

North Pacific Fishery Management Council

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MINUTES

North Pacific Fishery Management Council
Scientific and Statistical Committee
December 8-11, 1985
Anchorage, Alaska

The Scientific and Statistical Committee of the North Pacific Fishery Management Council met in Anchorage on December 8-11, 1985 at the Westward Hilton. Members present were:

Donald Rosenberg, Chairman	Richard Marasco, Vice-Chairman
William Aron	Bud Burgner
Larry Hreha	Scott Marshall
Don Bevan	Doug Eggers
Tom Northup	John Burns

C-3 Crab/Salmon Interceptions by Joint Ventures

The SSC received a presentation by the industry workgroup on the data collection activities and the proposals being developed by the industry. The SSC has no comments on this subject at this time.

D-1 Gulf of Alaska Groundfish FMP

D-1(a) Status of Stocks and Recommended ABC

The SSC reviewed the Gulf of Alaska Team report on the Status of Gulf of Alaska Groundfish Stocks dated November 18, 1985 and received presentations from the Team and the public on each species or species group. A summary of the SSC recommendations regarding ABC for each group is provided in Table 1. These recommendations are based on the following:

A. Pollock

Two reports served as important source documents during the SSC's discussion of the status of the Gulf of Alaska pollock resource: (1) a report prepared by the Plan Team in November entitled "Status of Gulf of Alaska Groundfish Stocks, 1985," and (2) a report titled "Critique of Gulf of Alaska Pollock Stocks and Their Management" prepared by Natural Resources Consultants (NRC). Prior to commenting on the contents of either of these reports, the SSC would like to state that it is generally recognized and as was pointed out in the NRC report that any attempt to produce a biomass estimate for the Gulf must address (1) the size of the on-bottom component in Shelikof Strait, (2) the

TABLE 1
SSC MINUTES
ACCEPTABLE BIOLOGICAL CATCH WORKSHEET

Species	Area	1985 OY	1985 Catch ^{1/}	PT ABC	SSC ABC	Council ABC
Pollock	W/C	305,000	269,144	75,600	150,000 ^(a)	
	E	16,600	1	16,600	16,600	
	Total	321,600	269,145	92,200	166,600	
Pacific cod	W	16,560	8,422	37,500	37,500	
	C	33,540	4,589	76,000	76,000	
	E	9,900	59	22,500	22,500	
	Total	60,000	13,070	136,000	136,000	
Flounder	W	10,400	456	23,000	23,000	
	C	14,700	1,943	101,000	101,000	
	E	8,400	38	17,000	17,000	
	Total	33,500	2,437	141,000	141,000	
Pacific ocean perch	W	1,302	871	1,755	2,800	
	C	3,906	29	2,015	3,300	
	E	875	32	2,730	4,400	
	Total	6,083	932	6,500	10,500	
Sablefish	W	1,670	2,149	2,500	2,500	
	C	3,060	3,899	11,562	11,600	
	W.Yak.	1,680	2,483	2,200	2,200	
	E.Yak.	1,135		846	800	
	S.E.Out.	1,435	2,890 ^{2/}	1,692	1,700	
	Total	8,980	11,421	18,800	18,800	
Atka Mackerel	W	4,678	1,869	4,678	4,700	
	C	500	1	500	(bycatch only)	
	E	100	0	100	(bycatch only)	
	Total	5,278	1,870	5,278	4,700	
Rockfish	S.E.Central					
	Outside	600	590	600	(b)	
	Remaining Gulf	4,400	101	1,700	(b)	
Total	5,000	691	2,300			
Thornyhead	Gulf-wide	3,750	40	3,750	(b)	
Squid	Gulf-wide	5,000	12	5,000	(b)	
Other Species	Gulf-wide	22,460 ^{3/}	2,261	n/a	n/a	
TOTAL		471,651	301,879	417,328		

^{1/} 1985 catch as of December 2.

^{2/} 1985 catch for E. Yakutat and Southeast Outside Districts combined.

^{3/} Set by formula (5% of sum of other nine species categories).

(a) 50,000 mt restricted to be harvested between January 15 and April 10 outside the defined Shelikof Straits fishing area.

(b) No data to recommended ABC.

size of the off-bottom component in Shelikof Strait, and (3) the size of the components outside of Shelikof Strait during the spawning period. The importance of the first and third components mentioned above has been discounted by the Team. This was done because of the view that these two components of the population are relatively small. The Team states (November 18, 1985, page 12):

"Although there is evidence of spawning pollock elsewhere in the Gulf besides Shelikof Strait, we do not know of any concentrations that are important or large compared to the Shelikof spawning group. We conclude that most pollock in the Central and Western Gulf spawn in the Shelikof Strait region."

The Team used the NMFS 1985 hydroacoustic survey to obtain an estimate of the size of the biomass. As indicated in Table 4 of the Team report the 1985 acoustic survey produced a biomass estimate of 700 kt. This estimate provided the basis for the three ABC options developed by the Team.

The approach taken by Natural Resource Consultants to estimate the size of the biomass differs from the one used by the Team in several respects. First, NRC attempted to quantify the on-bottom component in Shelikof Strait. This was accomplished by increasing the Team's biomass projection for 1986 by 10.5%. This adjustment factor was obtained by averaging two estimates of the on-bottom part of the population: (1) 14% which was calculated from the results of a 1981 trawl survey and (2) 7% determined from the 1983 bottom trawl and acoustic surveys. The 1986 biomass projection was also modified to take into account movement of pollock during the spawning period by increasing the Shelikof Strait estimate by an additional 25%. Lastly, 381,200 t was added to account for the outside components, yielding 1,000,000 mt for the total Gulf of Alaska biomass.

Information was available to the SSC concerning the relationship between the on-bottom and off-bottom Shelikof Strait components. In 1983 NMFS conducted both bottom trawl and acoustic surveys in the Strait, their activities indicated that 7% of the total biomass was on the bottom. The SSC believes that results obtained from the 1981 survey are of limited usefulness because the off-bottom and on-bottom components were not surveyed during the same time period. It would have been appropriate for the Team to increase the acoustic estimate by 7% to produce a combined figure for the Shelikof Strait. The 10.5% used by NRC was considered inappropriate given the limited usefulness of the 1981 survey results.

The importance of pollock movement into and out of Shelikof Strait and its significance in estimating the size of the biomass is not quantifiable. Sufficient data are not available to establish role or the importance of migration. Any quantitative estimate of the importance of this factor should be viewed with caution.

Accounting for the quantity of pollock present outside of the Strait is made difficult by the lack of data. Both fisheries and surveys have occurred in this area in the past. The fact that none of the surveys outside the Strait have coincided in time with the acoustic ones in the Strait makes their results of limited usefulness. Movement of larger fish to outside waters is considered one possible explanation for the 500,000 t difference between the

of the off-bottom component in Shelikof Strait. The
component outside of Shelikof Strait during the survey period. The
importance of the first and third components mentioned above has been
discussed by the Team. This was done because of the view that these two
components of the population are relatively small. The Team states
(November 16, 1988, page 10).

"Although there is evidence of spawning activity elsewhere in the
Gulf besides Shelikof Strait, we do not have any quantitative
data on important or large components of the Shelikof Strait group.
We conclude that most of the spawning activity in Shelikof Strait occurs
in the Shelikof Strait region."

The Team used the 1985 hydroacoustic survey to obtain an estimate of the
size of the biomass. As indicated in Table A of the Team report, the 1985
acoustic survey produced a biomass estimate of 500 M. This estimate provided
the base for the above ABC estimate developed by the Team.

The approach taken by Natural Resource Consultants to estimate the size of the
biomass differs from the one used by the Team in several ways. First, NRC
attempted to quantify the on-bottom component in Shelikof Strait. This was
accomplished by increasing the Team's biomass estimate for 1985 by 10.5%.
This adjustment factor was obtained by averaging two estimates of the
on-bottom part of the population: (1) 14% which was obtained from the
results of a 1981 trawl survey and (2) 7% determined from the 1985 bottom
trawl and acoustic surveys. The 1985 biomass production was also revised to
take data account movement of pollock during the survey period. In 1985, the
Shelikof Strait estimate by an additional 25%. Lastly, 200,000 M was
added to account for the outside component, yielding a total of 700,000 M for the
total Gulf of Alaska biomass.

Information was available to the Team concerning the relationship between the
on-bottom and off-bottom Shelikof Strait components. In 1985, NRC estimated
both bottom trawl and acoustic surveys in the Strait. Both estimates
indicated that 7% of the total biomass was on the bottom. The 1985 biomass
that resulted from the 1981 survey was of limited usefulness because
the off-bottom and on-bottom components were not surveyed during the same time
period. It would have been appropriate for the Team to increase the acoustic
estimate by 7% to produce a combined figure for the Shelikof Strait. The
10.5% used by NRC was considered inappropriate given the limited usefulness of
the 1981 survey results.

The importance of pollock movement into and out of Shelikof Strait and the
relationship in estimating the size of the biomass is not quantifiable.
Quantitative data are not available to establish value or the importance of
migration. Any quantitative estimate of the importance of this factor should
be derived with caution.

Accounting for the quantity of pollock present outside of the Shelikof Strait was
difficult by the lack of data. Both fisheries and surveys have occurred in
this area in the past. The fact that none of the surveys outside the Strait
have coincided in time with the acoustic survey in the Strait makes their
results of limited usefulness. Movement of larger fish or outside water is
considered one possible explanation for the 500,000 M difference between the

1985 projected and acoustic biomass estimates for the off-bottom Shelikof Strait component.

In summary, there is uncertainty associated with knowledge of the size of the pollock biomass in the Gulf of Alaska.

ABC - Western and Central Management Areas

The SSC would like the Council to note that in developing our recommendations on ABC for the management areas the SSC has used different methodology than the Team. The SSC believes, as we pointed out in September, that the fluctuating nature of pollock stocks requires examination of abundance trends for several years to forecast where the stock is likely to be in future years. The best projection of future recruitment indicates that poor recruitment will have occurred this year (1985) and will continue in 1986 but that 1987 should see strong recruitment of the 1984 year class. The projected spawning biomass in Shelikof Strait that resulted from various recruitment scenarios is provided in Figure 3 of the Team report, with the scenarios described above being marked C or D.

The SSC believes that the 1986 harvest of the fish being surveyed in Shelikof Strait can be set at a level that will allow the 1987 spawning biomass to remain at or above the projected 1986 level. That harvest is approximately 100,000 mt.

The Team points out that the model has always overestimated the biomass as determined by the survey. Why the biomass is declining at a rate greater than the model projects is difficult to explain. Either the level of natural mortality is significantly higher than that used in the model or a portion of the population is not returning to or being detected in Shelikof Straits. The SSC is unable to determine if this observed difference is due to higher levels of natural mortality or because of a redistribution of the resource.

If redistribution of the resource is taking place then an additional harvest outside the Shelikof Straits during the January - April period could be encouraged. Such a harvest during the time of the Shelikof Straits fishery would provide the Council important information of the status of pollock throughout the Gulf. The SSC recommendation that a harvest outside Shelikof Straits during the January - April period should be no more than 50,000 mt.

We wish to point out that this recommendation is not based upon reliable biological data. However, we feel it is a reasonable estimate that will allow a fishery to collect data necessary to make future ABC determinations. If we are dealing with a single stock which spawns within the Straits then the 50,000 mt will not be harvestable. If catches are made they will be from fish that are not indexed by the survey.

The SSC, therefore, recommends that the ABC for pollock in the Central and Western management areas be set at 150,000 mt with the condition that 50,000 mt of this ABC is available only for harvest outside the Shelikof Strait area during the period of January 15 through April 10. The SSC has requested the Team to provide the Council a description of the area of the Shelikof Strait area.

1987 projected and account balance estimates for the off-farm market
financial operations.

In summary, there is a necessity associated with knowledge of the state of the
policy program in the Gulf of Alaska.

Alaska - Western and Central Management Areas

The 250 would like the Council to note that in developing our recommendations
on ABC for the management areas the 250 has used different methodologies than
the Team. The 250 believes, as we pointed out in Appendix C, that the
uncertainty nature of policy needs requires a number of abundance trends
for several years to forecast where the stock is likely to be in future years.
The best predictor of future recruitment and thus poor recruitment will
have occurred this year (1987) and will continue in 1988 but that 1987 should
be a strong recruitment of the 1984 year class. The projected spawning biomass
in Shelikof Strait that resulted from various recruitment scenarios is
provided in Figure 3 of the Team report with the scenarios described above
below and in C or D.

The 250 believes that the 1988 harvest of the Shelikof Strait averaged to 250 mt.
250 mt. can be set at a level that will allow the 1987 spawning biomass to
remain at or above the projected 1986 level. This harvest is approximately

The Team points out that the model has always overestimated the harvest as
determined by the survey. Why the biomass is declining at a rate greater than
the model predicts is difficult to explain. Whether the level of natural
mortality is significantly higher than that used in the model or a portion of
the population is not returning to or being harvested in Shelikof Strait. The
250 is unable to determine if this observed difference is due to higher levels
of natural mortality or because of a redistribution of the resource.

A redistribution of the resource is likely place then an additional harvest
outside the Shelikof Strait during the January - April period could be
encouraged. Such a harvest during the time of the Shelikof Strait fishery
would provide the Council important information of the status of pollock
throughout the Gulf. The 250 recommendation that a harvest outside Shelikof
Strait during the January - April period should be no more than 20,000 mt.

We wish to point out that this recommendation is not based upon reliable
biological data. However, we feel it is a reasonable guideline that will allow
a fishery to collect data necessary to make future ABC determinations. If we
are dealing with a stable stock which grows within the strait then the
20,000 mt will not be harvestable. If catches are made that will be less than
that are not indexed by the survey.

The 250 therefore recommends that the ABC for pollock in the Central and
Western management areas be set at 20,000 mt with the condition that
10,000 mt of this ABC is available only for harvest outside the Shelikof
Strait area during the period of January 15 through April 15. The 250 has
requested the Team to provide the Council a description of the area of the
Shelikof Strait area.

As we did in September, the SSC would like to point out that our recommendation of 100,000 mt ABC for the stocks being surveyed in Shelikof Straits is based on the assumption that the 1984 year class is strong. Should this year class not be strong, this level of harvest could be excessive and corrective reductions in catch will be necessary in 1987.

ABC - Eastern Management Areas

The SSC notes that the Team does not provide a recommendation on the ABC for this management area. The current OY for the area was established in the original plan and is the lower end of the MSY range.

No current surveys of the area are being made nor is there a fishery taking place which would allow us to evaluate the appropriateness of the OY. The SSC feels that there would be little risk in allowing a harvest at this level.

B. Pacific Cod

The SSC concurs with the Team that the Pacific cod stock appears to be in good condition and stable and we concur with the Team's recommendation on ABC (136,000 mt) and its distribution within the Gulf. In setting a OY, the Council needs to address the incidental catch of halibut and other species.

C. Flounder

The SSC concurs with the Team regarding the ABC and distribution of the flounder resources. In setting a OY, the Council needs to address the incidental catch of halibut and other species.

D. Pacific Ocean Perch Complex

The Team points out that five species are included in the Pacific ocean perch complex, with Pacific ocean perch (S. Alutus) being the major species of commercial interest. The Team, in developing its recommendation for ABC, examined the best available information on the EY of S. Alutus. The team then took the midpoint of the EY ranges (6,500 mt) to be ABC. That Gulfwide ABC was then distributed among the management areas.

Since five individual species are currently being managed within the complex, the SSC feels the ABC should be for the total complex. The SSC, using the same procedure as the Team but using an EY midpoint for the complex (10,500 mt), recommends a Gulfwide ABC of 10,500 mt. This ABC is distributed in the management areas in the same manner as used by the Team.

Within the complex, Pacific ocean perch is depressed and the Council should take that into consideration in establishing the OY for the species complex. The ABC recommended by the SSC is for the complex. If the Council wishes to rebuild S. Alutus, then the OY for the complex will need to be set below the ABC for this species.

The SSC recommends in the rewrite of the plan that Pacific ocean perch be separated and managed as an individual species. It may be possible to include the other four species in the "other rockfish" category.

E. Sablefish

As was reported at the last meeting, the sablefish stocks appear to have recovered from their depressed conditions of the late 1970s and early 1980s. Data from the U.S./Japan cooperative longline and trawl surveys provide a biomass estimate of 537,000 mt Gulfwide. This indicates that the condition of the stocks are good. The Team, in developing its recommendation on ABC, considered two criteria. The first was based upon the Council's previous EY level (12,600 mt). The Team notes that this passed management strategy has resulted in a stock biomass that is higher and therefore the Team considers that the 12,600 mt represents the lower end of the range for a 1986 ABC.

The second criterion used by the Team is based upon the historic catch levels (25,000 mt) which were taken in the foreign fisheries. This level (25,000 mt) was considered by the Team to be the upper limit of the 1986 ABC. The Team did note that average harvest levels at 25,000 mt did coincide with reductions in the sablefish stocks.

Because these values had not been rigorously determined and because of the uncertainty in the assessment of the stock levels, the Team recommends that ABC for 1986 should be set at the midpoint of the range (18,800 mt). The SSC concurs with that recommendation.

The recent trawl and longline surveys also indicate a different distribution of the resource between the management areas and the Team has recommended that the Gulfwide ABC be apportioned accordingly.

The SSC would like to point out that the original FMP divided the OY according to the average foreign longline harvest for a number of preceding years. We were unable to determine which years were selected. The percentages used were:

SHU	CHI	KOD	YAK	SE
15.9%	10.9%	18.2%	26.8%	28.2%

In 1979, the numbers of management areas was reduced to three, with the resulting percentages being:

Western	Central	Eastern
16%	29%	55%

The number of areas used was further revised in 1982. The numbers used were:

Western	Central	YAK	SE
16%	29%	27%	28%

An examination of the 1982 pot index numbers for Southeastern and CPUE figures for 1982 foreign fishery led to further revisions. To reflect a 50% reduction in the pot index numbers, relatively constant CPUEs for the foreign longline fishery, and the Council's desire to promote rebuilding of the stock, optimum yields were adjusted. The percentages that correspond with the modifications made are:

Western	Central	WYAK	EYAK/SE
19%	34%	18%	28%

To assist the Council in setting an OY the SSC requested that the Team provide us with tables indicating the distribution of the biomass by depth. These data are provided in Table 2 and 3.

Table 2.

1984 % RPW BY AREA (based on RPN of Sigler & Clausen, 1985)
By Council Management Areas

Depth (m)	SE/EYAK	WYAK	CENTRAL	WESTERN	TOTAL
100 -200	2.7%	3.8%	25.4%	5.6%	37.5%
200 -300	3.0%	2.6%	16.3%	2.7%	24.5%
300 -400	2.9%	1.7%	11.1%	2.2%	17.8%
400 -500	0.9%	0.6%	2.0%	1.3%	4.8%
500 -600	0.8%	0.7%	2.3%	0.9%	4.7%
600 -700	0.6%	0.4%	2.2%	0.6%	3.9%
700 -800	0.7%	0.4%	2.3%	0.3%	3.7%
800 -900	0.8%	0.5%	0.5%	0.1%	1.9%
900 -1000	0.7%	0.4%	0.0%	0.0%	1.1%
All Depths:	13%	11%	62%	14%	100%

1985 % RPW BY AREA (based on RPN of Sigler & Clausen, 1985)
By Council Management Areas

Depth (m)	SE/EYAK	WYAK	CENTRAL	WESTERN	TOTAL
100 -200	2.8%	5.7%	32.2%	4.6%	45.4%
200 -300	1.6%	1.3%	14.1%	2.1%	19.0%
300 -400	3.0%	1.4%	8.6%	2.0%	14.9%
400 -500	1.0%	0.7%	1.9%	1.3%	4.8%
500 -600	0.8%	0.8%	1.9%	1.0%	4.6%
600 -700	0.6%	0.5%	1.6%	0.9%	3.7%
700 -800	0.7%	0.5%	1.7%	0.4%	3.3%
800 -900	0.7%	0.5%	1.7%	0.3%	3.2%
900 -1000	0.6%	0.4%	0.0%	0.0%	1.0%
All Depths:	12%	12%	64%	13%	100%

* Prepared by the GOA Plan Team for the SSC. December 11, 1985.

Table 3.
1984 % RPW BY AREA (based on RPN of Sigler & Clausen, 1985)
By Council Management Areas

Depth (m)	SE/EYAK	WYAK	CENTRAL	WESTERN	TOTAL
100-1000	13%	11%	62%	14%	100%
200-1000	17%	12%	58%	13%	100%
300-1000	20%	12%	53%	14%	100%
400-1000	23%	15%	46%	16%	100%

1985 % RPW BY AREA (based on RPN of Sigler & Clausen, 1985)
By Council Management Areas

Depth (m)	SE/EYAK	WYAK	CENTRAL	WESTERN	TOTAL
100-1000	12%	12%	64%	13%	100%
200-1000	17%	11%	58%	15%	100%
300-1000	21%	14%	49%	17%	100%
400-1000	22%	17%	42%	19%	100%
1985 OY:	29%	19%	34%	19%	100%

Note: The Yakutat INPFC area is partitioned according to the relative amounts of habitat area in the 200-1,000m depth strata as follows:

West Yakutat:	81.3%
East Yakutat:	18.8%

* Prepared by the GOA Plan Team for the SSC, December 11, 1985.

F. Atka Mackerel

No new information has been provided on the status of the Atka mackerel stocks other than that provided last year. The SSC, therefore, recommends that ABC is set at 4,700 mt for the Western management area and bycatch amounts only for the Central and Eastern areas.

G. Other Rockfish

No further information was provided the SSC which would allow us to provide the Council with a recommendation of ABC for the "other rockfish" category. The SSC, therefore, sees no reason to modify the OYs from those established by the Council last year. The SSC would like to note that the Team is concerned that a harvest of a level higher than 1,700 mt may not be sustainable. The SSC has no data to indicate that it can or cannot be sustained.

H. Thornyhead and Squid

The SSC has no data to allow the determination of ABC and see no reason to recommend changes from the status quo.

D-1(b) Review of 1986 DAP and JVP Estimates

The SSC, in an attempt to assist the Council evaluate projected DAPs and JVPs for 1986, prepared tables (Tables 4 and 5) that contain NMFS survey results and final catches for 1984 and 1985. In the absence of projected physical capacity and percent capacity utilization data, the SSC was unable to comment on the estimates. However, the SSC would like to emphasize that any upward bias contained in the estimate may result in available fish going unharvested with the loss of potential economic gain.

D-1(c) 1986 Halibut PSC Limits

The SSC heard a report from the Team that summarized the halibut PSC framework implemented by Amendment 14 and described information that was developed to assist the Council in the implementation of the framework. The SSC wishes to compliment the Team for their effort. The report that they prepared focuses attention of critical issues and presents information that should be useful in the development of PSC limits.

It was brought to the attention of the SSC that the Team is recommending that the Council use a bycatch rate of 0.038 t of halibut per metric ton of groundfish to derive initial PSC limits. This bycatch rate represented the weighted average for the joint ventures of Taiwan and Spain that operated in the Central Gulf during 1984. While the SSC feels that this is a reasonable starting point, it urges that the development of halibut bycatch limits be based on the appropriate bycatch and mortality rates for each fishery.

The SSC recognized the merits of the framework for implementation of halibut PSC limits. However, the informational requirements for such a framework are large. The PSC concept with accountability provided by mandatory observers has been highly successful in reducing the bycatch of prohibited species. However, without the accountability provided by observer coverage, the PSC

2. Other Activities

No new information has been provided on the status of the other activities mentioned in the report provided last year. The SSC, therefore, recommends that the Board should continue to monitor the progress of these activities and report on them in its annual report.

3. Other Activities

No further information was provided in the report which would allow the Council to make a recommendation of any kind. The Council, therefore, sees no reason to modify the recommendation of the Board for the year 1984. The SSC would like to see that the Board is concerned that a review of a level higher than 1.700 may not be sustainable. The SSC has no data to indicate that it can or cannot be sustained.

4. Theoretical and Policy

The SSC has no data to allow the determination of any kind and does not intend to recommend changes from the current one.

5-1(b) Review of 1983 DAP and VPI Framework

The SSC in an attempt to assist the Council evaluate progress made in the implementation of the DAP and VPI for 1983, prepared tables (Tables A and B) that contain key survey results and final results for 1983 and 1982. In the absence of published physical capacity and percent capacity utilization data, the SSC was unable to compare on the estimates. However, the SSC would like to emphasize that any upward bias contained in the estimates may result in artificial inflation going unobserved with the loss of potential economic gains.

5-1(c) 1983 Half-Year Report

The SSC heard a report from the Board that summarized the half-year report prepared by Amendment A and described information that was developed to assist the Council in the implementation of the framework. The SSC stated to compliment the Board for their effort. The report that they prepared focuses attention on critical issues and presents information that should be useful in the development of 1983 policies.

It was brought to the attention of the SSC that the Board is recommending that the Council use a budget rate of 0.025 of half-year report rate of 0.025 as a budget rate. This budget rate represents the weighted average for the joint venture of Taiwan and South Korea that appeared in the General CDF during 1984. While the SSC feels that this is a reasonable starting point, it urges that the development of half-year budget limits be based on the appropriate catch and volatility rates for each industry.

The SSC recognized the merits of the framework for half-year report rate of 0.025. However, the formalized framework for half-year report rate of 0.025 is not consistent with accountability provided by regulatory agencies. The SSC has been highly successful in reducing the burden of published reports. However, without the accountability provided by regulatory agencies, the SSC

Table 4. Comparisons of NMFS survey results and Final DAP and JVP catches for 1984 (in metric tons)

<u>Species</u>	<u>Area</u>	<u>DAP</u>			<u>JVP</u>		
		<u>NMFS Survey</u>	<u>Final Catch</u>	<u>Difference (Survey-Catch)</u>	<u>NMFS Survey</u>	<u>Final Catch</u>	<u>Difference (Survey-Catch)</u>
Pollock	W	230	0	+230	300	8,006	-7,706
	C	24,130	329	+23,801	210,000	199,014	+10,986
	E	300			0	0	
Pacific Cod	W	500	49	+451	250	298	-48
	C	11,691	2,124	+9,567	14,621	4,125	+10,496
	E	120	34	+86	0	0	
Flounders	W	0	5	-5	10	556	-546
	C	102	240	-138	8,615	2,696	+5,919
	E	300	152	+148	0	0	
Pacific Ocean Perch	W	0	116	-116	1,770	0	+1,770
	C	622	19	+603	2,000	0	+2,000
	E	460	3	+457	0	0	
Rockfish	G-W	395	520	-125	500	2,032	-1,532
Sablefish	W	600	240	+360	50	275	-225
	C	1,541	2,807	-1,266	110	216	-106
	WYK	1,344			0	0	
Atka Mackerel	W	0	31	-31	400	577	-157
	C	0	0		1,500	7	+1,493
	E	0	0		0	0	
Squid	G-W	100			10	0	+10
Thornyhead rockfish	G-W	0			50	0	+50

Table 5. Comparisons of NMFS survey results and Final DAP and JVP catches for 1985 (in metric tons).

Species	Area	DAP			JVP		
		NMFS Survey	Final Catch	Difference (Survey-Catch)	NMFS Survey	Final Catch	Difference (Survey-Catch)
Pollock	W	9,371	6,497	+2,874	293,250 ^{1/}	237,354 ^{1/}	+55,896 ^{1/}
	C		2,583	-2,583			
	E	2	1	+1	0	0	
Pacific Cod	W	2,460	778	+1,682	7,327	304	+7,023
	C	8,624	893	+7,731	10,073	1,943	+8,130
	E	766	58	+708	0	0	
Flounders	W	400	8	+392	102	320	-218
	C	1,781	52	+1,729	498	2,056	-1,558
	E	627	38	+589	0	0	
Pacific Ocean Perch	W	1,302	658	+644	0	212	-212
	C	3,906	1	+3,905	0	43	-43
	E	875	31	+844	0	0	
Rockfish	G-W	4,600	182	+4,418	0	45	-45
Sablefish	W	1,670	2,040	-370	0	84	-84
	C	3,060	3,785	-725	0	133	-133
	WYK				0	0	
Atka Mackerel	W	0 ^{2/}	0		4,678	1,848	+2,830
	C	BC ^{2/}	0		0	3	-3
	E	BC	0		0	0	
Squid	G-W	0			0		
Thornyhead rockfish	G-W	0	26	-26	0	10	-10

^{1/} Combined Western and Central.

^{2/} BC = Bycatch amount.

limit concept will have limited success in controlling bycatch of prohibited species.

With the gradual replacing of foreign and joint venture fisheries with domestic fisheries we will lose a highly effective fisheries monitoring program, as well as necessary information to implement the PSC limit concept. The cost of equally effective domestic fisheries monitoring is substantial. Preliminary estimates of the annual costs of domestic fisheries monitoring program including twenty percent observer coverage, fish ticket processing, port sampling for size and age, aging, and data analysis for a fully developed domestic groundfish fishery in Alaska is up to four million dollars annually. With the realities of declining budgets facing NPFMC, NMFS and ADF&G, funding and implementation of essential domestic groundfish fishery monitoring programs by conventional methods is not likely to occur in the near term. The SSC urges the Council to explore alternative methods that could be used to implement this program with various industry groups.

D-1(d) Zero TALFF and Zero JVP

The SSC does not have any specific comments to offer on this issue at this time. It would, however, like to state that allowing the harvest of fully-utilized species in non-target fisheries is necessary if full benefits are to be realized from the harvest of Gulf of Alaska fishery resources.

D-2 Bering Sea/Aleutian Islands Groundfish

A. Status of Stocks and EYs

The SSC reviewed the document entitled "Supplement to the Resource Assessment Document for Bering Sea/Aleutians Groundfish for 1985" dated November 1985. We would like to provide the following comments regarding the proposed EYs.

Split EYs

As was noted in our September minutes the team has proposed a split of the EY and TAC for Pacific cod, yellowfin sole, turbot, other flatfish, Atka mackerel, squid and other species. The SSC was not presented any biological evidence that we felt supported dividing the EYs as proposed.

Pollock

The SSC reviewed the data and method used by the Team to establish their recommendation of EY for pollock. The SSC believes this is the best estimate of EY at this time.

Pacific Cod

The SSC concurs with the Team's analysis which indicates that the EY has decreased from the 1984 value but has increased over the value proposed in the July RAD.

their concept will have limited success in controlling harvest of wild stocks.

With the gradual depletion of stocks and joint venture fisheries with foreign fisheries we will lose a highly effective fisheries monitoring program, as well as necessary information to implement the SSC limit program. The cost of equally effective domestic fisheries monitoring is substantial. Arbitrary estimates of the annual costs of domestic fisheries monitoring program including major observer coverage, fish stock assessment, port sampling for stock and age, and data analysis for a fishery involving domestic groundfish fishery in Alaska is up to four million dollars annually. With the realities of declining budgets facing NMFS, WTS and AFSC, limiting and implementation of essential domestic groundfish fishery monitoring programs by conventional methods is not likely to occur in the near term. SSC urges the Council to explore alternative methods that could be used to implement this program with various industry groups.

D-1(b) Rare TAIMM and Rare UVP

The SSC does not have any specific comments to offer on this issue at this time. It would, however, like to state that during the review of fully-utilized species in non-target fisheries is necessary to help maintain one to be retained from the harvest of Gulf of Alaska fishery resources.

D-2 Status of Stocks and EYA

The SSC reviewed the document entitled "Supplement to the Resource Assessment Document for Bering Sea/Aleutian Groundfish for 1981" dated November 1981. We would like to provide the following comments regarding the proposed EYA.

Split EYA

As we noted in our September minutes the team has proposed a split of the EYA and TAC for Pacific cod, yellowtail sole, and other species. The SSC was not presented with biological evidence that we felt supported dividing the EYA as proposed.

Pollack

The SSC reviewed the data and method used by the team to establish their recommendation of EYA for pollack. The SSC believes this is the best estimate of EYA at this time.

Pacific Halibut

The SSC concurs with the team's analysis which indicates that the EYA has increased from the 1981 value but has increased over the value proposed in the July 1981.

Yellowfin Sole

The SSC concurs with the Team's analysis that the EY has decreased from the 1984 EY.

Turbots

The Team points out one component of this resource, that of Greenland turbot, is depressed, suffering from a dramatic decline in juveniles since 1980. The Team also notes that the other component, arrowtooth flounders, is increasing in abundance. The SSC recommends that immediate split of this species category with the establishment of a separate EY and TAC. The EY values would be as follows: Greenland turbot 35,000 mt and Arrowtooth flounder 20,000 mt.

Other Flatfish

The SSC concurs with the Team recommendations for this category.

Sablefish

The SSC concurs with the Team recommendations for this category.

Pacific Ocean Perch and Other Rockfish

The Team, in developing these EY recommendations, is recommending the Council view POP as a complex comprising of five species. The SSC feels that in light of the concern for S. Alutus and to maintain consistency with our recommendation to separate S. Alutus in the Gulf plan, the SSC does not support the Team's recommendation. Therefore, the SSC EY recommendation is for S. Alutus only.

The SSC's recommended EYs for the "other rockfish" category reflect an upward adjustment of the Team's EYs to account for the rockfish species removed from POP category.

Atka Mackerel, Squid, and Other Species

The SSC recommends that the Council accept the Team proposed EYs for these species.

A summary of the SSC recommended EYs is provided in Table 6.

B. ABC and OY for the Complex

The SSC notes that the ABC for the groundfish complex is approximately 2,000,000 mt based upon our recommendations for EY. The plan provided that the OY can range from 1.4 million mt to 2.0 million mt. The SSC recommends that the ABC is set at 2.0 million mt and the OY be set by the Council near the upper end of this range.

Table 6
SSC Recommendation on EY and TAC Comments

<u>Species</u>	<u>EY</u>	<u>Initial TAC</u>	<u>Notes</u>
Pollock			
EBS	1,100,000	1,200,000	See SSC Minutes
Aleutian	100,000	100,000	
Pacific Cod	249,300	?	See SSC Minutes
Yellowfin Sole	230,000	230,000	May be used to balance
Greenland Turbots	35,000	35,000	See SSC Minutes
Arrowtooth Flounder	20,000	20,000	
Other Flatfish	137,500	137,500	May be used to balance
Sablefish			
EBS	3,000	2,250	See SSC Minutes
Aleutian	4,200	4,200	See SSC Minutes
Pacific Ocean Perch			
EBS	1,100	825	See SSC Minutes
Aleutian	9,100	6,800	See SSC Minutes
Other Rockfish			
EBS	1,100	825	See SSC Minutes
Aleutian	7,800	5,800	See SSC Minutes
Atka Mackerel	30,800	30,800	
Squid	10,000	10,000	
Other Species	35,900	35,900	May be used to balance

Note:

1. ABC \approx 2,000,000 mt.
2. The SSC recommends that OY is set at or near 2,000,000 mt.

C. Initial TACs

Based upon an OY for the complex of nearly 2.0 million mt, the SSC reviewed the TACs as proposed by the Council at the September meeting for public review and those proposed by the Team in the supplement.

Based upon the SSC review of the species EYs and our recommendation that the OY is set at 2,000,00 mt, the SSC provides the following guidance to the Council in their TAC discussion. TAC numbers used by the SSC in our deliberations are provided in Table 6. SSC notes on this table are as follows:

Pollock-EBS

The "Supplement to the Resource Assessment Document for the Bering Sea/Aleutians Groundfish for 1985" provides an estimate of the total biomass of 7.3 million mt for 1985. This estimate represents a decrease from equivalent estimates of 11.0 million mt in 1979 and 8.8 million mt in 1982. The SSC was told by the Team that the biomass in 1986 is projected to remain at the 1985 level. The size of the biomass is expected to increase in 1987 as the 1982 and 1984 year classes are recruited to the fishery. Given the conservative exploitation rate used by the Team to arrive at EY and the forecasted increase in the size of the biomass, the SSC feels that the TAC could safely be increased beyond the 1.1 mt (EY) level. No concern was voiced over action that would set TAC at 1.2 mt.

Pacific Cod

In our deliberations on EY for Pacific cod, the domestic industry expressed concern that they do not feel, as a result of their fishing experience, that the EY was as high as the survey date indicated. This led the SSC to examine the model being used in further detail.

The model used by the Team to develop their EY recommendation assumes that the same exploitation rate is applied across all fishable age groups. In practice, we know that this is not the case. The exploitation rate on each age group will vary. It is difficult to predict what the exploitation rate in 1986 will be for each age class. After detailed discussion with the Team, it was concluded that the optimal exploitation rate produced by the model for 5, 6 and 7 year old fish are appropriate. However, the optimal rate is considered to be high for the 8, 9 and 10 year olds. Fewer numbers of these fish in the population and their dispersion throughout the Bering Sea led to this conclusion. Lower exploitation rates should be applied to these age classes. For younger fish, ages 3 and 4, two issues should be considered. While it is felt that age 4 fish are fully recruited to the fishery, age 3 fish are not. It might also be desirable to carry some of these fish over into future years to increase the number of large fish available to the fishery. Both of these arguments could be used to support less intense exploitation of these two year classes.

In conclusion, issues raised in this discussion could be used to support setting initial TAC below EY. The SSC was unable to specify how far below because of the lack of information on the appropriate exploitation rate for 3 and 4, as well as 8, 9 and 10 year old fish.

Based upon an FY for the complex of nearly 2.0 million ac. The SSC reviewed the TWA as proposed by the Council at the September meeting but public review and those proposed by the Team in the supplement.

Based upon the SSC review of the species EYE and our recommendations that the FY be set at 7,000,000 ac. The SSC provided the following guidance to the Council to study TAC discussion. The number used by the SSC as an initial estimate are provided in Table A-1. SSC notes on the table are as follows:

Table A-1

The Department of the Resource Assessment Document for the Pacific Northwest Groundfish for 1987 provided an estimate of the total biomass of 7.3 million ac for 1987. This estimate represents a decrease from 1986 of 1.0 million ac. The 1987 and 1988 estimates are 7.3 million ac and 6.8 million ac, respectively. The SSC was told by the Team that the biomass in 1987 is expected to increase to 7.5 million ac in 1988. The size of the biomass is expected to increase to 8.0 million ac in 1989 and 1990. Year classes are recruited to the fishery. Given the conservative exploitation rate used by the Team to arrive at EYE and the forecasted increase in the size of the biomass, the SSC feels that the TAC could safely be increased beyond the 1.1 million (EYE) level. A decrease was advised over action that would act TAC at 1.2 mt.

Table A-2

The SSC deliberated on EYE for Pacific cod. The general discussion expressed concern that they do not feel, as a result of their fishing experience, that the EYE was as high as the survey data indicated. This led the SSC to examine the model being used in further detail.

The model used by the Team to develop their EYE recommendation assumes that the same exploitation rate has applied across all life stages. In fact, we know that this is not the case. The exploitation rate on each age group will vary. It is difficult to predict what the exploitation rate in 1988 will be for each age class. After detailed discussion with the Team it was concluded that the optimal exploitation rate produced by the model for 8, 9 and 10 year old fish are appropriate. However, the optimal rates for 6 and 7 year old fish are higher for the 8, 9 and 10 year olds. Lower rates of 4 and 5 year olds should be considered. Lower exploitation rates should be applied to these age classes. For younger fish, ages 3 and 4, two issues should be considered. While it is felt that age 4 fish are fully recruited to the fishery, age 3 fish are not. It might also be desirable to carry some of these fish over into future years to increase the number of large fish available to the fishery. Both of these arguments could be used to support lower exploitation of these two year classes.

The SSC also discussed the fact that the discussion could be used to support a higher initial TAC below EYE. The SSC was unable to agree on a low level of the fact of information on the appropriate exploitation rate for 4, 5, 6, 7, 8, 9 and 10 year old fish.

Greenland Turbot

Information on the total biomass of this resource is currently not available but it has been noted that there is a continuing decline in juvenile fish. The Team took this decline into consideration in developing their EY recommendations. The SSC noted that historic catches ranging from 30,000 to 63,000 mt resulted in the recruitment of large numbers of juveniles. Therefore, the SSC did not feel compelled to recommend setting the initial TAC below the EY.

Sablefish, Pacific Ocean Perch, and Other Rockfish

The SSC recommends that the TAC be set below the EYs for these species to provide for rebuilding.

C. Splitting TACs

The SSC was not provided any evidence that we feel supported the dividing the TACs into additional management areas. Members of the SSC briefly reviewed the Council staff report entitled "The Benefits and Costs of Setting Separate TACs for the Bering Sea and Aleutian Islands Management Areas and the Elimination of TALFF in the Aleutian Islands." Several members of the SSC feel that the document is flawed. We urge that the contents of the document not be used by the Council at this time. Further, we recommend this document be given to the Plan Team, NMFS and ADF&G for review.

The SSC has requested on numerous occasions that decision documents be supplied to it in advance of a meeting to ensure thorough review. It must be recognized that if the SSC is to operate in an effective manner, a reasonable amount of time must be allotted for review. In the future it is the hope of the SSC that documents such as this be subjected to review by the Team, NMFS and ADF&G and provided to the SSC in sufficient time for review.

D. Management Problems Associated with TAC

The SSC discussed the regional management, problems encountered last year. When a TAC is reached, the region is required by regulation to close all or part of a management area unless the TAC is increased from the non-specific operational reserve. Because the FMP contains no guideline as to the amount of resources that may be allocated to TAC, the Region uses the EYs as guidelines when it increases TAC. Last summer, however, the Region imposed a cost on certain fishermen when it closed the groundfish fishery seaward of 200 fathoms when the sablefish TAC was reached, although it was re-opened a few weeks later. This same problem is expected to occur again early in 1986 and will probably involve other species.

The SSC recommends that the Council appoint a workgroup to work closely with the Region to develop guidelines to mitigate the above problem and reduce the likelihood of premature closure of the Bering Sea fisheries.

E. Review of 1986 DAP and JVP Estimates

The SSC did not have time to gather the information on survey results and final catches for the Bering Sea/Aleutians area.

Information on the total biomass of this resource is currently not available but it has been noted that there is a continuing decline in herring fishery. The team took this decline as a consequence of developing about 17 recommendations. The SSC noted that although catches were 30,000 in 1988, 61,000 in 1989, and 100,000 in 1990, the recruitment of herring was low. Therefore, the SSC did not feel compelled to recommend setting the initial TAC below the FYE.

2.3.2.2. Initial Green TAC, and Other Details

The SSC recommends that the TAC be set below the FYE for each species to provide for rebuilding.

C. Initial TACs

The SSC was not provided any evidence that we had supported the dividing the TAC into additional management areas. Members of the SSC initially reviewed the Council staff report entitled "The Herring and Late of Spring 1988" and the TACs for the Herring Sea and Atlantic Islands Management Area and the Herring Sea and Atlantic Islands. Several members of the SSC felt that the document is flawed. We urge that the contents of the document not be used by the Council in this case. Further, we recommend this document be given to the Herring Team, WMEC and AWRC for review.

The SSC has reviewed on numerous occasions that details regarding the applied to it in advance of a meeting to ensure thorough review. It was recognized that if the SSC is to review in an efficient manner, a reasonable amount of time must be allowed for review. In the future, it is the hope of the SSC that documents such as this be subjected to review by the team, WMEC and AWRC and provided to the SSC in sufficient time for review.

D. Management Problems Associated with TAC

The SSC discussed the regional management problems associated with TAC. When a TAC is reached, the region is required by regulation to close all or part of a management area unless the TAC is increased from the non-specific operational reserve. Because the WMP contains no guidelines as to the amount of resources that may be allocated to TAC, the Region uses the FYE as guidelines when it increases TAC. Last summer, however, the Region imposed a cost on certain fishermen when it closed the Greenland fishery seaward of 200 fathoms when the specific TAC was reached, although it was increased a few weeks later. This same problem is expected to occur again early in 1989 and will probably involve other species.

The SSC recommends that the Council appoint a committee to work closely with the region to develop guidelines to mitigate the above problem and reduce the likelihood of premature closure of the Spring Sea fisheries.

E. Review of 1988 WMP and WMP Guidelines

The SSC did not have time to gather the information on survey results and final catches for the Spring Sea fisheries area.

E-1 Contracts and Proposals

The SSC reviewed the proposal entitled "Discard Catch in U.S. Commercial Marine Fisheries, Analysis and Recommendations." This proposal is to study discard issues for five fisheries. Out of these five, only one fishery, the Alaskan/North Pacific groundfish fishery, is under the direct jurisdiction and primary interest of the NPFMC.

A second discard issue in the western Pacific high seas driftnet salmon fishery is of interest to the Council, but is a topic that has been actively addressed by the International North Pacific Fisheries Commission and the U.S. section of the Commission. It is doubtful that the proposed study will add significantly to the knowledge base. Therefore, there is no need for the Council to pursue a further study of this salmon fishery.

Regarding the Alaskan/North Pacific groundfish fishery, the proposed project would seek answers to four questions:

1. What are the levels of magnitude and proportions of discard in terms of both numbers of organisms and biomass?
2. What species are affected, both target and bycatch?
3. What are the associated population dynamic effects (growth, survival, mortality, reproduction) on those species?
4. How do discards affect associated communities and ecosystems in terms of predator/prey interactions and biological energy turnover?

Regarding answers to questions 1 and 2, the data base and the computer analytical system have been well established to address current and future needs of the Council. It is unlikely that the proposed project will improve this ability significantly.

Regarding answers to question 3, it probably cannot be answered. The SSC does not consider the answers to this question to be important at this time.

Regarding answers to question 4, the proposed project will similarly not be able to determine how discards affect associated communities and ecosystems. In practice, this issue has always been considered by the Council in its stock assessment and management process.

The SSC does not feel the proposal is of high priority for Council funding.