1984

BERING SEA/ALEUTIAN ISLANDS GROUNDFISH

SPECIES	TAC	DAP	JVP	DAH	TALFF	RESERVE
POLLOCK/BS	1200000	18163	253000	271163	748837	
POLLOCK/AL	100000	500	3000	3500	81500	
POP/BS	1780	550	150	700	813	
POP/AI	2700	550	1745	2295	0	
ROCKFISH/BS	1550	50	20	70	1247.5	
ROCKFISH/AI	5500	50	4000	4050	625	
SABLEFISH/BS	3740	2540	100	2640	539	
SABLEFISH/AI	1600	50	100	150	1210	
P.COD	210000	104442	27180	131622	46878	
Y.F.SOLE	230000	1361	36500	37861	157639	
TURBOTS	59610	20	100	120	50548.5	
FLATFISH	111490	1361	22000	23361	71405.5	
ATKAMACKEREL	23130	227	19433.5	19660.5	0	
SQUID	8900	20	20	40	7525	
OTHERSPECIES	40000	3000	2000	5000	29000	
TOTAL	2000000	132884	369348.5	502232.5	1197767.5	300000

AGENDA D-4A
DECEMBER 1983

M E M O R A N D U M

TO: Council, SSC and AP Members

FROM: Jim H. Branson
Executive Director

DATE: November 30, 1983

SUBJECT: Bering Sea/Aleutian Island Groundfish

ACTION REQUIRED

1. The Council needs to establish the amounts of groundfish available for Total Allowable Catches (TAC) and needed for Domestic Processed Catch (DAP) and Joint Venture Processed Catch (JVP) for the 1984 fishery.

BACKGROUND

Procedures for setting the quotas, or TACs, and allocating the amounts to the domestic fishery were established by Amendment 1 to the FMP. Proposed TACs, JVPs and DAPs for 1984 were mailed to the public after the September meeting. The TACs were based on the best biological information which was made available to the Council and public at the July meeting. Proposed DAP and JVP were based on a survey of the U.S. industry conducted by NMFS.

The Council should make final recommendations for 1984 TACs, JVPs and DAPs to the Regional Director who will implement them by rule-related notice.

We have received a number of comments on the proposed figures which were sent to you in the last Council mailing. In addition, the Plan Maintenance Team met on November 15-16 and developed recommendations for the final TACs, JVPs and DAPs. They also updated the Resource Assessment Document (RAD), the biological information on the status of stocks. Copies of the PMT report with their recommendations are included here as Agenda Item D-4A-1. The update to the RAD is Agenda Item D-4A-2.

Tables 1 through 4 immediately following this action memorandum are provided to help you sort out the numbers on which you have to make a decision. Tables 1,2, & 3 deal respectively with TAC, DAP, and JVP. Each shows the Council's proposal, PMT recommendation, industry proposals, staff proposals, and the 1983 figure as a reference point. By filling in Table 4, you will be able to see the amount of groundfish available for TALFF based on your decisions on the other three categories.

Using tables 1 through 3, the Council can set the quotas and apportionments for the 1984 groundfish fishery by using the following motion:

> 'After having considered all comments and relevant biological and socio-economic information on the 1984 TACs, JVPs, and DAPs, I move that we establish the 1984 TACs, DAPs and JVPs as follows: (read the numbers you have written into the last column of Table 1 for TAC, Table 2 for DAP, and Table 3 for JVP).'

TABLE 1

Establish 1984 Total Allowable Catches (TAC)

Species		1983 OY	1984 Proposed TAC	PMT* Recommended Action	Japanese Industry	AP	SSC	Final Council TAC
Pollock	BS	1,000,000	1,067,710	1,200,000	1,200,000			
	AI	100,000	88,890	100,000	100,000			
Pacific ocean perch	BS	3,250	1,780	1,780	2,600			
	AI	7,500	9,520	2,700	9,520			
Other rockfish	BS	7,727	2,760	1,550	2,760			
	AI	both areas	9,790	5,500	9,790			
Sablefish	BS	3,500	3,740	3,740	4,430			
	AI	1,500	1,600	1,600	1,755			
Pacific cod		120,000	258,920	210,000	258,075			
Yellowfin sole		117,000	275,830	230,000	175,000			
Turbots		90,000	59,610	59,610	85,000			
Other flatfish		61,000	133,460	111,490	85,000			
Atka mackerel		24,800	23,130	23,130	23,130			
Squid		10,000	8,900	8,900	8,900			
Other species		77,314	54,270	40,000	34,040			
TOTAL		1,623,591	2,000,000	2,000,000	2,000,000			

*Staff endorses PMT recomendations

BS = Bering Sea
AI = Aleutian Islands

TABLE 2

Establish 1984 Domestic Processed Catch (DAP)

Species		1983 DAP	1984 Proposed DAP	1983 Projected Catch	PMT Recom.*	AP	SSC	Other	Final Council DAP
Pollock	BS	10,000	14,762	1,600	18,163				
	AI	0	500	0	500				
Pacific Ocean Perch	BS	550	1,864	10	550				
	AI	550	0	0	550				
Other rockfish	BS	1,100	50	50	50				
	AI	N/A	0	0	50				
Sablefish	BS	500	1,678	100	2,540				
	AI	500	50	0	50				
Pacific cod		26,000	115,312	64,000	104,442				
Yellowfin sole		1,000	1,000	200	1,361				
Turbots		1,000	0	100	20				
Other flatfish		1,000	100	50	1,361				
Atka Mackerel		0	0	0	227				
Squid		0	0	10	20				
Other species		1,400	0	3,000	3,000				
TOTAL		43,600	135,316	69,120	132,884				

*Staff endorses the PMT recommendations

BS = Bering Sea
AI = Aleutian Islands

TABLE 3

Establish 1984 Joint Venture Processed Catch (JVP)

Species		1983 JVP	1984 Proposed JVP	1983 Projected Catch	PMT Recom.	AP	SSC	Other	Final Council JVP
Pollock	BS	64,000	293,000	144,000	293,000				
	AI	0	3,000	2,600	3,000				
Pacific Ocean Perch	BS	830	50	130	50				
	AI	830	50	20	20				
Other rockfish	BS	450	20	10	20				
	AI	N/A	0	0	10				
Sablefish	BS	200	100	50	100				
	AI	200	100	70	100				
Pacific cod		17,065	14,180	14,500	17,180				
Yellowfin sole		30,000	28,600	22,500	28,600				
Turbots		75	100	100	100				
Other flatfish		10,000	22,000	11,700	22,000				
Atka Mackerel		14,500	16,000	10,700	16,000				
Squid		50	0	10	20				
Other species		6,000	0	1,700	2,000				
TOTAL		144,200	377,200	208,090	382,200				

BS = Bering Sea
AI = Aleutian Islands

TABLE 4

1984 TAC, DAP, JVP, Reserves, TALFF

Species		TAC	- (DAP	+ JVP	+ Reserves*)	= TALFF
Pollock	BS					
	AI					
Pacific Ocean Perch	BS					
	AI					
Other rockfish	BS					
	AI					
Sablefish	BS					
	AI					
Pacific cod						
Yellowfin sole						
Turbots						
Other flatfish						
Atka mackerel						
Squid						
Other species						
TOTAL						

Staff endorses Council Decisions

BS = Bering Sea
AI = Aleutian Islands

*Reserves are 15% of TAC

Plan Maintenance Team Report

Bering Sea-Aleutians Groundfish Fishery

November 16, 1983

Prepared by:
Plan Maintenance Team
Bering Sea and Aleutians Groundfish Fishery
North Pacific Fishery Management Council
P.O. Box 103136
Anchorage, Alaska 99510

Plan Maintenance Team Meeting

The Plan Maintenance Team (PMT) for the Bering Sea-Aleutian Islands Region Groundfish Fishery Management Plan (FMP) met during November 15-16, 1983 at the Northwest and Alaska Fisheries Center in Seattle. The main purpose of the meeting was to (1) review and update the status of groundfish stocks, (2) determine the 1984 species total allowable catches (TAC) within the groundfish complex, and (3) estimate the potential impact of the groundfish harvest on prohibited species.

Participants

The following individuals were present at all or part of the meeting.

PMT Members:	Loh-Lee Low	(PMT Leader, NWAFC)
	Jeff Povolny	(Council groundfish coordinator)
	Phil Chitwood	(NMFS Regional Office)
	Phil Rigby	(ADF&G)
	Steve Hoag	(IPHC)
Other Technical Experts:	Richard Bakkala	(NWAFC)
	Joseph Terry	(NWAFC)
	Cyreis Schmitt	(IPHC)
	Jerry Reeves	(NWAFC/ADF&G)
Council Member:	Jeff Stephan	
Advisory Panel:	Robert Alverson	
	Barry Collier	
Japanese Industry:	Paul MacGregor	
	Tadashi Nemoto	
	Donald Swisher	
	Hisashi Matsui	

Status of Stocks

In July 1983, the Resource Assessment Document (RAD) for Amendment #1 of the FMP was submitted to the North Pacific Fisheries Management Council. Since then, new survey and commercial fishery data have become available. These include data from the summer 1983 survey by the Northwest and Alaska Fisheries Center (NWAFC), Japanese surveys during 1982 and 1983, and commercial and observer data from the 1982 foreign fishery. Results of the analyses of these data were reported in documents submitted by U.S. and Japanese scientists at the annual meeting of the International North Pacific Fisheries Commission (INPFC) in October 1983.

The NWAFC took the lead in updating the status of stocks with these new sources of information. A summary of the U.S. and Japanese views presented at INPFC is listed in Table 1. After a review of the NWAFC's latest source of information, the PMT compiled a report entitled, "Bering Sea-Aleutians Groundfish Resource Assessment Document (Updated through November 1983)."

Table 2 summarizes information on the condition of the stocks as shown in this November RAD supplement and compares them with the assessments contained in the July RAD. More detailed information are provided for each species or species group in the RAD supplement.

Groundfish Complex Equilibrium Yield and Optimum Yield

The equilibrium yield (EY) of the groundfish complex in the Bering Sea-Aleutians region has been estimated to total 2,248,345 t. At the September meeting, the Council voted to set the groundfish complex TAC for 1984 at the high end of the OY range, or 2,000,000 t.

Species Total Allowable Catch

When the Council set the groundfish complex TAC at 2 million t, the species TAC were also set by proportionately adjusting the individual species TACs according to their ratio of EY to the groundfish complex EY, so that the aggregate of the TACs equals 2 million t. The resultant set of TACs (column A of Table 3) was sent out for public review.

The PMT met in November to review this set of species TACs and considered comments from the U.S. and Japanese fishing industries as well. Column B of Table 3 lists the recommendations by the Japanese fishing industry. The PMT, after a species-by-species review of the status of stocks, socio-economics of the fisheries, and operational needs of the fishing industry, determined a set of TACs (column C of Table 3) which is offered as the recommendation of the Team to the Council.

In making its determination, the PMT adopted the following four principals for setting species TACs:

(1) Their effect on development of the U.S. fisheries;
(2) The need to rebuild depressed groundfish stocks;
(3) Their effect on prohibited species; and
(4) Their effect on operations of the major existing fisheries.

A species-by-species reasoning of the PMT determination is summarized as follows:

Pollock--Pollock is the main species taken by most of the foreign groundfish fisheries in the region and since DAH is projected to increase from 145,600 t in 1983 to 311,000 t in 1984, there is a greater need to set TAC equal to EY in order to maintain a reasonable TALFF. Biologically, there is no good reason why TAC cannot equal EY; that is 1,200,000 t in the eastern Bering Sea, and 100,000 t in the Aleutian area. Despite the apparent weaknesses of the 1979-81 year classes, the population is made up of a great proportion of large individuals from the 1978 year class. According to ecosystem interaction considerations, they should be harvested because the larger individuals contribute to significant cannabilism of its juveniles.

The setting of TAC equal to EY will leave a TALFF of 708,800 t in the eastern Bering Sea and 81,500 t in the Aleutian region (Table 4). The foreign pollock catch during 1977-82 varied from 914,000-980,000 t in the eastern Bering Sea and 6,300-55,800 t in the Aleutian region (Table 5). Considering that the reserve of 180,000 t in the eastern Bering Sea could be eventually added to TALFF, then the allocation to foreign fleets would be close to 1977-82 catches.

Pacific cod--The Pacific cod resource is at a historically high level due to the peak presence of a strong 1977 year-class of cod. Due to this year class, the EY for 1984 is estimated to be at a historic high level but is projected to decline rapidly in immediate future years. At the same time, the U.S. fishery for cod is increasing very rapidly and is fast approaching the EY of cod. A table of this projection follows:

	EY	DAH
1984	291,300	121,622
1985	179,400	-
1986	139,600	-

In determination of cod TAC, it is important to account for the anticipated decline of the stocks, increasing needs of DAH, and a reasonable amount of TALFF as bycatch of the pollock fishery. Historically, foreign cod catches varied from 36,600-66,500 t during 1977-82 and averaged 50,400 t. If the 1984 cod TAC is set at 210,000 t, TALFF will be 56,878 t after accounting for DAH and a 15% reserve. This TAC level appears reasonable because there is a 81,300 t reduction from EY which, despite high natural mortality (M=0.6) if not harvested in 1984, is projected to contribute an additional 36,700 t to the cod biomass in 1985. This additional biomass may be needed to serve the needs of DAH and TALFF in 1985 or later.

Turbots--EY for the turbot group is estimated at 67,500 t and when adjusted proportionately by the ratio of EYs, TAC may be set at 59,610 t. The RAD shows that the Greenland turbot component of the species group has had declining recruitment levels. Therefore, it is not desirable to exploit the group at the EY level. The historical catch of turbots during 1977-82 varied between 41,000 t and 70,800 t. The average was 58,500 t. Setting TAC at 59,610 t may mean some decline in foreign catches, but it is necessary considering the declining biological status of the resource.

Pacific Ocean Perch--EY for POP is estimated to be larger than 1,360 in the eastern Bering Sea and 10,800 t in the Aleutian region. The resource is known to have stabilized at extremely low levels of abundance. In the eastern Bering Sea, the needs for incidental catches by the foreign groundfish fishery, after accounting for DAH, can be met if TAC is set at 1,780 t or slightly higher than the low end of EY. This TAC level is not likely to be additionally detrimental to the biological status of the resource.

In the Aleutian region, the needs for incidental catches by the foreign fleet and a low level of TALFF and DAH can be met substantially below EY. If TAC is set at 25% of EY, industry needs can be satisfied and the lower level of catch would contribute to the rebuilding of the resource. This rebuilding is more desirable in the Aleutian region as compared to the eastern Bering Sea, because the Aleutian region is a more likely place for development of a U.S. fishery for POP.

Other Rockfish--As in the case of POP in the Aleutian region, the needs of industry (DAH, TALFF, and incidental catches) can be met by setting TAC below EY. In this case, TAC can be set 50% below EY in both the eastern Bering Sea and the Aleutian region to promote rebuilding of the resource, since rockfishes are generally not in very good condition.

Sablefish, Atka Mackerel, and Squid--The TAC for these three species groups are set below their EY according to the ratio of their EYs to the overall EY of the groundfish complex, so that the aggregate total 2 million t. The needs of industry and biological status of the resources can be protected at these TAC levels, i.e.--3,740 t and 1,600 t for sablefish in the eastern Bering Sea and Aleutians regions, respectively; 23,130 t for Atka mackerel; and 8,900 t for squid.

Yellowfin Sole, Other Flatfish, and Other Species--These species groups have surplus production that more than adequately serve the needs of industry. Accordingly, their TACs are reduced from their EY levels, so that the aggregate of all species TAC equal 2 million t. On this basis, TACs are determined as follows: 230,000 t for yellowfin sole, 111,490 t for other flatfish, and 40,000 t for other groundfish. It is not desirable to reduce TAC for yellowfin sole further in order to accommodate the need to increase TAC for another species group, because yellowfin sole is at a historic high level of abundance and is also increasing rapidly. There is, therefore, a need to harvest the increased surplus production of the species.

Since yellowfin sole and other flatfishes are harvested close to the sea bottom in the eastern Bering Sea where incidental catches of crabs and halibut may be high, the impact of the fishery on incidental catches is of special concern. This issue is addressed in the next section.

Impact of Groundfish Fisheries on Prohibited Species

The expected impact of the 1984 groundfish fisheries on prohibited species should be evaluated in terms of the level of incidental catches expected and their effect on the status of the prohibited species stocks. In addition, the evaluation for the foreign fisheries should be addressed separately from that for the domestic (joint-venture and domestic processing) fisheries, since they are conducted in distinctively different manners.

(a) Impact by Foreign Fisheries

The PMT could evaluate the expected impact in very general terms only and stressed that too many variables affect incidental catches which cannot be casually assumed in calculating expected impacts. For example, the level of incidental catch would depend on such factors as:

(i) TALFF by species and how they are allocated to different nations; and within nations by gear type;

(ii) The period and area of operation of the fishing fleet;

(iii) The abundance and availability of prohibited species to the gear at the particular area and time of fishing operations; and

(iv) The random chance of encountering prohibited species in schools or in part.

All of these factors cannot be accurately predicted and casual assumptions about them could not only lead to inaccurate predictions of their catch, but worse yet, could be misleading.

As such, the PMT reviewed how Amendment #3 to the FMP has affected incidental catches in recent years. This review may provide a general impression on the 1984 situation. Amendment #3 controls the incidental catch by the foreign fisheries only. According to the Amendment (Table 6), the incidental catch rates for halibut and crabs are to be reduced progressively from 1982 to 1986. In the case of halibut, the reduction rate is 10% per year from the 1977-80 average. The reduction rates for king and Tanner crabs are 5% per year from their 1977-80 average rates. Reduction in salmon incidental catches are specified in numbers of fish as noted in Table 6.

Table 7 provides a comparison of the authorized limits of prohibited species catch and their actual catches for 1977 through September 1983. For 1977-81, except for salmon in 1981, no limits were placed on incidental catches. Since Amendment #3 was implemented, it is clear that actual incidental catches were substantially below authorized limits for all four prohibited species. It is also relevant to note that not all the TALFF of groundfish designated for 1984 would be actually taken, therefore, incidental catch limits for halibut and crabs designated for 1984 are maximum values.

The PMT found it difficult to assess the impact of prohibited species catches on their stock conditions because the issue is too intricate to address with the amount of information on status of stocks by area and by time period available to the Team. In general, it is known that the entire halibut resource in general is improving and in healthy condition; that red and blue king crab populations are extremely low in abundance; that Tanner crab populations are also declining in abundance; and that the chinook salmon resource condition is not well known.

It is difficult to say how much the foreign fisheries incidental catch additionally affect the status of the prohibited species stocks, although this is partially addressed in the next section. In general, however, it is desirable to achieve every possible reduction in incidental catches, since the savings will accrue to the stocks and hence benefit U.S. fishermen later.

Impact by Domestic Fisheries

The incidental catch pattern by domestic fisheries is quite different from that by foreign fisheries due mainly to their different areas of operation. To begin with, domestic fisheries are allowed in the Bristol Bay Pot Sanctuary Area and the Winter Halibut Savings Area where foreign vessels are not permitted to operate. Domestic fisheries can also fish within the 3 or 12 mile zones where foreign fisheries are often excluded. As a result of these differences in areas of operation, the domestic fisheries tend to encounter more halibut, red king crabs, blue king crabs, and C. Bairdi crabs in their operations as compared to foreign fisheries. Foreign fisheries tend to encounter more brown king crabs and C. opilio crabs. The encounter pattern for salmon appears to be more random in nature. Table 8 provides a comparison of foreign and joint-ventrue catches of prohibited species for 1980-83 when domestic fisheries have been developing rapidly. Incidental catches associated with domestic processing vessels are not well known.

Because of the areas of operation by the domestic fleet and their possible adverse impact on stocks of prohibited species, the Fishing Vessel Owner's Association has written to the Council to place the issue of "the experimental domestic fishery in the Pot Sanctuary Area" on the December Council's meeting agenda. This letter was provided to the PMT for review. The Team, however, did not feel it appropriate to address the issue of the letter directly without specific instructions from the Council. Instead, the PMT asked for the expert advice of Dr. Jerry Reeves on the impact of groundfish fisheries, in general, on crab populations in the Bristol Bay area. His report is entitled, "Preliminary Evaluation of the Impact of Incidental Crab Catches on Bristol Bay Crabs in 1983." Table 3 of Dr. Reeves' report (Table 9 in this report) provides a comparison of the total incidental catch with the stock sizes of red king crab, C. bairdi crab, and C. opilio crab in Area I (mostly Bristol Bay) for 1983 (through September). The table provides some rather interesting and surprising statistics.

For red king crab stocks, the incidental catch through September 1983 represented only 0.7 to 0.8% of the male and female components of the population of red king crabs. The statistics are also broken down into specific size categories of crab. In terms of the population change of crabs from 1982 to 1983, the 1983 incidental catch amounted to 0.5% of the population change in the male component of the population and 0.3% of the female component. Therefore, incidental catches may only account for less than 1% of the total mortality of red king crab stocks from 1982 to 1983.

In the case of C. bairdi, the incidental catch in 1983 represented 0.2% of the population of male individuals and 0.1% of the female individuals in 1983. For C. opilio, the 1983 incidental catch were 0.3% of both the male and female components of the population.

The report by Dr. Reeves concluded that "incidental catches are not a significant factor in observed declines in stock abundance (of king and Tanner crabs)." The percentage contribution to total mortality through incidental catches are "low in relation to the stocks and in general do not pose a conservation problem. However, there is some cause for concern in the case of female red king crabs....it would seem prudent to minimize incidental catches of female red king crabs from this stock."

Less is known about the impact of incidental catches on the blue and brown crab populations.

Table 1. Summary of U.S. and Japanese views on condition of groundfish stocks in the eastern Bering Sea and Aleutians region presented at the 1983 meeting of the International North Pacific Fisheries Commission.

Species	U.S. EY (t)	Japanese ABC (t)	Stock condition		Remarks	
			U.S.	Japanese	U.S.	Japan
Pollock						
Eastern Bering Sea	1,200,000	1,659,000	Good	Good	Concern about weak 1979-81 year classes. Advise close monitoring in 1984	Abundance stable or increasing
Aleutians	100,000					
Pacific cod	291,300	325,800	Excellent	Excellent	Abundance currently very high but expected to decline starting in 1984	Abundance increasing
Yellowfin sole	310,000	271,000	Excellent	Excellent	Abundance currently very high and expected to remain high	Abundance very high and expected to remain high through mid-1980s
Turbots (Greenland turbot and arrowtooth flounder	67,500	84,800	Has declined	Stable	Has been poor recruitment of Greenland turbot year classes and decline of adults. Arrowtooth flounder stable	Abundance stable
Other flatfish (rock sole, flathead sole, Alaska plaice, and others)	150,200	127,600	Excellent	Good	Abundance very high for principal species	Abundance high and increasing
Pacific ocean perch						
Eastern Bering Sea	1,360	2,600	Poor	Poor	Abundance is low and stable	-
Aleutians	10,800	12,900	Poor	Poor	Abundance is low and stable	
Other rockfish						
Eastern Bering Sea	3,100	7,000-8,000	Fair		Abundance average and stable in both regions	-
Aleutians	11,000		Fair			
Sablefish						
Eastern Bering Sea	4,430	3,000-5,000	Improving	Good	Although low abundance is increasing	Abundance as high as near virgin level
Aleutians	1,755	2,300	Improving	Good	Although low abundance is increasing	
Atka mackerel	25,500	-	Good		Abundance average and stable	-
Squid	10,000		Good	Good	Abundance stable	Abundance stable
Other species	61,400	-	Good	-	Abundance high and stable	-

able 2. Comparison of the maximum sustainable y--ld (MSY) and equilibrium yield (EY) for groundfish stocks in the eastern Bering Sea and Aleutians region presented in the July 1983 resource assessment document and the November 1983 update, with remarks on stock conditions.

Species	MSY(t) July RAD	MSY(t) November Update	EY(t) July RAD	EY(t) November Update	Stock condition July RAD	Stock condition November Update	Remarks
Pollock							
(Eastern Bering Sea)	1,500,000	1,500,000	1,200,000	1,200,000	Good	Good in 1983 but needs close monitoring in 1984.	Condition good in 1983 because of high abundance of relatively old 5 year fish but concern about weak 1979-81 year-classes. Needs close monitoring in 1984.
(Aleutians)	100,000	100,000	100,000	100,000			
Pacific cod	--	--	155,000	291,300	Excellent	Excellent	Abundance high but expected to decline
Yellowfin sole	150,000-175,000	150,000-175,000	>200,000	310,000	Excellent	Excellent	Abundance at historic high and expected to remain high in immediate future years
Turbots	107,000	96,200	85,000	67,500			Recruitment of 1979-81 year-classes of Greenland turbot poor and abundance of adults has declined.
(Greenland turbot)	(80,000)	(72,000)	(65,000)	(47,500)	Good	Fair	
(Arrowtooth flounder)	(27,000)	(24,200)	(20,000)	(20,000)	Good	Good	
Other flatfish	88,100-150,200	88,100-150,200	120,000	150,200			Abundance high for all principal species.
(Alaska plaice)	(45,100-70,000)	(45,100-70,000)	(58,000)	(70,000)	Good	Excellent	
(Rock sole, flathead sole, and others)	(43,000-80,200)	(43,000-80,200)	(62,000)	(80,000)	Good	Excellent	
Pacific ocean perch	12,000-17,000	12,000-17,000					Abundance low and stable both regions.
(Eastern Bering Sea)			3,400	> 1,360	Poor	Poor	
(Aleutians)			11,600	> 10,800	Poor	Poor	
Other rockfish							Abundance may be average and stable. MSY estimates probably too high.
(Eastern Bering Sea)	7,000-15,000	7,000-15,000	3,100	3,100	Fair	Fair	
(Aleutians)	23,000-45,000	23,000-45,000	11,000	11,000	Fair	Fair	
Sablefish							
(Eastern Bering Sea)	13,000	13,000	4,200	4,430	Poor but improving	Improved both regions	Although improved abundance remains below historical levels.
(Aleutians)	2,100	2,100	1,800	1,755			
Atka mackerel	23,000-28,000	23,000-28,000	26,000	25,500	Good	Good	Recent trends in abundance unknown
Squid	>10,000	>10,000	10,000	10,000	--	--	Abundance trend unknown
Other species	67,000	61,400	67,000	61,400	Good	Good	Abundance high and stable
TOTAL GROUNDFISH	2,102,200-2,229,300	2,085,800-2,212,900	1,998,100	2,248,345			

Table 3.--Options on groundfish species total allowable catches and comparisons to their equilibrium yield (EY) for the 1984 eastern Bering Sea-Aleutians groundfish fishery.

Species group	Management area	1984 EY	Total allowable catch (t) (Column A) Proportionate to species EY	(Column B) Japanese industry recommendation	(Column C) PMT Recommendation
Pollock	Bering Sea (BS)	1,200,000	1,067,710	1,200,000	1,200,000
	Aleutian Islands (AI)	100,000	88,980	100,000	100,000
Pacific ocean perch	BS	1,360	1,780	2,600	1,780
	AI	10,800	9,520	9,520	2,700
Other rockfish	BS	3,100	2,760	2,760	1,550
	AI	11,000	9,790	9,790	5,500
Sablefish	BS	4,430	3,740	4,430	3,740
	AI	1,755	1,600	1,755	1,600
Pacific cod		291,300	258,920	258,075	210,000
Yellowfin sole		310,000	275,830	175,000	230,000
Turbots		67,500	59,610	85,000	59,610
Other flatfish		150,200	133,460	85,000	111,490
Atka mackerel		25,500	23,130	23,130	23,130
Squid		10,000	8,900	8,900	8,900
Other species		61,400	54,270	34,040	40,000
Total groundfish		2,248,345	2,000,000	2,000,000	2,000,000

Table 4.--Preliminary specifications of domestic annual processing (DAP), joint venture processing (JVP), reserve, and total allowable level of foreign fishing (TALFF) in the Bering Sea-Aleutian Islands region groundfish fishery for 1984. (All figures in metric tons).

Species	Management Area	Proposed TAC	DAP	JVP	Reserve 1/	TALFF
Bering Sea/Aleutian Islands:						
Pollock	Bering Sea (BS)	1,200,000	18,163	293,000	180,000	708,837
	Aleutian Islands (AI)	100,000	500	3,000	15,000	81,500
Pacific ocean perch	BS	1,780	550	50	267	913
	AI	2,700	550	20	405	1,725
Sablefish	BS	3,740	2,540	100	561	539
	AI	1,600	50	100	240	1,210
Other rockfish	BS	1,550	50	20	233	1,247
	AI	5,500	50	10	825	4,615
Atka mackerel		23,130	227	16,000	3,470	3,433
Pacific cod		210,000	104,442	17,180	31,500	56,878
Yellowfin sole		230,000	1,361	28,600	34,500	165,539
Turbots		59,610	20	100	8,941	50,549
Other flatfish		111,490	1,361	22,000	16,723	71,405
Squid		8,900	20	20	1,335	7,525
Other species		40,000	3,000	2,000	6,000	29,000
TOTAL		2,000,000 1/	132,884	382,200	300,000	1,184,916

1/ 15 percent of the total TAC, or 300,000 t, is apportioned to the reserve; reserves by species are preliminary designations.

Table 5.--Groundfish catches (t) in the eastern Bering Sea and Aleutian Islands region, 1977-82.

Species	1977	1978	1979	1980	1981	1982
Eastern Bering Sea						
Pollock	978,370	979,431	913,881	958,279	973,505	955,964
Pacific cod	33,335	42,543	33,761	45,861	51,996	55,040
Sablefish	2,109	1,139	1,389	2,171	2,578	3,030
Pacific ocean perch	6,600	2,200	1,700	800	1,200	600
Other rockfish	1,678	12,222	10,097	2,465	1,110	1,077
Yellowfin sole	58,373	138,433	99,017	87,391	97,301	95,712
Turbots	37,162	45,781	42,919	62,618	66,394	49,624
Other flatfish	23,602	42,947	35,599	20,457	23,428	32,666
Atka mackerel	-	832	1,985	4,697	3,028	328
Squid	8,316	9,411	7,017	6,353	5,941	5,038
Other species	35,902	61,537	38,767	33,949	35,551	18,200
TOTAL	1,185,447	1,336,476	1,186,132	1,225,041	1,262,032	1,217,279
Aleutian Islands Region						
Pollock	7,625	6,282	9,504	58,156	55,516	55,754
Pacific cod	3,262	3,295	5,593	5,788	10,462	11,526
Sablefish	1,717	821	781	267	377	809
Pacific ocean perch	5,900	5,300	5,500	3,700	3,500	1,500
Other rockfish	9,587	8,737	14,543	1,366	5,019	2,581
Turbots	4,488	6,548	12,847	8,296	8,040	6,258
Atka mackerel	20,975	23,418	21,279	15,793	16,661	19,546
Other species	16,170	12,436	12,934	13,004	7,274	5,167
TOTAL	69,724	66,837	82,981	106,310	106,849	103,141

Table 6.--Incidental catch reductions schedules for Pacific halibut, king crab, Tanner crab, and salmon as designated by Amendment #3.

Year	Halibut 1/	King Crab 2/	Tanner Crab 2/	Salmon 3/
Base Catch Rates				
1977-80 Average	3,182 / 1,301,250 R=0.00245	916,804 / 1,301,250 R=0.70456	16,003,329 / 1,301,250 R=12.29843	
Rate Reduction Schedule, R				
(1981)	--	--	--	69,898
(1982)	R=.00220 90%	R=.66933 95%	R=11.6840 95%	59,409
(1983)	R=.00196 80%	R=.63410 90%	R=11.0686 90%	48,925
(1984)	R=.00171 70%	R=.59887 85%	R=10.4537 85%	38,441
(1985)	R=.00147 60%	R=.56365 80%	R= 9.8387 80%	27,957
(1986)	R=.00122 50%	R=.52842 75%	R= 9.2238 75%	17,473

1/ Metric tons per metric ton of groundfish.

2/ Number of individuals per metric ton of groundfish.

3/ Number of salmon.

Table 7.--Comparison of groundfish and prohibited species catches with their authorized limits in the eastern Bering Sea/Aleutians region, 1977-84.

	Groundfish Catches (t)		Incidental Catches of Prohibited Species							
			Pacific Halibut (t)		King Crab (Nos.)		Tanner Crab (Millions)		Salmon (Nos.)	
Year	Actual Foreign Catch	TALFF	Authorized Limit	Actual Catch	Authorized Limit	Actual Catch	Authorized Limit	Actual Catch	Authorized Limit	Actual Catch
1977	1,265,705	1,351,200	NL	1,453	NL	599,623	NL	17.6	NL	47,840
1978	1,376,688	1,464,970	NL	2,853	NL	1,277,931	NL	17.3	NL	44,548
1979	1,281,328	1,403,970	NL	2,863	NL	1,007,796	NL	18.0	NL	107,706
1980	1,281,862	1,488,792	NL	4,311	NL	858,129	NL	11.1	NL	120,104
1981	1,266,949	1,466,404	NL	2,704	NL	733,026	NL	5.6	69,898	42,337
1982	1,181,159	1,399,960	3,080	1,609	937,000	380,004	16.3	2.3	59,409	21,241
1983*	882,800	1,388,769	2,722	1,029	880,600	327,700	15.4	1.6	48,925	8,700
1984**	?	1,484,916	2,539	?	889,300	?	15.5	?	38,441	?

Footnotes: * - January through September 1983 data.
** - TALFF includes 300,000 t from reserve.
NL - No limit.

Table 8.--Incidental catch of prohibited species in foreign and joint-venture groundfish fisheries in the Bering Sea/Aleutian Islands Region, 1980 through September 1983.

	King Crab (Nos.)		Tanner Crab (Nos. in millions)	
Year	Foreign	Joint-Venture	Foreign	Joint-Venture
1980	858,129	289,542	11.1	0.3
1981	733,026	1,084,126	5.6	0.7
1982	380,004	193,915	2.3	0.1
1983 (Jan.-Sep.)	327,700	529,100	1.6	0.4

	Pacific Halibut (t)		Salmon (Nos.)	
Year	Foreign	Joint-Venture	Foreign	Joint-Venture
1980	4,311	286	120,104	1,898
1981	2,704	232	42,337	854
1982	1,609	563	21,241	2,382
1983 (Jan.-Sep.)	1,029	456	8,700	27,400

Table 9.--Comparison of Bering Sea Area I incidental crab catches to stock sizes for red king crab, C. bairdi and C. opilio, in Bristol Bay for 1983 (through September).

Species/ sex	Bristol Bay population estimates (millions of crabs) 1982	1983	Loss (gain)	Area I incidental catch (millions of crabs)	Percent of 1982-83 loss	Percent of 1983 population
Red king crab						
Males						
0-94 mm	87.0	32.0	55.0	.07	.1	.2
95-134 mm	37.0	21.4	15.6	.28	1.8	1.3
>134 mm	4.2	1.4	2.8	.02	.7	1.4
All males	128.2	54.8	73.4	.37	.5	.7
Females						
0-89 mm	77.2	24.3	52.9	.13	.2	.5
>89 mm	53.8	9.6	44.2	.14	.3	1.5
All females	131.0	33.9	97.1	.27	.3	.8
C. bairdi						
Males						
0-119 mm	46.0	59.2	(13.2)	.13	--	.2
120-134 mm	11.6	10.2	1.4	.02	1.4	.2
>134 mm	6.6	4.9	1.7	.02	1.2	.4
All males	64.2	74.3	(10.1)	.17	--	.2
All females	67.7	70.9	(3.2)	.08	--	.1
C. opilio						
Males						
0-64 mm	95.8	57.7	38.1	.27	.7	.5
65-89 mm	290.6	111.6	179.0	.45	.3	.4
>89 mm	82.9	88.2	(5.3)	.14	--	.2
All males	469.3	257.5	211.8	.86	.4	.3
All females	37.9	3.3	34.6	.01	.0	.3

BERING SEA-ALEUTIANS GROUNDFISH RESOURCE ASSESSMENT DOCUMENT

(Updated through November 1983)

Prepared by
Plan Maintenance Team
North Pacific Fishery Management Council
P.O. Box 103136
Anchorage, Alaska 99510

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Lead Agency for Preparation of this Update:
National Marine Fisheries Service
Northwest and Alaska Fisheries Center
2725 Montlake Boulevard East
Seattle, WA 98112
Contact persons: Richard Bakkala and Loh-Lee Low
(206) 442-0822

RESOURCE ASSESSMENT DOCUMENT SUPPLEMENT
(Updated through November 1983)

INTRODUCTION

Since July 1983 when the Resource Assessment Document (RAD) was submitted to the North Pacific Fisheries Management Council, new survey and commercial fishery data have become available. These include data from the summer 1983 Northwest and Alaska Fisheries Center (NWAFC) survey in the eastern Bering Sea, Japanese surveys during 1982 and 1983 in the eastern Bering Sea and Aleutian Islands region, and the 1982 foreign fishery. Results of analyses of these data were reported in documents submitted by U.S. and Japanese scientists to the annual meeting of the International North Pacific Fisheries Commission (INPFC) in October 1983. These documents are listed in the references section at the end of this report. Copies of the document are available at the Northwest and Alaska Fisheries Center in Seattle.

Table 1 summarizes information on the condition of the stocks as shown by the new 1983 assessments and compares them with the assessments contained in the RAD. Pertinent informaiton from the new assessment data are summarized for each species or species group in the following section on stock conditions.

SUMMARY OF STOCK CONDITIONS

Pollock

The assessment of pollock has historically relied primarily on estimates of CPUE from the commercial fishery. The importance of survey data has increased in recent years, with broader coverage of the eastern Bering Sea by demersal trawl surveys, and the incorporation of hydroacoustic - midwater trawling techniques in these surveys to assess midwater concentrations of pollock.

Data from the commercial fishery indicates that the abundance of pollock has remained relatively stable from 1975 to 1982. Estimates from combined demersal trawl-hydroacoustic surveys, however, indicate that the biomass of pollock in the eastern Bering Sea declined from 11.0 million t in 1979 to 7.8 million t in the 1982. The 1982 estimate was identical to that derived from a Japanese multi-vessel survey. This decline was attributed to low recruitment of the 1979-81 year-classes. The most recent survey data indicates that survival of the 1982 year-class is better and should provide higher recruitment to the fishery than the 1979-81 year-classes. These survey data also indicate that characteristics of the pollock population were unusual in 1983. There were very low population numbers between 20 and 35cm reflecting the poor recruitment of the 1979-81 year-classes. In addition there was a dominance of large fish in the population which appear to mainly represent age 5 pollock from the 1978 year-class. The third unusual characteristic of the survey results was the high availability of pollock to the demersal trawls in 1983 compared to earlier years. Biomass estimates have ranged from about 2.5 to 3.0 million t in prior years, but the 1983 estimate was 6.1 million t.

Because echogram records, taken during the demersal trawl survey, produced no evidence that the abundance of pollock in midwater was reduced from that

Table 1.--Comparison of MSY and EY from the Resource Assessment Document (RAD) and from new 1983 assessment data with remarks on the current condition of the resources.

Species	MSY(t) July RAD	MSY(t) November Update	EY(t) July RAD	EY(t) November Update	Stock condition July RAD	Stock condition November Update	Remarks
Pollock							
(Eastern Bering Sea)	1,500,000	1,500,000	1,200,000	1,200,000	Good	Good in 1983 but needs close monitoring in 1984.	Condition good in 1983 because of high abundance of relatively old 5 year fish but concern about weak 1979-81 year-classes. Needs close monitoring in 1984.
(Aleutians)	100,000	100,000	100,000	100,000			
Pacific cod	--1/	--	155,000	291,300	Excellent	Excellent	Abundance high but expected to decline
Yellowfin sole	150,000-175,000	150,000-175,000	>200,000	310,000	Excellent	Excellent	Abundance at historic high and expected to remain high in immediate future years
Turbots	107,000	96,200	85,000	67,500			Recruitment of 1979-81 year-classes of Greenland turbot poor and abundance of adults has declined.
(Greenland turbot)	(80,000)	(72,000)	(65,000)	(47,500)	Good	Fair	
(Arrowtooth flounder)	(27,000)	(24,200)	(20,000)	(20,000)	Good	Good	
Other flatfish	88,100-150,200	88,100-150,200	120,000	150,200			
(Alaska plaice)	(45,100-70,000)	(45,100-70,000)	(58,000)	(70,000)	Good	Excellent	Abundance high for all principal species.
(Rock sole, flathead sole, and others)	(43,000-80,200)	(43,000-80,200)	(62,000)	(80,000)	Good	Excellent	
Pacific ocean perch	12,000-17,000	12,000-17,000					
(Eastern Bering Sea)			3,400	> 1,360	Poor	Poor	Abundance low and stable both regions.
(Aleutians)			11,600	> 10,800	Poor	Poor	
Other rockfish							
(Eastern Bering Sea)	7,000-15,000	7,000-15,000	3,100	3,100	Fair	Fair	Abundance may be average and stable. MSY estimates probably too high.
(Aleutians)	23,000-45,000	23,000-45,000	11,000	11,000	Fair	Fair	
Sablefish							
(Eastern Bering Sea)	13,000	13,000	4,200	4,430	Poor but improving	Improved both regions	Although improved abundance remains below historical levels.
(Aleutians)	2,100	2,100	1,800	1,755			
Atka mackerel	23,000-28,000	23,000-28,000	26,000	25,500	Good	Good	Recent trends in abundance unknown
Squid	>10,000	>10,000	10,000	10,000	--	--	Abundance trend unknown
Other species	67,000	61,400	67,000	61,400	Good	Good	Abundance high and stable
TOTAL GROUNDFISH	2,102,200-2,229,300	2,085,800-2,212,900	1,998,100	2,248,345			

1/ MSY cannot be estimated because good assessment data only available from period of increasing or high abundance.

in earlier years, the overall biomass of pollock in 1983 was assumed to be as high as that in 1982 (7.8 million t), if not higher. Considering that a large part of the 1983 biomass consisted of relatively large pollock and that there was improved recruitment of age 1 pollock, EY in 1984 was estimated to remain the same as in previous years, or 1.2 million t in the eastern Bering Sea and 100,000 t in the Aleutian Islands region.

If the large population of older pollock is not available in the eastern Bering Sea in 1984 because of migration out of the area or other reasons and the population is primarily supported by the weak 1979-81 year-classes, some in-season assessment of EY may be required in 1984.

In the Aleutian region, data for estimating the EY of 100,000 t is not as good as that for the eastern Bering Sea. The biomass of pollock estimated from the 1980 demersal trawl survey of the Aleutian region was 420,000 t. If the off-bottom and pelagic component of pollock in the Aleutians are included, the total biomass may be 2 or 3 times higher than the demersal trawl estimate. Therefore, the 1980 biomass may have been in the 840,000-1,260,000 t range. Assuming a 15% exploitation rate, as in the eastern Bering Sea, EY for the Aleutians in 1980 may have been 126,000 t-189,000 t. It is not known how much the abundance of the pollock resource in the Aleutians has changed from 1980 to 1983. A U.S.-Japan survey of the region, similar to that in 1980, was conducted in 1983. The results of this survey are not yet available and it is difficult to determine whether the 100,000 t EY estimated for the Aleutians is conservative.

Pacific cod

Because Pacific cod are usually only taken as a bycatch in the commercial fishery, survey data are used to assess the resource. Survey data have shown that the abundance of cod in the eastern Bering Sea has increased substantially since the mid-1970's. This increase has primarily resulted from the recruitment of the strong 1977 year-class to the population. Biomass estimates have increased several-fold since 1975 and were approximately 1.0 million t in the eastern Bering Sea in 1982 and 1983. An estimate of 231,000 t was obtained for the Aleutian Islands regions from a 1980 U.S.-Japan cooperative survey.

Based on the 1983 survey biomass estimate and a natural mortality coefficient of 0.5, the exploitable biomass (age 3 and older fish) of cod in 1984 was projected to be 581,300 t. An exploitation rate of 0.4 applied to this exploitable biomass produced an allowable catch 232,500 t in the eastern Bering Sea. Based on the assumption that the trend in abundance of the Aleutian population since 1980 (the only year in which a survey biomass estimate is available for this region) were the same as that in the eastern Bering Sea, an allowable catch for that region was estimated to be 58,800 t in 1984.

The overall allowable catch for the combined eastern Bering Sea and Aleutian region was 291,300 t which is approximately the same as estimated for 1983.

Yellowfin Sole

Both commercial fishery data and research survey data have been used to assess the condition of yellowfin sole. Abundance estimates from both of these sources show that the population of yellowfin sole has increased substantially since the early 1970's. Biomass estimates from large-scale surveys have increased from 1.0 million t in 1975 to over 3.0 million t in 1982 and 1983. Some of this increase is believed to be an artifact of a change in trawls in 1982 which were more efficient for bottom tending species such as yellowfin sole than trawls used prior to 1982.

The primary reason for the increased abundance of yellowfin sole since the early 1970's has been the recruitment of abundant year-classes. Initial increases in abundance were from the strong 1966-70 year-classes which have predominanted in research vessel and commercial fishery catches since 1973. A new series of strong year-classes, the 1973 to 1977 year-classes, have now entered the population and appear to be as strong or in some cases even stronger than the 1966-70 year-classes. The age structure of the population appears to be well balanced and should maintain the resource in a healthy state in the foreseeable future.

All evidence indicates that the yellowfin sole population is in excellent condition. MSY has been estimated to range between 150,000 and 175,000 t but population abundance is considered to be much higher than that which produces MSY. The population has been under exploited in recent years with catches since 1979 ranging from about 87,000 to 99,000 t. Because of the excellent condition of the yellowfin sole resource, EY in 1984 was estimated to be 310,000 t.

Greenland Turbot and Arrowtooth Flounder

Survey data as well as commercial fishery data are used to assess these species. Juveniles of these species occupy continental shelf waters and are sampled annually by NWAFC survey vessels while the adults primarily occupy continental slope waters where they are a target species of Japanese fisheries. Japanese survey vessels have also recently sampled the adult population during U.S.-Japan cooperative surveys.

Survey data have indicated that the abundance of juvenile Greenland turbot was relatively stable between 1975 and 1980 but declined sharply after 1980 due to poor recruitment of the 1979-81 year-classes. This low recruitment has apparently reduced the abundance of the adult population as evidenced by a decline in commercial catches of turbots from 74,000 t in 1981 to 56,000 t in 1982 and in CPUE for Greenland turbot from about 35 t/100 hrs trawled during 1980-81 to 21 t/100 hrs trawled in 1982. U.S.-Japan survey data also shows a decline in biomass of the slope population from 99,600 t in 1981 to 90,900 t in 1982.

The arrowtooth flounder population appears to be in relatively good condition and survey data show some recent increases in abundance in the juvenile and adult populations.

Based on the assumption that the Greenland turbot stock was producing at the MSY level in 1979 and that the CPUE from the fishery in 1982 was 66% of the 1979 value, EY in 1984 was estimated to be 66% of MSY (72,000 t) or 47,500 t.

Based on evidence showing the population to be in good condition, EY for arrowtooth flounder in 1984 was estimated to be the same as 1983 or 20,000 t.

For the combined turbot complex, EY in 1984 was estimated to be 67,500 t.

Other Flatfish

Survey data are almost exclusively used for assessing the condition of other flatfish because they are taken only as a bycatch in the fishery and the fishery data has not proven useful for estimating trends in abundance. Survey data have shown major increases in abundance of the principal species in this group. Biomass estimates have increased for Alaska plaice from 127,100 t in 1975 to 745,500 t in 1983, for rock sole from 182,800 t in 1979 to 869,700 t in 1983, and for flathead sole from 101,800 t in 1979 to 279,200 t in 1983. As noted for yellowfin sole, the trawls used in 1982 and 1983 were more efficient for flatfish than trawls used in earlier years and the magnitude of increases in abundance for other flatfish are probably not as great as indicated by the survey data. Nevertheless, substantial increases have occurred and the abundance of these species is believed to be at a high level. The increases have resulted from recruitment of stronger than average year-classes in each of the populations.

Because of the high current abundance of this species group, EY's in 1984 were estimated to equal the upper end of the MSY ranges; 80,200 t for the rock sole-flathead sole - miscellaneous flatfish complex and 70,000 t for Alaska plaice.

Pacific Ocean Perch

Assessements of Pacific ocean perch have traditionally relied upon comercial fishery data, but the value of these data has declined because Pacific ocean perch are generally incidental catches due to their extreme low abundance. The historical CPUE trends, as well as cohort analyses, show major declines in abundance of Pacific ocean perch of about 70-90% in the eastern Bering Sea and Aleutian Islands region from the early 1960's to the late 1970's. Abundance, since the decline, has remained low and is expected to remain so for a long time (10 to 20 years or longer) because virtually all year-classes throughout the long life span of the species are low in abundance and a new year-class will take 10 years or more to enter the fishery. Recently, the U.S.-Japan cooperative trawl surveys have detected a slight improvement in the abundance of juvenile fish.

Although the cooperative surveys sample Pacific ocean perch, it is difficult to verify the biomass estimates of the stocks because the catchability of Pacific ocean perch in trawl gear is largely unknown. Assuming a catchability coefficient of 1.0 it would be estimated that the biomass of Pacific ocean perch in the eastern Bering Sea averaged 13,600 t during 1979-82 and 107,800 t in the Aleutian Island region in 1980. If a 10% exploitation rate is assumed sustainable for the stocks, then EY is estimated to be 1,360 t in the eastern Bering Sea and 10,600 t in the Aleutians.

Since a catchability of 1.0 for Pacific ocean perch by trawl gear is not realistic, the biomass must have been higher. If the catchability coefficient was only 0.5, then the estimated biomass would be doubled. It follows that EY would also double. Therefore, in setting catch levels for Pacific ocean perch, it is important to note that EY is underestimated, that stock abundance is low, and that some building of the stocks may be desirable, especially in the Aleutian region where a directed fishery on Pacific ocean perch by domestic fishermen may be desirable.

Other rockfish

Information for assessing these species is poor. Other rockfish are not a target species of the commercial fishery and the fishery data cannot be used to determine trends in abundance. Cooperative U.S.-Japan demersal trawl surveys have sampled these species but biomass may be severely underestimated because the species are believed to inhabit areas of rough bottom that cannot be sampled with trawls. Because of the absence of good assessment data, estimates of EY have been based on catches in the fishery and the relationship between abundance estimates in the eastern Bering Sea and Aleutians.

EY for the Aleution region was estimated based on the assumption that average annual catches of 11,000 t in 1977-79 represented a reasonable estimate of EY. Because biomass estimates for other rockfish in the eastern Bering Sea averaged 28% of those in the Aleutians, EY for the eastern Bering Sea was estimated to be 28% of the EY in the Aleutians or 3,110 t.

Sablefish

Commercial fishery data have traditionally been used to assess sablefish but the usefulness of this data has diminished with increasing restrictions placed on the fishery as a result of substantial reductions in stock abundance. However, the Japan-U.S. cooperative longline survey has provided good assessment data for this species in recent years and Japanese research vessels sampling continental slope waters with demersal trawls during U.S.-Japan cooperative trawl survey have provided biomass estimates in some recent years.

Commercial fishery data have shown some increases in CPUE in 1981 and 1982 in both the eastern Bering Sea and Aleutians but they still remain well below values of the early 1970's. Data from the Japanese longline survey have shown increases in abundance of sablefish since 1979 resulting from recruitment of the strong 1977 year-class. In the eastern Aleutian Islands area, where comparative data is available from 1979, the abundance of commercial sizes of sablefish (>58 cm) have increased 40% in number and 25% in weight between 1979 and 1982. Data from U.S.-Japan trawl surveys in the eastern Bering Sea indicate that the biomass of sablefish increased from 12,200 t in 1979 to 42,200 t in 1982.

Although stock conditions have improved, it is difficult to judge how much EY has increased. Using an exploitation rate of 9% and biomass estimates from U.S.-Japan trawl surveys, EY was estimated to be 4,430 t in the eastern Bering Sea and 1,755 t in the Aleutians. Exploitation rates at these levels of catch will undoubtedly be lower than 9% because the trawl survey data is believed to underestimate actual biomass.

Atka Mackerel

A combination of data from research vessel surveys and the commercial fishery have been used to assess the condition of this species. Little new information was available to evaluate the condition of the stock in 1983, but a cooperative U.S.-Japan survey of the Aleutian Islands region in 1983 will provide new information on the resource in the next few months. Preliminary results from the first half of this survey were reported by Japanese scientists at the INPFC meetings. Their results indicated that abundance of Atka mackerel was higher in 1983 than during the previous U.S.-Japan survey in 1980.

The biomass estimate derived from the 1980 U.S.-Japan trawl survey of 182,800 t was used to estimate MSY and EY for Atka mackerel for 1983. EY was estimated to equal the mid-point of the MSY range or 25,500 t. This EY was maintained for 1984.

Squid

Essentially no information is available for assessing squid. The resource is assumed to be large and commercial catches which have ranged from 5,000 to 9,400 t in 1978-82 are believed to have little or no impact on the resource. Minimal estimates of MSY and EY are based on catch data and equal 10,000 t.

Other Included Species

Research survey data have been used to assess these species. Based on increases in abundance of this species group, the resource is believed to be in good condition. Based on this conclusion, the resource is believed capable of producing catches at the MSY level or 61,400 t.

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UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
Washington, D.C. 20235

DEC 8 1983

F/M11:RBG

Mr. James O. Campbell
Chairman, North Pacific
Fishery Management Council
P.O. Box 103136
Anchorage, Alaska 99510

Dear Mr. Chairman:

On behalf of the Secretary of Commerce I have reviewed Amendment 6 to the Fishery Management Plan for the Bering Sea/Aleutian Islands Groundfish (FMP) as required in subsection 304(a) of the Magnuson Act (Act), and have determined that it is not consistent with the criteria set forth in paragraph (1)(A) of that subsection and I therefore advise you, as required in subsection 304(b)(2), that it is disapproved.

In disapproving the amendment, I wish to make it clear to the Council that I support the concept involved, which is consistent with my continuing efforts to promote and expand both the harvesting and the processing sectors of our commercial fishery while providing for conservation and other user needs. However, I do not find that the procedures and documentation meet the requirements of the Act and other applicable law for reasons given below. I believe that it should be possible for the Council to overcome these defects and for me to act on a strengthened amendment by June 1, 1984 (schedule enclosed), when foreign fishing would begin in the proposed zone.

I find the amendment fails to meet the requirements in the following respects:

ALL REASONABLE ALTERNATIVES UNDER E.O. 12291, THE REGULATORY FLEXIBILTY ACT, AND SECTION 102(2)(C) OF THE NATIONAL ENVIRONMENTAL POLICY ACT WERE NOT CONSIDERED AND, THEREFORE, IT IS NOT CLEAR THAT THE LEAST BURDENSOME REGULATORY ALTERNATIVE WAS CHOSEN. IN THIS RESPECT THE AMENDMENT DOES NOT MEET THE REQUIREMENTS OF OTHER APPLICABLE LAW.

Both the RIR and the EA only examined three alternatives: (1) status quo; (2) the proposed FDZ; and (3) a larger area. The analyses do not justify the exclusion of all foreign fishing. Other major alternatives were not considered that might have offered less burdensome means to providing the benefits to domestic harvesters and processors predicted by the RIR. For example, the Council might have considered: voluntary measures for foreign fishermen to engage in to avoid grounds preemption; temporal or area restrictions or a combination with certain areas closed at certain times of

It is plausible that the fishing fleet is not distributed solely in terms of productivity of the stock, but due also to lower operating costs in some areas as opposed to others, knowledge of the bottom terrain, previous fishing success, costliness of transit and search terms, uncertainty, etc. Consideration of these factors is consistent with the assumption of profit maximization. Thus, it is possible that the fishing fleet does not determine the CPUE in each area, so that reducing effort in one area would not increase CPUE in that area.

In summary, our objection to this part of the analysis is that we do not know whether or not decreasing foreign fishing effort in the FDZ will increase CPUE for U.S. fishermen since fish are allowed to migrate in and out of the FDZ. Further information of the migratory patterns of the species in question and how fishing activity effects these patterns is needed in order to answer this question.

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AGENDA ITEM D-4
SUPPLEMENTAL

ARCTIC ALASKA SEAFOODS
3601 Gilman Avenue, West
Seattle, Washington 98199

December 4, 1983

Mr. James Branson
North Pacific Fisheries Management Council
605 W. Fourth Avenue
Room 166
Anchorage, Alaska 99510

Dear Mr. Branson:

It is absolutely critical that no direct foreign fishing allocation be given for Pacific Cod beginning in 1984.

My company will be operating two Factory Trawlers starting in January, 1984. These vessels are the "Northwest Enterprise" and the "Aleutian Enterprise". Both vessels are 170 ft. and employ a crew of 30 each.

Contrary to popular opinion there is not an abundance of Pacific Cod in the Bering Sea. In the past 2 years of catching and processing cod on the "Northwest Enterprise" our fishing trip time has increased 40% - 50%. In 1982 our average trip was 17 days and in 1983 our average trip has been 24 days. I have also experienced a reduction in our CPUE of tows reduced 10%-15% in areas that we fished at the same time in 1982 and 1983.

It is the overwhelming opinion of the fishing industry (Factory Trawler, J.V. Fishermen and Processors) that the American industry can harvest the Pacific Cod O.Y. in 1983. As you know the figures published by NMFS for the Pacific Cod OY leave a lot to the imagination especially in view of the fact that their proposed OY has increased 100% in the last 60 days.

All I am asking is that, with the confusion that exists in the cod stocks, let the American industry provide the necessary data after the 1984 fishing season for Pacific Cod.

I have attended the SCC Hearings and AP Hearings but due to demands of my business I am unable to testify at the NPFMC public meetings.

Sincerely,

Francis Miller

Francis Miller