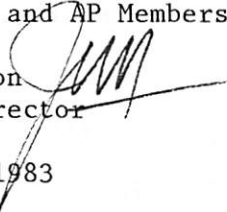


M E M O R A N D U M

TO: Council, SSC and AP Members  
FROM: Jim H. Branson   
Executive Director  
DATE: December 1, 1983  
SUBJECT: Gulf of Alaska Groundfish

*ACTION REQUIRED*

1. approve (or disapprove) an amendment to modify pollock management areas and to raise the pollock OY.
2. Consider an amendment for public review to lower the Pacific Ocean perch OY in the Western and Central Areas.
3. Consider an amendment for public review to raise the Pacific cod OY.

BACKGROUND

I. POLLOCK

A. Management, Distribution of OY in the Western and Central Areas

On November 14 we mailed a draft environmental assessment (EA) to the public which discussed the rapid growth of the U.S. joint venture fishery in Shelikof Strait, and the fact that the way in which the pollock OY is apportioned to the individual regulatory areas may need revision. Three alternatives, including the status quo were discussed and analyzed:

- (a) status quo, distributing 37% of the OY to the Western Area and 63% of the OY to the Central area;
- (b) A two-step procedure which accounts for a joint venture fishery in Shelikof Strait during the winter/spring period and distributes the remaining OY afterwards to the Western and Central area according to the percentages in (a) above; and
- (c) Combining the Western and Central areas' pollock OYs.

These alternatives are discussed in the PMT report (Agenda Item D-3B-1). The Team recommended that the Council approve an amendment at this meeting to combine the pollock OY in the Western and Central areas. They also recommended that the catch of non-target groundfish species in the pollock fishery continue to be regulated by assigning specific OYs for the species to the Western and Central Areas. The Council staff agrees with these recommendations.

The following suggested motion is based on these recommendations:

'I move that Alaska pollock be managed as a single stock in the Western and Central regulatory areas of the Gulf of Alaska by establishing a single OY for both areas. Non-target groundfish species taken in the pollock fishery shall continue to be regulated by assigning specific OYs and apportionments for those species to the Western and Central Areas.

#### B. OY Level

The EA discussed various OY levels, the biological impact on the pollock resource, the needs of the fisheries, and the potential halibut bycatch by foreign bottom trawling for pollock. The PMT report provided additional information on the status of the pollock stock and concluded that the ABC was at least as high as 400,000 mt and could be as high as 500,000 mt in 1984. The Team noted that 500,000 mt was probably not a sustainable yield over a number of years, and that the status of pollock should be evaluated in the fall of 1984 in order to determine the appropriate ABC for 1985. The PMT recommended only that OY could be higher than the current OY of 200,000 mt for both areas.

The EA showed the apportionments of four different OY levels, 300,000 mt, 350,000 mt, 400,000 mt, and 450,000 mt. If the Council decides to combine the Western and Central areas for pollock management, an OY of ~~320,000~~ 300,000 mt will provide enough pollock for estimated joint venture needs, domestic needs, and allow the foreign fishery to continue at historic levels.

The Council can use the following motion to amend the FMP and set the pollock OY for 1984:

'I move that the pollock OY in the Western and Central Gulf of Alaska be \_\_\_\_\_ mt in 1984 and to direct the PMT to provide an updated status of stocks at the September 1984 meeting as a basis for setting an appropriate OY level for 1985.'

#### II. PACIFIC OCEAN PERCH

Pacific Ocean perch are depressed below the equilibrium yield (EY) in the FMP (50,000 mt Gulf-wide) and may be less than or equal to the average 1980-81 harvests, or 1,038 mt in the Western Area, and 4,129 mt in the Central area. Current OYs are 2,700 mt in the Western Area and 7,900 mt in the Central Area.

The 1984 estimates of domestic needs for Pacific Ocean perch are as follows:

	<u>DAP</u>	<u>JVP</u>	<u>Total DAH</u>
Western Area	0	1,700	1,770
Central Area	622	<del>4,100</del> 2,000 tons	<del>4,722</del> 2,622

The PMT has recommended that if the Council wishes to rebuild the resource as quickly as possible, the OY should equal 400 mt in the Western Area and 1,000 mt in the Central Area.

The staff notes that such low OY levels will preclude any domestic as well as foreign fishing on Pacific Ocean perch and could disrupt other groundfish fisheries if they need a bycatch of Pacific Ocean perch.

Although it is not at all certain that rebuilding is possible, a study planned for 1984 may give us an answer to that question. Therefore, while better information is being developed, the staff recommends a conservative stance. We believe the Pacific Ocean perch OY in the Western and Central areas should equal the DAH plus a small percent (0.4% has been suggested) of the TALFF + Reserves of remaining target groundfish species.

The following motion is suggested:

*Pacific Ocean Perch*

'I move that we send out for public review an amendment to the FMP which sets the Pacific Ocean perch OY equal to the DAH plus  $\frac{1}{2}-1$  % of the TALFF and reserves of the remaining species in the Western and Central Areas. + SSC Options

### III. PACIFIC COD

The current Pacific cod OY and estimated 1984 domestic fishery needs are as follows:

Area	1983 OY	1984 <i>est.</i> DAP	1984 JVP	Reserve	TALFF
Western	16,560	500	250	3,312	12,498
Central	33,540	<del>21,919</del> 11691	<del>11,621</del> 14621	<del>6,708</del>	<del>520</del>
Eastern	9,900	120	0	1,980	7,800
TOTAL	60,000	22,539	11,871	5,292	20,298

The zero TALFF projected in the Central Area will cause operational problems for the foreign bottom trawl fishery and curtail the foreign longline fishery. The PMT noted that if the Council wishes to raise the OY, the ABC for the entire Gulf could equal the lower end of the MSY range, 88,320 mt.

Considering the availability of Pacific cod for TALFF in the Western Area and the intense interest in Pacific cod by the U.S. fisheries, the Council may wish to raise the OY in the Central Area only enough to provide for some bycatch in the foreign pollock fisheries. This bycatch has historically been \_\_\_\_\_%. Using this strategy the Pacific cod OY should be determined after the Council has set the OY for pollock.

A motion to implement this strategy would be as follows:

*Pacific Cod*

'I move that we send out for public review an amendment to the FMP which sets the Pacific cod OY in the Central Area equal to the DAH plus  $\frac{4}{10}$  % of the TALFF and reserves of the pollock expected to be caught in the Central Area. + SSC Options

### IV. OTHER BUSINESS

The Plan Maintenance Team made the following recommendations:

A. That there is no need to change the area distribution of the Pacific cod OY.

An amendment to raise the Pacific cod OY only in the Central area appears to be contrary to this recommendation. However, the PMT was considering only biological justifications for the distribution of the Pacific cod OY. Raising the OY in the Central Area to ameliorate possible operational problems in the

fishery is justified as a socio-economic decision and would not cause over-fishing within the meaning of the Magnuson Act.

B. The PMT recommended that there is no need at this time to revise the Atka mackerel OY distribution or the distribution of the flounder OY, as requested by the Japanese industry. The PMT noted the flounder request should be analyzed for biological soundness of the redistribution of the harvest and socio-economic effects on the U.S. fishing industry, particularly the effect on the halibut fishery, before proposing an amendment for public review. The Atka mackerel request is based on information which has not been analyzed by the PMT. The PMT will consider these requests at the next Team meeting.

The staff concurs with these PMT recommendations.

AGENDA D-3B-1  
DECEMBER 1983

D R A F T

Gulf of Alaska  
Groundfish Plan Maintenance Team  
Report

December 1, 1983

GULF OF ALASKA GROUND FISH  
PLAN MAINTENANCE TEAM

Meeting Report, November 16-17, 1983

Participants

PMT members: Jeff Povolny, NPFMC; Phil Chitwood, NMFS; Steve Hoag, IPHC; Phil Rigby, ADF&G; Gary Stauffer, NWAFC

Other Agency Personnel: Joe Terry, NWAFC; Cyreis Schmitt, IPHC; Sue Salveson, NMFS

Council Members: Jeff Stephan

Public: Steve Johnson, Don Swisher, Paul MacGregor, Mr. Nemoto

Information Available

1. Updated estimates of JVP and DAP for 1984 from Phil Chitwood, NMFS.
2. Gulf of Alaska Groundfish PMT report, September 26, 1983.
3. Projections of Exploitable Biomass of Pollock in the Western and Central Gulf of Alaska for 1984 to 1986; Annual Percent Age Composition of pollock on foreign and joint venture fisheries; Analysis of the probability that the true surplus production is less than a particular OY; from Gary Stauffer, NWAFC.
4. Letter dated October 19, 1983, Information on cod, pollock, and sablefish in the Gulf of Alaska, from Jim Blackburn, ADF&G.
5. Letter dated November 8, 1983, Information on Pacific ocean perch in the Gulf of Alaska and Bering Sea, from Jim Blackburn, ADF&G.
6. Draft Environmental Assessment on Pollock OY and the Area Distribution of the Pollock OY, from Jeff Povolny, NPFMC.
7. October 7, 1983 "Dear Reviewer" letter on Gulf of Alaska groundfish OYs and DAH.
8. Discussion paper on distribution of Pacific cod OY, from Gary Stauffer, NWAFC.

9. "Condition of Groundfish Resources of the Gulf of Alaska Region as Assessed in 1983." Document submitted to the INPFC in October 1983.
10. Draft comments regarding 1984 Gulf of Alaska Groundfish OYs and Related Issues, from Stephan Johnson and Donald Swisher.

I. The PMT makes the following observations on certain species.

A. Pacific Cod

1. Distribution of OY

The PMT re-examined the data on the distribution of cod abundance among the Gulf of Alaska groundfish regulatory areas. The apportionment in the FMP is 28%, 56%, and 16% in the Western, Central, and Eastern areas, respectively. In the September 26 PMT report, the team noted that the 1981 trawl survey showed a biomass distribution of 59%, 39%, and 2% in the Western, Central, and Eastern areas, respectively. However, analyses of catch rates from the Japanese longline fishery and data from the Japan-U.S. cooperative longlining survey showed the cod distribution to be similar to that in the FMP. The distribution determined from the 1981 trawl survey was based on a high abundance of young cod in one part of the Western area and may not represent actual abundance of the exploitable part of the population. Therefore, the PMT concluded that there is not sufficient appropriate information to justify modifying the distribution of Pacific cod OY at this time.

2. OY Level

The current Pacific cod OY is 60,000 mt Gulf-wide, set below the bottom of the MSY range of 88,000 mt to 177,000 mt as a halibut savings measure. OY distribution is as follows: Western area - 16,560 mt; Central area - 33,540 mt; Eastern area - 9,900 mt. NMFS has reported large increases in 1984 DAH for the Central area, DAP = 21,919 and JVP = 11,621, leaving no Pacific cod for TALFF. It is possible that a zero Pacific cod TALFF could result in operational problems for the trawl and longline foreign groundfish fisheries, and based on this the PMT was requested by the representatives for the Japanese trawl industry to consider raising the Pacific cod OY.

A full discussion of the Pacific cod OY should include information on the current MSY range, the status of stocks, the benefits and costs of the current OY as a halibut savings strategy, and the consequences to the halibut fishery and domestic Pacific cod fishery of raising the OY to a level which allows an incidental and/or directed foreign catch. At this time the PMT can provide information on the biological basis for the current MSY range.

At the time the FMP was written, MSY was derived from the potential yield equation,  $MSY = 0.4MB$ , where "M" is natural mortality and "B" is virgin biomass. Using  $M = 0.6$  and B estimated to be 368,000 mt to 736,000 mt, MSY was estimated to be 88,000 mt to 177,000 mt. The biomass estimates were derived from trawl survey data for the period 1973-78. The 1981 trawl survey resulted in comparable biomass estimates of 395,000 mt to 790,000 mt. However, young cod in the 51 to 100 m depth interval in the Western area accounted for approximately 50% of the 1981 trawl estimate of cod biomass. A concentration of young cod in the Western area was first located with acoustic equipment, and as a result the catch rates of cod in this area may have been higher than if the sampling had been random.

Other sources of data give conflicting information on the cod biomass. The trend in catch rates from the Japanese longline fishery show an increase from 1981 to 1982. However, statistics from the Japan-U.S. cooperative longline survey show a decrease in 1982.

Trawl survey estimates for cod will be updated in 1985, based on the 1984 triannual trawl survey in the Gulf of Alaska. Updated 1983 values from the foreign longline fishery and the Japan-U.S. cooperative longline survey will be available in the spring of 1984. The PMT does not expect any other new information on stock abundance in 1984 to reassess the current MSY or EY. The PMT notes that in Amendment 7 to the FMP, ABC is set lower than the end of the MSY range, 88,320 mt. The PMT considers that the ABC could be equal to the lower bound of the MSY range. The PMT considers that analysis of the socio-economic benefits and costs will be necessary to justify an amendment to raise the Pacific cod OY. A statement of the Council's objective for such an amendment will be needed to properly evaluate possible OY levels. Possible



objectives which the Council could consider are (a) to provide only enough Pacific cod for an incidental catch in traditional foreign trawl fisheries, or (b) to provide enough Pacific cod for a foreign trawl incidental catch and a directed foreign longline catch, or (c) to provide only enough Pacific cod to allow for an incidental catch in off-bottom foreign trawl fisheries.

B. Pacific Ocean Perch

The PMT noted in the September 26, 1983 report that the current EY is substantially below the EY in the FMP (50,000 mt Gulf-wide) and may be less than or equal to the average 1980-81 harvests, 1,038 mt in the Western area and 4,129 mt in the Central area. Currently OY equals 2,700 mt in the Western area and 7,900 mt in the Central area.

Current Council policy is to rebuild the Pacific ocean perch resource. In Amendment 10 to the FMP, implemented in 1982, the Council set the OY at 875 mt in the Eastern area, a dramatic decrease from 11,906 mt. This level will allow only incidental catches, even in the domestic fishery.

Given the Council's current policy, the OY should be lowered in the Western and Central areas. Biologically, the fastest rebuilding will occur at zero fishing mortality. This may be impossible due to by-catches in other groundfish fisheries. Therefore, the next fastest rebuilding would occur at an OY level which allows only by-catches in the foreign and domestic groundfish fisheries. An OY could be set at a level which allows other groundfish fisheries to continue and discourage targetting on Pacific ocean perch. However, it is possible that domestic fishermen may want a directed fishery on Pacific ocean perch, such as the 1983 U.S.-Korean joint venture in the Western Gulf of Alaska.

To maximize the opportunity for the resource to rebuild, the PMT recommends that the OY be set at a level which allows an incidental catch fishery only. If an incidental catch rate of 0.4% is applied to the sum of OYs for other species (assuming pollock OYs remain at status quo) the Pacific ocean perch OY would be about 400 mt in the Western Gulf and 1,000 mt in the Central Gulf.

It would be feasible to allow a directed U.S. harvest of Pacific ocean perch and still rebuild the stocks. Fishing below the EY level should promote rebuilding. However, analyzing the benefits and costs of faster or slower rebuilding is difficult due to lack of information on rebuilding rates and potential yields. Some guesstimates of rebuilding time range from 20 to 50 years. Plans have been made at the Northwest and Alaska Fisheries Center to start an in-depth study of Pacific ocean perch rebuilding, beginning in 1984.

C. Pollock

1. Distribution of OY

The PMT reviewed three alternatives for distributing the pollock OY between the Central and Western areas. These alternatives were:

- (a) Status quo, distributing 37% of the OY to the Western area and 63% of the OY to the Central area;
- (b) A two-step procedure which accounts for a joint venture fishery in Shelikof Strait during the winter/spring period and distributes the remaining OY afterwards to the Western and Central area according to the percentages in (a) above; and
- (c) Combining the Western and Central areas' pollock OYs.

In considering the effectiveness of these alternatives, the PMT had the following comments. The first alternative was considered unacceptable because the primary fishery, which occurs in Shelikof Strait, occurs on fish from both areas. Also, available growth and survey information indicates that pollock in the Central and Western areas are probably from one stock.

The PMT extensively debated the usefulness of the two-step alternative, which allocates the remainder of the OY after the Shelikof fishery to the Western and Central areas in order to reduce the risk of overharvesting certain components of the pollock resource. The PMT noted that if most of the pollock in the Western and Central areas are one stock, as current data indicates, then allocating the remaining OY to two areas after the Shelikof fishery makes little difference in terms of protecting the pollock resource. In addition,

the team felt that this alternative could restrict the developing domestic fishery as the dynamics of the fishery change in the future.

In view of the above considerations, the team felt that the most appropriate choice was alternative (c). This alternative would allow the fishery to distribute itself according to pollock availability rather than according to percentages derived from trawl surveys done in the early 1970's. The team believes that the catch of non-target groundfish species in the pollock fishery should continue to be regulated by assigning specific OYs for these species to the Western and Central areas.

## 2. OY Level

The PMT makes no recommendation on the 1984 OY level, but notes that the 1984 ABC for the Western and Central areas is at least 400,000 mt and could be as high as 500,000 mt. Acceptable biological catch levels for 1985 will depend on the magnitude of the 1980 and 1981 year classes, therefore, the 1985 ABC should be evaluated in the fall of 1984.

The 1984 ABC value is primarily based on three sources of information, (1) an update of the catch-at-age analysis that includes an additional year of data, (2) NMFS research vessel surveys of 1983, and (3) the results from an age structured model developed to forecast future levels of exploitable biomass given various harvest levels and future recruitment scenarios.

The update of the catch-at-age analysis was a report on the condition of the pollock resource in the Central and Western Gulf of Alaska by Alton and Deriso (1983) in the status of stocks document submitted by the U.S. to the INPFC at the end of October. In the report Alton and Deriso hypothesized from the 1983 survey results and growth data that pollock in the Western and Central areas make up one stock that primarily spawns in Shelikof Strait during winter months. Results from 1983 NMFS research vessel surveys show that spawning concentrations in other areas west of the eastern tip of Kodiak Island appear to be minor. After spawning pollock leave Shelikof Strait and disperse along the continental shelf where foreign fleets fish in the summer and fall months. There is little information to judge whether pollock south of the Fox Islands

and west of Unimak Pass, or the reported concentration of pollock south of the Kenai Peninsula are part of the same stock.

The results of the updated catch-at-age analysis showed an increase in exploitable biomass for the years 1976 to 1982. This increase in abundance is attributable to the recruitment of five consecutive strong year classes (1975-79) to the 1979-82 fisheries. The average exploitable biomass for the updated analysis was 1,430,000 mt with a standard deviation of 220,000 mt compared to the 1982 assessment of 1,040,000 mt with a standard deviation of 448,000 mt. The 1982 analysis did not include the 1982 fishery data.

The 1983 NMFS acoustic surveys in the Shelikof region gave an average biomass of 3.8 million mt in 1981 and 2.4 million mt in 1983. If 180,000 mt from the bottom trawl survey is added, the total biomass becomes 2.6 million mt in 1983 which converts to an exploitable biomass of about 2.0 million mt. This is less than the 1982 exploitable biomass value of 2.6 million mt, estimated by the catch-at-age analysis, but still greater than the 1.4 million ton average exploitable biomass for the years 1976-82.

The results of the acoustic surveys in the Shelikof region suggests that pollock biomass has declined from 1981 to 1983 (no survey was made in 1982). Using the average biomass from the first two surveys of each of these years, the decline is from 3.8 million mt in 1981 to 2.4 million mt in 1983. Catch-at-age analysis has shown a continued increase in biomass in 1982. Although the 1983 acoustic survey estimates suggest a decline in abundance between 1981 and 1983, the stock in 1983 is still considered to be at a high abundance level, comparable to levels in 1980 and 1981.

An age structure model has recently been developed to forecast or project future levels of exploitable biomass given various levels of OY and future recruitment patterns. The model does not incorporate a stock recruitment relationship. The model is structured to track both the winter fishery on the spawning concentrations and the summer/fall fishery on the feeding grounds. Input parameters of natural mortality and growth are similar to those used in the catch-at-age analysis. Initial biomass estimates and age selectivity coefficients are taken from the results of catch-at-age analysis. Testing of

the model generally reproduced the biomass time series from the catch-at-age analysis using the estimates of recruitment and the annual catch figures for 1976-82. However, the model is not yet completely validated.

The magnitude of the incoming 1980 year class as 4 year olds in 1984 is uncertain at this time. The 4 year old year classes have been important contributors to the fishery since 1979. At age 3, the 1980 year class made up 3-4% of the catch in the 1983 Shelikof fishery. A similar percentage was found for the 1983 research surveys in the Shelikof region. Preliminary age data from the 1983 foreign fishery showed the 1980 year class to make up 15.3% of the catch by numbers. This value is similar to the value observed for the 1977-79 year classes that we know are relatively strong.

Due to the uncertainty of the strength of the 1980 year class, the forecasting model was run with four different recruitment scenarios for 1983-86 and five OY options. The five OY options were 300,000 mt, 350,000 mt, 400,000 mt, 450,000 mt, and 500,000 mt for the 1984-86 fisheries. The winter fishery on the spawning concentration was set at 200,000 mt. The summer catch was the remainder of OY - 200,000 mt.

The first recruitment scenario is very optimistic. The abundance of the 1980-84 year classes entering the fishery in 1983-86 at age 3 was assumed to be 3 billion fish. This is similar to the recruitment estimated for the strong 1976-79 year classes. For the second scenario recruitment was set at 2 billion fish, which is equivalent to the average of the 1973-79 year classes. The third scenario is a worst case in which recruitment was set at 1 billion, approximately twice the magnitude of the poor 73 and 74 year classes. The last scenario assumed the 1980 year class will be 1 billion fish followed by 3 billion fish for 1981-83 year classes. The results of these forecasts are summarized in Table 1.

Although the projections for biomass at the beginning of 1985 are relatively constant over the range of OY values considered for 1984, the results of these forecasts suggest that a decline in the exploitable biomass can be expected unless recruitment continues at the high level of 3 billion fish annually.

The projected levels of biomass are more dependent on the recruitment levels than the projected catches. Only at the low recruitment level did the exploitable biomass eventually drop below the 1976-82 average exploitable biomass at all OY levels considered. The conclusion from these projections is that the acceptable biological catch for 1984 is at least 400,000 mt and could be as high as 500,000 mt. ABC in 1985 will depend on the magnitude of the 1980 and 1981 year classes. The 1985 ABC should be reevaluated in the fall of 1984, when new information from the 1984 fishery and surveys becomes available.

3. The true value of the average annual surplus production.

At the May Council meeting, the team presented a graph showing the "risk of overfishing" if the OY were set at various levels, based on an average annual surplus production of 344,000 mt and a standard deviation of 164,000 mt. A more statistically rigorous description of this presentation would be "the probability that the true average annual surplus production is less than a specified OY value." With the new estimate of average annual surplus production of 408,000 mt, there is a smaller standard deviation, of 103,000 mt. This shifts the probability curve to the right giving it a generally steeper slope (see Figure 1). Thus, given the new curve, one can see that if the OY equals 500,000 mt, there is an 80% probability that the true value of the average annual surplus production is less than 500,000 mt. This is not to say that 500,000 mt is not a valid upper limit for the ABC in 1984. It does demonstrate that over a number of years, the sustainable yield cannot be expected to be 500,000 mt and that the resource should be evaluated annually and appropriate adjustments made.

II. The PMT had the following observations concerning 1984 DAPs and JVPs.

The proposed 1984 DAH and JVP figures published for public comment were compiled from an industry survey conducted by the NMFS Alaska Region. The Region is revising the figures on the basis of comments received and will make an effort to reconfirm the initial survey results. The final figure presented to the Council will include the estimated actual 1983 DAP and JVP amounts so the Council can evaluate the projected 1984 increases.

TABLE 1. Projections of exploitable biomass<sup>1/</sup> of pollock in the Western and Central Gulf for 1984 to 1986 for 5 levels of OY and 4 recruitment scenarios.

RECRUITMENT SCENARIO	YEAR	OPTIMUM YIELD OPTIONS <sup>2/</sup>				
		300,000 t	350,000 t	400,000 t	450,000 t	500,000 t
1. 3 billion fish in 80-84 year classes at age 3.	1983	2,018,000	2,018,000	2,018,000	2,018,000	2,018,000
	1984	2,201,000	2,201,000	2,201,000	2,201,000	2,201,000
	1985	2,223,000	2,188,000	2,153,000	2,118,000	2,083,000
	1986	2,204,000	2,142,000	2,080,000	2,019,000	1,956,000
2. 2 billion fish in 80-84 year classes at age 3.	1983	1,983,000	1,983,000	1,983,000	1,983,000	1,983,000
	1984	2,029,000	2,029,000	2,029,000	2,029,000	2,029,000
	1985	1,836,000	1,800,000	1,765,000	1,728,000	1,693,000
	1986	1,655,000	1,593,000	1,529,000	1,467,000	1,405,000
3. 1 billion fish in 80-84 year classes at age 3.	1983	1,947,000	1,947,000	1,947,000	1,947,000	1,947,000
	1984	1,858,000	1,858,000	1,858,000	1,858,000	1,858,000
	1985	1,449,000	1,412,000	1,375,000	1,338,000	1,302,000
	1986	1,105,000	1,040,000	975,000	911,000	848,000
4. 1 billion fish in 1980 year class, 3 billion fish in 81-84 year classes	1983	1,947,000	1,947,000	1,947,000	1,947,000	1,947,000
	1984	1,929,000	1,929,000	1,929,000	1,929,000	1,929,000
	1985	1,795,000	1,759,000	1,724,000	1,689,000	1,654,000
	1986	1,879,000	1,816,000	1,754,000	1,692,000	1,631,000

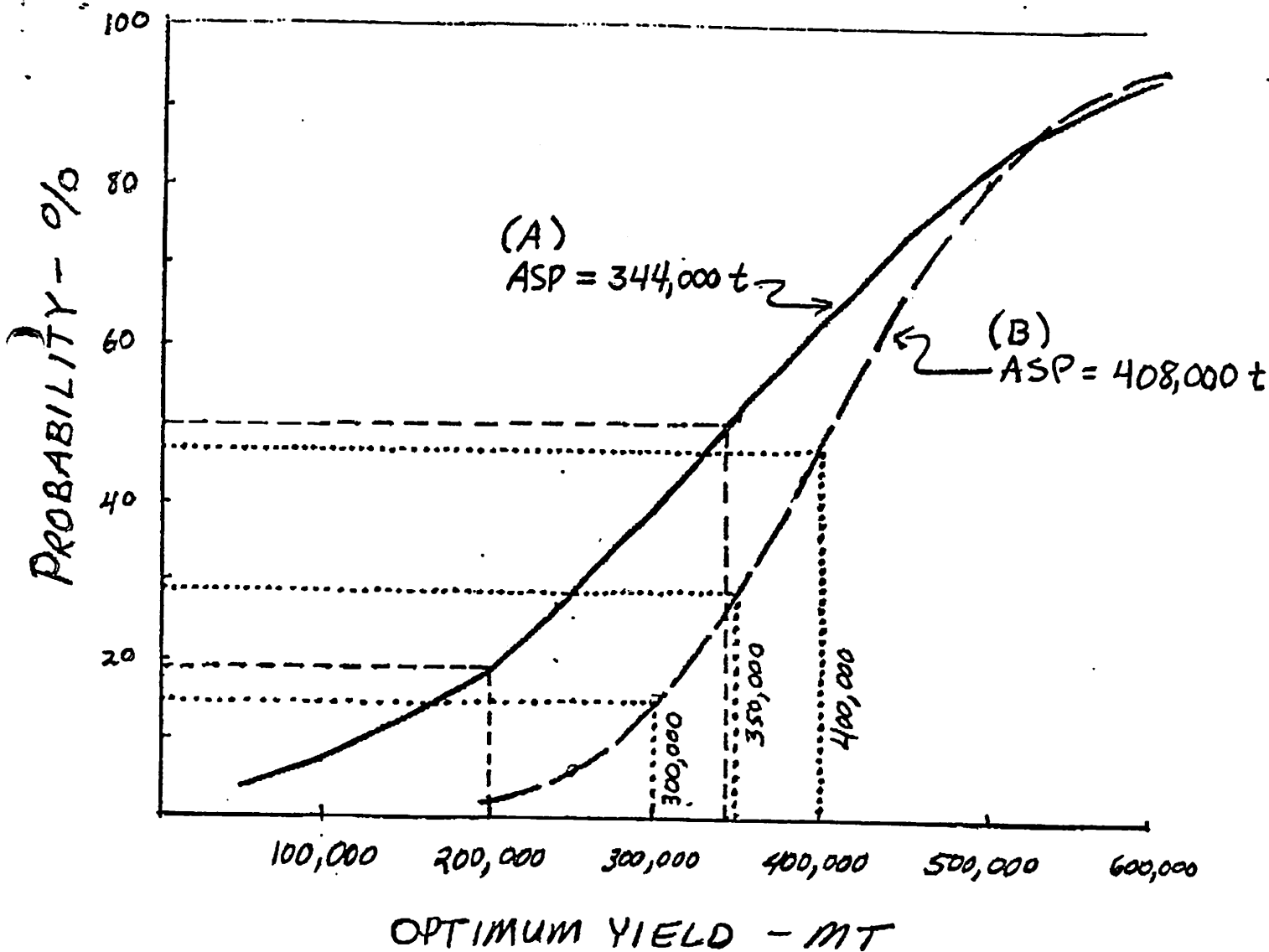
<sup>1/</sup> Estimated biomass in tons on January 1.

<sup>2/</sup> Winter fishery = 200,000 t  
 Summer fishery = OY - 200,000 t

# GULF OF ALASKA POLLOCK

PROBABILITY THAT THE REAL EXPLOITABLE ASP WILL BE LESS THAN OY FOR POLLOCK IN THE WESTERN AND CENTRAL AREAS COMBINED FOR:

- (A) ASP = 344,000 t (164,000 t SD) FOR YEARS 1976-80
- (B) ASP = 408,000 t (103,000 t SD) FOR YEARS 1976-81





The PMT suggests that in the future the Region's industry survey obtain information on timing of projected operations in addition to annual intent and capacity. This would help the Region to determine the authenticity of the DAP and JVP projections and to more accurately determine the appropriate amounts to be retained in DAH during the fishing year.

Proposed 1984 apportionments to DAP and JVP are shown in Table 2, which was presented at the November 16, 17 PMT meeting.

III. Consideration of the U.S. fishery halibut by-catch Regulation, Section 8.3.1.1.D of the FMP.

The FMP limits the U.S. trawl by-catch of halibut from December 1 to May 31 to the following quantities:

Western Area	-	29 mt
Central Area	-	52 mt
Eastern Area	-	31 mt

All U.S. trawling in a regulatory area shall cease during the period December 1 to May 31 upon attaining these halibut by-catch limits. The PMT notes that these by-catch limits were set in 1978 when the FMP was written. At that time, there was no appreciable U.S. trawl fishery for bottomfish. Also, halibut stocks were lower than they are currently.

The PMT also notes that current Council policy in the Bering Sea/Aleutian Islands Groundfish FMP is to not impose bycatch regulations on the U.S. groundfish fishery in order to (a) encourage U.S. participation in the groundfish fisheries, (b) give the U.S. industry the opportunity to develop methods to control by-catches on their own, and by observing and learning from the efforts of the foreign trawl fleets to reduce their by-catches.

Table of 1983 estimated U.S. harvests and proposed 1984 Gulf of Alaska groundfish OY apportionments among domestic annual processing (DAP) and joint venture processing (JVP), reserves and total allowable level of foreign fishing (TALFF). (All figures in metric tons).

Species	Areas	OY	1983 Estimated Harvests		1984 Proposed Apportionments		Reserve	TALFF
			DAP	JVP	DAP	JVP		
Gulf of Alaska Groundfish Fishery:								
Pollock	Western <sup>1/</sup>	57,000	25	400	230	300	11,400	45,070
	Central <sup>1/</sup>	143,000	109	132,000	19,000	124,000	0	0
	Eastern <sup>1/</sup>	16,600	0	0	0	0	3,320	13,280
	Total .....	216,600					14,720	58,350
Pacific cod	Western	16,560	500	1,000	500	250	3,312	12,498
	Central	33,540	4,680	2,700	21,919	11,621	0	0
	Eastern	9,900	50	0	120	0	1,980	7,800
	Total .....	60,000					5,292	20,298
Flounders	Western	10,400	0	700	0	10	2,080	8,310
	Central	14,700	300	800	102	4,620	2,940	7,038
	Eastern	8,400	200	0	60	0	1,680	6,660
	Total .....	33,500					6,700	22,008
Pacific ocean perch <sup>2/</sup>	Western	2,700	0	1,800	0	1,770	400	530
	Central	7,900	100	900	622	4,100	1,580	1,598
	Eastern	875	50	0	460	0	175	240
	Total .....	11,475					2,155	2,368
Other rockfish <sup>3/</sup>	Total .....	7,600	200	300	395	300	1,520	5,385
Sablefish <sup>4/</sup>	Western	1,670	120	150	0	1,100	334	236
	Central	3,060	286	50	1,364	110	612	974
	West Yakutat District <sup>1/</sup>	1,680	200	0	530	0	336	814
	East Yakutat District <sup>1/</sup>	850	300	0	850	0	N/A	N/A
	to 1,135			to 1,135				
	Southeast Outside <sup>1/</sup>	470	2,100	0	470	0	N/A	N/A
	to 1,435			to 1,435				
Total .....	7,730					1,282	2,024	
		to 8,980						
Atka mackerel	Western	4,678	0	750	0	400	936	3,342
	Central	20,836	0	80	0	10	4,167	16,659
	Eastern	3,186	0	0	0	0	637	2,549
	Total .....	28,700					5,740	22,550
Squid	Total .....	5,000			0	10	1,000	3,990
Thornyhead rockfish	Total .....	3,750			0	50	750	2,950
Other Species <sup>5/</sup>	Total .....	18,780			50	300	3,760	14,670

1/ See figure 1 of section 672.20 for description of regulatory areas and districts.  
 2/ The category "Pacific ocean perch" includes Sebastes species S. alutus (Pacific ocean perch), S. polvpinus (northern rockfish), S. aleutianus (roughey rockfish), S. borealis (shortraker rockfish), and S. zacentrus (sharpchin rockfish).  
 3/ The category "other rockfish" includes all fish of the genus Sebastes except the category "Pacific ocean perch" as defined in footnote 2 above and Sebastolobus (thornyhead rockfish).  
 4/ Excludes values for the Southeast Inside District, which is not governed by these regulations.  
 5/ The category "other species" includes sculpins, sharks, skates, eulachon, umelts, capelin, and octopus. The OY is equal to 5% of the target species OYs, the high end of the OY range for sablefish is used in its calculation.

The PMT recommends that the Council direct the Prohibited Species Working Group to examine the current domestic halibut by-catch restriction in light of current activity in the U.S. groundfish fisheries and the condition of the halibut resource, and to study the benefits and costs of changing the restriction.

This action should be taken as soon as possible. Current joint ventures for flounders and Pacific cod could easily attain the 52 mt limit in the Central area and force a shutdown of further U.S. trawling until May 31, including the pelagic trawl fishery for pollock in Shelikof Strait in 1984.

IV. PMT Recommendations:

- A. The PMT recommends that the Council approve an amendment to the FMP at the December Council meeting to combine the pollock OY in the Western and Central Gulf of Alaska, and to raise the OY to what the Council determines to be the appropriate level above 200,000 mt. The OY could be set high enough to meet the needs of the domestic fishery only, providing for only a foreign by-catch, or to a level to satisfy all known 1984 fishery needs, or to a higher level to account for unanticipated domestic and/or foreign expansion. The PMT notes that although the pollock ABC is at least 400,000 mt and could be as high as 500,000 mt in 1984, 500,000 mt is probably not sustainable.
- B. The PMT recommends that the Council not propose an amendment to change the area distribution of the Pacific cod OY. However, a proposed amendment to raise the Pacific cod OY will require socioeconomic analysis. The PMT considers that the Pacific cod ABC could equal at 88,320 mt.
- C. The PMT recommends that the Council propose an amendment to lower the OY for Pacific ocean perch to 400 mt in the Western Gulf of Alaska and 1,000 mt in the Central Gulf of Alaska. This recommendation is made only if the Council's objective is primarily biological, i.e., to maximize the opportunity for the resource to rebuild. Another possible objective the

Council may wish to consider is to allow a domestic fishery to develop on existing stocks, but to protect the resource from foreign fishing. Under this objective, various OY levels can be analyzed.

- D. The PMT recommends that the Council not propose amendments at this time to revise the Atka mackerel OY distribution or to revise the distribution of the flounder OY, as requested by the Japanese trawl industry. The PMT noted that the flounder request should be analyzed for the biological soundness of redistributing the harvest and socioeconomic effects on the U.S. fishing industry, particularly the effect on the halibut fishery before proposing an amendment for public review. The Atka mackerel request is based on information which the PMT has not been able to analyze yet. The PMT will consider these requests at the next PMT meeting and determine if they are reasonable.