

# North Pacific Fishery Management Council

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Date: 6/8/81

## MINUTES

### NORTH PACIFIC FISHERY MANAGEMENT COUNCIL Scientific and Statistical Committee May 26-27, 1981 Anchorage, Alaska

The Scientific and Statistical Committee of the North Pacific Fishery Management Council met in Anchorage on May 26-27, 1981. Members present were:

Donald Rosenberg, Chairman  
Richard Marasco  
William Aron  
Bud Burgner  
John Clark  
Larry Hreha  
Steve Langdon  
Jack Lechner  
Al Millikan  
Don Calkins (alternate for John Burns)

#### B-6 Non-Agenda Items

Subcommittees - The SSC review and updated its internal membership on subcommittees. An updated list of this membership has been provided to the Council staff (Attachment 2). Additionally, in order to effectively monitor and review Council contracts, the SSC has established subcommittees for each outstanding contract. A list of this membership has been provided to the Council staff (Attachment 3). It is expected that members of these committees will receive and review for the SSC all quarterly and final reports from contractors.

#### C-2 Recommendations for Plan Maintenance Teams

In accordance with the Council's direction at the last meeting, the SSC received and reviewed recommendations from the Alaska Department of Fish and Game and the National Marine Fisheries Service for membership on the Plan Maintenance Teams. The SSC, in addition, discussed other agency participation in PMT's. The SSC believes that each PMT should have identified a scientific support group who will be kept informed of PMT's needs and actions. The SSC recommendations for agency, and where available, individual membership on PMT's are provided in Attachment 1. The Council should note that the SSC is recommending that the Washington Department of Fisheries have membership on the High Seas Salmon PMT and that the International Pacific Halibut Commission have membership on both of the groundfish PMT's. The SSC will request that these agencies submit names of individuals for our review at our next meeting.

The Council should note that the PMT's for Tanner Crab, High Seas Salmon and Gulf of Alaska Groundfish need to be established immediately. Teams for Bering Sea/Aleutian Islands Groundfish and Bering Sea Herring need not be confirmed until these plans are approved.

#### E-1 Salmon FMP

##### Washington Department of Fisheries Report dated March 12, 1981

At the March 24 meeting the SSC considered a report by the Washington Department of Fisheries staff dated March 12, 1981 entitled "Review of 1981 NPFMC Preferred Options and Refinements to the Analysis of Upper Columbia River "Bright" Fall Chinook Management Needs and Opportunities for 1981". A number of questions regarding the analysis were raised that were not resolved satisfactorily in the available time. In order to allow adequate consideration of the information in developing 1982 chinook regulatory amendments, the SSC recommended in part that the Salmon Subcommittee review the document by the May meeting and provide a list of specific questions to WDF regarding the analyses presented, the model used, and assumptions contained in the model. This list of questions was reviewed by the SSC and will be forwarded to the Washington Department of Fisheries for their consideration.

To evaluate the Washington Department of Fisheries' analysis, there is a need to understand the model which has been developed jointly by the Department and the National Bureau of Standards.

It is recommended that the Council sponsor a one-day workshop to be conducted in early fall by Fred Johnson (author of the model) and personnel of Washington Department of Fisheries. The purpose of the workshop would be to explain in detail the use of the model in the coastwide chinook fishery. Attendees would be those members of the North Pacific and Pacific SSC's, PMT's, Councils, and management agencies who desire a better understanding of the use of the model.

#### Salmon Limited Entry

The SSC reviewed the report by the Council staff containing data on the number of trollers who would qualify for an FCZ limited entry program under various eligibility criteria. The SSC has no recommendation on these data at this time.

#### Economic Impact Analysis of Different OY Reductions

This analysis has been reviewed and comments have been made to the NMFS, Regional Office.

#### E-3 King Crab FMP

The SSC reviewed the document entitled, "Alaska Board of Fisheries Decision Regarding Management of Domestic King Crab Fisheries in the Bering Sea/Aleutian Islands Area," dated March 1981. This statement summarizes decisions made by the Board of Fisheries that represent deviations from the status quo. A critical weakness of the report is its lack of adequate documentation of the factors that led to a particular decision. Future statements of this type should contain data which was used in the decision process.

The Council should note that the FWI is for Alaska and the State of Alaska should be included in the FWI. The FWI should be included in the FWI and the FWI should be included in the FWI.

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Washington Department of Fisheries Report, July 11, 1981

As the Board is aware, the FWI conducted a report by the Washington Department of Fisheries which dated March 11, 1981 entitled "Review of 1980 FWI Report". The report was prepared by the Washington Department of Fisheries and the Washington Department of Fisheries. The report was prepared by the Washington Department of Fisheries and the Washington Department of Fisheries. The report was prepared by the Washington Department of Fisheries and the Washington Department of Fisheries.

The Washington Department of Fisheries report is a comprehensive report which has been developed jointly by the Washington Department of Fisheries and the Washington Department of Fisheries.

It is recommended that the Board should be kept advised of the progress of the report. The report is a comprehensive report which has been developed jointly by the Washington Department of Fisheries and the Washington Department of Fisheries.

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The following management issues are addressed in the document:

1. OY determination for the Bristol Bay, Bering Sea, Adak, and Dutch Harbor areas;
2. closure of an area extending approximately 15 miles offshore in the northern and eastern portion of Norton Sound to commercial fishing from July 15 through September 3 to enhance subsistence fishing;
3. modification of the opening season to coincide with the opening of the Bristol Bay fishery;
4. retention of red king crab 7-1/2" and larger in the Pribilof fishery after closure of the Bristol Bay fishery;
5. proposed modification of the pot storage area for the Bristol Bay fishery; and
6. proposed redesignation of the Bristol Bay fishery as a non-exclusive area.

The SSC specific comments on these items is as follows:

1. OY Determination

OY's contained in document were found to correspond with guidelines specified in the framework plan for all areas except Adak. Estimates of the exploitable number of males larger than 6-1/2" is unknown at present in the Adak area. Further, the stock in the area is considered to be in a depressed state. The OY was set at 0.5 to 3.0 million pounds to allow the fishery to operate so that data on the status of stocks in the area can be obtained.

2. Closure of an area 15 miles offshore in the northern and eastern portions of Norton Sound.

This action was taken to enhance subsistence fishing in the Norton Sound area. During 1980 the subsistence catch in this areas was small due mainly to the lack of inshore availability of crab. The commercial catch was 1.2 million lbs, with 17% of that catch coming from the area proposed for closure. This action represents the giving of preferential treatment to a group of domestic fishermen. Therefore, economic and social issues are involved. Data are unavailable to determine, for example, how the economic viability of the commercial fishery will be affected by this action. It is recommended that the Council support a study to determine the economic and social characteristics of the subsistence and commercial fisheries in this area.

3. Modification of the opening date of the Pribilof fishing season.

During the 1979-80 season, regulations opened the red crab fishery in the Pribilofs five days before the opening of the Pribilof blue king crab fishery and the Bristol Bay red crab fishery. The different opening dates caused confusion during vessel registration and tank inspection. The opening date of the Pribilof fishery was modified to coincide with that for the Bristol Bay fishery to alleviate the confusion.

- 1. The 1967-68 season was the best in the history of the fishery...
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The 1967-68 season was the best in the history of the fishery.

1967-68 Season

The 1967-68 season was the best in the history of the fishery. The catch was 10,000 tons, a record for the fishery. The weather was good and the fish were in good condition. The fishery was open for 100 days, a record for the fishery. The fishery was open for 100 days, a record for the fishery.

1966-67 Season

The 1966-67 season was the best in the history of the fishery. The catch was 8,000 tons, a record for the fishery. The weather was good and the fish were in good condition. The fishery was open for 80 days, a record for the fishery. The fishery was open for 80 days, a record for the fishery.

1965-66 Season

The 1965-66 season was the best in the history of the fishery. The catch was 6,000 tons, a record for the fishery. The weather was good and the fish were in good condition. The fishery was open for 60 days, a record for the fishery. The fishery was open for 60 days, a record for the fishery.

4. Retention of red king crab 7-1/2" and larger in the Pribilof fishery after closure of the Bristol Bay fishery.

Under current regulations, the Pribilof fishery remains open after Bristol Bay fishery is closed. The Pribilof fishery is mainly a blue crab fishery; however, red crab are taken as an incidental catch. In the past, retention of red crab was prohibited after closure of the Bristol Bay fishery. Catch data indicates an availability of large red crab in the area. Making it possible to retain these large red crab will result in an increase harvest of post recruits which suffer high levels of natural mortality.

5. Modification of the pot storage area for the Bristol Bay fishery.

The proposed area is located due north of Unimak pass and Southwest of the existing pot storage area. During 1980, approximately 50% of the Bristol Bay red crab harvest came from this area. Since the area is located on the fishing grounds, adoption of the proposed storage area would reduce storage costs. If the pots are illegally fished, there could be an increase in dead loss. This would result in waste and a reduction in aggregate gross revenues accruing to the fleet. Further, storage of a large number of pots in a productive area could have an adverse impact upon the status of the stock. There is an indication that the shift of the pot storage area could have a favorable impact upon the groundfish trawl fishery.

6. Redesignation of the Bristol Bay fishery as a non-exclusive area.

Classification of an area as an exclusive or non-exclusive area can have a significant impact on the economic and social features of a fishery. A thorough examination of this issue is required. An understanding of the economic and social features of the various elements of the crab fleet is needed before the impact of these actions can be evaluated.

#### E-4 Tanner Crab FMP

The SSC reviewed the status of the Tanner Crab FMP and the inconsistencies between the Council's current plan and the State of Alaska regulations which are being used to manage the fishery. The Tanner Crab FMP was adopted as a one year type plan which requires annual amendments to satisfy changes required by conservation and socioeconomic factors.

Our review indicates that the amendment procedures has failed to function in a timely manner. Changes necessary in all areas of the regulatory scheme, (OY, fishing seasons, pot limits, and pot storage) have not kept pace with the state regulations. These inconsistencies are far greater than would appear by the table provided by the Council staff. Many of the regulatory measures in the FMP are still in the process of being amended for the 1979-80 fishing year and are being re-amended for the 1980-81 fishing season. In these cases, the fishery has been regulated by emergency order, adopting the state regulations. The fishery has become history without actual federal regulations having been fully processed.

Rehabilitation of the Fishery and the Fishery

Under current conditions, the Fishery is being managed as an open access fishery. The Fishery is currently being managed as an open access fishery. The Fishery is currently being managed as an open access fishery. The Fishery is currently being managed as an open access fishery.

Rehabilitation of the Fishery and the Fishery

The proposed plan is based on the assumption that the Fishery is currently being managed as an open access fishery. The Fishery is currently being managed as an open access fishery. The Fishery is currently being managed as an open access fishery. The Fishery is currently being managed as an open access fishery.

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If the current procedure continues, it may allow, through legal procedures, a risk to proper management of the resource. The current processes have resulted in certain state regulations not being enforced due to conflict with non-amended federal law. Although to date this has not created a conservation problem, it has been unjust to the fishery participants.

Under this current situation the SSC feels it is not able to effectively judge the scientific merits of the data being used to manage the fishery. Likewise, the failure to amend the plan is hindering the effective management of the fishery.

The SSC recommends the following:

1. that the FMP be fully updated to reflect the current regulatory changes;
2. that the Council consider the development of a new plan or amending the existing plan to create a multi-year plan that does not require an annual full amendment process, and/or
3. that the Council consider developing a management scheme similar to that being considered for king crab resources.

#### E-6 Bering Sea/Aleutian Islands Groundfish FMP

The SSC reviewed the written testimony, the summaries of the public testimony, and the various reports which have been submitted regarding proposed Amendment #3 to the Bering Sea/Aleutian Islands Groundfish FMP. Additionally, the SSC received testimony from individuals or representatives of the various concerned groups.

The SSC considered the pros and cons of each of the proposed procedures to control the catch of prohibited species. These are:

#### Procedures

1. Set allowable incidental catches (AIC) coupled with imposition of incidental catch fees.

#### Pros

- o Incidental catch limits of prohibited species, can be set at biologically safe levels.
- o There is an incentive to develop and use most efficient harvesting methods to avoid prohibited species.
- o Permits the operation of foreign and domestic groundfish fisheries.
- o Allows incremental adjustment of fees to optimal levels. Incremental fee increases should reduce incidental catches.

#### Cons

- o Taking of prohibited species will continue.



If the current procedures continue, it may allow, through legal procedures, a  
right to proper management of the resource. The current procedures have  
resulted in certain state regulations not being enforced due to the fact that  
management level law. It would be better to have this law enforced a comprehensive  
program. It has been argued in the industry participants.

Under this current situation the SSC feels it is not able to effectively manage  
the scientific resource of the area being used to manage the industry. It is  
the intent to ensure the area is managed by the effective management of the  
industry.

The SSC recommends the following:

1. That the SSC be fully updated to reflect the current regulatory  
changes;
2. That the Council consider the development of a law that would  
the existing plan to ensure a multi-year plan has been developed  
an annual bill amendment process, which
3. That the Council consider developing a management plan limited to  
that being considered for long term resources.

### 3-6. Review of the National Wildlife Refuge System

The SSC reviewed the written testimony, the summaries of the public testimony,  
and the various reports which have been submitted regarding proposed  
amendment #3 to the National Wildlife Refuge System. The SSC received  
the SSC received testimony from individuals of representative of the various  
interest groups.

The SSC considered the pros and cons of each of the proposed amendments to  
the National Wildlife Refuge System. These are:

Proposed

1. For the National Wildlife Refuge System to be managed as  
a national system.

Proposed

2. To allow the National Wildlife Refuge System to be managed as a  
biological system.

3. There is an incentive to develop and use more efficient  
management methods to avoid prohibited species.

4. Permit the operation of federal and forest lands  
to be managed.

5. Allow management adjustment of the National Wildlife  
Refuge System to be managed as a national system.

Proposed

6. To allow the National Wildlife Refuge System to be managed as a  
national system.

- o If the goal is to protect prohibited species, the initial AIC's are indefensible. This is not the case if protection of prohibited species and allowance of a groundfish fishery are desired.
- o Fees collected will not be distributed to fishermen affected by the incidental catches.
- o If the AIC's are the binding constraints, fishermen that can avoid catching prohibited species are penalized along with those that cannot avoid them.
- o Expanded level of observer coverage would be required.

2. AIC's for prohibited species.

Pros

- o Incidental catch limits of prohibited species can be set a biologically safe levels.
- o There is an incentive to develop and use most efficient harvesting methods to avoid prohibited species.
- o Permits operation of foreign and domestic groundfish fisheries.

Cons

- o Taking of prohibited species will continue.
- o If the goal is to protect prohibited species, the initial AIC's are indefensible. This is not the case if protection of prohibited species and allowance of a groundfish fishery are desired.
- o Once AIC's are reached any closure will affect fishermen who are successful in avoiding prohibited species as well as those who are not.
- o If there is a desire to incrementally reduce the initial AIC's, specification of the magnitude of the annual reductions request careful review.

3. Impose incidental catch fees alone.

Pros

- o Annual determination of incidental catch levels is not necessary.
- o Enforcement requires adequate knowledge of fishing gear and techniques.

o If the goal is to protect prohibited species, the initial AIG's are inadequate. This is not the case if protection of prohibited species and allowance of a groundfish fishery are desired.

o AIG's will not be distributed to fishermen unless by the industry sector.

o If the AIG's are the binding constraint, fishermen that can avoid catching prohibited species are penalized along with those that cannot avoid them.

o Expanded level of observer coverage could be required.

1. AIG's for prohibited species

1.1

o AIG's for prohibited species can be set at a level that is not binding on most fishermen.

o AIG's for prohibited species can be set at a level that is not binding on most fishermen, necessitating methods to avoid prohibited species.

o Partial operation of foreign and domestic groundfish fisheries.

1.2

o Level of prohibited species will continue.

o If the goal is to protect prohibited species, the initial AIG's are inadequate. This is not the case if protection of prohibited species and allowance of a groundfish fishery are desired.

o AIG's are needed to protect prohibited species as well as those who are not.

o If there is a desire to increase the initial AIG's, a review of the magnitude of the initial AIG's is needed.

2. Impact on groundfish fishery

2.1

o Annual determination of total catch levels is not necessary.

o Enforcement requires complete knowledge of fishing gear and techniques.

5. Enact time/area closures.

Pros

- o Ease of implementation and enforcement.

Cons

- o Large areas would have to be closed for long periods of time to protect all prohibited species, therefore there could create problems in achieving OY.
- o Uncertain about possible adverse impacts resulting from closure on species in other areas, as well as fisheries.
- o Removes incentives for gear experimentation and change.
- o Fishing units are not free to select most efficient harvesting methods.
- o Fishermen that can successfully avoid prohibited species are penalized along with those that cannot avoid them.

6. Reduction in the OY of groundfish species.

This option was not considered viable because it could severely affect the groundfish fishery without reducing the size of the prohibited species catch. It was felt that there are less restrictive and more effective means of achieving a reducing in incidental catch.

7. Impose gear restrictions coupled with a reduction in OY.

Same as 6.

8. Set fishery specific incidence rates as cut-off rates for short-term closures of the groundfish fishery.

This option could be extremely difficult to implement. There is no guarantee that prohibited species catches would be reduced.

Based upon extensive discussions of the various options and weighing the pros and cons of each option, the SSC recommends the following regarding the proposed procedure for reducing incidental catches of prohibited species:

That the Council adopt the Option 2 (AIC alone) with some modification in its application. The SSC recommends that the Council consider two possible modifications.

1. That the AIC option be implemented in the strictest sense, that when a nation reaches its AIC the Bering Sea/Aleutian Islands area closes to all of that nation's groundfish fisheries for the remainder of the fishing year.

1.0

of the project and its objectives.

2.0

The project was designed to study the effects of various factors on the growth and development of the fish. The objectives of the project were to determine the effect of temperature, light, and food on the growth and development of the fish.

The project was carried out in a laboratory setting. The fish were kept in tanks and the water temperature was controlled. The amount of light and the amount of food were also controlled.

The results of the project showed that temperature, light, and food all had a significant effect on the growth and development of the fish.

It was found that the growth rate of the fish increased with increasing temperature, light, and food. The growth rate of the fish was also affected by the interaction of these factors.

The project was successful in achieving its objectives. The results of the project will be useful in determining the best conditions for the growth and development of the fish.

3.0

The project was carried out in a laboratory setting. The fish were kept in tanks and the water temperature was controlled. The amount of light and the amount of food were also controlled. The results of the project showed that temperature, light, and food all had a significant effect on the growth and development of the fish.

4.0

The project was carried out in a laboratory setting. The fish were kept in tanks and the water temperature was controlled. The amount of light and the amount of food were also controlled.

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The project was carried out in a laboratory setting. The fish were kept in tanks and the water temperature was controlled. The amount of light and the amount of food were also controlled. The results of the project showed that temperature, light, and food all had a significant effect on the growth and development of the fish.

The SSC does not believe that any gear type should be exempt from this closure as no gear type is 100% successful in avoiding all prohibited species and therefore that nation's AIC could be exceeded. No specific areas of the Bering Sea/Aleutian Islands fisheries should be exempted from the closure because of the dynamic nature of these fishing resources.

2. That the AIC option be implemented in a manner that the Bering Sea/Aleutian Islands area closes to a nation before its final AIC is reached. Once an initial AIC (a percentage reduction of the final AIC) is reached, the area would close to that nation's groundfish fleets. The Regional Director would then be given the authority to re-open areas to specific gear types from that nation that have demonstrated an ability to avoid prohibited species. Once the final AIC is reached the total area closes to all of that nation's groundfish fishing fleets.

The Council should note that any unused TALFF resulting from an AIC closure should be reallocated to nations which have remaining AIC to facilitate the achievement of OY.

The SSC reviewed the proposed establishment of AIC and the proposed reduction schedule. The SSC concurs with using 1977-1979 average as a starting point for AIC determination and with the goal of a 75% reduction in all prohibited species in a five year time period. The SSC does note that there must be an annual review of that goal and any schedule reductions to insure that they are reasonable in light of stock conditions and harvesting technologies.

With regard to the application of AIC procedure to the domestic groundfish fishery and to the retention of prohibited species, the SSC recommends that the domestic groundfish fishery be included under the AIC concept from the start and that all prohibited species be returned to the sea with a minimum of injury. Failure to include the domestic groundfish fishery in the AIC concept or failure to return prohibited species to the sea, the SSC believes is inconsistent with the recently adopted management objective (amendment package 81-1). That objective reads: "minimize the impact of groundfish fisheries on prohibited species and continue the rebuilding of the Pacific halibut resources."

With regard to the allocation procedure of AIC to the domestic groundfish fishery the SSC believes that only Items A and B in the proposed amendment are relevant; Item C seems to be inconsistent with the FMP management objectives and the D is a duplication of A.

#### F-1 Contracts and RFP's

##### Contract 79-4, Analysis of Southeastern Alaska Troll Fishery Data.

The SSC completed its review of the final report by Alaska Department of Fish and Game on Contract 79-4 entitled "Analysis of Southeastern Alaska Troll Fishery Data". The SSC recommendation approval of the final report.

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The object of the research project was to investigate the feasibility of using the data on troll landings, micro-wire tag recoveries and troll logbook observations as the basis for time and area management of the Southeast Alaska troll fishery. The contractor effectively assembled, summarized and evaluated a voluminous data base to (a) examine the distribution and relative abundance of chinook and coho salmon stocks harvested by the fishery; (b) describe recent trends in power and hand troll catches, landings and fleet characteristics; and (c) develop methods of standardizing troll effort.

The tasks specified in the contract work statement have been accomplished. Catch-per unit effort (CPUE) indices are calculated, adjusting CPUE for the effects of targeting and relative gear efficiency. Trends in catch, landings and vessel characteristics over the period 1969-1979 are examined. Seasonal time-area differences are demonstrated for (a) troll CPUE; (b) distribution of micro-wire tagged stocks of different origin; and (c) distribution of under-sized chinook salmon. The report concludes that if these differences remain consistent in succeeding years' data, time-area management could be utilized to control harvest ratios of stocks from different areas of origin and to increase yield per recruit from the fishery.

The SSC recommends that the Council note in particular the RECOMMENDATIONS sections of the report. Briefly those recommendations are:

1 and 2. Modify ADF&G fish tickets to improve information on troll effort and area of catch.

3. Seek means of obtaining maturity data on tagged chinook recovered in the troll fishery.

4. Improve allocation of port sampling effort to assure useable catch rate information.

5, 6 and 7. Conduct analyses of at least one more year of data (1980) to examine consistency of catch rates, and of time-area distribution of tagged chinook and coho stocks before utilizing the results in time-area closure decisions to control stock interception rates by area of origin.

8, 9 and 10. Examine further the potential of using time and area closures and size limit changes to increase yield per recruit of chinook salmon.

11. Conduct scale pattern analyses and/or expand tagging of chinooks in the troll fishery to obtain better stock identification than feasible from coded-wire tag analyses.

The SSC endorses in general the recommendations of the report, and recommends in particular that means be sought to conduct the additional analyses and the proposed stock identification study of chinook in the troll fishery.

#### Marine Mammal RFP

The SSC reviewed the four proposals that the Council has received in response to the Council's RFP. The SSC also reviewed the recommendation of the Council's scientific/agency subcommittee which reviewed these proposals. The





SSC concurs with the subcommittee's recommendation that the contract be awarded to the Alaska Department of Fish and Game. The SSC requests that our subcommittee review the final proposed contract before execution.

F-3 Programmatic Research Funding

The SSC discussed the research needs for the next year. A preliminary list was developed for consideration by the Council during the development of the 1982 programmatic budget request. This list will be evaluated by the SSC to interest parties for comment and recommended additions. This list will be finalized for submission to the Council at our next meetings.

Attachment 1

Plan Maintenance Teams

Tanner Crab FMP

<u>Agency</u>	<u>Individual</u>
ADF&G	Fred Gaffney
NMFS	Ray Baglin
NPFMC Staff	Steve Davis
Scientific Support Leader	Jerry Reeves

High Seas Salmon FMP

<u>Agency</u>	<u>Individual</u>
ADF&G	George Utermohle
NMFS	Bill Robinson
Wash. Dept. of Fisheries	
NPFMC Staff	Jim Glock
Scientific Support Leader	Mel Seibel

Gulf of Alaska Groundfish FMP

<u>Agency</u>	<u>Individual</u>
ADF&G	Mark Miller
NMFS	Phil Chitwood
IPHC	
NPFMC Staff	Jeff Povolny
Scientific Support Leader	Jim Balsiger

Bering Sea/Aleutian Islands Groundfish FMP

<u>Agency</u>	<u>Individual</u>
ADF&G	
NMFS	Phil Chitwood
IPHC	
NPFMC Staff	Jeff Povolny
Scientific Support Leader	Loh-Lee Low

Bering Sea Herring FMP

<u>Agency</u>	<u>Individual</u>
ADF&G	
NMFS	Dick Marshall
NPFMC Staff	Jim Glock
Scientific Support Leader	Steve Fried

Attachment 1

Winn-Dixie Stores

Winn-Dixie Stores

Individual	Agency
John G. ...	ADP&O
Ray ...	HRMS
Steve ...	MEMO STAFF
Jerry ...	Scientific Support Leader

Winn-Dixie Stores

Individual	Agency
George ...	ADP&O
Bill ...	HRMS
Jim ...	MEMO STAFF
Bob ...	Scientific Support Leader

Winn-Dixie Stores

Individual	Agency
Mark ...	ADP&O
Bill ...	HRMS
Jeff ...	MEMO STAFF
Jim ...	Scientific Support Leader

Winn-Dixie Stores

Individual	Agency
Bill ...	ADP&O
Jeff ...	HRMS
Bob ...	MEMO STAFF
Bob ...	Scientific Support Leader

Winn-Dixie Stores

Individual	Agency
Bill ...	ADP&O
Jim ...	HRMS
Steve ...	MEMO STAFF
Steve ...	Scientific Support Leader

Attachment 2

SCIENTIFIC AND STATISTICAL COMMITTEE  
Subcommittees  
May 1981

GOA Groundfish FMP

Rich Marasco (chairman)  
Ed Miles  
Larry Hreha  
Bill Aron  
John Burns

BS Groundfish FMP

John Burns (chairman)  
Rich Marasco  
Ed Miles  
Larry Hreha  
Bill Aron

Tanner Crab FMP

Jack Lechner (chairman)  
Don Rosenberg  
Bud Burgner

King Crab FMP

Rich Marasco (chairman)  
Bud Burgner  
Jack Lechner

High Seas Salmon FMP

Bud Burgner (chairman)  
Al Millikan  
Don Rosenberg  
Steve Langdon  
John Clark

Herring FMP

Al Millikan (chairman)  
Bud Burgner  
Steve Langdon  
John Clark

Clam FMP

Don Rosenberg (chairman)  
Larry Hreha  
Bill Aron

Halibut FMP

Ed Miles (chairman)  
Don Rosenberg  
Steve Langdon

COMMITTEE AND STAFF MEMBERS  
May 1981

1981-1982

John Adams (Chairman)  
Ed Miller  
Larry Hahn  
Bill Aron  
John Adams

1982-1983

John Adams (Chairman)  
Rich Adams  
Ed Miller  
Larry Hahn  
Bill Aron

1983-1984

Jack Lehman (Chairman)  
Don Rosenberg  
Bud Wagner

1984-1985

Rich Adams (Chairman)  
Bud Wagner  
Jack Lehman

1985-1986

Bud Wagner (Chairman)  
Al Miller  
Don Rosenberg  
Steve Langdon  
John Clark

1986-1987

Al Miller (Chairman)  
Bud Wagner  
Steve Langdon  
John Clark

1987-1988

Don Rosenberg (Chairman)  
Larry Hahn  
Bill Aron

1988-1989

Ed Miller (Chairman)  
Don Rosenberg  
Steve Langdon

Attachment 3

Subcommittees on Contracts

79-4 Analysis of Southeastern Alaska Troll Fisheries Data

Bud Burgner  
Don Rosenberg  
Al Millikan

80-3 Seasonal Use and Feeding Habits of Walruses in the Proposed Bristol Bay Clam Fishery Area

Larry Hreha  
William Aron  
Don Rosenberg

80-4 To Expand and Enhance the Domestic Commercial Fisheries Catch Data Reporting System Off Alaska

Larry Hreha  
Rich Marasco

81-2 Processing of Fisheries Data

Rich Marasco  
Ed Miles

Study of Data on Feeding Habits and Food Requirements of Marine Mammals in the Bering Sea

William Aron  
Don Rosenberg  
Larry Hreha