

MEMORANDUM

TO: Council, SSC and AP Members

FROM: Clarence G. Pautzke
Executive Director



ESTIMATED TIME
2 HOURS

DATE: September 20, 1994

SUBJECT: Crab Management

ACTION REQUIRED

- (a) Review plan team report and status of stocks.
- (b) Set time for joint Council/Board of Fisheries consultation group meeting.

BACKGROUND

Status of Stocks

The Crab Plan Team will meet on September 26, 1994 in Seattle to review the annual area management report (mailed to you last week) and other related issues. The annual area management report is a requirement of the North Pacific Fishery Management Council's *Fishery Management Plan (FMP) for the Commercial King and Tanner Crab Fisheries in the Bering Sea/Aleutian Islands*. It details the current biological and economic status of fisheries, guideline harvest level (GHL) ranges, and support for different management decisions or changes in harvest strategies. The report is prepared by the State of Alaska with NMFS and crab plan team input, as appropriate. The plan team report and the annual area management report will be available to the public and summarized for the Council at this meeting.

Council/Board of Fisheries Consultation Group

In October 1993, NMFS and ADF&G approved a "State/Federal Action Plan for Management of Commercial King and Tanner Crab Fisheries" to foster improved coordination and cooperation with respect to crab management. As a result of the plan, a consultation group consisting of Council and Board members was formed to meet publicly on an annual basis to discuss crab issues. An initial meeting was held in Anchorage on February 18, 1994. A draft meeting summary is enclosed as item D-1(b)(1).

At this meeting the Council may recommend preferred dates for the next meeting. As a reference, the Board of Fisheries tentative meeting schedule is as follows:

- * October 20-21, 1994 in Fairbanks (work session)
- 1) November 8-18, 1994 in Anchorage
- 2) January 17-28, 1995 in Dillingham
- * February 7-13, 1995 (joint meeting with Board of Game)
- 3) February 21-March 4, 1995 in Anchorage
- 4) March 18-27, 1995 in Anchorage

Meeting Summary
Council/Board Crab Consultation Group
February 18, 1994
Anchorage, Alaska

Background

In October 1993, the Alaska Regional Director of the National Marine Fisheries Service (NMFS) and the Commissioner of the Alaska Department of Fish and Game (ADF&G) approved a "State/Federal Action Plan for Management of Commercial King and Tanner Crab Fisheries." The plan was developed to foster improved coordination and communication between NMFS and ADF&G with respect to crab management under the Fishery Management Plan for the Commercial King and Tanner Crab Fisheries in the Bering Sea/Aleutian Islands Area (FMP). As a result of that plan, a consultation group consisting of members of the North Pacific Fishery Management Council (NPFMC) and the Alaska Board of Fisheries (Board) was formed to meet publicly on an annual basis to focus on crab issues. This was the initial meeting of the Consultation Group.

Council and Board Members Present: R. Alverson (NPFMC), K. Andrew (Board), D. Bower (Board), L. Edfelt (Board), L. Engel (Board), R. Hegge (NPFMC), D. Jacobsen (Board), A. Millikan (NPFMC), S. Pennoyer (NPFMC), C. Rosier (NPFMC), R. Samuelson (NPFMC).

Staff Present: L. Jones, Executive Director (Board); C. Pautzke, Executive Director (NPFMC); J. Pollard (NOAA-GCAK); B. Harris (Alaska DOL); K. Griffin (ADFG); J. Hilsinger (ADFG); J. Koenings (ADFG); W. Nippes (ADFG); C. Oliver (NPFMC); K. Spittler (NMFS); and D. Witherell (NPFMC).

Public Present: Jerry Nelson (Courageous Seafoods); Garry Loncon (Royal Aleutian Seafoods); Kris Poulsen (Kris Poulsen & Assoc.); Paul Rachey (Arctic Alaska); and Arni Thomson (Alaska Crab Coalition).

Steve Pennoyer acted as facilitator for the meeting which was mainly informational in nature. The agenda included background information on the Crab FMP and an overview of federal and state responsibilities in the BSAI crab fisheries.

An overview of the status of crab stocks was provided by ADF&G staff, as well as a review of how Guideline Harvest Levels are developed. Kim Spittler reported on the interaction of the state and federal agencies for management of crab.

There were 12 discussion items on the agenda (Attachment 1); most were informational only. Arni Thomson reported on the recent meeting of the Pacific Northwest Crab Industry Advisory Committee (PNCIAC) which included comments on several of the discussion items on the Consultation Group's agenda. Public comments on agenda discussion subjects were provided by Jerry Nelson (Courageous Fisheries), Arni Thomson (Alaska Crab Coalition), Garry Loncon (Royal Aleutian Seafoods); and Kris Poulsen (Poulsen & Assoc.).

Following is a brief recap for each of the agenda discussion items:

Category 1 Issues

The recent approval of the Norton Sound superexclusive crab registration area concerned some Council members. They indicated that the full Council, during its deliberations on the proposal, expressed a desire that the Board agree to refrain from recommending similar areas until the Council has the opportunity to develop a comprehensive fishery management regime for all the groundfish and crab fisheries. Board members present said

they could not speak officially for the Board, but would be willing to convey the Council's concerns and discuss the issue at their next meeting. A letter signed by the former Board chairman indicating the Board would refrain from future requests for superexclusive areas apparently was not discussed by the full Board. It was pointed out that any superexclusive designation proposals are under Category 1 in the FMP, thus requiring the full Council review process. It was suggested that the minutes on this subject from the Council's January meeting should be made available to the Board before they discuss the subject at their March meeting. Opinions on additional superexclusive areas were split: some Council members thought a commitment from the Board was necessary while others felt the Board should not forego opportunity to consider public proposals for such areas.

Category 2 Issues

A proposal currently before the Board which would establish pot limits for Adak red and brown king crab, was briefly reviewed. It was clarified that the PNCIAC recommendation of no less than 150 pots for vessels under 125 ft. applies only to the red king crab fisheries. Pot limits are within the purview of the state as long as certain FMP criteria are adhered to. Pot limits must also be designed in a non-discriminatory manner. Other than discussion of the issue, there was no action by the Consultation Group.

Category 3 Issues

Two proposals were discussed: **Tanner crab pot definition and the tunnel height opening for Tanner pots.** The Tanner crab pot definition is being discussed by the Board in March to clarify whether tack-welding of two or more pots together should be allowed and whether this circumvents the purpose of the pot limits. The tunnel height issue was proposed by petition to the Board; however, because it did not meet Board requirements for out-of-cycle proposals they declined to put it on their agenda for their upcoming meeting. The concern of the proposers is that the current 3" opening may be overly restrictive and may prevent the capture of large mature bairdi crab; they prefer a 4" opening. ADF&G biologist Bill Nippes said that ADF&G is gathering data to determine whether a problem does exist. Legally, tunnel height could be taken up on the Board's agenda under their consideration of pot definitions. Whether or not it will be, is still up to the Board.

The following issues on the agenda were briefly addressed:

BS Crab Industry Advisory Group - Jeff Koenings (ADF&G) advised that the purpose of such a group would primarily be to increase communication between managers and users. It would be more informational in nature and not a formal, advisory group. He anticipated a one- to two-day meeting in August to go over the upcoming crab fisheries.

New 5th ADF&G Region for BSAI Fisheries - This idea is being explored by ADF&G as a result of an overall plan to consolidate some divisions for budgetary and efficiency reasons. A workgroup has been exploring the options though no action is likely to take place unless the legislature approves start-up funding. Recommendations will be available in six to eight weeks.

Separate Board for BSAI Marine Shellfish Fisheries - This idea has been proposed by some industry participants, however it's unlikely there would be funding for a separate Board.

Board Proposal Cycle and Agendas - PNCIAC has suggested a two-year cycle for crab proposals rather than the current three. There is also concern that crab proposals are not getting the attention needed because of other pressing issues (this was expressed for both the Board and Council processes). Board members indicated that although the normal cycle for crab proposals is three years, there is a process for submitting out-of-cycle and

emergency-type proposals. Council members also recognize that crab issues have been sometimes set aside for more pressing matters and will be addressing that issue at future meetings. It was noted that the Board spends 60-80 days per year in session and that roughly 10% of their time is spent on crab.

Determination of GHGs. - There was a request from industry and Council members for a review of the process for setting Guideline Harvest Levels for the crab fisheries. ADF&G personnel provided a written overview as well as an oral report and answered questions from Board and Council members. It was suggested that the Research Planning Group initiated under the State/Federal Action Plan should establish a research plan for crab, and possibly schedule a symposium on the science of crab management. NMFS indicated it would work with ADF&G to arrange such a symposium.

Role of Industry in the new State-Federal Action Plan - The Group received an overview of the various groups established under the State-Federal Action Plan and their role in management decisions. It was noted that the intent of the Action Plan was not to confuse the industry, but rather to establish a more formal mechanism for exchange of information and ideas on the management and conservation of the crab resource.

Cross-certification of groundfish and crab observers - The Group received comments from the public indicating a need for observers to be cross-trained in order to save time and money when a vessel leaves one fishery and enters another. Concern was also expressed with the current State requirement that no observer may serve any more than 90 days a year on the same vessel. It was suggested that this requirement may be justified; however, some leeway should be given to managers to waive the rule when it will seriously impact a vessel by having to return an observer in the middle of a fishing trip. It was also stressed that when the Council's Research Plan goes into effect, overall coordination between the state and federal observer programs is imperative. Commissioner Rosier said he would look into the 90-day issue. Also of concern to industry was that groundfish observers must go to Seattle for debriefing. Some suggested debriefing in Dutch Harbor as crab observers do.

Role of the SSC in reviewing crab management measures - After discussion it was determined that the current review of GHGs by the plan team is probably sufficient. However, the Council has the option of requesting their SSC to review any analysis or management proposal if they feel there is a need. Also, a member of the SSC and/or other scientists from outside the area could be pulled in to provide peer review at the annual meeting of the Research Planning Group.

Summary: Board and Council members expressed satisfaction with the first meeting of the Group. They felt that the staff reports on the various issues made them better informed and will aid them in future decisions. The Group felt that although crab issues are the main focus of their discussions for now, they would not limit their scope just to crab. For instance, if a scallop FMP is approved, there will need to be the same close coordination between the Board and the Council in making management decisions. All members agreed to the need for a broad forum in order to deal with any issue of significance to both the Board and the Council.

The Group felt an annual meeting would be sufficient to deal with the issues of mutual concern; however, each group must go back to their respective bodies and discuss it before any final plans are made.

Carl L. Rosier, Commissioner

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Alaska Department of Fish & Game

NEWS

FOR IMMEDIATE RELEASE
September 9, 1994

CONTACT: Ken Griffin
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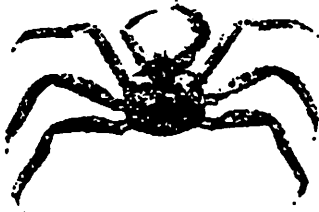
ATTENTION BERING SEA/ALEUTIAN ISLAND CRAB INDUSTRY

The Alaska Department of Fish and Game (ADF&G) will hold its annual meeting with the Bering Sea/Aleutian Island (BSAI) crab industry in **Anchorage, Alaska, on October 13, 1994, at the Westcoast International Airport Inn.** Staffs from the National Marine Fisheries Service and ADF&G's Juneau Headquarters and Westward Region management and research will be in attendance. The meeting will begin at 9:00 a.m. and continue until 5:00 p.m.

Subjects to be discussed include ADF&G budgets, Federal Observer Research Plan, crab IFQs, crab observer program, Bristol Bay test fishery, and fisheries and guideline harvest level information for BSAI crab fisheries.

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COMMERCIAL FISHERIES



NEWS RELEASE

ALASKA DEPARTMENT
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STATE OF ALASKA
Department of Fish and Game
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Kodiak, AK 99615

Jeffery P. Koenings, Director
Commercial Fisheries Management
and Development Division

Contact: William E. Nippes
Westward Region Shellfish/
Groundfish Management Biologist
Kodiak, Alaska

IMMEDIATE RELEASE

Date: September 6, 1994

ATTENTION BRISTOL BAY KING CRAB INDUSTRY

The Alaska Department of Fish and Game (ADF&G) today announced that the Bristol Bay commercial red king crab fishery will not open during the 1994/95 season. The closure is necessary to ensure the future viability of these valuable king crab resources.

Population abundance for Bristol Bay red king crab has been estimated by the National Marine Fisheries Service (NMFS) using data from the 1994 NMFS eastern Bering Sea trawl survey. The Bristol Bay red king crab stocks are depressed and have shown evidence of declining recruitment since 1976. The 1994 estimate of abundance of 28.3 million red king crabs is the lowest estimate in the history of NMFS trawl survey. Estimated numbers of mature males and females and legal-sized males have also shown a clear declining trend in the last six year's data. NMFS estimate the number of legal males in 1994 to be 5.5 million crabs; these are the lowest estimates of legal abundance for any year since 1986. These stocks have been low and stable in recent years, and have sustained a small fishery. The 1994 survey data indicates little prospect for increased recruitment of mature males or females in the near future. In fact, stock viability has reached a level where even the female threshold was not reached this year.

Alaska Department of Fish and Game (ADF&G) has validated the survey estimates by computing an alternate population estimate using a length-based model which incorporates historic fisheries and survey data. ADF&G, in consultation with NMFS staff and Crab Plan Team members, have concluded that the estimates for the number of mature females falls below the threshold value of 8.4 million. Due to the poor condition of this stock, lack of recruitment and failure to meet female threshold levels, the Bristol Bay red king crab fishery will not be opened to commercial fishing in 1994. This fishery closure is in accordance with the ADF&G

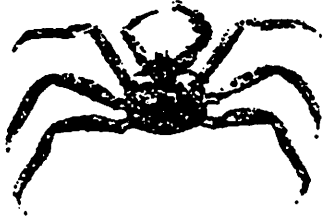
King Crab Harvest Strategy, (5 AAC 34.080) and the Fishery Management Plan (FMP) for the Commercial King and Tanner Crab Fisheries in the Bering Sea and Aleutian Islands.

A fishery threshold is a level of abundance below which the ability of stocks to rebuild is uncertain. When stocks are at or below threshold, the fishery is not opened since further removals from the spawning stock would jeopardize the ability of the stock to recover. The ADF&G King Crab Harvest Strategy was developed by the Alaska Board of Fisheries (ABOF) on March 23, 1990. 5 AAC 34.080 directs ADF&G to "...establish a threshold level of abundance..." for each king crab stock and to "...close the fishery during the entire fishing season on any stock that is below its threshold level of abundance." The Alaska Board of Fisheries (ABOF) Policy assures the minimum stock size to allow sufficient recruitment so that the stock can rebuild itself.

Threshold is similarly defined in the FMP, and is one of five criteria that must be considered when establishing guideline harvest levels in accordance with the FMP. Allowable biological catch (ABC) must also be considered in establishing GHL. ABC is set to achieve the biological conservation objective (of the FMP) of preventing overfishing and is defined as zero when the female stock is at or below threshold. The threshold value for Bristol Bay of 8.4 million mature female crabs was estimated by the Crab Plan Team of the North Pacific Fishery Management Council in 1990. This value was incorporated into ADF&G's Harvest Strategy for the Bristol Bay red king crabs prior to the 1991 commercial fishery and was formally presented to, and adopted by the ABOF in February 1993.

End

COMMERCIAL FISHERIES



NEWS RELEASE

ALASKA DEPARTMENT
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SEP 13

Jeffrey P. Koenings, Director
Commercial Fisheries Management
and Development Division

Contact: William E. Nippes
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IMMEDIATE RELEASE

Date: September 7, 1994

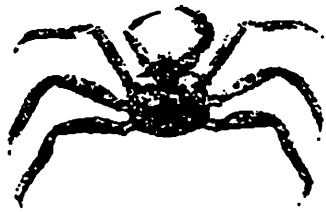
ATTENTION BERING SEA TANNER CRAB INDUSTRY

Due to closure of the 1994 Area T Bristol Bay red king crab fishery (EO 4-S-13-94), the area east of 163° W. longitude will be closed to *C. bairdi* Tanner crab fishing for the 1994/95 season (5 AAC 35.510). The 1994/95 *C. bairdi* Tanner crab fishery will open only between 163° and 173° W. longitude on November 1, 1994 with a GHL of 7.5 million pounds. The fishery will close 12:00 noon March 31, 1995, unless closed earlier by emergency order.

The 1994 NMFS eastern Bering Sea trawl survey indicates a legal male *C. bairdi* Tanner crab abundance of 8.5 million crabs, or 18.8 million pounds, in the area between 163° and 173° W. longitude. Legal male abundance for the entire Bering Sea is estimated at 15.4 million crabs, or 36 million pounds, a decrease of 25% from last year's estimate. Fifty-two percent of the estimated total Bering Sea *C. bairdi* legal crab abundance occurs west of 163° W. longitude.

An announcement providing the Bering Sea *C. opilio* Tanner crab GHL will be released later this week.

COMMERCIAL FISHERIES



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IMMEDIATE RELEASE

Date: September 9, 1994

ATTENTION BERING SEA CRAB INDUSTRY

The Alaska Department of Fish and Game in consultation with National Marine Fisheries Service (NMFS) staff have reviewed the Bering Sea *C. opilio* crab survey for 1994. The results of the NMFS survey indicates a continued low abundance of marketable size crab.

The following Guideline Harvest Levels (GHL) were derived based on 4" and larger crab. If industry harvests crab smaller than 4" the department will adjust guideline harvest levels inseason. Fisheries performance will determine the final harvest levels.

<u>Area</u>	<u>GHL (millions of pounds)</u>
Eastern Subdistrict	25.0
Western Subdistrict	30.7
Total Bering Sea	<u>55.7</u>

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Groundfish Management Biologist
Kodiak, Alaska

IMMEDIATE RELEASE

Date: September 7, 1994

ATTENTION HAIR CRAB FISHERMEN

The Pribilof Area of the Bering Sea (West of 168°W. long) will open at 12:00 noon, November 1 to directed fishing for male hair crab 3.25 inches and larger. Only hair crab pots as defined by 5 AAC 38.052 may be used and no pot limit is in effect for this fishery. A special permit issued by the Department of Fish and Game in Dutch Harbor is required and all vessels must carry a fishery observer at all times. The harvest guideline for the fall 1994 fishery is 1.1 million pounds. Based on apparent declines in the male hair crab population, a conservative exploitation rate of 0.25 was used to calculate the harvest guideline.

Analysis of the National Marine Fisheries Service crab stock assessment survey of the Bering Sea indicates the index for abundance of large (3.25 " and larger) male hair crab is 3.55 million crab. This is a 38% decline in abundance from levels observed in the 1993 survey. The majority of large male hair crab were observed in the vicinity of the Pribilof Islands west of 168° W. long. Very few large male hair crab were observed in survey tows conducted east of 168° W. long.

ARNI THOMSON

NMFS/AKR
09/15/94

1994 BERING SEA/ALEUTIAN ISLANDS FISHERIES
PROHIBITED SPECIES BYCATCH MORTALITY
based on amendment 21 specifications
Week Ending: 09/10/94

TRAWL HERRING, BSAI

Fishery group	Herring (mt)	Cap (mt)	%
Pacific cod	2	25	9%
Yellowfin sole	75	332	23%
Midwater pollock	888	1,419	63%
Other	34	178	19%
Rockfish	0	8	0%

TRAWL SALMON, BSAI

Fishery group	Chinook (#'s)	Other (#'s)
Midwater pollock	28,467	81,275
Pacific cod	7,035	1,207
Rock sole/Other flatfish	846	44
Yellowfin sole	52	6
Other	4,160	6,379
Rockfish	116	94

TRAWL BAIRDI TANNER CRAB

Fishery group	<u>2 million</u> ZONE 1			<u>3 million</u> ZONE 2		
	Crabs (#'s)	Cap (#'s)	%	Crabs (#'s)	Cap (#'s)	%
Pacific cod	76,735	175,000	44%	138,016	200,000	69%
Rock sole/Other flatfish	360,039	475,000	76%	319,685	260,000	123%
Yellowfin sole	243,498	175,000	139%	303,805	1,275,000	24%
PLCK/AMCK/OTHER	60,617	175,000	35%	335,925	1,250,000	27%
GTRB/ARTH/SABL	0	0	0%	58	5,000	1%

TRAWL RED KING CRAB

Fishery group	ZONE 1		
	Crabs (#'s)	Cap (#'s)	%
Pacific cod	769	10,000	8%
Rock sole/Other flatfish	190,149	110,000	173%
Yellowfin sole	11,395	40,000	28%
PLCK/AMCK/OTHER	37,734	40,000	94%

1994 BAIRDI GHL 7.5 LBS. - 3 million crabs

9/28/94

DRAFT MINUTES

CRAB PLAN TEAM MEETING

The Crab Plan Team met in Seattle on September 26, 1994 to discuss and review several issues relating to crab management (see attached agenda). Key issues of concern were the 1994/95 guideline harvest levels (GHLs) and crab bycatch. Plan Team members present were: Ken Griffin, Peggy Murphy, Rance Morrison, Bill Nippes, (ADF&G); Bob Otto, Jerry Reeves, Kim Rivera (chair), NMFS; Dave Witherell, NPFMC. Tom Shirley was absent. An attendance list of others present is attached.

AGENDA ITEMS:

1. Introduction (Kim Rivera) The role and function of the Plan Team was outlined. Key focus of the meeting was red king crab bycatch in the groundfish fisheries. Also, Plan Team members consider review of GHLs as an additional means by which GHL information can be provided to the public.

2. Review of State/Federal Action Plan (Kim Rivera) In October 1993, the State/Federal Action Plan for Management of Commercial King and Tanner Crab Fisheries (Action Plan) was signed by Steve Pennoyer and Carl Rosier. The purpose of the Action Plan is to foster improved coordination and communication between NMFS and ADF&G with respect to crab management under the FMP. Three interagency action groups facilitate this joint coordination: research planning group, crab plan team, and state/federal policy group. In some form or fashion, these groups were already in existence, their role and function being highlighted by the Action Plan. Other actions recognized in the Action Plan: agencies meeting with industry to discuss crab management issues (next scheduled meeting in Anchorage, October 13), and a subcommittee of Council and Board of Fisheries members to meet on an annual basis to focus on crab issues of joint concern.

3. Review of 1994/95 GHLs (Bob Otto) Highlights of the survey were: Bristol Bay red king crab closure--survey indicated stock in poor condition, lack of recruitment, and female population below threshold levels. Bairdi fishery--7.5 million lb. GHL constrained by approximately 50% as a result of the Bristol Bay red king crab closure and subsequent closure east of 163W to bairdi to reduce red king crab bycatch. Opilio fishery--55.7 million lb. GHL reduced from last year; signs of strong recruitment in limited northern areas of survey. Pribilof red king crab fishery--2 million lbs. GHL; preliminary ADF&G report indicates harvest of 1 million lbs.; fishery closed Sept. 21 (6 fishing days). St. Matthew blue king crab fishery--3 million lbs. GHL; preliminary ADF&G report indicates harvest slightly

above 3 million lbs.; fishery closed Sept. 22 (7 fishing days). For additional information see attached "Results of the 1994 NMFS Bering Sea Crab Survey Executive Survey".

4. ADF&G Length-based Population Model and Stock-Recruitment Relationships for Bristol Bay Red King Crab (Peggy Murphy) A technical presentation of the model structure and mechanics was provided by Peggy Murphy. The model incorporates both survey and historical fishery data, ultimately "smoothing" out some of the variance associated with survey estimates. Further review of the model will be done by the SSC and the Crab Research Planning Group.

5. Ramifications of Bristol Bay red king crab fishery closure (Team discussion)

a. An ecosystem approach and the interactions that occur in multispecies fisheries indicates that coordination of the crab and groundfish plan teams is essential.

b. Impacts on other BSAI king and Tanner fisheries: participation, prices, stock assessment and other research needs, developing fisheries.

6. Crab Bycatch (Team discussion)

a. Red king crab and bairdi bycatch in BSAI Zone 1 of groundfish trawl fisheries. Extensive discussion followed. See attachments for preliminary data available to Plan Team on crab bycatch in groundfish fisheries. Berger's summary of observed historical data (1990-1994) indicates the highest bycatch rates of red king crab occur in the rock sole and yellowfin sole fisheries in January in 5 contiguous blocks (1/2 degree latitude by 1 degree longitude block size). NMFS' 1994 weekly data indicates that the rock sole trawl fishery took 210,000 red king crab from Jan.-Mar. Almost 60% of this bycatch occurred in Area 516. Council staff noted methods generally used by the Council for dealing with bycatch issues: season opening date, time/area closure, PSC cap, bycatch rate standards. Plan Team members had many questions about the form and availability of data and recommended further analysis (see Consensus Recommendation #2) prior to making more specific recommendations. After the noted motion passed, two motions failed because the majority of Plan Team members felt it was premature to indicate specific action without further analysis of the data.

(Time became a constraint at this point, brief informational reports followed with little or no discussion.)

b. Red king crab bycatch in other BSAI crab fisheries. 1992 and 1993 bycatch data available from bairdi and opilio fisheries--see attached.

c. Crab bycatch in Bering Sea scallop fisheries. Four statistical areas north of Unimak Island accounted for the majority of Tanner crab (bairdi) and snow crab (opilio) bycatch in the scallop fisheries (276K crab in 1993 and 262K in 1994). During 1994, four vessels were "pulled" for excessive rates and the overall fleet rate was greatly reduced. (Bycatch cap = 260K crab; level chosen at a rate which would allow the fishery to proceed) Only 6 red king crab were taken as bycatch in the scallop fishery.

d. Snow crab (opilio) bycatch in groundfish fisheries. Council agenda item D-5. In 1993, 93% of opilio bycatch occurs in Areas 513 and 514; 87% of that amount occurred in the yellowfin sole, rock sole, and "other flatfish" fisheries. Bycatch has consisted primarily of small animals, 40-65 mm. Total bycatch in the groundfish fisheries accounts for about 0.1 to 0.2 % of the total opilio abundance.

The meeting adjourned at 5:50pm. Due to time constraints, items 7-10 were deferred until a later time.

CRAB PLAN TEAM RECOMMENDATIONS

The Crab Plan Team considered and took action on the following recommendations:

1) (Passed 7-1) Red king crab bycatch cap (PSC) in that portion of Zone 1 groundfish fisheries east of 163W longitude be set at zero. If cap cannot be delineated to target specifically the area east of 163W, then the entire Zone 1 area cap needs to be set at zero.

Discussion of the motion emphasized that the Plan Team wished to draw the attention of the Council to the severity of stock conditions of red king crab in Bristol Bay and the necessity of implementing protective measures.

2) (Failed 0-8) Recommendation that the Council take emergency action in the form of a time/area closure west of 163W based on additional analysis of data looked at by crab and groundfish plan teams.

3) (Failed 3-5) The allowable red king crab bycatch in the area west of 163W be restricted to the average of the last three years for that area.

The Crab Plan Team makes the following additional recommendations in the form of consensus recommendations:

1) That the Council/Board Consultation Group discuss crab bycatch issues in the groundfish fisheries. Existing State of Alaska Board regulations require the area east of 163W to be closed to a bairdi harvest in the event of a Bristol Bay red king crab closure. This action taken by the Board in March 1993, is to protect the red king crab stock by eliminating any additional bycatch mortality which would result from continued crab fishing activities east of 163W.

2) That the Council reexamine treatment of red king crab bycatch in the groundfish fisheries as soon as possible and preferably prior to its December meeting. This reexamination would include reconsideration of PSC caps and other possible management measures such as time/area closures. Analysis of data should include, but not be limited to the following:

- a. sampling protocol of observer bycatch data (i.e. expansion methods, accounting for variation in fishing practices)
- b. bycatch delineated by size, sex, block (1/2 degree latitude by 1 degree longitude)
- c. reevaluate distribution of red king crab in that portion of Zone 1 from 160W-162W as a result of the 1986 trawl closure in that area

OTHER CONSIDERATIONS:

1) Suggest coordination between crab and groundfish plan teams in areas of joint concern. It may be desirable for a member of the crab plan team to meet with the groundfish plan team and vice versa.

2) Suggest Research Planning Group examine research needs in other BSAI crab fisheries such as Adak red and brown king crab, *C. tanneri*, *C. angulatus*, and *Lithodes couesi* king crab (developing fisheries).

CRAB PLAN TEAM MEETING
SEPTEMBER 26, 1994, NOON-5:30 P.M.--SEATTLE
RED LION INN, MT. BAKER ROOM

DRAFT AGENDA

1. Introduction
Protocol for a public plan team meeting -- Kim Rivera
2. Review/clarification of State/Federal Action Plan -- Kim Rivera
3. 1994 GHs -- Ken Griffin, Bill Nippes, Bob Otto
4. Information on length-based model for Bristol Bay red king crab -- Peggy Murphy
5. Initial discussions on ramifications of Bristol Bay red king crab fishery closure
6. Bycatch
 - a. red king crab and bairdi bycatch in BSAI Zone 1 of groundfish trawl fisheries -- Peggy Murphy
 - b. red king crab bycatch in other BSAI crab fisheries -- Ken Griffin
 - c. Tanner crab bycatch in Bering Sea scallop fisheries -- Rance Morrison and Bill Nippes
 - d. Opilio bycatch discussion paper -- Dave Witherell
7. Opilio size limit update -- Bob Otto
8. Status of Pribilof Island trawl closure action -- Dave Witherell
9. Status of BSAI king and Tanner crab working group -- Peggy Murphy and Bob Otto
10. Status of Research Plan -- Kim Rivera

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Bill Davis	" "
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Bob Weber	O.B.A.
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Cassi Thomson	Alaska Crab Club
Kell Lewis	NORTH Wind in Aurora
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Steve Toomey	F/V Exito
Bob Scotfield	DORIAN METAL FAB
Rance Morrison	ADFG

RESULTS OF THE 1994 NMFS BERING SEA CRAB SURVEY
EXECUTIVE SUMMARY

This document summarizes data presented in the NMFS Processed Report "Report to Industry on the 1994 Eastern Bering Sea Crab Survey". Numbers presented are indices of population level and do not represent absolute abundance. For further information, contact Dr. Bradley G. Stevens or Dr. Robert Otto, NMFS, P.O. Box 1638, Kodiak, AK 99615. Phone (907) 487-4961. GHL = Guideline Harvest Level.

Red king crab (*Paralithodes camtschatica*) Bristol Bay.

Legal males: 5.5 million crabs; 25% decrease.
Pre-recruits: 30% decrease.
Large Females: 47% decrease.
Outlook: Total population index is at an all-time low and declining. Female abundance is below threshold.
GHL: No fishery in 1994.

Red king crab (*Paralithodes camtschatica*) Pribilofs District.

Legal males: 1.9 million crabs; No significant change.
Pre-recruits: No significant change.
Large Females: No significant change.
Outlook: Legal crab are concentrated at few stations, and index has low precision. Females and small males are poorly estimated.
GHL: 2.0 million lbs.

Pribilof Islands blue king crab (*P. platypus*) Pribilof District.

Legal males: 0.8 million crabs; No significant change.
Pre-recruits: No significant change.
Large Females: No significant change.
Outlook: Population low and stable. Trends not detectable.
GHL: Fishery closed for 1994.

St. Matthew blue king crab (*P. platypus*) Northern District.

Legal males: 2.5 million crabs; 31% decrease.
Pre-recruits: 30% decrease.
Large Females: Not well estimated.
Outlook: Population relatively high and stable.
GHL: 3.0 million lbs.

Tanner crab (*Chionoecetes bairdi*) Eastern District.

Legal males: 15.4 million crabs; 25% decrease.
Pre-recruits: 39% decrease.
Large Females: No significant change.
Outlook: Population still declining, but may be leveling out. Some recruitment of juveniles occurring.
GHL: 7.5 million lbs, West of 163°W only.

Snow crab (C. opilio) All districts combined.**Large males:** 71.6 million crabs; 47% decrease.**Pre-recruits:** No significant change.**Large Females:** 15% decrease.**Outlook:** Large crab continuing to decline, but may be leveling out. Strong recruitment of juveniles occurring at northern limit of survey.**GHL:** 55.7 million lbs (≥ 4 " width).**Hair crab (Erimactrus isenbeckii)****Total males:** 8.2 million crabs; 30% decrease.**Large Females:** Not well estimated.**Outlook:** Population at medium level and stable.**GHL:** Pribilofs: 1.0 million lbs.



UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
Alaska Fisheries Science Center
BIN C15700; Building 4
7600 Sand Point Way NE
Seattle, WA 98115

SEP 23 1994

MEMORANDUM FOR: Steven Pennoyer
Director, Alaska Region

FROM: William Aron *WA*
Science and Research Director, Alaska Region

SUBJECT: King crab bycatch in Bering Sea flatfish
fisheries

Attached is a summary of king crab bycatch data. It is sent to you for your information. The memorandum was developed at the request of the team, and it is our intention to make it available for the September 26th meeting.

Attachment





UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
Alaska Fisheries Science Center
Resource Ecology and Fisheries
Management Division
BIN C15700; Bldg, 4
7600 Sand Point Way NE
Seattle, WA 98115-0070

September 22, 1994

MEMORANDUM FOR: F/AKC2 - Bill Karp
FROM: F/AKC2 - Jerry Berger *Jerry Berger*
SUBJECT: Zone 1 King Crab Bycatch

I have been looking at observed historical data with respect to king crab bycatch in Zone 1. The following summarizes my findings.

Observer data collected from vessels targeting flatfish were used to analyze the bycatch of king crab in Zone 1 of the Bering Sea (Figure 1). Location and time of year were examined, by individual vessel and for all vessels combined, to try to determine when and where targeting flatfish would result in king crab catch rates below the North Pacific Fishery Management Council (NPFMC) standard of 2.5 crab per ton of groundfish caught.

In 1990, the flatfish fishery (including yellowfin sole and rock sole) commenced operations on January 1. In 1991, the rock sole fishery began operations on January 1, but the yellowfin sole and the other flatfish fisheries were delayed until May 1. In 1992 and 1993, the rock sole fishery was delayed until January 20, and the yellowfin sole and the other flatfish operations were again delayed until May 1.

Most of the observed data in Zone 1 indicated a rock sole target. Thus, for the purposes of this paper, all three targets have been treated collectively as a single flatfish target.

Table 1 provides information on king crab bycatch rates (number of king crab taken per metric ton of allocated groundfish) by vessel and year. Seventy-eight different vessels targeted flatfish in Zone 1 during the four-year period being studied. In 1990, 22 vessels participated, with 6 having annual bycatch rates exceeding 2.5 crab per ton. In 1991, 52 vessels participated and 8 exceeded the bycatch rate standard. In 1992, 54 vessels targeted flatfish and 15 exceeded the bycatch rate standard. In 1993, 44 vessels targeted flatfish and 14 of them had annual rates exceeding the bycatch rate standard. In all, 36 different



vessels had at least one annual rate that exceeded the bycatch rate standard of 2.5 crab per ton. Two of these vessels exceeded this standard in three different years, and three exceeded this standard in two different years.

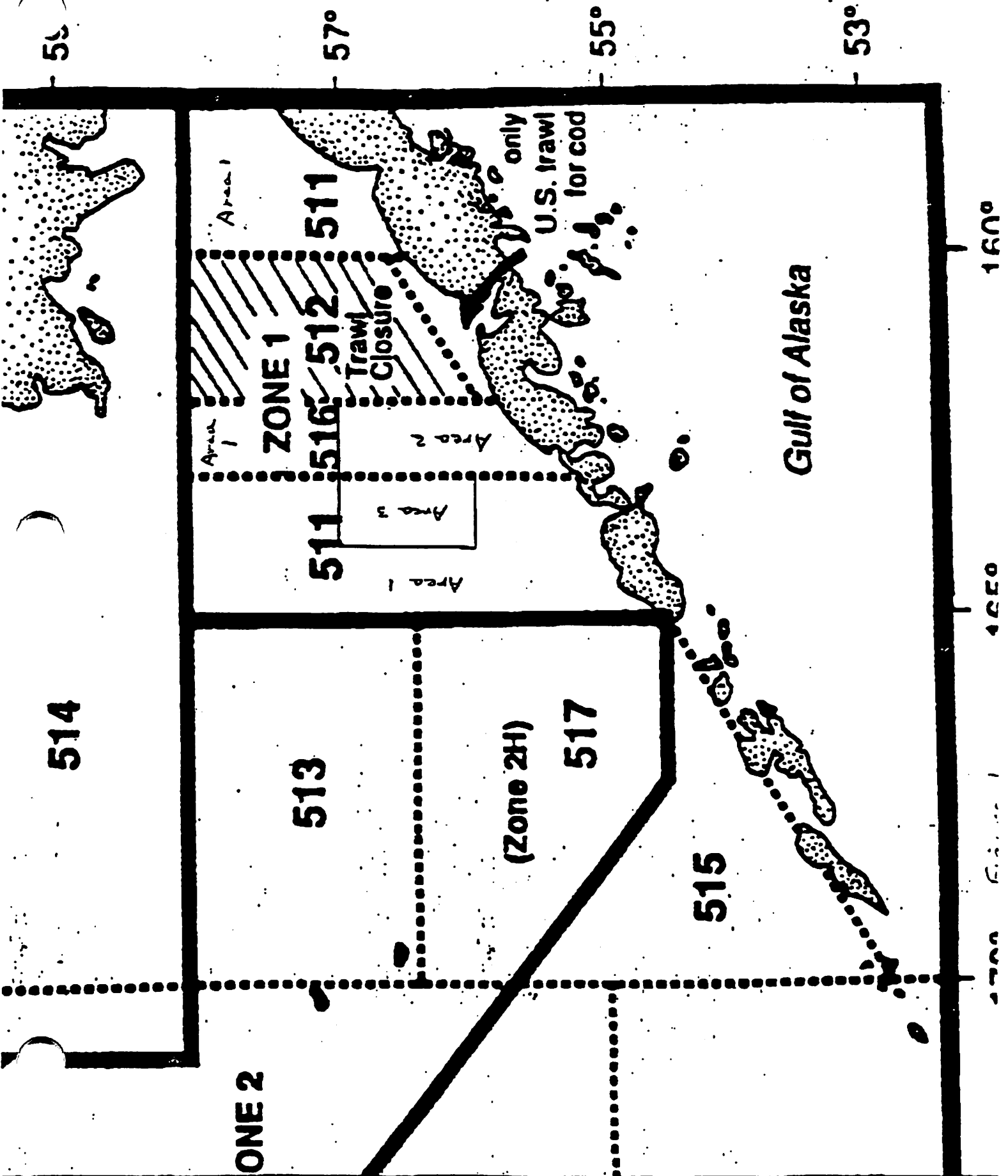
Table 2 lists the king crab bycatch rates by month and year. These data indicate that January bycatch rates exceed the 2.5 crab/ton standard for every year except 1992. The 1990 rate was 5.02. The rates for 1991, 1992, and 1993 were 3.59, 2.46, and 5.42, respectively. In February, bycatch rates were between 1 and 2 crab/ton for each year. March and April had rates less than 1 crab/ton for each year. May bycatch rates were 5.47 in 1990, 1.78 in 1991, 1.38 in 1992, and 6.44 in 1993. The other months of the year either had negligible tonnage of sampled tows or bycatch rates less than 1 crab/ton (except for June 1993, which had tonnage exceeding 100 tons and a bycatch rate of 1.49).

Table 3 provides king crab bycatch rate information by year, month, and block (1/2 degree latitude by 1 degree longitude). Tons of groundfish caught in the hauls that were sampled and the estimated number of king crab taken in the sampled hauls are given, as well as the ratios of the estimate of king crab taken to the tons of groundfish caught.

Table 4 was produced after examination of the results listed in Table 3. Month and year remained separate, but the blocks were consolidated into three areas (Figure 1). Area 2 consisted of three contiguous blocks from 55 degrees 30 minutes N latitude to 57 degrees N latitude by 162 degrees W longitude to 163 degrees W longitude. Area 3 consisted of two adjacent blocks from 56 degrees N latitude to 57 degrees N latitude by 163 degrees W longitude to 164 degrees W longitude. Area 1 consisted of all other blocks in Zone 1. (The area south of 58 degrees N latitude and between 160 and 162 degrees W longitude is closed to trawling year round and so no data are available,)

In January of each year, bycatch rates exceeded 2.5 crab/ton for both Areas 2 and 3 (except for 1991 in Area 3 when less than 100 tons of sampled tows occurred). Area 3 bycatch rates for February exceeded the standard for each year except 1992 which had a bycatch rate was 2.34 crab/ton. Bycatch rates were also high in May for Areas 2 and 3, but tonnages of sampled tows were generally less than 100 tons.

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Catch per unit effort (CPUE) of selected commercially important species during the 1992 Bering Sea C. opilio crab fishery including total sample catch and estimated total catches in the fishery.

Species	Total pot sample catch	Catch per unit effort	Estimated total fishery catch
<u>C. opilio</u>			
legal male	253,995	208.9	267,767,184
sub-legal male	1,857	1.5	1,922,694
female	3,855	3.2	4,101,747
<u>C. bairdi</u>			
legal male	3,194	2.6	<u>3,332,670</u>
sub-legal male	9,886	8.1	<u>10,382,548</u>
female	958	.8	1,025,437
<u>Hybrid Tanner crab</u>			
mixed size/sex	8,083	6.6	8,459,854
<u>red king crab</u>			
legal male	20	<.1	21,082
sub-legal male	2	<.1	2,108
female	10	<.1	10,541
<u>blue king crab</u>			
legal male	9	<.1	9,487
sub-legal male	19	<.1	20,028
female	3	<.1	3,162
<u>brown king crab</u> (legal males only)	6	<.1	6,325
<u>halibut</u>	15	<.1	15,812
<u>pacific cod</u>	1,119	.9	1,179,547

Total pot contents derived from 1,216 random samples taken on catcher processors during the fishery.

Estimated catch derived from pot sample CPUE x 1,281,796 total reported pot pulls during the fishery.

Only legal males were observed in pot samples.

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FAX NO. 9075811572

P. 03

Table 57. Catch per pot of selected species from the 1993 Bering Sea C. bairdi fishery.

Species	Total pot ^a sample catch	Catch per unit effort	Estimated total ^b fishery catch
<u>C. bairdi</u>			
legal male	17,426	17.2	7,209,948
sub-legal male	31,135	30.9	12,952,755
female	12,497	12.4	5,197,869
<u>C. opilio</u>			
legal male	3,388	3.4	1,425,222
sub-legal male	105	.1	41,918
female	45	<.1	18,695
<u>hybrid Tanner crab</u>			
mixed size/sex	680	.7	293,428
<u>red king crab</u>			
legal male	57	<.1	23,680
sub-legal male	176	.2	83,837
female	311	.3	125,755
<u>blue king crab</u>			
legal male	0	-	-
sub-legal male	99	<.1	48,129
female	123	.1	41,918
<u>Korean hair crab</u>	70	<.1	29,081
<u>halibut</u>	41	<.1	17,033
<u>pacific cod</u>	1,728	1.7	712,611

^aTotal pot contents derived from 1,009 random samples taken on catcher processors during the fishery.

^bEstimated catch derived from pot sample CPUE x 419,183 total reported pot pulls between the dates of Nov. 21 and Dec. 31, 1993.

Table 5. Catch per pot of selected species from the 1993 Bering Sea G. opilio fishery.

Species	Total pot ^a sample catch	Catch per unit effort	Estimated total ^b fishery catch
<u>G. opilio</u>			
legal male	270,783	235.3	228,447,219
sub-legal male	2,568	2.2	2,166,504
female	2,927	2.5	2,469,376
<u>G. bairdi</u>			
legal male	876	.8	739,041
sub-legal male	6,029	5.2	5,086,391
female	1,049	.9	884,993
<u>hybrid Tanner crab</u>			
mixed size/sex	11,451	9.9	9,660,684
<u>red king crab</u>			
legal male	11	<.1	9280
sub-legal male	6	<.1	5062
female	12	<.1	10,124
<u>blue king crab</u>			
legal male	1	<.1	844
sub-legal male	33	<.1	27,841
female	7	<.1	5906
<u>brown king crab</u>			
	0	0	0
<u>halibut</u>			
	8	<.1	6749
<u>pacific cod</u>			
	1,292	1.1	1,090,001

^aTotal pot contents derived from 1,151 random samples taken on catcher processors during the fishery.

^bEstimated catch derived from pot sample CPUE x 971,046 total reported pot pulls during the fishery.

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Table 1.--King crab bycatch rates (number/ton of groundfish) by year and vessel in the flatfish fishery in Zone 1 of the Bering Sea.

Year	Vessel Number*	Tonnage of Sampled Tows	Rate
90	1	>100	3.75
90	2	>100	4.45
90	3	>100	0.02
90	4	<99	0.07
90	5	>100	1.29
90	6	>100	0.01
90	7	>100	2.94
90	8	>100	1.65
90	9	<99	2.75
90	10	>100	1.59
90	11	>100	0.00
90	12	>100	1.93
90	13	>100	7.05
90	14	<99	0.00
90	15	>100	1.36
90	16	<99	0.00
90	17	>100	0.52
90	18	>100	0.00
90	19	>100	0.00
90	20	<99	1.52
90	21	<99	2.24
90	22	<99	13.60
91	1	>100	0.45
91	2	>100	1.92
91	3	>100	3.77
91	4	>100	1.16
91	5	>100	0.55
91	6	>100	0.60
91	7	>100	3.40
91	8	>100	2.05
91	9	>100	0.42
91	10	>100	1.29
91	11	>100	2.86
91	13	>100	2.11
91	14	>100	0.86
91	15	>100	0.11
91	16	>100	1.46
91	17	<99	4.97
91	18	>100	1.82

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Table 1.—Continued.

Year	Vessel Number*	Tonnage of Sampled Tows	Rate
91	20	<99	0.08
91	22	<99	0.00
91	23	>100	0.08
91	24	>100	0.90
91	25	>100	1.50
91	26	>100	0.16
91	27	>100	0.82
91	28	>100	13.26
91	29	<99	0.00
91	30	>100	0.67
91	31	>100	0.00
91	32	>100	0.00
91	33	>100	0.00
91	34	>100	0.49
91	35	>100	0.11
91	36	<99	0.00
91	37	<99	0.00
91	38	>100	0.00
91	39	<99	0.00
91	40	<99	0.04
91	41	<99	0.25
91	42	<99	0.00
91	43	<99	4.79
91	44	<99	0.62
91	45	<99	1.65
91	46	<99	0.00
91	47	>100	1.77
91	48	>100	0.45
91	49	>100	3.36
91	50	>100	1.51
91	51	<99	1.63
91	52	<99	0.23
91	53	<99	0.00
91	54	>100	0.00
91	55	<99	3.54
92	1	>100	1.82
92	2	>100	1.38
92	5	>100	0.81
92	6	>100	0.18
92	7	>100	1.31

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Table 1.—Continued.

Year	Vessel Number*	Tonnage of Sampled Tows	Rate
92	8	>100	0.92
92	9	>100	1.84
92	10	>100	0.00
92	11	>100	0.50
92	12	>100	3.03
92	13	>100	0.37
92	14	>100	1.49
92	16	>100	3.59
92	17	>100	0.58
92	18	>100	1.22
92	19	>100	0.79
92	23	>100	2.83
92	24	>100	3.14
92	25	>100	1.81
92	26	>100	0.54
92	27	<99	0.00
92	28	>100	1.38
92	29	>100	0.27
92	31	>100	0.72
92	32	>100	4.39
92	33	>100	3.84
92	34	>100	0.70
92	37	<99	0.34
92	40	<99	0.00
92	41	>100	0.12
92	43	<99	0.00
92	47	>100	2.15
92	48	>100	6.54
92	49	>100	3.51
92	50	>100	0.21
92	52	>100	1.40
92	55	>100	3.44
92	56	>100	2.48
92	57	>100	3.45
92	58	>100	1.52
92	59	>100	0.00
92	60	>100	0.00
92	61	>100	3.89
92	62	>100	0.00
92	63	>100	2.74

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Table 1.--Continued.

Year	Vessel Number*	Tonnage of Sampled Tows	Rate
92	64	>100	3.54
92	65	>100	0.85
92	66	>100	0.93
92	67	<99	0.00
92	68	>100	0.00
92	69	>100	2.62
92	70	>100	3.77
92	71	<99	0.00
92	72	>100	0.24
93	1	>100	0.49
93	2	>100	0.70
93	4	<99	0.00
93	5	>100	1.09
93	6	>100	3.40
93	7	>100	2.87
93	8	>100	0.52
93	9	>100	0.41
93	10	>100	2.20
93	11	>100	0.20
93	12	>100	2.35
93	14	>100	0.42
93	17	>100	1.36
93	18	>100	4.90
93	19	>100	1.82
93	20	<99	0.00
93	22	<99	0.00
93	24	>100	1.57
93	28	<99	0.00
93	29	>100	3.75
93	31	>100	4.47
93	32	>100	8.25
93	33	>100	9.04
93	34	>100	11.85
93	37	>100	2.58
93	38	>100	1.29
93	39	<99	0.00
93	41	<99	42.57
93	45	<99	0.83
93	47	>100	1.20
93	48	<99	0.00

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Table 1.--Continued.

Year	Vessel Number*	Tonnage of Sampled Tows	Rate
93	50	>100	0.00
93	51	<99	0.00
93	54	<99	0.00
93	55	>100	3.34
93	56	>100	16.60
93	57	>100	17.20
93	67	<99	0.00
93	73	<99	25.00
93	74	<99	0.42
93	75	<99	0.00
93	76	<99	0.00
93	77	<99	0.00
93	78	<99	0.00

* 78 different vessels participated in this fishery during these four years.

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Table 2.—King crab bycatch rates (number/ton of groundfish) by month and year in the flatfish fishery in Zone 1 of the Bering Sea.

Month	Number of king crab per ton of groundfish			
	1990	1991	1992	1993
1	5.02	3.59	2.46	5.42
2	1.63	1.29	1.25	1.67
3	0.77	0.20	0.00	0.00
4	0.02	0.01	—	0.00
5	5.47	1.78	1.38	6.44
6	—	0.23*	0.88	1.49
7	—	0.00*	—	—
8	—	0.00	—	0.00*
9	—	1.47*	—	—
10	0.00*	—	—	0.64
11	0.00*	—	—	0.06

* Less than 100 tons of sampled tows.

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Table 3.--King crab bycatch rates (number/ton of groundfish) by year, month, and block in the flatfish fishery in Zone 1 of the Bering Sea.

Year	Month	Block	Tons of Groundfish	Numbers of King crab	Rate
90	1	159570	3.48	0	0.00
90	1	159573	3.42	0	0.00
90	1	162553	169.33	1215	7.18
90	1	162560	2096.72	10956	5.23
90	1	162563	24.68	40	1.62
90	1	163550	52.74	31	0.59
90	1	163553	35.35	37	1.05
90	1	163560	269.51	1671	6.20
90	1	164550	123.55	12	0.10
90	2	162560	200.36	292	1.46
90	2	163550	142.81	46	0.32
90	2	163553	227.51	2029	8.92
90	2	163560	583.52	3025	5.18
90	2	164543	179.15	0	0.00
90	2	164550	730.53	52	0.07
90	2	164553	992.92	29	0.03
90	2	164560	331.24	47	0.14
90	3	163550	7.84	2	0.26
90	3	163560	32.38	154	4.76
90	3	164543	93.72	0	0.00
90	3	164550	23.33	0	0.00
90	3	164553	45.95	0	0.00
90	4	163553	146.47	4	0.03
90	4	164550	39.92	0	0.00
90	5	162553	54.84	538	9.81
90	5	163553	33.25	50	1.50
90	5	164550	7.70	0	0.00
90	5	164553	11.75	0	0.00
90	10	164550	1.91	0	0.00
90	11	163550	2.87	0	0.00
91	1	159570	4.18	10	2.39
91	1	162553	78.24	41	0.52
91	1	162560	2100.81	8646	4.12
91	1	162563	22.38	62	2.77
91	1	163550	6.55	0	0.00
91	1	163553	11.63	0	0.00
91	1	163560	35.29	126	3.57
91	1	163563	54.73	18	0.33
91	1	164543	76.98	0	0.00

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Table 3.—Continued.

Year	Month	Block	Tons of Groundfish	Numbers of King crab	Rate
91	1	164550	91.49	0	0.00
91	2	162553	151.40	231	1.53
91	2	162560	2589.05	4723	1.82
91	2	163550	506.31	6	0.01
91	2	163553	1502.36	2132	1.42
91	2	163560	227.15	1503	6.62
91	2	164543	36.04	0	0.00
91	2	164550	455.48	0	0.00
91	2	164553	3919.13	3014	0.77
91	2	164560	446.82	1050	2.35
91	3	163550	58.30	0	0.00
91	3	163553	959.61	20	0.02
91	3	164550	634.44	0	0.00
91	3	164553	1663.35	135	0.08
91	3	164560	254.25	544	2.14
91	4	163550	36.77	0	0.00
91	4	164543	31.47	0	0.00
91	4	164550	152.66	2	0.01
91	4	164553	11.00	0	0.00
91	5	158573	35.82	38	1.06
91	5	159570	4.39	27	6.15
91	5	159573	1062.54	2151	2.02
91	5	162563	13.74	43	3.13
91	5	162570	30.65	105	3.43
91	5	163550	11.39	0	0.00
91	5	163560	0.99	4	4.04
91	5	163563	20.43	224	10.96
91	5	163570	48.65	7	0.14
91	5	163573	352.82	201	0.57
91	5	164563	48.84	191	3.91
91	5	164570	12.62	0	0.00
91	5	164573	58.41	31	0.53
91	6	159573	1.33	0	0.00
91	6	163550	14.85	0	0.00
91	6	163570	0.96	6	6.25
91	6	163573	3.93	0	0.00
91	6	164550	4.61	0	0.00
91	7	164563	9.93	0	0.00
91	7	164570	4.96	0	0.00
91	8	162573	18.57	0	0.00

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Table 3.--Continued.

Year	Month	Block	Tons of Groundfish	Numbers of King crab	Rate
91	8	163573	219.7	0	0.00
91	9	164570	14.67	0	0.00
91	9	164573	10.44	37	3.54
92	1	162553	71.86	0	0.00
92	1	162560	2634.97	5721	2.17
92	1	162563	252.74	2456	9.72
92	1	163550	172.25	0	0.00
92	1	163560	234.09	1445	6.17
92	1	163563	114.14	255	2.23
92	1	164543	40.01	0	0.00
92	1	164550	551.37	0	0.00
92	1	164560	198.97	563	2.83
92	1	164563	60.43	202	3.34
92	2	162553	67.25	42	0.62
92	2	162560	2286.11	3424	1.50
92	2	162563	31.38	0	0.00
92	2	162570	4.18	0	0.00
92	2	163550	1007.38	1348	1.34
92	2	163553	1362.32	308	0.23
92	2	163560	3813.57	8910	2.34
92	2	164543	35.60	0	0.00
92	2	164550	1640.85	14	0.01
92	2	164553	880.49	97	0.11
92	2	164560	664.70	545	0.82
92	3	163550	21.52	0	0.00
92	3	163553	82.03	0	0.00
92	3	163560	127.85	0	0.00
92	3	164550	19.74	0	0.00
92	5	158573	15.28	0	0.00
92	5	159570	47.69	21	0.44
92	5	159573	522.29	628	1.20
92	5	163563	9123.89	13402	1.47
92	5	163570	2575.70	930	0.36
92	5	163573	26.78	0	0.00
92	5	164560	4.00	99	24.75
92	5	164563	3296.68	7372	2.24
92	5	164570	735.45	127	0.17
92	5	164573	17.95	0	0.00
92	6	163560	12.11	0	0.00
92	6	163563	175.99	94	0.53

DRAFT

Table 3.—Continued.

Year	Month	Block	Tons of Groundfish	Numbers of King crab	Rate
92	6	163570	36.93	0	0.00
92	6	163573	9.90	0	0.00
92	6	164560	3.87	0	0.00
92	6	164563	18.43	132	7.16
93	1	162553	287.84	240	0.83
93	1	162560	4971.36	39573	7.96
93	1	162563	42.74	0	0.00
93	1	163550	20.91	0	0.00
93	1	163553	687.64	170	0.25
93	1	163560	3762.49	13032	3.46
93	1	164550	3.98	0	0.00
93	2	162553	589.04	189	0.32
93	2	162560	798.25	1477	1.85
93	2	163550	1947.33	119	0.06
93	2	163553	3223.17	5868	1.82
93	2	163560	2881.14	13074	4.54
93	2	163563	68.25	317	4.64
93	2	164543	20.78	0	0.00
93	2	164550	1615.75	0	0.00
93	2	164553	1439.68	214	0.15
93	2	164560	361.92	300	0.83
93	3	163550	83.56	0	0.00
93	3	163553	49.16	0	0.00
93	3	164550	228.43	0	0.00
93	4	163550	210.52	0	0.00
93	4	163553	47.49	0	0.00
93	4	164543	6.29	0	0.00
93	4	164550	223.98	0	0.00
93	4	164553	7.24	0	0.00
93	5	158573	5.97	0	0.00
93	5	159563	15.17	0	0.00
93	5	159570	6.37	0	0.00
93	5	159573	17.82	56	3.14
93	5	163563	105.46	2761	26.18
93	5	163570	53.84	94	1.75
93	5	163573	51.14	70	1.37
93	5	164560	3.31	0	0.00
93	5	164563	97.13	650	6.69
93	5	164570	208.49	136	0.65
93	5	164573	20.47	0	0.00

DRAFT

Table 3.--Continued.

Year	Month	Block	Tons of Groundfish	Numbers of King crab	Rate
93	6	162563	63.05	926	14.69
93	6	162570	29.31	98	3.34
93	6	163570	49.36	166	3.36
93	6	163573	40.16	0	0.00
93	6	164560	2.45	0	0.00
93	6	164563	246.07	967	3.93
93	6	164570	1193.59	361	0.30
93	6	164573	71.45	0	0.00
93	8	164570	29.10	0	0.00
93	10	164563	574.05	366	0.64
93	11	164563	751.83	44	0.06

DRAFT

Table 4.—King crab bycatch rates (number/ton of groundfish) by month, area, and year in the flatfish fishery in Zone 1 of the Bering Sea.

Month	Area	Number of king crab per ton of groundfish			
		1990	1991	1992	1993
1	1	0.37	0.05	0.75	0.24
1	2	5.33	3.97	2.76	7.51
1	3	6.20	1.60*	4.88	3.46
2	1	0.85	0.90	0.41	0.76
2	2	1.46	1.81	1.45	1.20
2	3	5.18	6.62	2.34	4.54
3	1	0.01	0.20	0.00	0.00
3	2	—	—	—	—
3	3	4.76*	—	0.00	—
4	1	0.02	0.01	—	0.00
4	2	—	—	—	—
4	3	—	—	—	—
5	1	0.95*	1.65	1.27	2.10
5	2	9.81*	3.13*	—	—
5	3	—	10.64*	1.47	26.18
6	1	—	0.23*	1.91*	0.98
6	2	—	—	—	14.69*
6	3	—	—	0.05	—
7	1	—	0.00*	—	—
8	1	—	0.00	—	0.00*
9	1	—	1.47*	—	—
10	1	0.00*	—	—	0.64
11	1	0.00*	—	—	0.06

* Less than 100 tons of sampled tows.

1994 Bairdi tanner and red king crab bycatch by target fishery and week
in the Bering Sea and Aleutian Islands

Trawl Gear

fish	Groundfish Tons	Bairdi Bycatch	Bairdi per mt	Red King Bycatch	Red King per mt
A 01/22/94	730.59	0	0.00	0	0.00
A 01/29/94	4,265.66	0	0.00	0	0.00
A 02/05/94	3,816.61	0	0.00	0	0.00
A 02/12/94	6,868.10	0	0.00	0	0.00
A 02/19/94	2,335.62	0	0.00	0	0.00
A 02/26/94	2,615.50	0	0.00	0	0.00
A 03/05/94	400.61	0	0.00	0	0.00
A 03/12/94	3,260.35	0	0.00	0	0.00
A 03/19/94	2,709.60	0	0.00	0	0.00
A 03/26/94	3,456.85	0	0.00	0	0.00
A 04/02/94	2,513.90	0	0.00	0	0.00
A 04/09/94	3,921.41	0	0.00	0	0.00
A 04/16/94	3,826.89	0	0.00	0	0.00
A 04/23/94	3,455.92	0	0.00	0	0.00
A 04/30/94	3,127.21	0	0.00	0	0.00
A 05/07/94	1,219.42	0	0.00	0	0.00
A 05/14/94	3,731.90	0	0.00	0	0.00
A 05/21/94	4,166.25	0	0.00	0	0.00
A 05/28/94	5,207.48	0	0.00	0	0.00
A 06/04/94	2,245.76	0	0.00	0	0.00
A 06/11/94	2,499.58	0	0.00	0	0.00
A 06/18/94	1,271.24	0	0.00	0	0.00
A 06/25/94	2,166.76	0	0.00	0	0.00
A 07/02/94	1,349.87	0	0.00	0	0.00
A 07/09/94	1,064.38	0	0.00	0	0.00
A 07/16/94	1,952.62	0	0.00	0	0.00
A 07/23/94	3,941.14	0	0.00	0	0.00
A 07/30/94	3,977.50	0	0.00	0	0.00
B 01/01/94	3,184.74	18,066	5.67	15,060	4.73
B 01/05/94	3,621.06	8,775	2.42	5,763	1.59
B 01/12/94	12,990.74	25,479	1.96	3,215	0.25
B 02/12/94	7,253.13	5,507	0.76	9,334	1.29
B 02/19/94	12,463.04	12,808	1.03	6,421	0.52
B 02/26/94	2,397.70	454	0.19	38	0.02
B 03/05/94	3,600.20	864	0.24	26	0.01
B 03/12/94	5,302.97	4,892	0.92	321	0.06
B 03/19/94	755.18	96	0.13	0	0.00
B 03/26/94	745.53	12	0.02	0	0.00
B 04/02/94	190.07	0	0.00	0	0.00
B 04/09/94	214.98	71	0.33	0	0.00
B 04/16/94	1.47	0	0.00	0	0.00
B 04/23/94	53.33	0	0.00	0	0.00
B 05/14/94	66.50	432	6.50	432	6.50
B 08/13/94	358.58	197	0.55	0	0.00
B 08/20/94	15,257.73	42,714	2.80	140	0.01
B 08/27/94	26,612.56	43,769	1.64	4	0.00
B 09/03/94	13,863.78	23,752	1.71	0	0.00
B 09/10/94	12,532.96	15,103	1.21	0	0.00
C 01/01/94	21.77	42	1.93	0	0.01
C 01/22/94	17.14	368	21.45	0	0.00
C 01/29/94	1,078.48	91,200	84.56	58	0.05
C 02/05/94	1,036.73	4,683	4.52	17	0.02
C 02/12/94	793.37	2,534	3.19	11	0.01
C 02/19/94	2,576.20	472	0.18	0	0.00
C 02/26/94	1,483.68	631	0.43	0	0.00
C 03/05/94	4,826.47	7,958	1.65	421	0.09
C 03/12/94	12,637.75	8,081	0.64	0	0.00
C 03/19/94	14,476.70	10,656	0.74	31	0.00
C 03/26/94	10,217.81	8,250	0.81	0	0.00
C 04/02/94	8,260.31	10,238	1.24	0	0.00
C 04/09/94	8,039.76	11,328	1.41	0	0.00
C 04/16/94	7,145.45	7,570	1.06	1	0.00
C 04/23/94	6,335.87	9,166	1.45	0	0.00
C 04/30/94	6,596.73	13,332	2.02	0	0.00
C 05/07/94	3,426.09	5,792	1.69	209	0.06
C 05/14/94	643.85	545	0.85	475	0.74
C 05/21/94	4.45	0	0.00	0	0.00
C 06/04/94	32.45	47	1.45	0	0.00
C 06/11/94	9.03	674	74.59	0	0.00

as of 9-10-94

C 07/09/94	7.05	31	4.39	0	0.02
C 08/06/94	1,252.72	39,820	31.79	0	0.00
C 08/20/94	213.56	0	0.00	0	0.00
C 08/27/94	629.38	4,368	6.94	0	0.00
C 09/03/94	270.93	0	0.00	0	0.00
F 03/12/94	1,145.40	22,228	19.41	0	0.00
F 03/19/94	1,088.56	472	0.43	0	0.00
F 03/26/94	418.61	3,789	9.05	0	0.00
F 04/02/94	676.54	2,349	3.47	0	0.00
F 04/09/94	2,025.39	4,077	2.01	0	0.00
F 04/16/94	673.03	200	0.30	0	0.00
F 04/23/94	952.19	13,286	13.95	0	0.00
F 04/30/94	373.90	518	1.39	0	0.00
F 05/21/94	477.38	224	0.47	0	0.00
F 05/28/94	281.60	605	2.15	0	0.00
F 06/04/94	573.97	715	1.25	0	0.00
F 06/11/94	276.60	180	0.65	0	0.00
F 06/18/94	63.81	0	0.00	0	0.00
F 07/02/94	68.43	0	0.00	0	0.00
F 08/06/94	1,928.63	11,645	6.04	0	0.00
F 08/13/94	6,205.32	50,002	8.06	0	0.00
F 08/20/94	1,762.57	3,678	2.09	0	0.00
F 08/27/94	7.08	0	0.00	0	0.00
F 09/10/94	317.21	149	0.47	0	0.00
K 03/05/94	1,465.07	0	0.00	0	0.00
K 03/12/94	2,714.50	0	0.00	1,579	0.58
K 03/19/94	888.08	0	0.00	33	0.04
K 03/26/94	2,465.28	0	0.00	0	0.00
K 04/02/94	2,767.05	0	0.00	11	0.00
K 04/09/94	339.21	0	0.00	0	0.00
K 04/23/94	278.35	11	0.04	0	0.00
K 06/11/94	5.00	0	0.02	0	0.03
K 07/09/94	1,604.14	0	0.00	0	0.00
K 07/16/94	809.12	0	0.00	0	0.00
P 01/01/94	1,336.07	840	0.63	6	0.00
P 01/08/94	366.66	0	0.00	0	0.00
P 01/22/94	27,458.00	141	0.01	0	0.00
P 01/29/94	114,086.44	2,380	0.02	389	0.00
P 02/05/94	99,508.01	1,635	0.02	253	0.00
P 02/12/94	104,412.08	5,551	0.05	0	0.00
P 02/19/94	89,699.38	1,815	0.02	0	0.00
P 02/26/94	49,466.20	30	0.00	0	0.00
P 03/05/94	46,447.63	235	0.01	12	0.00
P 03/12/94	19,903.94	353	0.02	0	0.00
P 03/19/94	15,091.90	2	0.00	0	0.00
P 03/26/94	4,405.30	11	0.00	0	0.00
P 04/02/94	1,255.75	0	0.00	0	0.00
P 04/09/94	1,417.94	0	0.00	0	0.00
P 04/16/94	2,062.31	0	0.00	0	0.00
P 04/23/94	3,065.90	25	0.01	0	0.00
P 04/30/94	427.87	0	0.00	0	0.00
P 06/04/94	687.73	40	0.06	4	0.01
P 06/18/94	2,120.60	0	0.00	0	0.00
P 06/25/94	6,855.78	0	0.00	0	0.00
P 07/02/94	4,618.04	0	0.00	0	0.00
P 07/09/94	6,038.02	0	0.00	0	0.00
P 07/16/94	3,949.98	1,243	0.31	10	0.00
P 07/23/94	7,050.17	0	0.00	0	0.00
P 07/30/94	4,402.47	27	0.01	0	0.00
P 08/06/94	12,696.42	0	0.00	0	0.00
P 08/13/94	15,371.07	88	0.01	0	0.00
P 08/20/94	69,697.85	79,825	1.15	0	0.00
P 08/27/94	85,201.49	36,560	0.43	0	0.00
P 09/03/94	88,653.72	25,592	0.29	0	0.00
P 09/10/94	86,572.35	37,272	0.43	0	0.00
P 10/01/94	109.33	17	0.16	0	0.00
01/22/94	3,461.82	11,469	3.31	9,373	2.71
01/29/94	9,546.35	55,358	5.80	29,346	3.07
02/05/94	6,496.11	84,948	13.08	7,835	1.21
02/12/94	8,873.87	57,084	6.43	25,259	2.85
02/19/94	12,211.33	99,440	8.14	68,934	5.65
02/26/94	16,897.00	163,851	9.70	58,801	3.48
03/05/94	6,221.54	51,375	8.26	10,150	1.63
03/12/94	2,110.54	30,436	14.42	2	0.00
03/19/94	2,240.57	7,954	3.55	33	0.01
03/26/94	425.94	1,776	4.17	383	0.90

Rock Sole Jan-Mar.
210,116

R 04/02/94	714.78	309	0.43	0	0.00
R 04/09/94	15.29	0	0.00	0	0.00
R 04/16/94	79.11	0	0.00	0	0.00
R 04/23/94	204.89	0	0.00	0	0.00
R 04/30/94	320.29	83	0.26	0	0.00
R 05/07/94	144.89	7,832	54.06	40	0.27
R 05/14/94	241.25	270	1.12	69	0.29
R 05/21/94	31.14	233	7.47	59	1.90
R 05/28/94	468.16	562	1.20	63	0.13
R 06/04/94	128.20	160	1.25	0	0.00
R 06/11/94	845.42	337	0.40	690	0.82
R 06/18/94	795.26	2,275	2.86	623	0.78
R 06/25/94	431.01	333	0.77	85	0.20
R 07/02/94	1,306.52	299	0.23	76	0.06
R 07/09/94	380.90	0	0.00	0	0.00
R 08/06/94	144.97	602	4.16	0	0.00
R 08/13/94	304.06	0	0.00	0	0.00
S 02/19/94	2.67	0	0.00	0	0.00
S 04/16/94	51.67	0	0.00	0	0.00
S 04/30/94	227.80	0	0.00	0	0.00
S 05/14/94	213.86	575	2.69	0	0.00
S 05/21/94	6.76	0	0.00	0	0.00
T 04/30/94	81.34	0	0.00	0	0.00
T 05/07/94	6,258.18	1,575	0.25	86	0.01
T 05/14/94	779.91	331	0.42	5	0.01
T 06/11/94	198.34	0	0.00	236	1.19
Y 03/05/94	234.38	1,678	7.16	41	0.18
Y 03/12/94	1,984.10	2,592	1.31	736	0.37
Y 03/19/94	3,155.11	13,970	4.43	4,271	1.35
Y 03/26/94	3,387.91	43,062	12.71	992	0.29
Y 04/02/94	3,784.14	9,148	2.42	361	0.10
Y 04/09/94	2,093.60	6,121	2.92	860	0.41
Y 04/16/94	5,773.35	147,156	25.49	2,568	0.44
Y 04/23/94	4,221.47	27,711	6.56	973	0.23
Y 04/30/94	3,722.11	6,989	1.88	160	0.04
Y 05/07/94	2,499.86	5,208	2.08	363	0.15
Y 05/14/94	3,910.11	6,708	1.72	262	0.07
Y 05/21/94	5,916.62	21,177	3.58	0	0.00
Y 05/28/94	5,514.54	4,917	0.89	1,463	0.27
Y 06/04/94	4,615.81	6,459	1.40	214	0.05
Y 06/11/94	3,640.23	4,926	1.35	80	0.02
Y 06/18/94	4,179.18	9,016	2.16	331	0.08
Y 06/25/94	4,824.45	4,125	0.86	149	0.03
Y 07/02/94	1,005.70	0	0.00	4	0.00
Y 07/09/94	61.70	0	0.00	0	0.00
Y 08/06/94	2,668.16	13,216	4.95	4	0.00
Y 08/13/94	5,054.33	76,854	15.21	0	0.00
Y 08/20/94	7,985.05	15,533	1.95	218	0.03
Y 08/27/94	6,177.63	27,941	4.52	330	0.05
Y 09/03/94	8,383.54	57,940	6.91	1	0.00
Y 09/10/94	8,903.61	35,269	3.96	0	0.00
Z 01/29/94	12.00	0	0.00	0	0.00
Z 02/19/94	0.56	0	0.00	0	0.00
Z 08/13/94	0.22	0	2.00	0	0.00
Z 08/20/94	1.15	0	0.00	0	0.00
Z 09/03/94	3.45	0	0.00	0	0.00

Gellorafen Sale
14,381 *Mar-Sept*

1994 Bairdi Tanner and Red King Crab bycatch by target fishery, zone, & mode
in the Bering Sea and Aleutian Islands

Trawl Gear

KEY	Groundfish Tons	Bairdi Bycatch	Bairdi per mt	Red King Bycatch	Red King per mt
A 517 P	63.62	0	0.00	0	0.00
A 541 P	16,684.05	0	0.00	0	0.00
A 542 P	51,503.31	0	0.00	0	0.00
A 543 P	13,847.74	0	0.00	0	0.00
B 509 F	339.05	149	0.44	42	0.13
B 509 M	2,058.42	0	0.00	0	0.00
B 509 P	39,339.08	30,724	0.78	6,872	0.17
B 513 M	168.89	0	0.00	0	0.00
B 513 P	19,267.79	61,308	3.18	462	0.02
B 514 P	124.92	75	0.60	4	0.03
B 516 M	55.77	311	5.58	711	12.74
B 516 P	2,410.99	18,660	7.74	29,452	12.22
B 517 F	54.99	0	0.00	0	0.00
B 517 M	122.42	490	4.00	0	0.00
B 517 P	12,256.09	34,498	2.81	0	0.00
B 518 P	108.85	0	0.00	0	0.00
B 519 M	84.47	0	0.00	0	0.00
B 521 M	10,401.68	560	0.05	0	0.00
B 521 P	33,490.06	56,209	1.68	3,213	0.10
B 523 P	471.77	0	0.00	0	0.00
B 524 P	8.82	5	0.54	0	0.00
B 541 P	702.19	0	0.00	0	0.00
C 509 F	44,938.76	63,925	1.42	349	0.01
C 509 M	1,749.55	93	0.05	0	0.00
C 509 P	12,231.63	12,717	1.04	420	0.03
C 513 F	22.82	26	1.15	1	0.06
C 513 M	7.80	27	3.48	0	0.00
C 513 P	3,470.42	33,252	9.58	133	0.04
C 514 P	81.92	18,824	229.78	0	0.00
C 517 F	12,249.84	75,032	6.13	0	0.00
C 517 M	275.07	292	1.06	0	0.00
C 517 P	2,757.76	26,716	9.69	0	0.00
C 518 F	2.91	1	0.21	0	0.00
C 519 F	613.35	63	0.10	0	0.00
C 519 P	84.22	7	0.08	0	0.00
C 521 F	12.50	24	1.93	0	0.01
C 521 P	3,347.71	2,647	0.79	0	0.00
C 523 P	76.43	3	0.04	0	0.00
C 524 M	78.81	50	0.63	0	0.00
C 524 P	2,173.97	2,654	1.22	0	0.00
C 541 M	24.08	7	0.27	0	0.00
C 541 P	7,079.81	1,423	0.20	289	0.04
C 542 P	754.37	2	0.00	31	0.04
D 513 P	10,154.35	65,475	6.45	0	0.00
D 514 P	22.85	0	0.00	0	0.00
D 517 P	1,909.95	11,303	5.92	0	0.00
D 519 P	1,677.63	1,724	1.03	0	0.00
D 521 P	5,492.06	35,618	6.49	0	0.00
D 524 P	59.38	0	0.00	0	0.00
E 541 P	9,842.66	11	0.00	1,623	0.16
E 542 P	3,189.49	0	0.00	0	0.00
E 543 P	303.65	0	0.00	0	0.00
F 509 F	110,315.24	1,255	0.01	4	0.00
F 509 M	48,012.42	99	0.00	0	0.00
F 509 P	187,014.27	9,418	0.05	653	0.00
F 513 M	527.18	39	0.07	0	0.00
F 513 P	20,289.22	41,215	2.03	0	0.00
F 516 P	67.28	1	0.01	0	0.00
F 517 F	179,992.50	4,182	0.02	0	0.00
F 517 M	54,975.11	610	0.01	0	0.00
F 517 P	159,797.76	24,624	0.15	0	0.00
F 518 P	366.81	0	0.00	0	0.00
F 519 F	25,162.48	0	0.00	0	0.00
F 519 M	169.84	0	0.00	0	0.00
F 519 P	6,136.59	0	0.00	0	0.00
F 521 M	10,323.40	3,933	0.38	0	0.00

521 P	122,605.23	108,257	0.88	16	0.00
523 P	521.02	40	0.08	0	0.00
524 P	49.96	0	0.00	0	0.00
541 P	14,172.49	11	0.00	0	0.00
542 P	1,489.11	0	0.00	0	0.00
	32,448.49	0	0.00	0	0.00
508 M	11.29	0	0.00	0	0.00
509 M	112.68	7,676	68.12	0	0.00
509 P	23,136.02	233,485	10.09	65,444	2.83
512 P	100.50	449	4.47	63	0.62
513 P	8,890.15	69,838	7.86	10,463	1.18
514 P	3,247.16	602	0.19	712	0.22
516 P	26,540.38	118,429	4.46	124,641	4.70
517 P	4,203.04	28,428	6.76	60	0.01
519 P	1,171.94	3,903	3.33	930	0.79
521 P	5,504.61	109,025	19.81	9,269	1.68
523 P	15.29	0	0.00	0	0.00
524 P	2,108.15	5,152	2.44	238	0.11
517 F	6.76	0	0.00	0	0.00
517 P	21.24	0	0.00	0	0.00
518 P	21.07	0	0.00	0	0.00
519 P	186.31	575	3.09	0	0.00
541 P	267.38	0	0.00	0	0.00
517 F	56.69	3	0.06	2	0.04
517 P	833.03	54	0.07	36	0.04
518 P	2,787.84	0	0.00	0	0.00
519 F	667.15	400	0.60	7	0.01
519 P	1,756.63	1,447	0.82	47	0.03
541 P	1,216.43	0	0.00	236	0.19
509 F	3,803.43	44,127	11.60	1,089	0.29
509 M	132.36	0	0.00	0	0.00
509 P	23,255.52	195,048	8.39	7,880	0.34
513 F	267.07	934	3.50	0	0.00
517 P	29.12	209	7.18	0	0.00
517 P	50,930.21	300,863	5.91	338	0.01
	3,576.28	0	0.00	431	0.12
	1,618.04	0	0.00	195	0.12
514 P	17,177.55	416	0.02	2,020	0.12
516 P	2,817.52	4,323	1.53	2,426	0.86
517 P	56.99	1,787	31.35	0	0.00
521 P	19.55	12	0.59	0	0.01
524 P	13.05	0	0.00	0	0.00
509 P	13.45	0	0.00	0	0.00
513 P	0.18	0	2.44	0	0.00
517 P	3.19	0	0.00	0	0.00
541 M	0.31	0	0.00	0	0.00
541 P	0.25	0	0.00	0	0.00

1994 Bairdi Tanner and Red King Crab bycatch by target fishery, zone, & mode
in the Bering Sea and Aleutian Islands

Pot Gear

KEY	Groundfish Tons	Bairdi Bycatch	Bairdi per mt	Red King Bycatch	Red King per mt
A 519 P	7.04	6	0.84	0	0.00
C 509 F	1,668.49	5,309	3.18	1	0.00
C 509 P	3.58	28	7.84	0	0.00
C 517 F	69.26	133	1.93	0	0.00
C 517 P	299.01	134	0.45	0	0.00
C 518 F	215.76	270	1.25	12	0.06
C 518 P	2.98	0	0.00	0	0.00
C 519 F	1,977.89	452	0.23	0	0.00
C 519 P	938.61	73	0.08	0	0.00
C 521 F	158.48	13,852	87.41	604	3.81
C 541 P	8.77	0	0.00	0	0.00
S 541 F	4.47	0	0.00	0	0.00

Groundfish tons is total of all allocated groundfish species harvested in the target fishery.

The KEY is composed of a target fishery, the zone (subarea), and the processing mode. Targets and modes are defined below.

1994 Groundfish Targets

A	Atka Mackerel	BSAI
B	Pollock -- bottom*	BSAI,GOA
C	Pacific Cod	BSAI,GOA
D	Deep Water Flatfish*	GOA
H	Shallow Water Flatfish*	GOA
K	Rockfish	BSAI,GOA
L	Flathead Sole	GOA
O	'Other'	BSAI,GOA
P	Pollock - midwater*	BSAI,GOA
R	Rock Sole/Other Flatfish*	BSAI
S	Sablefish	BSAI,GOA
T	Greenland Turbot	BSAI
W	Arrowtooth Flounder	BSAI
X	Rexsole	GOA
Y	Yellowfin sole	BSAI

- * Pollock targets defined by catch composition, not reported gear type.
- * Deep Water Flatfish includes Dover sole and Greenland turbot.
- * Shallow Water Flatfish includes flatfish not including Deep Water Flatfish, flathead sole, rex sole, or arrowtooth flounder.
- * Other includes sculpins, sharks, skates, eulachon, smelts, capelin, and octopus.
- * Other Flatfish includes all flatfish species except for Pacific halibut (a prohibited species) and all other flatfish species that have a separate specified TAC amount.

Modes

M	Mothership
P	Catcher/Processor
F	Shore Plant

Catch per unit effort (CPUE) of selected commercially important species during the 1992 Bering Sea C. bairdi crab fishery from November 15th to December 31st, 1992, including total sample catch and estimated total catches in the fishery.

species	Total pot sample catch	Catch per unit effort	Estimated total fishery catch
<u>C. bairdi</u>			
legal male	15,365	29.7	14,629,151
sub-legal male	21,917	42.3	20,835,500
female	5,354	10.4	5,122,676
<u>C. opilio</u>			
legal male	2,754	5.3	2,610,595
sub-legal male	86	.2	98,513
female	66	.1	49,257
<u>hybrid Tanner crab</u>			
mixed size/sex	946	1.8	886,617
<u>red king crab</u>			
legal male	101	.2	98,513
sub-legal male	309	.6	295,539
female	1,115	2.2	1,083,643
<u>blue king crab</u>			
legal male	6	<.1	5,716
sub-legal male	28	<.1	26,677
female	48	.1	49,257
<u>yellowfin sole</u>	147	.3	147,770
<u>halibut</u>	23	<.1	21,513
<u>pacific cod</u>	754	1.5	738,848

Total pot contents derived from 517 random samples taken on catcher processors between November 15th and December 31st, 1992.

Estimated catch derived from pot sample CPUE x 492,565 total reported pot pulls between November 15th and December 31st, 1992.

refm2:/u/agreig/joe/crab63.txt

BSAI total catch vs catch east of 163 degrees longitude.

	Other	Pacific cod	Flat fish	Arrow tooth	Rock sole	Yellow fin	G. Turbot	Rock fish	Atka mack	Pollock	Sable fish
1993											
63East	264	992	731	95	10,500	675	0	0	0	2,420	0
BSAI	24,767	167,389	29,095	9,298	64,260	105,809	8,469	24,729	66,006	1384625	2,746
Percent	1	1	3	1	16	1	0	0	0	0	0
1994											
63East	540	2,340	2,145	88	16,665	4,909	0	0	0	5,881	0
BSAI	17,449	147,819	17,034	9,800	56,364	53,183	8,245	17,279	64,768	746,770	1,718
Percent	3	2	13	1	30	9	0	0	0	1	0

Source: blend

508, 512, 516

CRAB PLAN TEAM RECOMMENDATIONS

CRAB PLAN TEAM MEETING
SEPTEMBER 26, 1994, MONDAY 12:00-5:30 pm
SEATTLE, WA

The Crab Plan Team makes the following recommendations in the form of a motion, consensus recommendations, and other considerations:

MOTION:

1) Red king crab bycatch cap (PSC) in that portion of Zone 1 groundfish fisheries east of 163W longitude be set at zero. If cap cannot be delineated to target specifically the area east of 163W, then the entire Zone 1 area cap needs to be set at zero.

CONSENSUS RECOMMENDATIONS:

1) That the Council/Board Consultation Group discuss crab bycatch issues in the groundfish fisheries. Existing State of Alaska Board regulations require the area east of 163W to be closed to a bairdi harvest in the event of a Bristol Bay red king crab closure. This action taken by the Board in March 1993, is to protect the red king crab stock by eliminating any additional bycatch mortality which would result from continued crab fishing activities east of 163W.

2) That the Council reexamine treatment of red king crab bycatch in the groundfish fisheries as soon as possible and preferably prior to its December meeting. This reexamination would include reconsideration of PSC caps and other possible management measures such as time/area closures. Analysis of data should include, but not be limited to the following:

- a. sampling protocol of observer bycatch data (i.e. expansion methods, accounting for variation in fishing practices)
- b. bycatch delineated by size, sex, block (1/2 degree latitude by 1 degree longitude)
- c. reevaluate distribution of red king crab in that portion of Zone 1 from 160W-162W as a result of the 1986 trawl closure in that area

OTHER CONSIDERATIONS:

- 1) Suggest coordination between crab and groundfish plan teams in areas of joint concern.
- 2) Suggest Research Planning Group examine research needs in other BSAI crab fisheries such as Adak red and brown king crab, *C. tanneri*, *C. angulatus*, and *Lithodes couesi* king crab (developing fisheries).