AGENDA C-4
OCTOBER 2005

MEMORANDUM

TO: Council, SSC and AP Members

FROM: Chris Oliver
Executive Director

ESTIMATED TIME
6 HOURS

DATE: September 29, 2005

SUBJECT: BSAI Salmon Bycatch

ACTION REQUIRED

a) Final Action on EA/RIR/IRFA to modify the existing bycatch reduction measures for Chinook and chum salmon in the BSAI groundfish FMP
b) Review Package B alternatives and timeline for analysis

BACKGROUND

(a) Final Action on Amendment 84

In the mid-1990s, the Council and NOAA Fisheries implemented regulations to control the bycatch of chum salmon and Chinook salmon taken in the BSAI trawl fisheries. These regulations established closure areas in locations and at times when salmon bycatch had been highest based on historical observer data. Information from the fishing fleet indicated that in recent years, bycatch may have been exacerbated by the current regulatory closure regulations, as much higher salmon bycatch rates were reportedly encountered outside of the closure areas. Some of these bycaught salmon may include Chinook and chum stocks of concern in western Alaska. Further, the closure areas impose increased costs on the pollock fleet and processors.

In June 2005, the Council took initial review of an EA/RIR/IRFA for proposed amendment 84 to modify the existing bycatch reduction measures for Chinook and chum salmon in the BSAI groundfish FMP. The analysis examines the environmental and economic impacts of the existing regulatory salmon savings area closures as well as alternatives to repeal or suspend the closures and allow the pollock fleet to use their hot spot management system to avoid salmon bycatch. The Council modified some of the existing alternatives at their June 2005 meeting and endorsed the request by the SSC for the inclusion of additional information to expand upon the existing analysis prior to it being released for public review. The June 2005 Council motion is attached as **ItemC-4(a)(1).**

The revised EA/RIR/IRFA for amendment 84 was released for public review on August 31st. A copy of this analysis was mailed to you at that time. The executive summary of the analysis is attached as **Item C-4(a)(2)**. A supplement to this document (to replace sections 4.3.3-4.3.4) and an additional errata sheet for selected sections are also attached as **Item C-4(a)(3)** and **ItemC-4(a)(4)**. The Council is scheduled for final action on the EA/RIR/IRFA for this amendment at this meeting.

(b) Review Package B alternatives and timeline for analysis

In February 2005, the Council bifurcated the BSAI salmon bycatch analysis into an amendment package prioritized for immediate action (Amendment 84), and a broader scope analysis of additional bycatch measures (referred to as amendment package B). The Council adopted a problem statement and a draft suite of alternatives for this subsequent analysis at their April 2005 meeting. At this meeting the Council may wish to review the existing draft alternatives and problem statement for this amendment analysis and provide clarifications or make additional changes as necessary. Staff has prepared a discussion paper which reviews the current alternatives and the items in need of further action and clarification prior to the initiation of this analysis. This discussion paper is attached as **Item C-4(b)**.

June 2005 Council motion on BSAI Salmon Bycatch (Amendment 84)

The Council approved the public release of the EA/RIR/IRFA for amendment 84 to BSAI groundfish FMP once all comments by the SSC and the Council have been addressed and additional information (including a discussion of the new option under alternative 3) has been included.

The Council modified the existing alternative 3 in the analysis by adding the following option and sub-option. (changes in **bold**)

Alternative 3: Suspend the regulatory salmon savings area closures and allow pollock cooperatives and CDQ groups to utilize their voluntary rolling hot spot closure system to avoid salmon bycatch.

Option 1: Reimpose regulatory salmon savings closures if reported non-compliance with agreement merits expedited action

Option 2: Maintain the regulatory salmon savings area triggers and closures but participants in a cooperative voluntary rolling hotspot closure (VRHS) system would be exempted from compliance with savings area closures. This exemption is subject to Council approval and review of the effectiveness of a VRHS system.

Suboption(applies to option 2): Extend the exemption to the chum salmon savings area closure to vessels in the trawl cod and/or flatfish targets.

The suboption to option 2 is only added provided it does not delay the public review draft of the amendment package. The analysis shall include the contribution of the cod trawl and flatfish vessels to the chum salmon bycatch totals in the CVOA.

A review of salmon population abundance and assessment information is requested for presentation at the October meeting as well as an update on the status of efforts by some western Alaskan groups to develop a cooperative research plan.

Amendment Package B

Problem Statement for Amendment Package B:

The Council and NMFS have initiated analysis of a voluntary rolling hotspot (VRHS) alternative to regulatory salmon savings area closures. Concurrent with that analysis and possible implementation, development will continue on the alternatives that could be implemented if the VRHS approach does not achieve the desired bycatch reduction.

Two possible scenarios under which the VRHS system could produce unsatisfactory results are (1) breach of the inter-cooperative agreement (i.e. one or more vessels fail to participate in the VRHS system, or there are substantial violations of VRHS closures that are not effectively halted through penalties or other measures); or (2) compliance what the VRHS system is good, but the VRHS system fails to achieve the Council's desired level of salmon bycatch reduction. In the first scenario, the Council may ask NMFS to reinstate on an expedited basis the regulatory salmon savings area closure system that is based on the best information available. In the second scenario, the Council intends to consider implementation of an alternative regulatory system from Package B, or consider and evaluate NFMS hot spot management authority as an option for salmon bycatch management.

Alternatives under amendment package B:

Alternative 1: Establish new regulatory salmon savings area closures taking into account the most recent available salmon bycatch data. This analysis should be completed first and be updated regularly so that it can be implemented on an expedited basis if necessary.

Suboption A: Adjust the Chinook and non-Chinook regulatory closure areas annually based on the most current bycatch data available, such as the 2-3 year rolling average of bycatch rates by species and area.

Suboption B: Adjust the Chinook and non-Chinook regulatory closure areas once inseason based on the best bycatch information available.

Alternative 2: Develop a regulatory individual vessel salmon bycatch accountability program.

Suboption A: managed at the individual level

Suboption B: managed at the co-op level

Suboption 1 (to both alternatives): Develop an individual vessel accountability program that may be implemented if, after 3 years, it is determined the pollock cooperatives' "hot zone" closure system has not reduced salmon bycatch.

Suboption 2 (to both alternatives): Analyze the need and implementation strategy of an appropriate cap to meet requirements of National Standard 9.
[The SSC notes that a great deal of analysis is required to support implementation of such a system and that the current hot spot closure system likely requires additional protection measures, such as a cap]

Additionally, the Council requests the analysis cover bycatch of salmon in non-pollock BSAI trawl fisheries whose other salmon bycatch is included in the cap.

Further, the Council has identified the importance of a research plan in cooperation with the pollock fleet, western Alaska entities, NMFS and ADF&G to facilitate salmon bycatch reduction, including:

- Developing methods for reducing salmon bycatch in the pollock fishery through excluder devices, fishing behavior modification, net design and the like;
- Developing methods to gauge salmon abundance preseason or inseason so that trigger rates can be set appropriately based on the best scientific information; and
- Identifying the rivers of origin of salmon bycatch, and the timing and location of bycatch of the various stocks, paying particular attention to stocks of concern and developing methods to avoid these.

As a basis for understanding some of these issues, the Council further adopts SSC recommendations for presentations on, but not limited to:

1. The "BASIS" salmon program, emphasizing new information on the distribution of chum and Chinook salmon in the eastern Bering Sea;
2. Recent genetic stock ID of chum and Chinook salmon in the eastern Bering Sea; and
3. AYK commercial and subsistence salmon overview by ADF&G staff.

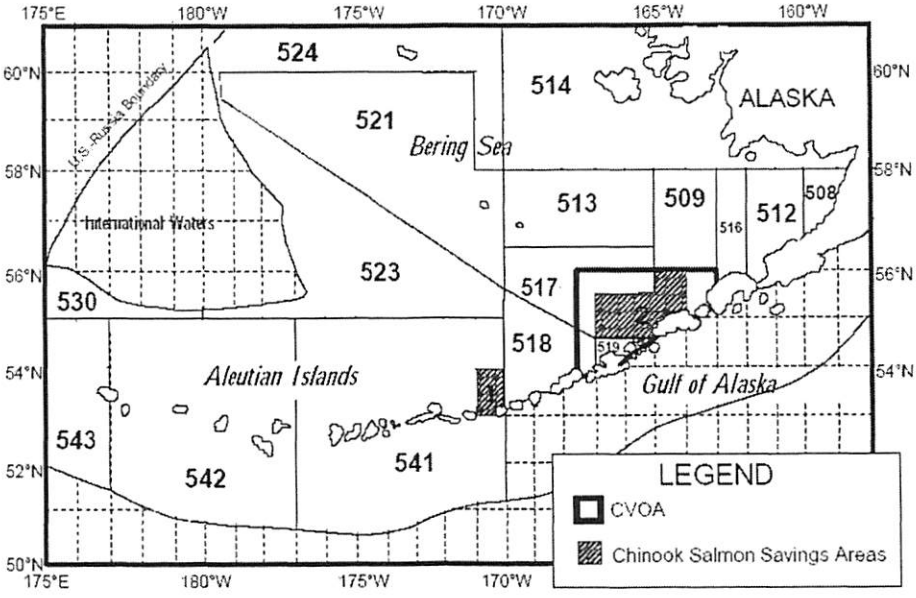
PUBLIC REVIEW DRAFT

ENVIRONMENTAL ASSESSMENT / REGULATORY IMPACT REVIEW /
INITIAL REGULATORY FLEXIBILITY ANALYSIS

for

Modifying existing Chinook and chum salmon savings areas

Proposed **AMENDMENT 84** to the
Fishery Management Plan for Groundfish
of the Bering Sea and Aleutian Islands Management Area



September 29, 2005

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EXECUTIVE SUMMARY

In the mid-1990s, the Council and NOAA Fisheries implemented regulations to control the bycatch of chum salmon and Chinook salmon taken in the BSAI trawl fisheries. These regulations established closure areas in areas and at times when salmon bycatch had been highest based on historical observer data. Information from the fishing fleet indicates that bycatch may have been exacerbated by the current regulatory closure regulations, as much higher salmon bycatch rates were reportedly encountered outside of the closure areas. Some of these bycaught salmon include Chinook and chum stocks of concern in western Alaska. Further, the closure areas impose increased costs on the pollock fleet and processors. To address this immediate problem, the Council will examine and consider other means to control salmon bycatch that have the potential to be more flexible and adaptive, but still meet Council intent to minimize impacts to the salmon in the eastern Bering Sea.

This analysis considers the following alternatives to address the problem identified above.

Alternative 1. Status Quo

Alternative 1 maintains the existing regulatory measures for Chinook and Chum salmon savings area closures.

Alternative 2. Eliminate the regulatory salmon savings area closures

Under Alternative 2, the catch limits for the Bering Sea subarea trawl Chinook and BSAI trawl chum salmon would be eliminated, and would no longer trigger savings area closures. The annual closure of the Chum Salmon Savings Area would also be eliminated. Salmon would remain a prohibited species under this (and all) alternatives.

Alternative 3. Suspend the regulatory salmon savings area closures and allow pollock cooperatives and CDQ groups to utilize their voluntary rolling hot spot closure system to avoid salmon bycatch

Under Alternative 3, the catch limits for the Bering Sea subarea trawl Chinook and BSAI trawl chum salmon would be suspended, and would no longer trigger savings area closures. The annual closure of the Chum Salmon Savings Area would also be suspended. The suspension will go into effect so long as the pollock cooperatives and CDQ groups have in place an effective salmon bycatch voluntary rolling "hot spot" (VRHS) closure system to avoid salmon bycatch.

Option 1: Reimpose regulatory salmon savings closures if reported non-compliance with agreement merits expedited action

Under this suboption, the Council may recommend re-imposition of the regulatory salmon savings area closures on an expedited basis if the situation merits this recommendation. The Inter Cooperative Agreement (ICA) managers will report to the Council immediately if there is non-participation or non-compliance without effective enforcement action under the VRHS system. In that event, the Council may recommend re-imposition of the regulatory salmon savings area closures on an expedited basis. If the regulatory closure area system is reinstated, it is the Council's intent that the closure areas be based on the most recent information available and if the analysis of Amendment Package B's Alternative 1 supports the approach, with regular adjustments.

Option 2: Maintain the regulatory salmon savings area triggers and closures but participants in a cooperative voluntary rolling hotspot (VRHS) system would be exempted from compliance with savings area closures. This exemption is subject to Council approval and review of the effectiveness of a VRHS system.

Under this option, the existing salmon savings area closures would remain in place. Pollock cooperatives and CDQ groups who participate in a voluntary rolling "hot spot" (VRHS) closure system to avoid salmon bycatch will be granted an exemption to the existing closures. Cooperatives or other vessels which are not participating in a VRHS system will be subject to the savings area closures if triggered.

Suboption (applies to option 2): Extend the exemption to the chum salmon savings area closure to vessels in the trawl cod and/or flatfish targets.

Under this suboption, vessels in the trawl cod and/or flatfish target fisheries would be exempt from compliance with the chum savings area closure. Vessels in these target fleets are not required to participate in a VRHS system to obtain the exemption.

Environmental Assessment

Alternative 1

The fishery performance analysis indicates that salmon bycatch may be higher outside the savings areas than inside. However, evidence indicates that the amount of salmon caught incidentally in the groundfish fisheries represents a low overall proportion of salmon abundance and harvest in the directed salmon fisheries (commercial, subsistence, and recreational). The results of an ongoing ESA consultation on ESA-listed Chinook salmon are as yet unknown.

The *Final Alaska Groundfish Fisheries Programmatic Supplemental Environmental Impact Statement* (NMFS 2004b) and the *Final Environmental Impact Statement for Essential Fish Habitat Identification and Conservation in Alaska* (NMFS 2005) have both concluded that there are no significant adverse impacts on the physical and biological environment or the ecosystem from the current groundfish management regime. As a result, Alternative 1 is found to have no significant impacts on these components. The socioeconomic and economic impacts are discussed under the Regulatory Impact Review heading, below.

Alternative 2

Although salmon bycatch may increase under this alternative, as constraints on bycatch in the groundfish fisheries are removed, it is unlikely that this alternative will result in bycatch levels that will present a threat to the sustainability of salmon stocks. Results of the ongoing ESA consultation on listed salmon stocks are as yet unknown.

No significant impact on the pollock stock is anticipated, as harvest levels will continue as under Alternative 1, and as the pollock fishery has a low incidental catch rate of groundfish and other fish stocks, and an extensive monitoring program to ensure accurate catch accounting, neither is a significant impact anticipated on these stocks. Interactions with habitat, marine mammals, and seabirds may decrease under this alternative, as vessels may pursue a lower catch per unit effort for pollock, being unconstrained by salmon bycatch. To the extent this occurs, this may benefit habitat, marine mammals, and seabirds, however the change is unlikely to be detected at a population level. This action has no discernable

impacts on the ecosystem. Socioeconomic and economic impacts are discussed under the Regulatory Impact Review heading, below.

Alternative 3

Salmon bycatch is expected to decrease under this alternative, given the flexible system provided by dynamic hot spot management of the pollock fleet. Evidence indicates that the amount of salmon current caught incidentally in the groundfish fisheries represents a low overall proportion of salmon abundance and harvest in the directed salmon fisheries (commercial, subsistence, and recreational).

As with Alternative 2, no significant impact on pollock or other fish stocks is anticipated under this alternative. Impacts on pollock catch per unit effort cannot be predicted, but to the extent that it differs from the status quo, this may benefit or disadvantage habitat, marine mammals, and seabirds. Any change is likely to be small, however, and not discernable at a population level, therefore no significant impacts would result from this alternative. As with Alternative 2, this action has no discernable impacts on the ecosystem. Socioeconomic and economic impacts are discussed under the Regulatory Impact Review heading, below

Alternative 3, Options 1 and 2 and suboption

Implementation of option 1 has no impact other than for the Council to alert the pollock fishery participants of its intent to take remediary measures if this alternative is not effective at controlling salmon bycatch. The Council may, at any time, with the appropriate scientific and analytical support for its decisionmaking, take action to change its bycatch management measures.

Implementation of option 2 has limited impact; it is a variance on the means to efficiently implement the program. The suboption to Option 2 would likely result in positive benefits to the affected fleets in that they would be able to fish inside the Chum savings area closures regardless of their status. This is not anticipated to increase salmon bycatch given the limited contribution by these fleets.

Regulatory Impact Review

The analysis of alternatives presented in the RIR has shown that Alternative 1, the status quo, has resulted in dramatic increases in salmon bycatch in the Bering Sea pollock trawl fishery in recent years. This translates into foregone salmon value, assuming full terminal harvest of salmon bycatch, of nearly $1 million for Chinook and more than $250 thousand for chum in 2003. These values greatly overstate the actual harvest that might have occurred if salmon bycatch had not been taken in the Bering Sea pollock trawl fishery.

Unfortunately, it is not possible to accurately estimate actual harvest value. However, the dramatic increases in salmon bycatch under the status quo likely translate into increases in forgone value and decreased benefits of bycatch reduction. The status quo also bears some risk of future restrictions on the Bering Sea pollock trawl fleet as a result of exceeding the ESA Chinook incidental take permit cap.

Alternative 1 also imposes increased operational costs on the trawl fleet when the salmon savings areas are closed and may adversely affect vessel safety. The closures are also having a detrimental effect on product quality for the CV fleet. The decreased quality appears to have reduced product grade, eliminated fillet production in some cases, and increased shoreside processing facility costs. Alternative 1 also results in some management and enforcement costs to administer the closures and monitor vessel locations.

Alternative 2 would eliminate the salmon savings closure areas altogether. The result would likely be reduced operational costs, improved vessel safety, improved product quality, and reduced management and enforcement costs. However, in the absence of any bycatch reduction measures this alternative may result in further increase in salmon bycatch in the Bering Sea pollock trawl fishery. Were that to occur, the foregone value of such bycatch would increase and the associate benefits of bycatch reduction would decrease, possibly dramatically. This could also result in the Bering Sea pollock trawl fleet significantly exceeding the ESA Chinook incidental take permit cap.

Alternative 3 eliminates the BSAI salmon savings area closures (or exempts vessels from compliance with the closures) but replaces them with a dynamic system of rolling hot spot closures and creates incentives for individual vessels to reduce salmon bycatch by penalizing the worst offenders. This alternative would likely reduce operational costs, improve vessel safety, and improve product quality. Alternative 3 also have the potential to reduce salmon bycatch more than the status quo management measures. If that potential were realized, Alternative 3 would reduce foregone value of salmon bycatch and increase the overall benefits of bycatch reduction. Alternative 3 also provides some mitigation possibilities for Western Alaska fishing organizations.

Alternative 3 would reduce management and enforcement costs for government agencies by transferring much of that cost to industry. However, the industry has volunteered to bear this cost in hopes of reducing operational costs associated with the status quo while at the same time attempting to reduce salmon bycatch. If bycatch is not reduced under alternative 3 and the Bering Sea pollock trawl fleet continues to exceed the ESA Chinook incidental take permit cap, unknown restrictions on the fleet could result. Perhaps the greatest benefit of this suboption is that it increases the incentive for industry to reduce salmon bycatch rates.

Initial Regulatory Flexibility Analysis

The analysis presented in the Initial Regulatory Flexibility Analysis indicates that, in 2003, there were perhaps as many as 116 small trawl CVs in the BSAI and 3 small trawl CPs. NMFS AKR records indicate that 112 BSAI CVs were members of AFA cooperatives; all of these are large entities. Thus, four of the BSAI small trawl CVs and 3 small trawl CPs appear to qualify as "small entities" once AFA affiliation is taken into consideration.

4.3.3 Impacts on Chinook salmon:

Hot spot management has the potential to reduce incidental take of Chinook salmon stocks in the pollock fishery especially when this management is not constrained by the current system of regulatory closures. Examples of the enactment of closures based upon cooperative bycatch rates and their relative tier level (for 2004 and 2005) under the previous Inter Cooperative Agreement were shown in Sections 4.3.1.1 and 4.3.1.2.

The hot spot closure system for salmon under the previous agreement was first utilized in the 2003 "A" season. The closure system for Chinook in the "B" season was not begun until 2004, where core closures were utilized for that season. The agreement has since been modified according to the details as listed for improved bycatch management. It is difficult therefore to use data from the previous years to judge absolutely the efficacy of the system. Not only was it not utilized consistently over both "A" and "B" seasons, but it has been complicated by the overall necessity of adhering to regulatory closures. The inclusion in the past of the stand-down period may have also complicated the ability of the ICA in the past to effectively reduce Chinook bycatch. Modifications to the agreement were made to specifically address improved bycatch reduction.

"A" Season Chinook Management:
An important modification of the revised ICA under Alternative 3 is the removal of the stand-down period for Chinook. In previous years, the agreement for "A" season Chinook management included a stand down provision whereby 40% of the Chinook limit had to be taken prior to the initiation by Sea State of any hot spot closures. This stand-down provision was included regardless of what observed bycatch rates were, nor the tier levels of the cooperatives.

In the past several years it has taken until approximately the second week in February to reach this 40% limit. For example, in 2003, this number was reached at the end of the reporting week of February 15 (15,441). In 2004, the 40% limit was reached during the week ending February 14 (12,150), while in 2005 it was reached at the end of the week of February 12 (11,496).

In order to evaluate the potential impact of hot spot closures on salmon bycatch, the total number of Chinook taken by week and the related bycatch rate (per metric ton of pollock) in the 2005 "A" season are shown with the closures dates and announcements[1] under the current ICA (Figure 4-28). As described above, the bycatch management in 2005 contained a stand-down period thus closures first began on February 17, 2005.

[1] Note these announcements are contained in an appendix at the end of this supplemental section.

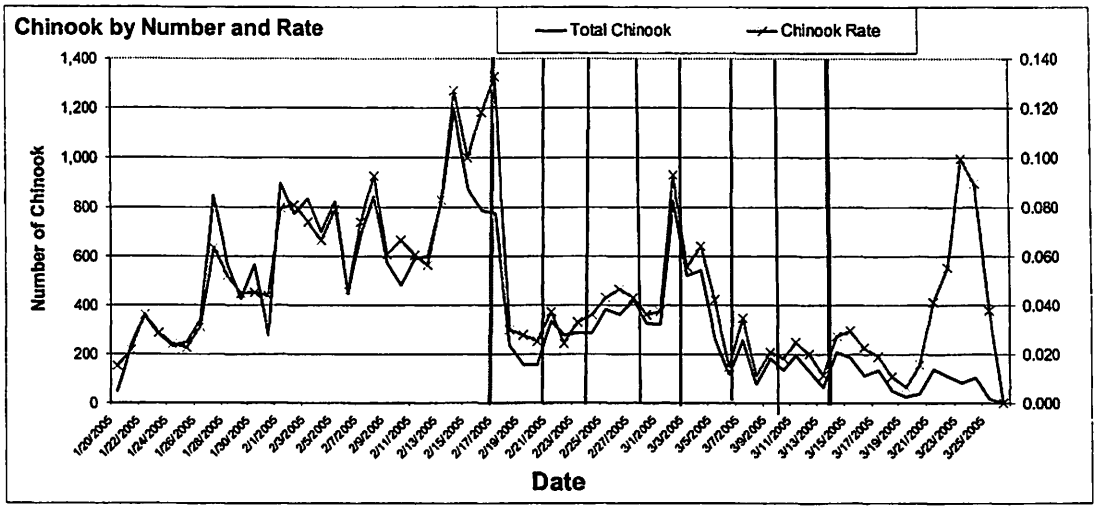

Figure 4-28: Number of Chinook salmon by week and rate (salmon per mt of Pollock) in the 2005 A season. Vertical lines represent the closure date on a weekly basis from the start of closures on February 17th, 2005 to the last closure on March 14th, 2005.

The first notice on February 17th closed two areas totaling 900 sq nm. Under the tier system, three co-ops were prohibited from fishing in these closed areas for 7 days while three other co-ops were prohibited from fishing in the closures for 4 days. The total number of Chinook as well as the bycatch rate decreased substantially after the first closure (Figure 4-28). The announcement sent on February 21st was an informational update on the status of bycatch in the region. On February 24th, a new closure area (encompassing part of the previous closure) was established which restricted two co-ops (tier 3) for 7 days and five co-ops (tier 2) for 4 days. Three co-ops from the previous week remained in tier 2 while one co-op dropped its tier level from tier 3 to tier 2 over that time period. One additional co-op moved from tier 1 to tier 2 during this time period. Bycatch rates increased slightly over this period. The notice on February 28th maintained the same closure and tier status as the February 24th announcement. On March 3rd a single closure was announced which affected only one co-op. Bycatch rates and total numbers spiked in the days prior to the announcement. Spatially, bycatch was reported to be broadly distributed at this time.

Overall bycatch aggregated in the A season for 2005 (Figure 4-8) showed a high concentration in the general areas of the closure in the mushroom area as well as northwest of Unimak Island. By March 7th, bycatch rates and total numbers had dropped considerably from the previous week. The same closure was maintained affecting one co-op. On March 10th one closure was designated with two co-ops remaining in tier 2. The same closure and tier 2 co-ops remained in effect the following week. This was the final closure enacted under the ICA for the "A" season. Announcements on March 17th and March 24th informed the fleet of potential hot spots for bycatch, but no additional closures were enacted. The total number of Chinook taken in the fishery by the week ending date of April 2, 2005 was 30,331.

It is difficult to evaluate the relative effect of closures and notification announcements on the total number of Chinook salmon taken over the 2005 "A" season. Evaluation is complicated by fleet behavior both when restricted from closures as well as the tendency by some to avoid known high bycatch regions regardless of the ability to fish in the closed areas. Decreasing rates are observed over the time period of hot spot closures suggesting that the system was effective. However, there is no ability to ascertain what these rates and numbers might have been in the absence of the hot spot management. The necessary movement of the fleet away from regulatory closures has

also complicated the ability of the ICA in the past to effectively move the fleet to areas of lower bycatch.

Under the revised agreement for Alternative 3, there is no stand down period. The removal of the stand-down period should allow for greater management flexibility and bycatch reduction by the fleet from the start of the fishery. Bycatch accounting by cooperative occurs as soon as the fishery opens for the "A" season, and the first notice of closures will transpire on January 30. This will incorporate incidental catch in the fishery from the first day of the opening. This is anticipated to greatly increase the ability of management to move the fleet away from high bycatch areas.

"B" Season Chinook Management:
Core closures in the "B" season are another major modification to the ICA under Alternative 3 in comparison to how the agreement was managed in the past. Under core closures, hot spot closures for Chinook in the "B" season apply to all vessels in all cooperatives regardless of their bycatch rate or the tier structure within which the cooperatives fall. The closures still rotate weekly, but are applicable to the entire fleet. If tiers were utilized, there were concerns that given the more dispersed "B" season fishery, most, if not all boats would be in Tier 1 and thus the closures would not affect the fleet. While areas under core closures are closed to the entire fleet, closures are designed such that alternative fishing grounds are available and the fleet still retains sufficient fishing opportunities.

Core closures are not considered at this point in the "A" season due to the high value of the fishery (roe fishery) and the potential that imposing core closures would then cause a disincentive to utilize experimental means of avoiding salmon such as with salmon excluder devices on the trawl nets. Fishing is more spatially and temporally spread out in the "B" season thus core closures can be used without excessive economic impacts on the fleet. However in the "A" season fishing is in smaller spatial regions and of a shorter temporal nature and core closures would cause economic hardship on the fleet and reduce the relative value of the fishery.

Base Rate:
Management of the hot spots and fishery behavior under Alternative 3 is tied to the Base Rate calculation. How this rate is calculated is the critical aspect in how the closures are enacted and which cooperatives are impacted. The Base Rate calculation is described in Section 4.3.1.1. The range of acceptable base rates were agreed upon by the members of the ICA and are generally based upon historical bycatch rates. In order to establish the Base Rate according to present conditions, the inseason adjustment was added to the agreement (this differs from the agreement in the previous years). Thus if salmon bycatch (and presumably abundance) is high, the Base Rate will be adjusted inseason to accommodate this, while if bycatch (and abundance) is low it will be readjusted accordingly.

One concern may be the ability of the fleet to inflate the Base Rate arbitrarily and thus avoid the enactment of closures by staying below an artificially high rate. The ability to deliberately inflate the Base Rate would likely require the cooperation of all of the cooperatives or at the very least a large majority of them. The Base Rate is calculated as an average of the entire fleet's bycatch, i.e., all of the incidentally caught salmon divided by all of the pollock caught to date. It is extremely unlikely that a widespread "conspiracy" could be arranged in order to artificially raise the Base Rate such that every cooperative remained in tier 1 all season. If such a conspiracy were organized it is more likely that cooperatives would not comply and in their own self-interest retain clean fishing to ensure that they would remain in tier 1 regardless of the behavior of the other cooperatives.

Bycatch rates for Chinook salmon are anticipated to decrease under alternative 3 with the potential for more flexible and responsive fleet management by the ICA under this alternative. Hot spot management has shown indications that it could represent a more dynamic real-time tool for managing rapidly changing and largely unpredictable situations such as with Chinook salmon bycatch in the BSAI pollock fishery. Therefore it is anticipated that Chinook bycatch will decrease under this alternative.

Low numbers of salmon in the observed trawl bycatch are presumed to be originating from western Alaskan stocks of Chinook. Further, there are recent indications (as noted in Chapter 3) of increasing returns to Chinook stocks in western Alaska. Thus the incidental catch of Chinook salmon by the BSAI trawl fisheries is not thought to be extremely detrimental to the health and viability of those stocks. However, with the lack of absolute knowledge on many of the salmon stocks, coupled with the uncertainty regarding the actual impact of trawl caught bycatch on the viability of these stocks, it is difficult to ascertain the actual impact on these stocks. Given the possibility that bycatch may decrease, Alternative 3 is considered to have limited impact on these stocks although the actual impacts are difficult to determine.

An ESA consultation for Chinook salmon in the BSAI was initiated in 2005 following the 2004 fishery having exceeded the Incidental Take Statement (as discussed in section 3.10.1). The consultation upheld the ITS and concluded that the fishery is not likely to further impact ESA-listed salmon at present, however the consultation noted the continued need to monitor Chinook bycatch in the BSAI trawl fisheries as well as actions taken by the Council and industry to minimize this bycatch.

4.3.4 Impacts on chum salmon

Information as listed above for potential impacts on Chinook salmon apply equally for impacts to 'other' (chum) salmon. For 'other' salmon, hot spot management is applied in the 'B' season when bycatch is predictably highest. Hot spot management has the potential to reduce incidental take of chum salmon stocks in the pollock fishery, especially when this management is not constrained by the current system of regulatory closures. Examples of the enactment of closures based upon cooperative bycatch rates and their relative tier level (for 2004 and 2005) under the previous Inter Cooperative Agreement were shown in Sections 4.3.3.1 and 4.3.3.2. The in-season adjustment as described under 4.3.1.1 has the potential to provide additional protection to chum salmon stocks by possibly elevating the Base Rate at that time and forcing the fleet out of additional high bycatch areas.

The prohibited species limit for "other salmon" currently applies to all BSAI groundfish trawl fisheries, not just the pollock fishery. This alternative suspends the trigger limit for "other salmon", and as a result the non-pollock trawl fisheries would no longer be constrained in their catch of "other salmon".

Table 4-7 illustrates the bycatch of "other salmon" in the trawl groundfish fisheries. Between 1998 and 2003, the pollock pelagic trawl fishery caught between 91% and 98% of all "other salmon" bycatch. Salmon bycatch by other trawl groundfish target fisheries ranged between 1000 and 4700 fish annually, during the same period. These fisheries are unlikely to have high salmon bycatch as they are bottom-trawl fisheries rather than mid-water fisheries.

Table 4-7 "Other salmon" bycatch in the trawl groundfish fisheries, in 1000s of fish

Year	Pollock pelagic	Pollock bottom	Pacific cod	Flatfish targets	Rockfish	Atka mackerel	All longline targets	Total for all BSAI fisheries	Total for all trawl, excluding pollock pelagic
1998	46.6	3.2	.5	.4	.0	.5	.1	51.2	4.7
1999	44.2	.7	.0	1.1	.1	.5	.0	46.6	2.3
2000	56.6	.3	.1	.3	.0	.3	.0	57.6	1.0
2001	52.8	1.0	1.5	1.4	.2	.3	.1	57.4	4.4
2002	78.6	.4	.9	.6	.0	.0	.1	80.8	1.9
2003	190.9	1.8	1.0	.7	.0	.3	.0	194.7	3.8

Source: Hiatt et al. 2000, 2002, 2004; note: figures rounded to 100s.

Under Alternative 3, bycatch rates for other salmon are anticipated to decrease with the potential for more flexible and responsive fleet management by the ICA under this alternative. Hot spot management has show indications that it could represent a more dynamic real-time tool for managing rapidly changing and largely unpredictable situations such as with 'other' salmon bycatch in the BSAI pollock fishery. Therefore it is anticipated that 'other' salmon bycatch will decrease under this alternative.

Low numbers of salmon in the observed trawl bycatch are presumed to be originating from western Alaskan chum stocks, particularly where the majority of bycatch appears to be of Asian origin. Further, there are recent indications (as noted in Chapter 3) of increasing returns to many chum stocks in western Alaska. Thus the incidental catch of chum salmon by the BSAI trawl fisheries is not thought to be extremely detrimental to the health and viability of those stocks. Given the possibility that bycatch may decrease, Alternative 3 is considered to have limited impact on these stocks, however, with the lack of absolute knowledge on the status of many of the salmon stocks, coupled with the uncertainty regarding the actual impact of trawl caught bycatch on the viability of these stocks, it is difficult to ascertain the actual impact on these stocks.

Appendix to Section 4.3.3 (Sea State Closure Announcements for A Season Chinook 2005)

SEA STATE

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February 17, 2005

Re: IC Salmon closure

Overall catch and bycatch by sector (no cdq)

Sector	Pollock (mt)	Chinook (N)	Chinook rate (N/mt)
Shoreside	120,400	7,274	0.060
C/P	109,861	6,348	0.057
Motherships	30,210	1,302	0.042
Total	260,471	14,924	0.057

The chinook numbers keep climbing. Hopefully these closures (yes, there are some this time, and yes some coops are definitely in Tiers 2 and 3) will throttle it back some. We have split the closures between the two areas with the highest rates (685530 and 655430) because there is certainly no statistically significant difference between their rates (.150 and .143 respectively). The total closure area amounts to a bit over 900 sq nm, and while we have kept them rectangular, they aren't perfect subsets of stat areas. The closure down near the horseshoe in particular straddles four ADFG stat areas.

Closure boundaries:

Area1: 54 45N to 55 15N
164 52W to 165 25W

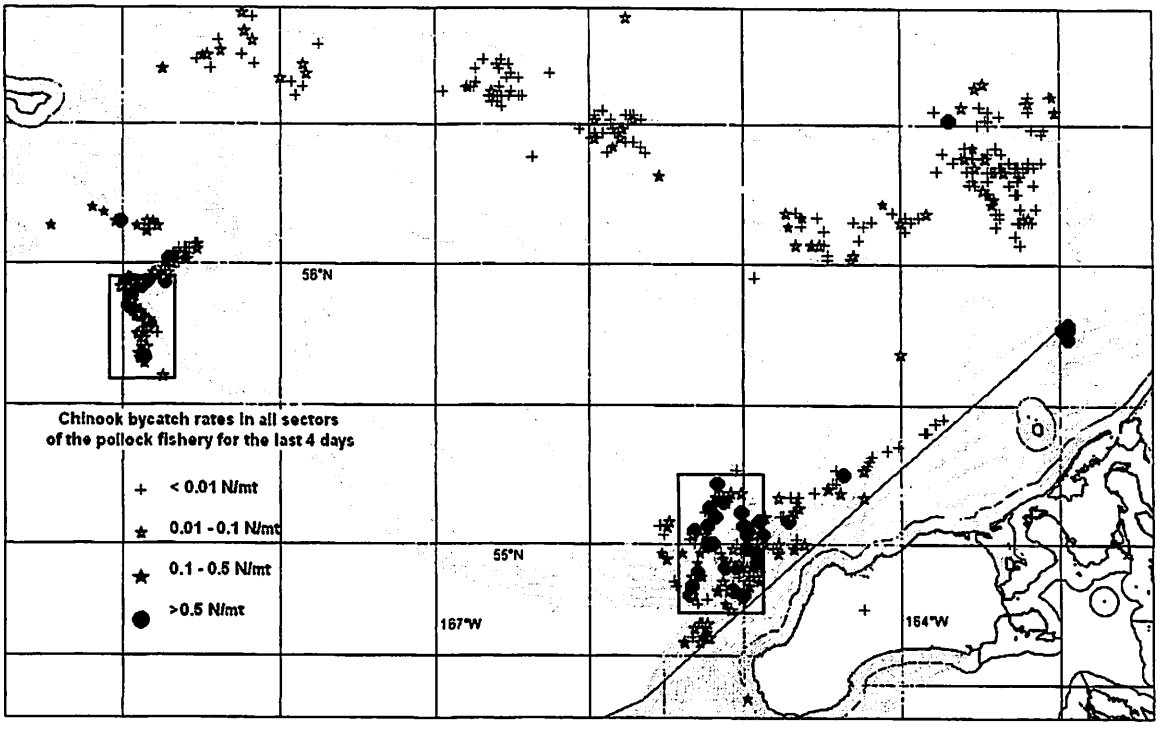
Area2: 55 35N to 55 57N
168 40W to 169 05W

I apologize for not having the season dirty 20 lists yet. We needed a few weeks to get some history going and now that we're there I still have to do some programming. Remember your qualifying number for that list is the number of times you are on the weekly list divided by the number of times you could have been on it – i.e. the number of times you were fishing during one of our Friday to Thursday "salmon weeks". I will certainly have it done by the next Intercoop report.

WEEKLY SALMON BYCATCH UPDATE - For Week Ending 2/17/05					
Coop	Bycatch Rate	Coop Tier Status	Savings Closure Start Date (1800 Hrs.)	Savings Closure End Date (1800 Hrs.)	Number of Closure Days
Akutan Coop	0.089	3	2/18/2005	2/25/2005	7
Arctic Coop	0.043	1	NA	NA	0
Mothership Coop	0.049	1	NA	NA	0
North Victor Coop	0.082	2	2/18/2005	2/22/2005	4
Peter Pan Coop	0.059	2	2/18/2005	2/22/2005	4
Pick Cons. Coop	0.073	2	2/18/2005	2/22/2005	4
Unalaska Coop	0.091	3	2/18/2005	2/25/2005	7
UniSea Coop	0.045	1	NA	NA	0
Westward Coop	0.089	3	2/18/2005	2/25/2005	7

Tier 1: Less that .050 salmon per mt. Not affected by closures
Tier 2: Greater than .050 but less than .084 salmon per mt. Subject to 4-day closure
Tier 3: Greater than .084 salmon per mt. Subject to 7-day closure

Bycatch rates by area for week ending 2/17/05			
Stat Area	Rate	Stat Area	Rate
685530	0.150	635530	0.030
655430	0.143	645600	0.029
695600	0.140	685600	0.024
655530	0.140	645530	0.020
655501	0.140	635630	0.020
645434	0.079	635600	0.013
645501	0.076	675630	0.010
695530	0.040	655630	0.010
685630	0.040	665630	0.000
665600	0.037	635504	0.000
655600	0.030		



February 21, 2005

Up through last Friday there were some pretty big days of chinook bycatch from vessels working down near the Pass. Currently there is very little salmon showing up in shoreside deliveries from anywhere, but volumes are still way down, presumably due to the weather. However, even reports of chinook from catcher vessels on the grounds are nearly all zeroes. There is still enough chinook showing up in the mushroom that I expect to see closures there next time around as well (to be announced Thursday). For today, however, we are making no adjustments to areas. Coops that are in Tier 3 must still observe the closures announced on 2/17.

Catch and bycatch to date

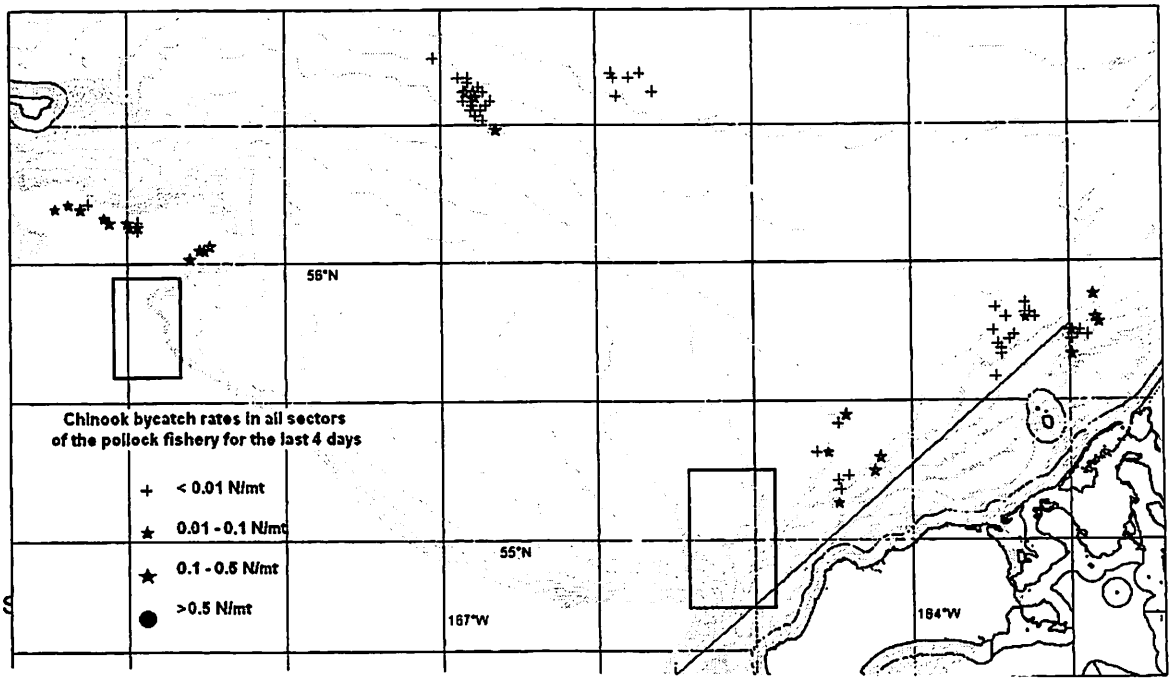
Sector	Pollock (mt)	Chinook (N)	Chinook rate (N/mt)
Shoreside	134,607	9,282	0.069
C/P	119,178	6,760	0.056
Motherships	33,813	1,360	0.039
Total	287,598	17,402	0.061

Note: Tier status and closure dates are based on bycatch rates published last Thursday (2/17). Only the bycatch rate column is different on Monday. It reflects catch and bycatch from the last 2 weeks.

WEEKLY SALMON BYCATCH UPDATE – Monday 2/21					
Coop	Bycatch Rate	Coop Tier Status	Savings Closure Start Date (1800 Hrs.)	Savings Closure End Date (1800 Hrs.)	Number of Closure Days
Akutan Coop	0.093	3	2/18/2005	2/25/2005	7
Arctic Coop	0.039	1	NA	NA	0
Mothership Coop	0.033	1	NA	NA	0
North Victor Coop	0.087	2	2/18/2005	2/22/2005	4
Peter Pan Coop	0.078	2	2/18/2005	2/22/2005	4
Pick Cons. Coop	0.060	2	2/18/2005	2/22/2005	4
Unalaska Coop	0.113	3	2/18/2005	2/25/2005	7
UniSea Coop	0.072	1	NA	NA	0
Westward Coop	0.151	3	2/18/2005	2/25/2005	7

Bycatch rates from the last 4 days

Bycatch rates by area 2/17 – 2/21			
Stat Area	Rate	Stat Area	Rate
655430	0.331	625600	0.009
685600	0.178	635530	0.006
685530	0.178	665630	0.003
695600	0.070	625531	0.002
645501	0.048	655630	0.000
685600	0.040	675630	0.000
645501	0.038	635530	0.000
635504	0.018		



February 24, 2005

Re: IC Salmon closure

Overall catch and bycatch by sector (no cdq)

Sector	Pollock (mt)	Chinook (N)	Chinook rate (N/mt)
Shoreside	144,280	9,583	0.066
C/P	130,187	7,289	0.055
Motherships	39,150	1,447	0.036
Total	313,617	18,320	0.058

The closure this week includes part of both 655500 and 655430. The bycatch rates by stat area table below is just from the last four days, and during that time 655500 looks much worse. However, if you calculate rates using the last 7 days of data the situation changes and 655430 looks worse. So I've compromised and used parts of both areas for the closure. The map itself is a bit misleading because I don't have any reports from the grounds or observer data that gives me tow locations from the vessels that actually caught fish in this box (hence, no tows at all show up in the box). However, I can look back at the VMS to see where they must have been, and we used that information to determine the boundaries of the box.

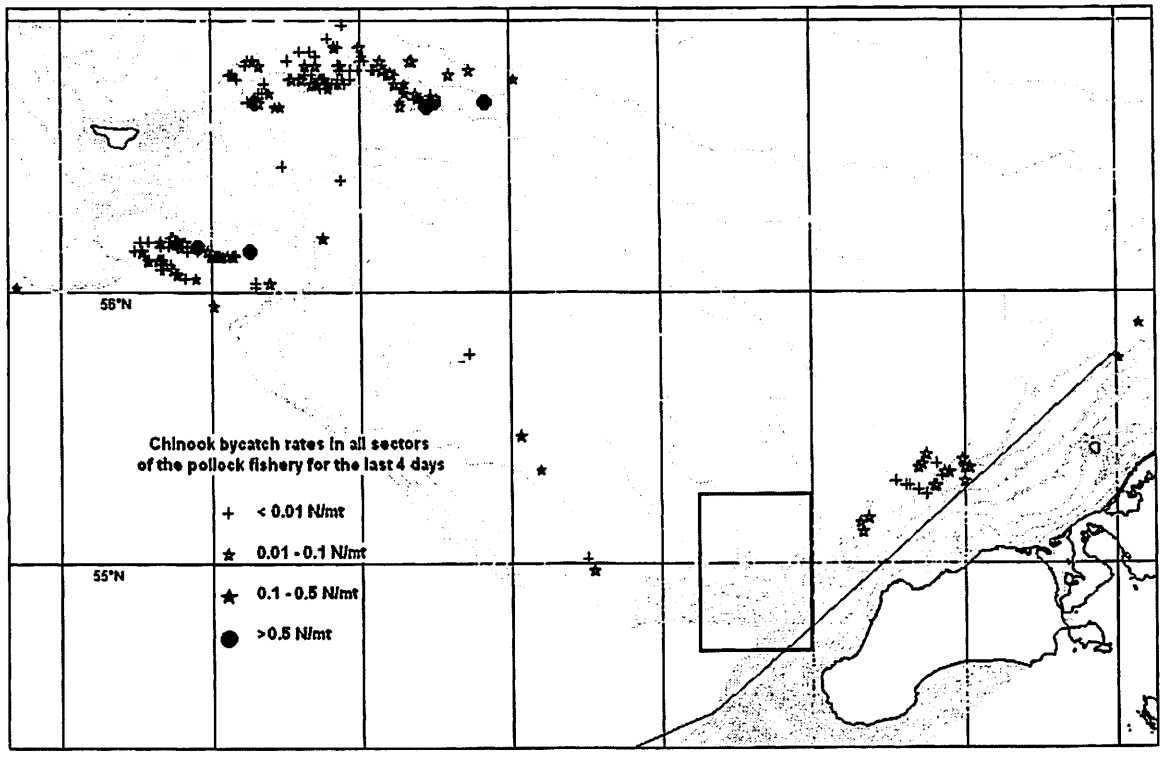
Coordinates of the box are:

54 40N to 55 15N
165 00W to 165 45W

WEEKLY SALMON BYCATCH UPDATE - For Week Ending 2/24/05					
Coop	Bycatch Rate	Coop Tier Status	Savings Closure Start Date (1800 Hrs.)	Savings Closure End Date (1800 Hrs.)	Number of Closure Days
Akutan Coop	0.075	2	2/25/2005	3/1/2005	4
Arctic Coop	0.027	1	NA	NA	0
Mothership Coop	0.030	1	NA	NA	0
North Victor Coop	0.069	2	2/25/2005	3/1/2005	4
Peter Pan Coop	0.067	2	2/25/2005	3/1/2005	4
Pick Cons. Coop	0.060	2	2/25/2005	3/1/2005	4
Unalaska Coop	0.100	3	2/25/2005	3/4/2005	7
UniSea Coop	0.073	2	2/25/2005	3/1/2005	4
Westward Coop	0.162	3	2/25/2005	3/4/2005	7

Tier 1: Less that .050 salmon per mt. Not affected by closures
Tier 2: Greater than .050 but less than .084 salmon per mt. Subject to 4-day closure
Tier 3: Greater than .084 salmon per mt. Subject to 7-day closure

Bycatch rates by area for week ending 2/24/05			
Stat Area	Rate	Stat Area	Rate
655500	0.120	685630	0.015
655430	0.087	735730	0.010
695600	0.060	705700	0.010
635504	0.042	625531	0.010
685600	0.040	665630	0.006
685530	0.040	635530	0.006
645501	0.039	665600	0.002
745730	0.020	655630	0.000
675630	0.016		



February 28, 2005

Re: IC Salmon

There are no changes to areas today. Since no coops were in Tier 1, there was no fishing in the closed area and I therefore have no information on the level of salmon bycatch rates there now. There are still some salmon showing further up towards Amak, so I suspect there are also still salmon around the horseshoe. Since the area will be open to

Tier 2 coops from Tuesday through Friday, I'm hoping that there will be some information on bycatch there by the time we announce our next set of closures on Thursday. Based on what I've seen recently, I think areas near the Pribilofs are likely to be closed on Thursday. However, after a week of clean fishing, a number of coops are nearly back down to Tier 1, so it's not clear who will be affected by the next round of closures.

We still have approximately 1/3rd of the catch to put in, and we would need to achieve a rate of somewhere around .030 salmon/mt to finish under the cap and still have 2,000 chinook left to give the fleet some time in the savings area in September. I think it's possible to do it, but I also think that most of the fish will have to come from areas well away from the shelf edge – away from both the mushroom and the horseshoe - for this to happen.

Overall catch and bycatch by sector (no cdq)

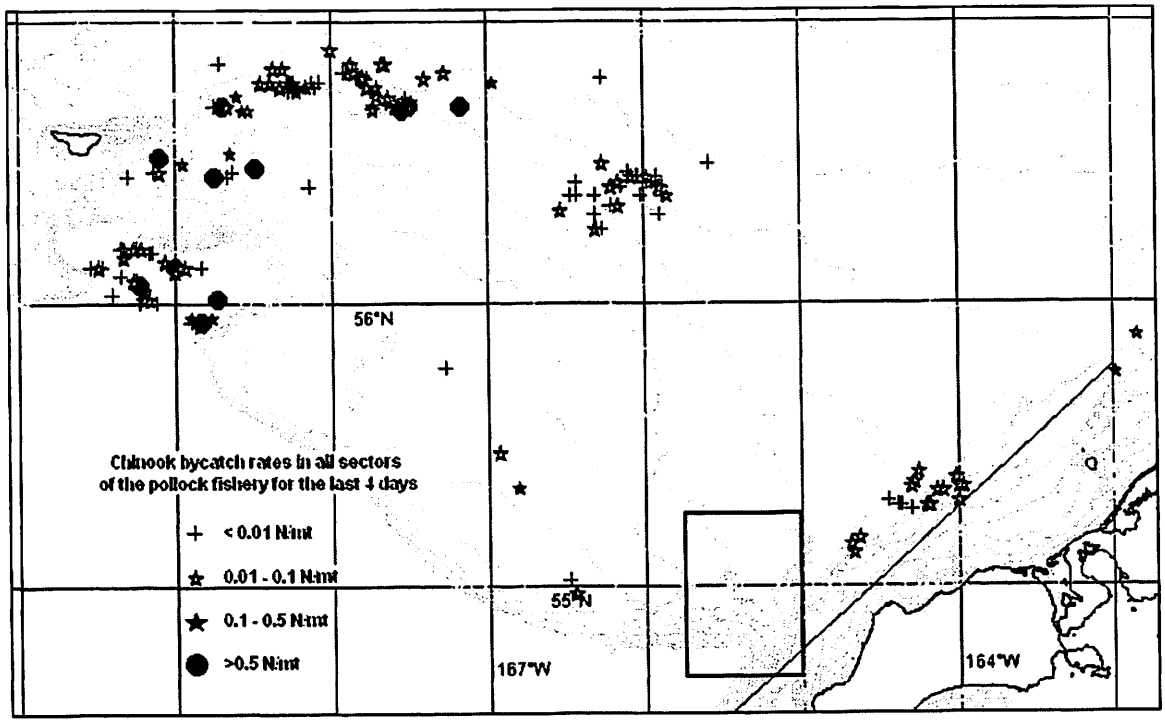
Sector	Pollock (mt)	Chinook (N)	Chinook rate (N/mt)
Shoreside	161,697	10,018	0.062
C/P	141,912	7,914	0.055
Motherships	42,226	1,546	0.036
Total	345,835	19,478	0.056

WEEKLY SALMON BYCATCH UPDATE - For Week Ending 2/28/05

Coop	Bycatch Rate	Coop Tier Status	Savings Closure Start Date (1800 Hrs.)	Savings Closure End Date (1800 Hrs.)	Number of Closure Days
Akutan Coop	0.050	2	2/25/2005	3/1/2005	4
Arctic Coop	0.031	1	NA	NA	0
Mothership Coop	0.019	1	NA	NA	0
North Victor Coop	0.054	2	2/25/2005	3/1/2005	4
Peter Pan Coop	0.040	2	2/25/2005	3/1/2005	4
Plck Cons. Coop	0.053	2	2/25/2005	3/1/2005	4
Unalaska Coop	0.065	3	2/25/2005	3/4/2005	7
UniSea Coop	0.071	2	2/25/2005	3/1/2005	4
Westward Coop	0.143	3	2/25/2005	3/4/2005	7

Tier 1: Less that .050 salmon per mt. Not affected by closures
Tier 2: Greater than .050 but less than .084 salmon per mt. Subject to 4-day closure
Tier 3: Greater than .084 salmon per mt. Subject to 7-day closure

Bycatch rates by area for week ending 2/28/05			
Stat Area	Rate	Stat Area	Rate
695631	0.260	705630	0.029
685600	0.071	685630	0.029
685530	0.070	665600	0.021
745730	0.050	655600	0.020
695600	0.050	675630	0.010
645501	0.047	735730	0.010



March 3, 2005

Re: IC Salmon closure

Overall catch and bycatch by sector (no cdq)

Sector	Pollock (mt)	Chinook (N)	Chinook rate (N/mt)
Shoreside	176,200	10,482	0.059
C/P	152,979	8,479	0.055
Motherships	45,143	1,660	0.036
Total	374,322	20,621	0.055

Chinook numbers continue to climb, although only one area (685530) up in the mushroom is over the threshold for closure. I've moved the closure box up a bit above the 56 00N line to cut out all tows along that southeastern promontory in the mushroom. While rates in all the stat areas have dropped down we are seeing chinook broadly distributed on the shelf, and that produces a number of stat areas with similar rates. It's the type of situation that makes avoidance difficult, because there's no single area that is clearly worse than any others. I'm beginning to wonder if this spreading out of chinook isn't a general trend in March. If so it means that our chances of reducing bycatch through avoidance diminishes later in the season.

Although I haven't closed anything down near the Pass, you can see that the second highest rate (.057, which is under the threshold for closure) was from 655500. There have been only a couple of deliveries from that area in the last few days, so that rate of .057 is not based on much information. However, it's clear from the map that fishing up toward Amak and away from the horseshoe is cleaner.

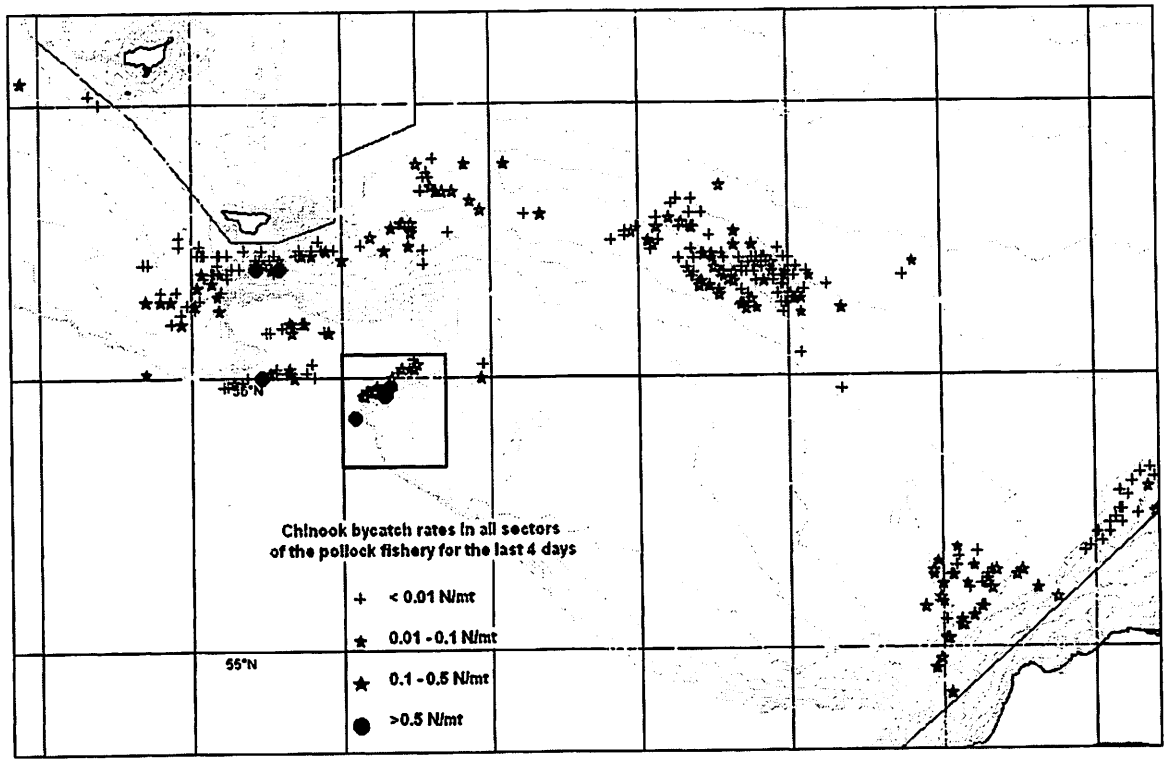
I finally have a season dirty 20 list available. It is assembled by dividing the number of times a vessel was on the weekly dirty 20 list by the number of times they could have been on it. Thus, if you were on the list twice during the four weeks you fished, your "score" is 2/4, or 0.50. There are many more ties that occur under this formula, so I have included all vessels whose score is .40 or greater, and labeled it dirty 20+. I think ultimately we will have to use actual bycatch rates as a tie-breaker for the group of vessels whose scores bracket the bottom of the list.

Closure Area boundaries: **55 40N to 56 05N**
168 20W to 169 00 W

WEEKLY SALMON BYCATCH UPDATE - For Week Ending 3/3/05					
Coop	Bycatch Rate	Coop Tier Status	Savings Closure Start Date (1800 Hrs.)	Savings Closure End Date (1800 Hrs.)	Number of Closure Days
Akutan Coop	0.036	1	NA	NA	0
Arctic Coop	0.018	1	NA	NA	0
Mothership Coop	0.024	1	NA	NA	0
North Victor Coop	0.028	1	NA	NA	0
Peter Pan Coop	0.024	1	NA	NA	0
Pick Cons. Coop	0.048	1	NA	NA	0
Unalaska Coop	0.048	1	NA	NA	0
UniSea Coop	0.046	1	NA	NA	0
Westward Coop	0.103	3	3/4/2005	3/11/2005	7

Tier 1: Less that .050 salmon per mt. Not affected by closures
Tier 2: Greater than .050 but less than .084 salmon per mt. Subject to 4-day closure
Tier 3: Greater than .084 salmon per mt. Subject to 7-day closure

Bycatch rates by area for week ending 3/5/05			
Stat Area	Rate	Stat Area	Rate
685530	0.129	695600	0.026
655500	0.057	655600	0.025
645501	0.047	635504	0.023
685600	0.041	675630	0.022
695530	0.037	665630	0.019
685630	0.034	735730	0.018
645500	0.034	675600	0.013
665600	0.032	635530	0.008
705600	0.030		



March 7, 2005

Overall catch and bycatch by sector (no cdq)

Sector	Pollock (mt)	Chinook (N)	Chinook rate (N/mt)
Shoreside	190,293	11,459	0.060
C/P	167,732	9,471	0.056
Motherships	48,567	1,775	0.036
Total	406,591	22,706	0.056

The end of last week was pretty bad. Both onshore and offshore sectors managed to reverse our recent trends of slowly reducing bycatch rates. It looks like our closure for last week would have produced some of the intended results, but since only one coop was actually affected by the closure, there was enough fishing activity in the area to cause problems. Closer to town, there was one particularly bad delivery that covered four stat areas (655409, 645501, 635530, 655430) in the course of picking up 362 chinook. There is no observer data yet from that delivery so it doesn't show up on the map. I suspect that the salmon all came from just one spot and would put my money on 645501, but since we don't know for sure I'm leaving the closure area unchanged for the next 4 days.
Closure Area boundaries (same as those announced on 3/3/05):

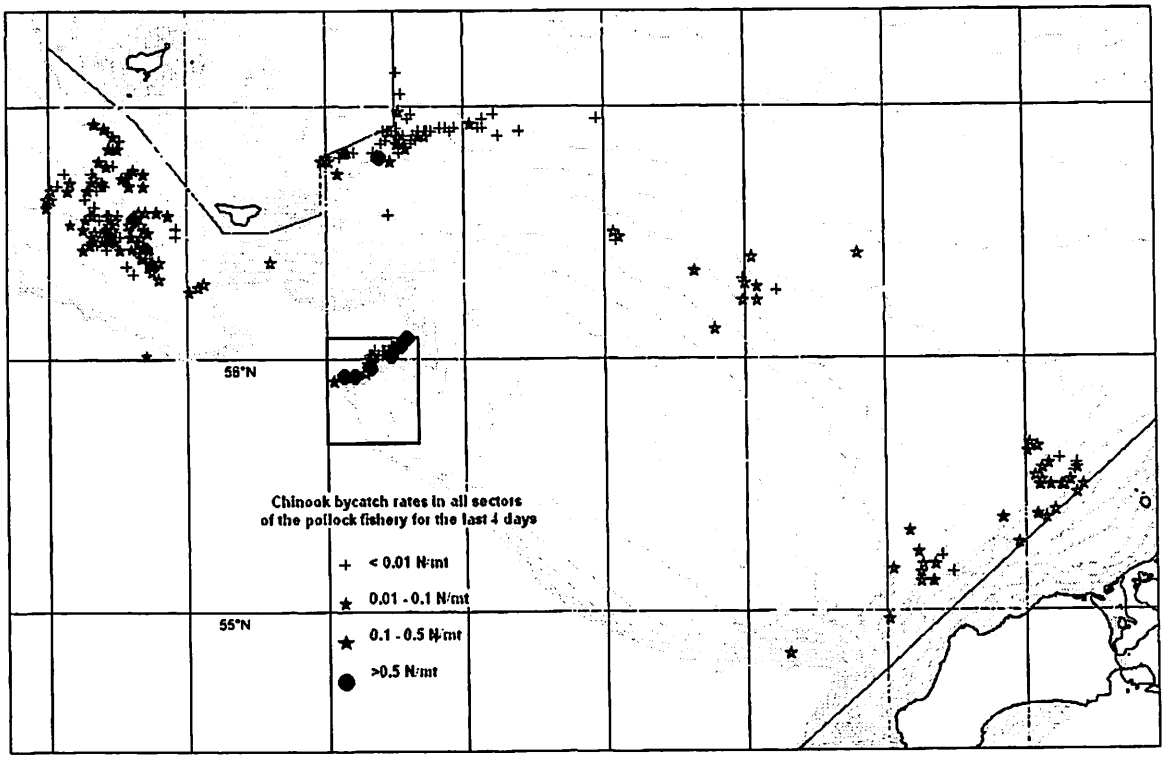
55 40N to 56 05N
168 20W to 169 00 W

Bycatch rates below are based on data from the last 2 weeks, up through this morning, while Tier levels and effective closure dates are from last Thursday's announcement.

WEEKLY SALMON BYCATCH UPDATE - For Week Ending 3/7/05					
Coop	Bycatch Rate	Coop Tier Status	Savings Closure Start Date (1800 Hrs.)	Savings Closure End Date (1800 Hrs.)	Number of Closure Days
Akutan Coop	0.038	1	NA	NA	0
Arctic Coop	0.028	1	NA	NA	0
Mothership Coop	0.030	1	NA	NA	0
North Victor Coop	0.036	1	NA	NA	0
Peter Pan Coop	0.027	1	NA	NA	0
Pick Cons. Coop	0.057	1	NA	NA	0
Unalaska Coop	0.026	1	NA	NA	0
UniSea Coop	0.068	1	NA	NA	0
Westward Coop	0.021	3	3/4/2005	3/11/2005	7

Tier 1: Less that .050 salmon per mt. Not affected by closures
Tier 2: Greater than .050 but less than .084 salmon per mt. Subject to 4-day closure
Tier 3: Greater than .084 salmon per mt. Subject to 7-day closure

Bycatch rates by area for week ending 3/7/05			
Stat Area	Rate	Stat Area	Rate
655430	0.450	665600	0.030
645501	0.152	765630	0.027
685530	0.112	635530	0.024
655600	0.070	635504	0.022
685600	0.064	685630	0.019
705600	0.052	675630	0.009
705630	0.050	735730	0.005
695600	0.030		



March 10, 2005

Overall catch and bycatch by sector (no cdq)

Sector	Pollock (mt)	Chinook (N)	Chinook rate (N/mt)
Shoreside	202,606	11,810	0.058
C/P	174,659	9,588	0.054
Motherships	50,634	1,832	0.036
Total	427,899	23,230	0.054

Bycatch rates have dropped dramatically with the fleet moving up to the Pribilofs and further away from the Pass. Looking back over the last 6 days the highest bycatch rates are still near the Pass, in 655430. Looking at VMS locations, I don't see any effort there now, but we are closing the entire stat area to forestall any movement into that area.

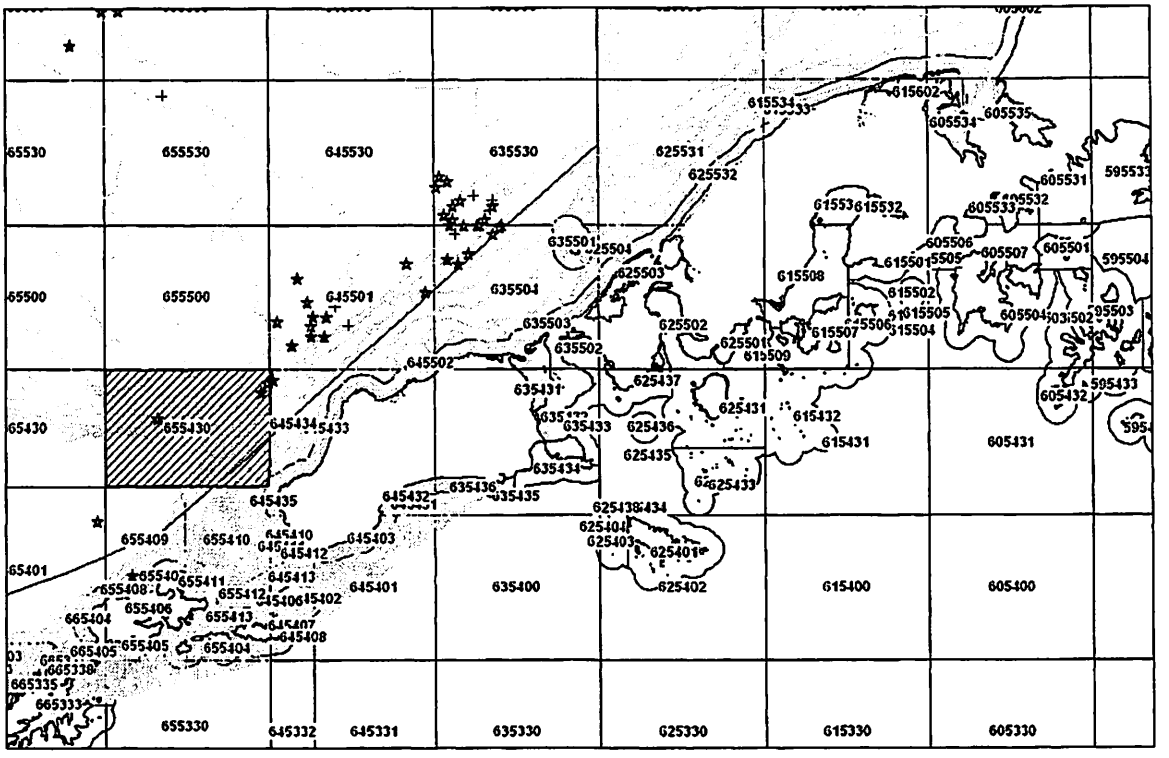
The season dirty 20 list is still more than 20 boats as we have not developed a tie-breaking rule for boats that all have the lowest rate that qualifies them for the dirty 20 list. I think the most sensible tiebreaker would be the season-long bycatch rates for boats in that category, but I haven't had time to program that one in as we've been a little preoccupied with cod today.

Closure area: 54 35N – 55 00N
165 00W – 166 00W

WEEKLY SALMON BYCATCH UPDATE - For Week Ending 3/10/05					
Coop	Bycatch Rate	Coop Tier Status	Savings Closure Start Date (1800 Hrs.)	Savings Closure End Date (1800 Hrs.)	Number of Closure Days
Akutan Coop	0.041	1	NA	NA	0
Arctic Coop	0.026	1	NA	NA	0
Mothership Coop	0.033	1	NA	NA	0
North Victor Coop	0.040	1	NA	NA	0
Peter Pan Coop	0.027	1	NA	NA	0
Pick Cons. Coop	0.051	2	3/11/2005	3/15/2005	4
Unalaska Coop	0.029	1	NA	NA	0
UniSea Coop	0.066	2	3/11/2005	3/15/2005	4
Westward Coop	0.023	1	NA	NA	0

Tier 1: Less that .050 salmon per mt. Not affected by closures
Tier 2: Greater than .050 but less than .084 salmon per mt. Subject to 4-day closure
Tier 3: Greater than .084 salmon per mt. Subject to 7-day closure

Bycatch rates by area for week ending 3/10/05			
Stat Area	Rate	Stat Area	Rate
655430	0.545	715630	0.021
685530	0.144	635504	0.017
645501	0.129	715700	0.015
635530	0.060	675630	0.012
685600	0.060	735730	0.008
655600	0.060	705701	0.005
705600	0.048	685700	0.003
695600	0.045	665630	0.003
665600	0.043	625531	0.000
705630	0.026	745730	0.000
685630	0.026		



March 14, 2005

Overall catch and bycatch by sector (no cdq)

Sector	Pollock (mt)	Chinook (N)	Chinook rate (N/mt)
Shoreside	218,670	12,028	0.055
C/P	189,863	9,933	0.051
Motherships	51,396	1,864	0.036
Total	459,930	23,824	0.052

The closure area will not change this week because there all the coops are either in Tier 1 or Tier 2 and would not be closed out of any new closure area. However area 695631 just west of St. George Island has a high enough bycatch rate that caution should be used in that area.

So the closure area is still: **54 35N – 55 00N**
165 00W – 166 00W

Bycatch rates below are based on data from the last 2 weeks, up through this morning, while Tier levels and effective closure dates are from last Thursday's announcement.

WEEKLY SALMON BYCATCH UPDATE - For Week Ending 3/14/05					
Coop	Bycatch Rate	Coop Tier Status	Savings Closure Start Date (1800 Hrs.)	Savings Closure End Date (1800 Hrs.)	Number of Closure Days
Akutan Coop	0.032	1	NA	NA	0
Arctic Coop	0.026	1	NA	NA	0
Mothership Coop	0.033	1	NA	NA	0
North Victor Coop	0.049	1	NA	NA	0
Peter Pan Coop	0.034	1	NA	NA	0
Pick Cons. Coop	0.041	2	3/11/2005	3/15/2005	4
Unalaska Coop	0.025	1	NA	NA	0
UniSea Coop	0.059	2	3/11/2005	3/15/2005	4
Westward Coop	0.018	1	NA	NA	0

Tier 1: Less that .050 salmon per mt. Not affected by closures
Tier 2: Greater than .050 but less than .084 salmon per mt. Subject to 4-day closure
Tier 3: Greater than .084 salmon per mt. Subject to 7-day closure

Bycatch rates by area for week ending 3/14/05			
Stat Area	Rate	Stat Area	Rate
695631	0.086	685630	0.012
645501	0.049	715700	0.011
695600	0.027	655430	0.011
635504	0.020	705701	0.004
705630	0.019	625531	0.000
715630	0.012		

March 17, 2005

Re: IC Salmon closure

Overall catch and bycatch by sector (no cdq)

Sector	Pollock (mt)	Chinook (N)	Chinook rate (N/mt)
Shoreside	229,646	12,261	0.053
C/P	199,356	10,121	0.050
Motherships	51,396	1,864	0.036
Total	480,398	24,246	0.050

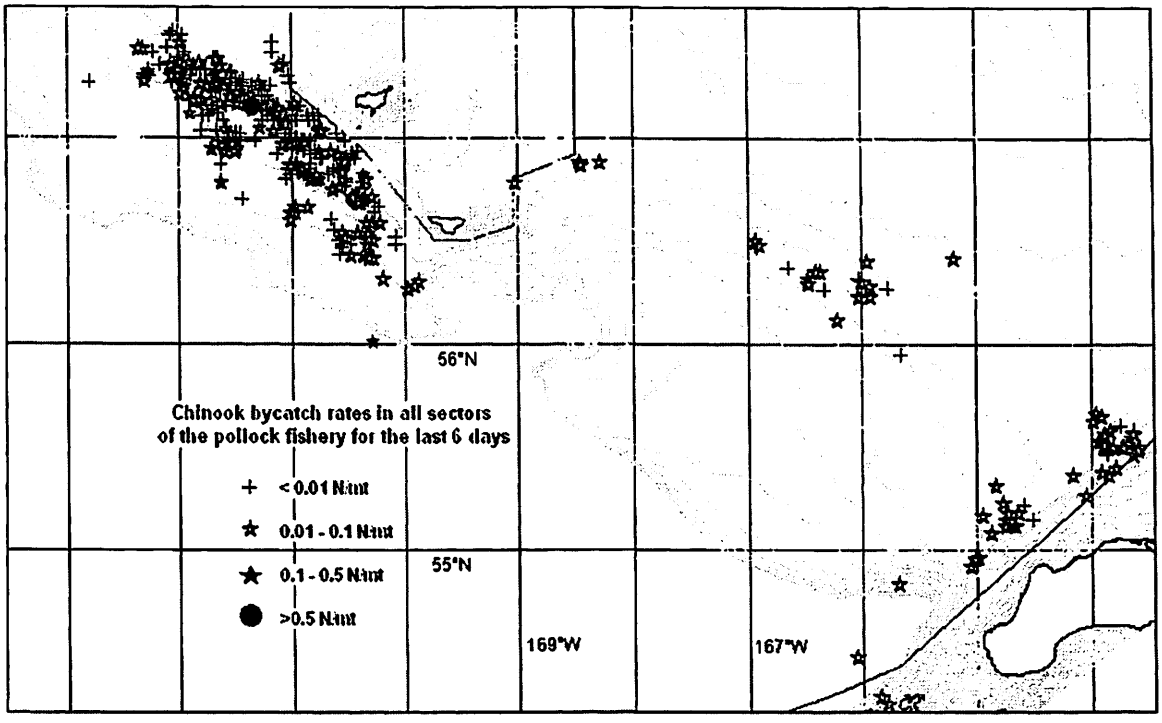
This week there are no stat areas with a rate high enough to warrant a closure. So there will be no closure area for this week.

Regards,
Katherine

WEEKLY SALMON BYCATCH UPDATE - For Week Ending 3/17/05					
Coop	Bycatch Rate	Coop Tier Status	Savings Closure Start Date (1800 Hrs.)	Savings Closure End Date (1800 Hrs.)	Number of Closure Days
Akutan Coop	0.029	1	NA	NA	0
Arctic Coop	0.023	1	NA	NA	0
Mothership Coop	0.028	1	NA	NA	0
North Victor Coop	0.050	1	NA	NA	0
Peter Pan Coop	0.022	1	NA	NA	0
Pick Cons. Coop	0.032	1	NA	NA	0
Unalaska Coop	0.026	1	NA	NA	0
UniSea Coop	0.060	2	3/18/2005	3/22/2005	4
Westward Coop	0.014	1	NA	NA	0

Tier 1: Less that .050 salmon per mt. Not affected by closures
Tier 2: Greater than .050 but less than .084 salmon per mt. Subject to 4-day closure
Tier 3: Greater than .084 salmon per mt. Subject to 7-day closure

Bycatch rates by area for week ending 3/17/05			
Stat Area	Rate	Stat Area	Rate
645501	0.050	705630	0.012
655430	0.038	725700	0.011
715700	0.018	715630	0.008
715730	0.014	705701	0.007



March 24, 2005

Re: IC Salmon Closure

Overall catch and bycatch by sector (no cdq)

Sector	Pollock (mt)	Chinook (N)	Chinook rate (N/mt)
Shoreside	255,211	12,900	0.051
C/P	204,225	10,240	0.049
Motherships	51,396	1,864	0.036
Total	510,832	25,003	0.049

There are no closures this week. As you can see from the table of bycatch rates by area, stat area 695600 has a rate high enough to warrant a closure, but since there are no Coops at Tier 2 or higher there is no point in announcing a closure area. However you may want to use caution if you are fishing in that part of the mushroom.

WEEKLY SALMON BYCATCH UPDATE - For Week Ending 3/24/05					
Coop	Bycatch Rate	Coop Tier Status	Savings Closure Start Date (1800 Hrs.)	Savings Closure End Date (1800 Hrs.)	Number of Closure Days
Akutan Coop	0.019	1	NA	NA	0
Arctic Coop	0.029	1	NA	NA	0
Mothership Coop	0.042	1	NA	NA	0
North Victor Coop	0.035	1	NA	NA	0
Peter Pan Coop	0.017	1	NA	NA	0
Pick Cons. Coop	0.021	1	NA	NA	0
Unalaska Coop	0.026	1	NA	NA	0
UniSea Coop	0.028	1	NA	NA	0
Westward Coop	0.010	1	NA	NA	0

Tier 1: Less that .050 salmon per mt. Not affected by closures
Tier 2: Greater than .050 but less than .084 salmon per mt. Subject to 4-day closure
Tier 3: Greater than .084 salmon per mt. Subject to 7-day closure

Bycatch rates by area for week ending 3/24/05			
Stat Area	Rate	Stat Area	Rate
695600	0.086	715700	0.023
645501	0.056	725700	0.021
695631	0.045	715630	0.020
655430	0.041	725730	0.012
645434	0.038	725630	0.011
705701	0.026	715730	0.008
705630	0.024		

Errata Amendment 84: BSAI Salmon EA/RIR/IRFA Public Review Draft (dated August 31, 2005)

Chapter 3: Page 15: Delete reference to Figure 3.5 in third paragraph. Should be reference to (Bergstrom and Whitmore, 2004).

Page 33: Change figure caption to juvenile Chinook catch 2004 (not immature)

Page 44: Under "Incidental Catch" section table reference reference (error message in bold) should be to Table 3-19

Chapter 4: Page 55: Replace third paragraph with attached (see "Page 55 insertions", following page)

Page 69: delete reference to footnote 3 in 4.1.2.3 heading.

Page 72: Section 4.1.3.1, insert attached after second paragraph (see "Page 72 insertions")

Page 105: Replace Figure 4-20 (attached, Note the color version of this figure was mailed out with supplementary materials in September)

Page 113: Replace second paragraph under 4.2.5 with the following:
The potential impact of the numbers of incidentally caught salmon in recent years on the stocks of Alaska origin is difficult to evaluate. The information presented in Section 3.8 starting on page 42 is intended to provide an overview of the available information on the origin of incidentally caught species in the pollock trawl fisheries. While absolute population effects on western Alaska stocks is unknown, the percentages used from published studies give an indication of the relative amount presumed to originate from western Alaska chum and Chinook stocks.

Page 129: Replace sections 4.3.3-4.3.4 with the supplemental provided.

Page 135: First sentence of the last paragraph on the page (beginning *As per regulations*)..Change table reference to Table 4-9(located on page 136).

Page 136: Second paragraph, last sentence, change "Pacific cod non-salmon bycatch" to "Pacific cod non-Chinook salmon bycatch". The paragraph should read:
Total Pacific cod bycatch of non-Chinook salmon within the CVOA in 2004 made up less than 3% of the total amount taken within the CVOA (163,674) and overall Pacific cod non-Chinook salmon bycatch for 2004 was less than 1.5% of the total non-Chinook salmon bycatch in the fishery in 2004.

Chapter 8: Revised: see attached

Chapter 9: Revised: see attached

Page 55 Insertions:

Replace page 55 3rd paragraph with the following section:

Average bycatch rates of Chinook salmon inside and outside the CHSSA and the CVOA are shown in Tables 4-2 and 4-3, separated by season and sector for 2000-2004. Within the "A" season, average bycatch rates both inside and outside the CHSSA and the CVOA were relatively close in value for both sectors in all years (Table 4-2a,c and Table 4-3 a,c) based on log transformed average bycatch rates. One exception occurred in the 2001 "A" season, where Chinook bycatch was over twice as high outside the CHSSA for Catcher Processors and almost four times as high for catcher vessels (Table 4-2 a,c).

Within the "B" there was no reported catch for CPs from 2000-2003 (Table 4-2b). Within the CV sector, year 2000 had higher average catch rates inside the CHSSA (0.128 #/mt) compared to outside (0.019#/mt) (Table 4.2d). During 2003-2004, higher bycatch rates occurred outside the CHSSA (0.105#/mt and 0.165#/mt) compared to inside (0.010#/mt and 0.029#/mt) respectively (Table 4-2d). The bycatch within the CVOA was also relatively similar for all years examined. Exceptions occur for the CP sector during 2001 with higher catches reported inside the CVOA and 2002 with higher catches outside the CVOA (Table 4-3b). Within 2003 the CV sector Chinook bycatch rates were twice as high outside the CVOA as inside (Table 4-3d).

In 2002, Chinook bycatch in the pollock fishery was highest in the early part of the "A: season and remained high throughout mid-March (Figure 4-1). The Chinook closure was not triggered in the "A" season. In the "B" season, bycatch did not increase until late August and was highest for the "B" season in early to middle of October (Figure 4-1). The annual closure for the Chum Salmon Savings area occurred from August 1-31, and this area closed again from September 21 to October 14. The Chinook SSA closure was not triggered in the "B" season.

Page 72 Insertions:

Insert the following after the 2nd paragraph. under 4.1.3.1

Average bycatch rates of other salmon inside and outside the CSSA and the CVOA are shown in Tables 4-4 and 4-5, separated by season and sector for 2000-2004. Within the "B" there was no reported catch for catcher processors from 2000-2003 (Table 4-4b). However in 2004 bycatch rates for the CP sector as high as the average bycatch rates inside the CSSA (Table 404b). Within the CV sector, year 2001 had extremely high rates inside the CSSA with average bycatch of 72.733 (#/mt) compared to 0.095 #/mt outside (Table 4.4d). During 2002 the CV sector had higher average catch rates inside the CSSA (0.378 #/mt) compared to outside (0.150#/mt) (Table 4.4d). The bycatch within the CVOA for all years examined were relatively close. Exceptions occur for the CP sector in 2000, 2003, and 2004 where the rates inside the CVOA were twice as high as outside (Table 4-5b). During 2000, in the CV sector, the other salmon rates were three times as high inside the CVOA (Table 4-5d).

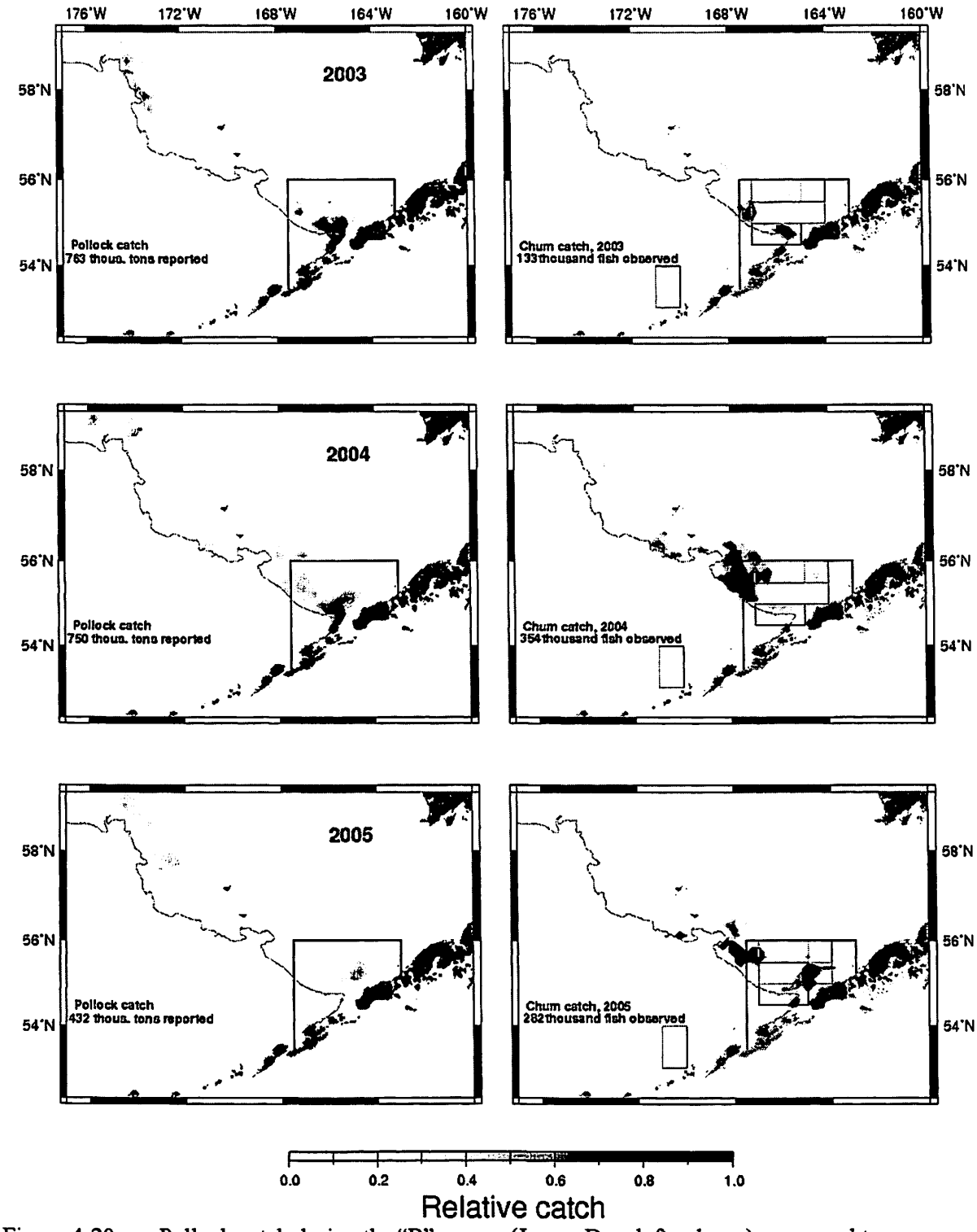


Figure 4-20. Pollock catch during the "B" season (June – Dec; left column) compared to **non-chinook** (labeled as chum) salmon catch for the same period (right column). Source: NMFS Observer database. The scale of the relative catch is constant for each species over different years.

Chapter 8 Consultation and Preparers

8.1 List of Persons and Agencies Consulted

NPFMC:	David Witherell
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NOAA GC:	Jon Pollard
ADF&G:	Herman Savikko Jim Menard Dan Bergstrom
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United Catcher Boats:	Brent Paine, John Gruver
Sea State:	Karl Haflinger
Mundt & McGregor:	Joe Sullivan

8.2 List of Preparers

NPFMC:	Diana Stram, project lead Cathy Coon Diana Evans Jon McCracken Maria Shawback
NOAA Fisheries:	Scott Miller
NOAA Fisheries (AFSC):	Jim Ianelli
ADF&G:	Tracy Lingnau Bonnie Borba

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Bering Sea Aleutian Islands Salmon Bycatch: Amendment Package B

October 2005 Staff Discussion Paper

In February 2005, the Council bifurcated the BSAI salmon bycatch analysis into an amendment package for immediate prioritization (i.e. Amendment 84 for Final Action at this meeting) and a broader scope (currently referred to as "Package B"). The Council adopted a problem statement and draft suite of alternatives for amendment package B at their April 2005 meeting. At this meeting the Council will take final action on amendment 84 and review the draft alternatives and timeline for analysis for amendment package B.

Considerations and Decisions for this Council meeting

The Council may wish to clarify the following during this Council meeting:

1. Review and Clarify alternatives as necessary
2. Review and revise Problem Statement as necessary: to ensure it is in agreement with any change to the draft suite of alternatives
3. Determine a timeline and prioritization for the analysis

Problem Statement

The Council adopted the following problem statement for the Amendment Package B:

The Council and NMFS have initiated analysis of a voluntary rolling hotspot (VRHS) alternative to regulatory salmon savings area closures. Concurrent with that analysis and possible implementation, development will continue on the alternatives that could be implemented if the VRHS approach does not achieve the desired bycatch reduction.

Two possible scenarios under which the VRHS system could produce unsatisfactory results are (1) breach of the inter-cooperative agreement (i.e. one or more vessels fail to participate in the VRHS system, or there are substantial violations of VRHS closures that are not effectively halted through penalties or other measures); or (2) compliance with the VRHS system is good, but the VRHS system fails to achieve the Council's desired level of salmon bycatch reduction. In the first scenario, the Council may ask NMFS to reinstate on an expedited basis the regulatory salmon savings area closure system that is based on the best information available. In the second scenario, the Council intends to consider implementation of an alternative regulatory system from Package B, or consider and evaluate NFMS hot spot management authority as an option for salmon bycatch management.

Alternatives

The following alternatives were adopted by the Council in conjunction with the problem statement in April 2005:

Alternative 1: Establish new regulatory salmon savings area closures taking into account the most recent available salmon bycatch data. This analysis should be completed first and be updated regularly so that it can be implemented on an expedited basis if necessary.

> ***Option A***: Adjust the Chinook and non-Chinook regulatory closure areas annually based on the most current bycatch data available, such as the 2-3 year rolling average of bycatch rates by species and area.
> ***Option B***: Adjust the Chinook and non-Chinook regulatory closure areas once inseason based on the best bycatch information available.

Alternative 2: Develop a regulatory individual vessel salmon bycatch accountability program.

> ***Option A***: managed at the individual level
> ***Option B***: managed at the co-op level

Suboption 1 (to both alternatives): Develop an individual vessel accountability program that may be implemented if, after 3 years, it is determined the pollock cooperatives' "hot zone" closure system has not reduced salmon bycatch.

Suboption 2 (to both alternatives): Analyze the need and implementation strategy of an appropriate cap to meet requirements of National Standard 9.

Analytical needs for each of the alternatives

Alternative 1 would establish new regulatory salmon savings area closures based on current salmon bycatch data. Analysis of this alternative would require similar analyses to that which comprised the original amendments (21b, 35 and 58) establishing the regulatory closure areas. The Council will likely review closures under development to ascertain which would be the most appropriate for inclusion in the analysis. Analyzing this alternative (in conjunction with the others or analyzed separately) would require an EA/RIR/IRFA. The analysis involved in proposing specific closure areas as well as analyzing the environmental and economic effects of moving the fleet away from these new specified closures is extensive. Options A and B under Alternative 1 are designed to allow for greater flexibility in the designation of regulatory closure areas. The actual rulemaking requirements for these options would need to be examined to see if it is possible (from a regulatory standpoint) to adjust closure area designations annually (under Option A) or inseason (under Option B). The requisite analyses necessary for doing these adjustments would also need to be clarified.

Suboption 2 would evaluate the need and implementation strategy of an appropriate bycatch cap on chum and Chinook salmon species in BSAI trawl fisheries. In April, 2005, the SSC noted that a great deal of analysis would be required to support implementation of a voluntary rolling hot spot closure system (VRHS) such as is under consideration in amendment 84. The SSC suggested that in the following amendment (Package B), analysis of additional protection measures such as a bycatch cap would be appropriate. In their minutes from the June 2005 meeting, the SSC recommended "*an expanded*

examination of an appropriate limit on salmon bycatch that considers such factors as region of origin and, at least for salmon of Alaskan origin, total run sizes and the allocated quantities of salmon to subsistence, commercial and sport users as well as escapement goals" (SSC minutes, June 2005). Staff attempted to provide as much of this information as possible at the time in the analysis of amendment 84, however additional information in conjunction with the SSC's suggestions will be provided in the forthcoming analysis of this suboption.

Alternative 2 (and **suboption 1**) would develop a regulatory individual vessel salmon bycatch accountability program. Options under this alternative specify that this program could be implemented at the individual vessel level (under Option A) or at the cooperative level (under Option B).

Under this alternative (and options), vessels (option A) would receive a specific allocation of salmon bycatch (possibly an Individual Bycatch Quota, IBQ) which their vessel cannot exceed. If vessels exceed their individual bycatch quota they must cease fishing. Under the cooperative structure (option B), the cooperative can receive an allocation for the entire cooperative and subdivide this amongst their vessels (or manage however the co-op decides is appropriate) in order to better monitor the fleet. If the co-op exceeds their bycatch quota, the entire co-op would be required to cease fishing.

This alternative iappears to be problematic both from a monitoring standpoint as well as for potential economic losses to fishermen. For monitoring and enforcement, generating bycatch numbers on an individual vessel basis would require whole-haul sampling. Basket sampling for salmon on an individual vessel basis would not generate meaningful numbers for managing bycatch by individual vessels. However, whole haul sampling the entire AFA pollock fleet is a massive undertaking. On catcher vessels alone this would likely require video monitoring to enforce a no-presorting requirement and additional observers at the plant to whole-haul sample 24 hours per day (K. Lind, NMFS, personal communication). For catcher processors, this would be also be very difficult. Currently these CPs carry 2 observers and are still not yet able to whole-haul sample on a boat operating 24 hours per day, so at the minimum an additional observer would be necessary on board CPs. Obviously the observer program would need to be involved in developing the protocol for how they would achieve sampling 100% of the pollock catch on 100% of the fleet. In order to be effective for management and enforcement, the observer estimates of salmon on each vessel would need to be extremely precise.

Another consideration is the potential for economic losses to fishermen. If a vessel has a tow with very high salmon bycatch early in the season, depending upon their IBQ amount, it is possible for that vessel to exceed its annual IBQ for salmon. That vessel would likely then have to cease fishing for the remainder of the year. While vessels can coordinate on known 'hot spot' areas, changing conditions and migrating salmon leave open the possibility for extreme economic hardship to vessels based on the possibility of even a single bad tow. This also presents problems for the responsibility placed upon individual observers doing this whole-haul sampling. Some form of appeals process would likely need to be incorporated into an individual vessel accountability program in order for vessels to be able to challenge the reliability of a single whole-haul estimate particularly in cases where this could preempt fishing for the remainder of the year.

These are just some of the issues which would need to be considered in developing an individual bycatch accountability program. While these problems may not be insurmountable, the development of any individual vessel accountability program would need to give careful consideration to these and likely many other additional issues. The Council would need to consider what type of individual vessel bycatch system would be developed and how this would be monitored and enforced. How would the allocative process be decided upon? Many clarifications would need to be addressed in conceptualizing and analyzing the development of a program. The development and analysis of this alternative would

therefore be fairly lengthy and would require a substantial timeline for development, including the maintaining/enforcement aspects.

Additional considerations for the analysis

In their June 2005 motion, the Council identified several items of importance to be considered in conjunction with salmon bycatch initiatives, specifically the importance of a research plan and recommendations (expanded from the SSC suggestions) for additional information to better inform the Council and the public on the status of salmon stocks and the related impact of trawl fisheries in the Bering Sea.

The Council motion noted the following (excerpted from June 2005 Council motion):

> Further, the Council has identified the importance of a research plan in cooperation with the pollock fleet, western Alaska entities, NMFS and ADF&G to facilitate salmon bycatch reduction, including:
>
> - Developing methods for reducing salmon bycatch in the pollock fishery through excluder devices, fishing behavior modification, net design and the like;
> - Developing methods to gauge salmon abundance preseason or inseason so that trigger rates can be set appropriately based on the best scientific information; and
> - Identifying the rivers of origin of salmon bycatch, and the timing and location of bycatch of the various stocks, paying particular attention to stocks of concern and developing methods to avoid these.
>
> As a basis for understanding some of these issues, the Council further adopts SSC recommendations for presentations on, but not limited to:
>
> 1. The "BASIS" salmon program, emphasizing new information on the distribution of chum and Chinook salmon in the eastern Bering Sea;
> 2. Recent genetic stock ID of chum and Chinook salmon in the eastern Bering Sea; and
> 3. AYK commercial and subsistence salmon overview by ADF&G staff.

These considerations and suggestions will be addressed in conjunction with the Council's continued actions under this forthcoming analysis.

The Council has also discussed (reflected in the problem statement on page one of this document) that the overall analysis of the effectiveness of the VRHS program (if implemented under amendment 84) will occur when the analysis of the package B alternatives are available for comparative purposes. The Council may wish to consider at this time the means by which this effectiveness will be evaluated. In the problem statement, the Council referred to "desired bycatch reduction" as a benchmark against which the VRHS system will be held. The milestones for and standards against which this bycatch reduction will be measured should be clearly outlined.

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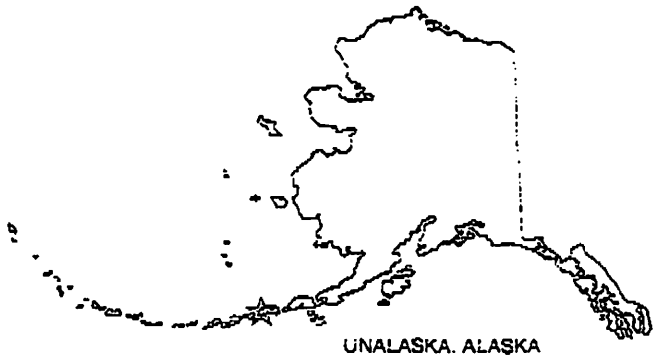

September 27, 2005

Sent Via Facsimile

Stephanie Madsen, Chair
North Pacific Fishery Management Council
605 W 4th Avenue Suite 306
Anchorage, Alaska 99501

Subject: C-4 Bering Sea /Aleutian Island Salmon Bycatch EA/RIR for Amendment 84

Dear Chair Madsen: Stephanie

On behalf of the City of Unalaska, I am writing to you today in support of Alternative 3 Option 2, including the proposed sub-option included in Amendment 84. This alternative was brought forward to the North Pacific Council by the United Catcher Boats (UCB) that represents the majority of the AFA trawl sector Pollock and Pacific Cod catcher vessels in the Bering Sea trawl fisheries.

The City of Unalaska supports the need to address issues of interest to the commercial fishing industry upon which communities such as Unalaska are totally dependent. The City of Unalaska has, for many years, been an advocate for reduced bycatch in all of the BSAI fisheries. We believe that the proposal by UCB to suspend the regulatory salmon saving area closures and allow Pollock cooperatives and CDQ groups to utilize a voluntary rolling hot spot closure system to avoid salmon bycatch is a worthwhile project, that may reduce the bycatch of salmon, reduce expenses to CV's fleet, and improve product quality that is delivered by these vessels to the shoreside processing plants.

There has been a significant increase during the past three years in the amount of salmon bycatch by all Pollock fishing, sectors especially during the Pollock B season. The shoreside catcher vessels have been greatly affected during the past two years by having very productive Pollock fishing areas closed down when the salmon saving closure areas go into effect do to bycatch limits of salmon being met. These closures have forced the catcher fleet to fish further from their markets making each trip much longer, thereby driving up expenses; diesel fuel #2, for example, is at $2.50 a gallon at the fuel docks in Unalaska today. It also impacts the quality of the fish they deliver to the local plants; the fish is older and may not meet the needs of certain product forms, like fillets, that a plant will want to produce.

Fishing further away in unproductive areas also reduces the number of trips a vessel will make, and, as a consequence, they may not catch their Pollock allocation by the November 1st book closure for the fishery in the Bering Sea. We believe that the proposal by UCB has merit and will create incentives for individual vessels to reduce salmon bycatch and will penalize the worst offenders. We would hope that this system that works in real time will reduce operational costs to the fleet and that has a negative effect on product quality. Most importantly, however, we hope this system will reduce salmon bycatch more than the status quo management system does. Alternative 3, the analysis shows, could provide some mitigation opportunities for Western Alaska fishing organizations as well, and it will reduce management and enforcement cost for government agencies by transferring much of that cost to the seafood industry.

Once again, Madam Chair and Council Members, we thank you for taking the time to consider our comments on this issue that is very important to the catcher vessel fleet, the local processing plants and fishery dependant communities like Unalaska and to the many other processing plants and communities in Southwest Alaska.

Sincerely

Frank Kelty,
Resource Analyst
City of Unalaska

CC: Mayor Shirley Marquardt,
Unalaska City Council Members
Chris Hladick, City Manager