

# North Pacific Fishery Management Council

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## MINUTES Scientific and Statistical Committee December 3-5, 1989 Anchorage, AK

The Scientific and Statistical Committee of the North Pacific Fishery Management Council met December 3-5 at the Sheraton Hotel in Anchorage, Alaska. Members present were:

Richard Marasco, Chairman  
Doug Eggers, Vice Chairman  
Jack Tagart  
Larry Hreha  
Dana Schmidt  
John Burns

Terry Quinn  
Bill Aron  
Don Rosenberg  
Don Bevan  
Bill Clark

### **C-3 HALIBUT MANAGEMENT**

The SSC reviewed the EA/RIR/IRFA for managing halibut in Regulatory Area 4C. The document provided a reasonable presentation and analysis of alternatives given available data. The analysis of alternatives indicates that desired allocations of halibut catch to local fisherman will be assured only with direct allocations.

### **C-5 INSHORE/OFFSHORE ALLOCATION**

The Fishery Planning Committee report combines a statement of the problem, a list of some symptoms and a number of concerns that are not related to allocation. We generally agree with the report of a Council sponsored meeting of economists that:

"....the nature of the problem was too many boats chasing too few fish, rather than an inshore-offshore allocation issue. The allocational conflict is a symptom of excess harvesting and processing capacity rather than an independent problem. The group also felt that the alternatives listed were in fact allocational rules, rather than solutions to the problems. If measures of this nature were adopted, they could solve the allocational conflict in the short term. However, as

effort continued to enter the fishery it would be necessary to provide greater and greater allocational specificity.....

Over time, changes in capacities and technology will necessarily force reexamination and readjustment of the chosen allocational system."

The list of concerns are not solely related to inshore/offshore allocation, they are valid even if the fisheries were 100% offshore or 100% inshore.

In our view, the management alternatives will not provide a long term solution. Not all of the problems posed will be solved by effort limitations, alone but without such limitations, any allocation scheme will require continued adjustments.

## D-2 GULF OF ALASKA GROUND FISH FMP

### D-2(a) Acceptable Biological Catch (ABC)

#### Pollock

#### ABC - Western and Central Management Areas.

The SSC reviewed modifications to the Stock Assessment and Fishery Evaluation Report and proposed changes to ABC's. We noted that the Team undertook a sensitivity analysis of the Stock Synthesis model using two data sources, the hydroacoustic data time series and the bottom trawl data series. Based on that analysis, the Team no longer supports the assumption that the hydroacoustic biomass estimates from Shelikof Strait represent the adult pollock stock in the Gulf of Alaska. The SSC concurs with that conclusion.

The Team used the current estimate of spawning biomass (628,000 mt) and the 0.20 fishing effort scalar to estimate the potential yield for the period 1990-92 (3 years). The choice of fishing effort scalar kept total biomass at the current level.

Potential yield in future years, was calculated for two scenarios (i.e. average and poor) of 1987 year-class strength. The Team believed that a poor 1987 year-class strength was the most likely case. In view of the fact that preliminary examination of the 1989 fall bottom trawl survey biomass estimates suggests that this year-class was poor. ABC was determined by averaging the 3-year projections of potential yield (79,000, 68,000, 62,000 mt), resulting in an ABC of 70,000 mt for 1990. The Team notes that this ABC would keep the biomass at a stable level through 1992.

The SSC accepts the Team's recommended ABC of 70,000 mt. The SSC believes the best management strategy for this resource requires further investigation and recommends that the planning team investigate the choice of exploitation rate strategies in the next year. This will likely result in a change from the current strategy.

The Team recommends that a limited fishery occur in Shelikof Strait during the spawning season, with a harvest limited to 7,000 mt to provide data for future stock assessments. The Team rounded upward last year's recommended 6,250 mt, which was obtained from a sampling design calling for 25 deliveries at about 250 mt per delivery. The SSC recommends continuing this fishery at the level of 6,250 mt. The SSC could not justify increasing this number, because the Shelikof Strait stock remains at a very low level.

The SSC recognizes that potential benefits may be derived from the additional data that could be obtained from a fishery that occurs throughout the year. The SSC did not examine any scientific information to support specific seasonal quotas and notes that quarterly or semi-annual quotas have allocation implications that should be carefully evaluated prior to implementation.

#### 1989 Fall Bottom Trawl Survey

The SSC received a report from the Alaska Fisheries Science Center on the results of the 1989 Fall Bottom Trawl Survey. The data are being analyzed and the results are still preliminary. The results suggest that the pollock biomass has increased throughout the area, however, the SSC notes that this estimate should not be used in comparison to earlier surveys, because of a difference in timing of this work. The preliminary results provided are consistent with current biomass estimates of pollock for the Gulf of Alaska, used for establishing the ABC.

#### Exploratory Fishing Quota

The SSC discussed the industry request for a 10,000 mt quota (TAC) in the eastern portion of the Central District starting on January 15 and terminating on April 15. This quota would be outside the ABC for the Western and Central Management Areas. Additionally the SSC received a presentation from industry requesting an additional exploratory fishing quota in the Chirikof and Shumagin INPFC areas, Jan. 15 - April 15, of 10,000 mt.

The SSC believes that there may be scientific advantages to identifying spawning areas. We are concerned with allowing a total potential harvest outside of ABC of this magnitude and therefore recommend that the total of exploratory fishing outside of ABC not exceed 10,000 mt in 1990.

With regard to the proposed exploratory fishery quota in the Chirikof and Shumagin INPFC areas, the eastern boundary should be at 159 degrees to insure that fishing activity occurs in new areas rather than on the edge of known stocks. The western boundary could be at the edge of the management area (170 degrees). Both exploratory fisheries should be limited to mid-water trawling, the fishery should be permitted only if observers are present on fishing vessels and should excessive bycatch of salmon or herring occur, the fisheries should be terminated.

The SSC recommends that the Council develop a policy on exploratory fishing quotas for use in evaluating these requests. Such proposals should be in writing and contain information supporting the request. The SSC will provide the Council with suggested guidelines during the next year.

#### ABC - Eastern Management

The Team notes that no new information is available on pollock in the Eastern area and the 1990 ABC be the same as 1989 or 3,400 mt. The SSC supports this recommendation.

#### Pacific Cod

As it did in September, the SSC agrees with the Team's estimate of exploitable biomass (498,000 mt). The Team set ABC by applying the  $F_{msy}$  rate of fishing mortality to exploitable biomass. The SSC disagrees with the Team's estimate of  $F_{msy}$ .

It is the opinion of the SSC, however, that the Team's value for  $F_{msy}$  (.124) is an underestimate. It was obtained by choosing the value of a parameter of the stock-recruitment relationship so as to make the historical series of calculated stock sizes (from stock reduction analysis) pass as closely as possible through the 1984 and 1987 trawl survey biomass estimates. In fact the calculated values agree closely with the survey estimates no matter what value is chosen for the stock-recruitment parameter. The value actually chosen by the Team implies that the stock has very little reproductive resilience. If the stock really had such a weak stock-recruitment relationship, it could be fished out by a rate of fishing mortality only slightly greater than the natural mortality rate. On the basis of fishing mortality rates routinely sustained by cod stocks elsewhere, the SSC believes that the stock is more resilient. Thus, it believes the true  $F_{msy}$  fishing mortality rate is substantially higher than .124.

Lacking a direct estimate of  $F_{msy}$ , the SSC recommends the  $F_{0.1}$  rate, which is 0.25. This rate is less than the estimated rate of natural mortality, and it is believed to be less than  $F_{msy}$ , so it is a conservative rate, but it is likely to be closer to  $F_{msy}$  than the Team's estimate. At the  $F_{0.1}$  rate, ABC is 120,000 mt.

The SSC agrees with the Team that the apportionment to management areas should be based on biomass distribution of 19% to the Western region, 73% to the Central region and 8% to the Eastern region. Recommended ABC's are 22,800 mt for the Western region, 87,600 mt for the Central region, and 9,600 mt for the Eastern region.

#### Flatfish

The SSC endorses the split of flatfish ABC into the shallow flatfish, deep flatfish, and arrowtooth flounder categories. The SSC notes that this division is beneficial, because arrowtooth flounder is highly abundant but commercially less important than other species in the flatfish group and because bycatch rates

differ among these categories.

The SSC did not agree with the Team's use of  $F_{max}$  to determine exploitation rates for these groups.  $F_{max}$  is the value of fishing mortality that maximizes the yield per recruit for a given age of entry into the fishery. The largest value for yield per recruit would be obtained by applying an infinite fishing mortality when a year class reaches its maximum biomass. Even for finite values of fishing mortality, the yield per recruit curve is often quite flat near the maximum, and small changes in population parameters can lead to large changes in value determined for  $F_{max}$ . Theoretical population dynamics models have shown that the value for  $F_{max}$  is frequently larger than the fishing mortality that produces maximum sustainable yield. The use of  $F_{max}$  ignores the effects of fishing on spawning stock and subsequent recruitment, assuming that recruitment is completely independent of spawning stock. For these reasons, many scientists have moved away from  $F_{max}$  to other biological reference points. One of these,  $F(0.1)$ , is the fishing mortality for which the marginal increase in yield per recruit for a small change in fishing mortality is just 10% of the marginal increase when fishing mortality is near 0. Because  $F_{max}$  is the point where there is absolutely no increase in yield per recruit, the  $F(0.1)$  value is always less than  $F_{max}$ . In practice, it tends to be more stable than  $F_{max}$ , and its use by Canadian and ICES scientists has suggested that  $F(0.1)$  is a suitably conservative fishing mortality. However,  $F(0.1)$  shares with  $F_{max}$  the liability that effects on recruitment are not directly considered.

For these reasons, the SSC recommends the use of  $F(0.1)$  for all categories of flatfish. This reduces the ABC's recommended by the Plan Team substantially, resulting in 108,400 mt for deep water species, 84,500 mt for shallow-water species, and 194,600 mt for arrowtooth flounder. The recommended breakdown by area is :

	<u>Western</u>	<u>Central</u>	<u>Eastern</u>	<u>Total</u>
Deep water	16,300	77,700	14,400	108,400
Shallow-water	30,200	52,200	2,100	84,500
Arrowtooth	27,000	141,000	26,600	194,600
<b>TOTAL</b>	<b>78,700</b>	<b>283,100</b>	<b>46,500</b>	<b>387,500</b>

### Sablefish

The SSC notes that the 1989 longline surveys suggest a decline in Gulf sablefish biomass of about 10%. The SSC agrees with the analytical approach used by the Plan Team, which combines the Bering Sea and Gulf population, and apportions ABC to management areas based on relative abundance information. The SSC concurs with the Team's ABC of 26,200 mt. The Team recommends keeping the current apportionment based on the 1987 longline survey. The SSC concurs with this recommendation. The SSC wishes to point out that the breakdown in Table 2 of the SAFE document is incorrect. The correct breakdown is 3,800 in the Western area, 11,800 in the central area, 4,600 in the West Yakutat area, and 6,000 in the East

Yakutat/ Southeast area. The SSC notes that the 1989 RPW has declined 45 % in the Western Gulf and is concerned about potential differential exploitation by area. The SSC has requested the Team to examine this issue.

### Slope Rockfish

The Plan Team proposes an overall ABC of 17,700 mt, which is one-half of the sum of the ABC's for the species of the complex. This reduction was recommended, because the commercial fishery could be expected to concentrate at depths below 200m where catch per effort is high. As a result, the catch would contain a disproportionate amount of shortraker, rougheye, and POP, in excess of what would be reasonable ABC's for those species.

The SSC concurs with the Team recommendation. One alternative would be to set an individual ABC and TAC for each species. These ABC's would sum to 35,400 mt. This alternative would be practical only if catch by species could be monitored by observers during the season and limited to the TAC for each species.

The SSC encourages the development of a plan for the collection of catch-at-age data in order to determine alternative estimates of slope rockfish abundance. It is noted that elsewhere estimates of rockfish abundance from age structured models often indicate underestimates of abundance by trawl surveys. Given the high value of slope rockfish and the long time series of age data needed to generate credible abundance estimates, the plan for data collection should be implemented as soon as possible.

### Pelagic Rockfish

No new information about this complex is available this year. The SSC concurs with the Plan Team recommendation for ABC of 8,200 mt and with the recommended distribution among management regions.

### Demersal Rockfish

This complex is managed under the FMP by the State of Alaska. No information is currently available to determine exploitable biomass or ABC.

### Thornyhead Rockfish

Information from longline surveys suggests that the population is at lower levels than those from the early 1980's. A yield per recruit analysis suggested that no change in last year's ABC of 3,800 mt was indicated. The SSC concurs with this recommendation.

### D-2(b) PSC Limits

The SSC concurs with the Team that data from the 1990 observer program be used as much as possible for estimating bycatch in the 1990 fishery.

### D-3 BERING SEA GROUND FISH

#### D-3(a) Stock Assessment/ABC's

##### Choice of Exploitation Rates

The Team Chairman explained the Bering Sea Team's procedure for choosing the exploitation rate that is applied to stock biomass to calculate ABC. The Team's approach is to apply a high rate of exploitation-- up to  $F_{max}$ -- when a stock is believed to be well above the MSY level of biomass, and to apply a progressively lower rate-- down to bycatch levels-- when a stock is believed to be well below the MSY level of biomass. Intermediate rates of exploitation that may be applied to a stock near the MSY level of biomass are  $F_{msy}$  and similar rates that have been found to produce a yield near MSY in many cases, such as  $F_{0.1}$  and  $F=M$ .

The SSC commends the Team for detailing its procedure. It is a good beginning for an expanded discussion of exploitation rate policy by both Teams, the SSC, and the Council. We intend to pursue this discussion during the first half of 1990 so that a reasonably consistent, agreed procedure will be in place for 1990.

At present, the SSC preference is to set ABC by applying a fixed exploitation rate such as  $F_{0.1}$  or  $F_{msy}$  at all biomass levels above a specified and justified threshold. We do not favor raising or lowering the exploitation rate as stock size changes, and, in particular, we oppose using a fishing mortality rate as high as  $F_{max}$ , as explained in our comments on the GOA flatfish ABC. We prefer a fixed exploitation rate policy for setting ABC because:

- (i) It makes ABC proportional to stock size, and thereby minimizes year-to-year changes in ABC.
- (ii) It does not require any estimate of the MSY biomass level, which is more difficult to determine than an appropriate exploitation rate. Moreover, the MSY biomass level varies over time as the natural abundance of stocks changes, and these medium-term variations in natural abundance are difficult to distinguish from purely random variations in year-class strength.
- (iii) It does not require any decision as to when to switch from one exploitation rate to another, possibly causing a large change in ABC as a result of a small change in stock size.

Our preference for a fixed  $F_{msy}$  or similar policy applies only to the setting of ABC, where the objective is to maximize long-term yield. For many stocks the Council will prefer to apply a lower rate of exploitation in setting TAC's to achieve OY. We hope that our discussion of exploitation rates during 1990 will allow the Council to provide direction on alternative rates of exploitation to be applied to particular stocks.

## Specifications of ABC's

The SSC supports the Team's recommendations for all stocks except sablefish and arrowtooth flounder.

## Pollock

The SSC endorses the Team's assessment and supports its recommended ABC for 1990, calculated by applying the  $F_{0.1}$  rate of exploitation ( $F_{0.1}=0.31$ ,  $u=25\%$ ). The ABC (1.45 million mt in the EBS and 153,600 mt in the Aleutians) is larger than the September figure because newly available data from the 1988 trawl-hydroacoustic survey has resulted in a higher projection of 1990 biomass.

We note that recent work by Quinn and Collie at the University of Alaska tends to confirm the appropriateness of the exploitation rate that has been applied in recent years. The Council has used  $F_{0.1}=0.31$ ; Quinn and Collie estimate  $F_{msy}=0.32$  from production modelling.

The SSC heard public testimony to the effect that biomass estimates and exploitation rates of BS/AI pollock have varied considerably in recent years. The table below shows the biomass estimates obtained by cohort analysis that have appeared in the last two RAD/SAFE documents:

Estimated EBS biomass in:	Year in which RAD/SAFE prepared:	
	1988	1989 (this meeting)
1981	7.9	7.1
1982	9.3	7.8
1983	10.2	7.4
1984	9.4	7.3
1985	9.9	9.0
1986	8.6	8.4
1987	7.7	8.3
1988	---	8.0

The changes in biomass from last year's assessment to this year's assessment (1988 to 1989) resulted from inclusion in the estimation procedure of age composition and biomass data from the 1988 trawl/hydroacoustic survey and commercial catch-age data from 1988. Previous cohort analyses were tuned to earlier surveys, the most recent of which was back in 1985. It is to be expected that additions of new data will change the historical perspective of the population. The changes are within the limits of variability of the data and the resulting analyses. The estimates for the most recent years actually differ by small amounts. One of the advantages of cohort analysis and related catch-age methods is that they effectively damp the variability of individual data sources by fitting a single population history to the entire sequence of data.



As regards exploitation rates, the ABC recommendation has been based on  $F_{0.1}=.31$  in each of the last three years. Actual exploitation rates have of course varied insofar as the Council has set TAC's lower than ABC's, and catches have deviated from TAC's, and biomass estimates have changed.

### Pacific Cod

The SSC concurs with the Plan Team's recommended ABC of 417,000 mt. The SSC notes that the Team's ABC increased from the preliminary estimate in September due to a revision of the estimated 1990 biomass. The current biomass estimate is based on incorporation of 1989 trawl survey data and the subsequent tuning of the age structured model to this and past survey biomass estimates. Although current biomass estimates are revised upward the preferred exploitation rate,  $F_{msy}$ , remains unchanged at 0.18. The SSC remains interested in the utility of the  $F_{melsy}$  concept introduced by Dr. Thompson in September. We expect to explore this method further during the upcoming year.

### Arrowtooth Flounder

The Team's recommended ABC is based on fishing at the  $F_{max}$  rate, at least in the short term. For reasons given above (sections on choosing exploitation rates and Gulf flatfish ABC), we are opposed to applying such a high rate of fishing mortality in any circumstances. The SSC recommended the  $F_{0.1}$  rate, which is 0.18 and leads to an ABC of 106,500 mt.

### Sablefish

Recommendations by the Plan Team are based on stock reduction analysis using biomass estimates for combined Gulf and Bering Sea/ Aleutians data. Two sets of biomass estimates were constructed. The first set involves scaling longline CPUE data in different areas to the biomass estimate from the 1984 trawl survey in the Gulf and the 1986 trawl surveys in the Bering Sea and Aleutians. The second set involves scaling CPUE data in different areas to the lower confidence limit for biomass from just the 1984 trawl survey in the Gulf. The Gulf Plan Team used the second data set for its ABC recommendation, while the Bering Sea Team used the first data set for its ABC recommendation. The SSC learned that the 1986 Aleutians survey had a much different trawl/longline calibration factor than other surveys, which suggests that results using the first data set may be more suspect than results using the second data set. The SSC also believes that consistent recommendations for sablefish should be made for the Gulf and Bering Sea/ Aleutians areas. Thus, the SSC recommends the ABC's using the second data set for 1990, or 2,700 mt for the Bering Sea and 3,700 mt for the Aleutians. Recommendations for the Gulf, reported in a different section of this report, are based on the same data set. These results are more in line with the 1989 ABC recommendations from last year. The SSC also made recommendations to the Team on better methods for calibrating biomass from the surveys, which should be investigated by the Team in time for next year's analysis.

## Pacific Ocean Perch and Other Rockfish

The SSC notes there is no change from the preliminary ABC estimates provided by the Plan Team in September. Biomass estimates are derived from SRA analysis; preferred exploitation strategies follow the  $F_{0.1}$  methodology. The SSC concurs with the Plan Team's estimates.

### D-3(c) Halibut crab initial PSC apportionments

The SSC heard a presentation from Council staff describing the approach that is being suggested to determine PSC apportionments for the four fisheries defined in Amendment 12a. Appendix 2 of the SAFE indicates that the simulation model will be used to establish initial TAC's and PSC apportionments. It is felt that the model is useful in determining initial apportionments. However, these results should be viewed as a first attempt to determine bycatch needs. As information for various fisheries becomes available during the year initial apportionments may require adjustments.

The SSC would like to receive a copy of the report describing the simulation model once it has been prepared.

## D-4 GENERAL GROUND FISH

### D-4(a) Pollock roe-stripping (Amendment 19/14)

The SSC reviewed the EA/RIR/IRFA for Amendment 19/14 (Pollock Utilization). The SSC is developing a written set of comments which should be helpful in preparing the final document. Subject to the Team addressing our comments, the SSC recommends the document be released for public review and comment.

To allow the Team sufficient time to make the suggested modifications and to verify and include additional data, the SSC recommends that the Council put off final action until the April meeting.

### D-4(b) Pollock emergency action

The SSC discussed possible reasons for emergency action to regulate or prohibit roe stripping. It also considered additional analyses contained in the draft EA/RIR. We are unable to say what might constitute an emergency, but insofar as conservation is concerned we would repeat our statement from September:

"The SSC believes that the seasonal distribution of fishing mortality has little effect on the productivity of the stock. [We have seen] no analysis that indicates any adverse effect of fishing during the spawning season as opposed to fishing later in the year."

## OTHER BUSINESS

### U.S./U.S.S.R. meetings

The SSC received a report from NMFS on two meetings recently concluded with the Soviets and the U.S. in Seattle: (1) Bilateral meeting on assessment of North Pacific Fisheries Resources, Nov. 21-24, 1989. (2) Bering Sea Fisheries Advisory Body (BSFAB), Nov. 27-28, 1989.

Both meetings focused primarily on the pollock resources of the whole Bering Sea. It was agreed that the fish in the "Donut Hole" were not a self sustaining stock but were derived from contributions of fish from the EEZ's of the U.S.S.R. and the U.S. The exploitable biomass for the whole Bering Sea was estimated to be 13.0 million metric tons in 1988. The ABC (or AHL, Allowable Harvest Level of the report) based on a 25% exploitation rate was 3.25 million mt. The total catch from the Bering Sea including the donut was 3.95 million mt, thus exceeding the ABC by 700 thousand mt.

The scientists agreed that the Bering Sea pollock stocks were declining and projected an exploitable biomass of 10.53 million mt for 1990 and ABC of 2.633 million mt for 1990. It should be noted that all of these analyses are based upon a Soviet estimate of 1.9 million mt of pollock in the western Bering Sea, a number significantly lower than previously used (5.4 million mt in 1986) and which in the view of U.S. scientists is too low.

Specific management measures such as gear regulations, size limits, etc. would be the responsibility of the U.S.S.R. and the U.S. within their respective EEZ's, but would be coordinated to avoid any actions that might be counterproductive.

Details regarding U.S. needs for samples of salmon for baseline information needed for stock identification were provided to the Soviets. Agreements were also reached on cooperative research on salmon and groundfish including joint cruise work and exchange of scientists. The follow-up meeting to the Sitka pollock symposium has been scheduled for early March in Khabarovsk and the next US/USSR bilateral would take place in the U.S.S.R, also in 1990.

### Marine Mammals

A report on status of the northern sea lions and other Alaska Pinnipeds was provided to the SSC by NMFS. During the past several decades, populations of northern fur seals, northern sea lions, and Pacific harbor seals have declined drastically in most areas. Since 1960, the northern sea lion population over its total range has declined from 217,000 to 66,000 animals. With the exception of a small area in Southeastern Alaska where there has been a slight increase, all other rookery areas from California to northern Japan have declined from 50-80 %.

While the decline is certain, the causes for the decline are not known. Possible causes include natural fluctuations resulting from oceanographic or other ecosystem shifts, disease, interactions with fisheries, and changes resulting from prey availability.

The SSC noted that while the marine mammal species indicated above have declined in numbers, others have increased. Ribbon seals in the western Pacific region, which prey heavily on pollock, are now at an unprecedented level and continue to increase. Pacific walrus have increased steadily from 1960 to 1985 when the last extensive survey was undertaken. Equally confounding is the fact that the declines in numbers of fur seals and sea lions, which has been continuous over a prolonged period of time, persisted even during the periods of above average biomass of their primary prey (i.e. pollock in the Gulf of Alaska and Bering Sea during the late 1970's through the early 1980's).

NMFS plans further research activities to assess the population changes and determine the causes for declines. NMFS recommends that a marine mammal specialist be added to the Bering Sea and Gulf of Alaska Plan Teams. The SSC concurred with that recommendation.

#### Team Membership

The SSC reviewed membership and purposed changes to the Council's Plan Teams. We concurred with the purposed membership changes. Given the concern over the status of marine mammals the SSC recommends the addition of a marine mammal scientist to the Groundfish Team. If the Council concurs, the SSC recommends Dr. Richard Merrick of the Alaska Fisheries Science Center for consideration.

The SSC discussed merger of the Bering Sea/Aleutian Islands and Gulf of Alaska Groundfish Plans. During the past two years the Teams have taken steps to coordinate the Plans, methodologies, and operation of the Teams. The SSC expects to discuss with the two groundfish Teams steps that could be taken to further this process prior to and during the January Council meeting.

#### SSC Membership

The SSC notes that three highly respected members are leaving the body; Dr. Don Bevan, Dr. John Burns, and Dr. Dana Schmidt. All three of these scientists have played active roles during their tenure on the Committee and have made significant contributions. The talents of these individuals will be missed. We wish them well in their future endeavors.

The SSC would like to point out that Dr Burn's position was created to add marine mammal expertise to the Committee. It is recommended that this positions be filled with an individual having the same expertise.

Summary - SSC Recommendation of ABC

<u>Species</u>	<u>Area</u>	<u>ABC</u>
Pollock	W/C	63,750
	Shelikof	6,250
	E	3,400
	<b>Total</b>	<b>73,400</b>
	Experimental	10,000
Pacific Cod	W	22,800
	C	87,600
	E	9,600
	<b>Total</b>	<b>120,000</b>
Flatfish/deep	W	16,300
	C	77,700
	E	14,400
	<b>Total</b>	<b>108,400</b>
Flatfish/shallow	W	30,200
	C	52,200
	E	2,100
	<b>Total</b>	<b>84,500</b>
Arrowtooth flounder	W	27,000
	C	141,000
	E	26,600
	<b>Total</b>	<b>194,600</b>
Sablefish	W	3,800
	C	11,800
	W. Yakutat	4,600
	E. Yak/SE Out	6,000
	<b>Total</b>	<b>26,200</b>
Slope Rockfish	W	4,300
	C	7,700
	E	5,700
	<b>Total</b>	<b>17,700</b>
Pelagic shelf rockfish	W	1,400
	C	5,800
	E	1,000
	<b>Total</b>	<b>8,200</b>
Demersal shelf rockfish	SE Outside	Unknown
Thornyheads	GF	3,800
Other Species	GF	N/A
Gulf of Alaska	<b>Total</b>	<b>636,800</b>

**Summary - SSC Recommendations for ABC - Bering Sea/Aleutians**

<u>Species</u>	<u>Region</u>	<u>ABC</u>
Pollock	EBS	1,450,000
	AI	153,600
Pacific Cod		417,000
Yellowfin sole		278,900
Greenland turbot		7,000
Arrowtooth Flounder		106,500
Rock sole		216,300
Other flatfishes		188,000
Sablefish	EBS	2,700
	AI	3,700
POP	EBS	6,300
	AI	16,600
Other rockfish	EBS	500
	AI	1,100
Atka mackerel		24,000
Squid		10,000
Other species		55,500
Total Bering Sea/Aleutian Islands		2,937,700