

AGENDA D-5  
MAY 1984

M E M O R A N D U M

TO: Council, SSC and AP members  
FROM: Jim H. Branson  
DATE: May 17, 1984  
SUBJECT: Bering Sea/Aleutian Islands Groundfish

*ACTION REQUIRED*

*Information only. No action required.*

BACKGROUND

The domestic industry workgroup for prohibited species by-catches in the Bristol Bay Pot Sanctuary will present a report on their most recent series of meetings. A summary of some of their findings and deliberations is included here as D-5(a).

MAY84/K

# PROFISH INTERNATIONAL

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May 16, 1984

Mr. Jim Branson  
North Pacific Fishery  
Management Council  
605 West 4th Avenue  
Anchorage, Alaska 99510

Dear Jim:

Enclosed is some material from the Industry Bering Sea Incidental Catch Working Group which we hope can be distributed to the Council family for its May sessions.

Page one is an outline of our presentation. Tables 2-4 comprise the information or "accounting" requested of the Data Subgroup by the full Working Group. If time permits we would like to walk thru the numbers with the Council so they can get a feel for the parameters of the issue and our work. Section D and E pages summarize thoughts, proposals and issues identified or exchanged during the course of our meeting.

Barry Collier of NPFVOA will be the only one of us in Anchorage on Monday, so he will cover the issue with the SSC. Others including myself, Bob Alverson, Phil Chitwood and the two Barrys will be planning to cover it with the AP and full Council.

Look forward to seeing you in Anchorage.

Best Regards,



Michael G. Stevens  
Vice President - Operations

- A) INTRODUCTION - Collier/NPFVOA  
Purpose  
Participants
  
- B) EARLY APPROACHES - Recognition No Regs Possible Immediately
  - MRC Voluntary Measures
  - Must Address Mortality And Exploitation Rates
  - Direction To Data Subgroup
  
- C) DATA SUBGROUP - Areas And Accounting
  - Help From Center And IPHC
  - Go Into Charts
  
- D) ISSUES, CAVEATS, CONSIDERATIONS
  
- E) ACTIONS/NEEDS/NEXT STEPS
  
- F) CONCLUSIONS

INDUSTRY INCIDENTAL CATCH WORKING GROUP PARTICIPANTS

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March 5, 1984

Mr. Jim H. Branson  
Executive Director  
NPFMC  
P.O. Box 3136 DT  
Anchorage, AK 99510

Dear Jim,

In early January we met with the captains of our Bering Sea Yellowfin sole fleet to organize our 1984 fishery. We explained the U.S. fishing industry's commitment to the Council to address the incidental catch of prohibited species. Our 1984 fishery will be well underway by the time the industry work group completes its tasks, so our fishermen committed to some immediate measures which will hopefully reduce the incidental catch of prohibited species - particularly halibut and king crab.

We reviewed with our captains past data which revealed areas, times, and individual boats associated with large catches of prohibited species. This information has been distributed to all our vessels (catcher and processing) to alert them when special caution should be exercised. We have made arrangements with the NMFS observer program to obtain codend sampling data for transmission to the catcher vessels so they will be immediately and continually informed on catch composition. All our captains have agreed to abide by the joint decision of the Soviet fleet commander, the Company fleet manager (on the grounds) and the catcher vessel fleet captain to change fishing areas when the prohibited species catch rate so dictates. Several of the vessels have agreed to modify their trawl gear (different size and arrangement of rollers and tickler chains) and compare catch results in order to determine what rigging is most effective in avoiding prohibited species.

The prohibited species incidental catch issue was thoroughly discussed at the annual meeting of our fleet captains and the Soviet fleet commanders and vessel captains in Nakhodka in January. The Soviets were advised of our plans and pledged full cooperation.

Our 1984 fishery began in mid-January and so far has targeted on Pacific cod off the shelf edge north of Unimak Pass. Consequently, the incidental catch of prohibited species has been minimal. We anticipate the fleet will move onto the sole grounds north of the Alaska Peninsula in late March when hopefully the weather moderates. We will keep the Council informed on our operations as the fishery progresses.

Sincerely,



Philip E. Chitwood  
Director, Operations Dept.

PEC:skr

cc: Industry prohibited species data subgroup.

BERING SEA INDUSTRY  
INCIDENTAL CATCH WORKING GROUP

Table 1. Incidental catch rates (number of animals per metric tons of total catch) of Pacific halibut, king crab and Tanner crab resulting from the Japanese freezer mothership fishery for yellowfin sole and the U.S. joint venture fisheries for yellowfin sole, 1980-1983. Japanese freezer mothership supplied catches by pair trawlers.

YEAR/FISHERY	HALIBUT NO/MT CATCH	KING CRAB NO/MT CATCH	TANNER CRAB NO/MT CATCH
1980			
Japanese freezer mothership	0.13	0.15	12.50
U.S./Soviet JV	6.50	8.43	5.30
1981			
Japanese Freezer mothership	0.06	0.01	1.07
U.S./Soviet JV	0.98	11.36	6.64
1982			
Japanese Freezer mothership	0.33	0.71	4.18
U.S./Soviet JV	9.65	5.88	2.16
1983			
Japanese Freezer mothership	0.753	0.22	0.395
U.S./Soviet JV	2.9	9.4	7.6
U.S./Korean JV#1	9.79	0.55	0.18
U.S./Korean JV#2	10.42	10.40	2.18



APPENDIX TO TABLE I  
BIOMASS ESTIMATES

<u>SPECIES</u>	<u>1980</u>	<u>1981</u>	<u>1982</u>	<u>1983</u>
<u>Halibut</u>	43,200 MT	49,500 MT	63,000 MT	91,700 MT
<u>King Crab</u>	229,300,000 Crab	189,900,000 Crab	261,300,000 Crab	89,200,000 Crab
<u>Tanner Crab</u>	4,566,700,000 Crab	3,839,600,000 Crab	2,651,300,000 Crab	1,710,200,000 Crab

ABUNDANCE AND MORTALITY DATA FOR RED KING CRAB IN SOUTHEASTERN  
BERING SEA (AREA I), 1980-1983  
(NUMBER OF CRAB)

	1980	1981	1982	1983
Abundance Estimate				
Male < 134 mm	80,700,000	75,000,000	124,600,000	53,700,000
Male > 134 mm	36,100,000	11,300,000	4,700,000	1,500,000
Female - all	112,500,000	103,600,000	132,000,000	34,000,000
Total	229,300,000	189,900,000	261,300,000	89,200,000
Natural Mortality				
	NA	NA	NA	NA
Fishing Mortality				
A) Domestic directed				
- pot harvest	20,845,350	5,307,947	540,480	0
- associated mortality	NA	NA	NA	NA
B) Domestic incidental				
- trawl shoreside	NA	NA	NA	NA
- trawl catcher/processor	NA	NA	NA	NA
- joint venture	289,540	1,082,163	193,896	528,659
- domestic set line fishery	NA	NA	NA	NA
C) Foreign incidental				
1)- trawl	157,964	115,751	129,530	170,865
- longline	11,034	6,935	6,898	5,997
Total Incidental Catch	458,538	1,204,849	330,324	705,521
Incidental Catch as % of Biomass	0.2%	0.63%	0.13%	0.79%

ABUNDANCE AND MORTALITY DATA I ) TANNER CRAB IN SOUTH EASTERN  
BERING SEA/ALEUTION ISLANDS, 1980-1983

May 5, 1984

(Number of Crab)

Abundance	<u>1980</u>	<u>1981</u>	<u>1982</u>	<u>1983</u>
<u>Ch.bairdi</u> , males < 129	508,600,000	319,200,000	128,400,000	173,100,000
males > 129	40,700,000	22,700,000	17,400,000	11,900,000
females - all	433,700,000	403,300,000	210,000,000	225,500,000
Total	938,000,000	745,100,000	355,800,000	410,500,000
<u>Ch.opilio</u> , males < 110	570,500,000	987,000,000	759,400,000	562,000,000
males > 109	53,600,000	15,700,000	10,800,000	12,900,000
females - all	2,959,700,000	2,091,800,000	1,525,300,000	724,700,000
Total	3,583,700,000	3,094,500,000	2,295,500,000	1,299,700,000
All Tanner Crab - Total	4,566,700,000	3,839,600,000	2,651,300,000	1,710,200,000
Natural Mortality	NA	NA	NA	NA
Fishing Mortality				
A) Domestic Directed				
- Pot Harvest	40,500,000	46,300,000	30,000,000	26,100,000
- Associated Mortality	Unknown	Unknown	Unknown	Unknown
Foreign Directed Pot Catch	11,700,000	-0-	-0-	-0-
B) Domestic Incidental				
- Trawl Shoreside	Unknown	Unknown	Unknown	Unknown
- Trawl Catcher/Processor	Unknown	Unknown	Unknown	Unknown
- Joint Ventures	180,000	742,000	85,000	410,000
C) Foreign Incidental				
- Trawl	11,092,000	5,607,000	2,313,000	2,508,000
- Longline	11,000	14,000	14,000	13,400
Total Incidental Catch	11,283,000	6,363,000	2,412,000	2,931,400
Incidental Catch as % of Biomass	0.25%	0.17%	0.09%	0.17%

Table 4

ABUNDANCE AND MORTALITY DATA ON PACIFIC HALIBUT  
EASTERN BERING SEA AND ALEUTIAN ISLANDS 1980-1983

May 15, 1984

	<u>1980</u>	<u>1981</u>	<u>1982</u>	<u>1983</u>
BIOMASS*1	43,200 MT 6,056 MT	49,500 MT 6,716 MT	63,000 MT 7,939 MT	91,700 MT 8,661 MT
NATURAL MORTALITY	20%	20%	20%	20%
FISHING MORTALITY				
<u>Directed</u>				
A) Domestic Longline	171 MT CPUE 56 lbs/skate	418 MT CPUE 100	185 MT CPUE 68	656 MT CPUE 132
<u>Incidental Catch</u> *2				
B) Domestic				
Trawl Shoreside*3	Trace	} 91 MT (all of IPHC area 4)	Unknown	Unknown
Trawl Catcher/ Processor	Trace		Unknown	Unknown
Trawl Joint Venture	$\frac{204,948}{286 \text{ MT}}$ halibut		$\frac{103,616}{232 \text{ MT}}$ halibut	$\frac{412,115}{563 \text{ MT}}$
Pot*4	468 MT	488 MT	310 MT	310 MT
Longline*5	47 MT (all of IPHC area 4)	47 MT (area 4)	47 MT (area 4)	23
C) Foreign				
Trawl	$\frac{941,347}{2,424 \text{ MT}}$ halibut	$\frac{949,474}{2,574 \text{ MT}}$ halibut	$\frac{402,228}{1,525 \text{ MT}}$ halibut	$\frac{447,631}{1,544 \text{ MT}}$ hali
Longline	$\frac{18,219}{68 \text{ MT}}$	$\frac{39,257}{130 \text{ MT}}$	$\frac{21,112}{84 \text{ MT}}$	$\frac{73,041}{241 \text{ MT}}$
Total Incidental Catch	3,293 MT	3,562 MT	2,529 MT	2,550 MT
Incidental Catch as % of Biomass*6	7.6%	7.2%	4.0%	2.8%

## FOOTNOTES

- 1) First, larger number reflects NMFS biomass estimates from yearly trawl surveys on Eastern Bering Sea flats. This number is felt conservative because it includes no halibut > 70 cm since they tend not to be captured in trawls. Second, smaller number reflects IPHC estimates of recruits or some 8 year olds, some 9 year olds and all 10-20 year old fish.
- 2) Incidence data identifies captured animals and is not adjusted for mortality/viability of animals returned to the sea.
- 3) 1981 estimate of domestic trawl interception of halibut comes from IPHC.
- 4) Estimates come exclusively from research surveys, are compiled by IPHC and are considered "soft", especially 1983.
- 5) IPHC analysis of 1976-78 logbooks resulted in 47 MT estimate for all area 4. Estimate considered reasonable by IPHC for 1980-81. 1982-83 saw greater use of circle books and incidence considered dramatically reduced. Mortality about 35%.
- 6) This calculation does not take into consideration the survivability of incidentally caught halibut returned to the sea. Survivability is known to vary by type of gear use and fishery mode.

D) ISSUES

Caveats and Considerations

- 1) According to plan, trawling in pot sanctuary is being allowed on experimental basis. Areas have previously been protected for specific reasons.
  - high red king crab abundance
  - halibut juvenile nursery area - supports Gulf stocks as well
- 2) Concern about growing domestic fishery - if effort increases in pot sanctuary area for example, the incidence of halibut and crab in numbers likely will grow.
- 3) Considerable pessimism that a diversely growing domestic industry will be able to police itself and therefore some regulations or regime is going to be necessary.
- 4) General areas of high prohibited species abundance can be identified - more detailed study continues but is complicated by fact that there is so much variability year to year in more specific areas and during more specific times.
- 5) Small boat fishermen are concerned that they cannot operate successfully further offshore due to lower catch rates and weather and logistical problems.
- 6) Some do not agree with their conclusion but research and management advisors tell us that at the present time we are not addressing an issue of biological conservation. It therefore is an issue of allocation. Allocation means specific goals - a regime to meet them and numbers to identify.
- 7) The ecosystem approach to multi-species fishery management which the council has chosen requires us to also stand back and look at the big picture. What natural or environmental factors have had major influence on the abundance and distribution of these prohibited species. Predation by cod, pollock, soles, sculpins etc on crab and halibut are major mortality factors. To what extent can we quantify removals of predators by trawls as a positive effect to offset the negative removal of the incidental species?

- 8) To date our accounting does not consider mortality or viability of the prohibited species in its return to the sea. This must be added to our accounting.
  
- 9) Suspicions exist concerning the accuracy of what incidental data is available. What kind of confidence intervals should be placed around these estimates, 25% - 50% - 100%. For example if we double the tanner crab incidence number to \_\_\_\_\_, is that significant?

E) ACTIONS/NEEDS/NEXT STEPS

- 1) Time - area studies need to continue
  - further analysis of data from NWAFC
  - close monitoring of JV bottomfisheries in Bering Sea flats with determination of results of self-policing and identification of specific areas of high abundance - if further definition is possible
  
- 2) Need more data from other domestic fisheries
  - incidence rates and numbers by gear type/area/time and fishery
  - catch analysis for predator-prey relationship understanding

Councils help is asked here
  
- 3) More data is needed on fishing associated mortality in directed fisheries - especially crab, and mortality from incidental catches. Can our accounting system be further refined by mortality - viability considerations?
  
- 4) Group will attempt to receive a formal presentation of NRC trawl study.
  
- 5) We ask council in future when approving any Bering Sea bottomfish joint venture to emphasize prohibited species issue and request or suggest cooperation and participation in our group by U.S. manager.
  
- 6) Three preliminary proposals have been put before group
  - a. Further regulate the foreign yellowfin sole fishery by area so U.S. fleet can move out of pot sanctuary onto non-pre emptied productive grounds.
  - b. Establish specific limit on incidence catch numbers inside pot sanctuary. Actual numbers have not been discussed yet.
  - c. Identify and close specific sub units of pot sanctuary to hard on bottom trawling, but such closures to have seasonal flexibility.
  
- 7) Recommendations or decisions will require a determination of what is allowable and what is not, what is significant? There undoubtedly is economic loss to directed fishermen from incidental catches (possibly offset by the predation factor). How are the losses and gains quantified, evaluated and balanced?