjunction with the Council's December motion on cap formulation.
- **Area closure options**: Candidate closure options are presented for incorporation into the alternatives.
- **Sector split on salmon cap**: A discussion paper is provided which addresses the specific aspects of the cooperative-level bycatch caps as included per the December Council motion ("Addressing salmon bycatch through salmon bycatch quota trading among pollock cooperatives"). Another discussion paper included here addresses some monitoring and enforcement considerations with respect to sub-divided caps. *[The monitoring and enforcement paper will be provided in the Council briefing materials]*

Assimilation of this material within this paper is intended to provide sufficient information to inform the Council for refining alternatives only. It is not intended to preclude further, in-depth analysis of the potential impacts of each element and option to be included in the suite of alternatives. Full impact analysis will be provided upon review of the EIS for this amendment package currently scheduled for June 2008.

DESCRIPTION OF ALTERNATIVES

The following represents a revised structure for the Council's alternatives and options for the forthcoming EIS analysis. Providing an organized structure for the major elements and options already approved by the Council into EIS-type alternatives at this point will facilitate the necessary structure to begin to organize and assemble the EIS analysis. These restructured alternatives incorporate all refinements through the Council's December 2007 motion. The Council may also formulate different alternatives to be analyzed by selecting aspects of the alternatives as listed below.

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

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.

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

Additional options are included under individual alternatives and are noted within the alternative accordingly. 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. 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 will be treated under that alternative. It was specifically noted by the Council in their December 2007 motion that "The analysis will consider equal treatment by the CDQ program under each alternative. The intent is that any alternative under consideration would be no more restrictive than the other options to CDQ."(Council motion December 2007, appendix 1)

Alternative 1: Status Quo

Alternative 1 retains the current program of Chinook and 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 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). 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 Pribilofs. This area was removed as a savings area under amendment 58. 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.

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. 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. 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.

[1] This number is inclusive of the allocation to CDQ groups. Non-CDQ Chinook salmon limit is 26,825.
[2] This number is inclusive of the allocation to CDQ groups. Non-CDQ 'other salmon' limit is 38,850.

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.

Alternative 2: Hard Cap

This alternative would establish a salmon bycatch cap on the pollock fishery which, when a limit was reached, all directed pollock fishing would cease. For Chinook salmon, only those Chinook caught by the pollock fleet would accrue towards the cap and the cap applies only to the pollock fleet when triggered. For non-Chinook salmon all gears and targets accrue towards the cap. However, the cap only applies to the directed pollock fishery.

Six options for establishing the cap are presented. Options 1-4 establish the calculation upon which the cap is based, while options 5-6 subdivide the established cap amongst sectors (option 5) and further between cooperatives within sectors (option 6) according to the catch history as noted in the suboptions.

The CDQ Program would receive allocations of 7.5% of any hard cap established for Chinook salmon in the BS and 10.7% of any hard cap established for non-Chinook salmon. 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.

Option 1: Hard cap based upon average historical bycatch (1997-2006) Replaced by D-1(a)(4)

Sub Option	Description	Chinook*	Chum
i)	3 year average (2004-2006)	75,296	498,563
ii)	5 year average (2002-2006)	64,232	355,078
iii)	10 year average (1997-2006)	49,561	207,629
iv)	10 year average (1997-2006): drop lowest year	54,154	225,450
v)	10 year average (1997-2006): drop highest year	45,315	113,382
vi)	10% increase of historical average (3 years, 2004-2006)	82,824	548,419
vii)	20% increase of historical average (3 years, 2004-2006)	90,354	598,275
viii)	30 % increase of historical average (3 years, 2004-2006)	97,883	648,132
ix)	10% increase of highest year (pre-2007)	96,548	783,133
x)	20% increase of highest year (pre-2007)	105,325	854,377
xi)	30% increase of highest year (pre-2007)	114,102	925,521

*Cap levels will be based on historical Chinook bycatch numbers from the pelagic trawl pollock fishery only. Currently these values include other gears and targets hence are preliminary for discussion purposes only. Revised pollock-fishery only Chinook numbers will be provided in the Council briefing materials.

Option 2: 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, run-size) the cap will be derived from an acceptance of this uncertainty and inherent risks. The developed

methods account for sources of uncertainty and natural variability and provide a more defensible approach to evaluating the uncertainty on picking management alternatives. An acceptable impact level (at specified probability), if provided for a set of rivers or systems, could be used to derive a cap level that satisfies that condition. This encompasses the uncertainty in measurements while at the same time acknowledges the year-to-year variability in salmon run-sizes. This work has been presented to the SSC and to the Salmon Bycatch Workgroup. Further details and explanations will be available at the Council's request in February.

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 (1992-2001, based on average historical bycatch pre-2002)

Sub Option	Description	Chinook*	Chum
i)	3 year average (1999-2001)	21,123	55,764
ii)	5 year average (1997-2001)	34,890	60,180
iii)	10 year average (1992-2001)	39,288	78,010

*Cap levels will be based on historical Chinook bycatch numbers from the pelagic trawl pollock fishery only. Currently these values include other gears and targets hence are preliminary for discussion purposes only. Revised pollock-fishery only Chinook numbers will be provided in the Council briefing materials.

Option 5: Divide the final cap by sections based on

i) 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: *Need clarification here if this is to be over the years under consideration by each option for the hard cap or over a pre-determined set of years only*

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.

Alternative 3: Fixed closures

Fixed closure management measures are simply 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: Timing options

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

Option 2: Area options

Closure options will be selected by the Council at this meeting to be included in the analysis. Closures may be seasonal or annual and vary by species. Additional details of candidate closures are presented below.

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

Triggered closures are regulatory time area closures that are invoked when cap levels are exceeded. 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.

Similar to status quo, 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. Sub-division of trigger caps by sector would not apply to the CDQ fisheries.

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

Closure options will be selected by the Council at this meeting to be included in the analysis. Closures may be seasonal or annual and vary by species. Additional details of candidate closures are presented below.

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 sections based on:

iii) 50% shore based CV fleet; 10% for the mothership fleet; and 40% for the offshore CP fleet
iv) Historical average of percent bycatch by sector: *Need clarification here if this is to be over the years under consideration by each option for the hard cap or over a pre-determined set of years only*

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:

iii) 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)
iv) Purchase salmon bycatch from other cooperatives.

Candidate closures for Alternatives 3 and 4

Two types of closures, fixed and triggered, are under consideration in the Council's suite of alternatives. Unless indicated otherwise, closures presented below could be formulated as triggered closures or fixed closures. The Council would need to select candidate areas for inclusion as options in the analysis. The areas presented below could be selected individually or in conjunction with each other for multiple closures. Closures are presented as three options based upon the primary methodology for determining the closures: historic effort, rate-based criteria delineation, percent bycatch reduction delineation. The EIS analysis will examine the impacts of displaced effort due to enactment of the closure.

1) Closures areas defined by historic effort

1a) Fixed A season closure (Chinook)

The following area was brought forward to the Council in December 2007 in public comment (Figure 1). This area is proposed as a fixed closure for the fleet in 2008 under the Intercooperative Agreement (Chinook salmon conservation zone). This area has also been shown in previous staff discussion papers as an area with historically high bycatch in the A season. This area is be proposed as a fixed closure for the duration of the A season. The coordinates of the closures are listed below.

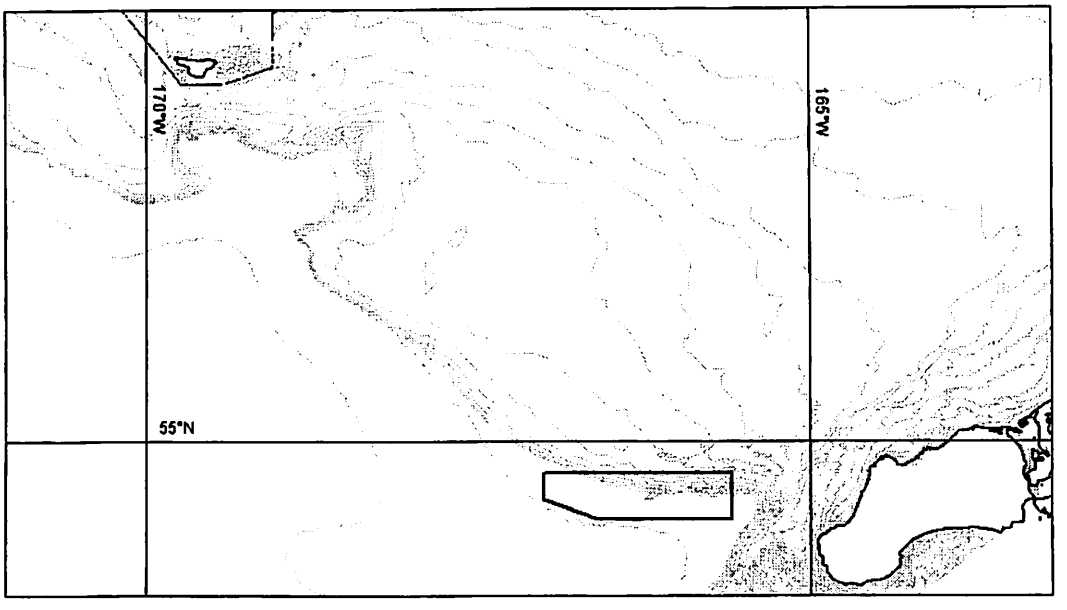

Figure 1. Fixed A season candidate closure for Chinook

Coordinates:

Latitude		Longitude	
54°	40'	165°	35'
54°	40'	166°	35'
54°	45'	167°	0'
54°	52'	167°	0'
54°	52'	165°	35'

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

Closures presented below are for two week periods. The Alaska Department of Fish & Game (ADF&G) statistical areas are used. The specific areas, as closures, were identified by examining the spatial extent of the fishery, bycatch rates, number of Chinook caught, timing of fishery, and pollock catch per unit effort. The catch and bycatch information used was from 2004-2007 (A season), and from 2004-2006 (B season) observer data for the pollock fishery. Area configurations are summarized based on historic fishing and bycatch effort to indicate what the relative impacts of the closure might have been. Redistribution of effort is expected within the core fishing areas and a detailed methodology to determine the impact of this displaced effort will be addressed in the EIS.

Weekly catch and bycatch information were summarized and provided in the following histograms to determine appropriate period lengths for closures (A season Chinook Figures 2-6, B season Chinook Figures 12-14, B season chum Figures 18-21). Closure periods were based on historic high bycatch to catch ratios. The closures occur within the main footprint of the pollock fishery. Areas were selected based on overall Chinook and chum taken, bycatch rates, and pollock CPUE displayed in GIS. During the 3 years examined, substantial variability in weekly bycatch amounts and locations occurred.

For the A season pollock fishery, three fixed closures for a two week period are proposed (Figures 7-10) to reduce Chinook bycatch. These would occur during the first four weeks of the A season based on a start date of January 20th (i.e. 1st 2 weeks of season- January 20-31st; 2nd and 3rd weeks of season- January 26-February 7th; 3rd and 4th weeks of season- February1-14th). Table 1 provides a historic perspective on both the number of salmon and pollock catch taken within the proposed fixed closure areas.

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

For the B season pollock fishery three sequential closures are proposed for the month of October (Figures 15-17). Table 2 provides a summary of both the number of salmon and pollock catch taken within the proposed fixed closure areas over the 3 year time period.

1d) August B season closure (Chum)

An area closure for the month of August is proposed to reduce 'Other' Salmon bycatch in the Pollock B season fishery (figure 22). Similar to the method for Chinook salmon, weekly catch information were summarized and provided in the following histograms by 'Other' salmon bycatch numbers and Pollock catch (mt) (B season Figures 18-21). Based on historic high bycatch to catch ratios specific weeks were selected for the closure timing. The closures occur within the main footprint of the pollock fishery. The two statistical areas were selected based on overall 'Other' salmon taken, bycatch rates, and pollock CPUE. Table 3 provides a summary of both the number of salmon and pollock catch taken within the proposed fixed closure areas.

2) Candidate Closure areas defined by rate-based criteria

Closure areas can be developed based on rate-based bycatch goals. A series of smaller closures could have a set of smaller cumulative caps while one larger area similar to the current CSSA would have a larger cap. A season Chinook bycatch rate-based closures are proposed here using observed rates in the pollock pelagic trawl fishery 2004-2006 as an example. Additional exploration of B season rate-based closures by species could also be evaluated.

Observer data from the non-pelagic pollock trawl fishery were summarized by haul for salmon bycatch. Bycatch rates were calculated based on observed numbers of salmon per metric ton of pollock. Numbers are presented based on observer counts. Data were brought into a GIS to be viewed spatially and temporally. Examples here are based on 2004-2006 combined data from the pollock A season for

Chinook bycatch. Closure areas were determined by calculating average bycatch rates (number of extrapolated observed salmon per ton of pollock) within a 100 km^2 area (Figure 31). Observed values of bycatch rates are viewed by a consistent range of rate breaks (i.e., 0.1, 0.2, 0.3, ...) based on the Salmon Workgroup's recommendation (August 29, 2007 SBW report).

Within these examples there are several hauls that have very high rates compared to the majority of sets in the time period. To normalize the effects of these few hauls, the optimal method to depict bycatch rates would need to be analyzed. Preliminary concepts of this include transformations such as (log x+1), or normalizations as a percentage of the maximum rate or upper quartile. Configurations of the closure areas would vary based on the method to display rates and will need to be fully evaluated in the forthcoming EIS analysis.

The criteria are established such that if three or more 10 km^2 grids adjacent to each other exceed the established rate based threshold, an area closure is created.

2a) Rate-based criteria 0.10 Chinook/pollock (t)
Under Closure 2a, the threshold is set at an average bycatch rate that exceeds 0.10 Chinook/ pollock MT (Figure 24 provides an example with catch data; Figure 25 depicts the closure).

2b) Rate-based criteria 0.20 Chinook/pollock (t)
Under Closure 2b, the threshold is set at an average bycatch rate that exceeds 0.20 Chinook/ pollock MT (Figure 26).

2c) Rate-based criteria 0.30 Chinook/pollock (t)
Under Closure 2c, the threshold is set at an average bycatch rate that exceeds 0.30 Chinook/ pollock MT (Figure 27).

2d) Rate-based criteria 0.40 Chinook/pollock (t)
Under Closure 2d, the threshold is set at an average bycatch rate that exceeds 0.40 Chinook/ pollock MT (Figure 28).

3) Candidate Closure areas defined by percent bycatch reduction criteria

Area closures may also be configured based on a bycatch reduction goal, e.g. a percent reduction criteria. Here the amount of salmon necessary to achieve a goal is calculated and an area closed to meet that goal. The percent reduction is over the three-year average for the A season (2004-2006) in the examples provided below. One difficulty of achieving a large bycatch reduction level with one or more large contiguous closures will be allowing for an economically viable pollock harvest. Two examples of this methodology for Chinook A season are provided while additional percent reduction threshold closures could also be evaluated.

3a) 50% bycatch reduction closure
Closure 3a uses the criteria of a 50% bycatch reduction for Chinook (Figure 29).

3b) 75% bycatch reduction closure
Closure 3b uses the criteria of a 50% bycatch reduction for Chinook (Figure 29).

Table 1. Summary table of closures by week, stat area closed, average amounts of Chinook inside and outside closure, and average amounts of pollock harvested inside and outside closure.

Closure Week	Stat Area Closure	size (nm2)	Weekly Avg Chinook Inside	Weekly Chinook Average Overall	% Observed Chinook in closure	Weekly Avg Pollock Harvest in closure	Weekly Avg Pollock Harvest Overall	% of pollock in closure
Jan 20_25	645501	1,025	2,392	4095	58%	20,506	31656	65%
Jan 20_25	655430	836	402	4095	10%	2,880	31656	9%
	Total Week 1	1,861	2,794	4095	68%	23,386	31656	74%
Jan25_31	645501	1,025	1,445	5,206	28%	12,614	30,894	41%
Jan25_31	655430	836	2,376	5,206	46%	4,550	30,894	15%
Jan25_31	665430	836	1,254	5,206	24%	782	30,894	3%
	Total Week 2	2,697	5,075	5,206	97%	17,946	30,894	58%
Feb1_7	655430	836	1534	6,643	23%	2,907	42,094	7%
Feb1_7	665430	836	2618	6,643	39%	4,231	42,094	10%
Feb1_7	685530	1,019	465	6,643	7%	1,684	42,094	4%
	Total Week 3	2,691	4,617	6,643	70%	8,822	42,094	21%
Feb8_14	665430	836	499	5,509	9%	694	41,321	2%
Feb8_14	685530	1,019	425	5,509	8%	2,361	41,321	6%
Feb8_14	665401	1,087	1,233	5,509	22%	9,284	41,321	22%
Feb8_14	655409	305	2,405	5,509	44%	13,907	41,321	34%
	Total Week 4	3,247	4,562	5,509	83%	26,246	41,321	64%
	All Closures		17,048	21,453	79%	76,400	145,965	52%

Table 2. Summary table of fixed closures by week, stat area closed, average amounts of Chinook inside and outside closure, and average amounts of pollock harvested inside and outside closure.

Closure Week	Stat Area	size (nm2)	Weekly Average Chinook Inside	Weekly Chinook Average	% Observed Chinook in closure	Weekly Average Pollock Harvest in closure	Weekly Average Pollock Harvest	% of pollock in closure
Oct1_8	645501	1,025	458	3,433	13%	871	12,766	7%
Oct1_8	655430	836	644	3,433	19%	4,067	12,766	32%
Oct9_15	705600	1,006	1,173	3496	34%	1,719	3,495	49%
Oct16_22	655409	305	300	1,983	15%	3,540	7134	50%
Oct16_22	665430	836	983	1,983	50%	3,616	7134	51%

Table 3. Summary table of closures for August, stat area closed, average amounts of 'Other' salmon inside and outside closure, and average amounts of pollock harvested inside and outside closure.

Closure Period	Stat Area	size (nm2)	Weekly Total Other Inside	Weekly Other Total	% Observed Chinook in closure	Weekly Total Pollock Harvest in closure	Weekly Total Pollock Harvest	% of pollock in closure
August	675530	1,019	31,430	116,002	27%	4,632	115836.4	4%
August	685530	1,019	15,249	116,002	13%	2,120	115836.4	2%
Total Combined		2,038	46,678	116,002	40%	6,752	115836.4	6%

Table 4. Summary table of rate based closure areas for Pollock A season. Numbers represent the area of the closure, the entire harvest and bycatch inside and outside the closure areas for the entire A season, based on averages from 2004-2006.

Closure Area	Rate Based	size (nm2)	Chinook Average Inside	Chinook Average Overall	% Observed Chinook in closure	Average Pollock Harvest in closure	Average Pollock Harvest Overall	% of pollock in closure
1	0.1	20,422	32,833	36,117	91%	223,235	298,842	75%
2	0.2	4,419	16,412	36,117	45%	63,065	298,842	21%
3	0.3	2,588	11,189	36,117	31%	30946	298,842	10%
4	0.4	2,219	10,325	36,117	21%	26,994	298,842	9%

Table 5. Summary table of closure areas for Pollock A season. Numbers represent the area of the closure, the entire harvest and bycatch inside and outside the closure areas for the entire A season, based on averages from 2004-2006.

Trigger Closure	size (nm2)	Chinook Average Inside	Chinook Average Overall	% Observed Chinook in closure	Average Pollock Harvest in closure	Average Pollock Harvest Overall	% of pollock in closure
6 Stat area Closure	5,741	21,029	36,117	58%	125,456	298,842	42%
10 Stat Area Closure	8,980	25,639	36,117	71%	172,719	298,842	58%

Appendix 1. Council motion on BSAI Salmon Bycatch December 2007

The Council adopts the problem statement and moves forward the analysis and alternatives proposed by the Salmon Bycatch Workgroup in their May and August 2007 meetings and as described on pages 1 and 2 of D-1 (a)(1) and pages 3 and 4 of D-1 (a)(3) with the following changes:

Option B) Cap formulation based on:

2) Establish cap based on:
   a) Average historical bycatch:
      i) 3 years (2004-2006)
      ii) 5 years (2002-2006)
      iii) 10 years (1997-2006)

      Suboption: drop lowest year
      Suboption: drop highest year

   b) Percentage increase of:

      i. historical average (3 years, 2004-2006)

      (1) 10%
      (2) 20%
      (3) 30%

      ii. highest year, pre-2007

      1. 10%
      2. 20%
      3. 30%

3) Set cap relative to salmon returns:

   Recommend that analysts prepare draft language to better characterize on-going investigations

4) Incidental Take Permit amount
5) International treaty considerations
   a) Average historical bycatch pre-2002
      i) 3 years (1999-2001)
      ii) 5 years (1997-2001)
      iii) 10 years (1992-2001)
   ~~b) Percentage decrease of historical averages:~~
      ~~i) 10% decrease~~
         ~~(1) 3 years (1999-2001)~~
         ~~(2) 5 years (1997-2001)~~
         ~~(3) 10 years (1992-2001)~~
      ~~ii) 20% decrease~~
         ~~(1) 3 years (1999-2001)~~
         ~~(2) 5 years (1997-2001)~~
         ~~(3) 10 years (1992-2001)~~
      ~~iii) 30% decrease~~
         ~~(1) 3 years (1999-2001)~~
         ~~(2) 5 years (1997-2001)~~
         ~~(3) 10 years (1992-2001)~~

Add an option to the alternatives for new closures that would allow for an exemption such as the one currently implemented under amendment 84 for the fleet to these new closures.

Add an option to divide the final cap by sectors based upon:

Option 1: 50% shore based CV fleet; 10% for the mothership fleet; and 40% for the offshore CP fleet

Option 2: historical average of percent bycatch by sector

Add another option to further subdivide sector allocation 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 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) or purchase salmon bycatch from other cooperatives.

The analysis will consider equal treatment by the CDQ program under each alternative. The intent is that any alternative under consideration would be no more restrictive than the other options to CDQ.

The Council adopts the Notice of Intent as presented by the agency.

Discussion paper: addressing salmon bycatch through salmon bycatch quota trading among pollock cooperatives

By Alan Haynie[3]

This short paper presents several options for market-based salmon bycatch reduction and a discussion of how these systems might function. The paper does not consider whether or not a hard cap is desirable, but attempts to assess the impact of different management instruments discussed in the December 2007 Council motion on salmon bycatch. There are many details to be considered in the analysis of alternatives, but this paper aims to present an overview of key features of several market-based policy options.

Why consider a salmon quota market?

The North Pacific Fishery Management Council ("Council") is considering the imposition of a hard cap on salmon bycatch in the Bering Sea pollock fishery. Creating a hard cap without allocating salmon via an individual bycatch quota system is likely to create a new 'race for fish' in pollock—pollock quota will become useless when the hard cap is reached so vessels will speed up fishing to ensure that quota is fished. Currently, salmon bycatch is an 'externality' to fishing for pollock, similar to pollution generated by operating a factory or a car that affects everyone and can be emitted for free. Imposing a hard cap on salmon bycatch limits the total amount of salmon that can be caught, but without a system that individually accounts for salmon bycatch, the fleet as a whole bears the costs of an individual's choice to fish in a high-bycatch area. With a salmon quota market, the costs of this externality can be "internalized" by creating a market for bycatch. Although this requires one to pay directly for any bycatch above one's allocated amount, "clean" fishermen have the option of selling their quota, and the overall cost of this system may be much less than the costs of having a hard cap without a salmon quota market.

When captains choose where to fish for pollock, they balance their expected revenue with the costs of operation – fuel, labor, insurance, bait, etc. Avoiding salmon can be very expensive and the benefit of avoiding the salmon does not go to the vessel that avoids it, but is shared by the fleet. The inclusion of bycatch costs in the fishing decision will lead to a consideration the cost of salmon bycatch in the decision about where to fish. Similar markets have been developed in other natural resource contexts and in the British Columbia trawl fishery bycatch was substantially reduced by the creation of bycatch quota (Diamond 2004).

The strongest argument for a salmon quota system is that it provides a direct incentive to cooperatives and vessels to avoid salmon, whether the vessel has had high or low bycatch. The benefits of bycatch reduction directly accrue to each vessel (in the form of reduced salmon bycatch purchases or as revenues from bycatch quota sales), as do the costs. Rather than a regulation that tells fishermen *how* to reduce bycatch, a quota market tells fishermen to reduce bycatch to what the Council deems an acceptable level in whatever way is most efficient for them to do so. For different cooperatives with different vessels and experience, this may mean avoiding hotspots all year, leaving an area as soon as they see high numbers of salmon, not fishing during certain high-bycatch periods, or investing more in bycatch-reducing technology. The substantial variation in bycatch rates among locations, cooperatives, and time-periods implies that choices can be made to reduce bycatch significantly. And if the fishing is really great in a high bycatch area, vessels may decide to buy salmon quota and enjoy higher-value pollock fishing.

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Description of different proposed options

Two significant policy changes are being considered by the Council: (1) imposing a hard cap on salmon and (2) developing a tradable salmon mechanism to mitigate the economic impacts of a hard cap on the pollock fishery. We consider each of these policies below. The following table summarizes what each of these policies would entail followed by a more detailed description of each option.

Table 1: Alternative Hard-cap Policies

Policy Option	Tradable salmon	Benefits	Possible adverse side-affects
1) Salmon hard cap with no trading	No	Limit on salmon bycatch	Race for fish to ensure ability to catch pollock quota; potential lost pollock revenue with early fishery closure
2) Salmon quota trading under a hard cap	Yes	Limit on salmon bycatch; cost-effective reduction of bycatch	Natural variability in bycatch levels could lead to speculation in bycatch quota (see discussion)

1) Salmon hard cap with no trading (i.e., no quota market). A hard cap by definition would limit salmon bycatch, but without some sort of individual bycatch quota, it would create a "race for fish" within the pollock fishery to land pollock quota before the hard cap is reached. Because reaching the hard cap would render remaining pollock quota worthless, vessels would increase the pace of fishing to ensure that quota can be met. The lower the hard cap, the stronger would be the pressure to race for fish and the greater the potential economic loss. Rationalization allows fishers to slow down and can spend extra time looking for low-bycatch areas with the cost being search time but not lost fish. Under a race for fish, time spent looking for lower bycatch areas translates into uncaught fish, which we would expect might further increase bycatch *rates*.

If a salmon hard cap is implemented, it is possible that as part of the Inter-cooperative agreement (ICA) the cooperatives would negotiate some type of tradable salmon system or salmon fee system to discourage a race for fish in pollock. As a means of avoiding added bureaucracy, this system might be preferable to any Council-implemented system. However, several important differences between an industry and a Council-implemented system should be noted. First, under an industry-led system, all pollock coops would have to achieve consensus on the initial allocation of the system, and this would likely lead to a different sharing of the financial burden of salmon reduction than under a system where bycatch quota is allocated based on either historic pollock catch or salmon bycatch. Secondly, a Council-implemented quota market with observable transactions would reveal the cost of bycatch reduction, which would allow the Council to make future considerations about the costs of possible adjustments in the hard cap. If the Council adopts an industry-operated bycatch trading system, the Council should consider the value to future management decisions of requiring that information be provided about quota trades. A low quota price would imply that it is relatively inexpensive to reduce salmon bycatch, whereas a high quota price would imply that it is difficult for cooperatives to reduce bycatch levels. This information can give decision makers an actual cost of the reduction in salmon bycatch, which provides better information for future policy decisions.

2) Inter-coop salmon quota trading under a hard cap. This system would assign salmon bycatch quota to cooperatives so that salmon bycatch quota would be required to fish for pollock. Depending on how low the salmon hard cap is set, it is possible that it will be too expensive for all coops and vessel to

avoid salmon and the pollock quota might not be landed. Regardless of what level of pollock TAC or salmon bycatch hard cap, a tradable salmon quota system would lead to the greatest value of pollock being caught with the lowest bycatch avoidance costs. In the following section, variations of the bycatch trading system are discussed in further detail.

Different mechanisms to prevent a race for fish under a hard cap

The most simple tradable salmon bycatch system would (1) develop an initial quota allocation system, (2) develop an accounting system so that observed salmon would be charged against salmon quota, and (3) require coops to buy or sell quota so that at the end of the season all landed salmon would be charged against quota holdings.

One complicating factor in operating a salmon bycatch quota market is the uncertainty of the cost of avoidance during a season or the year. As is evident in the variation in salmon bycatch rates that we have observed in the past, vessels and coops cannot know exactly how hard it will be to avoid salmon during the season. One could "over-conserve" and save salmon quota for the end of the season, but then be unable to use it. If there were less than expected Chinook late in the year, then there would have been an additional cost to the pollock fleet of avoiding salmon that was not necessary to stay below the hard cap. Similarly, high-late season bycatch surprises could lead to coops being unable to land their pollock quota.

There are several mechanisms to help mitigate the impacts of this uncertainty. One is to allow for some type of "carry over" of a percentage of salmon bycatch quota from one year to the next. In New Zealand, 10 percent of quota can be carried over or borrowed for the following year. Given the fact that we do not currently have a biological reason to think that several thousand salmon more or less is significantly better and that the fish in the summer and winter may be from the same run, some sort of inter-annual flexibility warrants consideration.[4]

Another element of New Zealand quota management that could be applicable here is the 'deemed value system'. This system allows fishermen to buy additional fishing rights outside of the quota market at a price initially equal to the 80th percentile traded price in the quota market. The price increases as individuals increase their purchases. This system both allows flexibility in the system and minimizes potential monopoly or market power in the fishery. Given the small number of coops in the market, the ability of one coop to act as a monopolist at some point is a significant concern, though this may be mitigated to a degree with the flexibility mechanisms such as the deemed value system or inter-annual carry-overs. Of course, this makes the hard cap less rigid, but deemed value price could be set to steeply rise to insure that the amount of salmon caught is within an acceptable range.

In the discussion of designing a tradable salmon mechanism, a related mechanism warrants mention. An alternative way to reduce salmon bycatch would be to charge a "user fee" (i.e. tax) for each salmon caught. If the Council did not want to charge the pollock fleet, this money could be rebated to the fleet as a whole or used to fund additional research or monitoring. Like a bycatch quota, a fee provides a direct individual incentive for vessels to avoid bycatch. The main advantage of this system is that a fee would not require complicated forecasting or speculation about the value of quota. The main disadvantage is that we don't know the "right" fee that would achieve a certain level of reduction. However, given the large degree of uncertainty about the biological costs of salmon bycatch, this may be acceptable. Potentially the fee could be increased annually until salmon bycatch declined to an acceptable level.

In summary there are really three possible instruments that could be used to 'internalize the externality' of bycatch: a salmon quota, a salmon quota system similar to the deemed value system, and a salmon bycatch fee. There are attractive features of each of these options, depending on the Council's priorities for creating a more or less rigid hard cap and allowing more or less economic flexibility.

[4] A comprehensive discussion of the New Zealand quota market flexibility mechanisms discussed here can be found in Lock and Leslie (2007).

Pollock quota trading

There has been some discussion at the Salmon Bycatch Workgroup meetings of allowing pollock quota to move between the three sectors of the fishery after a bycatch cap is reached. The AFA prohibits pollock trades between sectors and among inshore cooperatives. Amendment 69, however, allows vessels to become de-facto members of other cooperatives and for any vessel to fish a coop's quota. Thus by allowing salmon bycatch quota to be traded among coops, vessels from coops that have salmon quota remaining when they complete their coop's pollock fishing could fish other coops' pollock quota.

There are some substantial perverse incentives that would be created by an inter-sector pollock-trade-only system that is triggered by a sector cap being reached. As well as creating "race for fish" problems similar to those described under the system with a hard cap only, this option would provide an incentive for coops to actually target salmon if their pollock quota could be sold at a higher value to other sectors after the coop's salmon cap is reached. There could be economic gains from the pollock trades because the value may be higher in a different sector.

Allowing trading of both pollock and salmon between sectors (again currently prohibited by the AFA) would be unlikely to reduce salmon bycatch beyond a system with only tradable salmon, but it would have other affects. The value of quota is higher in the offshore sector so we would expect that freeing pollock quota from the current sector split would cause some sale of pollock quota from the inshore to the offshore sector (resulting in higher value usage of quota). Conventional wisdom would suggest that this would be good for the offshore fleet and bad for the inshore sector, but since the initial allocation does not change, the negative impact would be on inshore captains and crew rather than quota holders, as inshore quota holders could either fish or trade pollock quota, whichever is better for them. The magnitude of pollock trading between sectors is difficult to anticipate but certainly could be substantial.

Initial allocation options

For most quota managed fisheries, quota allocation starts with the provision of quota to fishers based on some formula that incorporates historic participation with other social goals, such as economic development or discouraging excessive market concentration. This process is never easy because of its long-term financial implications, but here it is even more complicated because there is a concern about rewarding "bad" behavior of past high bycatch. Below are several options for initial allocation proposed in the December 2007 Council motion on salmon bycatch and a brief consideration of the implications of these options.

- Option 1: Allocate bycatch to coops proportional to AFA pollock quota holdings (i.e. 50% shore-based CV fleet; 10% for the mothership fleet; and 40% for the offshore CP fleet. As illustrated in the October 2007 salmon bycatch discussion paper, this would require much more substantial reductions by inshore coops than by the offshore sectors. This option would not allocate bycatch within each sector.
- Option 2: Allocate bycatch based on historical average of percent bycatch by sector. This option assumes that inshore and offshore vessels have fundamentally different options for bycatch avoidance so would allocate a larger share of bycatch to the inshore fleet (the percentage would depend on the base years included). The option would not allocate bycatch within each sector.
- Additional option: allocate within sectors by pollock allocation. Within each sector, this option would allocate bycatch quota to coops based on pollock quota to avoid rewarding past "bad" high-bycatch behavior. This recognizes that some historically low-bycatch vessels have already taken many actions to avoid bycatch so it may be harder for them to reduce bycatch now and does not penalize them for previous bycatch avoidance.

Some combination of these previous options is of course possible. All of the above imply that bycatch quota will be "grandfathered" according to some combination of historic usage, but of course bycatch

rights could be also auctioned by the government. It should be noted that because it is essential to have bycatch rights to fish for pollock, this would be similar to auctioning off all pollock quota, and thus would represent a very large transfer of wealth away from pollock quota holders.

While from an overall point of view a tradable salmon bycatch system is likely to be more efficient than a system only with an overall cap, there will be economic losers in the system. The decision of how to allocate salmon initially will determine who will pay a larger cost under the new system. The magnitude of this cost is difficult to predict, however, as we do not really know anyone's actual costs of avoidance. Some previously high-bycatch vessels may well prove themselves to be adept at bycatch reduction under a new management system that requires them to pay for bycatch.

Other considerations

This section briefly touches on other considerations for further analysis.

What is the likely price for salmon quota? This is uncertain and will depend on a number of factors including the size of the hard cap, the future abundance and distribution of salmon and pollock, and new developments in bycatch-avoidance technology.

One issue raised by industry is the fact that high bycatch does occur randomly even in low-bycatch times/locations. Insurance could be developed to share the costs of seemingly random high-bycatch events, so that if someone catches a large quantity of salmon in an otherwise clean area they would not have to bear the full cost of paying for the bycatch. This type of agreement could potentially be made among different vessels or cooperatives, though the challenge would be identifying what constitutes bad luck versus bad behavior.

There has been concern voiced about whether the Observer program can estimate bycatch with significant accuracy to allow for charging vessels for individual salmon landings. The complexities of monitoring and enforcement will be addressed elsewhere, but one point to note is that the unobserved trips could be charged usage fees for fishing in higher bycatch areas, so that a higher fee would be charged for fishing in higher bycatch areas.

While there is significant work to be done in the design of a tradable salmon quota system, there are also significant costs of both the status quo and the imposition of a salmon hard cap without a salmon quota system. More restrictive spatial management would also have a significant cost. The relative magnitude of these different options can be analyzed as part of future Council analyses.

References

Diamond, Sandra L. (2004). "Bycatch quotas in the Gulf of Mexico shrimp trawl fishery: can they work?" *Reviews in Fish Biology and Fisheries* 14: 207-237.

Lock, Kelly and Leslie, Stefan, "New Zealand's Quota Management System: A History of the First 20 Years" (April 2007). Motu Working Paper No. 07-02. Available at SSRN: http://ssrn.com/abstract=978115

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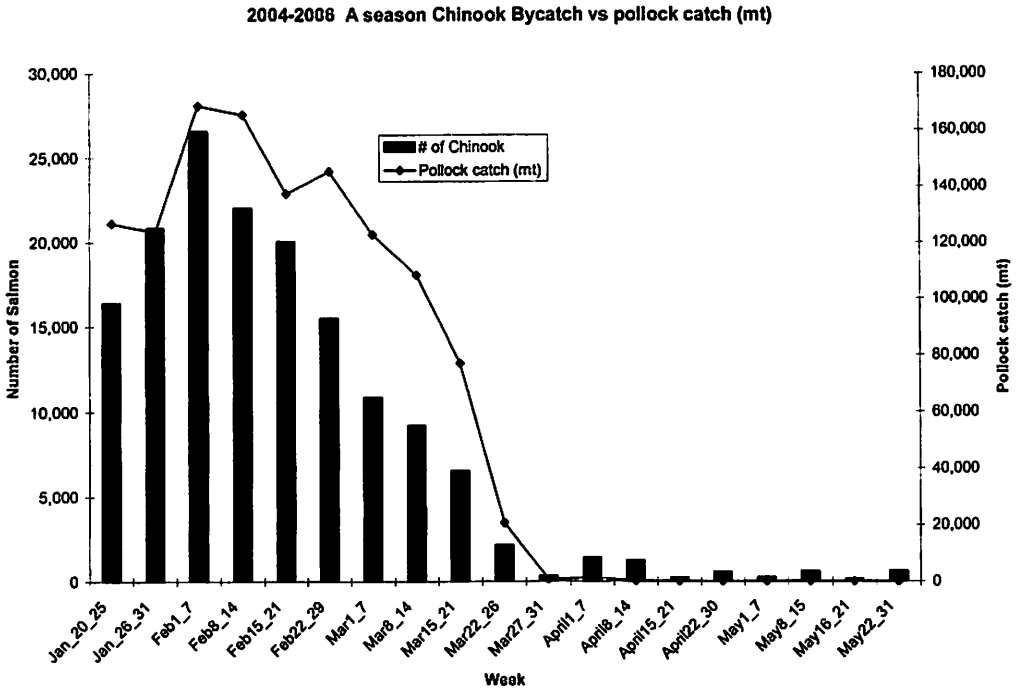

Figure 2. Weekly bycatch of Chinook salmon (in numbers) caught in the BS Pollock A season with pollock catch (mt) summarized for years 2004-2006.

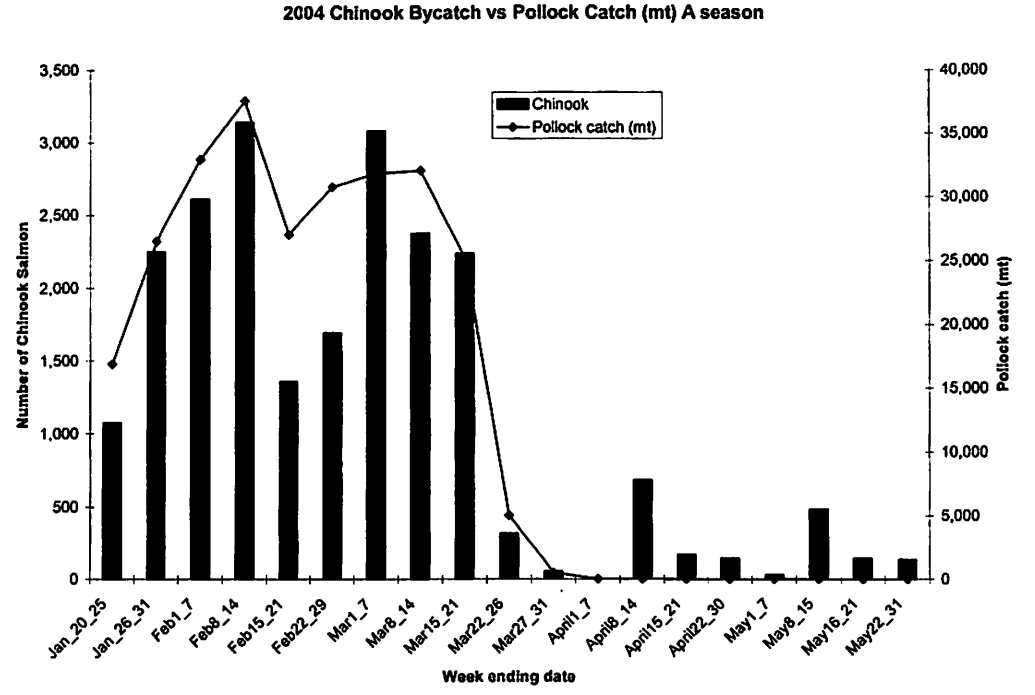

Figure 3. Weekly bycatch of Chinook salmon (in numbers) caught in the BS Pollock A season with pollock catch (mt) in 2004.

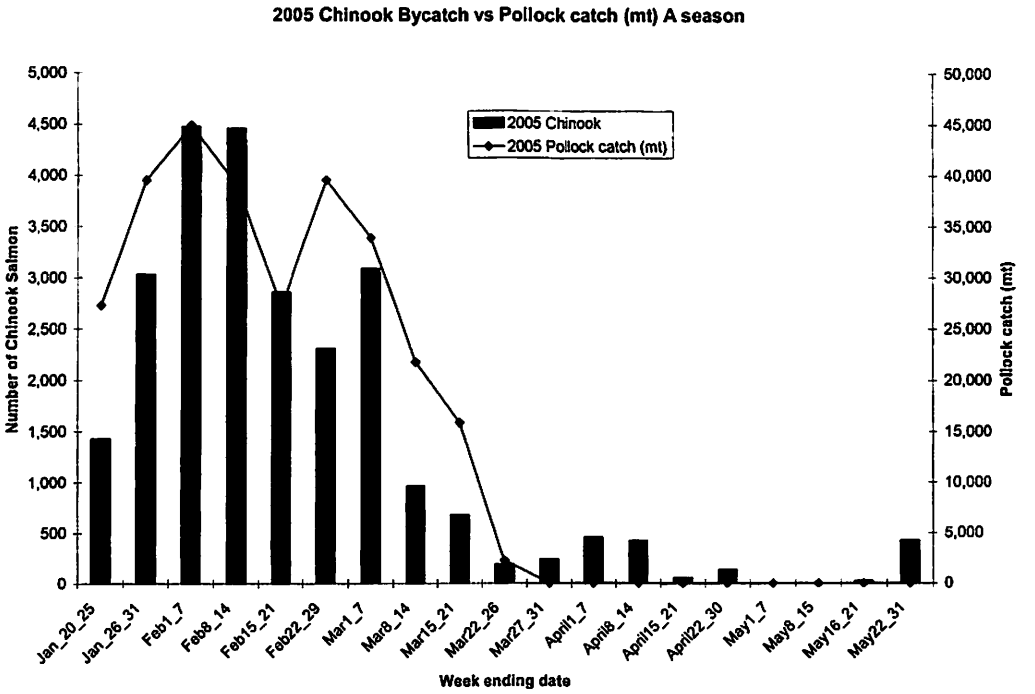

Figure 4. Weekly bycatch of Chinook salmon (in numbers) caught in the BS Pollock A season with pollock catch (mt) in 2005.

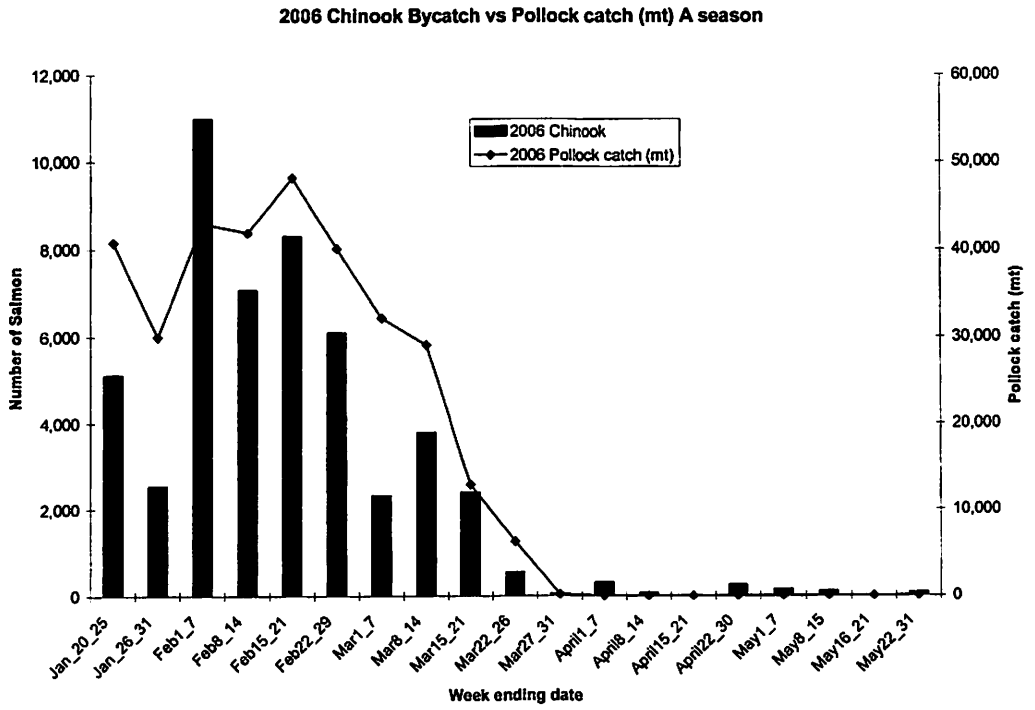

Figure 5. Weekly bycatch of Chinook salmon (in numbers) caught in the BS Pollock A season with pollock catch (mt) in 2006.

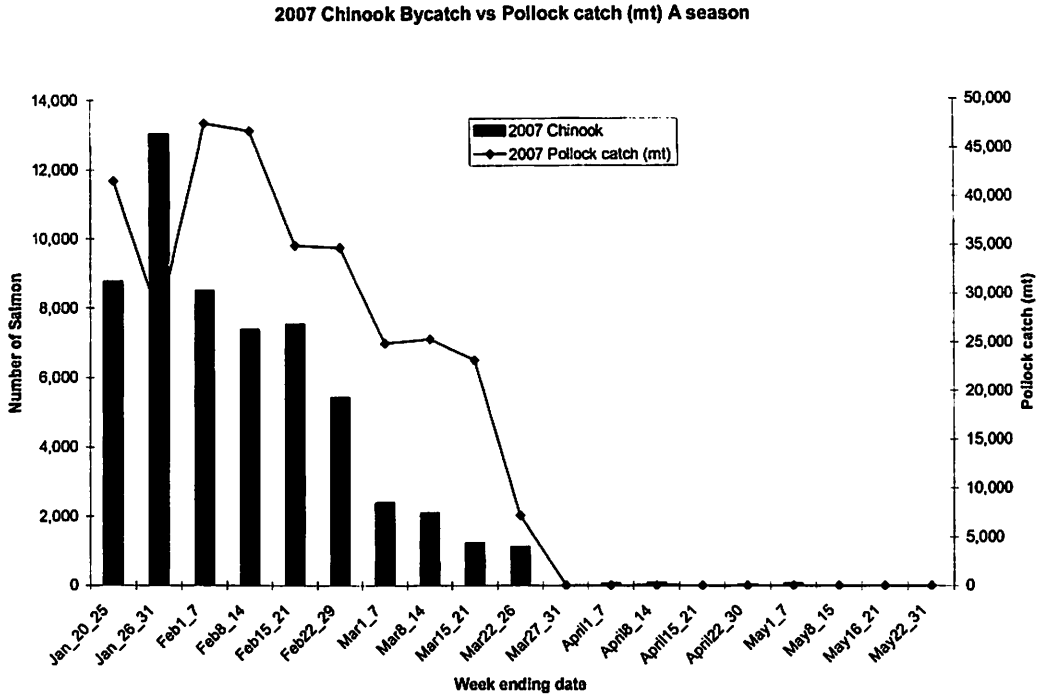

Figure 6. Weekly bycatch of Chinook salmon (in numbers) caught in the BS Pollock A season with pollock catch (mt) in 2007.

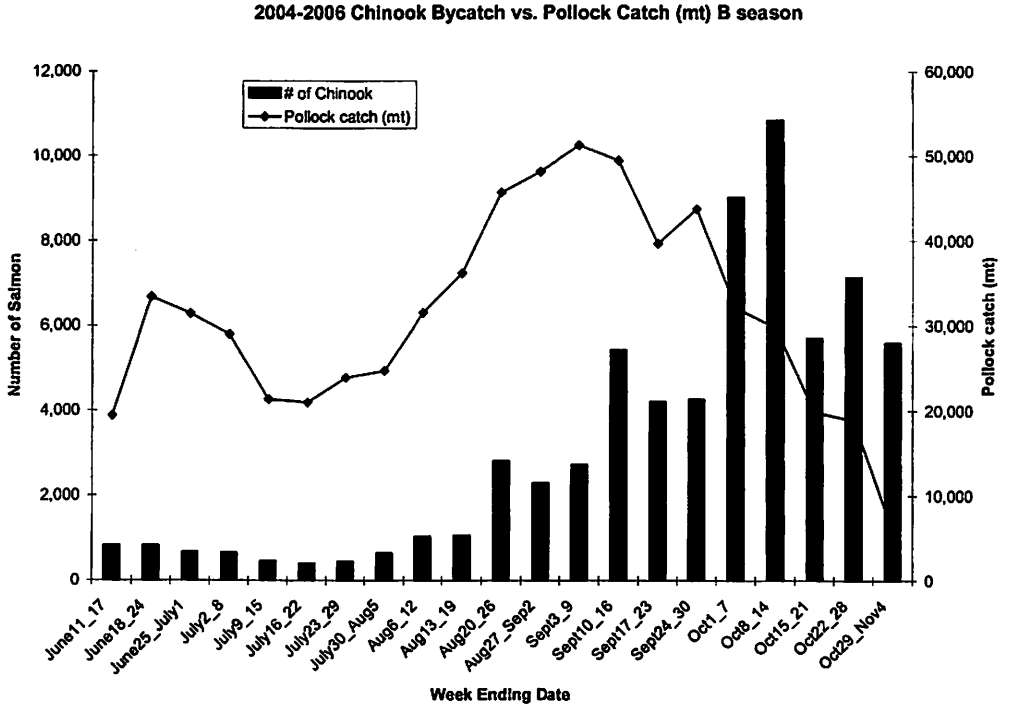

Figure 11. Weekly bycatch of Chinook salmon (in numbers) caught in the BS Pollock B season with pollock catch (mt) combined for years 2004-2006.

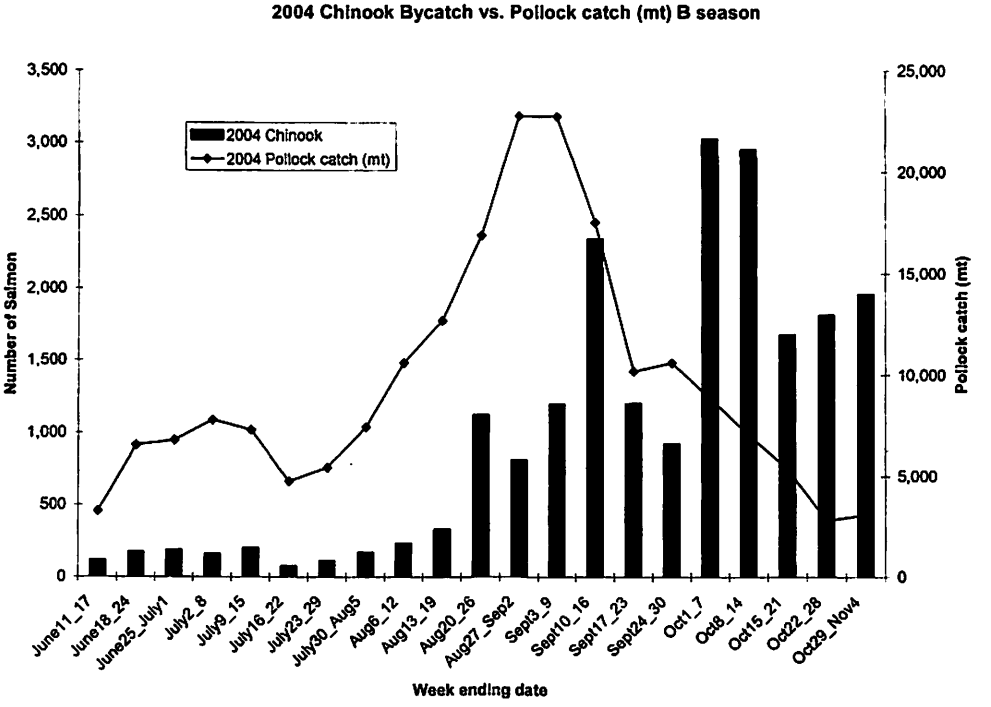

Figure 12. Weekly bycatch of Chinook salmon (in numbers) caught in the BS Pollock B season with pollock catch (mt) combined for 2004.

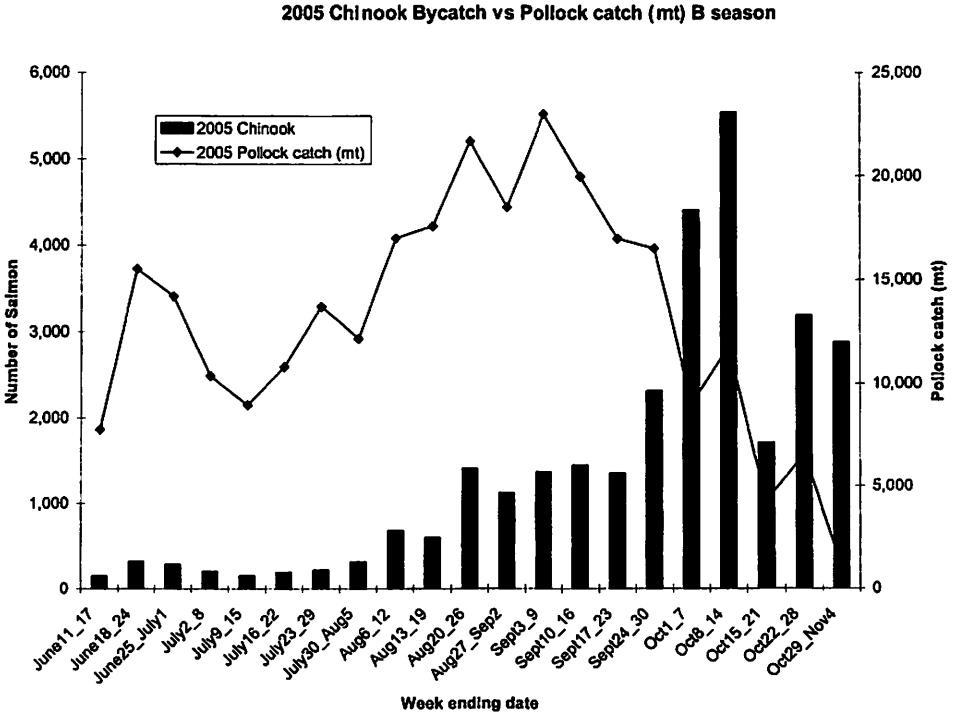

Figure 13. Weekly bycatch of Chinook salmon (in numbers) caught in the BS Pollock B season with pollock catch (mt) combined for 2005.

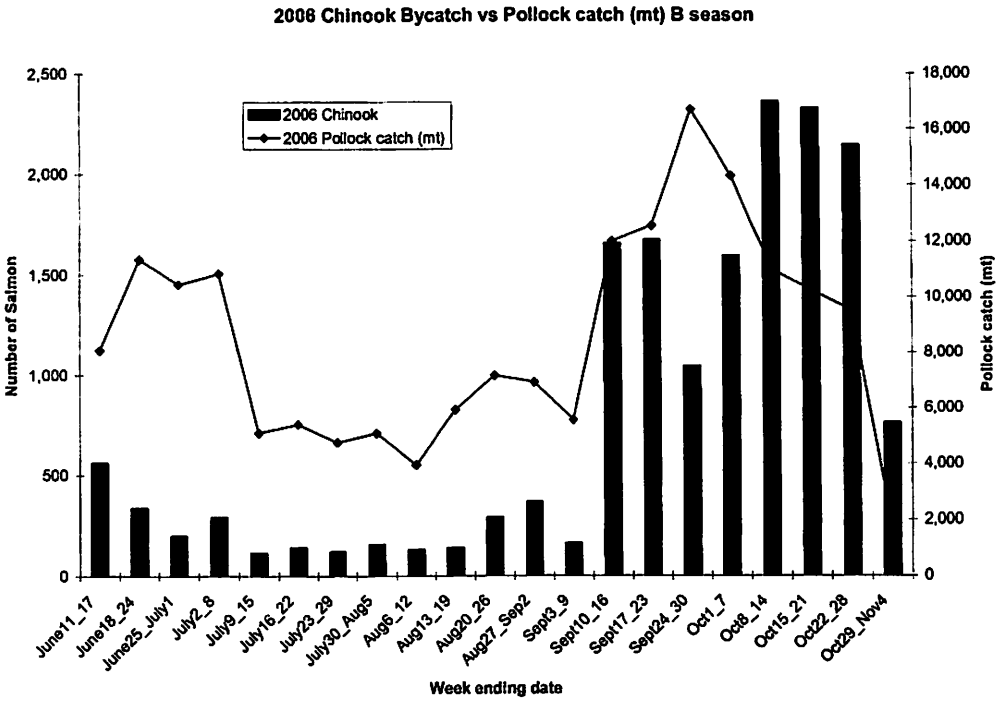

Figure 14. Weekly bycatch of Chinook salmon (in numbers) caught in the BS Pollock B season with pollock catch (mt) combined for 2006.

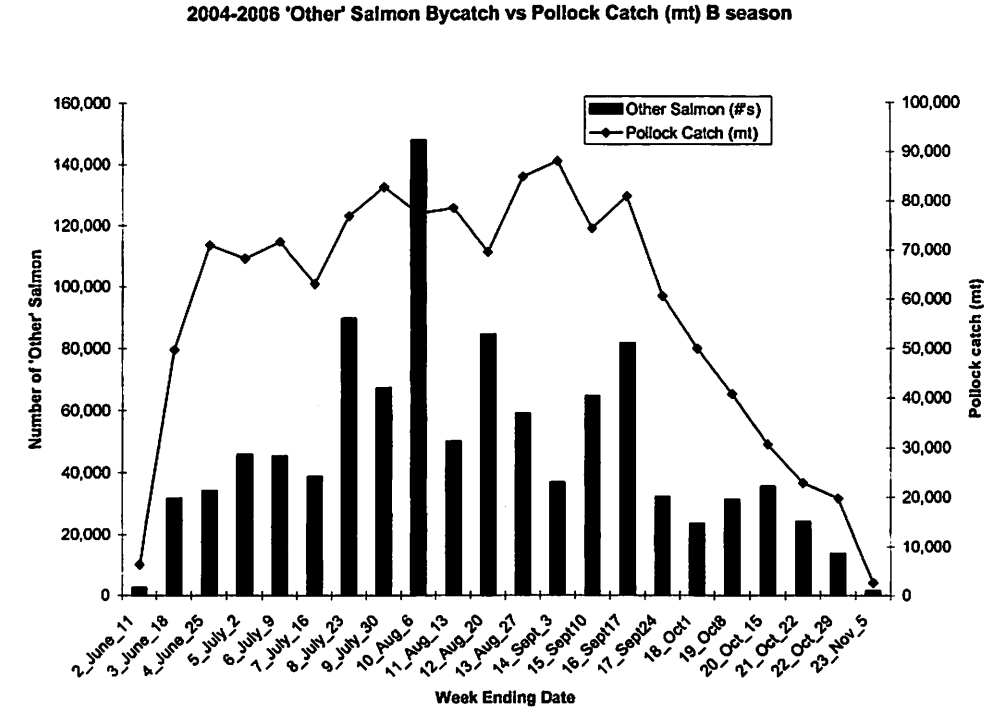

Figure 18. Weekly bycatch of 'Other' salmon (in numbers) caught in the BS Pollock B season with pollock catch (mt) combined for years 2004-2006.

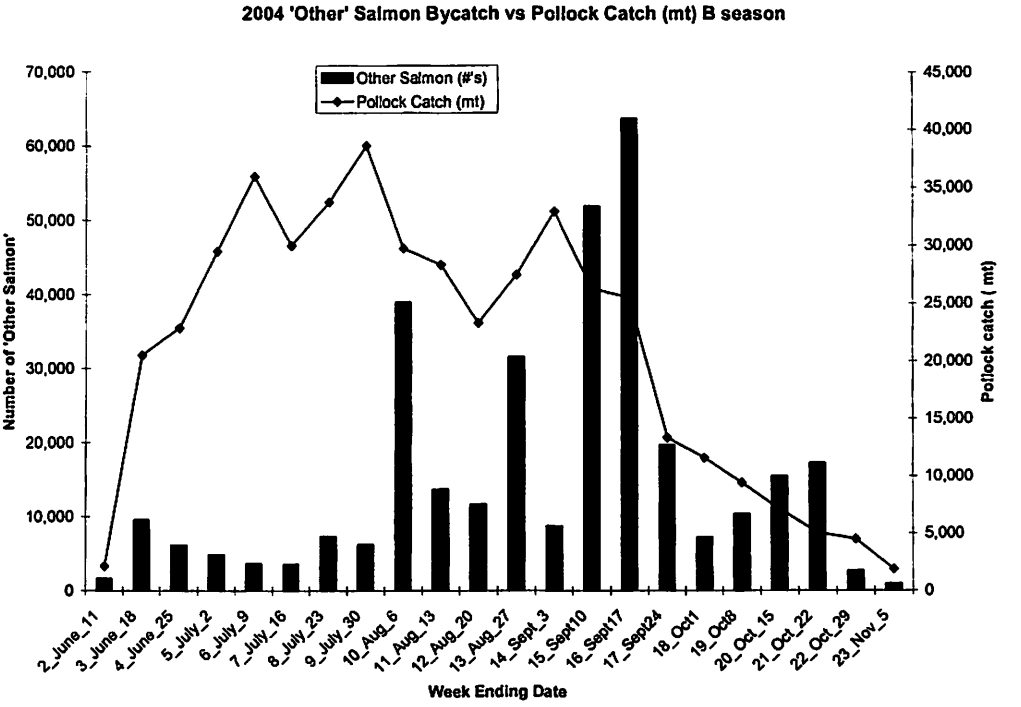

Figure 19. Weekly bycatch of 'Other' salmon (in numbers) caught in the BS Pollock B season with pollock catch (mt) for 2004.

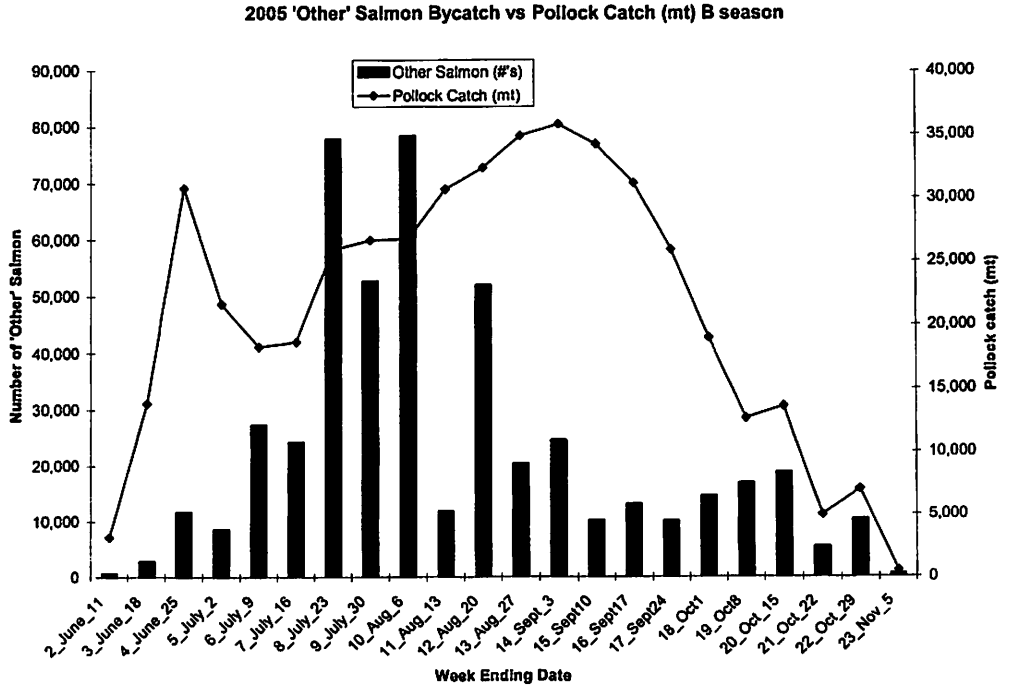

Figure 20. Weekly bycatch of 'Other' salmon (in numbers) caught in the BS Pollock B season with pollock catch (mt) for 2005.

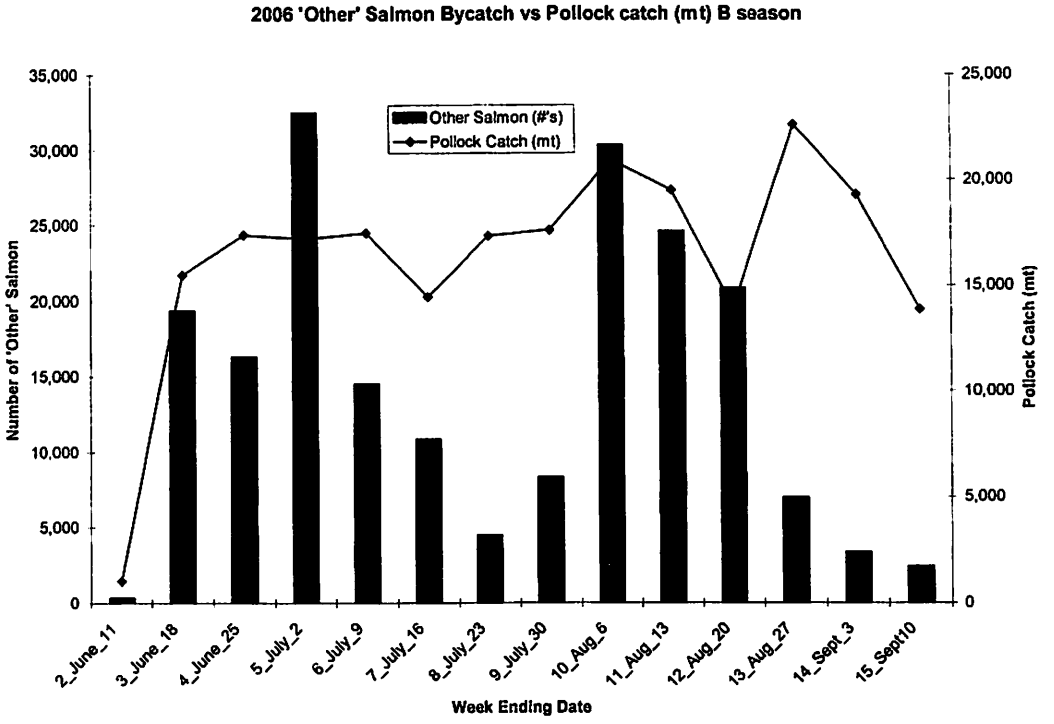

Figure 21. Weekly bycatch of 'Other' salmon (in numbers) caught in the BS Pollock B season with pollock catch (mt) for 2006.

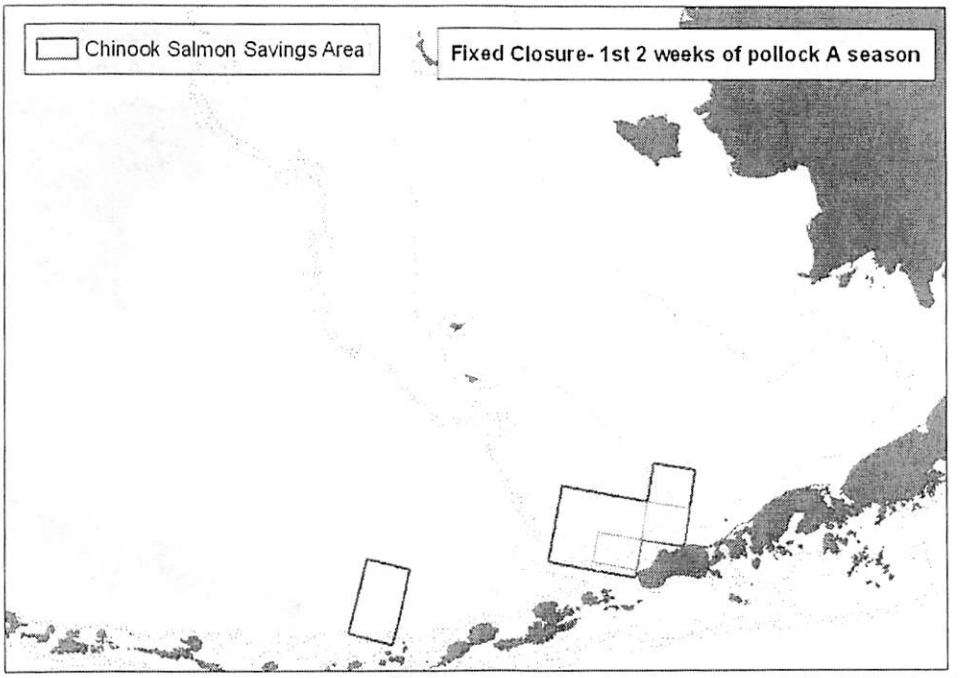

Figure 7. Proposed fixed area closure for reducing Chinook salmon bycatch for BS pelagic trawlers during 1st two weeks of Pollock A season. Areas are composed by ADF&G statistical areas 645501 and 655430.

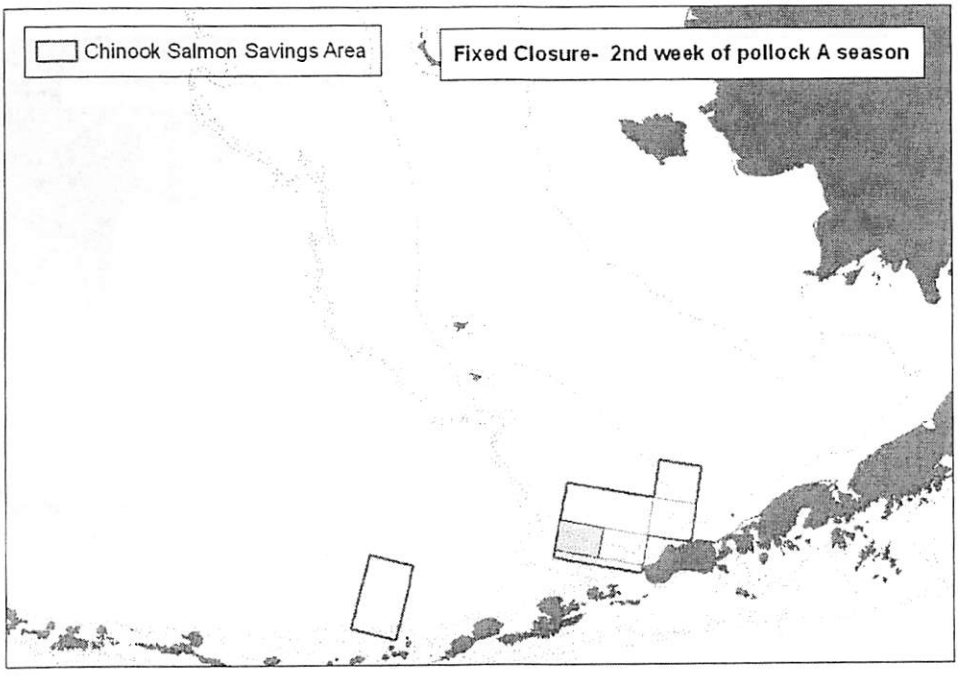

Figure 8. Proposed fixed area closure for reducing Chinook salmon bycatch for BS pelagic trawlers during 2nd week of Pollock A season. Areas are composed by ADF&G statistical areas 645501, 655430 and 665430.

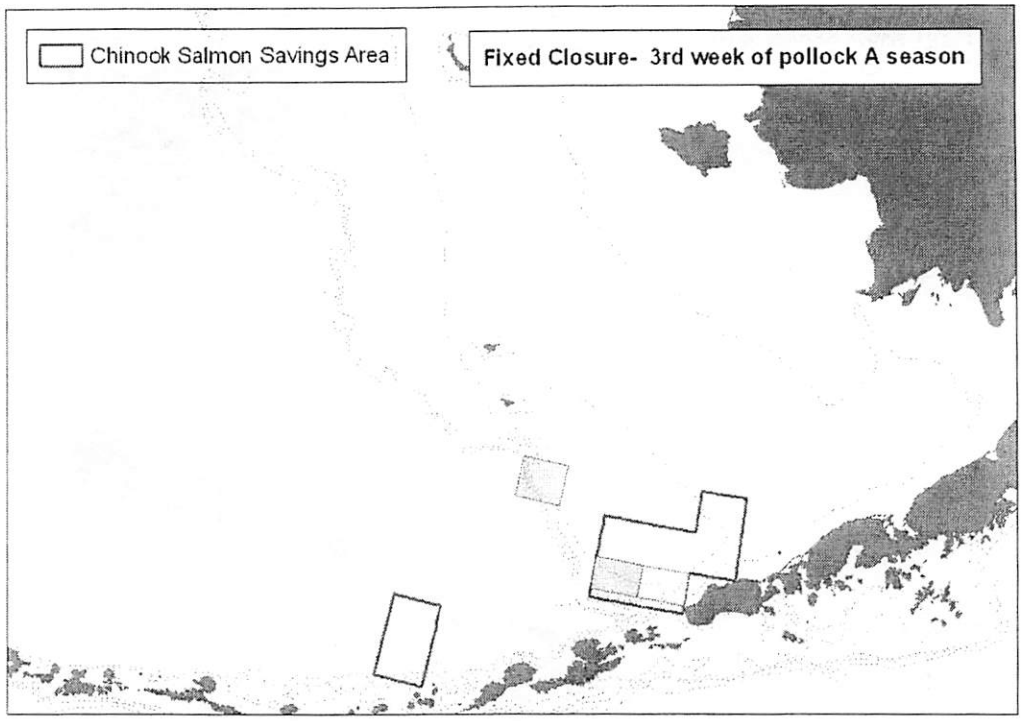

Figure 9. Proposed fixed area closure for reducing Chinook salmon bycatch for BS pelagic trawlers during 3rd week of Pollock A season. Areas are composed by ADF&G statistical areas 655430, 665430, and 685530.

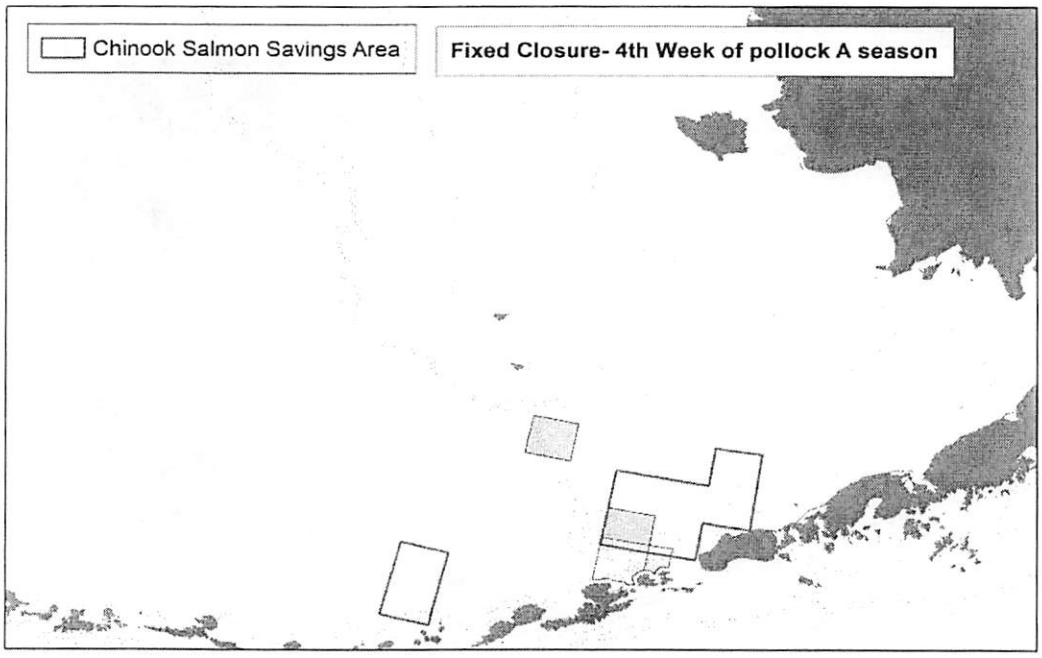

Figure 10. Proposed fixed area closure for reducing Chinook salmon bycatch for BS pelagic trawlers during 4th week of Pollock A season. Areas are composed by ADF&G statistical areas 665430, 685530, 665401, and 655409.

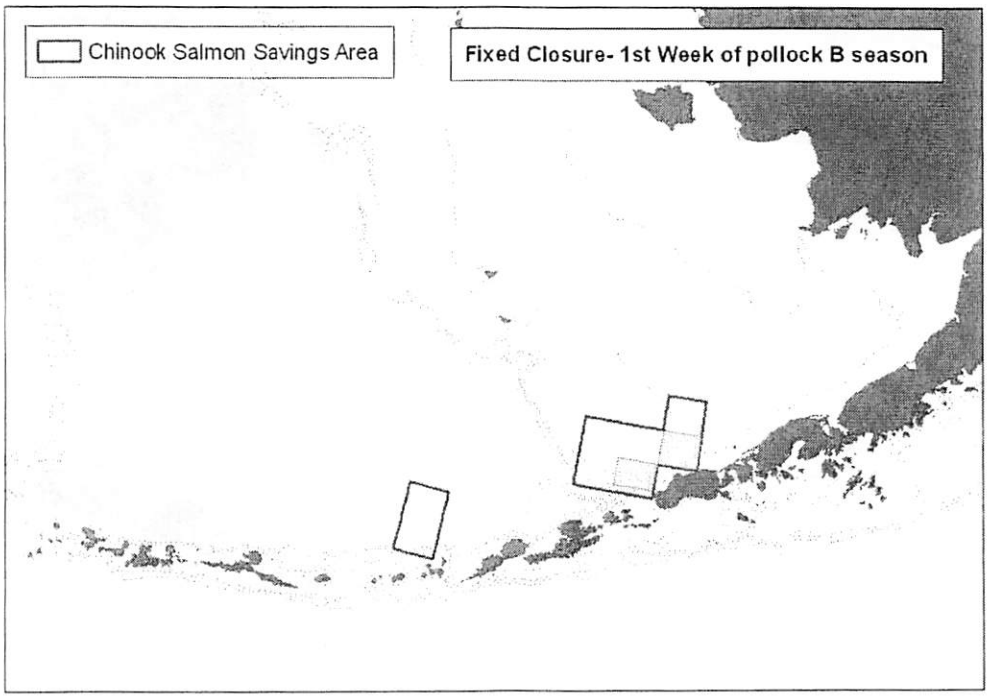

Figure 15. Proposed fixed area closure for reducing Chinook salmon bycatch for BS pelagic trawlers during 1st week of October Pollock B season. Areas are composed by ADF&G statistical areas 645501 and 655430.

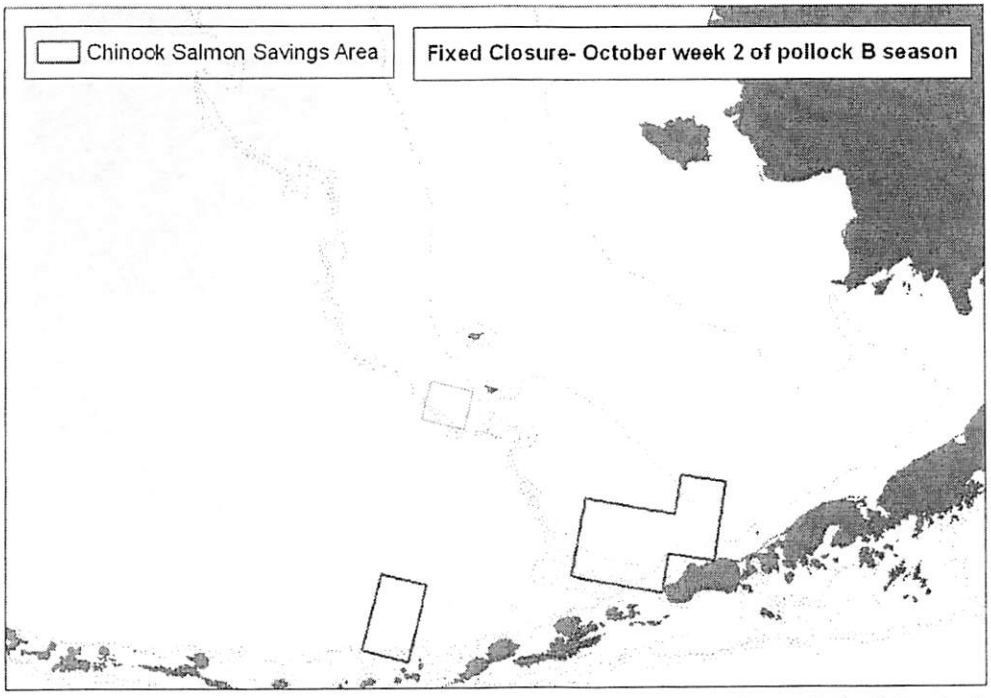

Figure 16. Proposed fixed area closure for reducing Chinook salmon bycatch for BS pelagic trawlers during 2nd week of October Pollock B season. Area is composed by ADF&G statistical area 705600.

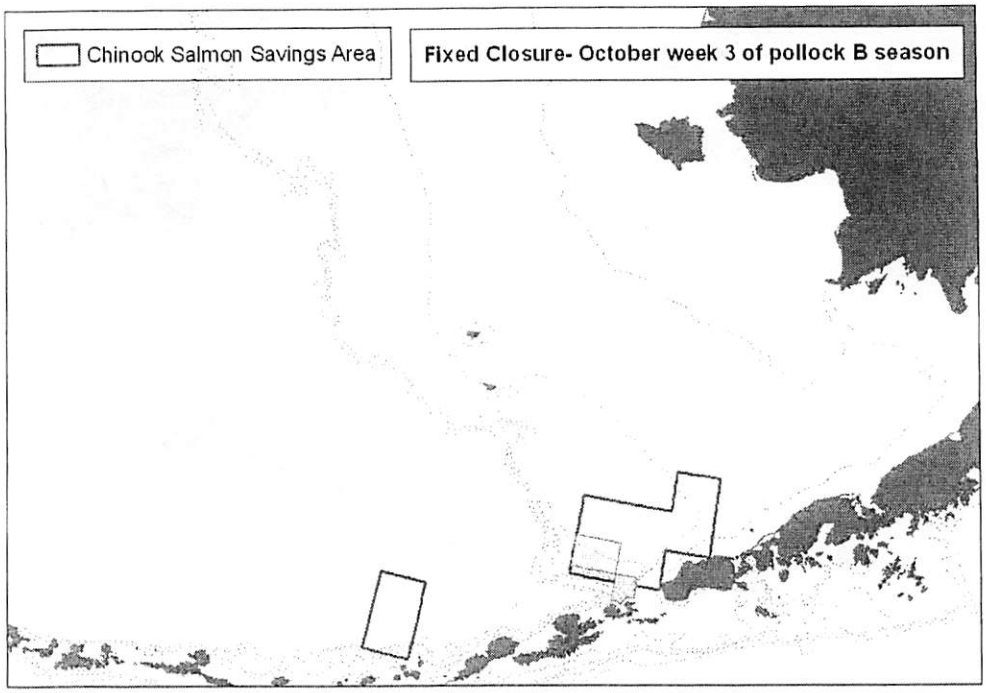

Figure 17. Proposed fixed area closure for reducing salmon bycatch for BS pelagic trawlers during 3rd week of October Pollock B season. Areas are composed by ADF&G statistical areas 655409 and 665430.

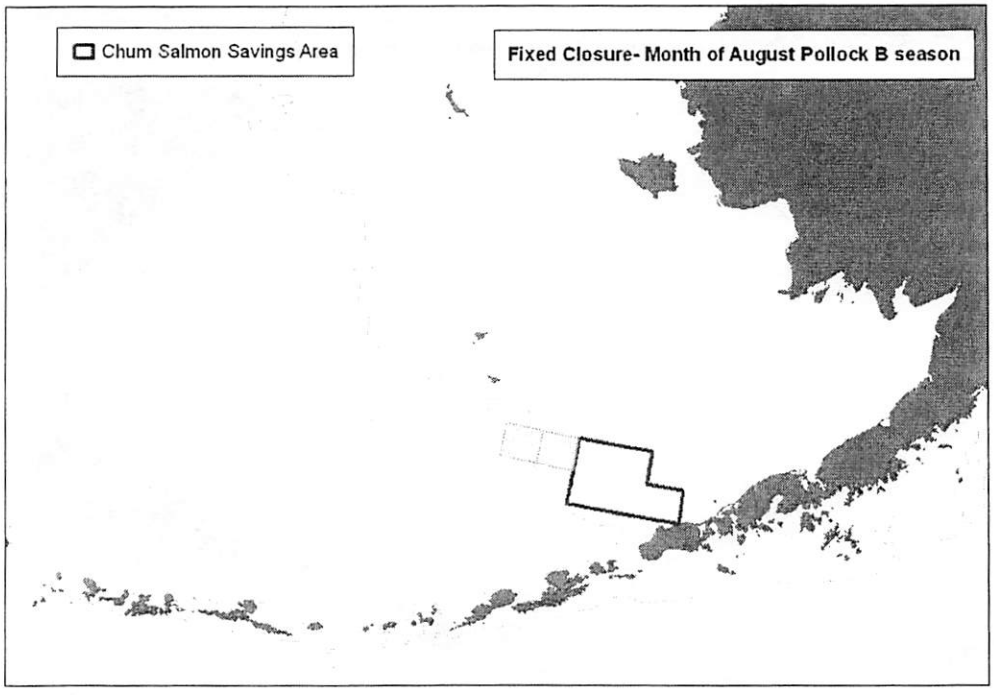

Figure 22. Fixed area closure for reducing salmon bycatch for BS pelagic trawlers August Pollock B season. Areas are composed by ADF&G statistical areas 685530 and 675530.

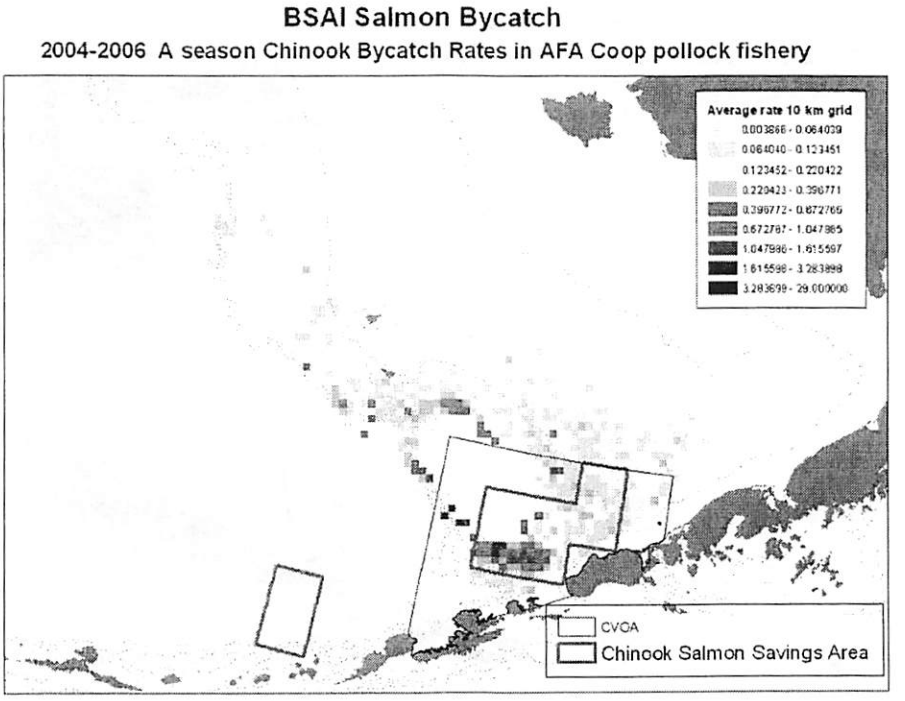

Figure 23. Average observed Chinook bycatch rates in the pollock A season 2004- 2006.

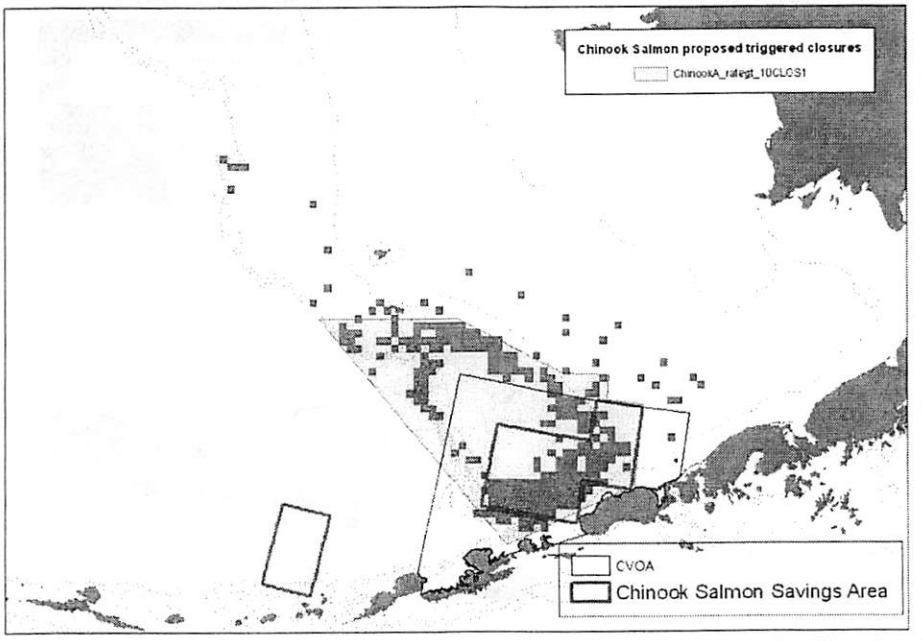

Figure 24. Example methodology to create closure configuration #2a determined by threshold bycatch rate (.10 Chinook/pollock mt) using 2004-2006 observer estimates in the pollock A season.

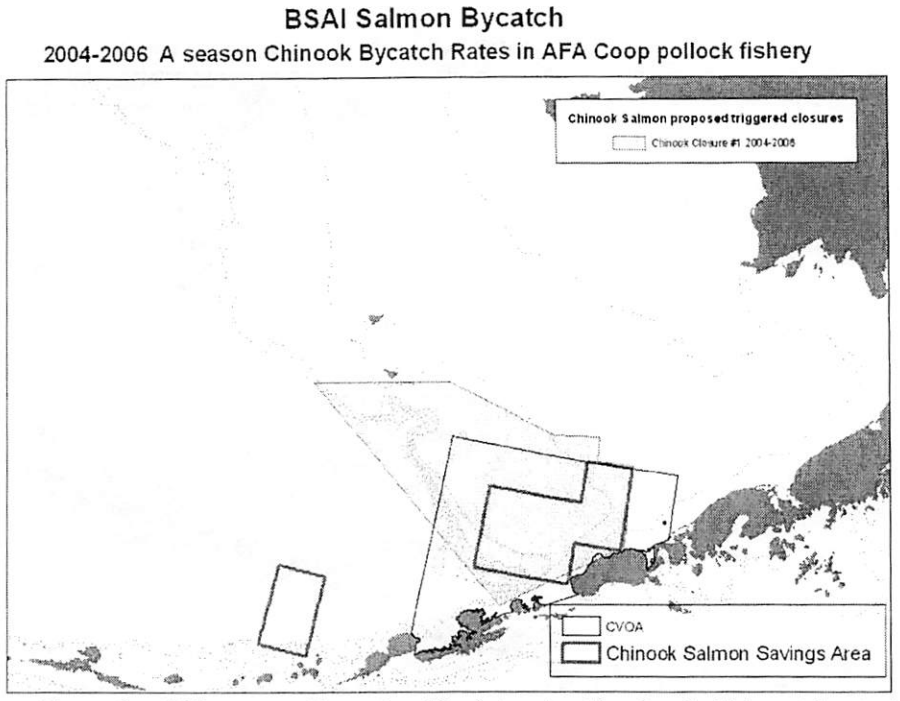

Figure 25. Example of Closure configuration #2a determined by threshold bycatch rate (.10 Chinook/pollock mt) using 2004-2006 observer estimates in the pollock A season.

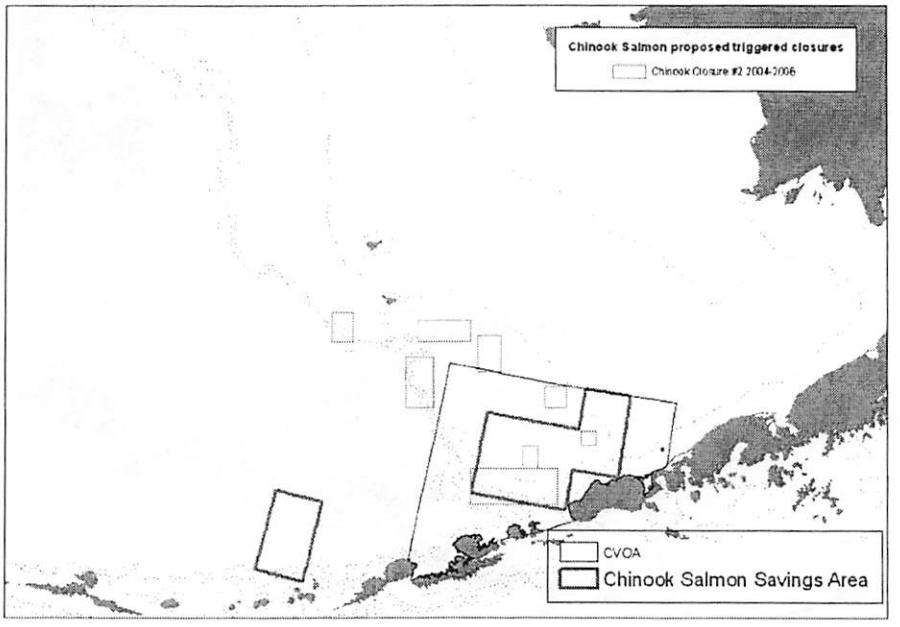

Figure 26. Example of Closure configuration #2b determined by threshold bycatch rate (.20 Chinook/pollock mt) using 2004-2006 observer estimates in the pollock A season.

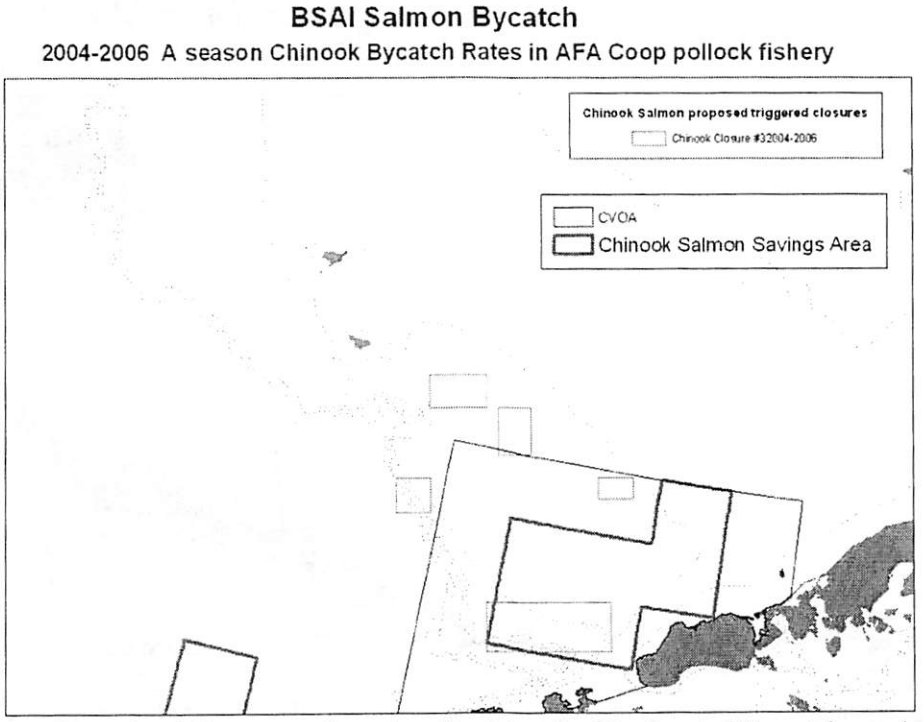

Figure 27. Example of Closure configuration #2c determined by threshold bycatch rate (.30 Chinook/pollock mt) using 2004-2006 observer estimates in the pollock A season.

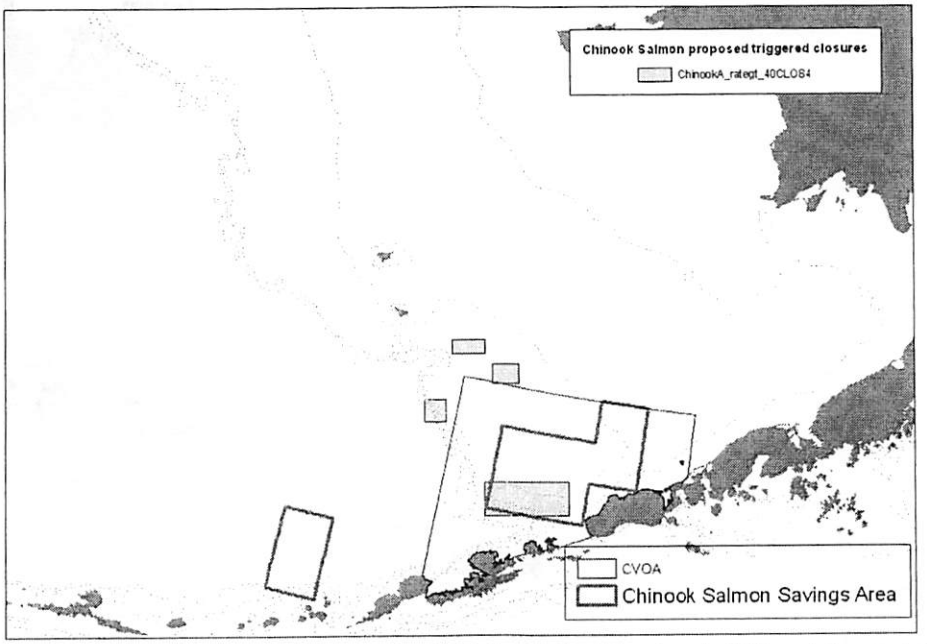

Figure 28. Example of Closure configuration #2d determined by threshold bycatch rate (.40 Chinook/pollock mt) using 2004-2006 observer estimates in the pollock A season.

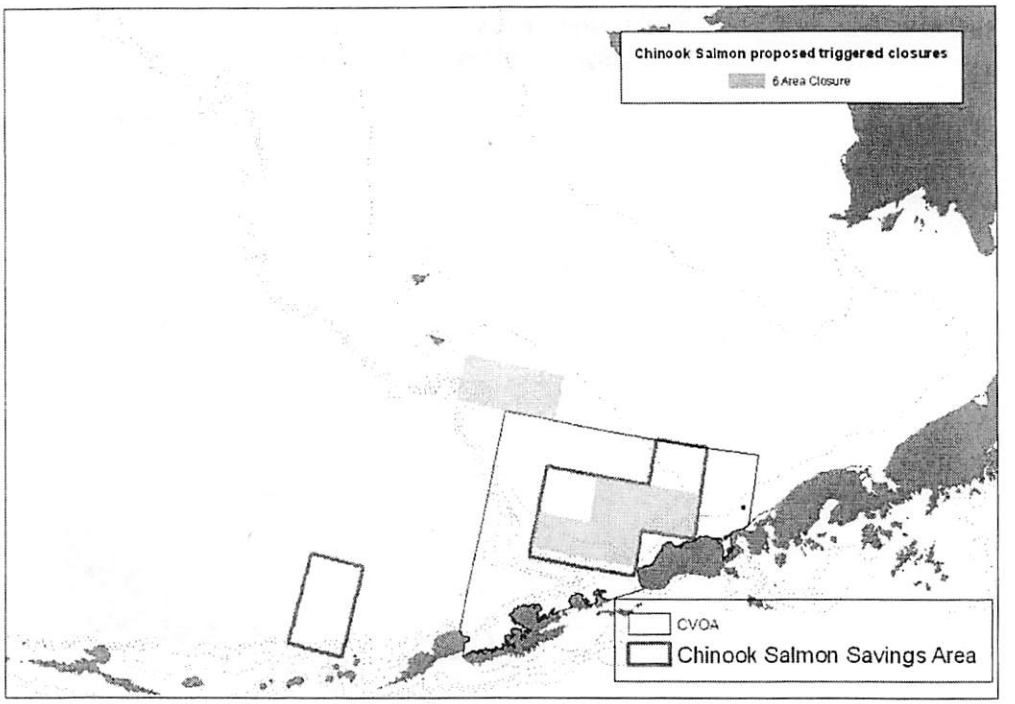

Figure 29. Example of Closure configuration 3a based on overall bycatch reduction goal, example of 50% bycatch reduction based on 2004-2006 observed bycatch numbers and pollock CPUE.

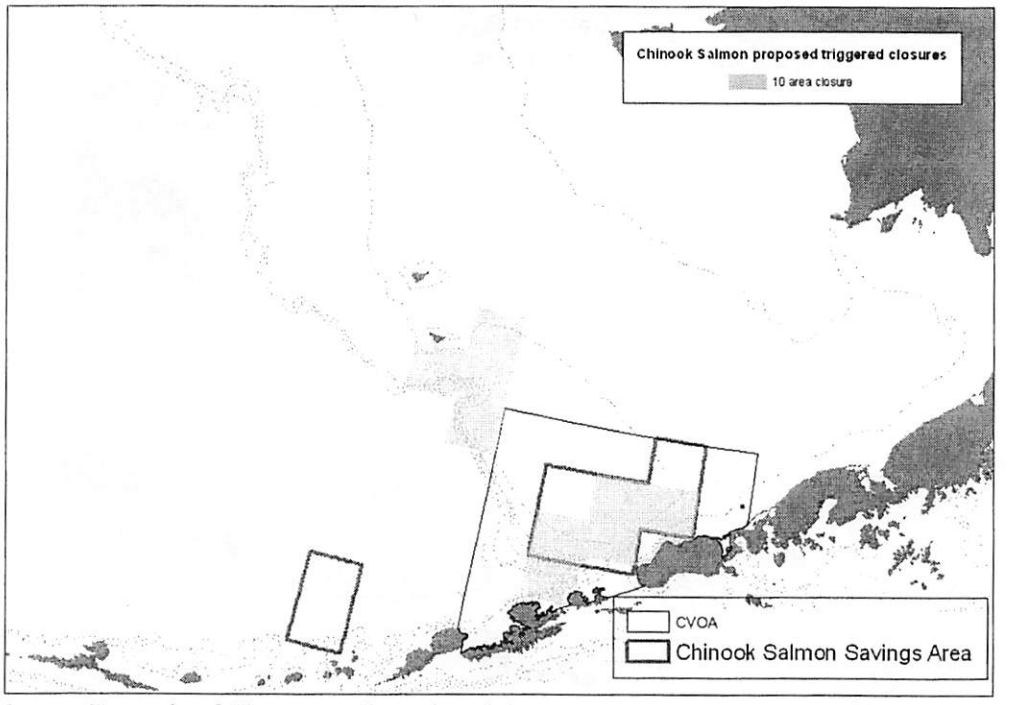

Figure 30. Example of Closure configuration 3b based on overall bycatch reduction goal, example of 75% bycatch reduction based on 2004-2006 observed bycatch numbers and pollock CPUE.

AGENDA D-1(a)(2)
FEBRUARY 2008

Salmon Bycatch Management and Monitoring in the Bering Sea Pollock Fisheries

Introduction

The purpose of this discussion paper is to provide information about management and monitoring of salmon bycatch in the American Fisheries Act (AFA) pollock fisheries in the Bering Sea. Information is presented about (1) monitoring requirements currently in effect for these fisheries, (2) methods currently used to estimate salmon bycatch, and (3) management and monitoring issues associated with alternatives that would allocate prohibited species catch limits among the AFA sectors and cooperatives.

NMFS also is developing a more comprehensive analysis about the management, monitoring, and enforcement effects of all of the alternatives the Council is considering to address salmon bycatch. This analysis will build on this discussion paper and will be integrated in to the preliminary draft environmental impact statement (EIS) that the Council will review in April 2008. The management, monitoring, and enforcement analysis of the alternatives will be updated and expanded as necessary throughout the salmon bycatch EIS process.

Current Monitoring Requirements and Salmon Bycatch Estimation Procedures

Catcher/processors and motherships are required to carry two NMFS-certified observers on board. They also must provide a motion compensated flow scale, on which all catch in each haul must be weighed, and an observer sampling station. The observer sampling station is required to include a table, motion compensated platform scale, and other monitoring tools to assist observers in sampling. Each observer covers a 12 hour shift and all hauls are observed unless an observer is incapacitated.

Estimates of the weight of each species in the catch are made through sampling. A sample is a specific portion of the haul that is removed and examined by the observer. Catch in the sample is sorted by species, identified, and weighed by the observer. Species counts also are obtained for non-predominant species. Observer samples are collected using random sampling techniques to the extent operationally possible on commercial fishing vessels. The species weight and numbers found in the sample are assumed to represent the species weight and numbers in the entire haul.

The proportion of each haul that is sampled by an observer on a catcher/processor or mothership in the pollock fisheries is relatively high because catch tends not to be diverse and excellent sampling tools, such as flow scales and observer sample stations, are available. Sampling for salmon is conducted as part of the overall species composition sampling for each haul. The observer collects and records information about the number of salmon in each sample and the total weight of each haul. The total number of salmon in each haul is estimated by NMFS by extrapolating the number of salmon in the species composition samples to the total haul weight. In the rare case that an observer on an AFA catcher/processor or mothership is unable to sample

a haul for species composition, NMFS uses species composition information from other observed hauls.

Unsorted catch is delivered by catcher vessels to the three motherships that participate in the AFA pollock fisheries. These catcher vessels are not required to carry observers because catch is not removed from the codend of the catcher vessels. Observer sampling occurs on the mothership following the same estimation processes and monitoring protocols that are described above for catcher/processors.

While regulations require vessel personal to retain salmon until sampled by an observer, salmon that are retained by catcher/processor and mothership crew outside of the observer's sample are not included in the observer's samples and are not used to estimate the total number of salmon caught. Observers examine these salmon for coded-wire tags and may collect genetic and trophic interaction information from the salmon.

Catcher vessels delivering to shoreside processors or stationary floating processors are required to carry observers based on vessel length.

Catcher vessels 125 feet in length or greater are required to carry an observer during all of their fishing days (100 percent coverage).

Catcher vessels greater than 60 feet in length and up to 125 feet in length are required to carry an observer at least 30 percent of their fishing days in each calendar quarter, and during at least one fishing trip in each target fishery category (30 percent coverage).

Catcher vessels less than 60 feet in length are not required to carry an observer. However, no vessels in this length category participate in the Bering Sea pollock fisheries.

AFA shoreside (inshore) processors are required to provide an observer for each 12 consecutive hour period of each calendar day during which the processor takes delivery of, or processes, groundfish harvested by a vessel directed fishing for pollock in the BSAI. The shoreside processors also are required to have a Catch Monitoring and Control Plan (CMCP) that, among other requirements, identifies the location from which the observer will be able to view all sorting and weighing of fish simultaneously. The CMCP must be approved by NMFS. Observers assigned to the processing plant are responsible for reading the CMCPs and verifying the plant is following the plan laid out in the CMCP.

Sampling on board the catcher vessel: Observers sample hauls on board the catcher vessels to collect species composition and biological information. Observers use a random sampling methodology that requires observers to take multiple equal sized samples from throughout the haul to obtain a total sample size of approximately 300 kilograms. In contrast to catcher/processors and motherships where the entirety of each unsorted haul is available for observer sampling, catch from catcher vessels delivering to shoreside processing plants or floating processors generally is either dumped or mechanically pumped from the codend directly into recirculating seawater (RSW) tanks. Observers attempt to obtain species composition samples by collecting small amounts of catch as it flows from the codend to the RSW tanks.

Because the catch in the pollock fisheries is mostly pollock, species composition sampling generally works well for common species. However, for uncommon species, such as salmon, a larger sample size often is desired and this generally is not physically or logistically possible on the catcher vessels. Therefore, estimates of salmon bycatch are based on a full count or census of the salmon bycatch at the shoreside processing plant or stationary floating processor. Vessel operators are prohibited from discarding salmon at sea until the number of salmon has been determined by an observer, either on the vessel or at the processing plant, and the collection of any scientific data or biological samples from the salmon has been completed. Few salmon are reported discarded at sea by observed catcher vessels. However, any salmon reported as discarded at sea by the observer are added into the observer's count of salmon at the processing plant.

Shoreside Accounting: When a catcher vessel offloads at the dock, prohibited species such as crab, salmon, and halibut are identified and enumerated by the plant observer during the offload. The vessel observer also monitors the offload and, with the assistance of the plant's processing crew, attempts to remove all salmon from the catch. Salmon that are missed during sorting will end up in the processing facility, which requires special treatment by the plant and the observers to ensure they are counted. These "after-scale" salmon (so called because they were initially weighed as pollock), creates tracking difficulties for the plant and the observer.

For each haul brought on board a catcher vessel, NMFS estimates the official total weight of that haul by proportioning the captain's estimated weight ("hail weight") for each haul against the total weight of the delivery reported on the fish ticket. The total count of salmon for the delivery also is distributed among the hauls based on the proportion of groundfish each haul contributed to the total weight of the offload. The official total catch for each haul and the salmon attributed to each haul is then used by the NMFS's Alaska Regional Office (Region) to calculate salmon bycatch rates in a process described in the next section.

Rate calculation and expansion

The observer information, including expanded information, is provided to the Region. The Region estimates salmon bycatch for unobserved catcher vessels using algorithms implemented in the Region's catch accounting system. The haul-specific information is used by the catch accounting system to create salmon bycatch rates that are applied to total groundfish catch in each delivery by an unobserved fishing trip. The rate is calculated using the observed salmon bycatch divided by the groundfish weight, which results in a measure of salmon per metric ton of groundfish caught. Salmon bycatch rates are calculated separately for Chinook salmon and non-Chinook salmon.

The bycatch rates procedure extrapolates information from observed vessels to unobserved vessels by matching the type of information available from observed vessels with that of an unobserved vessel.

Surrogate bycatch rates are applied using the most closely available data from an observed catcher vessel by:

- processing sector (in this case, inshore sector)
- week ending date,
- target species (pollock),
- gear (pelagic trawl), and
- federal reporting area (517, 521, etc).

If no data are available for an observed vessel within the same sector, then rates will be applied based on observer data from all vessels in the target fishery. If observer data is not available from the same week, then a three-week or three-month moving average will be applied. Similarly, if data from the same federal reporting area is not available, then observer data from pollock fishery in the BSAI as a whole will be applied. Table 1 provides more information about the bycatch rate calculation process in the catch accounting system.

Table 1: Description of the type of aggregated information used to calculate a bycatch rate for prohibited species.

Resolution	**Rate Level**	**Type of Rate**	**Type of Information Aggregated**	**Aggregation Level**
High	Precedence 50 Catcher Vessels:	Catcher Vessel Specific	Vessel specific, date trip started, fishing gear, federal reporting area	***Low***
	Precedence 50 Catcher/Processors:	Catcher Processor Specific	Vessel specific, week end date, and if the trip occurred in the GOA or BSAI	
	Precedence 40	Sector specific 3-week moving average	Processing sector (shoreside mothership,) , Target species, week end date, fishing gear, federal reporting area	
	Precedence 30	3- week moving average	Target species, week end date, fishing gear, federal reporting area	
	Precedence 25	3- month moving average	Target species, week end date, fishing gear, and if fishing occurred in the GOA or BSAI	
Low	Precedence 20	FMP area rate	Target species, gear, FMP area	***High***

Monitoring Challenges in Allocating Salmon Bycatch Limits Among AFA Sectors and Cooperatives

One alternative under consideration in the salmon bycatch management EIS is "hard caps", under which directed fishing for pollock would cease if a salmon bycatch cap, or prohibited species catch limit, is reached. The alternative considers managing these hard caps at the fishery level, the sector level, and the inshore cooperative level. Managing caps at the sector level means allocating a portion of the salmon bycatch limit specified for the AFA pollock fisheries as a whole among the three sectors: catcher/processors, motherships, and the inshore sector. Further allocating the inshore sector salmon bycatch limit among the seven inshore cooperatives also is under consideration.

Hard caps for salmon bycatch that could prevent the full harvest of pollock by a sector or cooperative would be an additional potential limitation on the pollock fisheries that does not currently exist. Prior to exemptions issued under the salmon bycatch intercooperative agreements starting in 2006, the salmon bycatch limits currently in regulation closed discrete areas of the Bering Sea when salmon bycatch limits were reached. Vessels directed fishing for pollock were prohibited from fishing in these areas, but could continue to harvest pollock outside of these areas. The current system of triggered closures is different from a system that would prohibit any further directed fishing for pollock once a salmon bycatch limit is reached.

The greater the potential that a salmon bycatch measure could close the pollock fisheries before the pollock allocations are caught, the greater the scrutiny will be on the observers' data and on the catch accounting system. Implementing salmon bycatch hard caps would rely on the NMFS's estimates of salmon bycatch by each sector or cooperative and would require the best possible estimates at the individual vessel level.

Vessel-specific salmon bycatch information currently exists for catcher/processors, motherships, and observed catcher vessels. However, a significant component of the inshore sector are vessels in the 30 percent observer coverage category. When these vessels are not observed, salmon bycatch rates from other observed vessels are used to estimate the salmon bycatch associated with the pollock catch by the unobserved vessels.

Table 2 shows the estimated pollock catch and salmon bycatch in the AFA pollock fisheries in the Bering Sea from 2005 through 2007, by fishery sector and vessel length class. Fifty seven of the 83 vessels participating in the inshore sector in 2007 were in the 30 percent observer coverage category. In 2007, these vessels caught approximately 20 percent of the pollock catch and 27 percent of the Chinook salmon bycatch and 31 percent of the non-Chinook salmon bycatch.

Table 2. Estimated pollock catch and salmon bycatch in the AFA pollock fisheries in the Bering Sea from 2005 through 2007, by fishery sector and vessel length class.

2005

Vessel category	Number of Vessels	Pollock (mt)	% of Pollock Catch	Chinook salmon (#)	% of Chinook salmon	Non-chinook salmon (#)	% of Non-Chinook salmon
C/P	16	517,699	40%	14,271	22%	63,249	9%
Motherships	3	130,669	10%	2,560	4%	15,314	2%
CV 60'-125'	58	271,525	21%	18,566	28%	265,637	38%
CV ≥ 125'	26	376,591	29%	30,517	46%	354,053	51%
Total	103	1,296,484	100%	65,914	100%	698,253	100%

2006

Vessel category	Number of Vessels	Pollock (mt)	% of Pollock Catch	Chinook salmon (#)	% of Chinook Salmon	Non-chinook salmon (#)	% of Non-Chinook salmon
C/P	16	527,134	40%	17,692	22%	18,180	6%
Motherships	3	134,404	10%	5,037	6%	2,013	1%
CV 60'-125'	56	256,923	20%	23,206	29%	135,003	44%
CV ≥ 125'	26	388,684	30%	35,488	44%	154,144	50%
Total	101	1,304,145	100%	81,423	100%	309,340	100%

2007

Vessel category	Number of Vessels	Pollock (mt)	% of Pollock Catch	Chinook salmon (#)	% of Chinook Salmon	Non-chinook salmon (#)	% of Non-Chinook Salmon
C/P	16	488,528	41%	32,212	28%	27,241	31%
Motherships	3	121,514	10%	6,663	6%	5,427	6%
CV 60'-125'	57	240,546	20%	31,381	27%	27,207	31%
CV ≥ 125'	26	332,081	28%	45,937	40%	27,715	32%
Total	102	1,182,669	100%	116,193	100%	87,590	100%

NMFS recommends the following management and monitoring elements for salmon bycatch limits:

- ***Data collected at-sea by NMFS-certified observers are the best source of information to estimate salmon bycatch by catcher/processors and catcher vessels delivering to motherships.***

The objective of the observer requirements is to have information about catch collected by a trained, independent third party who does not face economic consequences associated with the catch data. NMFS considers catch composition data collected by an observer on board a vessel as the best source of information for prohibited species catch accounting for catcher/processors and motherships. Salmon bycatch is discarded at sea from processor vessels, unless it is retained for donation through the prohibited species donation program. The nature of the processing operations on these vessels requires that catch composition data must be collected on board the vessel before discard or processing occurs.

In general, all catch by pollock AFA catcher/processors and catcher vessels delivered to motherships is conveyed past an observer before catch sorting occurs. The observer has the opportunity to monitor the flow of fish and to include salmon bycatch from the catch in the species composition sample. In addition, through regulations implemented under the AFA, the observer coverage levels and equipment and sampling stations are available on board these vessels to collect species composition samples and the total weight of the catch necessary to estimate salmon bycatch. Therefore, NMFS proposes that the observer, equipment, and procedural requirements currently in effect are adequate to continue to be used to collect information necessary to estimate salmon bycatch of catcher/processors and catcher vessels delivering to motherships.

- ***If no salmon are discarded at sea, data collected by observers at the processing plant are the best source of information to estimate salmon bycatch by catcher vessels delivering to shoreside processors and stationary floating processors.***

For the operational reasons described earlier, at-sea sampling by an observer to estimate salmon bycatch by catcher vessels is logistically difficult. Due to cost, space, and operational constraints, it is unlikely that additional equipment or operational requirements could be implemented that would remove the logistical barriers to sampling at-sea for rarely occurring species such as salmon. Therefore, NMFS recommends that the current process through which vessel and plant observers collaborate to count any salmon discarded at sea and to monitor the entire offload of each observed pollock vessel should provide the basis for salmon bycatch accounting under any alternative considered in the salmon bycatch EIS.

Plant monitoring currently is regulated through a permitting process. Each plant that receives AFA pollock is required to develop and operate under a NMFS-approved catch monitoring and control plan. Each plant's catch monitoring and control plan details monitoring standards described in regulation at 50 CFR 679.28(g). These monitoring standards detail the flow of fish from the vessel to the plant ensuring all groundfish delivered are sorted and weighed by species. CMCPs include descriptions and diagram of the flow of catch from the vessel to the plant, scales

for weighing catch, and accommodations for observations. Depending on the plant, observers will physically remove all salmon from the flow of fish before the scale as it is conveyed into the plant, or supervise the removal of salmon by plant personnel. While the CMCPs require plants to remove all salmon from the catch prior to passing over the scale and define the number of personnel and flow rate of fish needed for appropriate sorting, plant operators are able to manipulate the volume of fish, and salmon do pass by the observer or plant sorting personnel when the fish are flowing fast, deep, or in larger quantities than anticipated. While "after scale" salmon are required to be given to an observer, there is no direct observation of salmon once they are moved past the observer and into the plant. Although observers currently record after scale salmon as if they were collected independently, they can better be thought of as plant reported information. Further complications in plant based salmon accounting occur when multiple vessels are delivering sequentially, making it difficult or impossible to determine which vessel's trip these salmon should be assigned to. Currently, plant personnel are very cooperative with saving after scale salmon for observers at this stage of sampling and after scale salmon numbers are relatively low. However, if management measures create incentives for not reporting salmon, this cooperation could be reduced.

- **Current methods of applying salmon bycatch rates from observed vessels to catch by unobserved vessels probably will not be adequate to manage salmon bycatch caps allocated among the inshore cooperatives.**

The current system of applying information collected from observed vessels to unobserved vessels uses the best information available under the current observer coverage levels. However, this system does not provide direct information about salmon bycatch or at sea-discards of any species at the individual vessel level. Hard caps for salmon bycatch, particularly if those hard caps are allocated to the inshore cooperative level, will require a better system of estimating salmon bycatch for each vessel subject to the caps and resulting pollock fishery limits. Salmon bycatch information available from observed vessels may not be representative of the salmon bycatch by unobserved vessels. This uncertainty will make it difficult for NMFS to enforce very constraining fishery closures or penalties that rely on applying catch data from an observed vessel to an unobserved vessel. Therefore, NMFS proposes that the current system of applying bycatch rates to unobserved vessels will not support the alternative to allocate salmon bycatch hard caps among inshore cooperatives with unobserved catcher vessels.

Recommendations for Improving Salmon Bycatch Estimates for Unobserved Catcher Vessels

In the salmon bycatch EIS, NMFS will examine options that might be necessary to support the monitoring requirements of salmon bycatch hard caps. For the inshore sector, these options include:

- *All catcher vessels would be required to deliver all salmon to a shoreside processor or staionary floating processor for accounting,*
- *Managers of shoreside processors and stationary floating processors would be required to ensure all salmon are counted by an observer.*
- *Observers could be required on all catcher vessels to provide the necessary monitoring to ensure that no salmon are discarded at sea,*
- *Electronic monitoring could be an alternative to increased observer coverage to verify compliance with salmon retention requirements,*

Because of the difficulties of at-sea sampling for salmon on catcher vessels, NMFS recommends continuing to account for salmon at shoreside AFA processors. The challenge then becomes how to ensure that all salmon are delivered to the processing plany by every catcher vessel.

To date, NMFS has considered two options to ensure all salmon are delivered:

1. all vessels could be required to carry an observer at all times. Under this scenario, each catcher vessel observer would conduct species composition sampling at sea for all species, observe that all salmon are retained for delivery, and work with plant observers to account for all salmon at the plant.

2. any unobserved catcher vessels could be allowed the option of providing an electronic monitoring (EM) system that would likely include a series of cameras digitally recording differing views of all locations sorting or discarding could occur. Several demonstration projects in Canada and in the hake fishery off Oregon and Washington have shown that video monitoring has potential for compliance monitoring of a full retention requirement.

Because individual hauls are not kept separate on catcher vessels, some level of observer coverage would be necessary to gather haul-level biological information to support agency processes such as stock assessment work. Additionally, several Bering Sea pollock catcher vessels currently sort catch at sea, and an acceptable monitoring approach would need to be implemented on these vessels, or this practice would need to be prohibited.

In addition to the technical aspects of video monitoring for this application, several other issues related to EM must be resolved. These include the availability of resources required to review and catalog video footage, the ability to protect against tampering with the systems and the reliability of EM systems in the harsh climates over long periods of time. Until these issues are

satisfactorily resolved, NMFS would recommend established monitoring and catch estimation protocols that include observer coverage, retention requirements, and shoreside accounting of salmon.

NMFS has several concerns associated with accounting for all salmon from each delivery, and the current shoreside processor monitoring protocols would likely be inadequate to manage salmon bycatch under hard caps. Changes to plant-specific monitoring protocols would be dealt with through changes to CMCPs, and would be largely focused on changes to plant operations to ensure an observer can remove all salmon from each delivery, or supervise salmon removals.

Depending on the how catcher vessels are monitored, additional plant observers could be needed. For example, if catcher vessels are required to carry EM, supplemented by a minimum observer coverage level for purposes of collecting biological information, a single plant observer would not be capable of monitoring all offloads by unobserved vessels.

Chinook salmon mortality in BSAI groundfish fisheries (all gear and targets)

Year	Annual with CDQ	Annual without CDQ	Annual CDQ report	A season with CDQ	B season with CDQ	A season without CDQ	B season without CDQ
1991	48,880			46,392	2,488		
1992	41,955			31,419	10,536		
1993	46,014			24,688	21,326		
1994	43,821			38,921	4,900		
1995	23,436			18,939	4,497		
1996	63,205			43,316	19,888		
1997	50,530			16,401	34,129		
1998	55,431			18,930	36,501		
1999	13,521	12,937	584			8,205	4,732
2000	8,223	7,474	749			6,138	1,336
2001	40,547	37,986	2,561			23,093	14,893
2002	39,684	37,581	2,103			24,859	12,722
2003	55,422	52,709	2,713			39,755	12,954
2004	63,188	60,178	3,010			31,157	29,021
2005	74,967	72,911	2,056			32,850	40,061
2006	87,730	85,940	1,790			61,577	24,363
2007	130,139	124,495	5,644			74,377	50,119

Notes: Data for 1991-1997 from bsahalx.dbf found at G:\YYYY; includes CDQ
Data for 1998 from bsahalx98.dbf and boatrate98.dbf (CDQ)
Data for 1999 - 2002 from bsahalx.dbf plus the CDQ values found at
http://www.fakr.noaa.gov/cdq/daily/cdqctd07.pdf for 1999-2002.
Data for 2003 - 2007 from psnq_estimate table plus the CDQ values found at
http://www.fakr.noaa.gov/cdq/daily/cdqctd07.pdf.
Pollock CDQ 1992-1998; multi-species CDQ 1998-2007
A season - January 1 to June 10
B season - June 11 to December 31
Retrieval done 1/11/2008

Chinook salmon mortality in BSAI groundfish fisheries (pelagic trawl gear only)

Year	Annual with CDQ	Annual without CDQ	Annual CDQ only	A season without CDQ	B season without CDQ	A season CDQ only	B season CDQ only	A season all	B season all
1992	35,950	na	na	na	na	na	na	25,691	10,259
1993	38,516	na	na	na	na	na	na	17,264	21,252
1994	33,136	30,592	2,544	26,871	3,722	1,580	964	28,451	4,686
1995	14,984	12,978	2,006	9,924	3,053	655	1,351	10,579	4,405
1996	55,623	53,220	2,402	34,780	18,441	1,289	1,114	36,068	19,554
1997	44,909	42,437	2,472	9,449	32,989	1,487	985	10,935	33,973
1998	51,322	51,322	0	15,193	36,130	0	0	15,193	36,130
1999	11,978	10,381	1,597	5,768	4,614	584	1,013	6,352	5,627
2000	4,961	4,242	719	2,992	1,250	430	289	3,422	1,539
2001	33,444	30,937	2,507	16,711	14,227	1,773	734	18,484	14,961
2002	34,495	32,402	2,093	20,378	12,024	1,416	677	21,794	12,701
2003	46,993	44,428	2,565	32,115	12,313	1,693	872	33,808	13,185
2004	54,028	51,062	2,966	22,821	28,241	1,140	1,826	23,961	30,067
2005	67,890	65,957	1,933	26,377	39,580	1,296	637	27,673	40,217
2006	83,257	81,520	1,737	57,320	24,201	1,580	157	58,900	24,358
2007	122,073	116,453	5,620	66,430	50,023	3,091	2,529	69,521	52,552

Notes: Data for 1992-2002 from bsahalx.dbf found at G:\YYYY; includes CDQ
Data for 2003 - 2007 from psnq_estimate table plus the CDQ values found in bsahalx.dbf
Pollock CDQ 1992-1998; multi-species CDQ 1998-2007
A season - January 1 to June 10
B season - June 11 to December 31
Data retrieval done 01/16/2008

Non-Chinook salmon mortality in BSAI groundfish fisheries (all gear and targets)

Year	Annual with CDQ	Annual without CDQ	Annual CDQ report	A season with CDQ	B season with CDQ	A season without CDQ	B season without CDQ
1991	30,262			3,016	27,246		
1992	41,450			2,120	39,329		
1993	243,270			1,848	241,422		
1994	94,548			5,599	88,949		
1995	21,875			3,033	18,842		
1996	78,060			665	77,395		
1997	66,994			2,710	64,285		
1998	66,612	65,697	915	4,608	62,004		
1999	46,568	46,325	243			378	45,947
2000	59,327	57,621	1,706			283	57,338
2001	60,731	57,440	3,291			2,719	54,721
2002	82,483	78,879	3,604			1,677	77,202
2003	197,287	188,885	8,402			4,052	184,833
2004	457,817	447,393	10,424			1,015	446,378
2005	711,938	703,547	8,391			1,008	702,540
2006	326,445	325,065	1,380			3,483	321,583
2007	98,140	90,948	7,192			8,504	82,444

Notes:
Data for 1991-1997 from bsahalx.dbf found at G:\YYYY; includes CDQ
Data for 1998 from bsahalx98.dbf and boatrate98.dbf (CDQ)
Data for 1999 - 2002 from bsahalx.dbf plus the CDQ values found at
http://www.fakr.noaa.gov/cdq/daily/cdqctd07.pdf for 1999-2002
Data for 2003 - 2007 from psnq_estimate table plus the CDQ values found at
http://www.fakr.noaa.gov/cdq/daily/cdqctd07.pdf for 1999-2002
Pollock CDQ 1992-1998; multi-species CDQ 1998-2007
A season - January 1 to June 10
B season - June 11 to December 31
Retrieval done 1/11/2008

Non-chinook salmon mortality in BSAI groundfish fisheries (pelagic trawl gear only)

Year	Annual with CDQ	Annual without CDQ	Annual CDQ only	A season without CDQ	B season without CDQ	A season CDQ only	B season CDQ only	A season all	B season all
1992	40,274	na	na	na	na	na	na	1,951	38,324
1993	242,191	na	na	na	na	na	na	1,594	240,597
1994	92,672	77,637	15,036	3,682	73,954	309	14,727	3,991	88,681
1995	19,264	18,678	585	1,578	17,100	130	456	1,708	17,556
1996	77,236	74,977	2,259	177	74,800	45	2,214	222	77,014
1997	65,988	61,759	4,229	1,991	59,767	92	4,137	2,083	63,904
1998	64,042	64,042	0	4,002	60,040	0	0	4,002	60,040
1999	45,271	44,610	661	349	44,261	13	648	362	44,909
2000	58,571	56,867	1,704	148	56,719	65	1,639	213	58,358
2001	57,007	53,904	3,103	2,213	51,691	173	2,930	2,386	54,621
2002	80,652	77,178	3,474	1,356	75,821	21	3,453	1,377	79,274
2003	195,135	186,779	8,356	3,709	183,070	237	8,119	3,946	191,189
2004	447,626	437,429	10,197	409	437,019	29	10,168	438	447,187
2005	705,963	698,270	7,693	567	697,703	32	7,661	599	705,364
2006	310,545	309,343	1,202	2,460	306,883	65	1,137	2,525	308,020
2007	94,063	87,583	6,480	7,367	80,216	1,156	5,324	8,523	85,540

Notes: Data for 1992-2002 from bsahalx.dbf found at G:\YYYY; includes CDQ
Data for 2003 - 2007 from psnq_estimate table plus the CDQ values found in bsahalx.dbf
Pollock CDQ 1992-1998; multi-species CDQ 1998-2007
A season - January 1 to June 10
B season - June 11 to December 31
Data retrieval done 01/16/2008

Revised cap numbers for alternative 2 options 1 and 4 (Hard cap formulation)

The following numbers have been revised (per intent as noted in the staff discussion paper) based upon recalculating historical averages for Chinook species using only the historical contribution from the pelagic pollock trawl fishery. Recalculated averages for both species are consistent with revised historical salmon mortality numbers attached previously as D-1(a)(3) . These numbers were provided from NMFS Catch Accounting on 1/11/2008 and represent the most up-to-date information on historical catch by BSAI groundfish fisheries and the BSAI pollock pelagic trawl fishery by salmon species. Cap formulation for Chinook salmon is to include only the contribution historically from the BSAI pelagic pollock trawl fishery while the cap formulation for non-Chinook (chum) salmon species includes the contribution from all BSAI groundfish fisheries.

Option 1: Hard cap based upon average historical bycatch (1997-2006): Chinook numbers include only contribution from pollock trawl fishery while chum reflect caps reflect average incidental catch of non-Chinook in all gears and targets

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 4: Set cap in accordance with International treaty considerations (1992-2001, based on average historical bycatch pre-2002): Chinook numbers include only contribution from pollock trawl fishery while chum caps reflect average incidental catch of non-Chinook in all gears and targets

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

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

	2008											
Project Components	**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
Development of NOA		Publish NOA, 60-day public comment period			FMP amendment approval (30 days after end of comment period)							

minimize potential adverse economic impacts on coastal communities.

Alternatives

The SEIS will evaluate a range of alternative management measures for the Bering Sea and Aleutian Islands and Gulf of Alaska groundfish fisheries. The Council's Steller Sea Lion Mitigation Committee (SSLMC) is reviewing the latest scientific information regarding Steller sea lions and potential groundfish fisheries interactions and developing alternative Steller sea lion protection measures. The SSLMC has collected proposals from the public for changes to the Steller sea lion protection measures and is scheduled to evaluate and prioritize these proposals for Council consideration in June 2008. After Council consideration, the Council may recommend management measures to the Secretary for evaluation and implementation. Information regarding the SSLMC and the proposal evaluation process is available from the Alaska Region website at *http://www.fakr.noaa.gov/sustainablefisheries/sslmc/default.htm*.

Alternatives may include those identified here, and those developed through public scoping, Council, and SSLMC processes. Possible alternatives could include one, or a combination of, the following:

1.No action – retain the current suite of Steller sea lion protection measures as are currently in place for fishing year 2008.

2.Change the current spatial management of the Atka mackerel, pollock, or Pacific cod fisheries in the GOA and/or BSAI by opening or closing areas near Steller sea lion rookeries, haulouts, and/or foraging areas.

3.Change the current temporal management of harvests in the GOA and/or BSAI Atka mackerel, pollock, and/or Pacific cod fisheries.

4.Change other management measures that currently apply to the GOA and/or BSAI Atka mackerel, pollock, and/or Pacific cod fisheries, such as changes to gear restrictions or the Aleutian Islands platoon management system for Atka mackerel.

Preliminary Identification of Issues

A principal objective of the scoping and public input process is to identify potentially significant impacts to the human environment that should be analyzed in the SEIS. The analysis will evaluate the effects of the alternatives for all resources, species, and issues that may directly or indirectly interact with Steller sea lions and the groundfish fisheries within the action area.

The primary issues to be analyzed are the effects of the proposed action and its alternatives on Steller sea lions and their designated critical habitat. Additional impacts to the following components of the biological and physical environment may be evaluated: (1) other species listed under the ESA and their critical habitat, and other species protected under the Marine Mammal Protection Act; (2) target and non-target fish stocks, including forage fish and prohibited species; (3) seabirds; and (4) the ecosystem.

Social and economic impacts also would be considered in terms of the effects that changes in the Steller sea lion protection measures would have on the following groups of individuals: (1) those who participate in harvesting the groundfish resources; (2) those who process and market groundfish and groundfish products; (3) those who consume groundfish products; (4) those who rely on living marine resources in the management area, particularly Steller sea lions, for subsistence needs; (5) those who benefit from non-consumptive uses of Steller sea lions and other living marine resources; and (6) fishing communities.

Public Involvement

Scoping is an early and open process for determining the scope of issues to be addressed in an Environmental Impact Statement and for identifying the significant issues related to the proposed action. A principal objective of the scoping and public involvement process is to identify a reasonable range of management alternatives that, with adequate analysis, will delineate critical issues and provide a clear basis for distinguishing between those alternatives and for selecting a preferred alternative. Through this notice, NMFS is notifying the public that an SEIS and decision-making process for this proposed action has been initiated so that interested or affected people may participate and contribute to the final decision.

NMFS is seeking written public comments on the scope of issues, including potential impacts, and alternatives that should be considered in revising the Steller sea lion protection measures. Written comments will be accepted at the address above (see **ADDRESSES**). Written comments should be as specific as possible to be the most helpful. Written comments received during the scoping process, including the names and addresses of those submitting them, will be considered part of the public record on this proposal and will be available for public inspection.

The public is invited to participate in the SSLMC meetings and Council meetings where the latest scientific information regarding Steller sea lions and fisheries interactions are being reviewed and alternative protection measures are being developed and evaluated. Future Council and SSLMC meetings will be noticed in the **Federal Register** and on the website at *http://www.fakr.noaa.gov/*. Additional information regarding regulatory, ESA, and NEPA activities for Steller sea lions is available at the website at *http://stellersealions.noaa.gov*. Please visit this website for more information on this SEIS and for guidance on submitting effective public comments.

Authority: 16 U.S.C. 1801 *et seq.*

Dated: December 18, 2007.

James P. Burgess,

Acting Director, Office of Sustainable Fisheries, National Marine Fisheries Service.

[FR Doc. E7–24951 Filed 12–21–07; 8:45 am]

BILLING CODE 3510–22–S

DEPARTMENT OF COMMERCE

National Oceanic and Atmospheric Administration

RIN 0648–XD93

Fisheries of the Exclusive Economic Zone Off Alaska; Groundfish Fisheries in the Bering Sea and Aleutian Islands

AGENCY: National Marine Fisheries Service (NMFS), National Oceanic and Atmospheric Administration (NOAA), Commerce.

ACTION: Notice; request for written comments.

SUMMARY: NMFS, in consultation with the North Pacific Fishery Management Council, announces its intent to prepare an Environmental Impact Statement (EIS) on salmon bycatch reduction measures in the Bering Sea and Aleutian Islands management area (BSAI), in accordance with the National Environmental Policy Act of 1969. The proposed action would replace the current Chinook and Chum Salmon Savings Areas in the BSAI with new regulatory closures, salmon bycatch limits, or a combination of both. These management measures could incorporate current or new bycatch reduction methods. The scope of the EIS will be to determine the impacts to the human environment resulting from these salmon bycatch reduction measures. NMFS will accept written comments from the public to determine the issues of concern and the

appropriate range of management alternatives for analysis in the EIS.

DATES: Written comments must be received by February 15, 2008.

ADDRESSES: Written comments on issues and alternatives for the EIS should be sent to Sue Salveson, Assistant Regional Administrator, Sustainable Fisheries Division, Alaska Region, NMFS, Attn: Ellen Sebastian. Comments may be submitted by

- E-mail: *0648–AW25–SalmonBycatchEIS@noaa.gov.* Include in the subject line the following document identifier: Salmon Bycatch EIS. E-mail comments, with or without attachments, are limited to 5 megabytes;
- Mail: P.O. Box 21668, Juneau, AK 99802;
- Hand Delivery to the Federal Building: 709 West 9th Street, Room 420A, Juneau, AK; or
- Fax: 907–586–7557.

All Personal Identifying Information (e.g., name, address) voluntarily submitted by the commenter may be publicly accessible. Do not submit Confidential Business Information or otherwise sensitive or protected information.

NMFS will accept anonymous comments. Attachments to electronic comments will be accepted in Microsoft Word, Excel, WordPerfect, or Adobe portable document file (pdf) formats only.

FOR FURTHER INFORMATION CONTACT: Jason Anderson, (907) 586–7228 or *jason.anderson@noaa.gov.*

SUPPLEMENTARY INFORMATION: Under the Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act), the United States has exclusive fishery management authority over all living marine resources found within the exclusive economic zone. The management of these marine resources, with the exception of certain marine mammals and birds, is vested in the Secretary of Commerce. The North Pacific Fishery Management Council (Council) has the responsibility to prepare fishery management plans for those marine resources off Alaska requiring conservation and management. Management of the Federal groundfish fishery in the BSAI is carried out under the Fishery Management Plan for Groundfish of the Bering Sea and Aleutian Islands Management Area (FMP). The FMP, its amendments, and implementing regulations (found at 50 CFR part 679) are developed in accordance with the requirements of the Magnuson-Stevens Act and other applicable Federal laws and executive orders, notably the National Environmental Policy Act (NEPA) and the Endangered Species Act (ESA).

The Council is considering replacing the current Chinook and Chum Salmon Savings Areas in the BSAI with new regulatory closures, salmon bycatch limits, or a combination of both. These management measures could incorporate current or new bycatch reduction methods. NMFS and the Council have determined the preparation of an Environmental Impact Statement (EIS) may be required for this action because some important aspects of the impacts of salmon bycatch in the BSAI on the salmon stocks of origin and users of these salmon are uncertain or unknown and may result in significant impacts on the human environment not previously analyzed. Thus, NMFS and the Council are initiating scoping for an EIS in the event that an EIS is needed.

NMFS and the Council are seeking information from the public through the EIS scoping process on the range of alternatives to be analyzed, and on the environmental, social, and economic issues to be considered in the analysis. Written comments generated during this scoping process will be provided to the Council and incorporated into the EIS.

Chinook and Chum Salmon Savings Areas

To address Chinook salmon bycatch concerns, the Council adopted several management measures designed to reduce overall Chinook salmon bycatch in the BSAI trawl fisheries. In 1995, the Council adopted, and NMFS approved, Amendment 21b to the FMP. Based on historic information on salmon bycatch, Amendment 21b established a Chinook Salmon Savings Area (60 FR 61215, November 29, 1995). Under Amendment 21b, the Chinook Salmon Savings Area closed when the bycatch of Chinook salmon in BSAI trawl fisheries reached 48,000 fish. Amendment 58 to the FMP revised the Chinook Salmon Savings Area measures (65 FR 60587, October 12, 2000). Amendment 58 reduced the Chinook salmon bycatch limit from 48,000 fish to 29,000 fish, mandated year-round accounting of Chinook bycatch in the directed pollock fishery, revised the boundaries of the Chinook Salmon Savings Area closure, and implemented new closure dates.

The Council also adopted a time-area closure designed to reduce overall non-Chinook salmon bycatch in the BSAI trawl fisheries. In 1995, Amendment 35 to the FMP established the Chum Salmon Savings Area (60 FR 34904, July 5, 1995). This area is closed to all trawling from August 1 through August 31 of each year. Additionally, if 42,000 non-Chinook salmon are caught in the Catcher Vessel Operational Area during the period August 15 through October 14, the area remains closed for the remainder of the calendar year.

The Chinook and Chum Salmon Savings Areas were adopted based on historic observed salmon bycatch rates and were designed to avoid high spatial and temporal levels of salmon bycatch. From 1990 through 2001, the BSAI salmon bycatch average was 37,819 Chinook and 69,332 non-Chinook annually. Recently, however, salmon bycatch numbers have increased substantially. The numbers of Chinook and non-Chinook salmon bycatch in the BSAI groundfish fisheries from 2003 through December 7, 2007, are shown in the following table:

Year	Number of Chinook	Number of non-Chinook
2003	55,422	197,287
2004	63,188	457,817
2005	74,867	711,938
2006	87,730	326,445
2007 through December 7	130,246	97,904

NMFS and the Council are concerned with this level of salmon bycatch because of the potential negative impacts on salmon stocks in general, and on western Alaska salmon stocks in particular.

Recent Salmon Bycatch Management Measures

To address these increasing salmon bycatch amounts, the Council adopted, and NMFS implemented on October 29, 2007, Amendment 84 to the FMP (72 FR 61070, October 29, 2007). Spatial and temporal comparisons of non-community development quota (CDQ) vessels fishing outside of the salmon savings areas with CDQ vessels fishing inside of the salmon savings areas indicated that salmon bycatch rates were much higher outside of the savings areas, and closures were displacing vessels to higher bycatch areas. Amendment 84 exempts non-CDQ and CDQ pollock vessels participating in a salmon bycatch reduction inter-cooperative agreement (ICA) from closures of the Chinook and Chum Salmon Savings Areas in the BSAI. Additionally, vessels participating in trawl fisheries for species other than pollock are exempt from Chum Salmon Savings Area Closures

The purpose of the salmon bycatch avoidance ICA is to use real-time salmon bycatch information to avoid areas of high non-Chinook and Chinook

salmon bycatch rates. The ICA utilizes a system of base bycatch rates, assignment of vessels to tiers based on bycatch rates relative to the base rate, a system of closures for vessels in certain tiers, and monitoring and enforcement through private contractual arrangements.

Amendment 84 was adopted by the Council because it was perceived to be relatively simple to implement, with the potential to reduce salmon bycatch rates. Meanwhile, the Council also initiated analysis on this proposed action to further address salmon bycatch issues, and provide additional management measures should ICA members choose not to participate in the ICA in the future.

Proposed Action

The proposed action is to replace the current Chinook and Chum Salmon Savings Areas in the BSAI with new regulatory closures, salmon bycatch limits, or a combination of both based on current salmon bycatch information. These management measures could incorporate current or new bycatch reduction methods. The purpose of the proposed action is to minimize non-Chinook and Chinook salmon bycatch to the extent practicable. The proposed action is necessary to maintain a healthy marine ecosystem, ensure long-term conservation and abundance of salmon, provide maximum benefit to fishermen and communities that depend on these resources, and comply with the Magnuson-Stevens Act.

Alternative Management Measures

NMFS, in consultation with the Council, will evaluate a range of alternative management measures for the BSAI groundfish fisheries. The Council's Salmon Bycatch Workgroup is reviewing the latest scientific information regarding the impacts of salmon interactions with groundfish fisheries and developing alternative salmon bycatch reduction measures. Alternatives may be formulated based on the elements identified here, and those developed through the public scoping and Council processes. Possible alternatives could be constructed from one or more of the following measures:

1.Prohibited Species Catch (PSC) limit Establish a PSC limit for non-Chinook and Chinook salmon bycatch in the CDQ and non-CDQ pollock fisheries. PSC limits could be allocated among pollock fishery sectors or fishery cooperatives. Fishery participants would be required to stop fishing when a PSC limit is reached.

2.Fixed closures Establish one or more salmon savings area closures based on current salmon bycatch information. These closures would occur on an annual or seasonal basis regardless of salmon bycatch amounts at the time of the closure.

3.Triggered closures Establish one or more salmon savings area closures based on current salmon bycatch information. These closures would occur based on criteria evaluated in the EIS. Criteria could include a threshold salmon bycatch number or rate.

4.PSC accounting period Revise the current PSC accounting period to coincide with the salmon biological year to provide additional protections to salmon in the BSAI. Accounting would begin annually in the "B" season, and continue through the following "A" season.

Additionally, the Council may incorporate the current or a new version of the salmon bycatch reduction ICA into one or more alternatives.

Preliminary Identification of Issues

A principal objective of the scoping and public input process is to identify potentially significant impacts to the human environment that should be analyzed in the EIS. The analysis will evaluate the impacts of the alternatives for all resources, species, and issues that may be directly or indirectly affected by salmon bycatch in the BSAI pollock fisheries. The following components of the biological and physical environment may be evaluated: (1) target and non-target fish stocks, forage fish, and prohibited species, including salmon species; (2) species listed under the ESA and their critical habitat; (3) seabirds; (4) marine mammals; and (5) the ecosystem.

Social and economic impacts also would be considered in terms of the effects that changes to salmon bycatch management measures would have on the following groups of individuals: (1) those who participate in harvesting pollock; (2) those who process and market pollock and pollock products; (3) those who consume pollock products; (4) those who rely on living marine resources caught in the management area, particularly salmon; (5) those who benefit from commercial, subsistence, and recreational salmon fisheries; and (6) fishing communities.

Public Involvement

Scoping is an early and open process for determining the scope of issues to be addressed in an EIS and for identifying the significant issues related to the proposed action. A principal objective of the scoping and public involvement process is to identify a range of reasonable of management alternatives that, with adequate analysis, will delineate critical issues and provide a clear basis for distinguishing among those alternatives and selecting a preferred alternative. Through this notice, NMFS is notifying the public that an EIS and decision-making process for this proposed action have been initiated so that interested or affected people may participate and contribute to the final decision.

NMFS is seeking written public comments on the scope of issues, including potential impacts, and alternatives that should be considered in revising salmon bycatch management measures. Written comments will be accepted at the address above (see **ADDRESSES**). Written comments should be as specific as possible to be the most helpful. Written comments received during the scoping process, including the names and addresses of those submitting them, will be considered part of the public record of this proposal and will be available for public inspection.

The public is invited to participate and provide input at Council and Salmon Bycatch Workgroup meetings where the latest scientific information regarding salmon bycatch in the BSAI groundfish fisheries is reviewed and alternative salmon bycatch reduction measures are developed and evaluated. Notice of future Council and Salmon Bycatch Workgroup meetings will be published in the **Federal Register** and on the Internet at *http://www.fakr.gov*. Please visit this website for more information on this EIS and for guidance on submitting effective public comments.

Dated: December 18, 2007.

James P. Burgess,

Acting Director, Office of Sustainable Fisheries, National Marine Fisheries Service.

[FR Doc. E7–24953 Filed 12–21–07; 8:45 am]

BILLING CODE 3510–22–S

DEPARTMENT OF COMMERCE

National Oceanic and Atmospheric Administration

RIN 0648–XD61

Marine Mammals; File No. 10080

AGENCY: National Marine Fisheries Service (NMFS), National Oceanic and Atmospheric Administration (NOAA), Commerce.

ACTION: Notice; issuance of permit.

SUMMARY: Notice is hereby given that Dr. Kathryn A. Ono, Department of Biological Sciences, University of New England, Biddeford, ME, has been

AGENDA D-1(a)
Supplemental
FEBRUARY 2008

Western Interior Alaska Subsistence Regional Advisory Council

c/o Office of Subsistence Management
101 12th Avenue, Room 110
Fairbanks, Alaska 99701
Phone: 1-(907)-456-0277 or 1-800-267-3997
Fax: 1-(907)-456-0208
E-mail: Vince_Mathews@fws.gov

January 17, 2008

North Pacific Fishery Management Council
605 West Fourth Avenue, Suite 306
Anchorage, Alaska 99501-2252

Dear Council Staff:

The Western Interior Alaska Subsistence Regional Advisory Council Chair, Jack Reakoff, has requested a copy of the attached letter to Sue Salveson, Assistant Regional Administrator, Sustainable Fisheries Division, Alaska Region of the National Marine Fisheries Service dated January 16, 2008, be submitted as a written public comment for consideration during your Management Council meeting on February 6 – 12, 2008.

Thank you for the opportunity to provide comments. If you have any questions concerning the attached comment letter, please contact Chair Reakoff at 1-907-678-2007; email: wisemanwolf@aol.com or myself through the contact information in the letterhead.

Yours truly,

Vince Mathews

Vince Mathews
Regional Coordinator

D-1(a)

Western Interior Alaska Subsistence Regional Advisory Council

c/o Office of Subsistence Management
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January 16, 2008

Sue Salveson, Assistant Regional Administrator
Sustainable Fisheries Division, Alaska Region
National Marine Fisheries Service
P.O. Box 21668
Juneau, Alaska 99802

Attn: Ellen Sebastian

Dear Ms. Salveson:

I am the current chair of the Western Interior Alaska Subsistence Regional Advisory Council (Regional Council), which has an interest in the sound sustainable management of the salmon fisheries for the Kuskokwim and Yukon Rivers. As has been the case since humans first entered Alaska, the returning salmon to our rivers and streams are the nutritional and cultural foundation for our region. They also provide for other uses, including commercial and sport fishing, and they provide a valuable source of food for other wildlife species so critical for subsistence.

The Regional Council has monitored the BSAI pollock fisheries management with special interest on recent dramatic rise in salmon bycatch. As you know, the Regional Council has submitted several letters recently to the North Pacific Fishery Management Council (NPFMC) about our concerns. The Notice of Intent (NOI) open period for comments ends before my Regional Council public meeting in late February 2008, thus preventing the Regional Council from voicing its opposition to the status of the bycatch. The importance of the salmon bycatch to my region compels me, as Regional Council chair, to submit this letter of my comments and suggestions; it contains my own perspectives and not necessarily those of the Regional Council.

I personally believe that the NPFMC's Voluntary Rolling Hot Spot system for the pollock fishery is and continues to be a miserable failure of fisheries management. According to the Federal Register Notice of December 26, 2007, Chinook salmon bycatch has dramatically risen from a bycatch of 55,000 Chinook salmon to over 130,000 in 2007; this is both very alarming and unacceptable. Studies in the 1990s showed that over 56 percent of the Chinook salmon bycatch in the BSAI pollock fishery are of Western Alaskan origin, with approximately 40 percent of those Yukon River stocks (Kate Myers, et. al, *Estimates of the Bycatch of Yukon River Chinook Salmon in U.S. Groundfish Fisheries in the Eastern Bering Sea, 1997-1999* (March 2004)). Applying this study to the 2007 bycatch numbers, over 29,000 Yukon River-bound

Chinook salmon were taken as bycatch in the BSAI pollock fishery. This amount equates to 58 percent of the 2007 subsistence catch and 64 percent of the Canadian border passage goal. In 2007, only 23,000 Chinook salmon crossed the Canadian border. This number is far short of the border passage goal of 45,500 Chinook salmon necessary to meet the Canadian escapement goal agreed upon by the U.S. and Canada through the Yukon River Panel (Alaska Department of Fish and Game, 2007 Preliminary Yukon River Summer Season Summary).

The bycatch waste of 29,000 Yukon River-bound Chinook salmon is unacceptable. With over 60 percent of our subsistence needs based on fish, especially salmon, and the extreme high cost of fuel, the continuation by the NPFMC to allow the BSAI pollock fishery to waste nearly 29,000 Chinook salmon is reprehensible to subsistence users across the Yukon River and Kuskokwim River drainages. In addition, since 1999 the salmon runs on the Yukon River have been below average, and were well below the Alaska Department of Fish and Game's run forecast in 2007. Every returning fish is becoming more important for the future of the runs and the continuation of our subsistence lifestyle needs.

It is imperative that bycatch reduction methods considered throughout the environmental impact statement process (EIS) consider and address the impacts excessive salmon bycatch has on the sustainability of Western Alaska salmon stocks, and the composition and genetic diversity of those stocks. Furthermore, NOI is a scoping process to identify critical issues that should be considered when reviewing bycatch reduction options. In-river uses of those affected salmon stocks, especially subsistence uses, must be given high consideration when reviewing management options. Strong returns of healthy salmon are critical to the future human and wildlife uses of those fish and to the continuation of the subsistence lifestyle.

Regarding the alternative bycatch alternatives for the EIS adopted by the NPFMC in December using the past five year average bycatch is ludicrous. The Voluntary Rolling Hot Spot trial plan is a miserable failure of managing a commercial fishery. The NPFMC and National Marine Fisheries Service shirked their duties as fisheries managers and bowed to the pressures of industry to allow minimum control of a highly efficient fleet. The past five year average would include the five years of dramatically increasing bycatch figures for Chinook salmon, at levels that have not been seen since the 1980s. Averages used in cap calculations should only include years previous to the recent past five years. I therefore feel the NPFMC December 2007 motion D-1 (a) salmon bycatch, is far too liberal and imprudent. I would support at most a hard cap based on the 1990-2001 average of 38,000 Chinook. I would be much more comfortable with a 1999-2001 average of 21,123, for year round Chinook bycatch.

The recent bycatch increase is likely a primary indicator in declining pollock biomass, and increased fishing effort duration to attain harvest quotas. Lower catch of pollock per unit of effort, increases salmon bycatch due to lower pollock: salmon ratio. The NPFMC has allowed not only unacceptable salmon bycatch, but also over-harvest of the pollock stock itself. Therefore the pollock seasons A& B need to be reduced (effort reduction) as part of the salmon bycatch reduction plan. The entire fishing area in question should be divided into ten areas, or "districts", with each area's cap based on the total salmon bycatch amount divided by ten. When an area reaches its cap, the area is closed and the fleet must move to the remaining open areas. Time-area closures for Chinook and Chum salmon (savings areas) should also be re-implemented for the districts that historically have high bycatch. If the total fishery bycatch cap is attained, the pollock season closes.

The NPFMC's mandate requires it to gain control and manage this bycatch issue. A growing number of pollock fishers in commercial fisheries publications have expressed concern for the pollock fishery itself. This is a time to re-evaluate past mistakes and manage for the conservation of the pollock fishery resource, as well as provide for a necessary reduction in the bycatch of salmon. It is incumbent on the NPFMC to take conservation measures now. The current trial and error methodology is jeopardizing ALL of the marine stocks in question in the Bering Sea.

The Regional Council represents 28 Western Interior subsistence communities and rural residents. The Regional Council is authorized by the Alaska National Interest Lands Conservation Act (ANILCA), and chartered under the Federal Advisory Committee Act (FACA). ANILCA in Section 805 and the Regional Council's charter recognize the Regional Council's authority to "initiate, review and evaluate proposals for regulations, policies, management plans, and other matters related to subsistence uses of fish and wildlife on public lands within the region" and to "provide a forum for the expression of opinions and recommendations ... (on) any matter related to the subsistence uses of fish and wildlife on public lands within the region."

Thank you for the opportunity to give guidance to your EIS process and share my concerns. Please keep me and my Regional Council in the information loop through our regional coordinator, Vince Mathews (contact information in letterhead). I can be reached at 1-907-678-2007; email: wisemanwolf@aol.com.

Sincerely,

Jack Reakoff, Chair

cc: Eric Olson, Chair, North Pacific Fishery Management Council
Michael R. Feagle, Chair, Federal Subsistence Board
Peter J. Probasco, Assistant Regional Director, Office of Subsistence Management
Rod Campbell, Fisheries Liaison, OSM
Steve Klein, Chief, Fisheries Division, OSM
Lenny Corin, Fisheries & Ecological Service, Fish and Wildlife Service
Ann Wilkinson, Chief, Council Coordination Division, OSM
Jill Klein, Executive Director, Yukon River Drainage Fisheries Association
David Bedford, Deputy Commissioner of Fisheries, ADF&G
Sue Entsminger, Chair, Eastern Interior Alaska Subsistence Regional Advisory Council
Lester Wilde, Chair, Yukon-Kuskokwim Delta Subsistence Regional Advisory Council
Western Interior Alaska Subsistence Regional Advisory Council members

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January 17, 2008

Dr. James Balsiger
Regional Administrator
NMFS, Alaska Region
P.O. Box 21668
Juneau, AK 99802-1668

RE: Salmon Bycatch in the Bering Sea/Aleutian Islands Pollock Fishery

Dear Dr. Balsiger:

Oceana is very concerned about the extraordinarily high level of salmon bycatch in the Bering Sea/Aleutian Islands (BSAI) pollock fishery and the impacts of that bycatch on the commercial and subsistence users in areas such as the Yukon River and Norton Sound. The current management regime authorized by Amendment 84 has proven woefully inadequate, and the National Marine Fisheries Service (NMFS) must take immediate action to comply with the Endangered Species Act (ESA), Magnuson-Stevens Fishery Conservation and Management Act (MSA), the Pacific Salmon Treaty, and the Yukon River Salmon Agreement.

Salmon bycatch in the BSAI pollock fishery has risen dramatically in recent years. BSAI groundfish fisheries caught more than 130,000 Chinook salmon during 2007, which is more than double the 1997-2006 ten-year average of 49,562 Chinook.[1] The vast majority of these Chinook were caught by pollock trawl vessels. Those vessels also catch a substantial number of chum salmon, with chum bycatch peaking at more than 700,000 fish in 2005.

These salmon are vitally important to the long-term health, viability, and biodiversity of our oceans, estuaries, rivers, and watersheds. Salmon affect the ecology of a large and diverse group of species across a wide range of ecosystems. They are connected to diverse habitats and transport energy and nutrients between the ocean, estuary, and freshwater environments. From grizzly bears to caddisflies, herons to killer whales, and fishermen to trees, salmon are inextricably linked to the health of the ecosystem.

The increased level of salmon bycatch has occurred despite changes implemented by NMFS to how salmon bycatch is managed in the pollock fishery. The 2007 Voluntary Rolling Hotspot Agreement implemented pursuant to an experimental fishing permit has proven to be a spectacular failure. In the first year of that agreement, Chinook bycatch in the groundfish fisheries rose from more than 87,000 fish to more than 130,000 fish. Most of these Chinook were caught by pollock trawl vessels.

Interception of salmon by the pollock trawl fishery is a grave problem for Alaskans and Canadians who depend on salmon for commercial and subsistence use. The only study available to us shows that 56%

[1] January 14, 2008 Memorandum from Balsiger to Lohn re: 2007 Annual Report for the Alaska Groundfish Fisheries Salmon Incidental Catch and Endangered Species Act Consultation.

of Chinook salmon caught as bycatch in the groundfish fishery from 1997-99 originated from Western Alaskan stocks.[2] Of those, 40% were from Yukon River stocks. While the number of salmon is dwarfed by the sheer volume of the pollock fishery, it is possible to put these numbers in perspective. Using the stock proportion estimates of Chinook bycatch from 1997-1999, the groundfish fisheries in 2007 intercepted approximately 29,000 Yukon River Chinook. That number is nearly equal to the 2007 United States Yukon River Chinook commercial catch and was more than half the estimated U.S. subsistence harvest. Only an estimated 24,585 Chinook made it to the Canadian border, which is far below the border passage escapement goals and resulted in no commercial fishery, no sport fishery, and limited subsistence harvest from the Canadian side of the Yukon River.

Wild salmon are the lifeblood of Alaska's commercial, sport, and subsistence fisheries. Salmon generate more jobs than any other fishery in Alaska and accounted for 49% of fishing employment by species in 2004.[3,4] In some rural communities, particularly in Western Alaska, summer salmon harvests are often the only available source of income.[4] By contrast, the high volume, high value groundfish fisheries are dominated by a few companies. The majority of fishermen employed by those companies are not even Alaska residents: in 2002, 196 non-resident trawl fishermen landed 91% of the 2.7 billion pounds taken in the trawl fishery, earning $220 million.[4] That same year, 4,852 Alaskan salmon fishermen shared $85.2 million.[4]

In addition to significant subsistence and economic impacts on Alaskans who depend on the salmon being caught by the pollock trawl fleet, the high levels of bycatch have also affected Canadians as escapement goals to the Canadian Yukon have not been met. 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.

Further, the Chinook caught by the pollock trawl vessels include fish from Upper Willamette River, Lower Columbia River, and possibly other lower 48 stocks that are protected by the ESA. The problems inherent in rebuilding these critically important Oregon and Washington stocks are caused in large part by escapement-return failures, but they may be exacerbated by bycatch in the pollock fishery. This issue was addressed in 1999 and 2000 biological opinions, which resulted in an incidental take statement for the groundfish fisheries based on the expected bycatch of 55,000 Chinook.[5] The terms of the 2000 incidental take statement were violated in 2003, 2004, 2005, and 2006, when the groundfish fisheries caught 55,594; 63,138; 74,975; and 87,771 Chinook salmon, respectively. More than 90% of these fish were caught by pollock trawl vessels.

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[2] Myers, K.W., R.V. Walker, J.L. Armstrong, and N.D. Davis. 2003. Estimates of the bycatch of Yukon River Chinook salmon in U.S. groundfish fisheries in the eastern Bering Sea, 1997-1999. Final Report to the Yukon River Drainage Fisheries Association, Contr. No. 04-001. SAFS-UW-0312, School of Aquatic and Fishery Sciences, University of Washington, Seattle. 59pp.

[3] Patton, M. and D. Robinson. 2006. Employment in the Alaska Fisheries. Alaska Economic Trends. February 2006, Vol. 25, No.2. Alaska Department of Labor & Workforce Development.

[4] Gilbertsen, N. 2004. Residency and the Alaska Fisheries. Alaska Economic Trends. December 2004, Vol. 24, No.12. Alaska Department of Labor & Workforce Development.

[5] *See* NMFS, Endangered Species Act (ESA) Section 7 Consultation – Supplemental Biological Opinion Reinitiating Consultation on the November 30, 2000 Biological Opinion regarding Authorization of the Bering Sea/Aleutian Islands Groundfish Fisheries at 2.

In 2006, NMFS undertook a Section 7 consultation process, which resulted in a supplemental biological opinion only addressing impacts to listed Chinook salmon from the groundfish fisheries. That supplemental biological opinion includes an incidental take statement dramatically increasing the authorized bycatch level to 87,500 Chinook salmon. The terms of that incidental take statement have been violated as well, as the fisheries caught more than 130,000 Chinook last year.

We understand that, as the Endangered Species Act requires, NMFS has reinitiated consultation on this issue. Given the scope of this problem and the fact that it is getting worse, we expect that NMFS will prepare an extensive evaluation of the potential impacts to listed salmon, resulting in a new biological opinion. This evaluation must include a thorough discussion of potential impacts from the pollock fishery, an explanation of the sampling protocols that underlie any estimates or assumptions made, and potential cumulative impacts from fisheries and other actions in the lower 48. In addition, potential impacts to chum salmon must be considered. This issue was not addressed in the 2006 supplement, and the only citation to support that decision is a 1991 analysis. Given the changes that have occurred in the Bering Sea and Aleutian Islands since 1991, NMFS must revisit this issue.

Section 7(d) of the Endangered Species Act prohibits the agency from making any irreversible or irretrievable commitment of resources during the consultation period. 16 U.S.C. § 1536(d). We expect the agency to take this limitation seriously. As explained above, there is currently no valid Endangered Species Act analysis or take statement for listed salmon affected by the pollock fishery. NMFS may not authorize the pollock fishery in 2008 without such an analysis.

Finally, the MSA requires NMFS to take practicable actions to minimize bycatch. *See* 16 U.S.C. §§ 1853(a)(11); 1851(a)(9). NMFS has not complied with that obligation. The North Pacific Fishery Management Council and NMFS have begun a process to change the Voluntary Rolling Hotspot system authorized by Amendment 84. That process and accompanying environmental analysis will not be completed in time to protect salmon and those who depend on them this year. Accordingly, NMFS must take immediate action to reduce salmon bycatch from the pollock trawl fishery.

This continuing salmon crisis is a reflection of a larger issue we have consistently raised with NMFS and the Council that there needs to be a more comprehensive approach to count, cap, and control bycatch. Failure to establish a comprehensive bycatch program will continue to jeopardize the health, biodiversity, and viability of our ocean ecosystems. With our oceans under more stress than ever from global climate change and demands of a growing world population, it is imperative we immediately address those threats and stresses that we can control. Salmon bycatch in the pollock trawl fishery is clearly a problem we must solve if we are to have sustainable fisheries and healthy coastal communities for this and future generations.

Sincerely,

Jim Ayers
Vice President, Oceana

cc: Mr. David Balton, U.S. Department of State

OCEANA

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January 17, 2008

Mr. David A. Balton
Deputy Assistant Secretary for Oceans and Fisheries
Bureau of Oceans and International Environmental and Scientific Affairs
U.S. Department of State
2201 C Street, NW
Washington, DC 20520

Dear Ambassador Balton:

Oceana is very concerned about the extraordinarily high level of salmon bycatch in the Bering Sea/Aleutian Islands (BSAI) pollock fishery and the impacts of that bycatch on the people in the Yukon River area as well as the United States' compliance with its international obligations. The Yukon River is a major Chinook salmon spawning river, and it supports significant subsistence and commercial fisheries both in Canada and the United States. Yukon River Chinook salmon are so important to those two countries that the United States and Canada have entered the Pacific Salmon Treaty and the Yukon River Salmon Agreement, which are designed specifically to protect the salmon and maintain the fisheries. Recently, however, Chinook returns to the Yukon are below the 10-year average, and escapement goals to Canada have not been met. Ever increasing bycatch of salmon in the BSAI pollock fishery is likely a contributing factor and calls into question the United States' compliance with the Pacific Salmon Treaty, The Yukon River Salmon Agreement, and the Endangered Species Act.

With no dams, agricultural diversions, or polluted runoff, the Yukon River is one of our great wild salmon rivers. Yukon River Chinook undergo one of the longest salmon migrations in the world, with some traveling over 1,800 miles into the interior of the Yukon and Northern British Columbia. These salmon are vitally important to the long-term health, viability, and biodiversity of our oceans, estuaries, rivers, and watersheds. Salmon affect the ecology of a large and diverse group of species across a wide range of ecosystems because they transport energy and nutrients between the ocean, estuary, and freshwater environments. In addition, wild salmon, like those in the Yukon, are the lifeblood of Alaska's commercial, sport, and subsistence fisheries. Salmon generate more jobs than any other fishery in Alaska and accounted for 49% of fishing employment by species in 2004.[1,2] In some rural communities, particularly in Western Alaska, summer salmon harvests are often the only available source of income.[2] In addition, the villages of Alakanuk, Emmonak, Kotlik, Mt. Village, St. Mary's, Pilot Station, Marshall, Russian Mission, Anvik, and others further upriver all depend on Yukon River salmon.

Because they are so important, Yukon River Chinook are the subject of two international agreements. The Pacific Salmon Treaty governs the conservation and management of Pacific

[1] Patton, M. and D. Robinson. 2006. Employment in the Alaska Fisheries. Alaska Economic Trends. February 2006, Vol. 25, No.2. Alaska Department of Labor & Workforce Development.
[2] Gilbertsen, N. 2004. Residency and the Alaska Fisheries. Alaska Economic Trends. D... No.12. Alaska Department of Labor & Workforce Development.

salmon stocks that move between Canada and the United States. The main principles of the treaty require the United States to prevent overfishing of salmon stocks and provide equity in fishing between the two countries.[3] In meeting these commitments, the United States and Canada must take into account the desirability of reducing interceptions and avoiding undue disruptions of existing fisheries, as well as annual variations in abundance of the stocks.[4] In meeting its obligations under the treaty, the United States must sustain healthy stocks of Chinook salmon, rebuild depressed Chinook stocks, and halt the decline in spawning escapements for certain stocks.[5]

The United States and Canada entered into the Yukon River Salmon Agreement in 2001, which was recognized as an annex to the Pacific Salmon Treaty in 2002. The Agreement's goals are to rebuild and conserve the salmon stocks of the Yukon River.[6] The agreement obligates the United States to give Alaska subsistence fisheries priority over all other fisheries in Alaska, provide effective conservation and management of the salmon stocks originating from the Yukon River, and develop management based on precautionary management approaches.[7] The Agreement also requires the United States to make efforts to "increase the in-river run of Yukon River origin salmon by reducing marine catches and by-catches of Yukon River salmon."[8] This requires identifying, quantifying, and undertaking efforts to reduce these "catches and by-catches."

As a result of the commitments made by the United States in the Pacific Salmon Treaty and Yukon River Salmon Agreement, Canada, Washington, and Oregon have a significant interest in the way in which NMFS manages salmon bycatch in the pollock fishery. The United States' compliance with these agreements has been called into question as a result of increasing bycatch of Chinook salmon. The BSAI groundfish fisheries caught more than 130,000 Chinook salmon during 2007, which is more than double the 1997-2006 ten-year average of 49,562 Chinook.[9] The vast majority of these salmon were caught by pollock trawl vessels. That level of Chinook bycatch represents the continuation of a trend in which Chinook bycatch has increased steadily; the groundfish fisheries caught 55,594 Chinook in 2003, 63,138 in 2004, 74,975 in 2005, and 87,771 Chinook in 2006. More than 90% of those salmon were caught by pollock trawl vessels. Those vessels also catch a substantial number of chum salmon, with chum bycatch peaking at more than 700,000 fish in 2005.

The only study available to us shows that 56% of Chinook salmon caught as bycatch in the groundfish fisheries from 1997-99 originated from Western Alaskan stocks.[10] Of those, 40%

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[3] Treaty Between the Government of Canada and the Government of the United States of America Concerning Salmon, March 1985, Article III, Principles, Paragraph 1(a)-(b). (Pacific Salmon Treaty).
[4] *Id.* at Paragraph 3(a)-(c).
[5] Pacific Salmon Treaty, Annex IV, Chapter 3: Chinook Salmon
[6] Pacific Salmon Treaty, Annex IV, Chapter 8. (Yukon River Salmon Agreement (2002).
[7] *Id.* at Chapter 8, Paragraph 1(b), & (e); *see also id.* at Paragraph 5.
[8] *Id.* at Paragraph 12.
[9] C January 14, 2008 Memorandum from Balsiger to Lohn re: 2007 Annual Report for the Alaska Groundfish Fisheries Salmon Incidental Catch and Endangered Species Act Consultation.
[10] Myers, K.W., R.V. Walker, J.L. Armstrong, and N.D. Davis. 2003. Estimates of the bycatch of Yukon River Chinook salmon in U.S. groundfish fisheries in the eastern Bering Sea, 1997-1999. Final Report to the Yukon River Drainage Fisheries Association, Contr. No. 04-001. SAFS-UW-0312, School of Aquatic and Fishery Sciences, University of Washington, Seattle. 59pp.

were from Yukon River stocks. While the sheer volume of the groundfish fisheries dwarfs the number of salmon, it is possible to put these numbers in perspective. Using the stock proportion estimates of Chinook bycatch from 1997-1999, the groundfish fisheries in 2007 intercepted approximately 27,000 Yukon River Chinook. That number is nearly equal to the 2007 United States Yukon River Chinook commercial catch, and was more than half the estimated U.S. subsistence harvest. Only an estimated 24,585 Chinook made it to the Canadian border, which is far below the border passage escapement goals and resulted in no commercial fishery, no sport fishery, and limited subsistence harvest from the Canadian side of the Yukon River.

Accordingly, the increasing catch of Chinook salmon in the pollock fishery calls into question the United States' compliance with its obligations under the Pacific Salmon Treaty and Yukon River Salmon Agreement. The United States has the obligation to protect subsistence, maintain the viability of the Yukon River Chinook stocks, rebuild depressed stocks, and meet certain escapement goals. To ensure compliance with those obligations and the commitments made to the other parties to the Pacific Salmon Treaty, the United States should take action to limit salmon bycatch in the pollock fishery.

In addition to its international obligations, the United States has a separate obligation under the Endangered Species Act to protect threatened and endangered species. The Chinook caught by the pollock trawl vessels include fish from Upper Willamette River and Lower Columbia River and possibly other lower 48 stocks that are protected by the Endangered Species Act. Since 2000, the BSAI groundfish fisheries have operated pursuant to a series of incidental take statements authorizing a certain level of Chinook bycatch. The terms of those incidental take statements were violated in 2003, 2004, 2005, 2006, and again in 2007. We understand that, as the Endangered Species Act requires, NMFS has reinitiated consultation on this issue. Given the scope of this problem and the fact that it is getting worse, we expect that NMFS will prepare an extensive evaluation of the potential impacts to listed salmon, resulting in a new biological opinion.

The United States, as a party to the Pacific Salmon Treaty and the Yukon River Salmon Agreement, has a responsibility to maintain the Yukon River Chinook stocks, protect subsistence, and ensure that escapement goals are met. To satisfy those requirements and its Endangered Species Act obligations, the United States must limit salmon bycatch in the BSAI pollock fishery.

Sincerely,

Jim Ayers
Vice President, Oceana

cc: Dr. James Balsiger, NMFS

January 29, 2008

Sue Salveson, Assistant Regional Administrator
Sustainable Fisheries Division, Alaska Region
National Marine Fisheries Service
P.O. Box 21668
Juneau, Alaska 99802

Dear Ms. Salveson:

As a subsistence fisherman with a lifetime living on the Yukon-Kuskokwim Delta, the delta residents are major users of the salmon that migrate through our area, more so than most people in other areas of my region due to the fact that salary positions in my area are scarce. Residents of my area are heavily dependent on subsistence resources that take a lot of time and money for individuals to gather. With the price of gas in my home village of Hooper Bay at $5.32 per gallon, local fishers have had to set their nets at low tide using four wheelers in order to save gas. This method of harvesting salmon works but takes a longer time due to the nets being in the shallows and not necessarily where the salmon swim. In the last few years, Chinook salmon availability in Hooper Bay has been very poor. Last year, I personally was fortunate to catch two Chinook salmon in my net with no more than twenty caught in my entire village of approximately 1200 people.

The importance of the salmon bycatch and its negative impact on our villages' well being and subsistence uses, and our small salmon commercial income, that supports our subsistence way of life, compels me to submit this letter. When the Rolling Hotspots Program was first introduced it sounded like it would work and not fail as miserably as it has. The 2007 Chinook salmon bycatch of over 130,000 fish caught in the BSAI pollock fisheries attests to its failure! Bycatch data in the Notice of Intent to prepare an Environmental Impact Statement (EIS) on the salmon bycatch measures for the BSAI (Federal Register Notice of December 26, 2007) clearly shows a dramatic increase from a bycatch of 55,000 Chinook salmon to over 130,000 in 2007. This trend cannot be allowed to continue.

Studies in the 1990s showed that over 56 percent of the Chinook salmon bycatch in the BSAI pollock fishery are of Western Alaskan origin, with approximately 40 percent of those Yukon River stocks (Kate Myers, et. al, *Estimates of the Bycatch of Yukon River Chinook Salmon in U.S. Groundfish Fisheries in the Eastern Bering Sea, 1997-1999* (March 2004)). Applying these numbers to the 2007 bycatch numbers, over 29,000 Yukon River-bound Chinook salmon were taken as bycatch in the BSAI pollock fishery. This amount equates to 58 percent of the 2007 in-river subsistence catch, 86 percent of the 2007 Yukon River commercial catch and 88 percent of the Canadian escapement goal! We, as subsistence users, must sacrifice our harvests to ensure that the escapement goals are met. Although we understand that the bycatch is not the only factor contributing to the decline of the Western Alaska salmon return, we know that it is the only contributing factor, to our knowledge, that is correctable in the short term.

Since the North Pacific Fishery Management Council is currently analyzing back up and substitute message for reducing salmon bycatch through the "amendment 84B" analysis. I am in agreement with the Western Interior Regional Council chair's letter dated January 16, 2008. I agree that averages used with cap calculations should only include years previous to the recent five years. I also feel that the North Pacific Fisheries Management Council's (NPFMC), December 2007 motion D-1 is far too liberal. I would support at most a hard cap based on the 1990-2007 average of 38,000 fish. Although a 1999 – 2007 average may feel more comfortable. I also feel that the pollock seasons A and B need to be reduced as part of the salmon bycatch plan. And the entire fishing area needs to be divided into ten areas with each area's cap based on the total bycatch amount divided by ten. Time – area closures for Chinook and chum salmon saving areas should also be re-implemented for the districts that historically have high bycatch levels.

I feel it is imperative that the NPFMC take conservation measures now so that the spawning returns insure that our children do not get as hungry as some of our people are right now.

Thank you for this opportunity to share my comments on this important matter. Please keep me informed of the status and progress with reducing the salmon bycatch. I can be reached at 1-907-758-4247, fax 1-907-758-4245.

Sincerely,

Lester Wilde

cc: Eric Olson, Chair, North Pacific Fishery Management Council
Michael R. Feagle, Chair, Federal Subsistence Board
Lenny Corin, Fisheries & Ecological Service, Fish and Wildlife Service
Jill Klein, Executive Director, Yukon River Drainage Fisheries Association
David Bedford, Deputy Commissioner of Fisheries, ADF&G
Sue Entsminger, Chair, Eastern Interior Alaska Subsistence Regional Advisory Council
Jack Reakoff, Chair, Western Interior Alaska Subsistence Regional Advisory Council
Alex Nick, Office of Subsistence Management for Yukon-Kuskokwim Delta Subsistence Regional Advisory Council members

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January 29, 2008

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

Dr. Jim Balsiger, Regional Administrator
NOAA Fisheries, Alaska Region
709 W. 9th Street
Juneau, AK 99802-1668

Re: Salmon Bycatch D-1(a)

Dear Mr. Olson and Dr. Balsiger,

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). WWF is a global conservation organization with over 1.2 million members in the US and over 5 million members worldwide. WWF seeks science-based, non-partisan, collaborative, and creative solutions to conservation issues. In the North Pacific, we collaborate with colleagues in Russia to seek conservation solutions for the Kamchatka/Bering Sea Ecoregion. We submit this letter in support of salmon bycatch reduction efforts in the Bering Sea and Aleutian Islands (BSAI) pollock fisheries.

Among the highest priorities for our Bering Sea program is achieving and maintaining sustainable management of the productive fisheries in Alaska's waters. WWF remains concerned the increasing bycatch of salmon in the BSAI pollock fishery may affect the health of salmon stocks that originate on the Russian and U.S. coasts of the Bering Sea. Therefore, we continue to recommend that the Council move forward quickly with the analysis of caps and other mechanisms to minimize or reduce salmon bycatch in the BSAI pollock fishery consistent with National Standard 9 of the Magnuson-Stevens Act.

WWF supports a rigorous analysis of a reasonable range of reasonable alternatives to achieve salmon bycatch reduction while minimizing the economic impact to the pollock fleet. We 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, as noted by numerous interests during previous testimony, time is of the essence. 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.

WWF remains concerned with the Council's decision to include alternatives which result in a substantial increase in salmon bycatch over pre-2002 levels. The decision to include these levels of bycatch appears to disagree with international treaty considerations regarding the Western Alaska salmon stocks. Moreover, a percentage increase of the highest year's bycatch levels seems to directly contradict both National Standard 9 and the international treaty considerations to minimize or reduce bycatch.

WWF continues to maintain a conservation concern regarding the level of salmon bycatch that has been achieved with respect to the Endangered Species Act. Consultation is triggered at 87,500, which is well below current bycatch levels. In the areas of the Pacific Northwest that are the source of this concern, runs are at dangerously low levels such that every individual fish counts. It is critically important that we ensure that these stocks are not negatively affected by the increase in salmon bycatch. We support the continued efforts to determine genetic stock of origin and look forward to forthcoming data on this subject. We believe that this genetic information will also be important to the conservation of salmon populations throughout the Bering Sea.

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

YUKON RIVER DRAINAGE FISHERIES ASSOCIATION

January 28, 2008

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

Jim Balsiger, 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. Balsiger 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 reached a record high in 2007 with over 122,000 Chinook salmon caught as bycatch. The impacts of several years of increasingly high bycatch will by felt by Western Alaska's salmon and the Western Alaskan people who depend on these salmon for years. We ask the Council to respond to the requests of the subsistence and commercial fishers of Western Alaska to adopt a hard cap on salmon bycatch. In moving towards this goal, we ask the Council to limit the range of alternatives being considered in the current EIS process to those which effectively ***reduce salmon bycatch***.

As this Council knows, salmon bycatch has increased dramatically in recent years. At the same time, Western Alaska Chinook salmon stocks have experienced steady declines, with forecasts for another below-average Chinook run on the Yukon River this summer. We appreciate that the Council has initiated action to put new management measures in place to reduce salmon bycatch. The current range of alternatives for hard caps, per the December 2007 Council motion, however, contains five out of eleven options which exceed the 2006 high of 87,500 Chinook. Bycatch even at the 2006 level is far beyond the range which will adequately protect Western Alaska salmon stocks and subsistence and commercial fishers. To include hard cap alternatives beyond this range defies the stated goal of this action which, in compliance with National Standard 9 of the Magnuson-Stevens Act (MSA),[1] is to reduce salmon bycatch: "the purpose of the proposed action is to minimize non-Chinook and Chinook bycatch to the extent practicable."[2] Using common sense, any alternative which will not *reduce* salmon

[1] Magnuson-Stevens Fishery Management and Conservation Act, 16 U.S.C. §1851(a)(9) (2004).
[2] FR Vo. 72, No. 246, 72996 (Dec. 26, 2007).

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bycatch therefore cannot be considered under this action. Barring the abhorrently high salmon bycatch of 2007, which reached levels beyond even those of the previous high of 115,000 in the foreign fishing days, no caps above the pre-2007 historical high of 87,500 Chinook salmon should be considered as reasonable alternatives. Given that the 2007 bycatch was more than double the 10-year average, this provides for a more than adequate range of alternatives, including numbers which would not, according to past experience adequately protect salmon.

To include alternatives above this pre-2007 historical high would not only violate the directives of the National Environmental Policy Act (NEPA), but the Council and NMFS's specific obligations under the Magnuson-Stevens Act to "minimize bycatch."[3] Alternatives which allow for an increase in bycatch would also violate the United States' treaty obligation under the Yukon River Salmon Act (YRSA) to "increase the in-river run of Yukon River origin salmon by reducing marine catches and by-catches of Yukon River salmon."[4] Finally, any cap amount above 87,500 Chinook salmon would violate the existing Incidental Take Permit (ITP) under the Endangered Species Act (ESA) for Upper Willamette and Lower Columbia River stocks. Because this ITP was violated in 2007, the agency is undergoing consultation, as directed by the ESA. In the absence of a new ITP, any cap above the amount of the current ITP of 87,500 would on its face violate the provisions of the ESA. While an alternative which does not comply with federal law is not by definition unreasonable under NEPA,[5] it does not pass the test of common sense in an action designed to protect salmon, to allow for alternatives which violate an ITP for ESA-listed salmon.

Beyond the range of hard caps considered, it is vital that alternatives which further divide the cap amongst sectors, co-ops or individual vessels maintain an overall hard cap. Further, the cap must not be distributed in such a manner as to reward boats, co-ops or sector with histories of high salmon bycatch.

We commend the Council for initiating action on the complex and important issue of salmon bycatch. We urge the Council to continue to move this amendment package forward with the utmost haste to protect the salmon resource on which Western Alaska depends.

Sincerely,

Rebecca Robbins Gisclair
Policy Director

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[3] Magnuson-Stevens Fishery Management and Conservation Act, 16 U.S.C. §1851(a)(9) (2004).
[4] Pacific Salmon Treaty, Annex IV Chapter 8 (27)(Yukon River Salmon Agreement)(2002).
[5] COUNCIL ON ENVIRONMENTAL QUALITY, 40 Frequently Asked Questions (1981) *available online at* http://www.nepa.gov/nepa/regs/40/1-10.HTM#1.

Raymond J. Watson, Chairman
Myron P. Naneng, Sr., President

Association of Village Council Presidents
Office of Administration
P.O. Box 219 • Bethel, AK 99559
Phone: (907) 543-7300 • Fax: (907) 543-3369

January 29, 2008

North Pacific Fishery Management Council
605 West 4th Avenue, Suite 306
Anchorage, AK 99501-2252
FAX: (907) 271-2817
Phone: (907) 271-2809

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

Dear Chairman Olson and Council Members:

The Association of Village Council Presidents (AVCP) appreciates this opportunity to address the issue of salmon bycatch and provide some comments to you. AVCP is the regional native non-profit organization working for and representing 56 Tribes in the Yukon-Kuskokwim Delta. Our region's tribes and communities rely heavily on salmon as a vital subsistence food and protein source and for the small commercial salmon opportunities in the Lower Yukon and Lower Kuskokwim Rivers, as they provide a very important source of income. Unfortunately, we are unable to have a representative attend your upcoming meeting in Seattle but wanted to remain involved in the process and offer you our comments.

Once again we find ourselves in a position of urgency. As you are well aware we are coming off an unprecedented year in regards to salmon bycatch. The 2007 BSAI groundfish fisheries caught over 122,000 Chinook salmon and 97,000 chum salmon. Using the all familiar Kate Myers study of the late 1990s, approximately 45,000 Chinook did not return to the Yukon and Kuskokwim Rivers, which comprise the majority of our service area and member communities. One year ago we wrote to you with concerns over the record bycatch of 84,000 Chinook in 2006. The unthinkable happened in 2007 – that record was blown out of the water by at least 38,000 Chinook! This is a complete travesty and can not and must not happen again.

The fundamental message to the NMFS agency and staff in refining alternatives for analysis needs to center on efforts to reduce bycatch. Alternatives and options that allow for the possibility of catching the current rates of bycatch or even surpassing them are unacceptable. Why else are we here? Why is this such an important issue to us?

AVCP respectfully requests that you include a hard cap on salmon bycatch as a probable alternative for implementing. In addition, the 2006 bycatch of just over 87,500 Chinook must be the ceiling on any ranges considered. Lastly, any divisions of a cap by sections

(boat, sector, or co-op) need to be designed to where boats, sectors or co-ops with histories of "dirty" fishing are not "rewarded."

Finally, we urge you to insist the NMFS analysis include impacts of the salmon bycatch to Western Alaska communities and the thousands of commercial-dependent and subsistence-dependent families. Those impacts are equated most simply as direct income and nourishment losses, but there are so many more affects to consider. There is a loss to culture, traditions and in many ways, a complete way of life.

AVCP and our 56 member Tribes ask you to heed our concerns and requests on this very important issue. We all hope for sustainable and equitable fisheries and we are now at the point where we must demand them. We work hard in-river to maintain our fisheries – we are regulated with severe Subsistence restrictions (a.k.a. "windows" to allow fish passage) and reductions in commercial fishing opportunities (times, areas and allowable gear) – and we have to mandate that others do the same.

We look forward to your decisions and hope that you will implement effective measures that will help to protect our salmon. Thank you for your time.

Sincerely,
ASSOCIATION OF VILLAGE COUNCIL PRESIDENTS
Raymond J. Watson, Chairman

Myron P. Naneng, Sr., President

Eagle Advisory Council
Eagle, Alaska.

January 20, 2008

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

Jim Balsiger, Regional Administrator
NOAA Fisheries, Alaska Region
PO Box 21668
Juneau, AK. 99802

Re: BSAI Salmon Bycatch

Dear Mr. Olson, 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 other users, 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 impact on 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.

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.

The 2007 Bycatch of 122,000 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 56% of the bycatch as bound for Western Alaska Rivers, and the 2007 estimate of over 27,000 Yukon River Chinook Salmon caught as bycatch represents over 54 % of in River Subsistence harvest needs and 59% of the Treaty Obligations for passage of Chinook to Canada (on the Low end of the Range) for Border passage. 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.

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 know that efforts are in progress to work out a solution to this problem, and that a working group has been formed to offer acceptable recommendations to your Council regarding Chinook Bycatch in the Pollock Fleet. The people of the upper Yukon River Strongly supports a measure to put a Hard Cap on Salmon bycatch of less than 20,000.

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

Azachorok Inc.
PO Box 32213
Mt. Village, AK 99632

City of Mtn. Village
PO Box 32085
Mtn. Village, AK 99632

Asa'carsarmiut TC
PO Box 32249
Mtn. Village, AK 99632

January 29, 2008

Eric Olson, Chairman
North Pacific Fisheries Management Council
605 W. 4th Avenue, Suite 306
Anchorage, AK 99501-2252

RE: D-1(a) BSAI Salmon Bycatch

Chairman Olson:

The City of Mtn. Village is a second class municipal government incorporated in 1967. Asa'carsarmiut Tribal Council is a sovereign entity and a federally recognized tribal government representing the Asa'carsarmiut Tribe of Mountain Village. Azachorok Inc. is a village corporation incorporated pursuant to the passage of the Alaska Native Claims Settlement Act (ANCSA) of 1971.

The Chinook salmon is extremely vital to the health, social, and economic well-being of our culture and community. The subsistence way of life is an inalienable right of all Alaskans. Our local entities and other communities in Western Alaska rely heavily on the subsistence and commercial fisheries as a way of life. Our subsistence and commercial fisheries are very much intertwined. 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. The 2007 Chinook salmon returns on the Yukon River and tributaries in Western Alaska did not meet the escapement goals adopted by the Alaska Department of Fish and Game. We are deeply concerned with the increasing trends of salmon bycatch rates with no real preventative measures in place for the industry to avoid salmon.

The City of Mtn. Village, Asa'carsarmiut Tribal Council and Azachorok Inc. recommend North Pacific Fisheries Management Council to move forward quickly to significantly reduce the salmon bycatch. The official representatives

from the three local entities support the October 2007 motion to limit the upper range caps. Mountain Village supports a hard cap of 40,000. Attached to this letter is joint resolution 07-04 supporting our concerns.

If you have any questions or comments, please contact one of the representatives at the numbers located below. Thank you for your time and consideration.

Sincerely,

Peter M. Andrews-Mayor
City of Mtn. Village
(907) 591-2929 (P)

Paul J. Beans, Vice-Chair
Azachorok Inc.
(907) 591-2527 (P)

James C. Landlord, 1st Chief
Asa'carsarmiut Tribal Council
(907) 591-2814 (P)

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

Bibiana F: Sage, Vice-Mayor

Ella M. Peterson, Sec/Treas

Pete Peterson, Council Member

Absent
Tammy Aguchak, Council Member

Absent
Alexie Walters, Council Member

Absent
Fred Lamont, Council Member

Attest:
Nova Moses, City Clerk

Tribal Council:

James Landlord, 1st Chief

Absent
William Beans, 2nd Chief

John M. Joe, Sec/Treas

Loren G. Peterson, Council Member

Agnes L. Brown, Council Member

Dorothy G. Johnson, Council Member

Corporation Board:

Absent
Felix Hess, Chairman

Paul Beans, Vice-Chair

Absent
Francis Hess, Sec/Treas

Absent
Catherine Moses, Board Member

Harry Wilde Sr., Board Member

David Blanket, Board Member

Alexie Walters, Board Member

OCEANA

175 SOUTH FRANKLIN STREET, SUITE 418 JUNEAU, ALASKA 99801 907.586.4050 WWW.OCEANA.ORG

January 29, 2008

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

Dr. Jim Balsiger, Regional Administrator
NOAA Fisheries, Alaska Region
709 West Ninth Street
Juneau, AK 99802-1668

Re: Salmon Bycatch in the Bering Sea/Aleutian Islands Pollock Fishery

Dear Chairman Olson and Dr. Balsiger:

Oceana repeatedly has expressed our concern to the Council about the increasing salmon bycatch in the Bering Sea/Aleutian Islands (BSAI) pollock fishery. Thus far, however, neither the Council nor the National Marine Fisheries Service have taken effective action to curb this growing problem. BSAI groundfish fisheries caught more than 130,000 Chinook salmon during 2007, which is more than double the 1997-2006 ten-year average of 49,562 Chinook.[1] The vast majority of these Chinook were caught by pollock trawl vessels. Those vessels also catch a substantial number of chum salmon, with chum bycatch peaking at more than 700,000 fish in 2005.

To address this growing problem, Oceana submitted letters earlier this month to NOAA Fisheries Regional Administrator James Balsiger and Deputy Assistant Secretary for Oceans and Fisheries David Balton. These letters are submitted for the Council's consideration as attachments to this correspondence.

These salmon are vitally important to the long-term health, viability, and biodiversity of our oceans, estuaries, rivers, and watersheds. They are also vitally important to those who depend on them for commercial and subsistence uses. Further, the Chinook salmon caught by the pollock trawl vessels include fish from Upper Willamette River, Lower Columbia River, and possibly other lower 48 stocks that are protected by the Endangered Species Act. In addition to significant subsistence and economic impacts on Alaskans who depend on the same salmon being caught by the pollock trawl fleet, the high levels of bycatch have also affected Canadians as escapement goals to the Canadian Yukon have not been met.

The Council's Voluntary Rolling Hotspot Agreement, implemented pursuant to an experimental fishing permit in 2007, clearly is not effective. We understand that the Council has begun a

[1] January 14, 2008 Memorandum from Balsiger to Lohn re: 2007 Annual Report for the Alaska Groundfish Fisheries Salmon Incidental Catch and Endangered Species Act Consultation.

process to make changes to its management scheme for salmon bycatch. That process, however, will not lead to any changes in the water this year and perhaps next. The Council should take action now to address this problem.

More generally, the Council should have a venue to address bycatch issues before they become emergencies, as has happened with salmon bycatch. The Council should be taking action to count, cap, and control bycatch of all species. Whether it chooses to do so by expanding the mandate of the existing Non-Target Species Committee or creating a separate Bycatch Committee, the Council must take a more comprehensive approach to bycatch control.

Thank you for your attention to this important matter.

Sincerely,

Jim Ayers
Vice President, Oceana

Attachments:

1. January 17, 2008 letter to David Balton, Deputy Assistant Secretary for Oceans and Fisheries, U.S. Department of State
2. January 17, 2008 letter to James Balsiger, Regional Administrator, NOAA Fisheries

175 SOUTH FRANKLIN STREET, SUITE 418 JUNEAU, ALASKA 99801 907.586.4050 WWW.OCEANA.ORG

January 17, 2008

Mr. David A. Balton
Deputy Assistant Secretary for Oceans and Fisheries
Bureau of Oceans and International Environmental and Scientific Affairs
U.S. Department of State
2201 C Street, NW
Washington, DC 20520

Dear Ambassador Balton:

Oceana is very concerned about the extraordinarily high level of salmon bycatch in the Bering Sea/Aleutian Islands (BSAI) pollock fishery and the impacts of that bycatch on the people in the Yukon River area as well as the United States' compliance with its international obligations. The Yukon River is a major Chinook salmon spawning river, and it supports significant subsistence and commercial fisheries both in Canada and the United States. Yukon River Chinook salmon are so important to those two countries that the United States and Canada have entered the Pacific Salmon Treaty and the Yukon River Salmon Agreement, which are designed specifically to protect the salmon and maintain the fisheries. Recently, however, Chinook returns to the Yukon are below the 10-year average, and escapement goals to Canada have not been met. Ever increasing bycatch of salmon in the BSAI pollock fishery is likely a contributing factor and calls into question the United States' compliance with the Pacific Salmon Treaty, The Yukon River Salmon Agreement, and the Endangered Species Act.

With no dams, agricultural diversions, or polluted runoff, the Yukon River is one of our great wild salmon rivers. Yukon River Chinook undergo one of the longest salmon migrations in the world, with some traveling over 1,800 miles into the interior of the Yukon and Northern British Columbia. These salmon are vitally important to the long-term health, viability, and biodiversity of our oceans, estuaries, rivers, and watersheds. Salmon affect the ecology of a large and diverse group of species across a wide range of ecosystems because they transport energy and nutrients between the ocean, estuary, and freshwater environments. In addition, wild salmon, like those in the Yukon, are the lifeblood of Alaska's commercial, sport, and subsistence fisheries. Salmon generate more jobs than any other fishery in Alaska and accounted for 49% of fishing employment by species in 2004.[1,2] In some rural communities, particularly in Western Alaska, summer salmon harvests are often the only available source of income.[2] In addition, the villages of Alakanuk, Emmonak, Kotlik, Mt. Village, St. Mary's, Pilot Station, Marshall, Russian Mission, Anvik, and others further upriver all depend on Yukon River salmon.

Because they are so important, Yukon River Chinook are the subject of two international agreements. The Pacific Salmon Treaty governs the conservation and management of Pacific

[1] Patton, M. and D. Robinson. 2006. Employment in the Alaska Fisheries. Alaska Economic Trends. February 2006, Vol. 25, No.2. Alaska Department of Labor & Workforce Development.
[2] Gilbertsen, N. 2004. Residency and the Alaska Fisheries. Alaska Economic Trends. No.12. Alaska Department of Labor & Workforce Development.

salmon stocks that move between Canada and the United States. The main principles of the treaty require the United States to prevent overfishing of salmon stocks and provide equity in fishing between the two countries.[3] In meeting these commitments, the United States and Canada must take into account the desirability of reducing interceptions and avoiding undue disruptions of existing fisheries, as well as annual variations in abundance of the stocks.[4] In meeting its obligations under the treaty, the United States must sustain healthy stocks of Chinook salmon, rebuild depressed Chinook stocks, and halt the decline in spawning escapements for certain stocks.[5]

The United States and Canada entered into the Yukon River Salmon Agreement in 2001, which was recognized as an annex to the Pacific Salmon Treaty in 2002. The Agreement's goals are to rebuild and conserve the salmon stocks of the Yukon River.[6] The agreement obligates the United States to give Alaska subsistence fisheries priority over all other fisheries in Alaska, provide effective conservation and management of the salmon stocks originating from the Yukon River, and develop management based on precautionary management approaches.[7] The Agreement also requires the United States to make efforts to "increase the in-river run of Yukon River origin salmon by reducing marine catches and by-catches of Yukon River salmon."[8] This requires identifying, quantifying, and undertaking efforts to reduce these "catches and by-catches."

As a result of the commitments made by the United States in the Pacific Salmon Treaty and Yukon River Salmon Agreement, Canada, Washington, and Oregon have a significant interest in the way in which NMFS manages salmon bycatch in the pollock fishery. The United States' compliance with these agreements has been called into question as a result of increasing bycatch of Chinook salmon. The BSAI groundfish fisheries caught more than 130,000 Chinook salmon during 2007, which is more than double the 1997-2006 ten-year average of 49,562 Chinook.[9] The vast majority of these salmon were caught by pollock trawl vessels. That level of Chinook bycatch represents the continuation of a trend in which Chinook bycatch has increased steadily; the groundfish fisheries caught 55,594 Chinook in 2003, 63,138 in 2004, 74,975 in 2005, and 87,771 Chinook in 2006. More than 90% of those salmon were caught by pollock trawl vessels. Those vessels also catch a substantial number of chum salmon, with chum bycatch peaking at more than 700,000 fish in 2005.

The only study available to us shows that 56% of Chinook salmon caught as bycatch in the groundfish fisheries from 1997-99 originated from Western Alaskan stocks.[10] Of those, 40%

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[3] Treaty Between the Government of Canada and the Government of the United States of America Concerning Salmon, March 1985, Article III, Principles, Paragraph 1(a)-(b). (Pacific Salmon Treaty).
[4] *Id.* at Paragraph 3(a)-(c).
[5] Pacific Salmon Treaty, Annex IV, Chapter 3: Chinook Salmon
[6] Pacific Salmon Treaty, Annex IV, Chapter 8. (Yukon River Salmon Agreement (2002).
[7] *Id.* at Chapter 8, Paragraph 1(b), & (e); *see also id.* at Paragraph 5.
[8] *Id.* at Paragraph 12.
[9] C January 14, 2008 Memorandum from Balsiger to Lohn re: 2007 Annual Report for the Alaska Groundfish Fisheries Salmon Incidental Catch and Endangered Species Act Consultation.
[10] Myers, K.W., R.V. Walker, J.L. Armstrong, and N.D. Davis. 2003. Estimates of the bycatch of Yukon River Chinook salmon in U.S. groundfish fisheries in the eastern Bering Sea, 1997-1999. Final Report to the Yukon River Drainage Fisheries Association, Contr. No. 04-001. SAFS-UW-0312, School of Aquatic and Fishery Sciences, University of Washington, Seattle. 59pp.

were from Yukon River stocks. While the sheer volume of the groundfish fisheries dwarfs the number of salmon, it is possible to put these numbers in perspective. Using the stock proportion estimates of Chinook bycatch from 1997-1999, the groundfish fisheries in 2007 intercepted approximately 27,000 Yukon River Chinook. That number is nearly equal to the 2007 United States Yukon River Chinook commercial catch, and was more than half the estimated U.S. subsistence harvest. Only an estimated 24,585 Chinook made it to the Canadian border, which is far below the border passage escapement goals and resulted in no commercial fishery, no sport fishery, and limited subsistence harvest from the Canadian side of the Yukon River.

Accordingly, the increasing catch of Chinook salmon in the pollock fishery calls into question the United States' compliance with its obligations under the Pacific Salmon Treaty and Yukon River Salmon Agreement. The United States has the obligation to protect subsistence, maintain the viability of the Yukon River Chinook stocks, rebuild depressed stocks, and meet certain escapement goals. To ensure compliance with those obligations and the commitments made to the other parties to the Pacific Salmon Treaty, the United States should take action to limit salmon bycatch in the pollock fishery.

In addition to its international obligations, the United States has a separate obligation under the Endangered Species Act to protect threatened and endangered species. The Chinook caught by the pollock trawl vessels include fish from Upper Willamette River and Lower Columbia River and possibly other lower 48 stocks that are protected by the Endangered Species Act. Since 2000, the BSAI groundfish fisheries have operated pursuant to a series of incidental take statements authorizing a certain level of Chinook bycatch. The terms of those incidental take statements were violated in 2003, 2004, 2005, 2006, and again in 2007. We understand that, as the Endangered Species Act requires, NMFS has reinitiated consultation on this issue. Given the scope of this problem and the fact that it is getting worse, we expect that NMFS will prepare an extensive evaluation of the potential impacts to listed salmon, resulting in a new biological opinion.

The United States, as a party to the Pacific Salmon Treaty and the Yukon River Salmon Agreement, has a responsibility to maintain the Yukon River Chinook stocks, protect subsistence, and ensure that escapement goals are met. To satisfy those requirements and its Endangered Species Act obligations, the United States must limit salmon bycatch in the BSAI pollock fishery.

Sincerely,

Jim Ayers
Vice President, Oceana

cc: Dr. James Balsiger, NMFS

OCEANA

175 SOUTH FRANKLIN STREET, SUITE 418 JUNEAU, ALASKA 99801 907.586.4050 WWW.OCEANA.ORG

January 17, 2008

Dr. James Balsiger
Regional Administrator
NMFS, Alaska Region
P.O. Box 21668
Juneau, AK 99802-1668

RE: Salmon Bycatch in the Bering Sea/Aleutian Islands Pollock Fishery

Dear Dr. Balsiger:

Oceana is very concerned about the extraordinarily high level of salmon bycatch in the Bering Sea/Aleutian Islands (BSAI) pollock fishery and the impacts of that bycatch on the commercial and subsistence users in areas such as the Yukon River and Norton Sound. The current management regime authorized by Amendment 84 has proven woefully inadequate, and the National Marine Fisheries Service (NMFS) must take immediate action to comply with the Endangered Species Act (ESA), Magnuson-Stevens Fishery Conservation and Management Act (MSA), the Pacific Salmon Treaty, and the Yukon River Salmon Agreement.

Salmon bycatch in the BSAI pollock fishery has risen dramatically in recent years. BSAI groundfish fisheries caught more than 130,000 Chinook salmon during 2007, which is more than double the 1997-2006 ten-year average of 49,562 Chinook.[1] The vast majority of these Chinook were caught by pollock trawl vessels. Those vessels also catch a substantial number of chum salmon, with chum bycatch peaking at more than 700,000 fish in 2005.

These salmon are vitally important to the long-term health, viability, and biodiversity of our oceans, estuaries, rivers, and watersheds. Salmon affect the ecology of a large and diverse group of species across a wide range of ecosystems. They are connected to diverse habitats and transport energy and nutrients between the ocean, estuary, and freshwater environments. From grizzly bears to caddisflies, herons to killer whales, and fishermen to trees, salmon are inextricably linked to the health of the ecosystem.

The increased level of salmon bycatch has occurred despite changes implemented by NMFS to how salmon bycatch is managed in the pollock fishery. The 2007 Voluntary Rolling Hotspot Agreement implemented pursuant to an experimental fishing permit has proven to be a spectacular failure. In the first year of that agreement, Chinook bycatch in the groundfish fisheries rose from more than 87,000 fish to more than 130,000 fish. Most of these Chinook were caught by pollock trawl vessels.

Interception of salmon by the pollock trawl fishery is a grave problem for Alaskans and Canadians who depend on salmon for commercial and subsistence use. The only study available to us shows that 56%

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[1] January 14, 2008 Memorandum from Balsiger to Lohn re: 2007 Annual Report for the Alaska Groundfish Fisheries Salmon Incidental Catch and Endangered Species Act Consultation.

of Chinook salmon caught as bycatch in the groundfish fishery from 1997-99 originated from Western Alaskan stocks.[2] Of those, 40% were from Yukon River stocks. While the number of salmon is dwarfed by the sheer volume of the pollock fishery, it is possible to put these numbers in perspective. Using the stock proportion estimates of Chinook bycatch from 1997-1999, the groundfish fisheries in 2007 intercepted approximately 29,000 Yukon River Chinook. That number is nearly equal to the 2007 United States Yukon River Chinook commercial catch and was more than half the estimated U.S. subsistence harvest. Only an estimated 24,585 Chinook made it to the Canadian border, which is far below the border passage escapement goals and resulted in no commercial fishery, no sport fishery, and limited subsistence harvest from the Canadian side of the Yukon River.

Wild salmon are the lifeblood of Alaska's commercial, sport, and subsistence fisheries. Salmon generate more jobs than any other fishery in Alaska and accounted for 49% of fishing employment by species in 2004.[3,4] In some rural communities, particularly in Western Alaska, summer salmon harvests are often the only available source of income.[4] By contrast, the high volume, high value groundfish fisheries are dominated by a few companies. The majority of fishermen employed by those companies are not even Alaska residents: in 2002, 196 non-resident trawl fishermen landed 91% of the 2.7 billion pounds taken in the trawl fishery, earning $220 million.[4] That same year, 4,852 Alaskan salmon fishermen shared $85.2 million.[4]

In addition to significant subsistence and economic impacts on Alaskans who depend on the salmon being caught by the pollock trawl fleet, the high levels of bycatch have also affected Canadians as escapement goals to the Canadian Yukon have not been met. 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.

Further, the Chinook caught by the pollock trawl vessels include fish from Upper Willamette River, Lower Columbia River, and possibly other lower 48 stocks that are protected by the ESA. The problems inherent in rebuilding these critically important Oregon and Washington stocks are caused in large part by escapement-return failures, but they may be exacerbated by bycatch in the pollock fishery. This issue was addressed in 1999 and 2000 biological opinions, which resulted in an incidental take statement for the groundfish fisheries based on the expected bycatch of 55,000 Chinook.[5] The terms of the 2000 incidental take statement were violated in 2003, 2004, 2005, and 2006, when the groundfish fisheries caught 55,594; 63,138; 74,975; and 87,771 Chinook salmon, respectively. More than 90% of these fish were caught by pollock trawl vessels.

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[2] Myers, K.W., R.V. Walker, J.L. Armstrong, and N.D. Davis. 2003. Estimates of the bycatch of Yukon River Chinook salmon in U.S. groundfish fisheries in the eastern Bering Sea, 1997-1999. Final Report to the Yukon River Drainage Fisheries Association, Contr. No. 04-001. SAFS-UW-0312, School of Aquatic and Fishery Sciences, University of Washington, Seattle. 59pp.

[3] Patton, M. and D. Robinson. 2006. Employment in the Alaska Fisheries. Alaska Economic Trends. February 2006, Vol. 25, No.2. Alaska Department of Labor & Workforce Development.

[4] Gilbertsen, N. 2004. Residency and the Alaska Fisheries. Alaska Economic Trends. December 2004, Vol. 24, No.12. Alaska Department of Labor & Workforce Development.

[5] *See* NMFS, Endangered Species Act (ESA) Section 7 Consultation -- Supplemental Biological Opinion Reinitiating Consultation on the November 30, 2000 Biological Opinion regarding Authorization of the Bering Sea/Aleutian Islands Groundfish Fisheries at 2.

In 2006, NMFS undertook a Section 7 consultation process, which resulted in a supplemental biological opinion only addressing impacts to listed Chinook salmon from the groundfish fisheries. That supplemental biological opinion includes an incidental take statement dramatically increasing the authorized bycatch level to 87,500 Chinook salmon. The terms of that incidental take statement have been violated as well, as the fisheries caught more than 130,000 Chinook last year.

We understand that, as the Endangered Species Act requires, NMFS has reinitiated consultation on this issue. Given the scope of this problem and the fact that it is getting worse, we expect that NMFS will prepare an extensive evaluation of the potential impacts to listed salmon, resulting in a new biological opinion. This evaluation must include a thorough discussion of potential impacts from the pollock fishery, an explanation of the sampling protocols that underlie any estimates or assumptions made, and potential cumulative impacts from fisheries and other actions in the lower 48. In addition, potential impacts to chum salmon must be considered. This issue was not addressed in the 2006 supplement, and the only citation to support that decision is a 1991 analysis. Given the changes that have occurred in the Bering Sea and Aleutian Islands since 1991, NMFS must revisit this issue.

Section 7(d) of the Endangered Species Act prohibits the agency from making any irreversible or irretrievable commitment of resources during the consultation period. 16 U.S.C. § 1536(d). We expect the agency to take this limitation seriously. As explained above, there is currently no valid Endangered Species Act analysis or take statement for listed salmon affected by the pollock fishery. NMFS may not authorize the pollock fishery in 2008 without such an analysis.

Finally, the MSA requires NMFS to take practicable actions to minimize bycatch. *See* 16 U.S.C. §§ 1853(a)(11); 1851(a)(9). NMFS has not complied with that obligation. The North Pacific Fishery Management Council and NMFS have begun a process to change the Voluntary Rolling Hotspot system authorized by Amendment 84. That process and accompanying environmental analysis will not be completed in time to protect salmon and those who depend on them this year. Accordingly, NMFS must take immediate action to reduce salmon bycatch from the pollock trawl fishery.

This continuing salmon crisis is a reflection of a larger issue we have consistently raised with NMFS and the Council that there needs to be a more comprehensive approach to count, cap, and control bycatch. Failure to establish a comprehensive bycatch program will continue to jeopardize the health, biodiversity, and viability of our ocean ecosystems. With our oceans under more stress than ever from global climate change and demands of a growing world population, it is imperative we immediately address those threats and stresses that we can control. Salmon bycatch in the pollock trawl fishery is clearly a problem we must solve if we are to have sustainable fisheries and healthy coastal communities for this and future generations.

Sincerely,

Jim Ayers
Vice President, Oceana

cc: Mr. David Balton, U.S. Department of State

OCEANA

175 SOUTH FRANKLIN STREET, SUITE 418 JUNEAU, ALASKA 99801 907.586.4050 WWW.OCEANA.ORG

January 29, 2008

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

Dr. Jim Balsiger, Regional Administrator
NOAA Fisheries, Alaska Region
709 West Ninth Street
Juneau, AK 99802-1668

Re: Salmon Bycatch in the Bering Sea/Aleutian Islands Pollock Fishery

Dear Chairman Olson and Dr. Balsiger:

Oceana repeatedly has expressed our concern to the Council about the increasing salmon bycatch in the Bering Sea/Aleutian Islands (BSAI) pollock fishery. Thus far, however, neither the Council nor the National Marine Fisheries Service have taken effective action to curb this growing problem. BSAI groundfish fisheries caught more than 130,000 Chinook salmon during 2007, which is more than double the 1997-2006 ten-year average of 49,562 Chinook.[1] The vast majority of these Chinook were caught by pollock trawl vessels. Those vessels also catch a substantial number of chum salmon, with chum bycatch peaking at more than 700,000 fish in 2005.

To address this growing problem, Oceana submitted letters earlier this month to NOAA Fisheries Regional Administrator James Balsiger and Deputy Assistant Secretary for Oceans and Fisheries David Balton. These letters are submitted for the Council's consideration as attachments to this correspondence.

These salmon are vitally important to the long-term health, viability, and biodiversity of our oceans, estuaries, rivers, and watersheds. They are also vitally important to those who depend on them for commercial and subsistence uses. Further, the Chinook salmon caught by the pollock trawl vessels include fish from Upper Willamette River, Lower Columbia River, and possibly other lower 48 stocks that are protected by the Endangered Species Act. In addition to significant subsistence and economic impacts on Alaskans who depend on the same salmon being caught by the pollock trawl fleet, the high levels of bycatch have also affected Canadians as escapement goals to the Canadian Yukon have not been met.

The Council's Voluntary Rolling Hotspot Agreement, implemented pursuant to an experimental fishing permit in 2007, clearly is not effective. We understand that the Council has begun a

[1] January 14, 2008 Memorandum from Balsiger to Lohn re: 2007 Annual Report for the Alaska Groundfish Fisheries Salmon Incidental Catch and Endangered Species Act Consultation.

process to make changes to its management scheme for salmon bycatch. That process, however, will not lead to any changes in the water this year and perhaps next. The Council should take action now to address this problem.

More generally, the Council should have a venue to address bycatch issues before they become emergencies, as has happened with salmon bycatch. The Council should be taking action to count, cap, and control bycatch of all species. Whether it chooses to do so by expanding the mandate of the existing Non-Target Species Committee or creating a separate Bycatch Committee, the Council must take a more comprehensive approach to bycatch control.

Thank you for your attention to this important matter.

Sincerely,

Jim Ayers
Vice President, Oceana

Attachments:

1. January 17, 2008 letter to David Balton, Deputy Assistant Secretary for Oceans and Fisheries, U.S. Department of State
2. January 17, 2008 letter to James Balsiger, Regional Administrator, NOAA Fisheries

UNITED STATES DEPARTMENT OI
National Oceanic and Atmospheric Administration
National Marine Fisheries Service
P.O. Box 21668
Juneau, Alaska 99802-1668

January 29, 2008

Jim Ayers
Oceana
175 South Franklin Street, Suite 418
Juneau, Alaska 99801

Dear Mr. Ayers:

Thank you for your letter expressing your concerns about salmon bycatch in the Bering Sea pollock trawl fishery. We agree that the increasing amount of Chinook salmon bycatch in the Bering Sea pollock fishery is a concern. 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. We are in the process of coordinating with the North Pacific Fishery Management Council (Council) to develop an environmental impact statement (EIS) that will assess alternative approaches for reducing salmon bycatch and the impacts of salmon bycatch on salmon stocks and the people who rely on salmon.

The EIS will incorporate the best available information into the analysis on impacts of the bycatch levels on western Alaska and Upper Yukon (Canadian) origin stocks. The State of Alaska is in the midst of a study that will provide information on the stock composition of the Chinook bycatch in 2005 and 2006, using newer genetic techniques. We anticipate that preliminary results will be available for incorporation into the EIS. The results should allow us to determine if the stock composition has changed over time or if the previous estimates still hold.

Management of the Bering Sea pollock fishery is in compliance with the Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act), the Pacific Salmon Treaty, and the Endangered Species Act (ESA). Applicable Federal law requires that bycatch be minimized to the extent practicable and establishes processes for assessment and responsive implementation of appropriate management measures if warranted. We are engaged through the Council process in this assessment with a schedule for decision making and establishment of any new salmon bycatch reduction measures in the pollock fishery. No applicable Federal law requires NMFS to truncate or accelerate this process.

We have implemented management measures to reduce the bycatch of salmon in the Bering Sea pollock fishery, first through the Chinook and Chum Salmon Savings Areas, and currently with the Amendment 84 salmon bycatch inter-cooperative agreement and the voluntary rolling hotspot system. Amendment 84 and its implementing regulations are consistent with National Standard 9 of the Magnuson-Stevens Act because they increase the ability of pollock fishery

participants to minimize salmon bycatch by giving them more flexibility to move fishing operations to avoid areas with high rates of salmon bycatch. Amendment 84 allows 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. In light of high salmon bycatch in recent years, the Council and NMFS are now considering whether additional measures are feasible and appropriate.

We are complying with the Magnuson-Stevens Act in developing such additional measures though the deliberative Council and public processes established in Title III of the Magnuson-Stevens Act. We have begun a process pursuant to the Magnuson-Stevens Act and the National Environmental Policy Act (NEPA) to evaluate existing measures and develop alternative measures that may be necessary to further reduce salmon bycatch. We published a notice of intent to prepare an EIS on salmon bycatch reduction measures in the BSAI (72 FR 72994, December 26, 2007). This analysis is vital to assess current and potential salmon bycatch reduction measures consistent with the requirement to minimize bycatch to the extent practicable. NMFS and the Council are also complying with the analytical requirements of Executive Order 12866 and the Regulatory Flexibility Act by analyzing the economic impacts of alternative salmon bycatch reduction measures.

We also are complying with the obligations in the Yukon River Agreement to the Pacific Salmon Treaty by developing and analyzing alternative measures to reduce salmon bycatch through the Council process. The Agreement states that the "Parties shall maintain efforts to increase the in-river run of Yukon River origin salmon by reducing marine catches and by-catches of Yukon River salmon. They shall further identify, quantify and undertake efforts to reduce these catches and by-catches" (Art. XV, Annex IV, Ch. 8, Cl. 12). Amendment 84 is consistent with the Yukon River Salmon Agreement because it is an element of the Council's efforts to reduce bycatch of salmon in the BSAI groundfish fisheries. As noted above, we are in the process of identifying whether additional measures are necessary to ensure compliance with the Agreement and which measures would best achieve the Council's salmon bycatch reduction goals. We are working through the Council and NEPA public processes to resolve substantive issues involving the portion of salmon taken as bycatch in the Bering Sea that originated from the Yukon River. Additionally, we are considering the recommendations of the Yukon River Panel, an international entity established by the Pacific Salmon Treaty.

We are complying with the ESA through section 7 consultations on the Alaska groundfish fisheries, including the BSAI pollock fishery, regarding the potential incidental take of ESA-listed salmon. We have consulted on the BSAI groundfish fishery on several occasions beginning in 1992. The most recent section 7 consultation on the BSAI groundfish fishery was completed by the NMFS Northwest Region in January 2007. In that supplemental biological opinion, NMFS reiterated its previous conclusion that 24 of the 26 ESA-listed salmonid stocks are not likely to be caught in the BSAI groundfish fisheries. There is evidence that Upper Willamette River (UWR) Chinook and Lower Columbia River (LCR) Chinook salmon are caught on occasion in the BSAI groundfish fishery, but the biological opinion concluded that the fisheries are not likely to jeopardize the continued existence or adversely modify critical habitat of either stock. Despite the events in 2007, the recent supplemental biological opinion remains in effect and provides the necessary ESA coverage for the ongoing management of the BSAI

groundfish fisheries, including the annual 2008 harvest specifications and associated provisions to reduce salmon bycatch. NMFS characterized the take of UWR and LCR Chinook in the 2007 biological opinion as quite limited.

NMFS indicated in the Incidental Take Statement that it would assess the BSAI groundfish fisheries based on the range of recent observations of bycatch and coded wire tag recoveries of the listed species. Because of the high number of Chinook salmon taken in the BSAI groundfish fisheries in 2007, we are currently consulting with NMFS Northwest Region. The bycatch of Chinook salmon in the 2007 BSAI groundfish fisheries was approximately 130,000 fish. The high bycatch occurred despite new management actions taken to address the problem. However, no coded-wire tags from the ESA-listed salmon stocks have been recovered from the samples analyzed to date. Further analysis of coded-wire tags collected during the 2007 BSAI groundfish fisheries is ongoing and will be reported in late 2008 consistent with the Terms and Conditions of the Incidental Take Statement.

We are working within applicable law and agreements to find ways to reduce and address increasing concerns about salmon bycatch. We appreciate your concerns and perspectives and hope you and other stakeholders will continue to participate in the assessment of alternative bycatch reduction measures. We believe that deliberative and informed development of alternative measures within the Council and NEPA processes provides the best approach for addressing this issue, and we look forward to your involvement.

Sincerely,

Dr. James W. Balsiger
Administrator, Alaska Region

United States Department of State

Bureau of Oceans and International
Environmental and Scientific Affairs

Washington, D.C. 20520

AGENDA D-1(a)
Supplemental
FEBRUARY 2008

FEB 2008

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

Dear Chairman Olson:

On behalf of the Department of State, I would like to make the North Pacific Fishery Management Council aware of concerns we have received from the Government of Canada, as well as from the bilateral Yukon River Panel established to implement the U.S.-Canada Yukon River Agreement, regarding the by-catch of Yukon River Chinook salmon in the Bering Sea – Aleutian Island (BSAI) groundfish fishery.

The Yukon River Agreement provides for the conservation and sharing of Yukon River Chinook and chum salmon. For Chinook, the Agreement sets an annual escapement objective of 33,000-43,000 fish. In addition, Article 12 of the Agreement provides that:

> The Parties shall maintain efforts to increase the in-river run of Yukon River origin salmon by reducing marine catches and by-catches of Yukon River salmon. They shall further identify, quantify and undertake efforts to reduce these catches and by-catches.

The Chinook escapement objective was not met this past year. Canada had to forego any sport and commercial fisheries for Yukon River Chinook salmon. Not all U.S. subsistence and Canadian aboriginal fishermen were able to obtain their harvest goals.

The Department is aware that, although there is uncertainty in the science regarding the origin of the salmon by-catch in the BSAI groundfish fishery, the one study[1] that does exist suggests that a significant percentage of the salmon by-catch in that fishery are of Yukon River origin.

As the North Pacific Fishery Management Council considers refining the December 2007 motion to address the problem of salmon by-catch in the BSAI pollock fishery at its upcoming February meeting, the Department requests that the Council take into account provisions of the Yukon River Agreement and the desirability of meeting the spawning escapement objectives set forth in that Agreement.

We understand that a reasonable range of alternatives must be considered for analysis pursuant to the National Environmental Policy Act. We are nevertheless concerned that the high end of the range of alternatives proposed in December – the increase of 10%, 20%, and 30% that would be added to both the single highest year on record (2006) and the average of three highest years on record (2003-2006) – would, if adopted, be unlikely to help achieve the spawning escapement objectives of the Yukon River Agreement.

Sincerely,

David Balton

David A. Balton
Deputy Assistant Secretary for
Oceans and Fisheries

[1] Myers, K.W., R.V. Walker, J.L. Armstrong, and N.D. Davis. 2003. Estimates of by-catch of the Yukon River Chinook salmon in U.S. groundfish fisheries in the eastern Bering Sea, 1997-1999. Final Report to the Yukon River Drainage Fisheries Association, Contr. No. 04-001. SAFS-UW-0312, School of Aquatic Fishery Sciences, University of Washington, Seattle. 59pp.

United States Department of State

Bureau of Oceans and International
Environmental and Scientific Affairs

Washington, D.C. 20520

FEB 1 2008

Mr. Jim Ayers
Vice President
Oceana
175 South Franklin Street, Suite 418
Juneau, Alaska 99801

Dear Mr. Ayers,

Thank you for your letter of January 17, 2008 regarding salmon by-catch in the Bering Sea / Aleutian Island (BSAI) ground fishery, and for your participation in the bi-lateral process to restore and enhance runs of Yukon River salmon. The State Department is one of three Federal Agencies who sit on the NPFMC as a non-voting member. As such, we have been monitoring NPFMC efforts to reduce salmon by-catch in the BSAI Pollock fishery for potential impacts to U.S. obligations under the Yukon River Agreement. We have sent the enclosed letter requesting that the Council consider U.S. treaty obligations as it continues to develop a plan for reducing salmon by-catch in the BSAI Pollock fishery. Thank you again for your correspondence and participation in this important issue.

Sincerely,

David Balton

David A. Balton
Deputy Assistant Secretary for
Oceans and Fisheries

Enclosure: a/s

D-1 (a)
Supplemental

Eastern Interior Alaska Subsistence Regional Advisory Council

c/o Office of Subsistence Management
101 12th Avenue, Room 110
Fairbanks, Alaska 99701
Phone: 1-(907)-456-0277 or 1-800-267-3997
Fax: 1-(907)-456-0208
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January 25, 2008

Sue Salveson, Assistant Regional Administrator
Sustainable Fisheries Division, Alaska Region
National Marine Fisheries Service
P.O. Box 21668
Juneau, Alaska 99802

Dear Ms. Salveson:

I am the current chair of the Eastern Interior Alaska Subsistence Regional Advisory Council (Regional Council), which has monitored the salmon bycatch of the Bering Sea/Aleutian Islands (BSAI) pollock fishery. Our Regional Council has a keen interest in sustainable management for returning salmon to the Yukon River. The thirteen villages the Regional Council represents on the Yukon or Tanana rivers heavily depend on subsistence caught salmon for personal consumption and our livelihoods. Every community within the Eastern Interior Region, through sharing or trading, utilizes returning salmon as a significant part of their subsistence diet. The dramatic rise in salmon bycatch with the BSAI pollock fisheries cannot continue to threaten the future sustainability of the Yukon River salmon stocks, as well as the continuation of a subsistence way of life in Interior Alaska.

The Salmon Savings Areas and Voluntary Rolling Hot Spot (VRHS) systems, developed to reduce the bycatch, have failed, resulting in dramatic increases in salmon bycatch. Bycatch data in the Notice of Intent to prepare an Environmental Impact Statement (EIS) on the salmon bycatch measures for the BSAI (Federal Register Notice of December 26, 2007) clearly shows a dramatic increase from a bycatch 55,000 Chinook salmon to over 130,000 in 2007. This trend cannot be allowed to continue. Studies in the 1990s showed that over 56 percent of the Chinook salmon bycatch in the BSAI pollock fishery are of Western Alaskan origin, with approximately 40 percent of those Yukon River stocks (Kate Myers, et. al, *Estimates of the Bycatch of Yukon River Chinook Salmon in U.S. Groundfish Fisheries in the Eastern Bering Sea, 1997-1999* (March 2004)). Applying this study to the 2007 bycatch numbers, over 29,000 Yukon River-bound Chinook salmon were taken as bycatch in the BSAI pollock fishery. This amount equates to 58 percent of the 2007 in-river subsistence catch and 64 percent of the Canadian border passage goal. In 2007, only 24,000 Chinook salmon crossed the Canadian border. This number

falls far short of the border passage goal of 45,500 Chinook salmon necessary to meet the Canadian spawning escapement goal and harvest allocation as part of U.S./Canada Yukon River Salmon Treaty Agreement which was signed in 2002 and agreed upon by the United States and Canada through the Yukon River Panel (Alaska Department of Fish and Game, 2007 Preliminary Yukon River Summer Season Summary).

The NOI open period for comments ends on February 15, 2008 which is before the Regional Council's public meeting in March 2008. This unfortunate timing prevents the Regional Council from officially taking action on the status of the bycatch. However, during past meetings the Regional Council has been unanimous in its efforts to have the bycatch of salmon reduced. This was also reaffirmed in the Regional Council's requests in our November 29, 2007 letter to the North Pacific Fishery Management Council (NPFMC) and to the National Oceanic and Atmospheric Administration (NOAA) requesting a reduction in the exponential increase in salmon bycatch.

Harvesting salmon is a major part of the subsistence way of life in Interior Alaska where over 50 percent of subsistence needs are based on fish, especially salmon. With the increasing high cost of fuel and fluctuations with fish and wildlife populations, wasting nearly 30,000 Yukon River Chinook salmon is reprehensible and unacceptable to subsistence users across Interior Alaska. Salmon runs on the Yukon River, and in Western Alaska in general, have been below average and the size of those returning Chinook salmon has been decreasing. This results in subsistence fishers fishing longer and burning more expensive fuel. The fish wasted in the bycatch makes every returning fish more important for the future sustainability of the runs and for the continuation of our subsistence way of life. The Regional Council has made a concerted effort for several years with the regulatory processes of the Federal Subsistence Board and the Alaska Board of Fisheries to take in-river conservation measures. To date, we have not been successful, partially due to fishers being reluctant to consider regulatory gear changes when they see 29,000 Yukon River-bound Chinook salmon wasted as bycatch in the BSAI pollock fishery.

Subsistence uses must be considered a critical review issue throughout the salmon bycatch EIS process. The EIS must also consider and address the impacts excessive salmon bycatch has on the sustainability of the Yukon River salmon stocks, and the composition and genetic diversity of those stocks. Yukon River drainage-wide in-river uses of those returning salmon impacted by the BSAI pollock fisheries, especially subsistence uses, must be given high consideration when reviewing management options. The future of human and wildlife uses of those returning fish critically depend on strong returns of healthy salmon. These are important issues for the people we serve as the Eastern Interior Alaska Subsistence Regional Advisory Council and for all the families who are living a subsistence way of life.

The steep increase in salmon bycatch must stop. In the Regional Council's November 29, 2007 letter to the NPFMC and NOAA, our Council requested the following:

1. The North Pacific Fishery Management Council (NPFMC) to move the Amendment 84B package forward immediately and implement a Chinook salmon bycatch hard cap of 20,000 fish. This hard cap is necessary because of the below average in-river returns of Chinook salmon that critically impact subsistence and other uses of those returning

salmon, and because of the Yukon River Salmon Agreement, which states that "The Parties shall maintain efforts to increase the in-river run of Yukon River origin salmon by reducing marine catches and bycatches of Yukon River salmon."

2. The Council be informed in a timely manner and involved in the environmental impact statement component of implementing a salmon bycatch methodology.
3. Information on the percentage of the salmon by-catch that goes to food banks and which area food banks receive these fish.
4. Information on what emergency regulatory authority the NPFMC has and how it is implemented.

The Regional Council represents all residents of the Eastern Interior Region which includes 30 rural communities and the Fairbanks North Star Borough. The Regional Council is authorized by the Alaska National Interest Lands Conservation Act and chartered under the Federal Advisory Committee Act. ANILCA in Section 805 and the Regional Council's charter recognize the Regional Council's authority to "initiate, review and evaluate proposals for regulations, policies, management plans, and other matters related to subsistence uses of fish and wildlife on public lands within the region" and to "provide a forum for the expression of opinions and recommendations ... (on) any matter related to the subsistence uses of fish and wildlife on public lands within the region."

Thank you for the opportunity to present the Regional Council's position on this matter. I would appreciate being kept informed through our council coordinator, Vince Mathews (contact information in letterhead). I can be reached directly at 1-907-883-2833.

Sincerely,

Sue Entsminger

Sue Entsminger, Chair

cc: Eric Olson, Chair, North Pacific Fishery Management Council
Michael R. Feagle, Chair, Federal Subsistence Board
Peter J. Probasco, Assistant Regional Director, Office of Subsistence Management
Rod Campbell, Fisheries Liaison, OSM
Steve Klein, Chief, Fisheries Division, OSM
Lenny Corin, Fisheries & Ecological Service, Fish and Wildlife Service
Ann Wilkinson, Chief, Council Coordination Division, OSM
Jill Klein, Executive Director, Yukon River Drainage Fisheries Association
David Bedford, Deputy Commissioner of Fisheries, ADF&G
Jack Reakoff, Chair, Western Interior Alaska Subsistence Regional Advisory Council
Lester Wilde, Chair, Yukon-Kuskokwim Delta Subsistence Regional Advisory Council
Eastern Interior Alaska Subsistence Regional Advisory Council members

Tradable salmon quota and other market-based mechanisms to reduce salmon bycatch

Alan Haynie, PhD
Economist, Alaska Fisheries Science Center
Alan.Haynie@noaa.gov

NPFMC Meetings, February 2008, Seattle

Key Messages

- A hard cap *without* some type of salmon bycatch quota has the potential to create a new "race for fish" and could erode benefits of rationalization.
- Individual Bycatch Accountability (IBA) mechanisms (quotas or fees) make actors bear the cost of their own bycatch. (Note: quota could be allocated at the coop level.)
- A salmon "fee" could be imposed without a hard cap, making fishermen bear the costs of bycatch (and receive the benefits of avoidance). – *Legal issues exist about whether this is possible for the Council to implement.*

Why consider an IBA measure?

- Bycatch is an *externality*
  - Costs and benefits of finding pollock are born by the individual vessel
  - "Costs" of bycatch are external to the fishing location choice and the costs are paid collectively
  - Costs of bycatch avoidance are inconsistent and inefficient – fishermen don't know what other fishermen are doing to avoid salmon and are not rewarded for "good" behavior
- Tradable salmon quota or a fee on each salmon will 'internalize' the externality and force fishermen to consider bycatch costs when choosing where to fish.

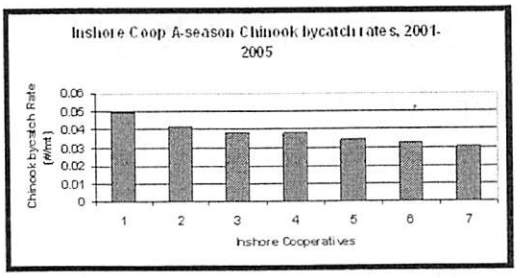
IBAs Allow Flexibility in Bycatch Avoidance

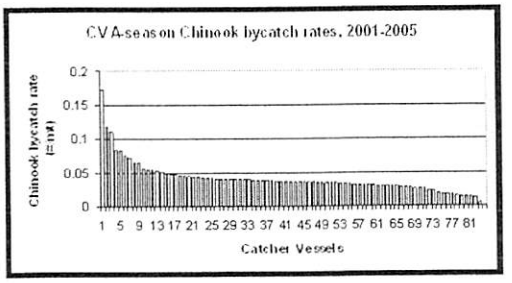
- IBA measures are market-based tools to reduce bycatch– they allow fishermen to make choices about whether bycatch costs/risks are worth fishing in an area.
  - Incentives apply to everyone, always
- Whether operated by the managers or industry, an IBA system places clear incentives on fishermen to avoid bycatch.

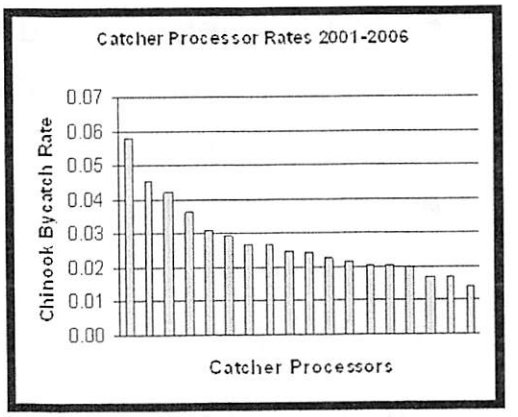
When are the potential gains from a trading system the largest?

- When there is considerable variation of costs, economic values, or opportunities among participants
- In our case, the value of bycatch is very different for different vessels and cooperatives

Different Chinook Bycatch Rates Among Pollock Vessels and Coops







Alternative Individual Bycatch Accountability mechanisms

- Salmon bycatch quota system
  - Only meaningful/effective under a hard cap system
- Salmon fee system (*likely must be operated by industry because of legal concerns*)
  - Possible without hard cap
  - Fee charged for every salmon caught (challenge: setting the "right" fee to achieve a desired level of bycatch reduction)
  - Money could be returned to the pollock fleet or spent on increased research or monitoring
- "Hybrid" salmon quota/fee system
  - Tradable quota granted up to a certain level
  - Fee above that level (*if legally acceptable*)
  - Possible without a rigid hard cap

Challenges to a tradable salmon bycatch system

- Seasonal variation in bycatch can be large
  - Implication: Difficult for fishermen to predict how much they catch and avoid bycatch during in the season
  - Partial solution: Include flexibility mechanisms (discussed later)
- Initial bycatch quota allocation
- Monitoring

How do we add flexibility to a tradable salmon bycatch quota system?

- Council would choose a "quota cap"
- Council or Inter-coop could decide on allocation of quota and allocate it to coops or vessels
- Trades allowed among coops
- 10% of quota could be allowed to be "carried over" from one year to another (as in New Zealand and British Columbia, or sablefish/halibut)

- To create a "hybrid" quota/fee system: an increasing fee schedule could set by the Council above the quota limit.
  - For example, for a vessel's share of the 5,000 Chinook above the cap, pollock vessels might pay 125% of the market value.
  - This percentage would increase with increased catch. If desired, this price can increase steeply to effectively create a more rigid hard cap.
  - Similar to the New Zealand deemed value system.

Significant Costs of Status Quo

- Bycatch avoidance and self-management costs for pollock fishery
- High salmon bycatch
- Council efforts and opportunity costs
- Uncertainty for industry on the issue

In other words, IBA is not necessarily more expensive for industry (depends on the level of a fee or hard cap, of course)

Should an individual bycatch accountability system be implemented by Industry or the Council?

- Inter-coop could potentially manage a trade/fee system.
- A hybrid system with flexibility on the actual number of salmon caught might need Council involvement (*legal issues exist here*).
- There is a significant value of knowing the quota trade price – this essentially lets us know the value of salmon bycatch to the pollock fishery, which will be very useful for future policy decisions.

Initial salmon quota allocation options

- Option 1: Allocate based on AFA pollock split to sectors/coops
  - Result: Much bigger cost of policy change for inshore fleet
- Option 2: Allocate based on historical bycatch by Sector
  - Result: Assumes that inshore and offshore vessels have been making comparable efforts to avoid bycatch and have fundamentally different bycatch avoidance costs and opportunities.
- Additional Option: Allocate to sectors as in Option 2, but allocate within sectors based on pollock quota.
  - Result: Assumes differences between sectors, but does not reward "bad" behavior within sectors. Bycatch avoidance will be more expensive for some vessels than others because of differences in vessels, where they land fish, and personal experience.
- Council could invite consensus proposal for quota allocation.

Summary: Four Policy Options

- No Hard cap, no IBA
  - Status quo
- No hard cap, with IBA
  - Salmon fee (*perhaps managed by industry)*
- Hard cap, No IBA
  - Possible new 'race for fish'
  - We should avoid this outcome!
- Hard cap with IBA
  - Tradable salmon quota or hybrid system

Other Considerations

- Observer challenges– more analysis should be done to evaluate trade-offs of different accounting system for unobserved vessels (e.g., spatially refined bycatch estimates)

- Market design is a well-developed branch of economics and can address many of the problems of designing a quota market.

Recommendations for Analysis

- Council should analyze a suite of flexible Individual Bycatch Accountability mechanisms
  - Hard cap with tradable salmon quota system (and potential carry-over mechanism)
  - "Flexible" hard cap with hybrid quota/fee system
  - No hard cap, combined with salmon fee
    - *Legal issues may make this only possible as an industry-operated system.*
    - Fee could be spent on research or rebated based on pollock catch

- To avoid a race for fish, ensure that salmon quota are allocated to coops and allowed to be traded in some manner if a hard cap is implemented.

Stephen Taufen
D-1

Bycatch 'Wedges' In Policy Debate

Transitional Possibilities to Abate Human Effects on Ecosystems & Promote Sustainability in North Pacific Fisheries – Alaska

GOA GROUNDFISH PSC/ BYCATCH REDUCTION

Table 2.1. - *(source: PFMC)*
Bycatch Mitigation Toolbox

Harvest Levels
- ABC/OY (Optimum Yield)
- Trip Landing Limits
- Catch Limits
- Individual Quotas
- **Sector Allocations – if Economically Efficient to CONSUMERS**

Discard Caps (limits & prohibitions)

Gear Restrictions:
Trawl Mesh size
- Footrope diameter/length
- Net Height
- Codend mesh & dimensions
- Design: on-bottom or pelagic
- Bycatch reduction devices (BRDs)

Line Number of hooks
- Hook sizes
- Line length
- Retrieval requirements

Pot/Trap Number of pots
- Pot size
- Escape panel in net/pots
- Retrieval requirements

Other Setnets (gill and trummel nets)

Time/Area Restrictions
- Seasons
- Area Closures
- **Depth Closures**
- Marine Reserves

Capacity (number of participants)
- Permits/licenses/endorsements
- Limited entry

Capacity (Vessel Restrictions)
- Vessel size
- Engine Power
- Vessel Type

Monitoring/Reporting Requirements
- Permits/licenses
- Registrations
- Fish Tickets (commercial landings/ sales receipts)
- Vessel Logbooks
- **Surveys – incl. new Specified to evaluate measures of Tools**
- Punch cards/tags (recreational)
- Port sampling/on-shore observers
- **On-board observers**
- Vessel monitoring systems (VMS)
- **Onboard video recording devices**
- Enforcement – NOAA OLE+

LAPPs Not Adequate

TOTAL w/ TAKINGS LEVEL...

We can design and articulate bycatch reduction strategies using existing tools. Some of the most likely are trip and landing limits, trawl net design, BRDs, area and depth closures. These make up the "wedges" that can lead to reduction of PSC to acceptable levels...

WE JUST HAVE TO OPEN UP THE EXISTING TOOLBOX's DRAWERS & Make PRACTICABLE changes...

Yet an inescapable fact remains that the first and most effective measure is: to stop targeting of secondary species, especially when primary catch has already been attained... **Political roadblock to opening the drawers of best science tools.**

'Secondary Species' Political Targeting = unacceptable
Can resolve by correcting legislation & Avoid by implementing GAO recommendations

Incidental Bycatch – acceptable (When practicable)

Sustainable Harvest Levels
(w/ Goal of 100% retention)

Primary/Target Species GHL Acceptable Harvest level...

NPFMC: We need the SSC and AP to determine the possible wedges/drawers & their practicable magnitudes = capable of reducing overall bycatch..., and getting rid of the secondary species target profiteering on PSC...

From Groundswell Fisheries Movement

BYCATCH MITIGATION

NS-9 Bycatch

Conservation and Management measures shall, to the extent practicable,
1) minimize bycatch; and
2) minimize mortality (when bycatch cannot be avoided)

Priority is First to AVOID BYCATCH,
Second, return to the sea alive

Precautionary Approach

The councils should adhere to the Precautionary approach and UN Code of Conduct for Responsible Fisheries (Art. 6.5)

Within framework of Article 15, UNCED Rio Declaration... & **THE APPLICATION OF PRUDENT FORESIGHT**

Title 50 Wildlife & Fisheries, Sec. 600.350

Any proposed conservation and management measure that does NOT give priority to avoiding the capture of bycatch species must be supported by the **APPROPRIATE ANALYSIS.**

In their evaluation, the Councils **MUST consider the net benefits to the Nation,** which include, but are not limited to:
[1] Negative impacts on affected stocks;
[2] Incomes accruing to participants in directed fisheries, both in the short and long term;
[3] Incomes accruing to participants in fisheries that target the bycatch species, etc.

The Precautionary Approach & Burden of Proof:

Recognizes that changes in fisheries systems are only slowly reversible, difficult to control, not well understood, and subject to changing environment and human values.

Takes into account the uncertainties in fisheries systems and the need to take action with incomplete knowledge, it requires, *inter alia*:

Exercises **PRUDENT FORESIGHT** ...

A) consideration of future generations +
B) prior identification of undesirable outcomes and of measure that will avoid them or correct them promptly
– (risk = 'expected loss')
C) that any necessary corrective measures are initiated without delay,
... H) appropriate placement of the burden of proof by adhering to the requirements above.

The Councils **MUST select measures that,**
To the extent practicable, WILL minimize Bycatch and bycatch Mortality:

Should consider the following factors:
[E] changes in fishing, processing, disposal and marketing costs;

[F] changes in fishing practices and Behavior of fishermen;

[H] changes in the economic, social, or cultural value of fishing activities and non-consumptive uses of fisheries resources,

[I] Changes in the distribution of Benefits and Costs

To establish legal or social management frameworks – rules controlling access to fisheries, data reporting requirements, etc. And adopt interim measures that safeguard the resources until such plan are adopted.

Links fisheries management intimately with general environmental management.

From Groundswell Fisheries Movement

BYCATCH MITIGATION TOOLBOX

A means of utilizing **Best Science** (Life-Giving) before Allocations ('Takings').
Let's open up its drawers (wedges), and use existing tools, measure their effects/ improvements – before resorting to legislative end-runs (Politics)

Gear Restrictions & Reduction = **Transitional Wedges:**

For chosen tools...
1) BRDs – bycatch reduction devices
2) Design – disallow on-Bottom trawl
Etc.

Define level(s) of measurement:
Per Haul
Per Day/Trip
Per Season

IF POLITICAL:
Best Science = $11,000
Plus Secondary = $18,800
Lobbyist-Valued Takings

Totals $29,800

1,000 lbs. BLACK COD
$3,800 in Takings

3,000 lbs. HALIBUT
$15,000 in Takings

Prudent Foresight...

Opens existing Toolbox Drawers... one or many at a time...

Cutters: No on-bottom trawling...

Fasteners: BRDs (reduction devices)

Measures capable of Scientific Management (non-biased)

DATA QUALITY ACT:
Is AGDB's Data Valid?
Need OMB 3d Party Verification

Wrecking Ball,
Not a Mgmt. Tool

Politically defined, biased measure
Draggers' Special Interest Legislation
"Secondary Species"
Formerly a part of **Prohibited Species Catch** (PSC)... that NOAA GC was side-deal managing (splitting up behind closed doors) with 'industry'

Eliminate/reverse Ted Stevens' Senate Rider On "secondary species" No longer termed Bycatch

OBSERVERS + MONITORING

INCIDENTAL BYCATCH

Total Allowable Catch
Caught by Draggers

Target Species:
... e.g. > Pollock

& Minimal/Acceptable Incidental Bycatch

IF ONLY BEST SCIENCE:
100,000 lbs. POLLOCK
$9,500
+ Incidental $1,500

Totals only $11,000
VS. Fuel etc. = RELATIVELY ECONOMIC INEFFICIENT

1. The sector WRONGLY CAPITALIZED may only be the Draggers
After all, they want to OWN IT then soon may become Pot boats...
2. The Improvements ensure that Halibut & other fisheries attain their OY.

3. Stopping ATP could restore Best Science Value to $30,000+ ! As NRC Research on US Ports vs. Japan shows over 3 times less in US...

. . . NPFMC . . .
. . . Shredded . . .
. .. . .The Truth!

From Groundswell Fisheries Movement

Only if resources go to the highest-value uses will we have ECONOMIC EFFICIENCY

Voluntary / FREEDOM

Making the Most out of the Limited Resources we have...

Limited Bundle Of Fishery Resources

TAC

USE A
Has a VALUE Of $8.50/lb.
Restaurant Fillet Entre

USE B
Has a VALUE Of $4.00/lb.
Frozen Blocks – Fish Sticks

USE C
Has a VALUE Of $2.00/lb.
Ingredient in Protein Food

USE D
Has a VALUE Of $0.90/lb.
Feedstock for Aquaculture

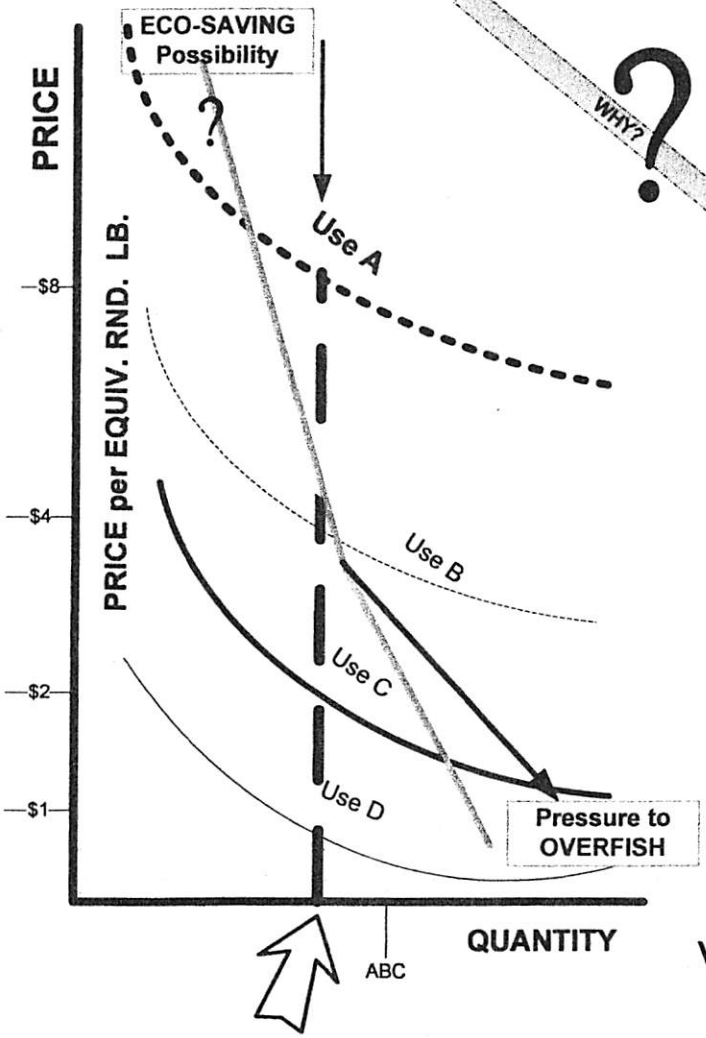
→ More Economically Efficient →

Route to MARKET FAILURE →

← Less Economically Efficient ←

Involuntary PRISONERS

WHY?



TAC ~ A Vertical Supply Curve

OPTIMUM$_e$ YIELD
Maximize Net Nat'l. Benefit

Produce outputs that are worth more **to Consumers** – i.e. have the **HIGHEST VALUE** ...
So that the Economic System Produces as much as it can.

Voluntary Market Interactions generate Socially Efficient Outcomes + maximize Utilities

Evaluative – i.e. the relationship between the value of the ends and means

From Groundswell Fisheries Movement

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Fax: (907)465-2066

YUKON RIVER PANEL
ALASKA • YUKON

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February 5, 2008

Eric Olson, Chair
North Pacific Fishery Management Council
605 West 4th Avenue, Suite 306
Anchorage, Alaska 99501-2252

Dear Chairman Olson:

The Yukon River Panel (Panel) is an international advisory body established under the Yukon River Salmon Agreement that primarily deals with the conservation, management, and harvest sharing of Canadian-origin salmon between the US and Canada. This Agreement is an Annex under the Pacific Salmon Treaty, which means it has the full power and force of a treaty between two nations. This letter is to recommend that in determining salmon bycatch amounts in the Bering Sea Aleutian Island (BSAI) groundfish fisheries, the Council consider the commitments made in the Yukon River Salmon Agreement.

Prompted by the already relatively high bycatch in the 1990s and in 2001, US and Canadian delegates to the Yukon River Salmon negotiations insisted that the US/Canada Yukon River Salmon Agreement, signed in 2002, contain the provision that both US and Canada would maintain efforts to increase the in-river run of Yukon River-origin salmon and undertake efforts to reduce the marine catch and bycatches.[1] However, since the signing of the Agreement, the incidental Chinook salmon harvests in the BSAI groundfish fisheries have been increasing at an alarming rate.

In 2003 and 2004, near-record incidental Chinook salmon harvests have continued as record-setting harvests each year since then—in 2005, 2006, and 2007. The 2007 incidental catches are estimated to be over 130,000 Chinook salmon, which exceeds the previous decade's (1991-1999) record harvest of 63,205 in 1996 by over 100%[2]. The recent, alarming annual increase in this bycatch is a grave concern for both US and Canadian Panel members.

[1] Pacific Salmon Treaty, Annex IV Chapter 8 (12) (Yukon River Salmon Agreement) (2002).
[2] http://fakr.noaa.gov/sustainablefisheries/catchstats.htm, accessed February 2008.

We support responsibly managed, sustainable fisheries and recognize that nearly every fishery has some level of bycatch. However, we believe that any groundfish fisheries management actions aimed at reducing salmon bycatch by altering time, area, methods or a combination these, must be implemented in conjunction with a hard-cap beyond which additional bycatch is prohibited. Large area closures have proven to be inadequate.

If the salmon bycatch cap levels are exceeded, we believe some segment of in-river escapement or harvest is likely to be reduced. Therefore, based on present information, we recommend a hard-cap bycatch of 37,000 Chinook and 70,000 non-Chinook salmon. We believe these bycatch levels would accommodate the national obligation contained in the Treaty.

Based on our experience with the Yukon River salmon fishery, a BSAI bycatch no greater than 37,000 Chinook salmon and 70,000 non-Chinook salmon appears to allow in-river escapement, subsistence harvest, and Canadian border passage goals to be achieved, while also providing for in-river commercial fishing opportunities. We believe this range is appropriate since a broader range does not appear to adequately conserve Yukon salmon stocks and provide for fisheries within the Yukon drainage in the US and Canada.

The United States, as a party to the Yukon River Salmon Agreement, has a treaty obligation to control marine bycatch of Yukon River salmon. Any new approach to limiting salmon bycatch in the Bering Sea should be consistent with the treaty requirement to "*increase the in-river run of Yukon River origin salmon by reducing marine catches and by-catches of Yukon River salmon*" that has existed since the signing of the US/Canada Yukon River Agreement in December 2002. We believe that the proposed caps of 37,000 Chinook and 70,000 non-Chinook caps would be consistent with the Treaty obligation.

In the selection of potential "trigger" or "hard cap" amounts, the Panel recommends the salmon bycatch numbers noted above. Both healthy fish stocks and fisheries are important, wherever they occur. We urge an equitable approach in your consideration of salmon bycatch. We remain committed to improving the in-river returns of Yukon River salmon and urge the Council to take steps now to effectively reduce the number of Yukon River salmon which are caught as bycatch in the Bering Sea groundfish fisheries.

Sincerely,

Elizabeth Andrews

Elizabeth Andrews, PhD
Co-Chair

Frank Quinn
Co-Chair

Hugh J. Monaghan, Executive Secretary
Box 20973, Whitehorse, Yukon Y1A 6P4 Phone (867) 393-1900 Fax (867) 633-8677 E-mail: monaghan@northwestel.net

Report to the North Pacific Fishery Management Council

For the

Bering Sea and Aleutian Islands Management Area (BSAI)
Groundfish Fishery Exempted Fishing Permit #07-02.

Karl Haflinger, Sea State Inc. - Project Manager

John Gruver, AFA Catcher Vessel Intercooperative - Project Manager and Permit Holder

Doug Christenson, Pollock Conservation Cooperative - Permit Holder

This report is to the North Pacific Fishery Management Council and covers the Bering Sea and Aleutian Islands Management Area (BSAI) Groundfish Fishery Exempted Fishing Permit #07-02. During the course of the fishery, the pollock Intercoop closed 13areas to fishing in the 2007 A season and 52 areas during the 2007 B season, based on high bycatch rates for chinook or chum salmon, experienced by vessels working in the area. Maps of the closures are shown in Appendix 1. Under the terms of the EFP, applicants are to submit to the Council a report analyzing:

1. Number of salmon taken by species during the experiment
2. Estimated number of salmon avoided as demonstrated by the movement of fishing effort away from salmon hot-spots.
3. A list of each vessel's number of appearances on the weekly dirty 20 lists for both salmon species
4. A compliance/enforcement report that will include the results of an external audit designed to evaluate the accuracy of the approach used by Sea State to monitor compliance with the agreement, and a report on the effectiveness of enforcement measures stipulated under the ICA in cases of non-compliance. Examination of a randomly selected subset of vessel/days representing 10% of the catch during the experiment will be used as the basis of the audit.

Number of salmon taken by species during the experiment:

The EFP ran for both the entire pollock A and B seasons in 2007. For the sake of comparison we have included catch and bycatch running back to 2000. These data are compiled from plant landing information for catcher vessels delivering to shoreside processors, and observer data for mothership catcher vessels and catcher-processors. The "other salmon" category includes all non-chinook salmon. Observer data for both offshore and shoreside deliveries show that only very small numbers of salmon other than chum in this category (for example, 152 unidentified, 31 pinks, and 5 silvers for the 2006B season EFP).

Table 1. Catch and bycatch of pollock and salmon in the directed pollock fishery by season and for full years, 2000 – 2007.

Year	A pollock	A other salmon	A chinook	B pollock	B other salmon	B chinook	Full year pollock	Full year other salmon	Full year chinook
1991								30,262	48,880
1992								41,450	41,995
1993								243,270	46,014
1994								94,548	43,821
1995								21,875	23,436
1996								78,060	63,205
1997								66,994	50,530
1998								66,612	55,431
1999								46,568	13,521
2000	418,285	235	3,418	631,755	57,228	1,793	1,050,039	57,463	5,210
2001	538,107	1,867	16,464	813,022	50,948	13,663	1,351,130	52,815	30,126
2002	570,464	387	21,989	866,034	83,033	13,309	1,436,498	83,420	35,298
2003	576,868	3,274	30,981	876,784	170,688	13,444	1,453,651	173,963	44,425
2004	579,816	419	22,011	858,799	427,234	29,238	1,438,615	427,653	51,248
2005	573,887	574	26,678	878,618	637,957	41,499	1,452,505	638,531	68,178
2006	579,112	1,210	57,637	874,435	276,779	24,024	1,453,547	277,989	81,661
2007	544,273	8,038	70,845	775,261	82,641	49,020	1,319,534	90,679	119,866

Estimates of salmon bycatch for 1991-1999 are for all groundfish fisheries, including CDQ, and are available on the NOAA Fisheries, Ak Region web site.
(http://www.fakr.noaa.gov/sustainablefisheries/catchstats.htm)
Estimates for 2000 – 2007 (compiled by Sea State, Inc) are for the pollock fishery only and were made using observer data when available and numbers of salmon counted at shore plants and reported on fish tickets for unobserved shoreside vessels.

Evaluation of salmon savings.

The evaluation of the number of salmon saved by the IC program is based on tracking vessels that fished in a closed area before it closed, and then comparing their subsequent bycatch to see if it was lower than expected if the area had not closed. Put more simply, we perform a before-and-after comparison of the bycatch observed and expected from the vessels that triggered the closure. The procedure is as follows:

1. Extract all observer data for haul locations falling inside a closure area, for a 5 day period preceding the closure. For shoreside catcher vessels, aggregate the hauls that have the same "start fishing date" so that hauls with the same bycatch rate are not artificially repeated. As an example, if 2 hauls from the same catcher vessel trip show up in the closed area, they will have the same bycatch rate because observers pro-rate bycatch evenly across all hauls. Consider them a single observation with a value equal to the sum of the two hauls' pollock and salmon.
2. Consider all of independent offshore sector (C/P and mothership) hauls, and combined "trip-level" hauls to be estimates of the bycatch ratio $Ri = \sum yi / \sum xi$, where y are counts of chinook or chum salmon, and x is the pollock catch from individual hauls (offshore sector) or grouped, same-trip hauls (shoreside), and i indicates a separate closure.
3. Extract the same haul or "grouped" haul information, for the same vessels, for the next 5 days. Their associated bycatch is available from either observer or plant delivery information. Compute their expected bycatch had they been able to stay and fish inside the now-closed area, by summing the pollock catch of all vessels in this category, and multiplying this summed pollock catch by the matching bycatch ration, Ri above.
4. Compute the standard error of this estimated Y (overall salmon bycatch if vessels had stayed in the area and fished with bycatch rate R) treating R as a ratio estimator (Snedecor and Cochran, Statistical Methods, 8th Edition, p 452).

The three maps below illustrate this procedure for the chinook closure of 9/22/06. Figure 1 shows the chinook closure that began on 9/22/06, and includes the locations of observed hauls taken in that area during the 5 day period preceding the closure. After the closure, vessels who had been in that closure area (i.e. those whose hauls are shown in Figure 1) either moved a small distance to the southwest, or made large moves to the northwest (Figures 2 and 3). Lower chinook rates were found in all of the new fishing areas.

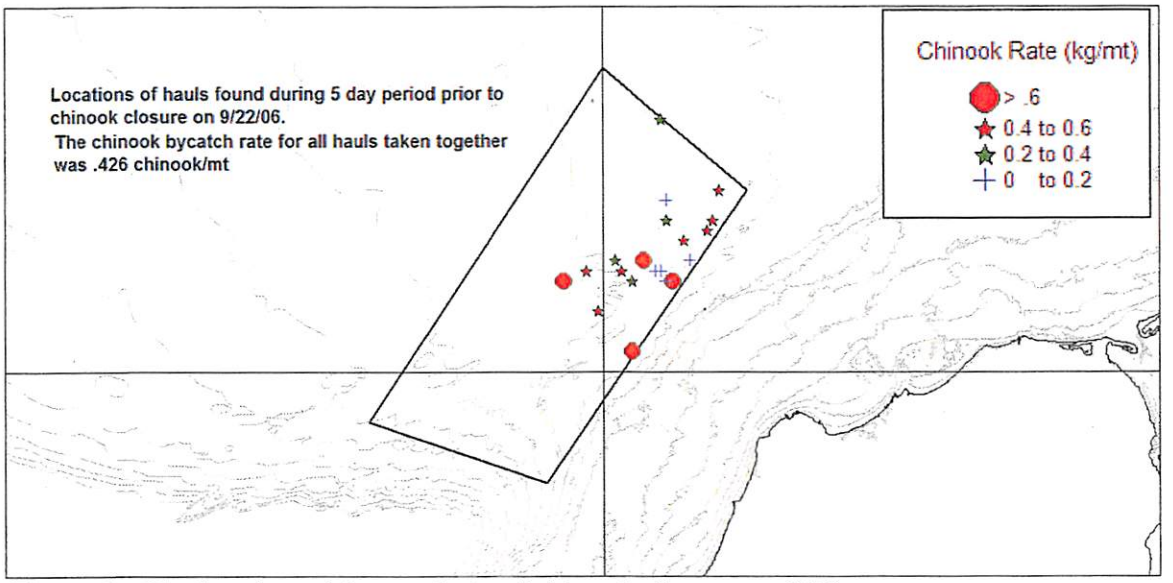


Figure 1. Hauls selected for analysis of chinook closure on 9/22

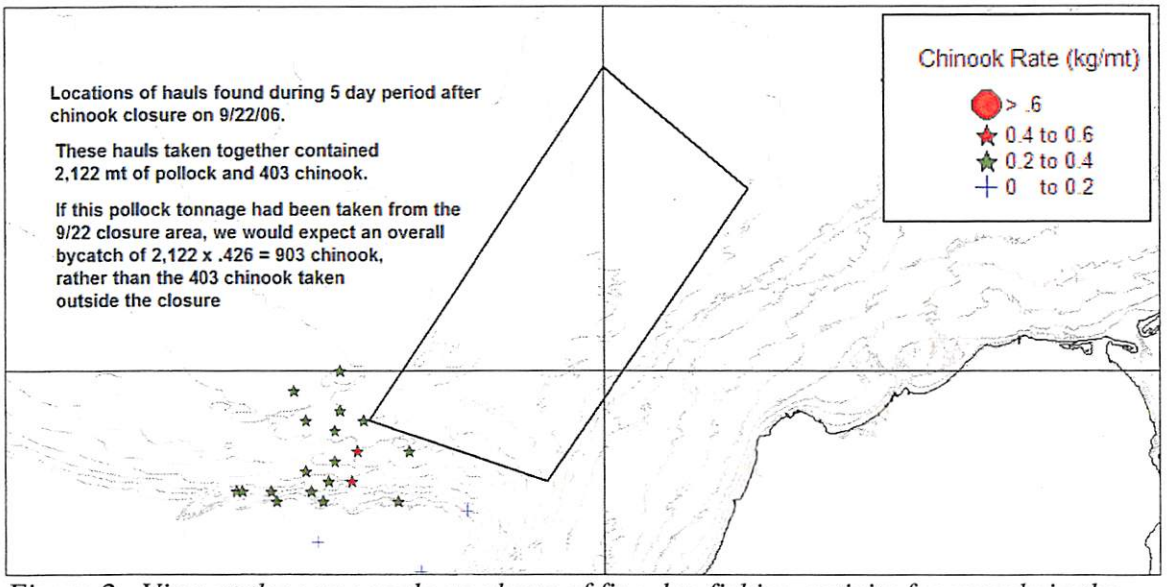


Figure 2. View at the same scale as above of five day fishing activity for vessels in the first map (Fig 2) showing positions that led to a reduction from an expected chinook take of 903 to 403 actual (i.e. counted by observers from the haul positions shown).

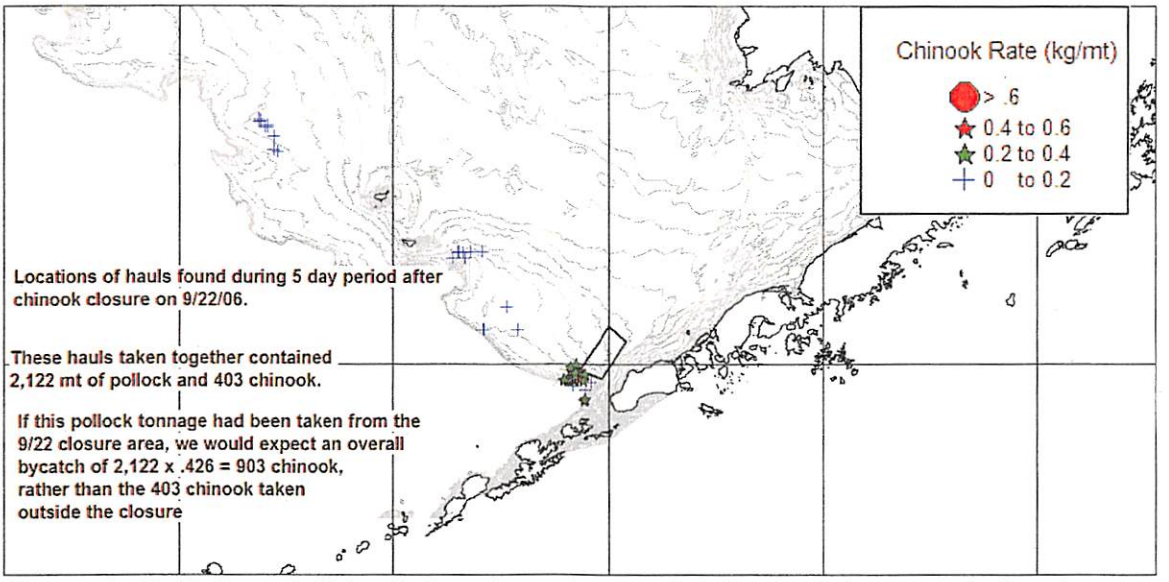


Figure 3. Full view of all hauls from boats in map 1-A for the 5 day period after the start of the 9/22 closure

Avoidance results from the 2007 EFP

The results from these calculations for the 2007 A and B seasons are shown in tables 2a and 2b below. (Charts showing the closures issued for both seasons may be found at the end of this document. Because so many closures were issued, we have not produced a chart for each closure and instead have grouped closures by season and species on three separate charts.) During the A season there were 12 closures. Of these there were 10 closures for which observer data could be found from vessels fishing inside the areas before they closed. (Note that closures may be based on deliveries from catcher vessels that did not carry observers, and thus there could be closures for which there is no observer information prior to the closure). Of these 10, all had post-closure observer information for vessels that fished inside prior to the closure (that is, we had observer information for boats both before and after the closure). Again, shoreside catcher vessels may have had an observer aboard before the closure but then delivered and come back to the grounds without an observer, thus removing the boat from before/after comparisons. Table 2a summarizes of the results for both chinook savings resulting from these closures (Appendix Tables A1a-c show the underlying data, by closure, with associated standard errors). The results indicate that for the approximately 103,000 mt of observed groundfish associated with boats that fished inside areas before they were closed, and that also had observers after closures, 35,500 chinook were avoided. This represents a reduction of 70% from the bycatch of chinook that would have been expected had the vessels continued to fish in those closure areas for another 5 days. Table 2a also shows

observed and expected chum numbers, but since chum bycatch during the A season is such a small part of the overall chum bycatch for the year, these numbers are not particularly significant.

Table 2b shows results obtained in a similar fashion for the B season. 55 closures were put in place during the B season, and of these 40 closures had both pre- and post-closure observer data that allowed for an analysis of reductions. As with the A season, some closures were based on shoreside delivery information and VMS track inspection alone, leaving no pre-closure information for analysis. Post-closure information was not available for 2 periods after the 10/23/07 closure because that closure was continued forward for another week (2 closure periods) on the judgement of Sea State and the IC manager. Rates in that area were judged too high to allow more fishing, and the IC agreement allows us to keep an area closed in the absence of data. However, with no pre-closure information (since the area was already closed, no one could be fishing in it), we cannot judge the effectiveness of continuing that closure. Table 2b indicates that the combination of chinook and chum closures resulted in 182,000 mt of pollock catch that could be tracked. Chinook savings of 14,576 from an expected bycatch of 27,048 (had boats continued to fish in the closed areas) indicates a reduction of 54%. Chum savings of 86,410 from an expected chum take of 101,191 (that would have been taken had vessels continued to fish in the closed areas) indicate a reduction of 85% in expected chum bycatch.

Table 2a. Summary of 2007A Chinook closure effectiveness

	Chinook closures
Pollock catch (after closure)	102,592
Actual chinook bycatch (in moved tows)	15,600
Expected chinook bycatch	51,150
Chinook savings	35,550
% reduction	70%

Table 2b. Summary of 2007B chinook and chum closure effectiveness

	Chinook closures	Chum closures	All closures
Pollock catch (after closure)	74,465	107,646	182,111
Actual chinook bycatch (in moved tows)	10,879	1593	12,472
Expected chinook bycatch	23,448	3600	27,048
Chinook savings	12,569	2,007	14,576
% reduction	54%	56%	54%
Actual chum bycatch	20,317	16,926	37,243
Expected chum bycatch	30,757	92,896	123,653
Chum savings	10,440	75,970	86,410
% reduction	34%	82%	70%

Table 3 summarizes these documented savings for both the 2006 and 2007 EFP. We term these "documented" because they are based on a direct before-and-after comparison of the performance of vessels that triggered the closures. However, the portion of the entire pollock harvest affected by closures by not documented should not be underestimated. There are other boats whose activities are affected by closures but that do not fall into this analysis. These include vessels without observers and vessels that avoided the closure areas entirely and chose instead, in the B seasons, to fish to the northwest, where salmon are rarely encountered. For shoreside catcher vessels in particular, the uncertainty over whether or not the grounds they are fishing will be closed is significant. These catcher vessels often have only two days time in which to fill their vessels and if in the middle of a trip their grounds are taken away by a salmon closure, they may eventually be forced to return to shore with only a partial load. We cannot quantify the weight of this factor in captain's decision to fish away from the closure areas, but have had the concern reported to us and note that it is another avenue in which salmon closures reduce bycatch, but one that cannot be analyzed with the methods at hand.

Table 3. Documented savings summary for 2006 and 2007 EFP

	2006B	2007A	2007 B
Pollock harvest moved from closures	41,691	102,592	182,111
% of pollock harvest affected	8%	19%	23%
Chinook savings	1,537	35,550	14,576
% reduction	20%	70%	54%
Chum savings	15,419		86,410
% reduction	67%		70%

Compliance/ Enforcement

The table below shows the status of all violations forwarded to coops by Sea State during the 2006 and 2007 EFP periods. Note that at the time of preparation of the final report for the 2006B season EFP coops had not completed their final determination on violations forwarded to them; thus, the final disposition of those violations is reported here. There were twelve potential violations noted in 2006. Of those, coops determined that seven were actually not violations as vessels had been using the closed areas for turning with the trawl doors up. These determinations were based on logbook notations and vessel speeds calculated from VMS data. It was clear that there existed different interpretations of the term "fishing" as used in the Intercoop agreement, with some operators thinking that a vessel could not be considered to be fishing if trawl doors were up. This ambiguity in the term was addressed in the new Intercoop agreement, which makes it clear that vessels may not haul their doors up and then use the closure area to turn the vessel, and after turning set out again without bringing the catch onboard.

Potential violations for the 2007 EFP were less controversial. All six potential violations forwarded to coops in 2007 were determined to be true violations.

Resolution of potential violation notices send to coops for the 2006B and 2007 A and B EFP fisheries.

Coop	Violation Date	Vessel	Number of Possible Violations	Notification Date	Response Date	Finding	Assessment
Westward	10/14/06	Caitlin Ann	1	12/4/06	1/9/07	Violation	$10,000
Akutan	10/20/06	Golden Dawn	1	12/4/06	2/5/07	Violation	$10,000
Akutan	9/30/06	Royal American	1	12/4/06	2/5/07	Violation	$10,000
Akutan	10/3/06	Bristol Explorer	1	12/4/06	2/5/07	No	$0
Akutan	10/8/06	Bristol Explorer	1	12/4/06	2/5/07	Violation	$10,000
Akutan	10/21/06	Bristol Explorer	1	12/4/06	2/5/07	No	$0
Akutan	10/18/06	Arctic Explorer	1	12/4/06	2/5/07	Violation	$10,000
Akutan	10/20/06	Arctic Explorer	1	12/4/06	2/5/07	No	$0
Akutan	10/17/06	Northern Patriot	1	12/4/06	2/5/07	No	$0
Akutan	10/18/06	Pacific Viking	1	12/4/06	2/5/07	No	$0
Akutan	10/21/06	Pacific Viking	1	12/4/06	2/5/07	No	$0
Akutan	10/20/06	Columbia	1	12/4/06	2/5/07	No	$0
Akutan	1/31/07	Hazel Lorraine	1	4/11/07	5/25/07	Violation	$10,000
PCC	2/16/07	Northern Hawk	2	3/19/07	5/15/07	Violation(2)	$25,000
Arctic	10/8/07	Ocean Explorer	1	11/7/07	1/4/08	Violation	$10,000
Westward	9/11/07	Pacific Prince	1	10/12/07	11/15/07	Violation	$10,000
UniSea	9/11/07	Nordic Star	1	10/12/07	11/5/07	Violation	$10,000

An audit of Sea State compliance monitoring was again performed by ABR Inc of Fairbanks, Alaska. ABR performed an independent review of 10% of the coop fishing records and associated VMS information, and agreed with all of Sea State's findings for violations. ABR has also provided some very useful approaches on filtering out non-fishing operations from VMS data, and has also provided suggestions on the uses of logbook information in this process. Their report will accompany this report at the February meeting of the NPFMC.

Comments on the 2007 A and B seasons and changes to the IC closure system for 2008

Finally, Figures 4a,b and 5a,b show chinook bycatch rates for various pollock fishing areas, and contrast the 2006 and 2007 seasons (both A and B season). In Figure 5, data has been limited to October, which is when most chinook were encountered. Comparing years shows elevated chinook rates in 2007 relative to 2006 in areas near the horseshoe. Rates around the Pribilofs did not change markedly between 2006 and 2007, while rates north of the Pribilof, while still low, increased by an order of magnitude in the B season (from .013 to .12 salmon/mt). The net result is the increase in the chinook bycatch rate shown in Table 4. Shoreside and offshore sectors are shown separately only because our offshore records go back further. Both sectors have shown a similar increase in chinook bycatch rates, especially in the A season.

Table 4. Shoreside and offshore chinook rates based on data compiled by Sea State. Sea State shoreside recording began in 2000.

Year	Shoreside A	Offshore A	Shoreside B	Offshore B
1996		0.057		0.021
1997		0.014		0.027
1998		0.042		0.032
1999		0.015		0.010
2000	0.006	0.011	0.010	0.003
2001	0.037	0.034	0.010	0.024
2002	0.039	0.036	0.026	0.007
2003	0.035	0.054	0.023	0.012
2004	0.047	0.036	0.064	0.013
2005	0.062	0.043	0.102	0.011
2006	0.147	0.071	0.063	0.004
2007	0.153	0.113	0.147	0.024

The pollock fishery encountered record levels of chinook bycatch during the 2007 seasons. CPUE's on chinook salmon, measured simply as the number of salmon caught per hour of fishing, summed across all vessels, rose dramatically in 2006 and continued to stay at high levels throughout 2007 (Figures 6a,b and 7a,b). Slight declines in salmon CPUE were seen in the shoreside CV data, but offshore sectors saw increased salmon CPUEs. Also, any lowering in the shoreside CPUEs were cancelled by a greater decrease in pollock CPUE, leading to bycatch rates higher than any seen since the mid-1990s.

The situation with chum salmon was much different, with obviously lower levels of chum on the grounds and total bycatch for the season falling to the lowest level in five years.

Chinook bycatch in the A season contained unusually high numbers of small salmon (see figures 8a,b below). Chinook bycatch in the B season appeared to have fewer small salmon although the separate modes that appeared in the 2007A length frequencies are not so pronounced in the 2007B bycatch. These high levels of bycatch of small fish

mean that we will not understand the correlation between bycatch of chinook in the Bering Sea and return to Western Alaskan drainages for several years. It may be that high bycatch levels presage very high returns, or it may alternatively mean that the distribution of chinook throughout the North Pacific and Bering Sea has somehow changed so that more of the run is vulnerable to being taken as bycatch. Regardless, it was clear to the Intercoop that our current system of closures was insufficient to meet these very high, and unanticipated, levels of salmon abundance on the pollock grounds. The Intercoop has thus taken the following steps to make the program more effective in 20008:

- **The base rate for chinook in the A season will float after February 14th.** It is currently adjusted on February 14th, but if bycatch levels are declining the result will be that no areas are found above the threshold for closure. Although the IC did in fact issue salmon advisories that all vessels observed, we were asked by CDQ groups and Western Alaskans to allow the base rate to float so that the program would not depend on voluntary observance of salmon advisories should this situation occur in the future.
- **The area available for closure in the A season increases to 1,500 sq mi.** The previous total area that could be closed for A season chinook bycatch was 1,000 sq mi.
- **The area available for closure in the B season increases to 1,500 sq mi.** The previous total area that could be closed for B season chinook bycatch was 1,000 sq mi.

- **A predefined A season closure shown below (Figures 9 and 10) will be observed for the entire A season.** The area to be closed is defined by a heavy black line in the chart below. It was determined by trying to bound the areas that show the consistently highest A season bycatch rates, but still leave fishing grounds deeper than 180 fm open. This preseason closure area appears to match the highest bycatch rate areas found by Council analysts as well (see Figure 11, slide from Council presentation below)

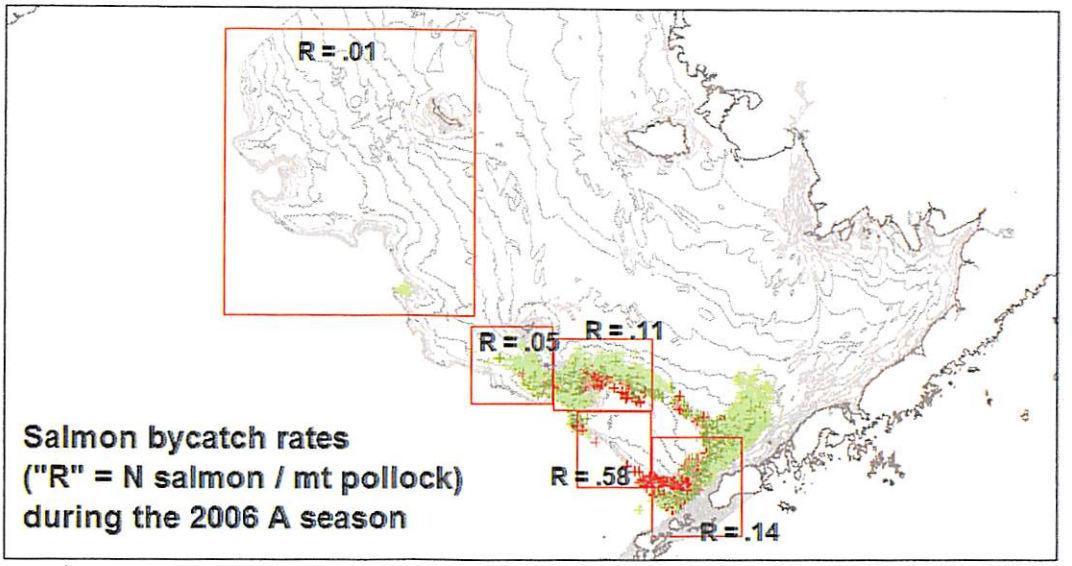


Figure 4a.

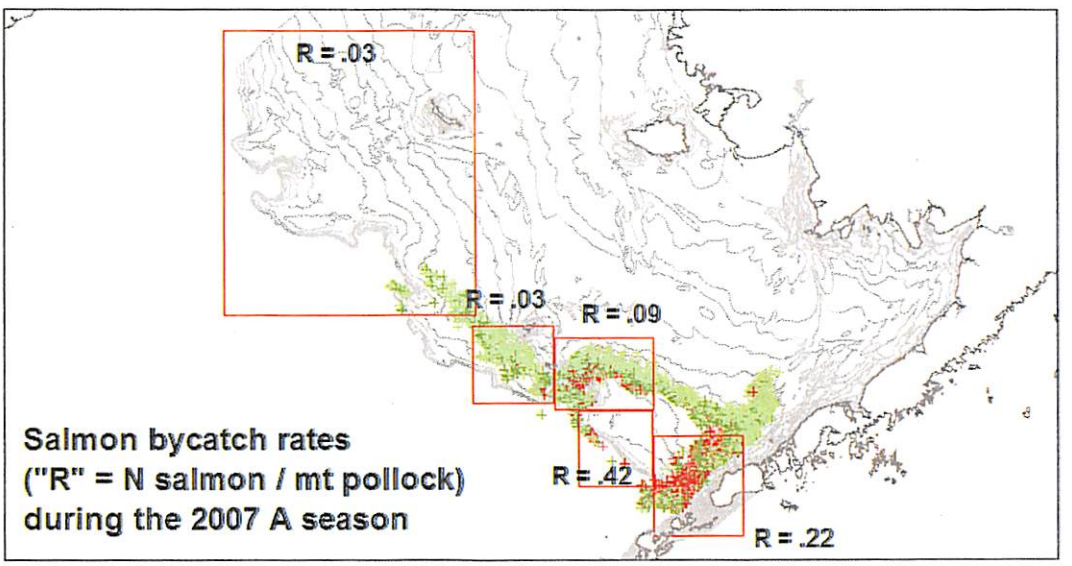


Figure 4a,b. Comparison of bycatch rates between areas fished during the 2006 and 2007 pollock A seasons. Shading indicates level of chinook bycatch, ranging from light green (lowest) to red (highest). Shading scale is the same for both years.

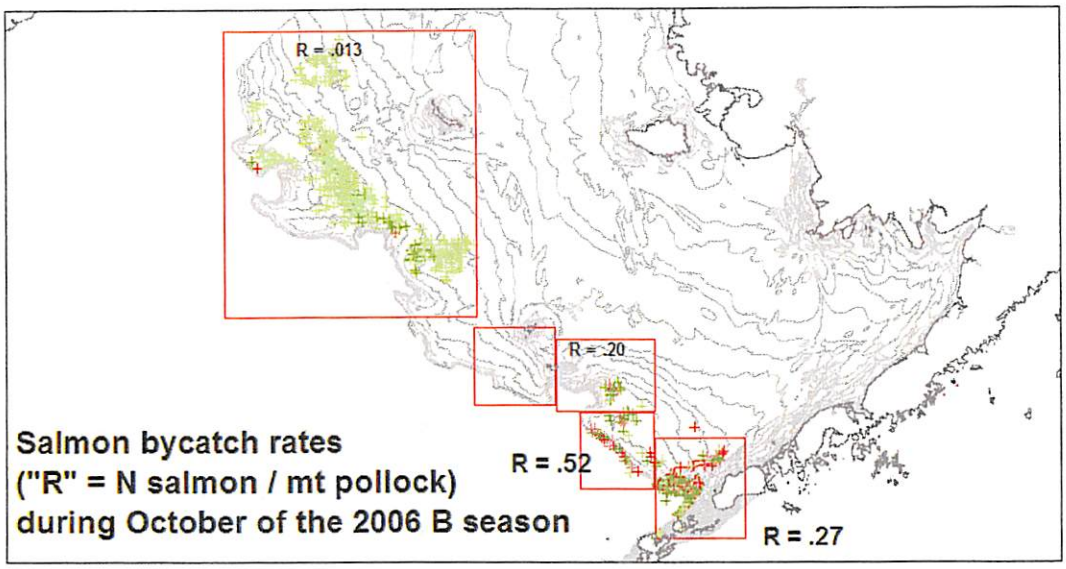
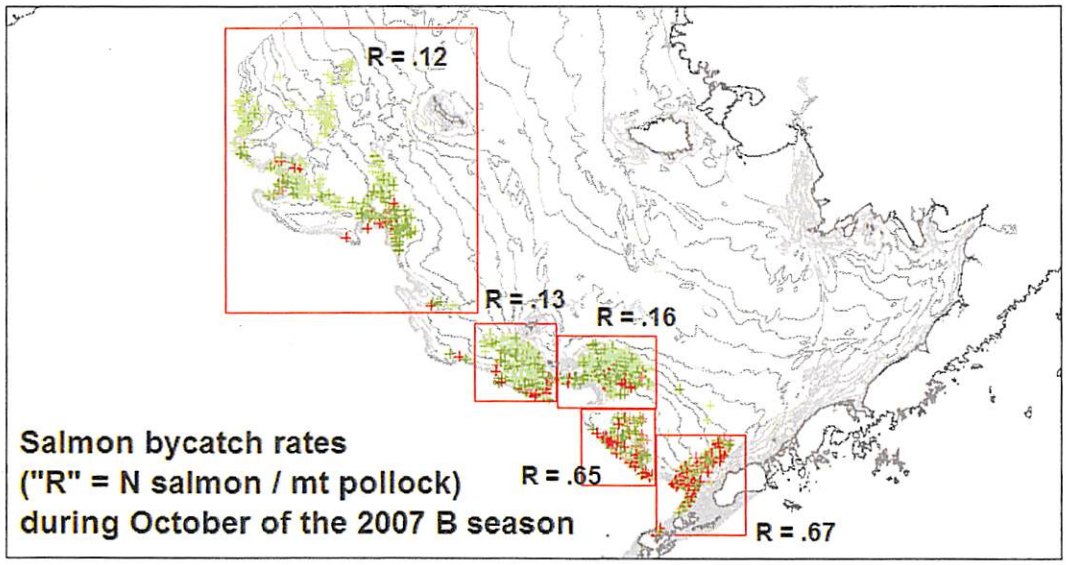
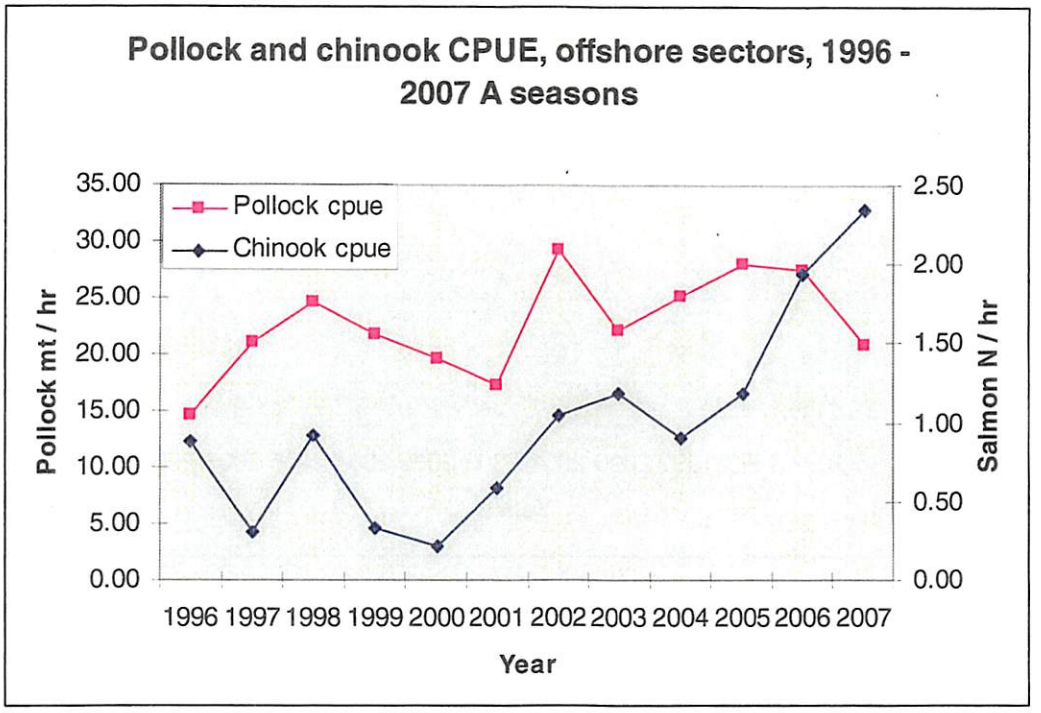


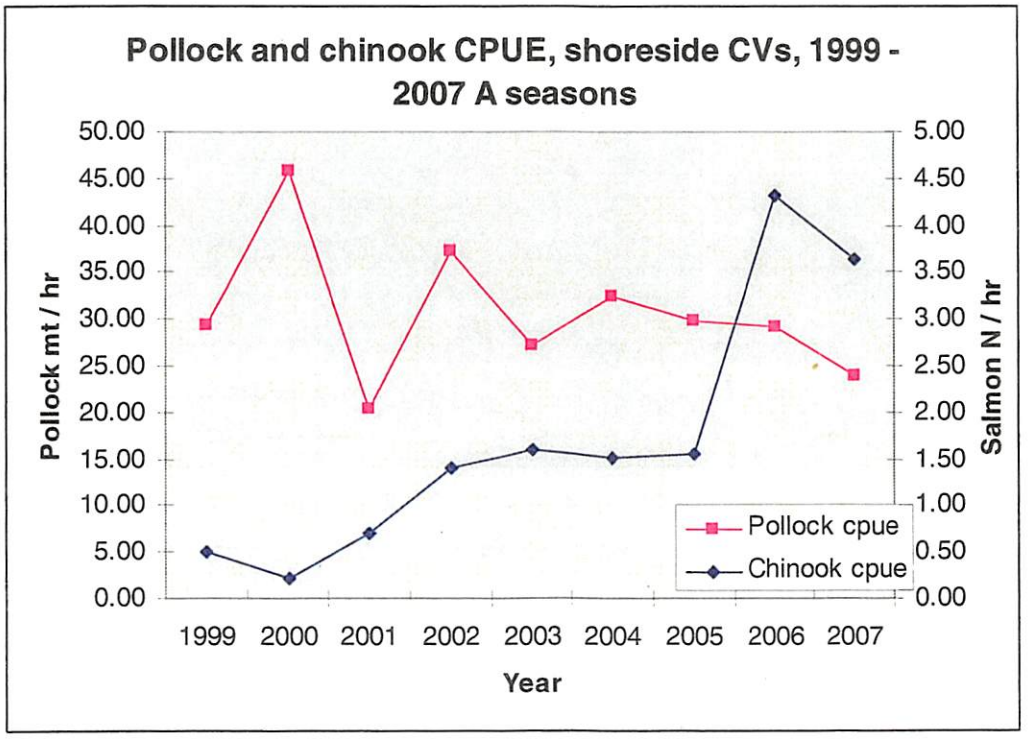
Figure 5a.

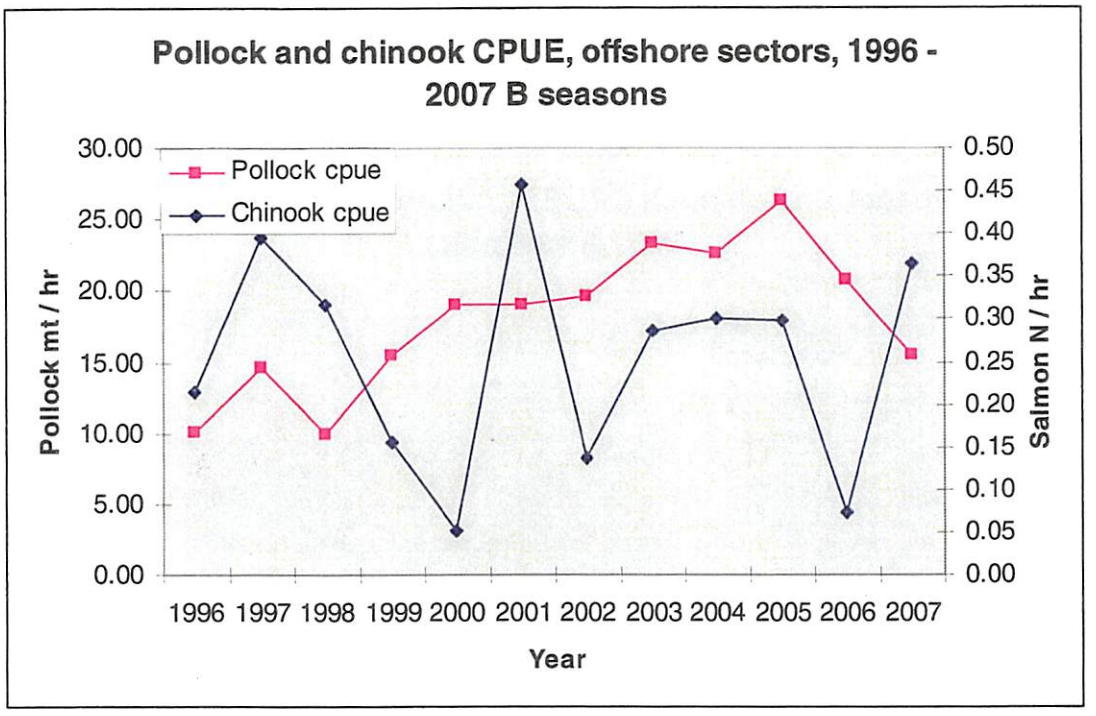


Figures 5a,b. Comparison of bycatch rates between areas fished during the 2006 and 2007 pollock B seasons. Shading indicates level of chinook bycatch, ranging from light green (lowest) to red (highest). Shading scale is the same for both

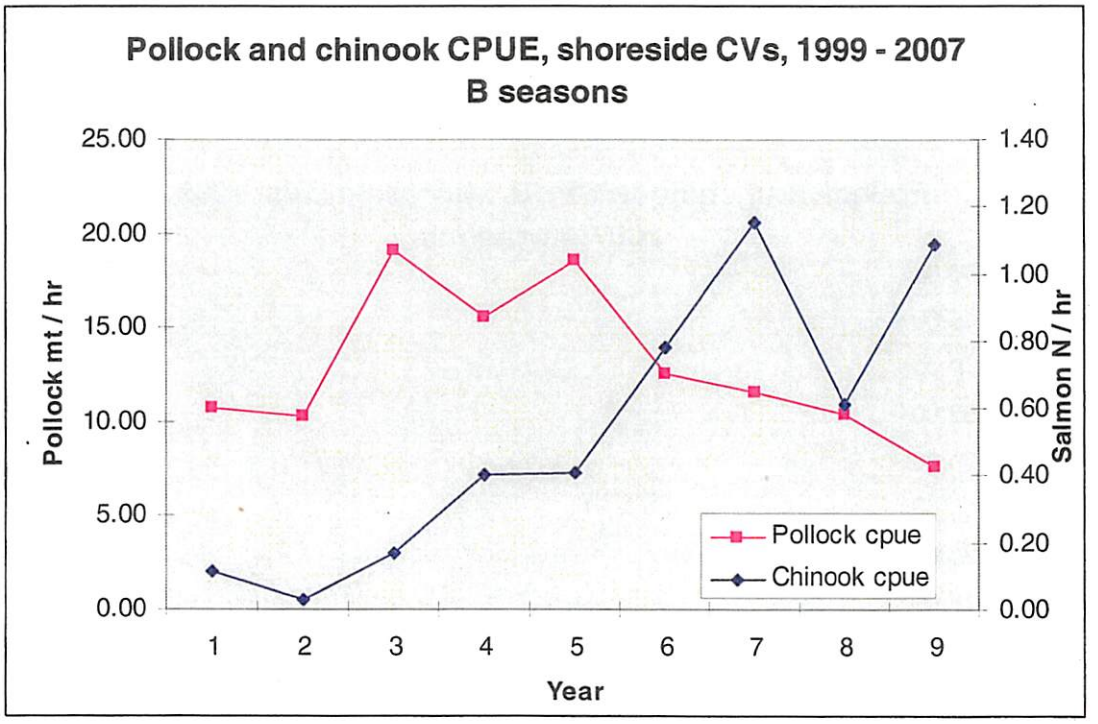


Figures 6a,b. CPUE of pollock and chinook in the 2007A season





Figures 7a,b. CPUE of pollock and chinook in the 2007B season



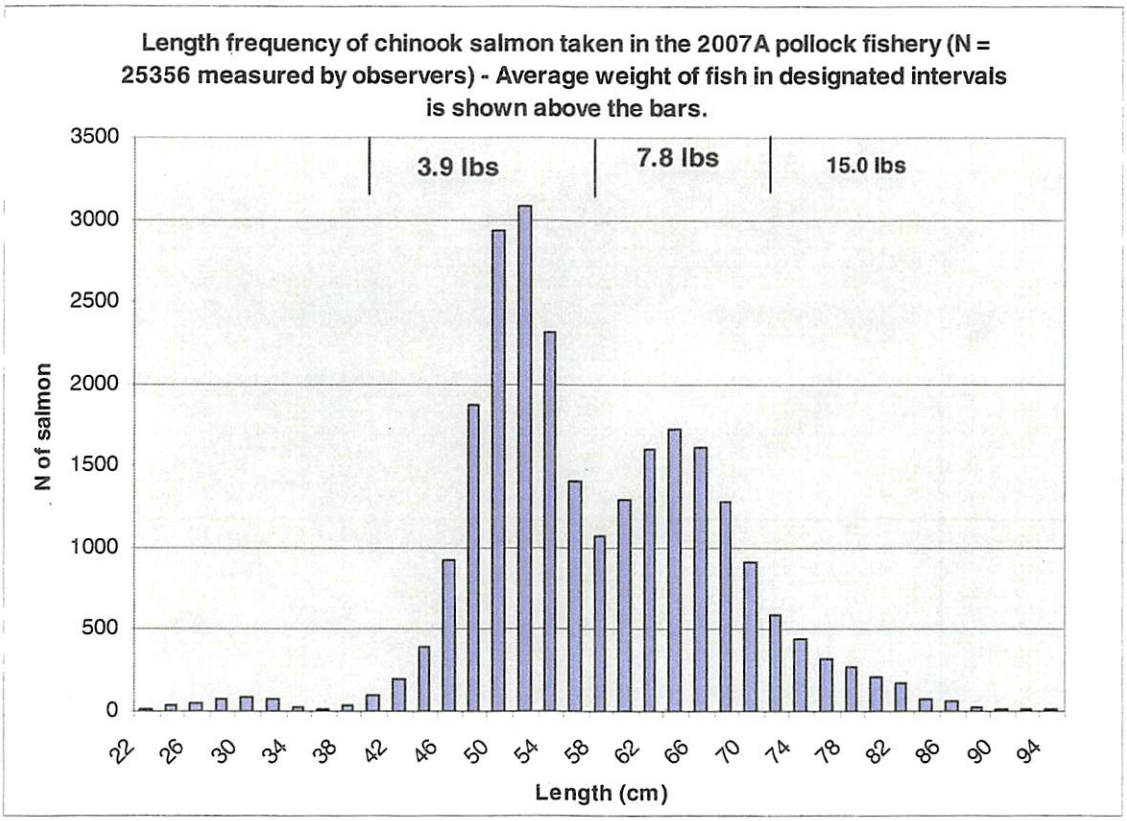
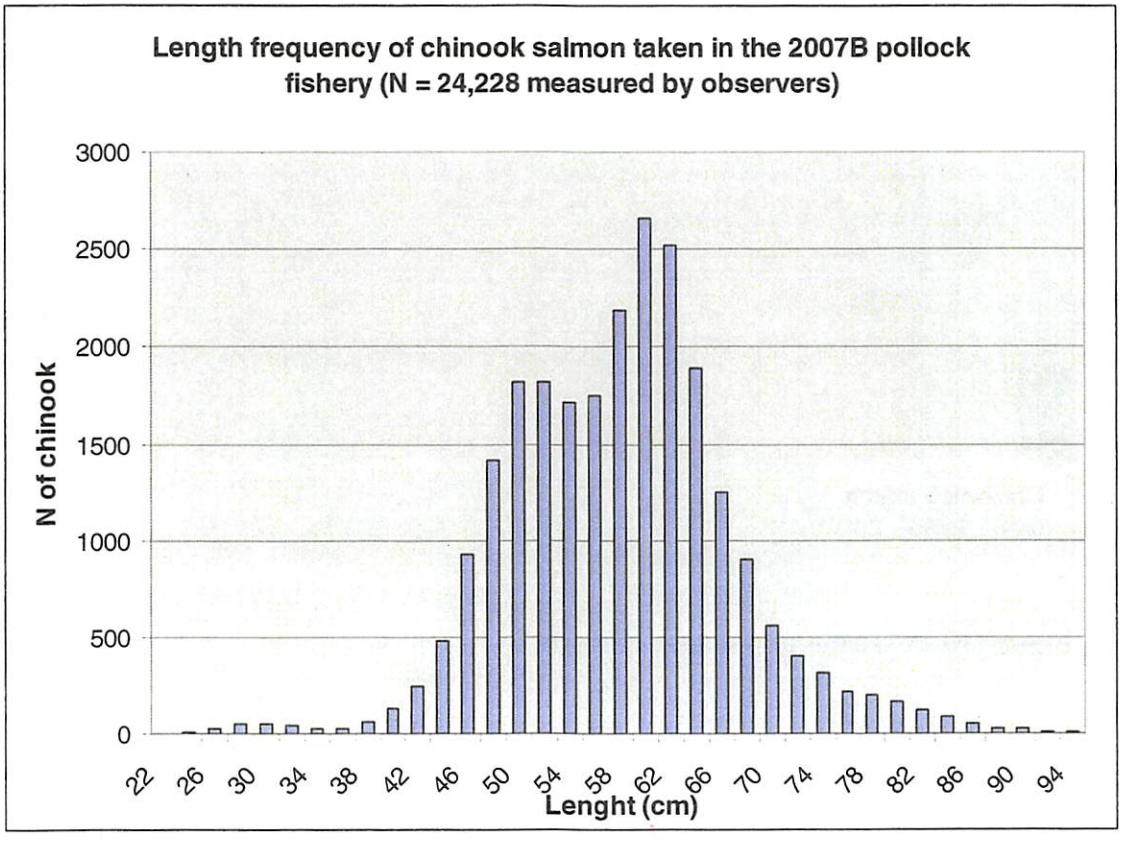


Figure 8a,b. Length frequencies of chinook, 2007A and 2007 B seasons.



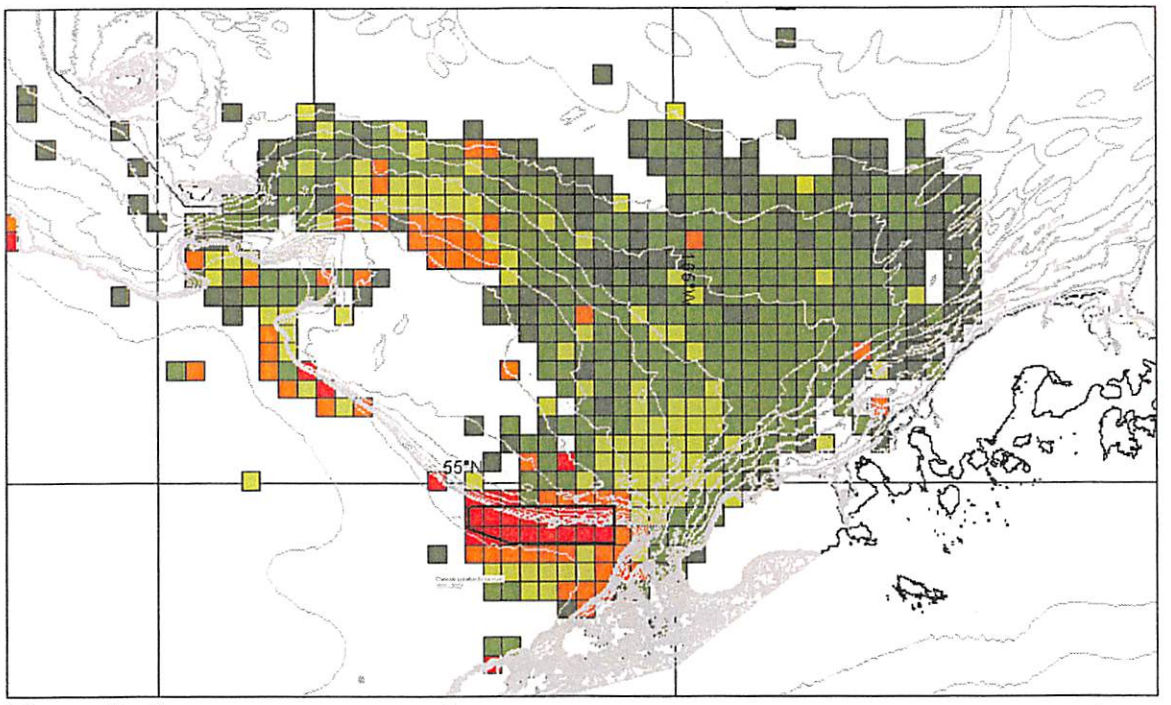


Figure 9. A season pre-season closure

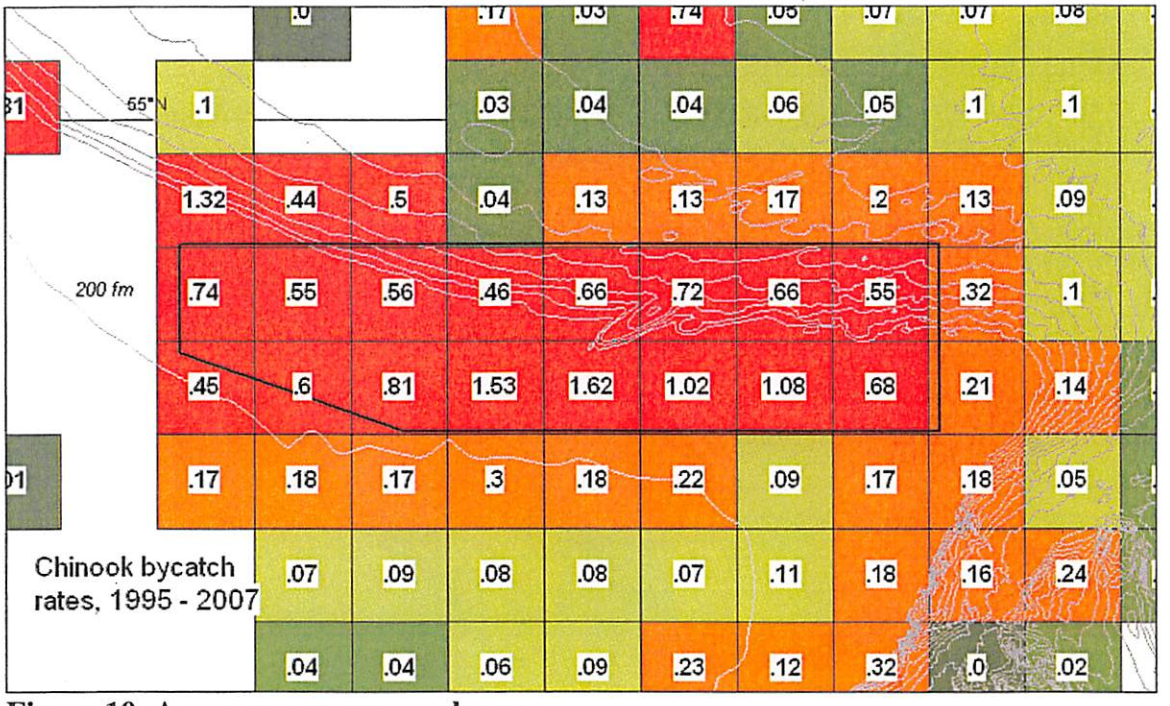


Figure 10, A season pre-season closure

Closure methodology based on 2004-2006
Chinook bycatch rates - A season (fig 31)

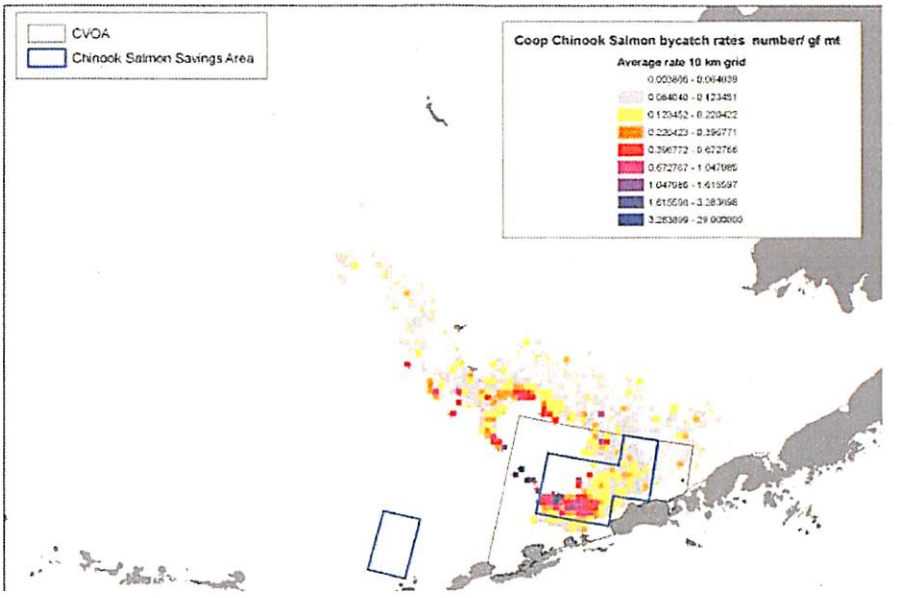


Figure 11. Correspondence between high bycatch areas noted by Council analysts and pre-season closure (above).

Appendix 1. Before-and-after closure fishing comparisons, by closure.

Table A1a. Chinook and chum salmon closure effectiveness, 2007 A season

Closure type	Date of closure	"After" closure pollock catch	"After" closure chinook	Estimated closed-area chinook catch	Chinook reduction (estimate - actual)	Std Err chinook	"After" closure chums	Estimated closed area chum	Chum reduction (estimate - actual)	Std Err chum	Number of samples prior to closure	Number of samples after closure
Chinook	01/31/06	13,166	1,582	12,923	11,341	799	100	23	-78	9	35	42
Chinook	01/31/06	6,143	852	1,849	997	399	61	0	-61	0	4	37
Chinook	02/02/06	5,012	742	5,161	4,419	562	196	3	-193	1	14	19
Chinook	02/02/06	7,340	2,773	569	-2,204	97	262	0	-262	0	3	43
Chinook	02/09/06	22,917	4,003	18,666	14,663	3,161	1,616	691	-926	123	30	135
Chinook	02/13/06	3,795	561	1,141	580	378	20	54	35	18	12	25
Chinook	02/16/06	28,936	3,087	8,164	5,077	382	435	1,372	937	69	128	191
Chinook	02/16/06	5,700	1,178	405	-773	150	44	0	-44	0	3	40
Chinook	02/23/06	456	22	180	158	34	0	0	0	0	4	4
Chinook	02/23/06	9,126	800	2,091	1,291	273	152	83	-68	20	22	54
Totals		102,592	15,600	51,150	35,550		2,887	2,226	-661			

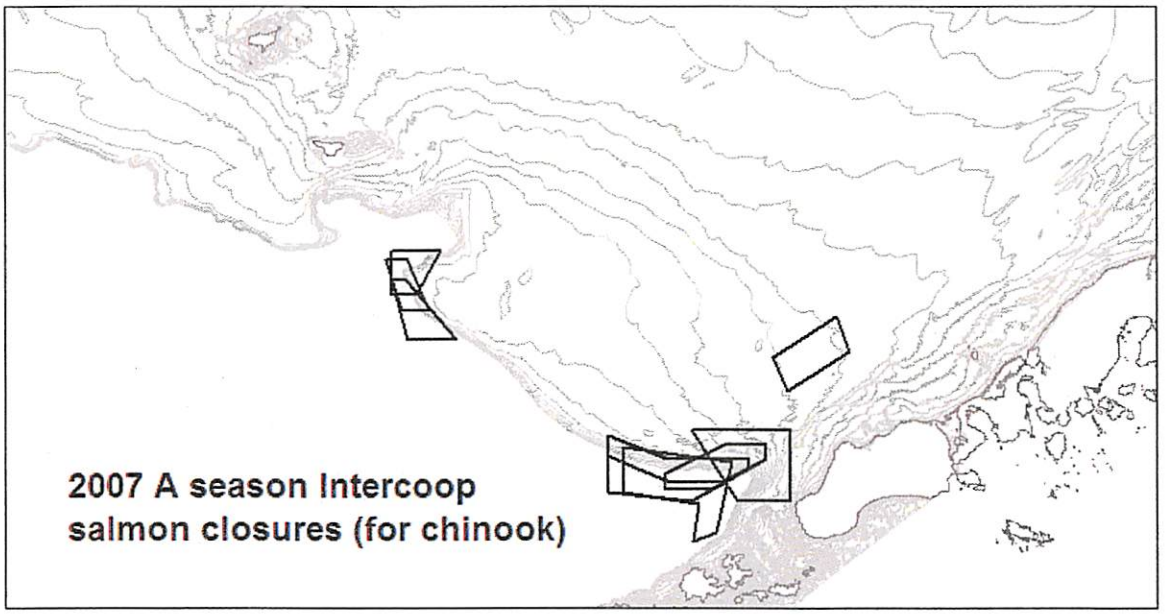
Table A1b. Chinook and chum salmon closure effectiveness, 2007 B season, by chinook closure.

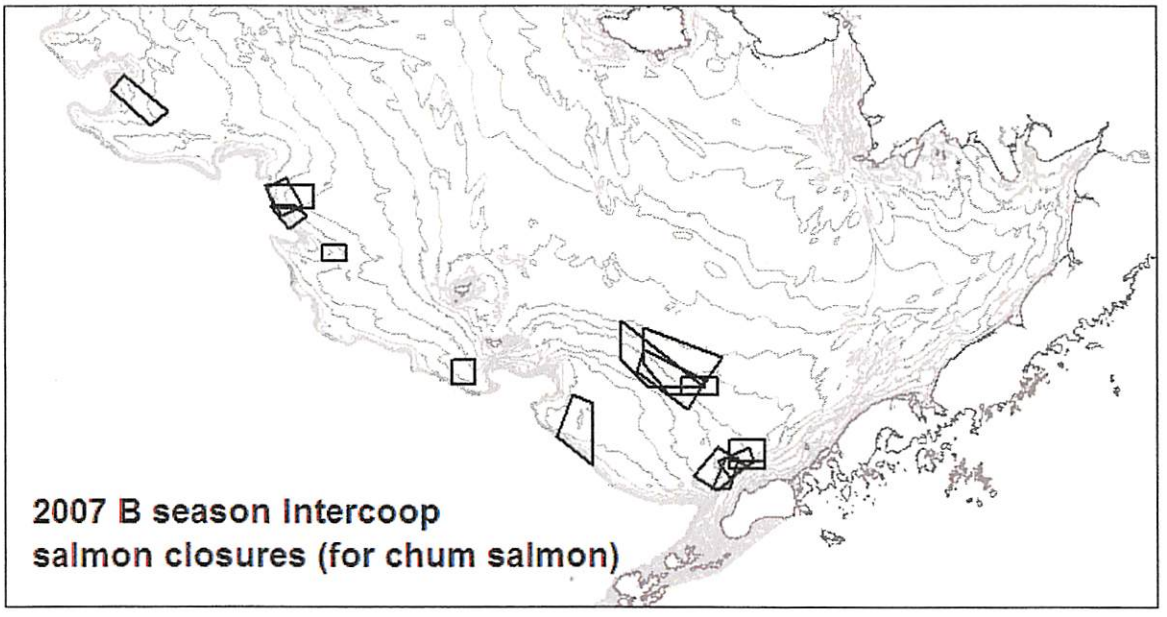
Closure type	Date of closure	"After" closure pollock catch	"After" closure chinook	Estimated closed-area chinook catch	Chinook reduction (estimate - actual)	Std Err chinook	"After" closure chums	Estimated closed area chum	Chum reduction (estimate - actual)	Std Err chum	Number of samples prior to closure	Number of samples after closure
Chinook	08/24/06	4,679	61	392	331	32	3,621	16,327	12,706	2,688	12	23
Chinook	08/24/06	6,788	72	199	127	17	3,875	5,466	1,591	1,132	27	35
Chinook	09/04/06	18,875	729	2,258	1,529	188	7,026	1,600	-5,426	206	43	124
Chinook	09/07/06	4,033	670	321	-350	45	2,080	666	-1,414	141	12	28
Chinook	09/11/06	3,777	508	296	-212	18	295	127	-168	12	12	20
Chinook	09/18/06	1,165	439	893	454	38	328	1,419	1,091	75	9	10
Chinook	09/18/06	2,546	331	466	135	85	413	235	-178	52	18	25
Chinook	09/21/06	1,430	80	148	68	29	168	72	-96	29	5	18
Chinook	09/21/06	3,298	880	1,045	165	182	767	1,465	698	194	29	27
Chinook	09/25/06	821	259	368	109	129	182	334	152	76	10	10
Chinook	09/28/06	816	332	256	-77	20	90	73	-18	8	8	7
Chinook	09/28/06	3,125	373	539	166	97	279	739	461	117	13	29
Chinook	10/02/06	448	145	33	-112	6	20	58	38	17	5	6
Chinook	10/05/06	834	466	353	-113	45	35	82	47	15	3	6
Chinook	10/05/06	7,113	278	2,329	2,051	370	303	1,456	1,152	255	12	61
Chinook	10/09/06	2,343	1,245	1,334	89	42	111	257	146	15	10	15
Chinook	10/12/06	5,405	1,907	5,489	3,582	417	300	227	-73	15	34	35
Chinook	10/12/06	698	359	221	-137	15	109	59	-50	3	15	4
Chinook	10/16/06	1,285	511	1,364	853	122	65	39	-25	3	13	9
Chinook	10/19/06	4,543	955	4,331	3,377	370	229	49	-179	8	16	26
Chinook	10/23/06	443	278	813	536		20	7	-13		1	2
Totals		74,465	10,879	23,448	12,569		20,317	30,757	10,441			

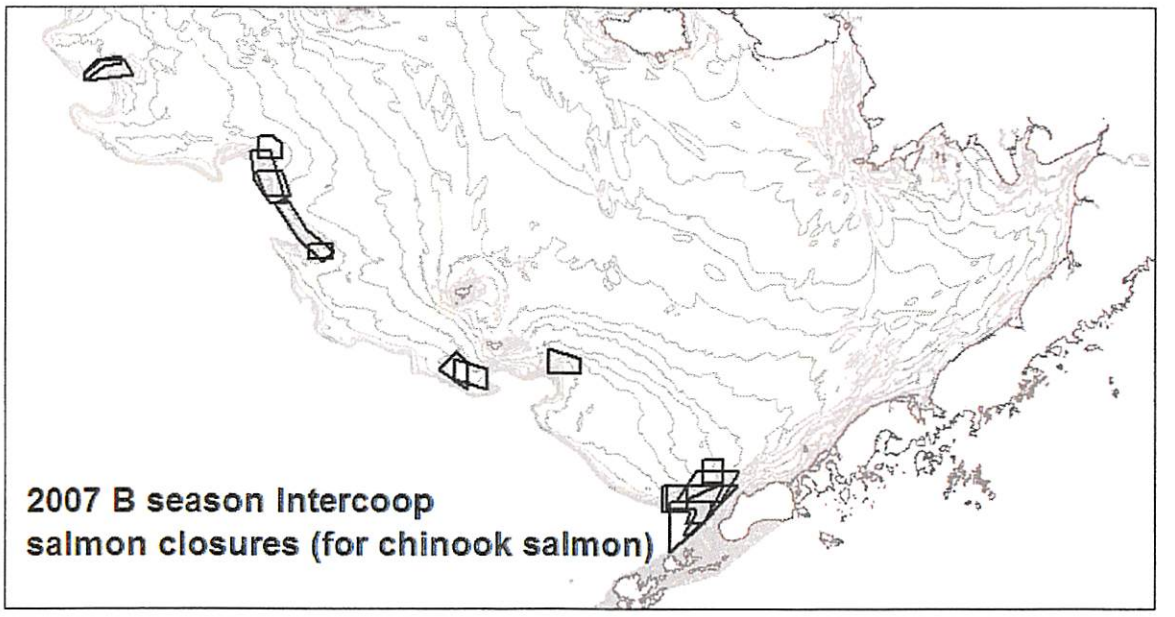
Table A1c. Chinook and chum salmon closure effectiveness, 2007 B season, by chum closure.

Closure type	Date of closure	"After" closure pollock catch	"After" closure chinook	Estimated closed-area chinook catch	Chinook reduction (estimate - actual)	Std Err chinook	"After" closure chums	Estimated closed area chum	Chum reduction (estimate - actual)	Std Err chum	Number of samples prior to closure	Number of samples after closure
Chum	07/06/06	8,983	8	87	79	20	60	2,717	2,657	394	19	50
Chum	07/17/06	223	7	2	-5	1	13	34	21	8	5	4
Chum	07/24/06	150	0	0	0		9	5	-4		1	1
Chum	07/24/06	13,089	0	0	0	0	89	3,590	3,501	1,173	20	82
Chum	07/31/06	13,267	0	0	0	0	125	5,428	5,303	546	31	70
Chum	08/03/06	5,584	0	0	0	0	75	1,593	1,518	338	4	28
Chum	08/03/06	507	4	6	2	1	309	329	21	133	5	5
Chum	08/07/06	1,313	1	13	12	2	50	1,072	1,022	41	6	7
Chum	08/10/06	4,965	36	18	-18	3	375	1,407	1,032	162	19	29
Chum	08/14/06	304	1	2	1	1	5	84	79	19	4	3
Chum	08/17/06	19,890	308	741	433	119	7,394	3,612	-3,782	560	62	120
Chum	08/17/06	626	4	0	-4	0	122	83	-39	43	11	8
Chum	08/21/06	268	0	0	0		70	0	-70		1	1
Chum	08/21/06	12,820	153	1,224	1,072	307	3,029	2,429	-600	437	17	96
Chum	08/21/06	5,554	34	315	281	23	1,267	29,156	27,890	4,022	7	25
Chum	08/28/06	2,013	56	67	11	9	746	1,639	893	146	9	14
Chum	08/31/06	1,769	32	64	32	3	467	1,196	729	65	9	10
Chum	08/31/06	5,972	459	103	-356	28	426	12,841	12,415	2,572	11	52
Chum	09/04/06	10,350	491	958	468	259	2,296	25,680	23,384	5,526	6	74
Totals		**107,646**	**1,593**	**3,600**	**2,007**		**16,926**	**92,896**	**75,970**			

Appendix 1: Charts showing closures






2007 B season Intercoop
salmon closures (for chinook salmon)

Appendix 2: Dirty 20 list appearances

Number of weeks each vessel was on the 2007 A season chinook dirty 20 list

Vessel	N of weeks	Vessel	N of weeks	Vessel	N of wee
ALASKA OCEAN	2	FIERCE ALLEGIANCE	1	OCEAN LEADER	3
ALASKA ROSE	2	GLADIATOR	0	OCEAN ROVER	0
ALASKAN COMMAND	4	GOLD RUSH	0	OCEANIC	1
ALDEBARAN	1	GOLDEN DAWN	2	PACIFIC CHALLENGER	0
ALEUTIAN CHALLENGER	1	GOLDEN PISCES	0	PACIFIC EXPLORER	0
ALSEA	4	GREAT PACIFIC	0	PACIFIC FURY	0
ALYESKA	1	GUN-MAR	0	PACIFIC GLACIER	0
AMERICAN BEAUTY	2	HALF MOON BAY	0	PACIFIC PRINCE	1
AMERICAN DYNASTY	0	HAZEL LORRAINE	0	PACIFIC RAM	1
AMERICAN EAGLE	2	HICKORY WIND	0	PACIFIC VIKING	1
AMERICAN TRIUMPH	1	HIGHLAND LIGHT	0	PEGASUS	0
ANITA J	0	ISLAND ENTERPRISE	1	PEGGY JO	0
ARCTIC EXPLORER	1	KATIE ANN	0	PERSEVERANCE	0
ARCTIC FJORD	2	KODIAK ENTERPRISE	2	POSEIDON	5
ARCTIC STORM	2	LESLIE LEE	0	PREDATOR	0
ARCTIC WIND	1	LISA MELINDA	1	PROGRESS	1
ARCTURUS	0	MAJESTY	0	RAVEN	0
ARGOSY	4	MAR-GUN	1	ROYAL AMERICAN	0
AURIGA	1	MARCY J	0	ROYAL ATLANTIC	1
AURORA	0	MARGARET LYN	0	SEA WOLF	1
BERING ROSE	1	MARK I	1	SEADAWN	2
BLUE FOX	0	MISS BERDIE	2	SEATTLE ENTERPRISE	3
BRISTOL EXPLORER	1	MISTY DAWN	0	SEEKER	0
CAITLIN ANN	0	MORNING STAR	2	SOVEREIGNTY	0
CALIFORNIA HORIZON	0	NORDIC FURY	1	STARBOUND	1
CAPE KIWANDA	0	NORDIC STAR	0	STARFISH	0
CHELSEA K	2	NORTHERN EAGLE	1	STARLITE	1
COLUMBIA	2	NORTHERN GLACIER	1	STARWARD	0
COMMODORE	6	NORTHERN HAWK	0	STORM PETREL	2
DEFENDER	0	NORTHERN JAEGER	1	SUNSET BAY	0
DESTINATION	3	NORTHERN PATRIOT	2	TRAVELER	0
DOMINATOR	1	NORTHWEST EXPLORER	1	VANGUARD	1
ELIZABETH F	0	OCEAN EXPLORER	1	VESTERAALEN	0
EXCALIBUR II	0	OCEAN HOPE 3	1	VIKING	1
				VIKING EXPLORER	2
				WALTER N	0
				WESTERN DAWN	0
				WESTWARD I	1

Number of weeks each vessel was on the 2007 B season chum dirty 20 list

Vessel	N of weeks	Vessel	N of weeks	Vessel	N of wee
ALASKA OCEAN	0	GLADIATOR	1	OCEANIC	3
ALASKA ROSE	3	GOLD RUSH	6	PACIFIC CHALLENGER	2
ALASKAN COMMAND	0	GOLDEN DAWN	7	PACIFIC EXPLORER	7
ALDEBARAN	6	GOLDEN PISCES	6	PACIFIC FURY	2
ALEUTIAN CHALLENGER	3	GREAT PACIFIC	7	PACIFIC GLACIER	0
ALSEA	0	GUN-MAR	0	PACIFIC PRINCE	3
ALYESKA	0	HALF MOON BAY	6	PACIFIC RAM	0
AMERICAN BEAUTY	5	HAZEL LORRAINE	1	PACIFIC VIKING	6
AMERICAN DYNASTY	0	HICKORY WIND	1	PEGASUS	4
AMERICAN EAGLE	8	HIGHLAND LIGHT	0	PEGGY JO	0
AMERICAN TRIUMPH	2	ISLAND ENTERPRISE	4	PERSEVERANCE	0
ANITA J	4	KATIE ANN	0	POSEIDON	7
ARCTIC EXPLORER	7	KODIAK ENTERPRISE	0	PREDATOR	0
ARCTIC FJORD	3	LESLIE LEE	2	PROGRESS	6
ARCTIC STORM	3	LISA MELINDA	0	RAVEN	0
ARCTIC WIND	3	MAJESTY	6	ROYAL AMERICAN	9
ARCTURUS	5	MAR-GUN	2	ROYAL ATLANTIC	3
ARGOSY	2	MARCY J	1	SEA WOLF	1
AURIGA	2	MARGARET LYN	2	SEADAWN	0
AURORA	2	MARK I	2	SEATTLE ENTERPRISE	5
BERING ROSE	6	MISS BERDIE	0	SEEKER	6
BLUE FOX	0	MISTY DAWN	0	SOVEREIGNTY	8
BRISTOL EXPLORER	8	MORNING STAR	3	STARBOUND	1
CAITLIN ANN	0	NORDIC FURY	1	STARFISH	3
CALIFORNIA HORIZON	0	NORDIC STAR	2	STARLITE	1
CAPE KIWANDA	0	NORTHERN EAGLE	3	STARWARD	1
CHELSEA K	3	NORTHERN GLACIER	0	STORM PETREL	8
COLUMBIA	5	NORTHERN HAWK	1	SUNSET BAY	4
COMMODORE	6	NORTHERN JAEGER	2	TRAVELER	1
DEFENDER	4	NORTHERN PATRIOT	2	VANGUARD	7
DESTINATION	4	NORTHWEST EXPLORER	3	VESTERAALEN	3
DOMINATOR	6	OCEAN EXPLORER	6	VIKING	1
ELIZABETH F	4	OCEAN HOPE 3	3	VIKING EXPLORER	10
EXCALIBUR II	8	OCEAN LEADER	7	WALTER N	2
FIERCE ALLEGIANCE	1	OCEAN ROVER	0	WESTERN DAWN	4
				WESTWARD I	1

Number of weeks each vessel was on the 2007 B season chinook dirty 20 list

Vessel	N of weeks	Vessel	N of weeks	Vessel	N of wee
ALASKA OCEAN	0	GLADIATOR	3	OCEANIC	0
ALASKA ROSE	1	GOLD RUSH	0	PACIFIC CHALLENGER	0
ALASKAN COMMAND	1	GOLDEN DAWN	5	PACIFIC EXPLORER	3
ALDEBARAN	4	GOLDEN PISCES	0	PACIFIC FURY	0
ALEUTIAN CHALLENGER	1	GREAT PACIFIC	2	PACIFIC GLACIER	0
ALSEA	0	GUN-MAR	0	PACIFIC PRINCE	4
ALYESKA	0	HALF MOON BAY	2	PACIFIC RAM	0
AMERICAN BEAUTY	4	HAZEL LORRAINE	0	PACIFIC VIKING	3
AMERICAN DYNASTY	0	HICKORY WIND	0	PEGASUS	2
AMERICAN EAGLE	3	HIGHLAND LIGHT	0	PEGGY JO	0
AMERICAN TRIUMPH	0	ISLAND ENTERPRISE	2	PERSEVERANCE	0
ANITA J	1	KATIE ANN	0	POSEIDON	4
ARCTIC EXPLORER	5	KODIAK ENTERPRISE	1	PREDATOR	0
ARCTIC FJORD	0	LESLIE LEE	0	PROGRESS	0
ARCTIC STORM	0	LISA MELINDA	0	RAVEN	0
ARCTIC WIND	1	MAJESTY	3	ROYAL AMERICAN	4
ARCTURUS	5	MAR-GUN	0	ROYAL ATLANTIC	1
ARGOSY	2	MARCY J	0	SEA WOLF	2
AURIGA	0	MARGARET LYN	0	SEADAWN	2
AURORA	0	MARK I	1	SEATTLE ENTERPRISE	3
BERING ROSE	0	MISS BERDIE	0	SEEKER	5
BLUE FOX	0	MISTY DAWN	1	SOVEREIGNTY	4
BRISTOL EXPLORER	7	MORNING STAR	2	STARBOUND	1
CAITLIN ANN	0	NORDIC FURY	0	STARFISH	2
CALIFORNIA HORIZON	0	NORDIC STAR	1	STARLITE	0
CAPE KIWANDA	0	NORTHERN EAGLE	2	STARWARD	0
CHELSEA K	1	NORTHERN GLACIER	2	STORM PETREL	2
COLUMBIA	3	NORTHERN HAWK	0	SUNSET BAY	2
COMMODORE	4	NORTHERN JAEGER	1	TRAVELER	0
DEFENDER	6	NORTHERN PATRIOT	3	VANGUARD	1
DESTINATION	4	NORTHWEST EXPLORER	1	VESTERAALEN	0
DOMINATOR	4	OCEAN EXPLORER	5	VIKING	1
ELIZABETH F	0	OCEAN HOPE 3	0	VIKING EXPLORER	6
EXCALIBUR II	0	OCEAN LEADER	3	WALTER N	0
FIERCE ALLEGIANCE	0	OCEAN ROVER	0	WESTERN DAWN	0
				WESTWARD I	1

2008 Salmon Bycatch Agreements

1. Amended and Restated Rolling Hot Spot Agreement – page 2

This Agreement was written to meet the requirements of Amendment 84(a) and submitted to NMFS on November 29, 2007.

The following changes and additions from the 2006-2007 Agreement have been made:

1. New Section 12 (page 17) covering annual audit provisions required by the Amendment 84 final rule.
2. A Fishing definition has been added to clarify enforcement standards (Section 7.a. page 12).
3. Section 7.b. (page 12) has been changed to relieve Sea State and UCB as the sole decision makers on whether a coop board has taken appropriate action regarding apparent savings area notifications.
4. Section 7.b. has also been changed to allow coop boards 180 days to take action and provide a report on that action to all other coops (previous agreement allowed only 60 days).
5. Clarification that multiple savings closure violation penalties in a single year are increased by skipper action, not vessel (Section 7.c. page 12).
6. A "Doors up" policy requirement for each individual coop agreement (Section 9.j. page 15).
7. The maximum area available for A season Chinook closures has been increased from 1000 sq. miles to 1500 sq. miles with a 500 sq. mile cap west of 168 degrees longitude (Section 3.f.ii. page 4)
8. The maximum area available for B season Chinook closures has been increased from 500 sq. miles to 1500 sq. miles with a 500 sq. mile cap west of 168 degrees longitude (Section 4.g.ii. page 8)
9. The A season Chinook base rate, after the February 14th recalculation, will be the lower of either that "one time" recalculated rate or a rate calculated on a 3 week rolling average beginning Feb. 14th and on a weekly basis for the remainder of the A season (Section 3.b. page 3).

2. Technical Amendments to the Rolling Hot Spot Agreement–page 20

After review by NMFS 2 issues were raised in the ICA submitted for approval under the Amendment 84(a) exemption. This agreement addresses those issues and led to the ICA being accepted by NMFS as meeting the A84(a) requirements.

3. Chinook Salmon Conservation Area Agreement – page 23

The coops identified this area as one with continuously high Chinook bycatch in the A season and determined that it ought to be closed outside the rolling hot spot program. Without this separate agreement, this area would have otherwise continually consumed saving area square miles through out the A season. Additionally, this agreement was written separate from the rolling hot spot agreement to maintain flexibility and, therefore was considered a harvester's agreement and required only the approval of the coops.

1. Amended and Restated Rolling Hot Spot Agreement

AMENDED AND RESTATED
BERING SEA POLLOCK FISHERY
ROLLING HOT SPOT CLOSURE
SALMON BYCATCH MANAGEMENT AGREEMENT

This AMENDED AND RESTATED BERING SEA POLLOCK FISHERY ROLLING HOT SPOT CLOSURE SALMON BYCATCH MANAGEMENT AGREEMENT is entered into by and among POLLOCK CONSERVATION COOPERATIVE ("PCC"), the HIGH SEAS CATCHERS COOPERATIVE ("High Seas"), MOTHERSHIP FLEET COOPERATIVE ("MFC"), the "Inshore Coops", i.e., AKUTAN CATCHER VESSEL ASSOCIATION, ARCTIC ENTERPRISE ASSOCIATION, NORTHERN VICTOR FLEET COOPERATIVE, PETER PAN FLEET COOPERATIVE, UNALASKA FLEET COOPERATIVE, UNISEA FLEET COOPERATIVE and WESTWARD FLEET COOPERATIVE, and the "CDQ Groups", i.e., ALEUTIAN PRIBILOF ISLAND COMMUNITY DEVELOPMENT ASSOCIATION, BRISTOL BAY ECONOMIC DEVELOPMENT CORPORATION, CENTRAL BERING SEA FISHERMEN'S ASSOCIATION, COASTAL VILLAGES REGION FUND, NORTON SOUND ECONOMIC DEVELOPMENT CORPORATION and YUKON DELTA FISHERIES DEVELOPMENT ASSOCIATION, and SEA STATE, INC. ("Sea State") and UNITED CATCHER BOATS ASSOCIATION ("UCB") as of _____, 2007. PCC, High Seas, MFC, and the Inshore Coops are hereafter collectively referred to as the "Coops".

This Agreement is entered into with respect to the following facts:

RECITALS

Western Alaskans have expressed conservation and allocation concerns regarding the incidental catch of salmon in the Bering Sea pollock fishery. While such bycatch is regulated by the North Pacific Fishery Management Council (the "Council") and the National Marine Fisheries Service ("NMFS"), the Coops desire to address this issue by inter-cooperative agreement, out of respect for the concerns of Western

Alaskans, to avoid unnecessary incidental catch of salmon and to obviate the need for regulatory salmon savings areas.

Now, therefore, for good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged, the parties agree as follows:

AGREEMENT

1. Purpose of Agreement. This Amended and Restated Salmon Bycatch Management Agreement amends and supersedes that certain Salmon Bycatch Management Agreement entered into among the parties set forth above as of February 1, 2006. The purpose of this Agreement is to implement a private, contractual inter-cooperative program to reduce salmon bycatch in the Bering Sea directed pollock fishery, inclusive of both the Community Development Quota ("CDQ") and non-CDQ allocations (the "Fishery"). Each party to this Agreement agrees exercise all commercially reasonable efforts to achieve that purpose.

2. Monitoring and Management. The Coops shall retain Sea State to provide the data gathering, analysis, fleet monitoring and reporting services necessary to implement the bycatch management program contemplated under this Agreement. The Coops shall retain United Catcher Boats (UCB) to provide day-to-day management of inter-cooperative matters related to the performance of this Agreement.

3. "A" Season Bycatch Management. The parties agree that during the Fishery "A" seasons, Chinook salmon bycatch in the Fishery shall be managed on an inter-cooperative basis as follows. Sea State shall use a bycatch rate (the "Base Rate") as a trigger for identifying areas closed to pollock fishing by certain Coops ("Savings Areas"), and as a basis for determining each Coop's tier status, which in turn shall govern whether, and if so, when, each Coop's members may harvest pollock inside of a Savings Area. The Base Rate will be adjusted once during each "A" season in response to Chinook bycatch experienced during the season, to take into account fluctuations in Chinook abundance.

a. Initial Chinook Base Rate Calculation. The initial "A" season Chinook Base Rate shall be equal to the Fishery "A" season Chinook bycatch rate for the prior "A" season, calculated by dividing the total number of Chinook taken incidentally in the Fishery "A" season during the prior year by the total number of metric tons of Fishery "A" season pollock catch during the prior year, provided that if the initial "A" season Chinook Base Rate for any given year is less than or equal to .04 Chinook per metric ton of pollock, the initial Base Rate shall be .04 Chinook per metric ton, and if the initial Base Rate for any given year is equal to or greater than .06 Chinook per metric tone, the initial Base Rate shall be .06 Chinook per metric ton.

b. Chinook Base Rate In-Season Adjustment. On February 14 of each year, Sea State shall recalculate the "A" season Chinook Base Rate. The recalculated Base Rate shall be the Chinook bycatch rate for the then-current year, calculated by dividing the total number of Chinook salmon taken incidentally in the then-current Fishery "A" season by the total number of metric tons of Fishery "A" season pollock catch during the then-current season (the "Fixed Base Rate"). Sea State shall also recalculate the "A" season Base Rate on February 14 of each year and weekly thereafter for the duration of the pollock "A" season by dividing the total number of Chinook salmon taken incidentally in the Fishery during the prior three (3) week period by the total number of metric tons of Fishery "A" season pollock catch during the same three (3) week period (the "Floating Base Rate"). The lower of the Fixed Base Rate or the Floating Base Rate (as recalculated each week during the remainder of the "A" season) shall become the governing Base Rate for purposes of this Section 3 as of the first "Thursday Announcement" and "Friday Closure" (as defined below) following recalculation and each Thursday Announcement and Friday Closure thereafter for the remainder of the "A" season.

c. Implementation of Salmon Savings Measures. Sea State shall use Fishery "A" season bycatch data from the period January 20 through January 29 of each year to provide Coops with preliminary information regarding the location and concentration of Chinook salmon, and to determine initial Savings Area closures and Coop Tier assignments (as defined below). Sea State shall implement Chinook Savings Area closures as appropriate commencing on January 30th of each year, and thereafter through the balance of each Fishery "A" season.

d. Cooperative Tier Assignments. Rate calculations for purposes of tier assignments will be based on each Coop's pollock catch in the Fishery for the prior two weeks (the denominator) and the associated bycatch of Chinook salmon taken by its members (the numerator), with the exception of the initial tier assignments as described in Section 3.c. For purposes of this Section, a Coop's salmon bycatch amount shall be based on observed, counted Chinook salmon (i.e., whole haul samples), or sample sizes sufficiently large that Sea State reasonably concludes that estimated number of Chinook salmon has a high probability of being accurate. Classification of inshore Coops shall be based on plant observer data, and not on tow-by-tow estimates from the fishing grounds.

- Coops with Chinook salmon bycatch rates of less than 75% of the Base Rate shall be assigned to "Tier 1".

- Coops with Chinook salmon bycatch rates equal to or greater than 75% of the Base Rate but equal to or less than 125% of the Base Rate shall be assigned to "Tier 2".

- Coops with Chinook salmon bycatch rates greater than 125% of the Base Rate shall be assigned to "Tier 3".

e. Bycatch Hot Zone Identification. When the Fishery "A" season is open to any of the inshore, catcher/processor or mothership components, Sea State shall calculate the Chinook salmon bycatch rates for each Alaska Department of Fish and Game ("ADF&G") statistical area for which Sea State receives a salmon bycatch report, and when feasible, for each lateral half of each such statistical area. Bycatch rates shall be recalculated and updated every four (4) or seven (7) days during the season, immediately proceeding the closure announcements described in Section 3.f., below, as Sea State determines appropriate given the quality of data available for the area. The bycatch rates shall be calculated on the basis of reports Sea State determines to be adequately accurate, including NMFS observer reports and Coop vessel electronic log books, and may include reliable tow-by-tow estimates from the fishing grounds. In every case, rates calculated on the basis of the actual number of salmon observed per tow will be given priority over rates based on sampling and extrapolation.

f. "A" Season Salmon Savings Areas. On January 30 of each year and on each Thursday and on each Monday thereafter, for the duration of the Fishery "A" season, Sea State shall, subject to the criteria set forth below, provide notice to the Coops identifying one or more areas designated as "Chinook Savings Areas", within which pollock fishing will be restricted on the basis of each Coop's Tier status.

(i) Savings Area Designation Criteria. To qualify as a Chinook Savings Area, (a) an amount of pollock that Sea State in its sole discretion determines to be substantial must have been taken in the Savings Area during the period on which its designation as a Chinook Savings Area is based, or the area must have been designated a Chinook Savings Area for the prior notification period and there must be evidence satisfactory to Sea State in its sole discretion that suggests that Chinook bycatch rates in the area are not likely to have changed, and (b) the Chinook salmon bycatch rate in the area for the period on which its definition as a Savings Area is based must exceed the Base Rate. For purposes of (a), above, Sea State shall consider a pollock harvest of two percent (2%) of the total amount of pollock harvested in the Fishery during the period on which a Savings Area designation is based to be indicative of, but not dispositive of, whether a substantial amount of pollock has been harvested in an area.

(ii) Savings Area Boundaries and Limitations. Subject to the limits set forth in this Section, Chinook Savings Areas shall be defined by a series of latitude/longitude coordinates as Sea State determines appropriate to address Chinook bycatch. Notwithstanding the foregoing, the following limits will apply to designations of Chinook Savings Areas: (i) for any single closure period, the Chinook Savings Area(s) West of 168 degrees West may not exceed five hundred (500) square miles in area; (ii) the total area within all Chinook Savings Area closures during any single

closure period may not exceed one thousand five hundred (1500) square miles; and (iii) there may be no more than two (2) distinct Chinook Savings Areas West of 168 degrees West longitude and no more than two (2) distinct Chinook Savings Areas East of 168 degrees West longitude during any single closure period.

g. Chinook Savings Area Closure Announcements. Chinook Savings Area closures announced on Thursdays (the "Thursday Announcement" of the "Friday Closures") shall be effective from 6:00 pm the following Friday through 6:00 pm the following Tuesday, and Chinook Savings Area closures announced on Mondays (the "Monday Announcement" of "Tuesday Closures") shall be effective from 6:00 pm the following Tuesday through 6:00 pm the following Friday. Upon a Chinook Savings Area closure taking effect, fishing by Coop vessels participating in the Fishery shall be restricted pursuant to Subsection 3.h., below. Each Thursday Announcement shall include the following information: (i) season update on pollock harvest and Chinook bycatch by pollock fishery sector and in total; (ii) each Coop's updated rolling two week bycatch rate, associated Tier status, and Chinook Savings Area closure dates, times and days; (iii) the coordinates describing each Chinook Savings Area, and a map of the Area; (iv) Chinook bycatch rates for each Alaska Department of Fish and Game statistical area in which there was directed pollock fishing during the previous week; and (v) updated vessel performance lists, as defined in 3.i., below. Each Monday Announcement shall include the information described in clauses (i), (iii), (iv), and a reminder to each Coop of its Tier status.

h. Chinook Savings Area Implementation. During the Fishery "A" seasons, Savings Area closures shall apply to Coop member vessels as follows. Chinook Savings Areas announced as Friday Closures and as updated by Tuesday Closures shall be closed to fishing by Tier 3 Coop vessels for seven (7) days. Chinook Savings Area announced as Friday Closures shall be closed to fishing by Tier 2 Coop vessels through 6:00 pm the following Tuesday. Tier 1 Coop vessels may fish in Chinook Savings Areas closed to the Tier 2 and Tier 3 coops. For purposes of this Agreement, "fishing" shall have the meaning set forth in Section 7.a., below.

i. Vessel Performance Lists. On a weekly basis, Sea State shall provide the following vessel performance information to the Coops:

i. A list of the 20 Coop member vessels with the poorest season-to-date Chinook bycatch performance. Vessels shall be selected for the list by assigning each vessel a number of points for each time the vessel is on the weekly list described in (iii), below. The vessel on the top of the weekly list shall be assigned 20 points, the vessel in second place shall be assigned 19 points, and so on. Each vessel's point score shall be tabulated on a weekly basis, and the vessels with the top 20 point scores shall

appear on the list. A vessel must have harvested more than 500 mt of pollock in the season to date to be placed on this list.

ii. A list of the 20 vessels with the highest Chinook salmon bycatch rates in excess of the Base Rate for the previous 2 weeks.

iii. A list of the 20 vessels with the highest Chinook salmon bycatch rates in excess of the Base Rate for the previous week.

j. Advisory Notices. Throughout the term of this Agreement, Sea State shall provide Chinook salmon "hot spot" advisory notices concerning areas of high bycatch that do not fall within Chinook Savings Area closures.

4. "B" Season Bycatch Management. The parties agree that during the Fishery "B" seasons, Chinook and chum salmon bycatch in the Fishery shall be managed on an inter-cooperative basis as follows. Sea State shall use a bycatch rate (the "Base Rate") as a trigger for identifying areas to be closed to pollock fishing by certain Coops ("Savings Areas"), and as a basis for determining each Coop's tier status, which in turn shall govern whether, and if so, when, each Coop's members may harvest pollock inside of a Savings Area. However, in contrast to "A" seasons, during which only Chinook salmon bycatch is used to determine Savings Areas closures and Coop tier status, during "B" seasons, Sea State shall monitor both Chinook and chum salmon bycatch, and may announce Savings Areas for either or both species, and Sea State shall assign each Coop both a Chinook and chum bycatch tier status. In addition, Sea State shall have the authority to declare up to two salmon Savings Areas in the Bering Sea region East of 168 degrees West longitude (the "East Region") and up to two salmon Savings Areas in the Bering Sea/Aleutian Islands region west of 168 degrees West longitude (the "West Region"). However, in cases where both Chinook and chum bycatch exceed the respective "B" season Base Rates within a region, Sea State shall announce Chinook Savings Area closures for that region, and provide non-binding avoidance recommendations for areas of high chum bycatch within that region. The chum salmon Base Rate shall be adjusted once during each "B" season in response to chum bycatch rates, to take into account fluctuations in chum salmon abundance. For the years 2006 and 2007, the initial "B" season Chinook Base Rate shall not be adjusted. Thereafter, the initial Chinook Base Rate shall be the 2007 Fishery "B" season Chinook average bycatch rate, unless and until the Fishery "B" season initial Base Rate is further amended.

a. Initial Chum Base Rate. The initial "B" season chum salmon Base Rate shall be 0.19 chum salmon per metric ton of pollock.

b. Chum Base Rate In-Season Adjustment. Commencing on July 1 of each year that this Agreement is in effect, and on each Thursday through the duration of each "B" season thereafter, Sea State shall recalculate the "B" season chum salmon

Base Rate. The recalculated Base Rate shall be the three week rolling average of the Fishery "B" season chum bycatch rate for the then-current year. The recalculated Base Rate shall be the governing chum salmon Base Rate for purposes of each "Thursday Announcement" of a "Friday Closure" (as defined below) following recalculation.

c. "B" Season Chinook Salmon Base Rate. For the 2006 and 2007 BS/AI pollock "B" seasons, the Chinook salmon base rate shall be .05 Chinook salmon per metric ton of pollock. For the 2008 "B" season and thereafter, Sea State shall calculate a Base Rate by dividing the Chinook salmon bycatch during a period of the prior year's Fishery "B" season that Sea State determines in its sole discretion to be representative by the Coops' directed pollock harvest (including CDQ pollock) for the same period. The recalculated Base Rate shall become the governing Chinook salmon Base Rate for purposes of this Section 4 as of the first "Thursday Announcement" and "Friday Closure" (as defined below) following recalculation.

d. Implementation of Salmon Savings Measures. Sea State shall use Fishery "B" season bycatch data from fishing activity after June 10 of each year to provide Coops with preliminary information regarding the location and concentration of chum and Chinook salmon, and to determine initial Savings Area closures and Coop Tier assignments (as defined below). Sea State shall implement Savings Area closures as appropriate upon chum and/or Chinook bycatch rates exceeding the relevant Base Rate, and thereafter through the balance of each Fishery "B" season.

e. Cooperative Tier Assignments. Rate calculations for purposes of tier assignments shall be based on each Coop's pollock catch in the Fishery for the prior two weeks (the denominator) and the associated bycatch of chum and Chinook salmon taken by its members (the numerators). For purposes of this Section, a Coop's salmon bycatch amount shall be based on observed, counted chum and Chinook salmon (i.e., whole haul samples), or sample sizes sufficiently large that Sea State reasonably concludes that estimated number of chum and Chinook salmon has a high probability of being accurate. Classification of inshore Coops shall be based on plant observer data, and not on tow-by-tow estimates from the fishing grounds.

- Coops with chum and/or Chinook salmon bycatch rates of less than 75% of the applicable Base Rate shall be assigned to "Tier 1" for the relevant species.

- Coops with chum and/or Chinook salmon bycatch rates equal to or greater than 75% of the applicable Base Rate but equal to or less than 125% of the Base Rate shall be assigned to "Tier 2" for the relevant species.

- Coops with chum or Chinook salmon bycatch rates greater than 125% of the applicable Base Rate shall be assigned to "Tier 3" for the relevant species.

f. Bycatch Hot Zone Identification. When the Fishery "B" season is open to any of the inshore, catcher/processor or mothership components, on an ongoing basis Sea State shall calculate the bycatch rates for each Alaska Department of Fish and Game ("ADF&G") statistical area for which Sea State receives a salmon bycatch report, and when feasible, for each lateral half of each such statistical area. Bycatch rates shall be recalculated and updated every four (4) or seven (7) days during the season, immediately proceeding the closure announcements described in Section 4.g., below, as Sea State determines appropriate given the quality of data available for the area. The bycatch rates shall be calculated on the basis of reports Sea State determines to be adequately accurate, including reliable tow-by-tow estimates from the fishing grounds. In every case, rates calculated on the basis of the actual number of salmon observed per tow shall be given priority over rates based on sampling and extrapolation.

g. "B" Season Salmon Savings Areas. On each Thursday and on each Monday following June 10, for the duration of the Fishery "B" season, Sea State shall, subject to the criteria set forth below, provide notice to the Coops identifying one or more areas designated as "Chinook Savings Areas" and/or "Chum Savings Areas", within which pollock fishing shall be restricted on the basis of each Coop's Tier status.

(i) Savings Area Designation Criteria. To qualify as a Chinook Savings Area, (a) an amount of pollock that Sea State in its sole discretion determines to be substantial must have been taken in the Savings Area during the period on which its designation as a Savings Area is based, or the area must have been designated a Savings Area for the prior notification period and there must be evidence satisfactory to Sea State in its sole discretion that suggests that salmon bycatch rates in the area are not likely to have changed, and (b) the salmon bycatch rate in the area for the period on which its definition as a Savings Area is based must exceed the relevant Base Rate. For purposes of (a), above, Sea State shall consider a pollock harvest of two percent (2%) of the total amount of pollock harvested in the Fishery during the period on which a Savings Area designation is based to be indicative of, but not dispositive of, whether a substantial amount of pollock has been harvested in an area.

(ii) Savings Area Boundaries and Limitations. Subject to the limits set forth in this Section, Savings Areas shall be defined by a series of latitude/longitude coordinates as Sea State determines appropriate to address salmon bycatch. Notwithstanding the foregoing, the following limits shall apply to designations of "B" season Savings Areas: (i) Chum Savings Area closures in the East Region may not exceed three thousand (3,000) square miles in total area during any single closure period; (ii) Chum Savings Areas in the West Region may not exceed one thousand (1,000) square miles in total area during any single closure period; (iii) the total area of all Chinook Savings Area closures during any single closure period may not exceed one thousand five hundred (1500) square miles; (iv) Chinook Savings Areas in the West Region may not exceed five hundred (500) square miles in total area during any single

closure period; (v) there may be up to two (2) Savings Areas per Region per closure period; (vi) within either Region, Sea State may declare Chum Savings Area closures or Chinook Savings Area closures, but may not declare both Chum and Chinook Savings Areas. In the event that the Base Rates for both chum salmon and Chinook salmon are exceeded within a Region, assuming the other criteria for declaring a Savings Area are met, Sea State shall declare one or two Chinook Savings Areas in the Region, and issue a non-binding avoidance recommendation for the area(s) of high chum bycatch.

h. "B" Season Savings Area Closure Announcements. Fishery "B" season Savings Area closures announced on Thursdays (the "Thursday Announcement" of the "Friday Closures") shall be effective from 6:00 pm the following Friday through 6:00 pm the following Tuesday, and Savings Area closures announced on Mondays (the "Monday Announcement" of "Tuesday Closures") shall be effective from 6:00 pm the following Tuesday through 6:00 pm the following Friday. Upon a Savings Area closure taking effect, fishing by Coop vessels participating in the Fishery shall be restricted pursuant to Subsection 4.i., below. Each Thursday Announcement shall include the following information: (i) season update on pollock harvest and salmon bycatch by pollock fishery sector and in total; (ii) each Coop's updated rolling two week chum salmon bycatch rate, associated Tier status, and Savings Area closure dates, times and days; (iii) the coordinates describing each salmon Savings Area, and a map of the Area; . (iv) salmon bycatch rates by species for each Alaska Department of Fish and Game statistical area in which there was directed pollock fishing during the previous week; and (v) updated vessel performance lists, as defined in 4.j., below. Each Monday Announcement shall include the information described in clauses (i), (iii), (iv), and a reminder to each Coop of its chum bycatch Tier status.

i. "B" Season Savings Area Implementation. During the Fishery "B" seasons, Savings Area closures shall apply to Coop member vessels as follows. Chum Savings Areas announced as Friday Closures and as updated by Tuesday Closures shall be closed to fishing by Tier 3 Coop vessels for seven days. Chum Savings Areas announced as Friday Closures shall be closed to fishing by Tier 2 Coop vessels through 6:00 pm the following Tuesday. Tier 1 Coop vessels may fish in Chum Savings Areas closed to the Tier 2 and Tier 3 Coop vessels. Chinook Savings Areas shall be closed to fishing by all Coop vessels, regardless of Tier status. For purposes of this Agreement, "fishing" shall have the meaning set forth in Section 7.a., below.

j. Vessel Performance Lists. On a weekly basis, Sea State shall provide two salmon bycatch performance lists to the Coops, one calculated on the basis of Chinook bycatch, the other calculated on the basis of chum bycatch:

i. A list of the 20 Coop member vessels with the poorest season-to-date bycatch performance. Vessels shall be selected for the list by assigning each vessel a number of points for each time the vessel is on the

weekly list described in (iii), below. The vessel on the top of the weekly list shall be assigned 20 points, the vessel in second place shall be assigned 19 points, and so on. Each vessel's point score shall be tabulated on a weekly basis, and the vessels with the top 20 point scores shall appear on the list. A vessel must have harvested more than 500 mt of pollock in the season to date to be placed on this list.

ii. A list of the 20 vessels with the highest bycatch rates for the previous 2 weeks in excess of the Base Rate.

iii. A list of the 20 vessels with the highest bycatch rates for the previous week in excess of the Base Rate.

k. Throughout the Fishery "B" season, Sea State shall provide salmon "hot spot" advisory notices concerning areas of high salmon bycatch that do not fall within Savings Area closures.

5. Inshore Vessels Landing Pollock to a Non-Associated Processor. The provisions of this Section 5 shall apply in circumstances under which a Coop member elects to employ its vessel to deliver pollock to a processor with which the member's Coop is not affiliated (a "Non-affiliated Processor").

a. If a Coop member elects to employ its vessel to deliver pollock to "Non-affiliated Processor" under an Amendment 69 charter arrangement, prior to commencing the first fishing trip under such arrangement, the member shall execute and deliver to the Authorized Representative of the Coop into which it is being chartered (the "Charter Coop") and to the intercoop manager an adherence agreement under which such member agrees to comply with all of the applicable terms and conditions of the Charter Coop's Membership Agreement, and grants such Charter Coop authority to impose penalties as appropriate for any failure to comply with such terms and conditions. The member shall notify the intercoop manager of each delivery made in whole or in part under an Amendment 69 charter within two (2) days of making such delivery. All salmon taken as bycatch under an Amendment 69 charter shall be counted as Charter Coop bycatch, and the vessel shall be subject to the salmon Savings Area closures applicable to the Charter Coop in connection with each fishing trip made under an Amendment 69 charter.

b. If a member's vessel delivers to a Non-affiliated Processor from the member's Coop's ten percent (10%) "free market" allocation, such deliveries shall be subject to all of the terms and conditions of the member's Coop's Membership Agreement. All salmon taken as bycatch in connection with such deliveries shall be counted as the member's Coop's bycatch, and the vessel shall be subject to the salmon

Savings Area closures applicable to the member's Coop in connection with all such deliveries.

c. If a member's vessel delivers to a Non-Affiliated processor fish harvested both under an Amendment 69 charter and from the member's Coop's free market allocation during a single fishing trip (such trip being a "Split Trip"), the member shall comply with the terms and conditions of the Membership Agreements of both the member's Coop and the Charter Coop, and, without limitation, shall comply with the more restrictive of the Savings Area closures applicable to each of such Coops. All salmon bycatch taken during a Split Trip shall be allocated between the member's Coop and the Charter Coop in proportion to the amount of pollock taken under each such Coop's allocation during each such trip.

6. Data Gathering and Reporting. The Coops acknowledge that the effectiveness of the bycatch management program being implemented under this Agreement depends on rapidly gathering, analyzing and disseminating accurate data concerning Chinook and chum salmon bycatch in the Fishery. The Coops therefore agree as follows.

a. Each Coop shall require its members to take all actions necessary to release their vessels' NMFS observer reports and official landing records to Sea State as soon as commercially practicable after such documents are completed. Each Coop shall request its members' vessels to exercise commercially reasonable efforts to report to Sea State within 24 hours the location of, estimated pollock tonnage of and estimated number of Chinook and chum salmon in each trawl tow. PCC may satisfy its obligation under this section 6.a. by arranging to have its members' vessels' observer reports concerning salmon bycatch transmitted to Sea State. MFC and High Seas may satisfy their obligations under this Section by arranging to have the pollock amounts and Chinook and chum salmon counts for their members' vessels reported to Sea State by the observers on the processing vessels to which their members' vessels deliver. The Inshore Coops shall arrange for their vessels to report the crew's best estimate of the amount of pollock and the number of Chinook and chum salmon in the tow when reporting its location. Each Inshore Coop shall develop its own methods and means to accurately calculate (when feasible) or estimate the amount of pollock and the number of salmon contained in each tow by its members' vessels, and to rapidly and accurately report that information to Sea State.

b. The Inshore Coops acknowledge that the Vessel Monitoring System ("VMS") is the most efficient means for reporting tow-by-tow data to Sea State, and the Inshore Coops therefore agree to encourage their members to use the VMS system to do so.

c. Sea State shall from time to time announce a Chinook or chum bycatch rate that shall trigger an incident reporting requirement. Each Coop shall require its members' vessels to notify their coop manager (if applicable), the intercooperative manager and, if feasible, Sea State as soon as possible of any tow with a chum or Chinook salmon bycatch rate that the crew estimates to be equal to or greater than the incident reporting rate threshold.

7. Savings Area Closure Enforcement. Upon a Coop receiving a Savings Area closure notice which has the effect of closing one or more Savings Areas to fishing by its members' vessels under this Agreement, the Coop shall timely notify its members. Each Coop agrees to take enforcement action with respect to any violation of a Savings Area closure notice, and to collect the assessments set forth below in cases where a vessel is found to have violated a closure.

a. Sea State shall monitor the fishing activities of all Coops' members' vessels, and shall promptly report all apparent Savings Area violations to all Coops. For purposes of this Agreement, "fishing" shall mean all activity of a vessel between the time of initial gear deployment and final gear retrieval. For purposes of this Section 7.a., "gear deployment" and "gear retrieval" shall have the meanings given them in 50 C.F.R. 679.2 or its successor, as the same may be amended from time to time. Initial gear deployment shall mean setting trawl gear with an empty codend, and final gear retrieval shall mean retrieving trawl gear to either pull a codend aboard the vessel or to deliver the codend to another vessel.

b. Upon receiving notice of an apparent violation from Sea State, the Board of Directors of the Coop to which the vessel belongs shall have one hundred and eighty (180) days to take action in connection with the apparent violation, and to provide a report of the action taken and a copy of the record supporting that action to all other Coops. When the Board of Directors to which the vessel belongs provides its report, or if the Coop Board of Directors fails to provide its report within such 180 day period, then Sea State and/or UCB shall provide each other Coop, the CDQ Groups, the Association of Village Council Presidents ("AVCP"), Bering Sea Fishermen's Association ("BSFA"), Tanana Chiefs' Conference ("TCC") and Yukon River Drainage Fishermen's Association ("YRDFA") with the Coop's report (if provided) and the record developed by Sea State in connection with the apparent violation, and each of such parties shall have standing to pursue Savings Area closure enforcement actions equivalent to such Coop's own rights with respect to its members.

c. The Coops hereby adopt a uniform assessment for a skipper's first annual violation of a Savings Area closure of Ten Thousand Dollars ($10,000.00), a uniform assessment for a skipper's second annual violation of a Savings Area closure of Fifteen Thousand Dollars ($15,000.00), and a uniform assessment of Twenty Thousand Dollars ($20,000.00) for a skipper's third and subsequent violations in a year. The

Coops acknowledge that the damages resulting from violating a Savings Area closure are difficult to estimate, and that the foregoing assessment amounts are therefore intended to be a substitute in all cases for direct, indirect and consequential damages. Therefore, the Coops agree that the assessment amounts established under this Subsection 7.b are liquidated damages, the payment of which (together with reasonable costs of collection) shall satisfy a Coop's and its members' obligations related to a Savings Area closure violation. The Coops hereby waive any and all claims to direct, indirect or consequential damages related to such violation.

d. The Coops agree that any funds collected in connection with a violation of this agreement, in excess of those necessary to reimburse the prevailing party for its costs and attorneys fees, shall be used to support research concerning the stocks of origin of salmon taken incidentally in the Fishery. The Coops agree to consult with the CDQ Groups, AVCP, BSFA, TCC and YRDFA regarding the most appropriate use of such funds.

e. For purposes of this Section 7, State and Federal landing reports, observer data, VMS tracking data, vessel log books and plotter data and Coop catch data produced by the Sea State in conformance with NMFS catch accounting and bycatch estimation procedures shall be presumed accurate and sufficient for determining whether a vessel violated a Savings Area closure, absent a clear and compelling demonstration of manifest error. The Coops agree to take all actions and execute all documents necessary to give effect to this provision.

f. The Coops agree to require their members to obtain and maintain an operational VMS unit approved by Sea State on their vessels, provided that such units are available on a commercially reasonable basis. The Coops agree to cause their members to release their VMS tracking data to Sea State. Sea State agrees not to disclose any such information, other than as specifically authorized under this Agreement, as necessary to fulfill the intents and purposes of this Agreement, or with prior consent from the affected vessel owner. The Coops agree that the damages resulting from vessels operating in non-compliance with this subsection are difficult to estimate, and the Coops therefore hereby adopt a uniform assessment of One Thousand Dollars ($1,000.00) per day for each consecutive day over thirty (30) consecutive days that a Coop member's vessel is employed in the Fishery without an operational VMS unit approved by Sea State, provided such unit is available on a commercially reasonable basis.

8. Release and Waiver of All Claims Against SeaState and United Catcher Boats; Indemnification and Hold Harmless. The parties acknowledge that the effectiveness of this Agreement depends to a significant extent on Sea State's and UCB's discretion and judgment in designating and defining Savings Areas, determining each Coop's Tier status, monitoring compliance with Savings Area closures, and initiating and

supporting enforcement actions under circumstances where a Coop member appears to have violated this Agreement. The parties further acknowledge that if Sea State or UCB were potentially liable for simple negligence in connection with such actions, it would be necessary for Sea State and UCB to charge a substantially larger fee for the services they provide in connection with this Agreement, to offset that potential liability. It is therefore in the parties' interest to reduce Sea State's and UCB's potential liability under this Agreement. Therefore, the Coops and the CDQ Groups hereby waive and release any and all claims against Sea State and UCB arising out of or relating to Sea State's or UCB's services in connection with this Agreement, other than those arising out of gross negligence or willful misconduct by Sea State or UCB. Further, the Coops jointly and severally agree to indemnify, defend and hold Sea State and UCB harmless against any third party claims asserted against Sea State or UCB arising out of or relating to Sea State's or UCB's services in connection with this Agreement, other than those arising out of gross negligence or willful misconduct by Sea State or UCB.

9. Coop Membership Agreement Amendments. To give effect to this Agreement, the Coops agree to cause each of their Membership Agreements to include the following provisions.

a. Each member shall acknowledge that its vessel's operations are governed by this Agreement, and shall agree to comply with its terms.

b. Each member shall authorize its Coop's Board of Directors to take all actions and execute all documents necessary to give effect to this Agreement.

c. Each member shall authorize its Coop Board of Directors to enforce this Agreement, and if the Board fails to do so within one hundred eighty (180) days of receiving notice from Sea State that a cooperative member may have failed to comply with the Agreement, each member shall authorize each other Coop, each of the CDQ groups, AVCP, BSFA, TCC and YRDFA to individually or collectively enforce this Agreement.

d. Each member shall agree to maintain an operational VMS unit approved by Sea State on its vessel at all times that its vessel is participating in the Fishery, provided such VMS unit is available on a commercially reasonable basis, and shall agree to cause its vessel's VMS tracking data to be released to Sea State on a basis that permits Sea State to determine whether the member's vessel has operated in compliance with this Agreement. Each Coop member shall release to Sea State its State and Federal landing reports, observer data, VMS tracking data, and vessel log books and plotter data for purposes of determining its compliance with this Agreement, and agrees that in the event Sea State concludes that its vessel may have violated a hot spot closure, Sea State may release such data as Sea State in its sole discretion determines appropriate to facilitate enforcement of this Agreement.

e. Each member shall agree that the information contained in the records identified in d., above, shall be presumed accurate absent a clear and compelling demonstration of manifest error, and shall be presumed sufficient to determine its compliance with this Agreement.

f. Each member shall agree that the damages resulting from violating a Savings Area closure are difficult to estimate, and that the assessment amounts provided under this Agreement are therefore intended to be a substitute in all cases for direct, indirect and consequential damages. Each member shall agree that its Coop Board of Directors may modify Savings Area violation assessment amounts from time to time, as necessary to maintain an effective deterrent to Savings Area violations. Each member shall agree that each trawl tow during which the member's vessel fishes in a Savings Area in violation of this Agreement shall constitute a separate violation for purposes of assessment calculation. Each member shall agree that damages for violating this Agreement shall apply on a strict liability basis, regardless of a member's lack of knowledge of the violation or intent to violate the agreement. Each member shall agree that actual damages for violating this Agreement would be difficult to calculate, and shall therefore agree to pay the assessment amounts established under this Agreement, as amended from time to time, as liquidated damages. Each member agrees to modify its skipper contracts to make its skipper(s) fully responsible for the assessments levied in connection with a breach of the agreement. Further, each member agrees that in the event a skipper fails to assume such assignment of liability, or in the event such assumption of liability is deemed invalid, the member shall be liable for the full amount of such assessment, and all related costs and attorneys' fees.

g. Each member shall agree that in connection with any action taken to enforce this Agreement, the prevailing party shall be entitled to the costs and fees it incurs in connection with such action, including attorneys' fees.

h. Each member shall agree that in addition to legal remedies, the Board of Directors of each cooperative, each of the CDQ groups, and BSFA and YRDFA shall be entitled to injunctive relief in connection with the second and subsequent violations of this Agreement.

i. Each member shall agree to waive and release any and all claims against Sea State and UCB arising out of or relating to Sea State's or UCB's services in connection with this Agreement, other than those arising out of gross negligence or willful misconduct by Sea State or UCB.

j. Each member shall acknowledge that, notwithstanding the definition of "fishing" used in this Agreement (which is the consistent with the definition used by NMFS for logbook entries and observer reporting purposes), it is the Coops' policy that

no member's vessel will be present in a Savings Area that is closed to fishing by such Coops' members' vessels unless and until such vessel's trawl doors have been fully retrieved or stored. Further, each member shall agree that, absent extenuating circumstances, such member exercise its best efforts to comply with this policy.

10. Term. This Agreement shall take effect as of November 30, 2007. The initial term of this Agreement shall extend through November 1, 2010. The term of this Agreement shall be automatically extended for an additional year as of September 15 each year it remains in effect, i.e., as of September 15, 2008, the new expiration date of this Agreement shall be November 1, 2011, and so on. A party to this Agreement may terminate its status as a party by providing written notice to all other parties to this Agreement to that effect, provided that the effective date of such party's termination shall be the expiration date of this Agreement in effect at the time the termination notice is delivered. For example, if a Coop provides termination notice on August 15, 2008, its termination shall not be effective until November 1, 2010. If a Coop provides termination notice on October 1, 2008, its termination shall not be effective until November 1, 2011. Notwithstanding any party's termination of its participation in this Agreement or the expiration of its term, the enforcement provisions of Section 7, above, shall survive with full force and effect.

11. Breach and Termination of Exemption. Each Coop acknowledges that, as of the opening of the 2008 "A" season Fishery, NMFS is expected to issue an annual exemption to the regulatory salmon savings closures (the "Exemptions") to each Coop that is a party to and complies with this Agreement. Further, each Coop acknowledges that a Coop's material breach of this Agreement that is not timely cured shall result in forfeiture of such Coop's right to retain its Exemption. The following shall constitute material breaches of this Agreement:

(i) a Coop failing to take enforcement action within one hundred eighty (180) days of being notified by Sea State of an apparent violation of a Savings Area closure by one or more of its members, as provided in Section 7.a, above;

(ii) a Coop failing to collect and/or disburse an assessment in compliance with this Agreement within one hundred eighty (180) days of a determination that its member(s) violated a Savings Area closure, as provided in Sections 7.b and 7.c, above;

(iii) a Coop failing to collect and/or disburse an assessment in compliance with this Agreement within one hundred eighty (180) days of a determination that a member of the Coop failed to maintain an available, operational VMS unit approved by Sea State on its vessel as provided in Section 7.e of this Agreement and/or failed to cause such vessel(s) to release their VMS tracking data to Sea State as provided in Section 7.e of this Agreement.

In the event of a material breach of this Agreement by a Coop that is not cured within thirty (30) days of such Coop's authorized representative receiving written notice of such breach from one or more other Coop(s), a CDQ Group, AVCP, BSFA, TCC or YRDFA, any one of such parties may demand that the breaching Coop tender its Exemption to NMFS, and such Coop shall do so within ten (10) days. If a Coop fails to timely tender its Exemption, any of such parties may seek injunctive relief requiring such Coop to tender its Exemption.

12. Annual Compliance Audit. The Coops shall annually retain an entity that is not a party to this Agreement (the "Compliance Auditor") to review and prepare a report concerning Sea State's performance of its monitoring and notification obligations under this Agreement and actions taken by the Coops in response to all notifications from Sea State to the Coops regarding potential violations of this Agreement. The Coops shall provide the CDQ Groups, AVCP, BSFA, TCC and YRDFA with an opportunity to participate in selecting the Compliance Auditor. Sea State and the Coops shall cooperate fully with the Compliance Auditor, and shall provide any information the Compliance Auditor requires to complete its review and report. If the Compliance Auditor identifies a failure to comply with this Agreement as part of its review, the Compliance Auditor shall notify all parties to this Agreement of the failure to comply, shall distribute to all parties to this Agreement the information used to identify the failure to comply, and shall provide notice of any such failures in the Compliance Auditor's final report.

13. Miscellaneous.

a. No amendment to this Agreement shall be effective against a party hereto unless in writing and duly executed by such party. The parties agree to amend this Agreement as reasonably necessary to conform with changes in law or circumstances.

b. This Agreement shall be governed by and construed in accordance with applicable federal law and the laws of the State of Washington.

c. This Agreement may be executed in counterparts which, when taken together, shall have the same effect as a fully executed original. Delivery of a signed copy of this Agreement by telefacsimile shall have the same effect as delivering a signed original.

d. The parties agree to execute any documents necessary or convenient to give effect to the intents and purposes of this Agreement.

e. All notices required to be given under this Agreement shall be deemed given five (5) days following deposit in certified first class U.S. mail, postage prepaid,

with the correct address, or upon the first business day following confirmed telefacsimile or e-mail transmission to the recipient. Each party to this Agreement agrees to provide the name, postal address, telefacsimile number and e-mail address of its duly authorized representative(s) for purposes of receiving notices under this Agreement within three (3) days of executing this Agreement.

f. In the event that any provision of this Agreement is held to be invalid or unenforceable, such provision shall be deemed to be severed from this Agreement, and such holding shall not affect in any respect whatsoever the validity of the remainder of this Agreement.

g. Each Coop agrees to use its best efforts to resolve any disputes arising under this Agreement through direct negotiations. Breaches of this Agreement for which a party seeks a remedy other than injunctive relief that are not resolved through direct negotiation shall be submitted to arbitration in Seattle, Washington upon the request of any party to this Agreement. The party's written request will include the name of the arbitrator selected by the party requesting arbitration. The other party will have ten (10) days to provide written notice of the name of the arbitrator it has selected, if any. If the other party timely selects a second arbitrator, the two arbitrators will select a third arbitrator within ten (10) days. If the other party does not timely select the second arbitrator, there shall be only the one arbitrator. The single arbitrator or the three (3) arbitrators so selected will schedule the arbitration hearing as soon as possible thereafter. Every arbitrator, however chosen, must have no material ties to any Coop or Coop member. The decision of the arbitrator (or in the case of a three (3) arbitrator panel, the decision of the majority) will be final and binding. The arbitration will be conducted under the rules of (but not by) the American Arbitration Association. The parties will be entitled to limited discovery as determined by the arbitrator(s) in its or their sole discretion. The arbitrator(s) will also determine the "prevailing party" and that party will be entitled to its reasonable costs, fees and expenses, including attorneys' and arbitrator fees, incurred in the action by said party. In no event will arbitration be available pursuant to this paragraph after the date when commencement of such legal or equitable proceedings based on such claim, dispute, or other matter in question would be barred by the applicable statue of limitations.

Entered into as of the date first set forth above.

Signature pages not included; the agreement was signed by all 10 AFA coops, all CDQ groups, Sea State, and United Catcher Boats for the December 1, 2007 Amendment 84(a) deadline.

2. Technical Amendments to the Rolling Hot Spot Agreement

BERING SEA POLLOCK FISHERY
ROLLING HOT SPOT CLOSURE
SALMON BYCATCH MANAGEMENT AGREEMENT
AMENDMENT

This BERING SEA POLLOCK FISHERY ROLLING HOT SPOT CLOSURE SALMON BYCATCH MANAGEMENT AGREEMENT AMENDMENT is entered into by and among POLLOCK CONSERVATION COOPERATIVE ("PCC"), the HIGH SEAS CATCHERS COOPERATIVE ("High Seas"), MOTHERSHIP FLEET COOPERATIVE ("MFC"), the "Inshore Coops", i.e., AKUTAN CATCHER VESSEL ASSOCIATION, ARCTIC ENTERPRISE ASSOCIATION, NORTHERN VICTOR FLEET COOPERATIVE, PETER PAN FLEET COOPERATIVE, UNALASKA FLEET COOPERATIVE, UNISEA FLEET COOPERATIVE and WESTWARD FLEET COOPERATIVE, and the "CDQ Groups", i.e., ALEUTIAN PRIBILOF ISLAND COMMUNITY DEVELOPMENT ASSOCIATION, BRISTOL BAY ECONOMIC DEVELOPMENT CORPORATION, CENTRAL BERING SEA FISHERMEN'S ASSOCIATION, COASTAL VILLAGES REGION FUND, NORTON SOUND ECONOMIC DEVELOPMENT CORPORATION and YUKON DELTA FISHERIES DEVELOPMENT ASSOCIATION, and SEA STATE, INC. ("Sea State") and UNITED CATCHER BOATS ASSOCIATION ("UCB") as of _____, 2008. PCC, High Seas, MFC and the Inshore Coops are hereafter collectively referred to as the "Coops".

This Agreement is entered into with respect to the following facts:

RECITALS

The National Marine Fisheries Service ("NMFS") has requested several technical corrections to the Amended and Restated Bering Sea Rolling Hot Spot Closure Salmon Bycatch Management Agreement dated as of December 1, 2007 (the "Agreement") in connection with NMFS's review of the Agreement for compliance with the regulations implementing Amendment 84 to the Bering Sea Groundfish Fishery Management Plan. The Coops and the CDQ Groups wish to amend the Agreement per NMFS's request.

Now, therefore, for good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged, the parties agree as follows:

AGREEMENT

1. Purpose of Agreement. This Amendment amends the Agreement. All capitalized terms not otherwise defined herein shall have the meaning given them in the Agreement.

2. Amendment to Section 4 of Agreement. Section 4 of the Agreement is amended to read as follows:

> "4. "B" Season Bycatch Management. The parties agree that during the Fishery "B" seasons, Chinook and chum salmon bycatch in the Fishery shall be managed on an inter-cooperative basis as follows. Sea State shall use a bycatch rate (the "Base Rate") as a trigger for identifying areas to be closed to pollock fishing by certain Coops ("Savings Areas"), and as a basis for determining each Coop's tier status, which in turn shall govern whether, and if so, when, each Coop's members may harvest pollock inside of a Savings Area. However, in contrast to "A" seasons, during which only Chinook salmon bycatch is used to determine Savings Areas closures and Coop tier status, during "B" seasons, Sea State shall monitor both Chinook and chum salmon bycatch, and may announce Savings Areas for either or both species, and Sea State shall assign each Coop both a Chinook and chum bycatch tier status. In addition, Sea State shall have the authority to declare up to two salmon Savings Areas in the Bering Sea region East of 168 degrees West longitude (the "East Region") and up to two salmon Savings Areas in the Bering Sea/Aleutian Islands region west of 168 degrees West longitude (the "West Region"). However, in cases where both Chinook and chum bycatch exceed the respective "B" season Base Rates within a region, Sea State shall announce Chinook Savings Area closures for that region, and provide non-binding avoidance recommendations for areas of high chum bycatch within that region. The chum salmon Base Rate shall be adjusted once during each "B" season in response to chum bycatch rates, to take into account fluctuations in chum salmon abundance. For the years 2006 and 2007, the initial "B" season Chinook Base Rate shall not be adjusted. For 2008, the initial "B" season Chinook Base Rate shall be 0.05 Chinook salmon per metric ton of pollock. For the "B" season of the 2009 fishing year and each "B" season thereafter, the base rate shall be based on the Chinook salmon bycatch during a representative period of the prior year's "B" season.

3. Amendment to Section 4.c of Agreement. Section 4.c of the Agreement is amended to read as follows:

"c. "B" Season Chinook Salmon Base Rate. For the 2008 BS/AI pollock "B" season, the Chinook salmon base rate shall be .05 Chinook salmon per metric ton of pollock. For the 2009 "B" season and thereafter, Sea State shall calculate a Base Rate by dividing the Chinook salmon bycatch during a period of the prior year's Fishery "B" season that Sea State determines in its sole discretion to be representative by the Coops' directed pollock harvest (including CDQ pollock) for the same period. The recalculated Base Rate shall become the governing Chinook salmon Base Rate for purposes of this Section 4 as of the first "Thursday Announcement" and "Friday Closure" (as defined below) following recalculation."

4. Definition of "Chum Salmon". The terms "chum" and "chum salmon" in the Agreement shall be construed as meaning "non-Chinook" salmon.

5. Miscellaneous.

a. This Agreement shall be governed by and construed in accordance with applicable federal law and the laws of the State of Washington.

b. This Agreement may be executed in counterparts which, when taken together, shall have the same effect as a fully executed original. Delivery of a signed copy of this Amendment by telefacsimile shall have the same effect as delivering a signed original.

Entered into as of the date first set forth above.

Signature pages not included; the agreement was signed by all 10 AFA coops on January 15, 2008.

3. Chinook Salmon Conservation Area Agreement

CHINOOK SALMON CONSERVATION AREA AGREEMENT

This CHINOOK SALMON CONSEVRATION AREA AGREEMENT is entered into by and among POLLOCK CONSERVATION COOPERATIVE ("PCC"), the HIGH SEAS CATCHERS COOPERATIVE ("High Seas"), MOTHERSHIP FLEET COOPERATIVE ("MFC"), the "Inshore Coops", i.e., AKUTAN CATCHER VESSEL ASSOCIATION, ARCTIC ENTERPRISE ASSOCIATION, NORTHERN VICTOR FLEET COOPERATIVE, PETER PAN FLEET COOPERATIVE, UNALASKA FLEET COOPERATIVE, UNISEA FLEET COOPERATIVE and WESTWARD FLEET COOPERATIVE, and SEA STATE, INC. ("Sea State") and UNITED CATCHER BOATS ASSOCIATION ("UCB") as of _____, 2008. PCC, High Seas, MFC and the Inshore Coops are hereafter collectively referred to as the "Coops". This Agreement is entered into with respect to the following facts:

RECITALS

The Coops are parties to that certain Amended and Restated Bering Sea Pollock Fishery Rolling Hot Spot Closure Salmon Bycatch Management Agreement dated December 1, 2007 (the "Salmon Bycatch Agreement"). The Coops believe that the effectiveness of the Salmon Bycatch Agreement may be enhanced by closing a certain area of the Bering Sea to pollock fishing by Coop member vessels during the Bering Sea pollock "A" season unless and until a determination is made that salmon bycatch rates within such closed area are not problematic.

Now, therefore, the parties agree as follows:

AGREEMENT

1. Purpose of Agreement. The purpose of this Agreement is to implement a Chinook salmon conservation area closure that enhances the effectiveness of the Salmon Bycatch Agreement. Each party to this Agreement agrees exercise all commercially reasonable efforts to achieve that purpose.

2. Monitoring and Management. The Coops shall retain Sea State to provide the data gathering, analysis, fleet monitoring and reporting services necessary to implement the Chinook salmon conservation area closure contemplated under this Agreement. The Coops shall retain UCB to provide day-to-day management of inter-cooperative matters related to the performance of this Agreement.

3. Definitions. All capitalized terms not otherwise defined in this Agreement shall have the meaning given to them in the Salmon Bycatch Agreement.

4. Chinook Salmon Conservation Area Closure. The area described on the attached Exhibit A (the "Chinook Conservation Area") shall be closed to all pollock fishing by Coop member vessels, including but not limited to fishing for Community Development Quota pollock, from the opening of each Bering Sea pollock fishery "A" season until the earlier of (i) such time as Sea State authorizes pollock fishing to take place in the Chinook Conservation Area in accordance with this Agreement, and then only on the terms and conditions established by Sea State, or (ii) closure of the Bering Sea pollock fishery "A" season.

a. If Sea State determines in its sole discretion that it is reasonable to conduct test fishing within the Chinook Conservation Area, Sea State may establish a protocol under which Coop member vessels may conduct pollock fishing operations in such Area. The terms and conditions of such protocol shall have the same force and effect as the Chinook Conservation Area closure implemented under this Agreement, any violation of such terms shall constitute a breach of this Agreement, and the terms of Section 5, below shall apply to any violation of terms and conditions of such protocol.

b. If based on the results of test fishing activity within the Chinook Conservation Area Sea State determines in its sole discretion that Chinook salmon bycatch rates in the directed pollock fishery could be reduced by permitting pollock fishing to take place within the Chinook Conservation Area, Sea State may open the Chinook Conservation Area to pollock fishing, subject to the restrictions imposed under the Salmon Bycatch Agreement and any additional terms and conditions as Sea State may impose in its sole discretion.

5. Chinook Conservation Area Enforcement.

a. Sea State shall monitor the fishing activities of all Coops' members' vessels, and shall promptly report all apparent Chinook Conservation Area violations to all Coops. For purposes of this Agreement, "fishing" shall mean all activity of a vessel between the time of initial gear deployment and final gear retrieval. For purposes of this Section 5.a., "gear deployment" and "gear retrieval" shall have the meanings given them in 50 C.F.R. 679.2 or its successor, as the same may be amended from time to time. Initial gear deployment shall mean setting trawl gear with an empty

codend, and final gear retrieval shall mean retrieving trawl gear to either pull a codend aboard the vessel or to deliver the codend to another vessel.

b. Upon receiving notice of an apparent violation from Sea State, the Board of Directors of the Coop to which the vessel belongs shall have one hundred and eighty (180) days to take action in connection with the apparent violation, and to provide a report of the action taken and a copy of the record supporting that action to all other Coops. When the Board of Directors of the Coop to which the vessel belongs provides its report, or if the Coop Board of Directors fails to provide its report within such 180 day period, then Sea State and/or UCB shall distribute the Coop's report (if provided) and the record developed by Sea State in connection with the apparent violation to all other Coops, and each Coop shall have standing to pursue Chinook Conservation Area enforcement actions equivalent to such Coop's own rights with respect to its members.

c. The Coops hereby adopt a uniform assessment for a skipper's first annual violation of a Chinook Conservation Area closure of Ten Thousand Dollars ($10,000.00), a uniform assessment for a skipper's second annual violation of a Chinook Conservation Area closure of Fifteen Thousand Dollars ($15,000.00), and a uniform assessment of Twenty Thousand Dollars ($20,000.00) for a skipper's third and subsequent annual violations. The Coops acknowledge that the damages resulting from violating a Chinook Conservation Area closure are difficult to estimate, and that the foregoing assessment amounts are therefore intended to be a substitute in all cases for direct, indirect and consequential damages. Therefore, the Coops agree that the assessment amounts established under this Subsection 5.c are liquidated damages, the payment of which (together with reasonable costs of collection) shall satisfy a Coop's and its members' obligations related to a Chinook Conservation Area closure violation. The Coops hereby waive any and all claims to direct, indirect or consequential damages related to such violation.

d. The Coops agree that any funds collected in connection with a violation of this agreement, in excess of those necessary to reimburse the prevailing party for its costs and attorneys fees, shall be used to support research concerning the stocks of origin of salmon taken incidentally in the Bering Sea pollock fishery.

e. For purposes of this Section 5, State and Federal landing reports, observer data, VMS tracking data, vessel log books and plotter data and Coop catch data produced by the Sea State in conformance with NMFS catch accounting and bycatch estimation procedures shall be presumed accurate and sufficient for determining whether a vessel violated a Chinook Conservation Area closure, absent a clear and compelling demonstration of manifest error. The Coops agree to take all actions and execute all documents necessary to give effect to this provision.

f. The Coops agree to require their members to obtain and maintain an operational VMS unit approved by Sea State on their vessels, provided that such units are available on a commercially reasonable basis. The Coops agree to cause their members to release their VMS tracking data to Sea State. Sea State agrees not to disclose any such information, other than as specifically authorized under this Agreement, as necessary to fulfill the intents and purposes of this Agreement, or with prior consent from the affected vessel owner. The Coops agree that the damages resulting from vessels operating in non-compliance with this subsection are difficult to estimate, and the Coops therefore hereby adopt a uniform assessment of One Thousand Dollars ($1,000.00) per day for each consecutive day over thirty (30) consecutive days that a Coop member's vessel is employed in the Fishery without an operational VMS unit approved by Sea State, provided such unit is available on a commercially reasonable basis.

6. Release and Waiver of All Claims Against Sea State and United Catcher Boats; Indemnification and Hold Harmless. The parties acknowledge that the effectiveness of this Agreement depends to a significant extent on Sea State's and UCB's discretion and judgment. The parties further acknowledge that if Sea State or UCB were potentially liable for simple negligence in connection with such actions, it would be necessary for Sea State and UCB to charge a substantially larger fee for the services they provide in connection with this Agreement, to offset that potential liability. It is therefore in the parties' interest to reduce Sea State's and UCB's potential liability under this Agreement. Therefore, the Coops hereby waive and release any and all claims against Sea State and UCB arising out of or relating to Sea State's or UCB's services in connection with this Agreement, other than those arising out of gross negligence or willful misconduct by Sea State or UCB. Further, the Coops jointly and severally agree to indemnify, defend and hold Sea State and UCB harmless against any third party claims asserted against Sea State or UCB arising out of or relating to Sea State's or UCB's services in connection with this Agreement, other than those arising out of gross negligence or willful misconduct by Sea State or UCB.

7. Coop Membership Agreement Amendments. To give effect to this Agreement, the Coops agree to cause each of their Membership Agreements to be amended to include the following provisions.

a. Each Coop member shall acknowledge that its vessel's operations are governed by this Agreement, and shall agree to comply with its terms.

b. Each Coop member shall authorize its Coop's Board of Directors to take all actions and execute all documents necessary to give effect to this Agreement.

c. Each Coop member shall authorize its Coop Board of Directors to enforce this Agreement, and each member shall authorize the other Coops to

individually or collectively enforce this Agreement upon the passage of one hundred eighty (180) days from the date such Board receives notice from Sea State that a Coop member may have failed to comply with the Agreement.

d. Each Coop member shall release to Sea State its State and Federal landing reports, observer data, VMS tracking data, and vessel log books and plotter data for purposes of determining its compliance with this Agreement, and agrees that in the event Sea State concludes that its vessel may have violated a Chinook Conservation Area closure, Sea State may release such data as Sea State in its sole discretion determines appropriate to facilitate enforcement of this Agreement.

e. Each Coop member shall agree that the information contained in the records identified in d., above, shall be presumed accurate absent a clear and compelling demonstration of manifest error, and shall be presumed sufficient to determine its compliance with this Agreement.

f. Each Coop member shall agree that the damages resulting from violating a Chinook Conservation Area closure are difficult to estimate, and that the assessment amounts provided under this Agreement are therefore intended to be a substitute in all cases for direct, indirect and consequential damages. Each Coop member shall agree that its Coop Board of Directors may modify Chinook Conservation Area violation assessment amounts from time to time, as necessary to maintain an effective deterrent to Chinook Conservation Area violations. Each Coop member shall agree that each trawl tow during which the member's vessel fishes in a Chinook Conservation Area in violation of this Agreement shall constitute a separate violation for purposes of assessment calculation. Each Coop member shall agree that damages for violating this Agreement shall apply on a strict liability basis, regardless of a member's lack of knowledge of the violation or intent to violate the agreement. Each Coop member shall agree that actual damages for violating this Agreement would be difficult to calculate, and shall therefore agree to pay the assessment amounts established under this Agreement, as amended from time to time, as liquidated damages. Each Coop member shall agree to modify its skipper contracts to make its skipper(s) fully responsible for the assessments levied in connection with a breach of the agreement. Further, each Coop member shall agree that in the event a skipper fails to assume such assignment of liability, or in the event such assumption of liability is deemed invalid, the member shall be liable for the full amount of such assessment, and all related costs and attorneys' fees.

g. Each Coop member shall agree that in connection with any action taken to enforce this Agreement, the prevailing party shall be entitled to the costs and fees it incurs in connection with such action, including attorneys' fees.

h. Each Coop member shall agree that in addition to legal remedies, the Board of Directors of each cooperative shall be entitled to injunctive relief in connection with the second and subsequent violations of this Agreement.

i. Each Coop member shall agree to waive and release any and all claims against Sea State and UCB arising out of or relating to Sea State's or UCB's services in connection with this Agreement, other than those arising out of gross negligence or willful misconduct by Sea State or UCB.

8. Term. This Agreement shall take effect as of January 20, 2008. The initial term of this Agreement shall extend through November 1, 2008. The term of this Agreement shall be automatically extended for an additional year as of September 15 each year it remains in effect, i.e., as of September 15, 2008, the new expiration date of this Agreement shall be November 1, 2009, and so on. A party to this Agreement may terminate its status as a party by providing written notice to all other parties to this Agreement to that effect, provided that the effective date of such party's termination shall be the expiration date of this Agreement in effect at the time the termination notice is delivered. For example, if a Coop provides termination notice on August 15, 2008, its termination shall not be effective until November 1, 2008. If a Coop provides termination notice on October 1, 2008, its termination shall not be effective until November 1, 2009. Notwithstanding any party's termination of its participation in this Agreement or the expiration of its term, the enforcement provisions of Section 5, above, shall survive with full force and effect.

9. Miscellaneous.

a. No amendment to this Agreement shall be effective against a party hereto unless in writing and duly executed by such party. The parties agree to amend this Agreement as reasonably necessary to conform with changes in law or circumstances.

b. This Agreement shall be governed by and construed in accordance with applicable federal law and the laws of the State of Washington.

c. This Agreement may be executed in counterparts which, when taken together, shall have the same effect as a fully executed original. Delivery of a signed copy of this Agreement by telefacsimile shall have the same effect as delivering a signed original.

d. The parties agree to execute any documents necessary or convenient to give effect to the intents and purposes of this Agreement.

e. All notices required to be given under this Agreement shall be deemed given five (5) days following deposit in certified first class U.S. mail, postage prepaid, with the correct address, or upon the first business day following confirmed telefacsimile or e-mail transmission to the recipient. Each party to this Agreement agrees to provide the name, postal address, telefacsimile number and e-mail address of its duly authorized representative(s) for purposes of receiving notices under this Agreement within three (3) days of executing this Agreement.

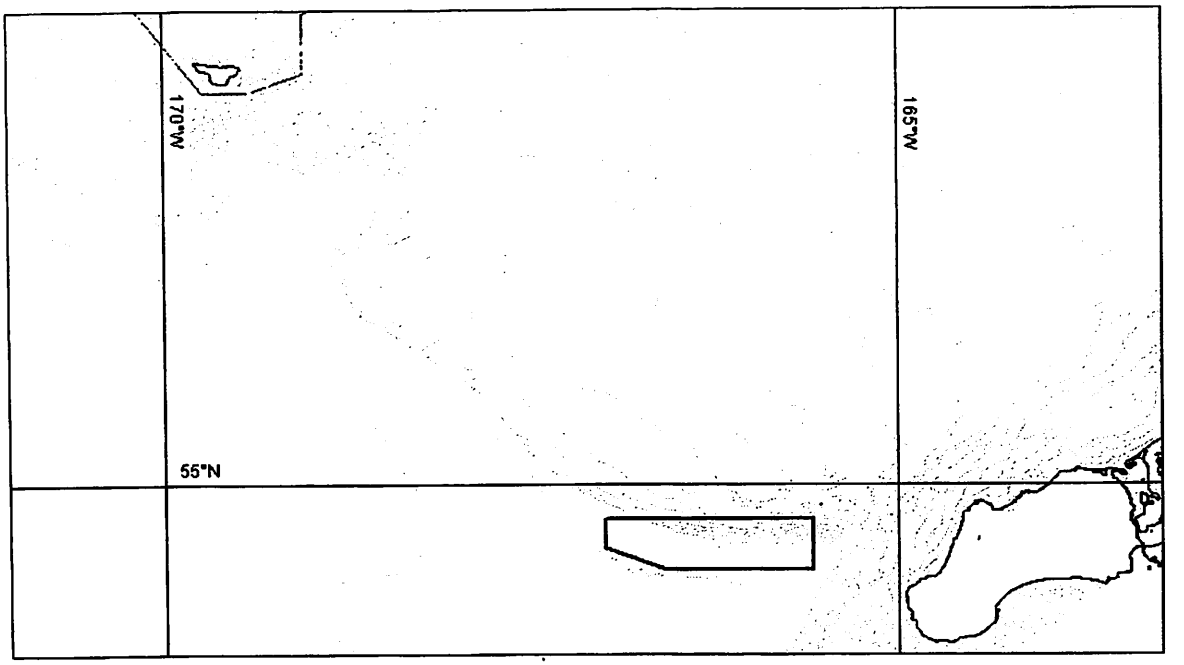
f. In the event that any provision of this Agreement is held to be invalid or unenforceable, such provision shall be deemed to be severed from this Agreement, and such holding shall not affect in any respect whatsoever the validity of the remainder of this Agreement.

g. Each Coop agrees to use its best efforts to resolve any disputes arising under this Agreement through direct negotiations. Breaches of this Agreement for which a party seeks a remedy other than injunctive relief that are not resolved through direct negotiation shall be submitted to arbitration in Seattle, Washington upon the request of any party to this Agreement. The party's written request will include the name of the arbitrator selected by the party requesting arbitration. The other party will have ten (10) days to provide written notice of the name of the arbitrator it has selected, if any. If the other party timely selects a second arbitrator, the two arbitrators will select a third arbitrator within ten (10) days. If the other party does not timely select the second arbitrator, there shall be only the one arbitrator. The single arbitrator or the three (3) arbitrators so selected will schedule the arbitration hearing as soon as possible thereafter. Every arbitrator, however chosen, must have no material ties to any Coop or Coop member. The decision of the arbitrator (or in the case of a three (3) arbitrator panel, the decision of the majority) will be final and binding. The arbitration will be conducted under the rules of (but not by) the American Arbitration Association. The parties will be entitled to limited discovery as determined by the arbitrator(s) in its or their sole discretion. The arbitrator(s) will also determine the "prevailing party" and that party will be entitled to its reasonable costs, fees and expenses, including attorneys' and arbitrator fees, incurred in the action by said party. In no event will arbitration be available pursuant to this paragraph after the date when commencement of such legal or equitable proceedings based on such claim, dispute, or other matter in question would be barred by the applicable statue of limitations.

Entered into as of the date first set forth above.

Signature pages not included; the agreement was signed by all 10 AFA coops, all CDQ groups, Sea State, and United Catcher Boats on January 11, 2008.

Exhibit A. Chinook Salmon Conservation Area



Corner Coordinates:

Latitude		Longitude	
54	40	165	35
54	40	166	35
54	45	167	0
54	52	167	0
54	52	165	35