

MEMORANDUM

TO: Council and Board Members
FROM: Dave Witherell
DATE: January 28, 2001
SUBJECT: Salmon Bycatch

ACTION REQUIRED

Receive status report on Council actions on salmon bycatch.

BACKGROUND

The 2000 returns of chinook and chum salmon to the Yukon, Kuskokwim, and Norton Sound regions were considered poor. In July, Governor Tony Knowles declared this to be a disaster, and wrote a letter requesting the Council to stop or at least reduce bycatch of chinook and chum salmon. The Governor also asked the Council to require 100% observer coverage on all vessels fishing in the EEZ.

At the September 2000 meeting, the Council initiated consideration of measures to further improve bycatch controls for salmon taken incidentally in pollock fisheries. The Council also requested a letter be sent to Governor Knowles informing him of the Council's intention to further address salmon bycatch. The letter described existing management measures to control salmon bycatch, the voluntary program used by the fishing industry to avoid salmon bycatch, and noted the compounding problems of bycatch and measures taken to reduce fishery impacts on Steller sea lions. It also described potential industry based measures, enacted through co-op agreements, which the Council would be considering at this meeting. A copy of the Council's letter is attached as Attachment 1.

At the February 2001 meeting, the Council may develop alternatives for analysis based on industry proposals and information presented in reports from the Bering Sea pollock cooperatives. Alternatively, such measures may not require regulatory action by the Council if successfully implemented by the co-ops. We expect to receive final interco-op agreements in that regard for Council review this week.

Staff also made an initial examination of salmon bycatch in Gulf of Alaska (GOA) groundfish trawl fisheries, with a preliminary discussion paper provided as Attachment 2. In December, the Council requested further analysis of measures to reduce GOA salmon bycatch, relative to other staff tasking priorities.

North Pacific Fishery Management Council

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Chris Oliver, Acting Executive Director

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September 28, 2000

The Honorable Tony Knowles
Governor, State of Alaska
P.O. Box 110001
Juneau, AK 99811-0001

Dear Governor Knowles:

Thank you for your August 8 letter regarding the status of this year's returns of chinook and chum salmon to the Yukon, Kuskokwim, and Norton Sound regions. Your letter requested the Council to stop the bycatch of chinook and chum salmon, and to require 100% observer coverage on all trawl vessels fishing in the EEZ.

The Council has enacted several measures to control bycatch of salmon in groundfish fisheries. Time and area closures for the Bering Sea trawl fisheries have been established to keep the fishery out of 'hotspot' bycatch areas. Additionally, the trawl fisheries are allocated a limited amount of salmon they can take as bycatch; if more salmon are taken, additional closures are implemented. To reduce the probability of additional closures, the fishing industry has implemented a voluntary program to avoid salmon bycatch by making bycatch rate information available to the entire fleet. A summary of these measures is provided as an attachment to this letter.


At its September meeting, the Council also heard from fishermen regarding the current court ordered injunction, which closes 58,000 square nautical miles to trawling, and the potential to compound salmon bycatch issues, as they have to fish in new areas with lower catch rates and longer tow times. Often characterized as a 'lightning strike' event, bycatch of salmon could potentially be exacerbated by these closures. For all these reasons, we share your concerns and are committed to developing appropriate remedies relative to the fisheries under our jurisdiction.

At our recent meeting the Council initiated development of a regulatory package to further improve bycatch controls for salmon taken incidentally in the pollock fisheries. One of the existing problems identified with the current bycatch management program is that there are no incentives for individual vessels to reduce their own bycatch. The current limits and controls apply at the fleet level. A possible improvement would be to subdivide the salmon bycatch limits among the pollock fishery cooperatives, and allow them to directly address the bycatch issue through a rate-based incentive program within their fleets. Such an approach proved quite effective in the days of the foreign fisheries off Alaska.

We intend to discuss this initiative again at our October meeting, and in December we will receive the end-of-year catch and bycatch reports from the pollock cooperatives, as well as a specific rate-based proposal. This will provide the Council and its staff the specifics with which to complete the necessary analyses and overall regulatory package. For the beginning of the 2001 fisheries, until such regulations are formally implemented, we anticipate a voluntary implementation of this approach by the pollock cooperatives.

With regard to observer coverage, the Council and NMFS are in the process of reviewing the observer program in its entirety. The Council did not specifically discuss the issue of additional observer coverage at this time, though nothing would preclude us from considering appropriate measures when we discuss this again in October and December. At our September meeting the Council received a report on the recently completed independent review of the groundfish observer program which was commissioned by NMFS. We have scheduled a more comprehensive review of the observer program for discussion at our February 2001 meeting in Anchorage. At that time the Council will undoubtedly consider the issue of observer coverage. Again, we share your concerns, and I wish to assure you that this Council is committed to developing further management measures that will minimize the bycatch of salmon.

Sincerely,

A handwritten signature in black ink, appearing to read "David Benton". The signature is fluid and cursive, with a long horizontal stroke at the end.

David Benton
Chairman

cc: Dan Coffey, BOF

Comments on Salmon Bycatch:

Some salmon are taken incidentally as bycatch in the Alaska groundfish trawl fisheries of the Bering Sea and Aleutian Islands (BSAI) and Gulf of Alaska (GOA). Bycatch is closely monitored through the fisheries observer program. Salmon bycatch from groundfish trawl fisheries is shown in the adjacent table. Bycatch of salmon in the BSAI has been somewhat variable in recent years. Most of the salmon bycatch is taken in the pelagic trawl pollock fishery.

Virtually all salmon bycatch is chinook salmon and chum salmon, with less than 5% of the salmon bycatch comprised of sockeye, pinks, or coho salmon.

Previous analysis of bycatch data had indicated the bycatch is primarily juvenile salmon that are one or two years away from returning to the river of origin as adults. The origin of salmon taken as bycatch includes rivers in western Alaska, central and southeast Alaska, Asia, and British Columbia. Four separate studies of salmon taken as bycatch in Bering Sea trawl fisheries have shown that about 60% of the chinook salmon originate from western Alaska rivers (Yukon, Kuskokwim, Bristol Bay drainages). An unknown, but likely lower, percentage of the GOA salmon bycatch originates from western Alaska. The origin composition of chum salmon taken as bycatch remains unknown, but preliminary work suggests that Asian and North American stocks are well intermixed in the Bering Sea, so one would expect bycatch to reflect relative run strengths. It has been estimated that bycatch from Bering Sea trawl fisheries accounted for < 1% of the chum salmon population and in the order of 2 - 4% of the adult chinook salmon population in Alaska.

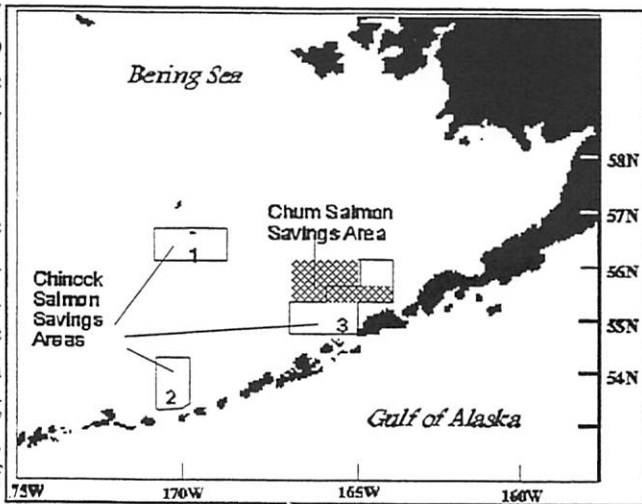
Salmon are listed as a prohibited species in the groundfish fishery management plans, meaning that they cannot be kept, and must be returned to the sea as soon as possible with a minimum of injury. However, regulations implemented in 1994 prohibited the discard of salmon taken as bycatch in BSAI groundfish trawl fisheries until the number of salmon has been determined by a NMFS certified observer. The intent of these regulations was to provide additional information on the magnitude of salmon bycatch in these fisheries. Additional regulations were adopted to allow voluntary retention of salmon for donation to foodbanks. Salmon retained for this purpose are processed and distributed in a fashion that is easily monitored.

The Council has taken measures to control the bycatch of salmon in trawl fisheries. Several bycatch "hotspot" areas have been closed to trawl fishing if too many salmon are encountered (see adjacent figure). Beginning in 1995, the Chum Salmon Savings Area has been closed to all trawling from August 1 through August 31. Additionally, regulations specify that the area remains closed if a bycatch limit of 42,000 chum salmon is taken

within the catcher vessel operational area. Although more than 42,000 chum salmon were taken over the course of a year from 1995 through 1999, additional closures had not been triggered because the bycatch limit

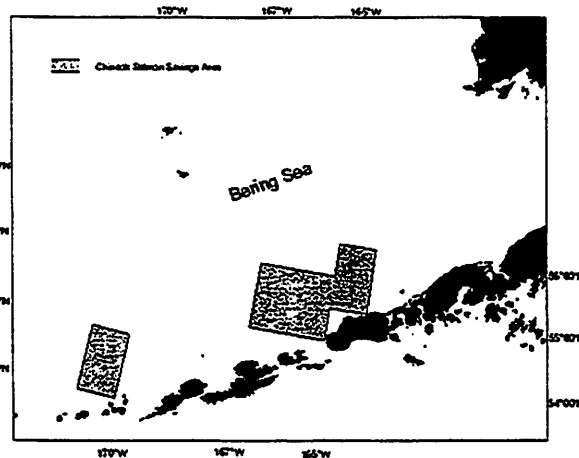
Number of salmon taken as bycatch in BSAI and GOA groundfish trawl fisheries 1993-2000 (through 8/5/00). Note that >95% of the 'other' salmon is chum salmon.

	Chinook Salmon		Other Salmon	
	BSAI	GOA	BSAI	GOA
1993	45,964	24,465	243,246	56,388
1994	43,636	13,613	94,508	37,226
1995	23,079	14,647	21,780	64,792
1996	63,179	15,761	77,926	4,176
1997	50,218	15,095	67,536	3,416
1998	55,427	16,984	65,631	13,544
1999	12,924	30,600	46,295	7,522
2000	6,666	15,735	25,683	3,088



was not attained within the area prior to the accounting period (January 1 to October 14). From 1996 through 1999, regulations were in place to prohibit trawling in the Chinook Salmon Savings Areas through April 15 if and when a bycatch limit of 48,000 chinook salmon was attained in the Bering Sea and Aleutian Islands trawl fisheries. More than 48,000 chinook salmon were taken as bycatch annually from 1996 through 1998, but the closure was not triggered because the bycatch limit was not exceeded before April 15.

In 1999, the Council adopted Amendment 58 to reduce the amount of chinook salmon allowed to be taken as bycatch in BSAI trawl fisheries. Specifically, the alternative adopted did the following (1) reduced the chinook salmon bycatch limit from 48,000 to 29,000 chinook salmon over a 4-year period, (2) implemented year-round accounting of chinook salmon bycatch in the pollock fishery, beginning on January 1 of each year, (3) revised the boundaries of the Chinook Salmon Savings Areas, and (4) set more restrictive closure dates. In the event the limit is triggered before April 15, the Chinook Salmon Savings Area closes immediately. The closure would be removed on April 16, but would be reinitiated September 1 and continue through the end of the year. If the limit were reached after April 15, but before September 1, then the areas would close on September 1. If the limit were reached after September 1, the areas would close immediately through the end of the year. The bycatch limit for 2000 fisheries was set at 41,000 chinook salmon.



Location of the chinook salmon savings areas in the BSAI, as modified by Amendment 58.

In light of the current situation of depressed chum and chinook salmon stocks in the Yukon, Kuskokwim, and Norton Sound regions, the North Pacific Fishery Management Council will review status of the those stocks at it next meeting beginning September 8, 2000. The Council will hear reports from the National Marine Fisheries Service and the Alaska Department of Fish and Game, and also may have recommendations from a joint committee of Council and Alaska Board of Fisheries members which will meet September 7. After reviewing the situation and cumulative bycatch information, the Council may consider taking further action as appropriate.

Salmon Bycatch in the Gulf of Alaska Groundfish Fisheries 1993-2000

Preliminary data analysis prepared by
Cathy Coon, Council staff

Pacific salmon, including chinook (*Oncorhynchus tshawytscha*), chum (*O. Keta*), coho (*O. kisutch*), sockeye (*O. Nerka*), and pink (*O. Gorbuscha*) are among the species taken incidentally in the groundfish fisheries within the Gulf of Alaska. National Marine Fisheries Service (NMFS) manages bycatch of salmon in two groups; the first is chinook and the other 4 species are combined into the 'other salmon' category. Over 95% of the 'other salmon' bycatch consists of chum salmon.

Overview

I examined bycatch location of observed hauls using the North Pacific Groundfish Observer Program (NPGOP) database from 1999-2000* (through 10/21/00), and NMFS catch reporting statistics for groundfish rates and number of salmon bycatch (1993-2000*). This paper provides a preliminary spatial and temporal analysis of salmon bycatch within the pollock trawl fisheries between 1993-2000.

All five species of Pacific salmon have been taken in the GOA groundfish fisheries. The 'other salmon' category represents about 60% of the salmon taken by these fisheries. Gulf of Alaska trawlers fishing for groundfish in 1993-2000 reported an average annual bycatch of 19,800 chinook salmon and 25,000 'other salmon'. The fishery with the largest salmon bycatch during this time period is the pelagic trawl pollock fishery.

Temporal distribution of salmon bycatch

Between 1993 and 2000 there is annual variation in the amount of salmon taken as bycatch within the pelagic and non-pelagic pollock trawl fisheries. Bycatch is reported in this document as expanded number estimates.

The number of chinook salmon caught as bycatch in the pollock trawl fishery has increased from 9,550 to 23,500 between 1997

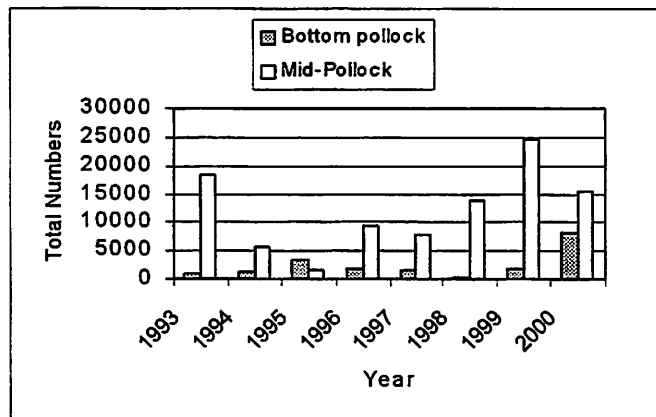


Figure 1. Number of chinook salmon bycatch in the GOA pollock fisheries between 1993-2000.

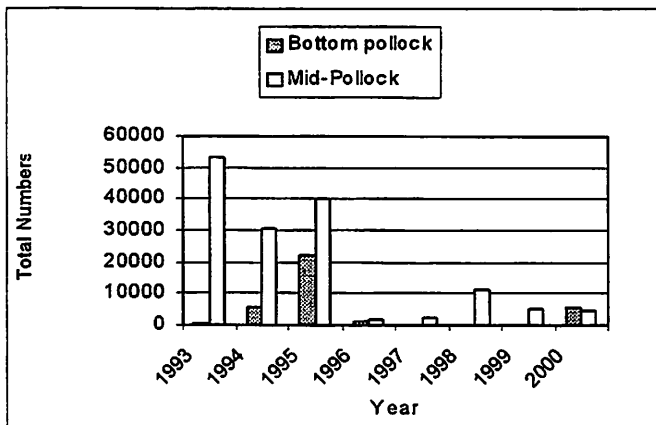


Figure 2. Number of 'other salmon' bycatch in the GOA pollock fisheries between 1993-2000.

and 2000 (Figure 1). There has been a decline from over 54,000 'other salmon' caught in 1993 to just under 10,000 in 2000 (Figure 2).

The pollock fisheries in the Gulf of Alaska are managed on a quarterly basis, with the trawl fishery beginning on January 20th each year. Within the pelagic pollock trawl fishery, salmon bycatch fluctuates by season which can be tracked on a quarterly or weekly basis.

Chinook bycatch is highest (in numbers of fish) in the 1st, 3rd and 4th quarters (Figure 3). Within the 1st quarter bycatch rates are high between February and March with a quarterly average of 4,500 fish. The 3rd quarter had the highest weekly numbers reported between June and July with a quarterly average of 4,100 fish. The 4th quarter had high numbers throughout September to December with a quarterly average of 2,700 fish. The high number of salmon taken as bycatch in each quarter coincides with a lower rate of groundfish harvest as shown using 2000 data in Figure 4. For years 1997-2000 most weeks in October (4th quarter) have had high bycatch reported numbers compared to groundfish harvest levels indicating higher bycatch rates.

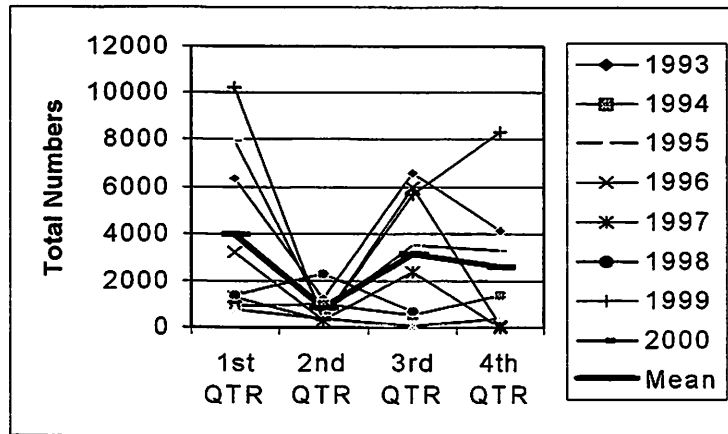


Figure 3. Number of chinook salmon bycatch from the pelagic pollock fishery by quarters 1993-2000.

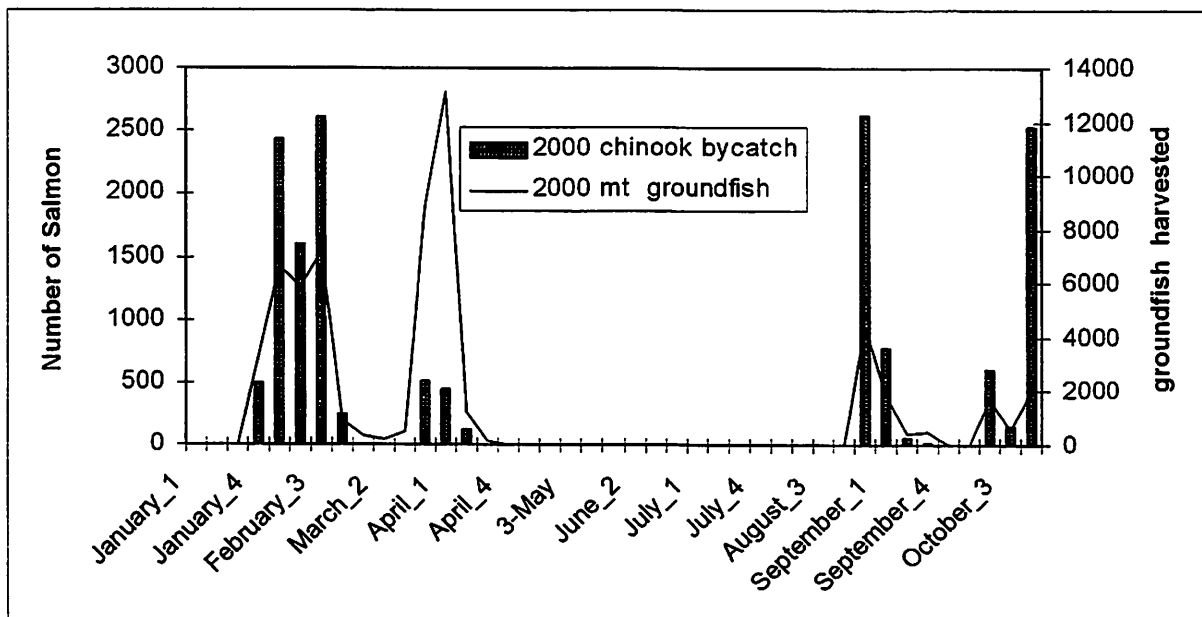


Figure 4. Chinook salmon bycatch and groundfish catch (mt) in the 2000 pelagic trawl fishery.

The highest average number of 'other salmon' bycatch was caught in the 3rd and 4th fishing quarters (Figure 5). Within the 3rd quarter, bycatch rates are highest between the 2nd week of July to the 3rd week of August. The average number of 'other salmon' taken within the 3rd quarter is 13,200 fish. Within 1993-1999 July and August typically have lower harvest levels of groundfish and higher bycatch incidences of 'other salmon', and September for year 2000 indicating high bycatch rates (Figure 6).

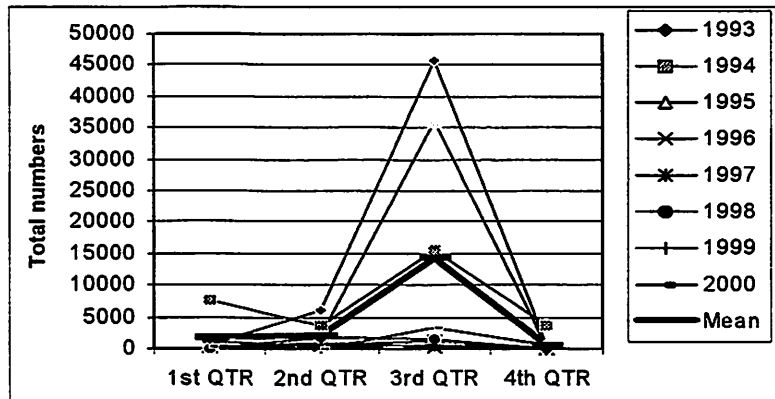


Figure 5. Number of 'other salmon' bycatch in the pelagic pollock trawl fishery by quarters 1993-2000.

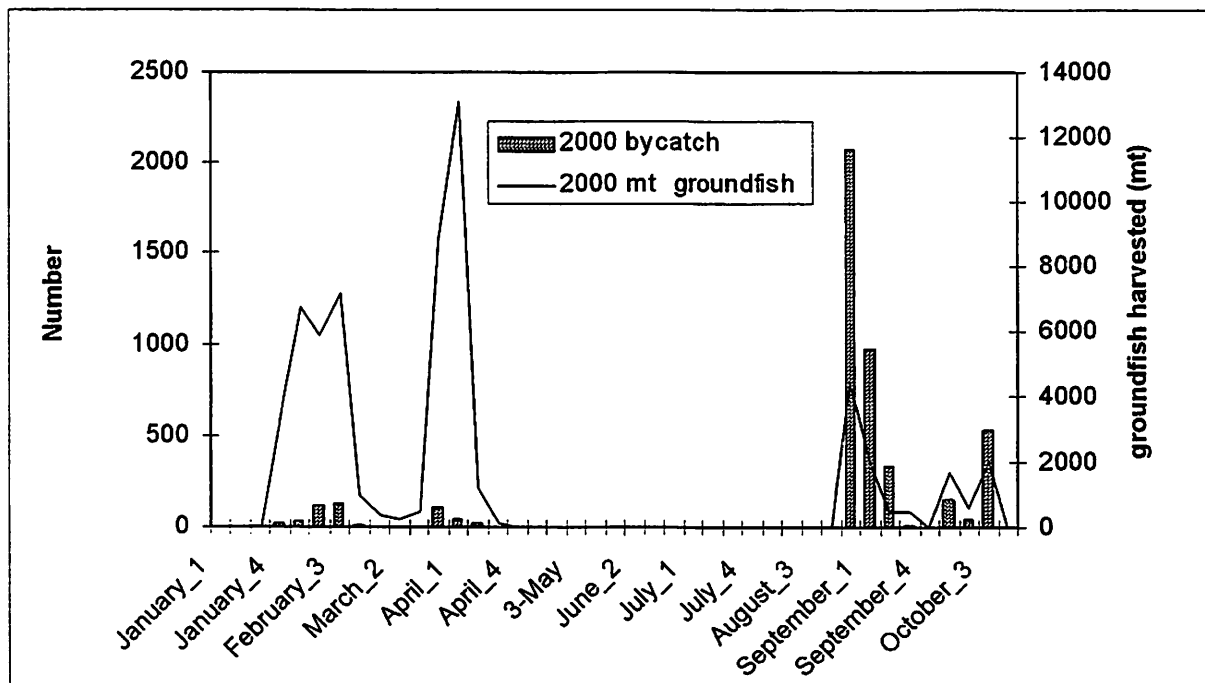


Figure 6. Bycatch of 'other salmon' and groundfish catch (mt) in the 2000 pelagic pollock trawl fishery.

Spatial distribution of salmon bycatch in the Gulf of Alaska pollock fishery

An examination of fishing effort for the pollock trawl fishery (both pelagic and bottom) was done using Geographical Information System (GIS) using 1999-2000 target data from NMFS for salmon bycatch rates (personal communication, Galen Tromble) and locations of the pollock trawl fishery from observed pollock trawls (catch weights equaling fifty percent or greater the overall catch). Although there seems to be a strong temporal component of when salmon bycatch occurs, there is also a spatial component to effort in the pollock fishery by quarter. Most of the observed pollock trawl fishery between 1999 and October 2000 occurred within the Steller sea lion critical habitat areas. The majority of the pollock fishery occurs in the central Gulf of Alaska, predominantly around Kodiak Island. There is some effort in the Western Gulf around Sand Point

and King Cove, and the location of that effort varies by fishing quarter.

The first quarter pollock trawl fishery has observed chinook salmon bycatch that occurred predominantly on the eastern side of Kodiak Island in Shelikof Strait (**Figure 7**). Within the first quarter, there were 451 sampled chinook salmon in 77 trawls out of 1,264 observed trawls. The third and fourth quarter fisheries occurred on the south end near Alitak Bay, Cape Barnabas, Horses Head, and near Marmot flats. There were 2,380 sampled chinook in 130 of the 753 observed trawls. Within the fourth quarter there were 1,130 chinook observed in 118 out of the 384 observed trawls.

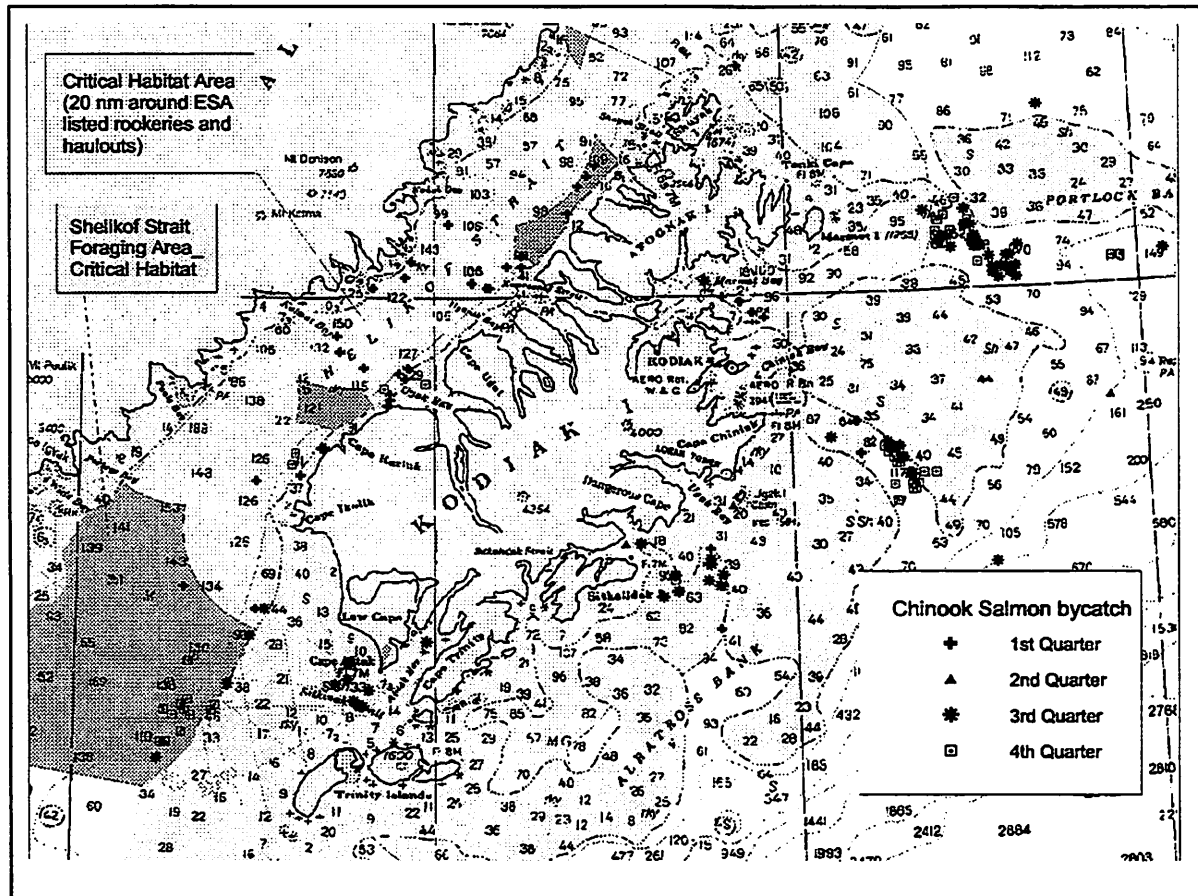


Figure 7. Locations of 1999-2000 chinook salmon bycatch in the pollock trawl fishery near Kodiak Island by quarter.

The locations of ‘other salmon’ bycatch within the pollock trawl fishery also predominantly occurred near the Kodiak Island region in the central Gulf of Alaska. Most of the bycatch occurred within the 3rd quarter pollock fishery. The effort of the 3rd quarter pollock fishery that had bycatch of ‘other salmon’ occurred outside the 20 nautical mile (*nm*) critical habitat areas for Steller sea lions. Most of the effort that had sampled bycatch was near Horses Head and Marmot Flats (**Figure 8**). For all, years in this analysis the 3rd quarter had the highest bycatch amounts, however within 1999-2000 time period both the 3rd and 4th quarters had almost equal amounts of the ‘other salmon’ category sampled. The 3rd quarter had 590 ‘other salmon’ sampled in 77 of the 1,264 observed trawls. The 4th quarter pollock fishery had 656 ‘other salmon’ sampled in 74 of the 384 observed trawls.

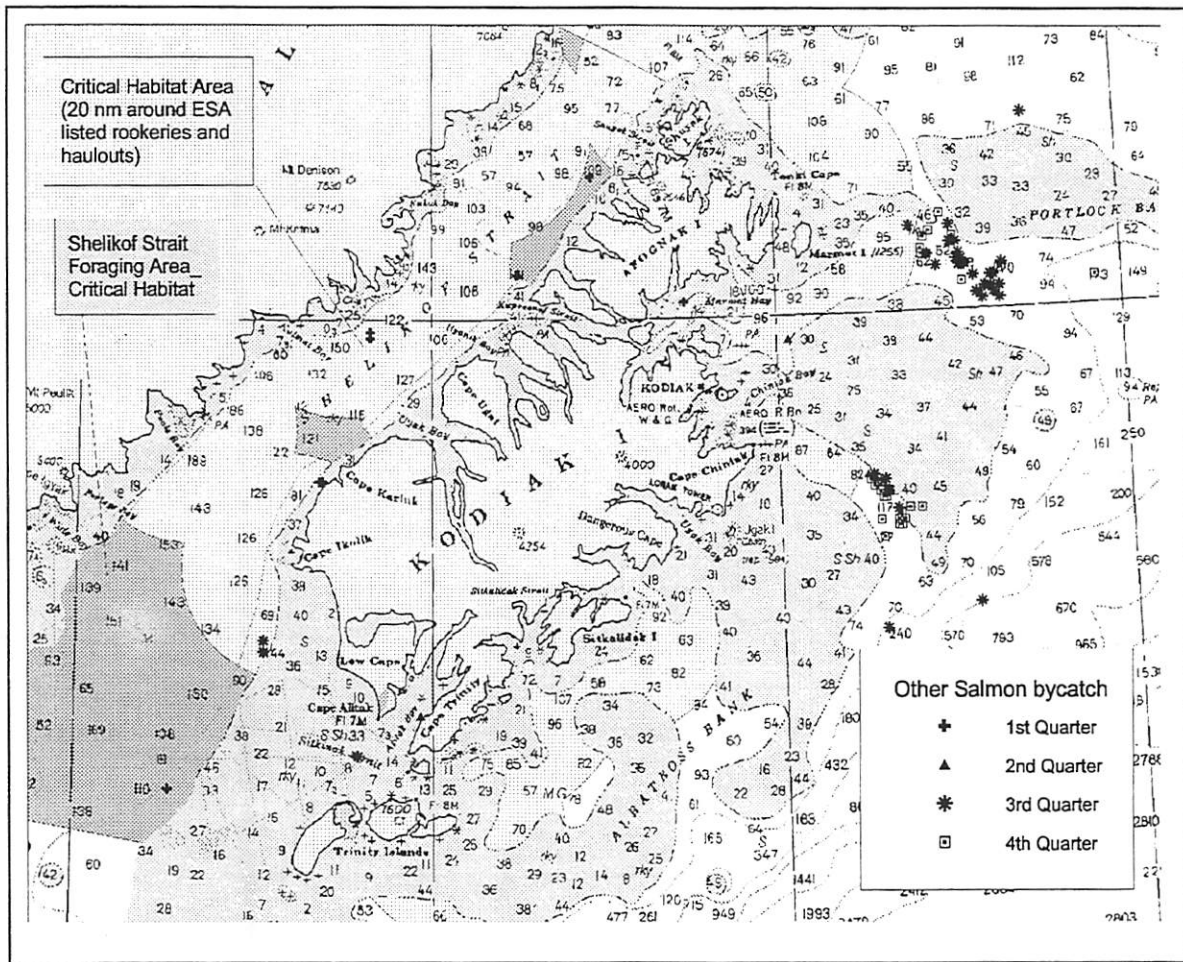


Figure 8. Locations of 1999-2000 'other salmon' bycatch in the pollock trawl fishery near Kodiak Island by quarter.