

MEMORANDUM

TO: Council, SSC and AP Members

FROM: Jim Branson  
Executive Director

DATE: March 18, 1982

SUBJECT: Gulf of Alaska Groundfish Fishery Management Plan

*ACTION REQUIRED*

*The Council is scheduled to approve Amendment #11, Sablefish in the Gulf of Alaska, for Secretarial Review.*

BACKGROUND

- I. Proposed Amendment #11 has been under Council Review since the September 1981 Council Meeting. There have been three public mailings, October 2, 1981, December 16, 1981, and February 16, 1982. The Council has held three public hearings on the amendment, October 24, 1981, November 2, 1981, and at the January 1982 Council meeting. A summary of the January hearing is included as Agenda Item D-5(a).

The PMT met on March 9, 10, and 11 to consider the question of sablefish migration and its possible implications for management, to consider the comments received on the amendment and to evaluate the optimum yield options.

The PMT report, Agenda Item D-5(b), discusses the various OY options under consideration. The PMT recommends that the Council approve a Gulf-wide OY of 6,100 mt for sablefish. Reasons for this recommendation are as follows:

1. it enables a more rapid recovery of the sablefish resource (abundance of stocks and size of fish) when compared with the higher levels of OY that have been proposed;
2. it provides a sufficient amount of sablefish to enable expansion of the directed domestic sablefish fisheries in the Gulf of Alaska;
3. it provides for an incidental sablefish catch in the trawl fisheries and the foreign longline fishery for Pacific cod;
4. it allows for a 20 percent reserve, which is consistent with the current management regime and necessary for domestic fishery expansion; and
5. based on the results of the simulation model (PMT Report, Table 4) under growth curve 1, there are positive net earnings in 1983 and a 32 percent increase in gross earnings from 1981 to 1984.

## II. Other parts of Amendment #11

- A. The Determination of DAH and Reapportionment of Reserve and Unutilized DAH.

The PMT recommends that the suggestions put forth by the National Marine Fisheries Service on these items be adopted. The exact wording is on page \_\_\_\_ of the PMT report.

- B. The North Pacific Longline Gillnet Association's proposal to allow foreign longlining in the Davidson Bank Area.

The PMT discussed this proposal in its December 16, 1981 report. The team considers the rationale in the FMP for excluding foreign fishing from Davidson Bank are still valid. The team notes that domestic fishermen, are using the area more now than previously for bait fishing and the salt cod fishery.

- C. The Alaska Longline Fishermen's Association's Proposal to make sablefish an exclusive hook and line fishery.

The PMT has not received enough relevant information to evaluate this proposal and therefore has no position on it.

Comments concerning this proposal are included in your notebooks as Agenda Items D-5(c) and D-5(d).

- D. The ALFA Proposal for sablefish winter closure.

The PMT received no new information on the biology of sablefish which would indicate that there are winter spawning concentrations which need to be protected. The PMT, therefore, does not recommend a winter closure of the sablefish fishery at this time.

- E. Reporting Requirements

Based upon public testimony and comments received and the desire to minimize the regulatory burden of domestic fishermen, the PMT recommends that domestic fishing vessels report their catch or advise the management agencies by radio or telephone of their departure before leaving Alaskan waters.

A letter from the Alaska Department of Fish and Game about the magnitude of the non-reporting problem is included in your notebooks as Agenda Item D-5(e).

## III. Alaska Board of Fish Action on Sablefish.

The Alaska Board of Fish has banned the use of pot gear for sablefish in State waters from Cape Addington to Cape Fairweather.

The Board has lowered the lower end of the guideline harvest range for inside Southeast waters from 320 mt to 272 mt. The new guideline harvest range will be 272 mt to 894 mt (round weight figures).

#### IV. Other Amendments

- A. Part 5 of Amendment #8 has been officially disapproved. The letter explaining the disapproval is under Agenda Item D-5(f).

Specific deficiencies cited in the disapproval letter were: (1) the amendment contained no criteria for reopening an area after it had been closed to foreign fishing; (2) a lack of procedure to selectively enforce a closure on different foreign nations and/or different gear types; (3) a failure to specify the status of joint venture foreign processing vessels under such a closure; (4) no specification of limits to areas which can be closed and the determination of such limits; (5) no criteria to determine the length of a closure; (6) no provision to allow for affected vessels to leave a closed area; (7) failure to allow affected parties to comment on proposed closures; and (8) "no provisions to assure that OY will be achieved."

Given these comments the Council may want to consider its policy of giving the Regional Director field order authority for time-area closures to resolve gear conflicts between foreign and domestic fishermen.

- B. Amendment #10 which lowers the Pacific ocean perch OY in the Eastern area from 14,400 mt to 875 mt and restricts foreign trawlers to pelagic gear is scheduled to be implemented by May 2, 1982.

Under the former management regime, foreign fishing with bottom trawls would have resumed in the Eastern area on June 1, 1982.

SUMMARY OF PUBLIC HEARING ON AMENDMENT #11 TO THE  
GULF OF ALASKA GROUND FISH FISHERY MANAGEMENT PLAN

January 8, 1982  
Juneau, Alaska

The North Pacific Fishery Management Council conducted a public hearing in Juneau on January 8, 1982 to receive testimony on Amendment #11 to the Gulf of Alaska Groundfish Fishery Management Plan. The hearing was chaired by Gene DiDonato, with Council members Harold Lokken, Bart Eaton, Bob McVey, Ron Skoog, and Don Bevan in attendance. Council staff present were Jim Branson, Clarence Pautzke, and Peggy McCalment.

The hearing convened at 9:15 a.m. with about ten members of the public in attendance. Clarence Pautzke explained the proposed Amendment #11 to the Gulf of Alaska Groundfish FMP. Synopses of individual public comments are given below.

Paul MacGregor, representing the Japanese North Pacific Longline and Gillnet Association, testified in favor of opening the Davidson Bank area to foreign longlining. He explained that prior to implementation of the FMP, foreign longliners had been allowed to fish in that area without restriction. He suggested that the potential for gear conflicts, which was the reason given when Davidson Bank was closed to foreign longlining under the FMP, would be practically nil.

Jim Branson asked Mr. MacGregor if the Japanese North Pacific Longline and Gillnet Association has records of their sablefish catches when they previously fished Davidson Bank. Mr. MacGregor said he could get the information. Mr. Branson then asked if Japanese longliners would be interested in fishing just for sablefish in that area, without a catch of Pacific cod. Mr. MacGregor responded that he was sure they would. Bart Eaton asked for information on where they would longline for sablefish, and Mr. MacGregor said he would furnish that information at the March Council meeting.

There being no further testimony, the floor was opened to general discussion. Robert McVey asked for information on projections for the U.S. salt cod fishery. Mark Miller, ADF&G-Juneau, said he had heard that four large operations are anticipated off Akutan, each expecting to take about 500,000 pounds per day. Pelican Cold Storage is also considering an operation off the Shumagins.

Barry Bracken said that his report on the migratory patterns of sablefish in the Gulf of Alaska would not be available for public review until the end of February. Based on the need for public review of this report, the comment period for Amendment #11 was extended from February 8 to March 5, 1982.

The hearing adjourned at 10:10 a.m.

AGENDA D-5(b)  
MARCH 1982

D R A F T

GULF OF ALASKA GROUND FISH

PLAN MAINTENANCE TEAM REPORT ON AMENDMENT #11

MARCH 11, 1982

## GULF OF ALASKA GROUND FISH

### Plan Maintenance Team Report on Amendment #11

March 11, 1982

#### I. INTRODUCTION

The Gulf of Alaska Groundfish Plan Maintenance Team met on Tuesday, Wednesday, and Thursday, March 9, 10 and 11. Agency representatives of the meeting were as follows:

NPFMC:	Jeff Povolny Clarence Pautzke Jim Branson
NMFS, Alaska Region:	Phil Chitwood Susan Salveson
NMFS, NWAFC:	Jim Balsiger Joe Terry Vidar Wespestad Loh-Lee Low
IPHC:	Steve Hoag
ADF&G:	Mark Miller Barry Bracken

The PMT reviewed the following documents:

1. Evidence of Extensive Directional Movement of Sablefish (Anoplopoma fimbria) in the Gulf of Alaska, by Barry E. Bracken, February 1982.
2. Comments on the October 2, 1981, December 16, 1981 and February 16, 1982 Council amendment packages and mailings.
3. Reports on various aspects of sablefish biology and management prepared for the North Pacific Longline Gillnet Association by Natural Resources Consultants.

The purpose of the meeting was to consider the question of sablefish migration and its possible implications for management, to consider the comments received on proposed Amendment #11, and to evaluate options for the sablefish Optimum Yield (OY).

The PMT provides a recommended sablefish OY for Council review and approval.

## II. MIGRATION

In the December 16, 1981 PMT report the team noted that "the migratory patterns and stock definitions of sablefish are not yet understood." In considering the current state of knowledge on migration, the team said:

Generally speaking, the earlier studies reported in the literature find that although a few individuals travel long distances, most tagged fish are recaptured near the release site.

(However) Two recent studies (Sasaki, 1980, and Bracken, 1981), for which preliminary results are available, suggest notably different theories on sablefish migration.

Bracken (1982) has further analyzed tagging data provided by Sasaki. Bracken (1982) describes a re-analysis of Gulf-wide sablefish tagging data that indicates sablefish move extensively throughout the Gulf of Alaska. Bracken (1982) concludes that fish under 60 cm tend to move west while fish 60 cm or greater tend to move eastward. In addition, Bracken (1982) shows that recoveries from fish tagged in the western and central Gulf suggest a considerable movement to the eastern Gulf and farther south.

Bracken (1982) presents a conceptual model that suggests that the eastern Gulf of Alaska is a pooling area for large fish and that much of the spawning occurs in that area. The report recommends managing sablefish as a single stock Gulf-wide and suggests a conservative management regime to speed rebuilding of the depleted spawning population in Southeast.

In his comments on Bracken (1982), Alverson (Natural Resources Consultants, 1982) reviews Bracken's results and concludes that Bracken's observed sablefish movements are potentially biased by a failure to examine opportunities for recovery and operational areas of the fishery. Alverson asserts that the two omissions would influence tag recovery characteristics and the size composition of harvested fish. Alverson feels that Bracken has misinterpreted the data in conceptualizing his model, and hence its significance in developing management strategies. Alverson proposes an alternative model in which adults form discrete spawning units which retain their integrity but may move seasonally to and from feeding grounds.

Both the Bracken and Alverson conceptual models indicate greater movement of sablefish than previously suggested.

In his response to Alverson's criticisms, Bracken (Appendix A, this report) states that opportunities for recovery were considered and any potential for bias is small. Bracken also notes that an examination of seasonal fishing patterns and opportunities for recapture suggest that seasonal movements of sablefish would not bias the results as Alverson suggested.

### Conclusion

After reviewing all the available information, the PMT concluded that:

1. Long-distance interchange of sablefish between management areas occurs. Seasonal movements to and from spawning grounds possibly also occur. The extent of the interchange appears to be greater than has been previously reported in the literature.
2. Different opportunities for recapture and differential reporting of recovered tags by fleet or season could bias the estimated rate of migration but not change the conclusions that east-west migration of sablefish occurs in the Gulf.
3. Bracken's estimated migration rates probably provide an upper bound on the actual long-distance migration rates, e.g. Table 3 (Bracken,



1982) shows that of the recoveries from tagging in the Chirikof-Aleutian areas, 55% of the large fish were recovered in Southeast or further south. Again, this estimate rate of migration has not been corrected for any bias that may arise due to different recapture opportunities.

4. Additional research and analysis are needed to more precisely estimate the pattern and especially the rates of sablefish migration.
5. Sablefish should be managed as a unit stock although catch limits for each major management area should be maintained: a) to avoid the possibility of area depletion, b) to control interception of fish moving from one area to another, and c) to allow the harvesting of locally spawned and resident stocks.
6. The question of sablefish migration is less important if the objective of Amendment #11 is to provide for the development of the domestic sablefish fishery Gulf-wide as opposed to only revitalizing a domestic fishery concentrated in Southeast Alaska.

### III. THE BIOECONOMIC MODEL, "A Simulation Model for Sablefish in the Gulf of Alaska," Terry and Balsiger, 1982

The Terry and Balsiger simulation model was used by the PMT to study the effect of different OY levels on the opportunity for development of the domestic sablefish fishery Gulf-wide. The model provides estimates of several biological and economic measures of short term rebuilding that are possible with alternative OYs. The model shows when and under what conditions, if any, economic profits will be available to the domestic sablefish fishery.

In the model the best indicator of an opportunity to get economic profits are the net earnings, although gross earnings are less sensitive to individual vessel characteristics. The net earnings generated by the model are subject to qualifications due to the assumptions and parameters used in the model. The PMT noted which assumptions and parameters were most sensitive in evaluating management strategies in the December 16 PMT report (p.5).

Alverson and Crutchfield (Natural Resources Consultants, 1982) have leveled several criticisms at the model. These include the appropriateness of the "representative boat", the costs of fishing Gulf-wide, and the use of constant ex-vessel prices. They also criticize the basis for the revenue function and the rationale for discounting physical yield (tons of fish) as opposed to discounting future money values to present values.

Terry and Basiger have responded to Alverson and Crutchfield's criticisms in Appendix B of this report. Terry and Balsiger recognized the weaknesses of the model and discussed them in their original report. However, they suggest that the model provides reasonable measures of rebuilding which are useful for management decision making and which are not subject to the criticisms of Alverson and Crutchfield.

### Conclusions

1. The PMT recognizes that because the model is sensitive to certain biological and economic assumptions, conclusions regarding the development of the domestic sablefish fishery cannot be provided with certainty.
2. The PMT found that the model provided useful information about the potential incentive for development, i.e. the availability of economic profits, provided to domestic fishermen under various management scenarios.
3. The PMT used the results from the model to formulate and analyze an appropriate sablefish OY which would encourage the development of the domestic sablefish fishery Gulf-wide.

#### IV. EVALUATION OF OY PROPOSALS

1. Gulf-wide OY to be no more than 9,000 mt; Gulf-wide OY to equal 10,435 mt; Gulf-wide OY to remain at 13,000 mt.

The PMT's analysis of the above proposed OYs is based on the likelihood of developing the domestic sablefish fishery Gulf-wide. An OY of 9,000 mt

represents the status quo in terms of actual catches. Under these conditions, the sablefish fishery has not shown significant recovery and to continue at this level of fishing would not provide an opportunity for the development of the domestic fishery.

The above comment is even more likely for an OY of 10,435 mt or 13,000 mt. Under growth curve 1, the optimistic growth curve, (Tables 1 and 2) the simulation model shows that there will be substantive negative net earnings for these OYs. Also, gross earnings show only a 6% improvement from 1981 to 1984 for the 13,000 mt OY and only a 15% improvement from 1981 to 1984 for the 10,435 mt OY. In both cases there is a decline in gross earnings from 1984 to 1985 and large decreases in net earnings from 1984 to 1985.

Therefore, the PMT concludes that none of the three OYs, 9,000 mt, 10,435 mt, 13,000 mt, could possibly result in the development of the domestic fishery Gulf-wide.

2. Gulf-wide OY equals 8,200 mt; Gulf-wide OY equals 8,840 mt.

The 8,200 mt OY was discussed in the December 16, 1981 PMT report. It is consistent with the current management regime of setting OY below EY to promote rebuilding of stocks. The simulation model showed that under growth curve 1 the 8,200 mt OY would not be expected to result in continued rebuilding of sablefish resource through 1985, although 25% increase in gross earnings per trip would be expected.

Table 3 shows what the model predicted for the 8,840 mt OY. Under growth curve 1 there would be economic profits in the fishery by 1983 and gross earnings would increase by 21.5% from 1981 to 1984, although they would decline in 1985. However, the yield would decline after 1983, as would the net earnings and gross earnings after 1984.

Compared to the OY options in point 1 above, the 8,200 mt and 8,840 mt OY seem to provide some opportunity to get economic profits, but it appears to be a very short-lived opportunity given the declining trends after 1984. Therefore, these OYs would not result in a healthy domestic sablefish fishery Gulf-wide in the long run.

3. Gulf-wide OY equals 3,500 mt; Gulf-wide OY equals 500 mt.

Although, in principle, the farther OY is set below EY the faster the sablefish resource will recover, there would be constraints on the fishery which the PMT identified if either of these OY options are approved by the Council.

The possible adverse and beneficial effects of these OYs are discussed in the December 16, 1981 PMT report. Considering the 3,500 mt OY, the PMT noted that:

"An OY of 3,500 tons could be allocated in a manner that would permit the domestic sablefish fleet and the foreign and domestic trawl fleets to maintain current catch levels. Such an allocation would be at the expense of the foreign directed sablefish fishery."

The PMT has considered that any OY should accommodate the sablefish incidental catch in the trawl fishery and the foreign longline fishery for Pacific cod. Therefore, based on the 1981 fishery, the Gulf-wide TALFF necessary would have to be about 2,000 mt, leaving only 1,500 mt for DAH.

V. PMT RECOMMENDATION FOR SABLEFISH OY

The PMT considered that the objective for Amendment #11, "Manage the Sablefish Resource to Provide for the Development of the Domestic Sablefish Fishery Gulf-wide", to be consistent with Section 6.2 of the FMP, and the management objectives in Section 8.1, i.e.:

- (1) rational and optimal use, in both the biological and socio-economic sense, of the region's fishery resources as a whole;
- (2) provision for the orderly development of domestic groundfish fisheries, consistent with (1), at the expense of foreign participation; and

- (3) provision for foreign participation in the fishery consistent with (1) and (2) above, to take that portion of the optimum yield not utilized by domestic fishermen.

As a result of applying the bioeconomic model to the various proposed options, the PMT has determined that to accomplish the amendment objective sablefish OY is probably between 3,500 mt and 8,840 mt. An OY of 3,500 mt would result in a generally stable yield in the fishery under growth curve 2, although net earnings would still be negative. If growth curve 1 is correct, a 3,500 mt OY would result in steadily increasing net earnings. A 3,500 mt OY would provide for a 2,000 mt incidental catch in other groundfish fisheries and a 1,500 mt DAH. An OY of 8,840 mt would allow for positive earnings under growth curve 1, but would result in negative and declining earnings under growth curve 2.

Because of uncertainties regarding sablefish growth, the PMT recommends an intermediate OY value of 6,100 mt, although an argument could be made for an OY of 3,500 mt if sablefish were to be managed conservatively.

An OY of 6,100 mt is adequate from an operational viewpoint because it will provide a sufficient amount of sablefish for a directed domestic fishery and for a reasonable by-catch in the Gulf trawl fisheries and the foreign longline fishery for Pacific cod. Any higher OY may preclude development of the domestic sablefish fishery Gulf-wide.

The PMT emphasizes that adoption of a 6,100 mt OY necessitates a reduction of the Gulf-wide DAH to 3,099 mt. However, it supports this level of OY for the following reasons:

1. it enables a more rapid recovery of the sablefish resource (abundance of stocks and size of fish) when compared with the higher levels of OY that have been proposed;
2. it provides a sufficient amount of sablefish to enable expansion of the directed domestic sablefish fisheries in the Gulf of Alaska;

3. it provides for an incidental sablefish catch in the trawl fisheries and the foreign longline fishery for Pacific cod;
4. it allows for a 20 percent reserve, which is consistent with the current management regime and necessary for domestic fishery expansion; and
5. based on the results of the simulation model (Table 4) under growth curve 1, there are positive net earnings in 1983 and a 32 percent increase in gross earnings from 1981 to 1984.

The distribution of the 6,100 mt OY by management area is shown in Table 5. The PMT recommends that the OY for the Eastern regulatory area not be distributed to Yakutat, Southeast Outside and Southeast Inside, but rather to the whole area. The PMT notes that due to the apparently greater movement of sablefish, the sub-area distribution of the OY may be inappropriate. Additionally, the relatively small TALFF in the Eastern area will preclude gear conflicts between foreign and domestic longliners.

The DAH of 3,099 mt shown in Table 5 is consistent with the method of calculating DAH proposed in part VI of this report.

## VI. THE DETERMINATION OF DAH

The PMT recommends the determination of DAH as suggested by the National Marine Fisheries Service in their letter of December 21, 1981:

### Derivation of DAH, Reserve, and TALFF Amounts

Initial DAH amounts for each species or species group established for the beginning of fishing year shall equal the amount of those species harvested by domestic fishermen during the previous year plus any additional amounts the Regional Director projects to be necessary to satisfy the needs of the growing domestic fishery. These supplemental amounts will be based on projected increase in (1) U.S. processing

capacity and/or intention to process and (2) U.S. harvesting capacity and/or intention to harvest. The initial reserve amounts for domestic fishery expansion will equal 20 percent of the OY for each species or species group. The TALFF amounts for each species or species group will be established from the following equation:  $TALFF = OY - (DAH + Reserve \text{ for domestic fishery expansion})$ .

The PMT also recommends the Reapportionment of Reserve and Unneeded DAH as proposed by the National Marine Fisheries Service in their letter of December 21, 1981:

Reapportionment of Reserve and Unneeded DAH

At any time, the Regional Director may assess DAH and apportion to DAH any amounts from the reserve for domestic fishery expansion that are needed in order to prevent a closure of the domestic fishery. As soon as practicable after April 1, June 1, August 1, and on such other dates as he determines necessary, the Regional Director may apportion to TALFF any portion of DAH or the reserve for domestic fishery expansion that he determines will not be harvested by United States fishing vessels during the remainder of the fishing year.

When the Regional Director determines that apportionment is required on dates other than those scheduled and that immediate action is necessary to increase a TALFF or DAH amount, he may decide that such an adjustment is to be made without affording a prior opportunity for public comment. Public comments on the necessity for, and the extent of the apportionment, shall then be submitted to the Regional Director for a period of 15 days after the effective date of such action.

VII. OTHER PARTS OF AMENDMENT #11

The PMT discussed the NPL and ALFA proposals in the December 16, 1981 report and has no additional comments on those proposals.

Table 1.--Estimated implications of the SSC alternatives: 1981-1985

	1981	1982	1983	1984	1985
<u>GROWTH CURVE 1</u>					
<u>SSC alternative 5 (10,435 t)</u>					
Yield (t)	8,055	10,432	10,637	10,240	9,469
Net earnings (\$1000)	-299	-231	-89	-6	-100
Average weight (lbs/fish western cut)	5.13	5.33	5.54	5.85	6.21
Real price/fish (\$)	2.43	2.60	2.81	3.18	3.52
Gross earnings per trip (\$)	9,300	9,800	10,400	10,700	10,400
Effort (boat years)	54	68	68	68	68
<u>GROWTH CURVE 2</u>					
<u>SSC alternative 5 (10,435 t)</u>					
Yield (t)	7,965	10,429	9,787	8,747	7,237
Net earnings (\$1000)	-335	-859	-932	-1115	-1,441
Average weight (lbs/fish western cut)	4.96	4.95	5.01	5.16	5.25
Real price/fish (\$)	2.33	2.28	2.39	2.53	2.62
Gross earnings per trip (\$)	9,100	7,900	7,600	7,000	5,900
Effort (boat years)	54	80	80	80	80



Table 2.--Estimated implications of the SSC alternatives: 1981-1985

	1981	1982	1983	1984	1985
<u>GROWTH CURVE 1</u>					
<u>SSC alternative 6 (13,000 t)</u>					
Yield (t)	8,055	12,986	12,950	12,209	11,064
Net earnings (\$1000)	-299	-405	-300	-265	-427
Average weight (lbs/fish western cut)	5.13	5.32	5.53	5.82	6.17
Real price/fish (\$)	2.43	2.54	2.73	3.09	3.42
Gross earnings per trip (\$)	9,300	9,500	9,800	9,900	9,400
Effort (boat years)	54	85	85	85	85
<u>GROWTH CURVE 2</u>					
<u>SSC alternative 6 (13,000 t)</u>					
Yield (t)	7,965	12,981	11,871	10,354	8,381
Net earnings (\$1000)	-335	-1,198	-1,352	-1,624	-2,044
Average weight (lbs/fish western cut)	4.96	4.94	4.99	5.13	5.21
Real price/fish (\$)	2.33	2.22	2.32	2.46	2.54
Gross earnings per trip (\$)	9,100	7,000	7,100	6,420	5,300
Effort (boat years)	54	101	101	101	101

Table 3.--Estimated implications of the SSC alternatives: 1981-1985

	1981	1982	1983	1984	1985
<u>GROWTH CURVE 1</u>					
<u>SSC alternative 4 (8,840 t)</u>					
Yield (t)	8,055	8,836	9,133	8,906	8,340
Net earnings (\$1000)	-299	-147	7	109	52
Average weight (lbs/fish western cut)	5.13	5.33	5.55	5.87	6.24
Real price/fish (\$)	2.43	2.64	2.86	3.24	3.59
Gross earnings per trip (\$)	9,300	10,100	10,800	11,300	11,000
Effort (boat years)	54	57	57	57	57
<u>GROWTH CURVE 2</u>					
<u>SSC alternative 4 (8,840 t)</u>					
Yield (t)	7,965	8,826	8,415	7,635	6,404
Net earnings (\$1000)	-335	-673	-705	-838	-1,107
Average weight (lbs/fish western cut)	4.96	4.95	5.02	5.18	5.28
Real price/fish (\$)	2.33	2.32	2.43	2.58	2.67
Gross earnings per trip (\$)	9,100	8,100	7,900	7,400	6,300
Effort (boat years)	54	67	67	67	67

Table 4.--Estimated implications of the ADF&amp;G alternatives: 1981-1985

	1981	1982	1983	1984	1985	1985*
<u>GROWTH CURVE 1</u>						
<u>Alternative ADF&amp;G (6,100 t)</u>						
Yield (t)	8,055	6,100	6,450	6,430	6,150	--
Net earnings (\$1000)	-299	-44	105	218	210	--
Average weight (lbs/fish western cut)	5.13	5.33	5.57	5.90	6.29	--
Real price/fish (\$)	2.43	2.72	2.95	3.35	3.71	--
Gross earnings per trip (\$)	9,300	10,400	11,500	12,300	12,200	--
Effort (boat year)	54	39	39	39	39	--
<u>GROWTH CURVE 2</u>						
<u>Alternative ADF&amp;G (6,100 t)</u>						
Yield (t)	7,965	6,100	5,980	5,560	4,770	--
Net earnings (\$1000)	-335	-402	-387	-451	-624	--
Average weight (lbs/fish western cut)	4.96	4.96	5.04	5.21	5.32	--
Real price/fish (\$)	2.33	2.39	2.50	2.66	2.77	--
Gross earnings per trip (\$)	9,100	8,400	8,500	8,100	7,100	--
Effort (boat year)	54	46	46	46	46	--

Table 5 -- Allocation of the 6,100 mt OY by Gulf of Alaska Management Area

	<u>Western</u>	<u>Central</u>	<u>Eastern</u>	<u>Total</u>
OY <sup>1/</sup>	1,238	2,267	2,595 <sup>3/</sup>	6,100
Reserve	247	454	519	1,220
DAH <sup>2/</sup>	409	859	1,831 <sup>3/</sup>	3,099
TALFF	582	954	245	1,781

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1/ 55.6% of the EY for each area.

2/ DAH is based on a 1981 domestic catch of 1,600 mt, plus amounts for increased domestic fishing, including joint ventures and longline fishing.

3/ Includes 500 mt for inside Southeast Alaska.

MEMORANDUM

TO: Gulf of Alaska Groundfish Plan Maintenance Team

FROM: Barry Bracken, ADF&G Groundfish Biologist

SUBJECT: NRC comments on sablefish migration papers and OY considerations

I have reviewed the Natural Resources Consultant's (NCR) comments on my papers on sablefish migration written in November 1981 and February 1982. In general, their criticisms are well intended and some of them are somewhat valid. Rather than refute or agree with their criticisms point by point, I will attempt to further support my hypothesis that sablefish are highly migratory and that stocks are interrelated throughout the Gulf. Also, I will present additional arguments for a Gulf-wide OY reduction.

- (1) Tony Gehrett's work with sablefish genetics indicates extensive homogeneity between all samples in the North Pacific. Dr. Alverson's paper, "Evidence Pertaining to Discreteness of Sablefish Stocks", states "biochemical analyses have generally shown that sablefish of the northeast Pacific and Bering Sea are from a common gene pool."
- (2) Meristic studies are inconclusive since studies have not been conducted throughout the Gulf of Alaska.
- (3) Fisheries have shown signs of "local" depletion throughout their range even in the absence of extensive fisheries in adjacent areas. However, it should be kept in mind that domestic fisheries have traditionally targeted on old-age class (+8 year-old) females, and it is likely that exploitation rates could exceed immigration rates even at relatively low levels of harvest. In the instance cited by Dr. Alverson, concurrent fisheries occurred on the Southeastern Alaska and British Columbian grounds. Thus, what I consider the "pooling area" of the spawning population was heavily exploited (Southeast Alaska average annual catch in excess of 2,100 mt) between the mid-1930's to the early 1960's.

- (4) Although the criticisms of Sasaki's and my papers concerning the need for evaluating the probability for a recovered tag being returned are somewhat valid, they only apply to that portion of the Gulf-wide recoveries south of Yakutat, since virtually all fishing in Yakutat and west is by foreign nationals. As stated in my 1982 analysis of Japanese tagging data, the assumed rate of return of Japanese tags by U.S. fishermen in the Southeastern area is similar to the rate indicated by Sasaki for the Japanese Fishery in his 1980 report on tagging. Using an assumed rate of return in British Columbia twice that of the Alaskan portion of the Gulf and weighting by the average harvest 1978-1981 by management region would still indicate an exchange rate between the Eastern Gulf and Western Gulf of 19% for large fish eastward and 22% for small fish westward. Given that most of the fish were recovered within two years of release, the weighted exchange rate would be nearly 10% annually between the extreme areas of the Gulf. Virtually all recoveries were in deep water so the data is not biased by depth of fishing.

Unweighted recovery data shows that 55% of the recovered fish over 60 cm that were tagged in the Aleutian, Shumagin, and Chirikof INPFC areas were recovered in the Southeastern Charlotte and Vancouver INPFC areas.

- (5) I agree with Dr. Alverson's suggestion that all tagging data should be weighted by probability of return and with Pruter's suggestion that tagging data should be weighted by the probability of recapture (effort). However, since four independent data sets<sup>1/</sup> from recent tagging experiments all support the hypothesis that extensive directional migration occurs, that evidence cannot be ignored. The fact that the recent studies contradict past studies is most likely the result of more extensive tagging experiments, better recovery potential due to the coastwide effort and the fishermen's awareness that tagged fish are available for harvest.

- 1/ (a) Recovery of Canadian tags in the Gulf of Alaska by Japanese vessels.  
(b) ADF&G tagging studies including 191 additional tags, since Nov. 1981.  
(c) NMFS tagging data for Southeast Alaskan experiments.  
(d) Japanese tagging data for Gulf-wide experiments.

- (6) I have yet to see evidence other than a reference in Low's 1976 report that sablefish spawn throughout the Gulf. Recoveries of large fish indicate that there may be spawning populations on the "W" grounds off Yakutat, Albatross Bank, and possibly the outer edge of the Port Lock Bank. The Gulf-wide tagging data shows no indications of spawning concentrations west of Kodiak. This may be the result of the fact that the bulk of the fish are tagged and recovered during the summer months. However, in all my dealings with sablefish including literature searches, tagging studies, indexing studies, on-board observer studies, port sampling studies, data analyses, and conversations with commercial fishermen, I have never come across any evidence to support the possibility that large sablefish undergo the annual spawning migrations of over 200 miles suggested by Dr. Alverson. Also, the average distance traveled per year for fish over 60 cm in the study was 326 nm and 79% were recovered within three months of the release month.
- (7) Several studies agree that a westward movement of small fish occurs. It can then be assumed that there must be some mechanism for compensatory movement or all fish would eventually end up in the western Gulf. I can only suggest that the observed westward movement of small fish may be the result of a feeding pattern or some other life history function. The only way that return movement can be documented is if recaptured tags are recorded and the fish re-released for future recapture. That is now being done by a small percentage of the domestic fleet and by research vessels.
- (8) The bottom line is that, while we do not have all the answers, there is enough evidence to document Gulf-wide interchange of fish and the contention that at least a portion of the population undergoes an extensive directional migration over a short time span. The fact that potential for recapture in a given INPFC area is dependent on fish size demonstrates a cyclic pattern to migration. These findings coupled with observed depletion in the southeastern large fish stocks indicate the need for conservative management.

- (9) The average annual harvest in the Southeastern area since 1978 is slightly over 2,130 mt. That is only 57% of the established area OY of 3,700 mt, yet the abundance of large fish has declined steadily since 1977. An observed increase in large fish harvest by the joint U.S.-Japan longline survey in 1981 contradicts other data sources and may be the result of a shift of effort into deep-water stations from the previous year. Large fish tagged in the Southeastern area have been recovered in British Columbia. Emigration and exploitation apparently exceed recruitment and immigration in this area even at relatively low harvest levels. I feel that this depletion is not caused by localized over-exploitation but rather an indicator that a major component of the spawning stock has been adversely affected by heavy over-exploitation throughout the Gulf up to 1976 and continued overharvest in the Central and Western Gulf. Current annual harvests of over 3,500 mt per year in British Columbia may also affect future recovery potential.
- (10) There is nothing I've seen to support a continued OY level of 13,000 mt. Gulf-wide total harvest since 1978 has averaged only slightly over 9,000 mt and, while some regions have not shown a decline of fish in absolute numbers, there is little, if any, evidence of increased abundance that should be expected from continued harvests 31% below OY--if OY were set at an appropriate level.

#### Summary

A comprehensive report on sablefish is long overdue. Hopefully, some of the questions raised by recent studies can be answered. In the meanwhile, a decision must be reached on how to manage the Gulf of Alaska sablefish fishery. The most recent, and I feel the best information available leaves little doubt that sablefish throughout the Gulf are interrelated. Even without taking migration into consideration, there is strong evidence for the need to reduce sablefish harvest. Migration is only one of many factors indicating the need for reduced harvest levels to promote stock rebuilding and ensure a viable domestic fishery.



MEMORANDUM

TO: The North Pacific Fishery Management Council

FROM: Joe Terry and Jim Balsiger  
Northwest and Alaska Fisheries Center

SUBJECT: Alverson, Crutchfield, and MacGregor review of "A Bioeconomic  
Simulaton Model for Sablefish in the Gulf of Alaska"

The comments of Dr. Alverson, Dr. Crutchfield and Mr. MacGregor are paraphrased and responded to below.

Comment: 1. The cost and profit analysis is based on a representative boat not on several vessel classes.

Response: This issue is addressed in the Terry/Balsiger report (p. 31-33), as follows:

APPENDIX  
AN EVALUATION OF THE LIMITATIONS OF THE MODEL

The principal objective of the model is to provide a method for explicitly using existing information to estimate the implications of alternative management strategies with respect to rebuilding the sablefish resources of the Gulf of Alaska. Measures of rebuilding include changes in the following indexes of resource abundance and value: (1) fishable biomass, (2) yield for a given level of effort, (3) gross earnings per unit of effort for a given level of effort, and (4) net earnings for a given level of effort. Although the model provides estimates of each of these measures of rebuilding, the significance of each measure and the accuracy with which it can be estimated may be inversely related.

The changes in either fishable biomass or yield for a given level of effort which occur over time as the result of a given management strategy are

principally determined by biological factors. Therefore, the potential estimation error caused by an inappropriate specification of economic parameters is negligible. That is, the model's estimates of these two measures of rebuilding are not affected by the cost or revenue functions of the fleet(s) which would exploit the rebuilt sablefish resources. Therefore, these two measures provide indexes of the potential benefits to a variety of potential future user groups including domestic or foreign longline, trawl, and pot fleets. However, if ex-vessel prices are size-dependent and if harvesting costs are, in part, determined by the level of resource abundance, they are not very useful as measures of the benefits of rebuilding sablefish resources.

The first economic measure of rebuilding listed above, the change in gross earnings per unit of effort for a given level of effort, takes into account size-dependent ex-vessel prices. However, in eliminating one problem through the use of a revenue function, the problem of the potential estimation error which could result from using an erroneous revenue function is created. Two sources of error are (1) an invalid price structure for an individual fleet and (2) the inappropriateness of applying a given revenue function to diverse user groups such as the domestic or foreign longline, trawl, and pot fleets. The latter problem will not affect the usefulness of this measure of rebuilding if ex-vessel prices do not vary by fleet or if both the ratio of prices for varying sizes of sablefish are equal for all fleets and the allocation of catch among fleets is constant over time. The former condition is not expected to be met since, for example, longline ex-vessel prices are typically greater than trawl prices. It is not as clear whether the latter set of conditions will be met. If neither set of conditions is met, the model's estimates of gross earnings per unit of effort for a given level of effort for the alternative management strategies would only be directly applicable to the domestic longline fleet.

The last measure of rebuilding listed above, net ex-vessel earnings for a given level of effort, eliminates the problem associated with the failure to recognize that the commercial value of a fishery resource is dependent on both the potential gross ex-vessel earning that can be extracted and the cost of extracting it. This problem is eliminated through the use of a cost function.

However, the use of a cost function creates the problem of the potential estimation error which could result from using an erroneous cost function. Two sources of error are (1) an invalid cost function for a given fleet or vessel class and (2) the inappropriateness of applying a given cost function either to fleets with significantly different cost structures or to a given fleet in which cost structures vary significantly among vessels. Gates and Norton (1974) attempted to eliminate the latter problem by using a separate cost function for each of several vessel classes. However, this procedure requires estimates of the allocation of catch among vessel classes. There does not appear to be other than an arbitrary method of selecting the allocation to be used for the Gulf of Alaska sablefish fishery. Neither stable allocations nor trends in allocations have been identified for this fishery. In the absence of an acceptable method of determining what the allocations would be with alternative management strategies, the sensitivity analysis which was conducted with respect to the cost of a unit of effort and the catchability coefficient may be more productive than the use of a set of cost functions defined for several vessel classes. The results of that analysis (refer back to Table 7) can be used to determine how sensitive the model's results are to the parameters of the cost function and, therefore, to determine how the model's results would vary for fleets or vessel classes with alternative cost functions. It should be noted that the use of domestic longline revenue and cost functions in no way suggests what the intratemporal allocation of catch among fleets should be. The model was not designed to address this issue.

There is no question that more information would have been provided by our report had the model been run for additional vessel classes. Supplemental tables and figures for additional vessel classes are being prepared.

Comment: 2. The model uses operating costs that only relate to operations in Southeast Alaska, not to the remainder of the Gulf where operating costs would be higher.

Response: The operating characteristics of the representative boat used in the model included two 14-day trip cycles per month with two

days of running time and 10 days of fishing per trip. Since a large proportion of the sablefish resource of the Gulf of Alaska is within 150 miles of Alaska fishing communities such as Kodiak, Homer, Seward, or Cordova, the model which allows one day running time to a fishing ground is applicable for most of the Gulf.

Comment: 3. The ex-vessel prices used in the model are probably too low; using average prices for 1976-1979 might be better.

Response: Between the time that the Terry/Balsiger report was first prepared and the PMT's December 16, 1981 report was issued, ex-vessel prices did increase. The summary tables contained in the December 16, 1981 PMT report are based on prices of \$0.00, \$0.30, and \$0.70 per pound western cut, respectively, for small, medium, and large sablefish. The average price for medium and large fish was approximately \$0.50 and \$0.79 for 1977-1979. The ex-vessel prices of many species, including sablefish, were exceptionally high in 1979; therefore, it is not clear that an average including 1979 is appropriate. If the ex-vessel prices used in the model are too conservative, the potential benefits to the domestic industry of rebuilding the sablefish stocks tend to be understated.

Comment: 4. No mention is made of the two distinct markets involved (the U.S. and Japan); the revenue function is based entirely on the Japanese market.

Response: Although there are distinct markets in terms of geographic location and product type, the prices in the two markets are certainly interdependent because both buyers and sellers can access either market. The strength of this interdependence is demonstrated by the fact that, historically, fluctuations in the Alaska ex-vessel price of sablefish are well explained by

fluctuations in the dollar equivalent wholesale price of sablefish in Japan. The revenue function is not based entirely on the Japanese market; it is based on (1) the current Alaska ex-vessel prices, (2) the sablefish harvest from the Gulf of Alaska, and 3) the historical relationship between the changes in the catch from North American waters, the exchange rate, the Japanese consumer price index (CPI), and Alaska ex-vessel prices. The addition of U.S. economic variables does not improve the regression model because the U.S. and Japanese economic variables are highly collinear. Therefore, the effects on ex-vessel prices of changes in the U.S. and Japanese CPI's cannot be separated.

Comment: 5. The use of discounted pounds is puzzling.

Response: Whether harvest is measured in tons or dollars, a given level of harvest which occurs in the current period is not comparable to the same level of harvest occurring in the future. Discounting is used to transform harvest which occur in the future so that a meaningful cumulative harvest can be calculated.

Comment: 6. The model is unique to southeast Alaska fishermen and implicitly requires a limited entry system.

Response: A response to the first part of the comment is included in the response to Comment #1. The second part of the comment is only partially correct. If the sablefish resource is rebuilt sufficiently to attract full domestic utilization, the economic profit (i.e., excess accounting profit) available to domestic fishermen would tend to be eliminated as additional domestic boats enter the fishery. The rate at which excess profits would be eliminated would depend on the availability of potential entrants and the magnitude of the excess profits.

Providing an opportunity for domestic fishermen to profitably enter the fishery is the objective of the NPFMC, and the model provides estimates of several measures of how that opportunity would be affected by alternative OY's. Evaluating the alternatives in terms of several criteria, including the maximum net earnings each alternative could provide for domestic fishermen, is not inappropriate.

Comment: 7. The implied levels of stock required for economic efficiency suggest that this sector of U.S. fleet cannot really do well unless there are very high stock levels.

Response: The current levels of activity of the Japanese and U.S. fleets suggest that the foreign fleet cost and price structures, and possibly the potential for pre-empting fishing grounds, are such that they have an incentive to fish in areas where domestic fishermen may have insufficient incentive to fish. The model does not suggest that domestic fishermen cannot really do well unless stock levels are very high. Summary data in the PMT report indicate that a Gulf-wide domestic fishery could be profitable by 1983 if the 8,200 mt OY is implemented.

In the absence of a market for small sablefish landed by domestic fishermen, the profitability of the domestic fleet depends more heavily on the availability of medium and large fish than does the profitability of the foreign fleets which have a market for small sablefish. The difference in the availability of such a market may be more important than differences in operating efficiency in explaining the apparent inability of the domestic fleet to profitably harvest sablefish Gulf-wide under current stock conditions.

Comment: 8. The fixed costs of many boats are incurred in the course of their major operation in a fishery other than sablefish;

therefore, sablefish will be profitable if only out-of-pocket costs are covered.

Response: This issue is addressed on page 23 of our report as follows:

It is difficult to determine the appropriate value for FC/a for the domestic sablefish fleet because many of the vessels in this fleet participate in other fisheries and the allocation of fixed costs among fisheries for such vessels cannot be other than arbitrary. However, this does not mean that participation in the sablefish fishery can be made profitable by allocating a small proportion of annual fixed costs to this fishery. The reason is that gross vessel earnings have to be sufficiently high to cover operating costs and attract a qualified crew. Therefore, within what is thought to be the relevant range of values for FC/a, the optimum f's and corresponding yields appear to be significantly below current levels.

Comment: 9. There appears to be a mixing of surplus production and yield-per-recruit models.

Response: It would be generally inaccurate to call our model a "yield-per-recruit" model since we have not suggested that any steady stock conditions or constant levels of recruitment exist. Rather, it is a "yield-per-initial-population-structure", and the predicted yields apply only for this initial structure. This particular biomass distribution is unlikely to occur again. A surplus production model (Low and Weststad, 1979) was used to estimate the initial population size.

Comment: 10. The model completely ignores the costs which would be imposed on foreign sablefish fishermen.

Response:

The model allows an evaluation of alternative OY's in terms of the objective of promoting Gulf-wide utilization of the sablefish resource by the domestic fishermen. From a U.S. perspective, the critical costs and benefits are (1) those of the domestic industry and consumers, and (2) the tonnage fees paid by foreign fleets.





Longline Survey clearly indicates that there is a size/age directed short-term migration of sablefish and that the resource needs to be managed on a Gulf-wide basis. A 6100 Gulf-wide OY will provide for as rapid as possible a rebuilding rate, both in terms of absolute abundance and size composition while insuring the existence of an on-going domestic fishery.

NPL Proposal to Allow Foreign Longlining in the Davidson Bank Area

ALFA continues to oppose the reopening of the Davidson Bank area to foreign fishing for either Pacific cod or sablefish. We believe that domestic efforts for Pacific cod will continue to expand in this area and further that the depressed condition of the sablefish resource renders any increased foreign effort on that stock unjustifiable.

ALFA Proposal to Prohibit the Use of Pots for Taking Sablefish E. of 140° W

In September, 1981, ALFA proposed that the use of sablefish pots be prohibited E of 140° W longitude. In November, we supplied substantial written testimony in support of this proposal. During the December council meeting, the Council urged the various concerned user groups to meet and discuss various options that might be used to resolve the problems outlined. Such a meeting was held on January 19, 1982 in Seattle.

A report on this meeting was prepared by Henry Haugen and forwarded to the Council in a letter dated January 22, 1982. ALFA believes that the report prepared by Mr. Haugen represents a fair and accurate summary of the proceedings. Two points which arose at this meeting are relevant to this portion of Amendment #11. On page two, number six of the meeting summary, the participants agreed that because there is no present or planned domestic trawl fishery for sablefish East of 140°, that there is no need at this time for restrictions on the domestic trawl fishery in this area. Secondly, on page 3, the summary correctly points out that ALFA offered as an alternative to a pot restriction in the entire FCZ East of 140°, a closure from 140° east to Cape Addington. Our review of ADF&G data regarding sablefish catches by gear type and management area (Table 1, ALFA testimony) and the discussions held at the user group meeting leads us to believe that using Cape Addington as a dividing line between pot and longline areas fairly represents the historical distribution of catch by gear type. Additionally, it should be pointed out that the Southeastern area (INPFC) contains the smallest area of productive sablefish grounds in the Gulf and that ALFA's proposal

Page 3 of 3  
Jim Branson, Executive Director


pot restriction from Cape Addington to 140° W leaves the majority of the FCZ open to pot fishing as well as longlining and trawling. Consequently, ALFA proposes that the North Pacific Fisheries Management Council recommend to the Secretary that the use of pots for harvesting sablefish be prohibited from the latitude of Cape Addington West to 140° W longitude. For a complete discussion of ALFA's rationale for this proposal, please see our written testimony dated November 16, 1981.

Winter Closure for Sablefish

We continue to believe that a winter closure of the sablefish fishery will be in the best interest of the resource and the development of improved markets. For a complete discussion of ALFA's proposal for a winter closure, please see our written testimony dated November 16, 1981. ALFA notes that all the industry groups attending the January 19th meeting referenced above, supported a winter closure. Additionally, the Seattle Fishing Vessel Owners Association supported a winter closure from December 1 to February 15. Because the primary issue involved is one of product quality, marketability and value, we urge the Council to accept the industry's recommendations.

Thank you for the opportunity to comment further on this FMP Amendment.

Sincerely,

  
F. Gregory Baker  
President

FGB:cd



Mr. Jim Branson  
January 22, 1982  
Page Two . . .

opinion, there was not a consensus as to steps which should be taken to better manage the resource.

3. The participants agreed that serious consideration should be given to establishing a minimum size limit of 5 lbs. round, or 3 lbs. dressed, for all landed sablefish. It is desired that there be scientific input into the validity of this or a similar size limit and that there must be greater input from domestic fishermen before there be any size limit established. It is felt that the fish smaller than the proposed limits have a poor market value and taking of the smaller fish probably is not the wisest use of the resource.

4. The participants agreed that there should be a winter closure in the fishery conservation zone running from approximately December 15 to March 15. During the winter months the quality is poor due to spawning of the sablefish, the weather is bad, and such a closure might prove beneficial to the resource.

5. There is a consensus that a considerable amount of lost and abandoned gear, primarily of foreign origin, is unfavorably impacting the fishery. An effort should be made to remove this gear by the National Marine Fisheries Service, probably acting through a charter arrangement with a U. S. vessel. This would probably prove to be the most beneficial thing that the government could do for the fishermen.

6. Because there is no present or planned domestic trawl fishery in the area which impacts the sablefish resource, there is no real need at the present time for restrictions on the domestic trawl fishery.

There was a failure to reach an agreement or consensus on the major issues presented, that is the need for a reduction in the Optimum Yield or the ALFA proposal to restrict the sablefish to hook and line east of 140° west. A number of possible alternatives were discussed to avoid conflicts, but none seemed to be able to adequately address the issue. This is essentially a conflict between pot fishermen and longliners. Both groups fish in depths of approximately 150 to 700 fathoms. Neither group sets in a predictable pattern as to either depth or direction. Though buoys and flags are utilized, they are not effective in indicating in which direction the gear might lie. Though many make a serious attempt to communicate by radio with other fishermen, some do not, and the level of cooperation cannot be expected to be 100%. One difference noted was that pots can fish on a

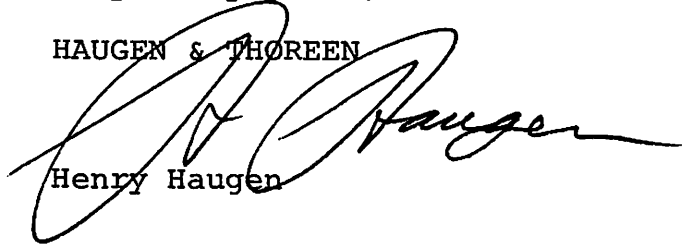
Mr. Jim Branson  
January 22, 1982  
Page Three . . .

so-called slime bottom, whereas longline gear cannot. This differentiation appears inadequate to form the basis for any regulatory control. If the longline gear tangles with the pot gear, the longline gear comes out the loser as it is generally of lighter construction. A discussion proposal was made such that the closure to pot gear would run from Cape Addington to 140° west, rather than from Dixon Entrance, but, again, there was no agreement as to this alternative.

After a suitable period passes for comments by other participants, this report may be placed before the Council, recognizing that each group fully reserves the right to comment further as to its position on the proposed changes.

Very truly yours,

HAUGEN & THOREEN



Henry Haugen

HH;ljlw

Enclosure

cc: Richard Goldsmith  
Greg Baker  
Al Burch  
Jake Phillips  
Virgil Gordon  
Jim Goldade  
Rudy Johanson  
Steve Hughes

SABLEFISH FISHERMEN MEETING

Seattle, Washington  
January 19, 1982

<u>NAME</u>	<u>GEAR TYPE</u>	<u>ORGANIZATION</u>
Richard Goldsmith	Trawl & Crab Pot	NPFVOA
Greg Baker	Longline	ALFA
Al Burch	Trawl	ADA
Jake Phillips	Longline	ALFA
Dwight Chapin	Pot	----
John Phillips	Longline	ALFA
Linda Olin	Longline	ALFA
Wilbur Olin	Longline	ALFA
Virgil Gordon	Pot Fisherman	Vessel owner
James Goldade	Pot Fisherman	Vessel owner
Steve Hughes	----	N. R. C.
Henry Haugen	----	Attorney
Jim Branson	----	NPFMC

March 2, 1982

Mr. Jim H. Branson  
Executive Director  
North Pacific Fishery Management Council  
P. O. Box 3136 DT  
Anchorage, Alaska 99510

Dear Jim:

We appreciate the opportunity to respond to Amendment #11 and related material, including the Terry/Balsiger paper and Bracken's February draft report on sablefish migration.

We would first like to introduce ourselves. We are the "Coalition for Open Ocean Fisheries" representing a newly formed focal point of fishery interests, consisting of many familiar faces. By way of introduction, we offer our policy statement.

As a position, we support an open ocean multiple-fishery-use concept within the U.S. FCZ by domestic fisheries and oppose the establishment of special interest fishing zones, exclusion zones, exclusive gear use or limited entry. This position embraces conservation through sound management so long as it does not involve closure of fishing grounds or gear restrictions which promote privileged use of fishery resources at the expense of other users of the resource and the national interest as addressed in the MFCMA.

We are dedicated to the resolution of conflicts among domestic user groups, should they arise, by means of negotiated settlement whenever possible rather than government intervention and regulation.

Our membership presently includes 1) North Pacific Fishing Vessel Owners Association, 2) The Highliners Association, 3) Marine Resources Company, 4) Royal Viking, Inc., 5) Fishing Ventures International, Inc., 6) American No. 1 Fisheries, and 7) Ocean Spray Fisheries.



Mr. Jim H. Branson  
March 2, 1982  
Page 2

Our views on Amendment #11 and related material follow.

Sablefish EY and OY. Fishing experience, research surveys and most scientific evidence indicate that Gulf of Alaska sablefish stocks have undergone a long history of decline and that significant recovery has not occurred. The Coalition for Open Ocean Fisheries supports option #6 of Amendment #11, as described on page 3 of the 12/16/81 draft, which reduces the Gulfwide OY from 13,000 mt to 10,435 mt and assigns specific OY's for the Western, Central and Yakutat Areas west of 140°W and EY/ABC for the Yakutat east of 140°W and Southeastern Areas.

ALFA Proposal. This proposal requests that the FMP be amended to allow harvest of sablefish by hook and line gear only, east of 140°W and to close the sablefish fishery for four months from November 15 to March 15.

The Coalition for Open Ocean Fisheries strongly opposes the total ALFA proposal. The proposal appears founded solely on special interests of ALFA to the exclusion of all others. Statements of resource damage due to trawl and pot gear, gear conflicts and grounds preemption are largely without merit. The arguments supporting a winter closure are viewed largely as a means of closing grounds during bad weather when ALFA vessels cannot operate in coastal areas. Pot vessels have operated successfully when longline vessels have not suggesting that implementation of a longline fishery only closes a viable gear option and may promote inefficiency.

North Pacific Longline-Gillnet Association Proposal. This is a proposal to exempt foreign longliners from the Davidson Bank closure.

The Coalition for Open Ocean Fisheries opposes foreign longlining in the Davidson Bank closure area. U.S. cod fisheries are growing rapidly, totaled about 30,000 mt in 1981 and are likely to double in 1982. U.S. salt cod operations in the western Gulf-eastern Aleutian regions will be particularly important in 1982. All target foreign fisheries on cod should be halted.

Terry/Balsiger Economic Analysis. This analysis pertains to one user group, ALFA. No consideration to other groups was given. The results must be interpreted as supporting a limited entry fishery. We would favor similar economic analysis of fishing operations by larger longliners and pot vessels for the purpose of comparison before conclusions are drawn.

Mr. Jim H. Branson  
March 2, 1982  
Page 3

Bracken's Sablefish Migration Theory. Migration theories Bracken presents are interesting but have some technical problems because no consideration was given to fishing efforts and, hence, opportunities to capture tagged fish. His recommendation that Gulf of Alaska sablefish be managed as one stock appears counter-productive to other conservation measures. Sablefish fisheries have long shown that local depletion often occurs as a result of intense localized fisheries. In the midst of a stock rebuilding program, it seems that several regional harvest guidelines within the Gulf of Alaska areas, such as the INPFC areas, would promote stock rebuilding. Because most of the Gulf areas are fished by the Japanese, measures to reduce intense fishing in small areas appears advantageous.

Sincerely,

Rudy A. Petersen  
Pres, Highliners association  
Haare Ness. President.  
Royal Viking Inc.

Haare Ness.  
Pres. North. Pacific Fishing Vessel Owners Assn

Kenneth R. Petersen, American No I -

Arnis Petersen  
Ocean Spray Fisheries, Inc  
Severn D. Gille  
Highliners Association

W V Pappas Vice Pres & General Manager  
Marine Resources Co.



vessel has not reported any catch although it was sighted fishing.

These 12 vessels represent only 10 percent of all groundfish vessels fishing in Southeastern Alaska, but at least 8 of these are of the larger freezer/catcher type that take a substantial portion of their respective target fisheries. The problem is not isolated in Southeast, as we also have less well documented evidence of non-reporting on two large freezer boats trawling and longlining in the western Gulf of Alaska and Bering Sea. ADF&G estimates a large poundage loss to non-reporting from the target and bait groundfish fisheries, a fact that makes the reporting requirement in Amendment No. 11 seem to be critically essential.

The non-Joint Venture catch this year, including the estimated bait fishery, was about 26.5 million pounds. Non-reported catch approximates about 1.0 million pounds. This percentage of non-reported total catch seems small, but it is taken in areas most critical to depressed fisheries where the impact is large. With this in mind it seems imperative to have this part of Amendment No. 11 passed on to Commerce for approval.

Sincerely,



Mark Miller, Fishery Biologist  
Extended Jurisdiction Section  
(907) 465-4215



The Council could remedy most of the shortcomings in Part 5 by writing the criteria and procedures more precisely. For example, specify what categories of vessels would be stopped from fishing; would a closure apply to all foreign fishing vessels, or only to those of one type of gear from one nation? Would restrictions on bottom trawling apply to domestic as well as foreign fishermen? If not, why not? How long would a field order stay in effect? What criteria would allow the RD to rescind the field order and reopen the area? Although there appeared to be no insuperable legal problems in delegating this field order authority to the RD, the Council should provide assurance that the OY would likely be achieved, that non-excluded foreign fishermen would have opportunities to harvest their allocation, and that excluded foreign fishermen would have an opportunity to be heard.

I regret that we took so long with this part of Amendment 8, but it was a precedent-setting concept and required careful consideration of the legal and policy issues.

Sincerely yours,



William G. Gordon  
Assistant Administrator  
for Fisheries

*Greg Baker  
3-26*

	<u>WEST</u>	<u>CENT</u>	<u>YAK W of 140</u>	<u>YAK E of 140</u>	<u>SE</u>
1981 harvest (weighted)	1378	3023.4	2452.5	( 1600 )	
(8453.9)					(outside SF. 120 inside SF. 40)
8200 mt					
OY	<u>1669</u>	<u>3056</u>	<u>1680</u>	<u>851</u>	<u>967</u>
Res.	334	611	336	0	0
DAH	409	859	13	851	967
TALFF	926	1586	1331	0	0
3% decrease					SF. outside decrease 19.4%

			<u>EAST</u>
6100 mt			
OY	<u>1238</u>	<u>2267</u>	<u>2595</u>
Res	247	454	519
DAH	409	859	1831
TALFF	582	954	245

PLAN MAINTAINANCE TEAM EY RECOMMENDATION

<u>10,965</u>	<u>2225</u>	<u>4075</u>	<u>2240</u>	<u>1135</u>	<u>1290</u>
	( based on size at entry to the foreign fishery )			( based on reduction in domestically marketable sablefish )	

EXAMPLE OF SABLEFISH MODEL COMPUTATIONS

Survival of an initial population of 10,000 female sablefish is illustrated, using the age-structured Balsiger-Terry model. Survival of fish of age  $i$  to the succeeding year is given by:  $N_{i+1} = N_i \cdot e^{-(GF+M)}$ .  $G$  is a gear selection coefficient ranging from 0-1, shown in the second column below (taken from Balsiger and Terry's Table 1.1, gear selection B).  $F$  is the instantaneous rate of fishing mortality, assumed here to be 0.05.  $M$  is the instantaneous rate of natural mortality, taken as 0.17. The proportion surviving to the next year is then given by  $S = e^{-(GF+M)}$ . If  $\bar{W}$  is the average round weight in kg at age  $i$ , the yield in kg from this age class is given by  $\int G \cdot F \cdot N \cdot \bar{W} dt$  or  $G \cdot F \cdot N \cdot \bar{W} \cdot [1 - e^{-(GF+M)}] / (GF+M)$ . The initial (1981) population of 10,000 female fish is distributed over ages according to Barry Bracken's growth curve (see Balsiger and Terry's Table 1.2 curve 2).

Age	G	F	M	$-(GF+M)$ S=e	$\bar{W}$	$\frac{GF\bar{W}(1-S)}{(GF+M)}$	1981 (yield) survivors	1982 (yield) survivors	1983 (yield) survivors	1984 (yield) survivors	1985 (yield) survivors
1	0	.05	.17	.844		0	(0) 190	?	?	?	?
2	0	.05	.17	.844	.06	0	(0) 850	(0) 160	?	?	?
3	.05	.05	.17	.842	.29	0.00066	(0.4) 580	(0.5) 717	(.09) 135	?	?
4	.20	.05	.17	.835	.65	.0060	(5.3) 890	(2.9) 488	(3.6) 604	(0.7) 114	?
5	.75	.05	.17	.813	1.07	.036	(61) 1,690	(27) 743	(15) 407	(18) 504	(3.4) 95
6	1.0	.05	.17	.803	1.54	.069	(50) 720	(95) 1,374	(42) 604	(23) 331	(28) 410
7	1.0	.05	.17	.803	2.03	.091	(53) 580	(53) 578	(100) 1,103	(44) 485	(24) 266
8	1.0	.05	.17	.803	2.53	.114	(91) 800	(53) 465	(53) 464	(101) 885	(44) 389
9	1.0	.05	.17	.803	3.04	.136	(98) 720	(87) 642	(51) 373	(51) 372	(97) 711
10	1.0	.05	.17	.803	3.55	.159	(146) 920	(92) 578	(82) 516	(48) 300	(48) 299
11	1.0	.05	.17	.803	4.06	.182	(144) 790	(134) 739	(84) 464	(75) 414	(48) 241
12	1.0	.05	.17	.803	4.57	.205	(125) 610	(130) 634	(122) 593	(76) 373	(68) 332
13	1.0	.05	.17	.803	5.07	.228	(50) 220	(112) 490	(116) 509	(109) 476	(63) 300
14	1.0	.05	.17	.803	5.57	.250	(23) 90	(44) 177	(98) 393	(102) 408	(96) 382
15	1.0	.05	.17	.803	6.07	.272	(95) 350	(20) 73	(39) 142	(83) 316	(89) 328
Yield (kg) from fishing season (all ages):							(942)	(850)	(806)	(731)	(609)
Population size at beginning of year:							10,000	7858+?	6307+??	4978+???	3753+????



**Haugen and Thoreen**

ATTORNEYS AT LAW

4055 21ST AVENUE WEST  
SEATTLE, WASHINGTON 98199  
(ADJACENT TO FISHERMEN'S TERMINAL)

PHONE (206) 285-9393

HENRY HAUGEN

HAROLD A. THOREEN  
LISE KENWORTHY

BEFORE THE NORTH PACIFIC  
FISHERY MANAGEMENT COUNCIL  
AND THE ALASKA BOARD OF FISHERIES

STATEMENT RE SABLEFISH  
GULF OF ALASKA GROUND FISH  
FISHERY MANAGEMENT PLAN  
AMENDMENT #11

March 24, 1982

My name is Henry Haugen and I appear on behalf of the vessels ARCTIC MIST, PROWLER and SABLEFISH. Each of these vessels engages in the sablefish or black cod fishery on the West Coast, including Southeast Alaska utilizing pot gear. These vessels represent the bulk of the actual U. S. off-shore black cod fishing effort in Southeast Alaska. I would like to discuss several issues contained in Proposed Amendment #11 of concern to domestic pot fishermen.

I. RESERVE FISHERY TO HOOK AND LINE ONLY

For a number of years, the Alaska Longline Fishermen's Association (ALFA) has attempted to ban trawlers and pot fishermen from the sablefish fishery in the Fishery Conservation Zone off Southeast Alaska. Though always promoted as a conservation measure, it is, in our view, nothing more than an economic allocation scheme designed to benefit a small group of Alaska

fishermen who regard this resource as theirs alone. Such localized protection from competition as here proposed does not meet fishery management requirements. The North Pacific Council is required to set an optimum yield that will provide "the greatest overall benefit to the Nation", not to local fishermen. You are charged with promoting the domestic groundfish fishery off Alaska, not promoting the Alaska hook and line fishery. You are charged with promoting efficiency, not the maintenance of a decades-old fishery technique. Finally, you are prohibited from allowing a particular entity to acquire an excessive share of a fishery resource or allocating the resource on economic grounds alone.

There are three methods of catching sablefish - trawling, hook and line, and pots. Each has its adherents, and all three methods are in use at the present time on the West Coast of the United States. Only the Alaska longliners appear to have seriously moved to exclude competing gear.

There is no valid basis to restrict sablefish fishing to hook and line gear and the arguments made for doing so simply do not withstand examination.

It is stated that "available data" establishes that pot gear targets on smaller sablefish than does hook and line gear. That is contrary to the data of which we are aware. According to the data presented by Mr. Bracken in his report accompanying Amendment #11, longline vessels operating in the Eastern Gulf of

Alaska take about 60% large sablefish (over 5 pounds) and 40% small sablefish (under 5 pounds). This ratio has remained relatively constant over the past 5 years. A casual examination of the fishing records of the vessels I represent indicates that the landings of small fish, that is between 3 and 5 pounds, is well under 10% of the total catch. Thus, the information indicates that the hook and line gear catches an excessively large amount of small sablefish, whereas pots take much larger fish - exactly contrary to the arguments of ALFA.

The second major reason put forward for the proposal is to avoid gear conflicts. Pursuant to the suggestion of the North Pacific Fishery Management Council, a meeting was held in January to attempt to resolve any such conflict and was the subject of my letter report on January 22, 1982. Basically, we found no conflict with domestic trawlers because there are none and that there is certainly a potential gear conflict between pots and hook and line gear which is not susceptible to regulatory resolution mutually satisfactory to the competing groups. There is also a problem of pre-emption of grounds by lost gear. This can be cured by a removal effort which should be a rather quick and inexpensive project.

II. ADJUSTMENT OF OPTIMUM YIELD

It is also proposed to reduce the optimum yield of sablefish for off-shore Southeastern Alaska waters. In general, fishermen have been disappointed in their catches which they have experienced in the Eastern Gulf of Alaska over the past several years and an intuitive uneasiness as to the status of the stock. There have been some general proposals to reduce the catch of sablefish, but the Council has been reluctant to act. This reluctance is understandable and I would suggest that the reports presented to you supporting such a reduction should be subject to a greater scrutiny, as they do not appear to sufficiently justify a major reduction in optimum yield.

The total catch of sablefish, mostly by foreign fishing, averaged well over 20,000 metric tons through 1977. It has since been reduced to about the 8,000 metric ton level of which only about 2,000 metric tons are taken by domestic fishermen. The quota in the offshore waters of Southeastern Alaska would be reduced by two-thirds, that is from 3,000 metric tons to 1,000 metric tons under the ALFA proposal which will impact the domestic fishery.

The data does not present a convincing case as to the need for such a drastic reduction in optimum yield. It is certainly true that the commercial catch declined as the market declined and has not fully recovered to date. There has been a reduction

in the average length of sablefish captured when comparing 1951 to 1980, but, quite frankly, it does not seem to be a very significant drop - from 68 centimeters to 64 centimeters. CPUE data is somewhat suspect under the best of circumstances and reveals a rather mixed bag. The Japanese longline experience seems to be indicating an increase in CPUE in 1980. Current surveys indicate that the stock is in better shape than it has been in some years and the only negative aspect was shown by the U. S. Pot Index Survey which states that the number of large fish are off about 50% when comparing 1981 to 1980. According to the Natural Resources Consultants report, we should see a decided improvement in 1982.

It would seem we are grasping for a number without too much to go on and when we are really in a holding pattern waiting to see what will happen.

I might suggest a different approach. From a biological viewpoint, little fish should be allowed to grow up and spawn before they are taken. For sablefish this ranges from about 4 years to 7 years of age which equates to about a 4-pound to 7-pound range. The maximum biomass is obtained between ages 5 and 6 with a 5-pound average weight.

Perhaps not too surprisingly, the ex-vessel price for small sablefish is much lower than for larger fish. The market break point is generally at 5 pounds round/3 pounds dressed. The economists tell us that the maximum economic yield occurs between

years 6 and 8, that is, between 5 and 9 pound fish.

All of the above data is contained in Pacific Coast Groundfish Plan now in the approval process.

It would seem that both biology and economics would be best served by establishing a minimum size for landed sablefish from pots or hook and line of approximately 5 pounds round or 3 pounds dressed. Such a minimum size limit would probably make an OY adjustment unnecessary and would lead to an improvement in the stock condition while maximizing the economic returns.

I caution that any such proposal size limit should be first reviewed by the scientific community and exposed to a broad range of fishermen for their input, but I have yet to hear any objections from domestic fishermen or biologists to the concept of a minimum size limit such as here proposed.

### III. CONCLUSION

In conclusion on this subject, we would suggest that the scientific data that has been presented should be subject to further review by your staff and consideration be given to meeting any legitimate conservation and economic goals by establishing minimum size limits. At the present time, we cannot support the reduction in optimum yield proposed by Amendment #11 based on the data presented, nor can we agree with the proposal to restrict the fishery to hook and line gear. The domestic pot fishermen are entitled to equal access to the resource.

MacGregor  
26-80

Amendment #11 - Sablefish OY

-- Amendment Package --

	Western	Central	Y/W of 140°	Eastern Y/E of 140°	S/E
EY * 10,965	2,225 mt.	4,075 mt.	2,240 mt.	1,135 mt.	1,290 mt.
OY ** 13,000	2,100	3,800	3,400		3,700
Option #1 9,000 (max)	2,100	3,800	1,500		1,000
Option #2 8,200	1,669	3,056	1,680	851	968
Option #3 3,500	?	?	?	?	?
Option #4 500	?	?	?	?	?
Option #5 8,840	1,669	3,056	1,680	1,135	1,290
Option #6 10,435	2,100	3,800	2,100	1,135	1,290
Option #7 Status Quo	2,100	3,800	3,400		3,700

\* Based on status of stocks report, INPFC document 2461

\*\* Current FMP

Prepared and submitted by  
North Pacific Longline-Gillnet Assn.  
3/24/82

	Western	Central	Y/W of 140°	Eastern Y/E of 140"	S/E
SSC Option #1 10,965 mt. (EYs=OYs)	2,225	4,075	2,240	1,135	1,290
PMT's Option 6100 mt.	1,238	2,267	2,595		
Domestic Catch-1981	0	11	0	0	1,643
Total Foreign Catch 1981* 8,074	1,608	3,528	2,861		77
NPL Catch - 1981* 6,125	1,278	2,395	2,452	0	

\* 1981 fishing year had 14 months



## Analysis of Option #6

The following chart compares the OY values proposed in Option #6 with the new EY levels suggested by most recent status of stocks analysis and the OY values contained in current FMP.

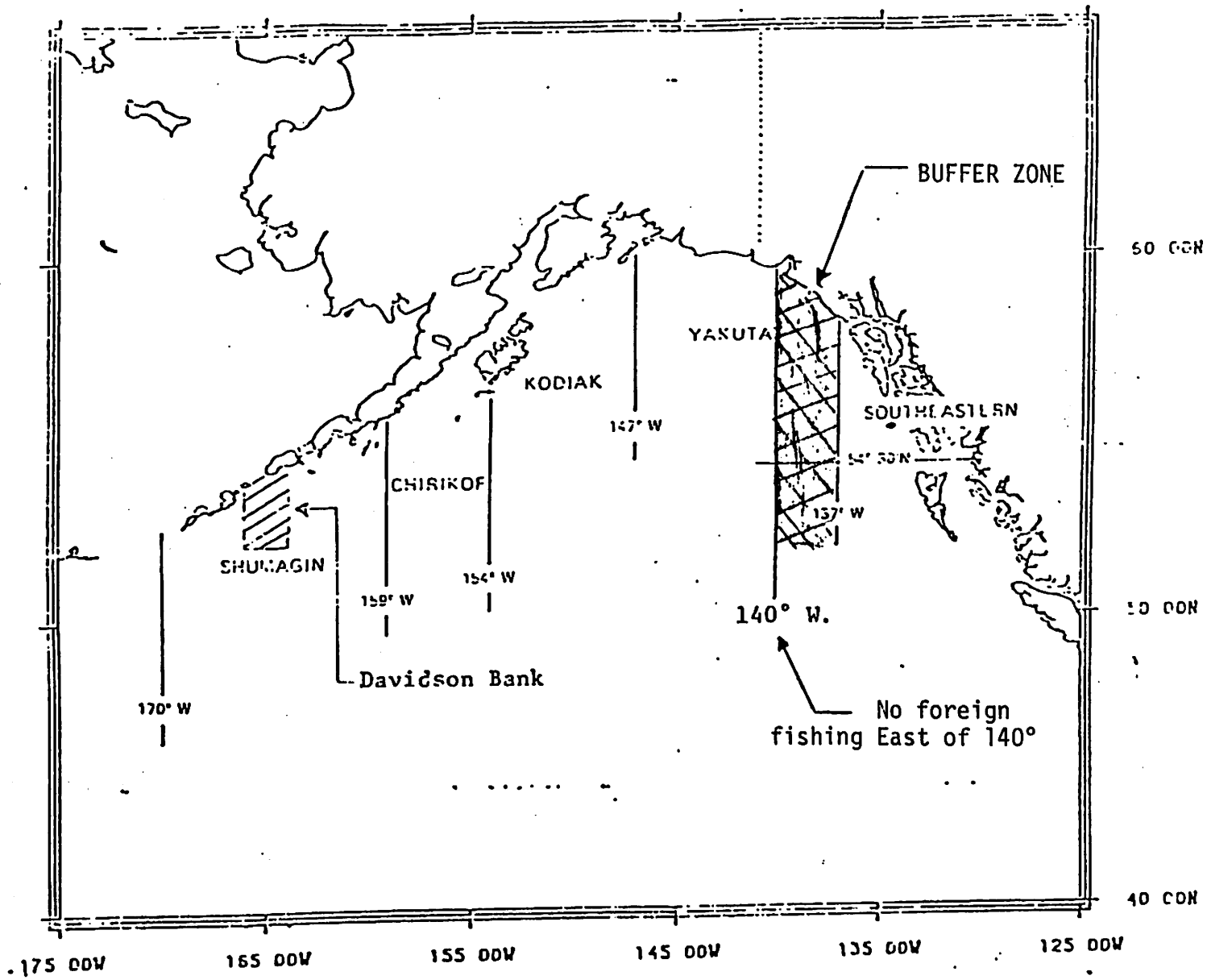
	Western	Central	Y/W	Eastern Y/E	S/E
New EY	2,225	4,075	2,240	1,135	1,290
Option #6-OYs	2,100	3,800	2,100	1,135	1,290

In the Eastern area, Option #6 subdivides the Yakutat OY between the areas east and west of 140°. The net effect of this subdivision is to reduce the allocations of fish available to foreign fishery by 1300 mt:

	Eastern Area		
	Y/W of 140°	Y/E of 140°	S/E
New EY	2,240	1,135	1,290
Current OY	3,400		3,700
Option #6	2,100	1,135	1,290

The major features of Option #6 are as follows:

- (1) Implements EY levels contained in most recent Status of Stocks Analysis as adopted by INPFC, PMT, SSC
- (2) Sets OY levels in areas W of 140° below EY so as to provide for rebuilding
- (3) Reduces allocations available to foreign fishing by 1300 mt.
- (4) Creates a buffer zone (Y/E of 140°) between foreign and domestic fleets with separate OY for that area to accommodate expansion of domestic fleet to west and rebuilding of stocks. (See map attached).
- (5) Addresses the localized depletion problem identified in status of stocks report
- (6) Sets OY in area E of 140° at EY levels, allowing US fishermen flexibility to fish up to EY -- depending on profitability of operations.
- (7) Accommodates needs of other user groups as well - Longliners from outside SE, pot fishermen, trawlers and others.



March 1982

D-5

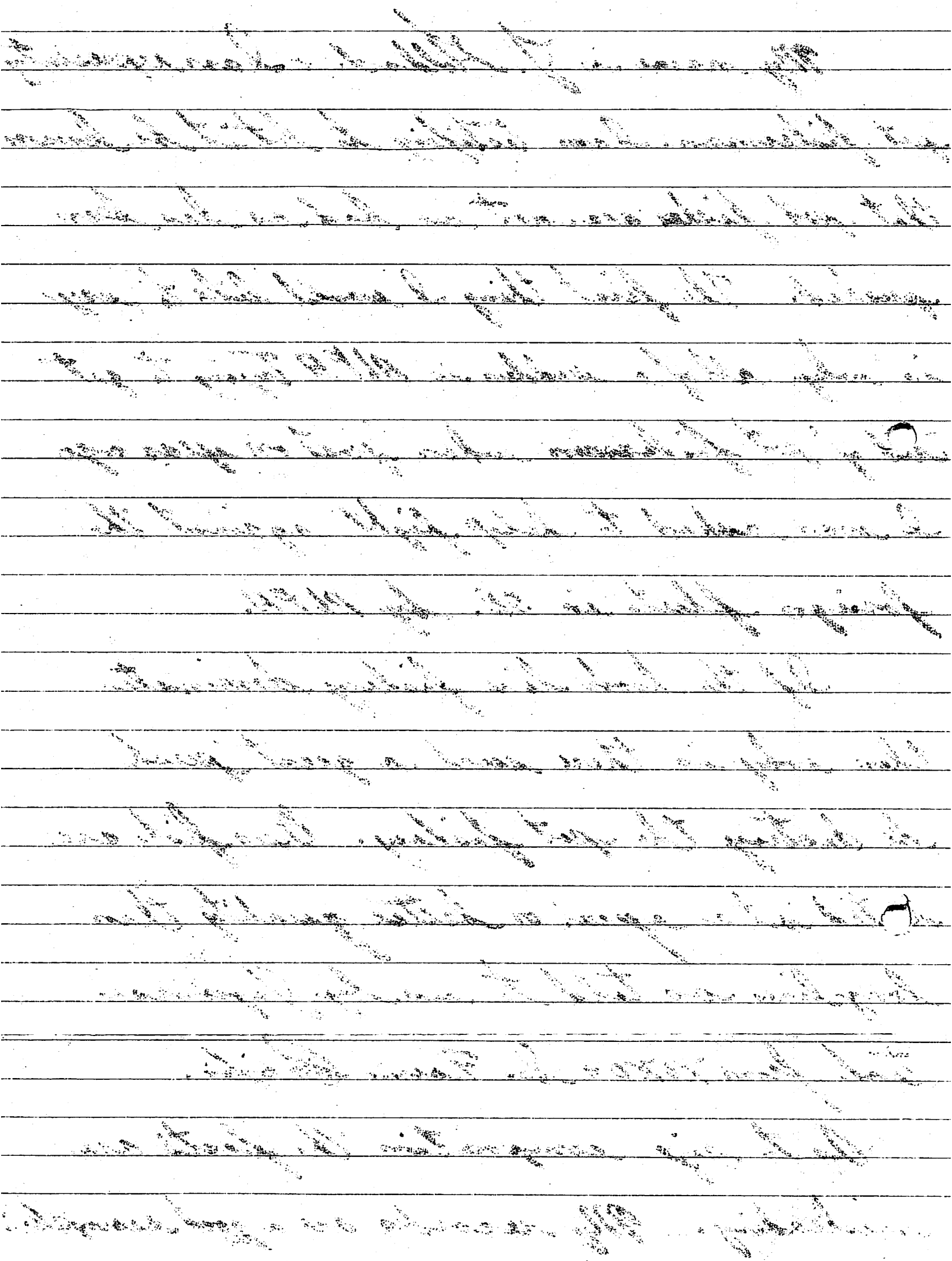
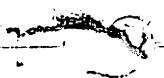
My name is V. Holland & I am representing  
post fishermen. I am writing to let you know  
that post fishes are not as bad as has been  
quoted. The kind thing I would like to say  
is only all of a sudden is ALFA trying to get  
rid of post fishermen when just on year ago  
I was asked to help fight against the  
foreign fleets in SE. by ALFA.

Of the whole line fishing dominates  
them only in their own a great great  
do destroy the post fishing. Our fish are  
not as a great or better quality than  
long line so tell to me by Japanese  
took from 70's to see from Pacific.

Do to say comparison the facts are  
misleading. My records are a good example:



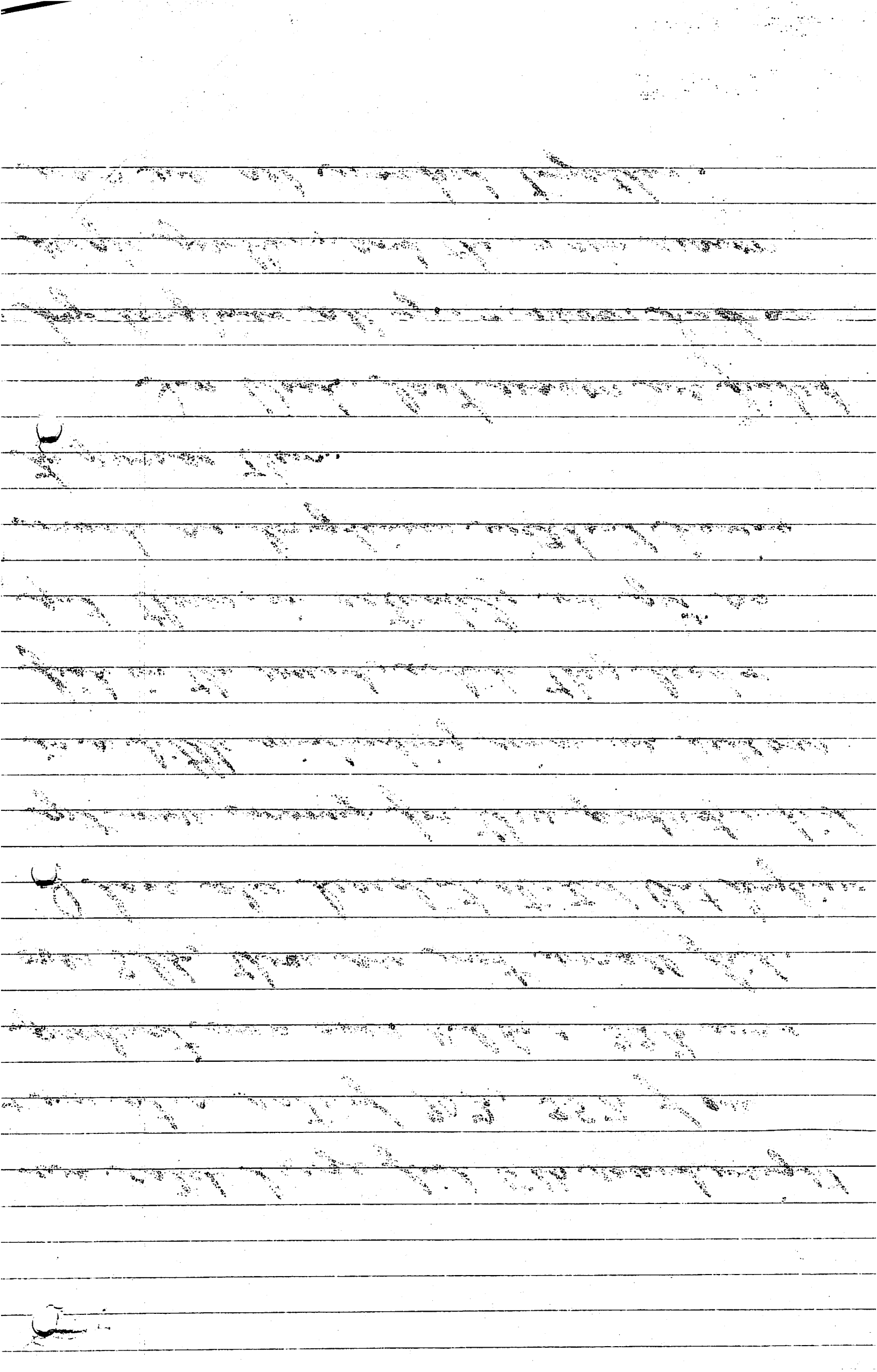
W 891 and M



we catch large fish 5 lb roundweight  
+ up at a rate of 90%, 35% of our  
product was over 11 lbs & 32% was  
over 8 lb, these are not small fish.

I have also heard it stated that longliners  
get more money for their product, which  
is a little misleading since we sell our  
fish in the round, while they head &  
gut theirs, in actuality we get as  
much as longliners without having  
to process them.

In Wash. last season we fished  
by longlines all yr. & never had a  
single problem, and the main reason  
was we all worked together.





If we were to lose a string of gear we can drag it up, last year we retrieved one set at 350 Fm. When cod pots are turned on a regular basis you have no loss of Cod. When we do have dead Cod the % is no more than a longline. Our gear usually is down for no more than a couple of days at a time, with no loss. If we have to leave our gear down for a indefinite length of time our loss rate stays very small because the size of our pots are such that we give the fish enough room to swim in. Pot size has a great deal to do with dead loss.

1. The first part of the document is a list of names and addresses, including "John Doe, 123 Main St, New York, NY" and "Jane Smith, 456 Elm St, Los Angeles, CA".

2. The second part of the document is a list of names and addresses, including "Robert Johnson, 789 Oak St, Chicago, IL" and "Mary White, 101 Pine St, San Francisco, CA".

3. The third part of the document is a list of names and addresses, including "David Brown, 202 Cedar St, Boston, MA" and "Susan Green, 303 Birch St, Philadelphia, PA".

4. The fourth part of the document is a list of names and addresses, including "Michael Black, 404 Spruce St, Washington, DC" and "Elizabeth Gray, 505 Willow St, Houston, TX".

5. The fifth part of the document is a list of names and addresses, including "James White, 606 Ash St, Dallas, TX" and "Patricia Black, 707 Hickory St, Austin, TX".

6. The sixth part of the document is a list of names and addresses, including "Richard Gray, 808 Maple St, San Antonio, TX" and "Barbara White, 909 Poplar St, Fort Worth, TX".

7. The seventh part of the document is a list of names and addresses, including "Christopher Black, 1010 Walnut St, El Paso, TX" and "Dorothy White, 1111 Chestnut St, San Diego, CA".

8. The eighth part of the document is a list of names and addresses, including "Daniel Black, 1212 Olive St, San Jose, CA" and "Margaret White, 1313 Elm St, San Francisco, CA".

9. The ninth part of the document is a list of names and addresses, including "Matthew White, 1414 Maple St, San Francisco, CA" and "Deborah Black, 1515 Pine St, San Francisco, CA".

10. The tenth part of the document is a list of names and addresses, including "Andrew Black, 1616 Oak St, San Francisco, CA" and "Christine White, 1717 Cedar St, San Francisco, CA".

11. The eleventh part of the document is a list of names and addresses, including "Joseph White, 1818 Birch St, San Francisco, CA" and "Kathleen Black, 1919 Spruce St, San Francisco, CA".

12. The twelfth part of the document is a list of names and addresses, including "Thomas Black, 2020 Willow St, San Francisco, CA" and "Amanda White, 2121 Ash St, San Francisco, CA".

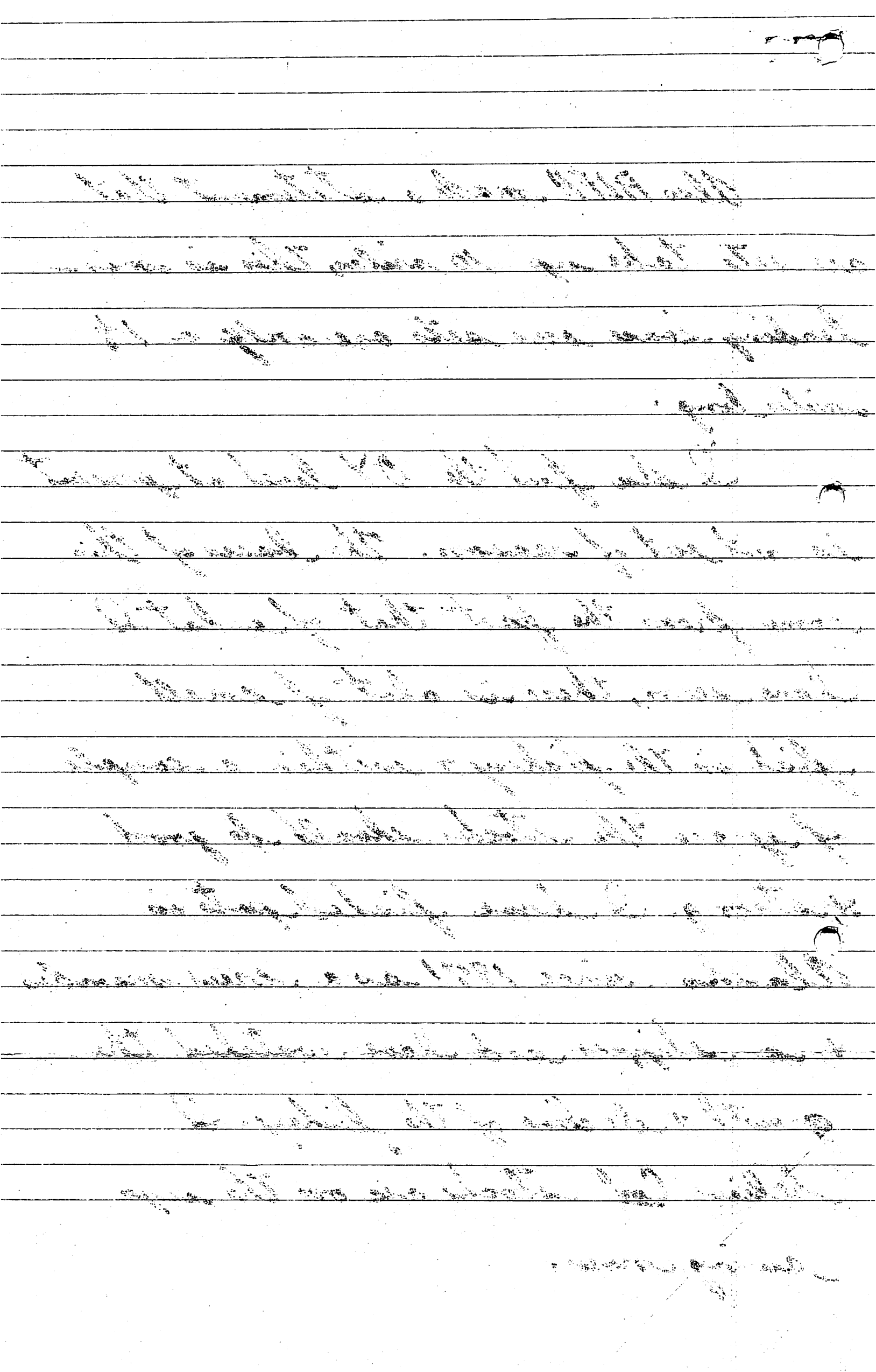
13. The thirteenth part of the document is a list of names and addresses, including "Charles White, 2222 Pine St, San Francisco, CA" and "Melissa Black, 2323 Cedar St, San Francisco, CA".

14. The fourteenth part of the document is a list of names and addresses, including "Robert Black, 2424 Birch St, San Francisco, CA" and "Nicole White, 2525 Spruce St, San Francisco, CA".



Also ALFA made a statement that  
are sets take up 10 miles, This is mis-  
leading since our sets are only a 1/8  
miles long.

I also feel the OY level at present  
is not out of reason. The bases of this  
comes from the fact that of what I  
have seen, there is alot of small  
fish in the fishery & within a couple  
of years the stocks should be good  
& strong. I have fished pots in  
Alaska since 1971 as a crew member  
& a skipper and have watched the  
growth & decline of the fishery. I  
believe Cod stocks are on the up  
swing now.

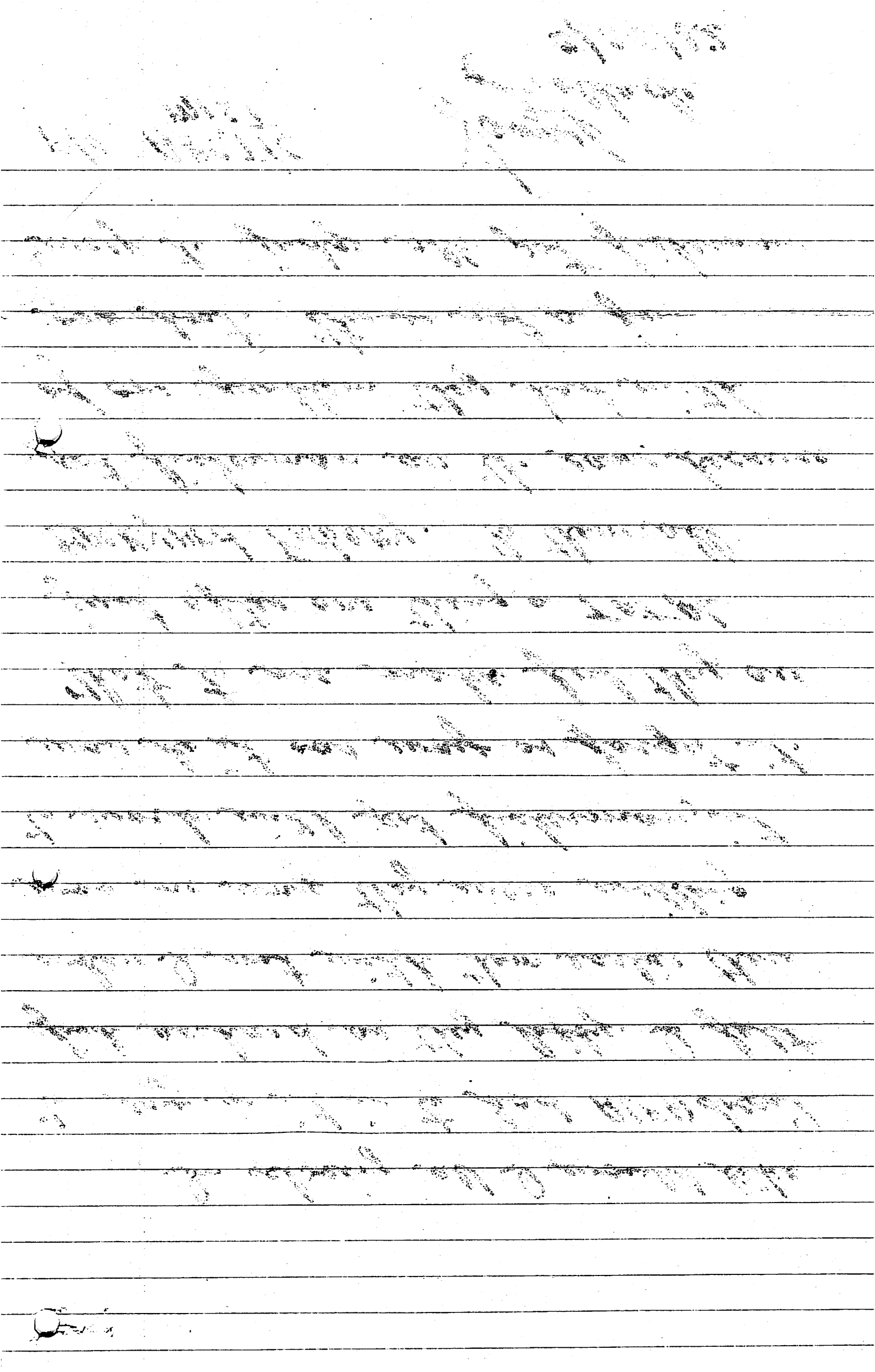




F/0 ARCTIC  
MIST

James  
Black  
3/25/82

In closing all I would like  
to say is it is to God RIFAD don't  
put so hard on they lobby. I felt  
when I met with them earlier there  
was no way they were willing  
to work with put fishermen, it  
was do it on way or forget it.  
That is one make feel they are  
just after one thing a TOTAL  
BACKYARD FISHERY. To them all  
put fishermen are the same because  
of one problem they had with  
one boat. This is not a fair  
way to judge all put fishermen.





PAUL  
MCGREGOR  
14? / no 18 June  
Baldade

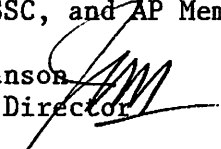
CATCH  
ARCTIC  
POT - 1981  
Composition  
MIST

Round Pounds	11 lbs + up	8-11 lbs	5-8 lbs	Under 5 lbs
12239	18514	8172	1265	
22348	16927	8747	1833	
14115	18853	7164	2011	
10489	18328	11155	4211	
10575	12366	9317	6135	
14334	18648	7769	1783	
7521	9459	3565	158	
10361	11383	6357	1183	
6269	5981	4863	2534	
7321	7509	7722-7481	2343	
6757	8129	7632	1152	
9751	8510	5651	712	
13001	10660	10325	3489	
8707	6321	7062	4610	
23799	14735	12599	8872	
17671	7649	8301	4545	
9261	4982	4012	5061	
14942	6776	8442	8312	
10188	5824	5991	3827	
3208	1608	1736	2737	

232,857      213,162      146,582      66,773  
 35.3%      32.3%      22.2%      10.1%  
 TOTAL 659,374

M E M O R A N D U M

TO: Council, SSC, and AP Members

FROM: Jim H. Branson   
Executive Director

DATE: March 15, 1982

SUBJECT: Bering Sea/Aleutian Islands Groundfish Fishery Management Plan

*ACTION REQUIRED*

- I. Review the suggested changes to Amendment #1, the Multi-species, Ecosystem Optimum Yield Management Regime.*
- II. A report will be given on the U.S. Fishing Development Zone in the Bering Sea.*

BACKGROUND

I. Amendment #1, the multispecies, ecosystem optimum yield management regime has been under review by the Secretary since September 2, 1981. However, due to concerns which could result in disapproval of the amendment, the review process was suspended until the issues could be considered by the PDT. After reconsidering the amendment, the PDT has rewritten Sections 11 and 14 which are included under agenda item D-6(a). Changes made to the Council approved version of Amendment #1 are as follows:

1. The discussion of Allowable Biological Catch of the Groundfish Harvest has been replaced by combining the discussions of ABC and Optimum Yield.

The PDT considered that the management regime was more properly based on the relationship between MSY and OY, rather than on reducing MSY to arrive at an ecosystem ABC and then deriving OY.

2. The section on Initial Total Allowable Catch, has been rewritten to include the following changes:
  - A. The initial TAC for the groundfish complex will be set at 1.0 million mt, rather than 1.4 million mt.
  - B. The initial TAC allocation's by species groups will still be based on the average long-term production factors. However, the production factors have been changed. Dr. Low of the Northwest and Alaska Fisheries Center is preparing a document which explains the derivation of the production factors and their use in fishery management.

- C. A 100,000 mt reserve for correction of operational problems is established only for the January 1 to April 1 period of the fishery. The operational reserve for the remainder of the fishing year is eliminated.
- D. Initial allocations to the fishery are based on DAH (JVP and DAP) and TALFF.

The Reserve for the period April 1 to December 31 still equals 10% of each species' Final TAC.

- 3. A. The section on Final Total Allowable Catch has been rewritten to explain that Final TAC's will be based on yearly resource assessment documents, rather than on Annex I to the FMP. The expected contents of the Resource Assessment Documents (RAD's) are given. Because Annex I is outdated, it has been eliminated from the amendment.
- B. A list of socioeconomic considerations, used in setting the Final TAC, is shown.
- 4. The Final Reserves will not be apportioned to species or species groups but rather in amounts and by species the Regional Director determines to be appropriate.
- 5. Section 14., MANAGEMENT REGIME, has been changed as follows:

- A. Herring has been added to the categories of species groups as a prohibited species and an incidental species. The definitions are from the Herring FMP.
- B. The restrictions on domestic species ventures in the Bristol Bay pot sanctuary have been eliminated. The main reason for doing this is that it appears likely that all domestic vessels and species ventures currently fishing in the Bristol Bay Pot Sanctuary have had or will have harvests less than 10,000 mt. The practical effect is that under the proposed regime, no domestic vessels, or species ventures would be monitored, therefore, although the halibut by-catch might exceed one percent, no regulatory action could be taken.

The second reason for eliminating this part is that the definition of "species venture" is not clear enough to be enforceable.

The original section on species ventures is included as agenda item D-6(b)

- C. Area "G" has been eliminated because it was not necessary.
- D. The revised version of Amendment #1 still includes a provision to limit domestic longliners to a 2,000 mt harvest in the Winter Halibut Savings Area (Area B) from December 1 to May 31.

This area is being increasingly utilized by domestic longliners for the salt cod fishery. Therefore, the Council may want to reconsider the winter harvest restriction.

Domestic trawlers are not restricted as to the amount of fish they can catch in the area, although they are limited to an experimental fishery.

- E. The Regional Director's authority to issue field orders for time-area closures to resolve foreign-domestic gear conflicts has been eliminated. A similar section in Amendment #8 to the Gulf of Alaska Groundfish FMP was recently disapproved by the Secretary. The disapproval letter is included in your notebooks as agenda item D-6(c).
- F. Editorial changes from past amendments have been included in the revised Section 14 in your notebooks.

## II. The United States Fishery Development Zone

At the December 1981 meeting, the Council requested that the Bering Sea/Aleutian Islands Groundfish PDT examine the proposal to create a Domestic Fishery Development Zone just north of Unimak Pass.

Dr. Low of the Northwest and Alaska Fisheries Center has studied some of the biological and fishery related effects that various foreign closures in the area would have. His report will be handed out at the meeting.

The Council may receive a report on the possible economic effects of a closure on the domestic fishery. If the report is not available, a description of the research into this question will be given.

- III. Amendment #4, which increased the OY for Pacific cod from 78,700 mt to 120,000 mt and increased the JVP for pollock to 64,000 mt, yellowfin sole to 30,000 mt, Atka mackerel to 14,500 mt, other flatfish to 10,000 mt, and other species to 6,000 mt started Secretarial review on February 22, 1982.

The amendment is currently scheduled to be implemented by September 1. Council staff has written NMFS urging a quick review of this straight-forward amendment.

- IV. Amendment #3, the Prohibited Species Amendment, is undergoing final editorial review. It should be submitted to the Secretary by April 1.



BERING SEA/ALEUTIAN ISLANDS GROUND FISH FMP REVISED AMENDMENT #1

11.0 OPTIMUM YIELD (OY)

11.1 Maximum Sustainable Yield (MSY) of the Groundfish Complex

The groundfish complex and its fishery are a distinct management unit of the Bering Sea. The complex has more than 10 commercially important species and many others of lesser or no commercial importance. This complex forms a large subsystem of the Bering Sea ecosystem with intricate interrelationships between predators and prey, between competitors, and between those species and their environment. Therefore, the productivity and MSY of groundfish should be conceived for the groundfish complex as a unit rather than for many individual species groups.

The MSY of the groundfish complex is the range of 1.7 to 2.4 million mt. This is calculated by summing the MSY's of individual species groups that are derived from species-by-species analysis. A reasonable verification of the MSY for the groundfish complex is derived by averaging the 1968-1977 catches when the fishery went through periods of growth, peak, decline, and some stability (see Section 5.2 on History of Exploitation). The average catch was 1.8 million mt with a range of 1.1 to 2.4 million mt.

An ecosystem model of the Bering Sea developed by the Northwest and Alaska Fisheries Center (Laevastu and Larkins, 1981) shows that the mean exploitable biomass for the groundfish species covered by this FMP is about 9.3 million mt. This ecosystem model, the Prognostic Bulk Biomass (PROBUB) model, simulated the principal components of the ecosystem (mammals, birds, demersal fish, semi-demersal fish, pelagic fish, squid, crabs, and benthos) and considered their fluctuations in abundance caused by predation, natural mortality, environmental anomalies, and fishing. The magnitude of the mean exploitable biomass (9.3 million mt) suggests that the annual yield from it is probably much higher than the 1.7 to 2.4 million mt range estimated conservatively by the single species approach.

The ecosystem consideration also indicates that MSY of the groundfish complex may change if the present mix of species is altered substantially from the present period. Therefore, as changes take place, MSY for the complex may have to be re-examined.

11.2 Optimum Yield of the Groundfish Complex

The optimum yield (OY) of the groundfish complex is set equal to 85% of MSY or 1.4 to 2.0 million mt. This deviation from MSY reflects the combined influence of biological and socioeconomic factors. The important biological factors indicate that:

1. When considering condition of individual species within the complex, the OY range encompasses the summed ABC's of individual species for 1978-1981 (Low, et al. 1978; and Bakkala, et al. 1979, 1980, and 1981). This sum may be used as an indicator of the biological productivity of the complex, though not completely satisfactory, because multi-species/ecosystem interactions cannot be adequately taken into account. The 15% reduction of MSY further reduces the

risk associated with relying upon incomplete data and questionable assumptions in assessment models used to determine condition of stocks.

2. When considering multi-species/ecosystem models, the OY range is probably a conservatively safe level for the groundfish complex. The mean exploitable biomass of 9.3 million mt for the species groups (Laevastu and Larkins, 1981) suggests that the harvest level can be considerably higher than the OY range.

Although the multi-species/ecosystem models suggest that the harvest level can be higher than 2.0 million mt, it would only be so if the proper combination of exploitation rates by individual species commensurate to the natural balance of the groundfish complex are applied. This combination may not be desirable to the fishermen because the industry prefers only certain species. The recent catch history indicates that the present mix of species is socioeconomically acceptable and that the groundfish complex should probably not be exploited at levels higher than 2.0 million mt at this time.

All of the socioeconomic considerations indicate that:

1. The OY range is not likely to have any significant detrimental impact on the industry. On the contrary, this range, when compared to the annual determination of OY, is more desirable because it creates a more stable management environment where the industry can consistently plan its activities with a minimum expectation of OY being equal to 1.4 million mt.
2. The OY range also covers actual catch levels during 1974-76 when the foreign fishery operated profitably before the MFCMA was implemented and is slightly higher than actual catches since then. It will allow the foreign fishery to operate near historic levels and yet offer considerable opportunities for domestic fishery expansion.

Therefore, the range of 1.4 to 2.0 million mt will be the OY of the Bering Sea/Aleutian Islands groundfish complex covered by this FMP unless the plan is amended. An amendment will be made when the status of the groundfish complex changes substantially from the present condition or when socioeconomic considerations dictate that OY should fall outside the present range. OY may also have to be re-examined if substantial change from the present mix of species occurs or is desired of the groundfish complex.

### 11.3 Initial Total Allowable Catch (Initial TAC)

The initial TAC for the groundfish complex is set at 1.0 million mt at the beginning of the year to get the fishery automatically started. This TAC will be revised upward to a minimum of 1.4 million mt (the low end of OY) by April 1 of each year when the final TAC is determined. This final TAC is determined with the latest information on biological condition of the stocks and socioeconomics of the fishery.

The initial TAC of 1.0 million mt is chosen because:

1. It is a large enough amount to assure that foreign and domestic fisheries can start their operations and sustain them for 3 months

or longer while the final TAC is determined. The initial TAC is only 9-29% below actual catches in 1977-81 and should not create any problems for operation of the fishing vessels. If problems should arise, an initial reserve of 100,000 mt has been established in addition to the initial TAC to resolve them (see section on Initial Reserves).

2. One million metric tons is well below the low end of OY, therefore, the initial allocations are unlikely to cause conservation problems while the final TAC is being determined.

The initial TAC is allocated to the fishery by species groups according to their average long-term production potential within the groundfish complex. This allocation is shown in Table 23-1 and will remain the same from year to year unless the production factors of the species mix are substantially changed from those shown. The determination of these long-term production factors for individual species groups within the groundfish complex is described by Low (1982).

In essence, a two-tier management system is created whereby catch limits are set (1) for the groundfish complex as a whole, and (2) for the individual species groups as interacting components of this complex. The limit set for the complex is the OY and cannot be exceeded, while those limits set for the components may vary depending on the species production potential and the socioeconomic importance of the species groups in any single year.

#### 11.3.1 Initial Reserve

An initial reserve of 100,000 mt (or 25% of the difference between the low end of OY and initial TAC) is set aside at the beginning of the fishing year to be used for allocation to the fishery during the period before the final TAC is determined. This reserve is not designated by species group and is allocated in amounts and by species that are determined by the Regional Director when needed to correct operational problems. A species allocation from initial reserve and that from initial TAC should not total higher than the upper limit of ABC for the species group for the previous year nor should it cause a conservation problem.

#### 11.3.2 Initial Allocations to Fishery

Before the beginning of each fishing year, the Regional Director shall establish initial domestic annual harvest (DAH) amounts for each species or species group. As described in Annex II these amounts shall equal the amount of those species harvested by domestic fishermen during the previous year plus any additional amounts the Regional Director projects to be necessary to satisfy the needs of the growing domestic fishery. These supplemental amounts will be based on projected increases in (1) U.S. processing capacity and/or intention to process, and (2) U.S. harvesting capacity and/or intention to harvest.

Initial allocations to the fishery are then determined at the beginning of the fishing year as follows (DAH = DAP + JVP):

1. Initial allocations to domestic annual processing (DAP) equals the initial DAP established by the Regional Director, or initial TAC, whichever is smaller.

2. Initial allocations to joint venture processing (JVP) equals the initial JVP amount established by the Regional Director or the remainder of initial TAC minus DAP, whichever is smaller.
3. Initial allocation to total allowable level of foreign fishing (TALFF) equals the initial TAC minus DAH.

The Regional Director may allocate part or all of the initial reserve to the above fisheries if initial allocations are insufficient for the orderly conduct of the fishery before final TAC is determined, so long as the additional amount allocated will not cause a conservation problem.

#### 11.4 Final Total Allowable Catch (Final TAC)

The final TAC's for the groundfish complex and of its component species groups will be determined by the Alaska Regional Director of NMFS by April 1 of the fishing year. The final TAC for the complex shall be within the OY range of 1.4 to 2.0 million mt.

Prior to the Regional Director's determination, the Council will recommend final TAC's for the complex and its species groups to him based on the best available data concerning the stocks and the fisheries. The Council's recommendations shall be based upon the following types of information:

1. Biological condition of the stocks -- resource assessment documents will be prepared for the Council by January 1 by the Northwest and Alaska Fisheries Center of NMFS, other agencies, or scientists. These documents shall provide information on:
  - a. historical catch trend;
  - b. estimate of MSY of the groundfish complex and its component species group;
  - c. estimates of ABC of the individual species groups and assessments on their condition of stocks;
  - d. assessments of the multi-species and ecosystem impacts of harvesting the groundfish complex according to species ABC's, including considerations of rebuilding depressed stocks; and
  - e. alternative harvesting strategies of the component species groups;
2. Socioeconomic considerations that are necessary for U.S. fishery development as:
  - a. the need to promote efficiency in the utilization of fishery resources, including minimizing costs;
  - b. the need to manage for the optimum marketable size of a species;
  - c. the impact of groundfish harvests on prohibited species and the domestic target fisheries which utilize these species;
  - d. the desire to enhance depleted stocks for the benefit of the U.S. fishery;
  - e. the seasonal access to the groundfish fishery by domestic fishing vessels;

- f. the commercial importance of a fishery to local communities;
- g. the importance of a fishery to subsistence use; and
- h. the need to promote utilization of certain species even if such action is to the detriment of other species.

When the final TAC's for the complex and the species groups are determined, the initial TAC, initial reserve, DAH, and TALFF are updated.

#### 11.4.1 Final Reserves

By April 1 of the fishing year, the initial reserve is replaced by the final reserve amount for the groundfish complex. This amount is equal to the sum of 10% of each species or species group's final TAC (or 10 percent of the total final TAC).

The final reserve is not designated by species or species groups and will be apportioned to the fishery during the remainder of the year by the Regional Director in amounts and by species that he determines to be appropriate. The apportionment of the reserve must be consistent with the most recent assessments of resource conditions and should not be detrimental to various components of the groundfish complex unless the Regional Director can support his determination that the socioeconomic considerations listed in Section 11.4 or overall fishery operational problems dictate otherwise. The Regional Director may also withhold reserves for conservation reasons.

#### 11.4.2 Final Allocations to Fishery

As described above when the final TAC is determined, it is reduced by 10 percent to form the final reserve. The remaining 90 percent of the final TAC minus the allocations to the fishery prior to the determination of the final TAC is then apportioned to DAP, JVP, and TALFF (in that order) as deemed appropriate by the Regional Director, after consultation with the Council.

#### 11.4.3 Reapportionment of Final Reserve and Unneeded DAH

At any time, the Regional Director may assess the DAP and JVP components of DAH and apportion to DAH any amounts from the final reserve that are needed for the domestic fishery.

As soon as practicable after April 1, June 1, and August 1, and on such other dates as he determines necessary, the Regional Director may apportion to TALFF any portion of DAH or the final reserves that he determines will not be needed by United States fishing vessels during the remainder of the fishing year.

Table 23-1. Bering Sea/Aleutians groundfish MSY, ABC, OY, and initial TAC in metric tons.

MSY	=	1.7 - 2.4 million mt
OY (85% MSY)	=	1.4 - 2.0 million mt
Initial TAC	=	1.0 million mt
Initial Reserve	=	100,000 mt

Species	Areas <sup>1/</sup>	Production Factor x 1,000,000	=	Initial TAC
Pollock	I+II+III	0.6534		653,400
	IV	0.0378		37,800
Pacific Ocean Perch	I+II+III	0.0021		2,100
	IV	0.0015		1,500
Other Rockfish	I+II+III	0.0052		5,200
	IV	0.0066		6,600
Sablefish	I+II+III	0.0019		1,900
	IV	0.0007		700
Pacific Cod		0.0605		60,500
Yellowfin Sole		0.0684		68,400
Turbots		0.0385		38,500
Other Flatfish		0.0328		32,800
Atka Mackerel	IV	0.0233		23,300
Squid		0.0183		18,300
Other Species		0.0490		49,000
TOTAL		1.0000		1,000,000

<sup>1/</sup> Fishing areas of the Bering Sea/Aleutian region, unless stated otherwise.  
See figure 26a.

Initial Total Allowable Catch (TAC), Domestic Annual Harvest (DAH)  
and Total Allowable Level off Foreign Fishing (TALFF)  
(metric tons)

Species Group	Areas <sup>1/</sup>	Initial TAC <sup>2/</sup>	Initial DAH <sup>3/</sup>	Initial TALFF <sup>4/</sup>
Pollock	I+II+III	653,400	19,550	633,850
	IV	37,800	--	37,800
Pacific Ocean Perch	I+II+III	2,100	1,380	720
	IV	1,500	1,380	120
Other Rockfish	I+II+III	5,200	775	4,425
	IV	6,600	775	5,825
Sablefish	I+II+III	1,900	930	970
	IV	700	470	230
Pacific Cod		60,500	43,265	17,235
Yellowfin Sole		68,400	26,200	42,200
Turbots		38,500	1,075	37,425
Other Flatfish		32,800	4,200	28,600
Atka Mackerel	IV	23,300	100	23,200
Squid		18,300	50	18,250
Other Species		49,000	2,000	47,000
TOTAL		1,000,000	102,150	897,850

1/ Fishing areas of the Bering Sea/Aleutian region, unless stated otherwise. See figure for map.

2/ From Section 11.4 and Table 23.1

3/ To be determined, figures are examples only, see Annex II

4/ To be determined, figures are examples only, see Annex III

## 13.0 ALLOCATIONS BETWEEN FOREIGN AND DOMESTIC FISHERMEN

### 13.1 Reserve

U.S. participation in the fishery in the near future is expected to consist of a relatively modest catch for crab bait, a growing Pacific cod fishery, joint ventures for yellowfin sole, pollock, and Atka mackerel and limited efforts for other bottomfish production.

In order to prevent OY from being exceeded without preventing unexpected domestic fishery development; i.e., an unanticipated increase in U.S. catching capability and intent, 10% of final TAC will be held in reserve, as described in Section 11.4.

The reserve for domestic fishery expansion will be released by the Regional Director in accordance with Section 11.4.3

### 13.2 Total Allowable Level of Foreign Fishing (TALFF)

The initial TALFF for each species shall be determined by the equation:  
Initial TALFF = Initial TAC - Initial DAH.

The final TALFF for each species shall be determined by the equation: Final TALFF = Final TAC - Reserves - Final DAH.

Initial DAH is prescribed in Annex II and initial TALFF is prescribed in Annex III.



7. Replace Section 14.0, MANAGEMENT REGIME, with the following:

#### 14.0 MANAGEMENT REGIME

##### 14.1 Management Objectives

Four priority objectives dictate the philosophy of management for the groundfish fishery in the region:

- A. Provide for rational and optimal use, in a biological and socio-economic sense, of the region's fishery resources as a whole;
- B. Minimize the impact of groundfish fisheries on prohibited species and continue the rebuilding of the Pacific halibut resource;
- C. Provide for the opportunity and orderly development of domestic groundfish fisheries, consistent with (A) and (B) above; and
- D. Provide for foreign participation in the groundfish fishery, consistent with all three objectives above, to take the portion of the optimum yield not utilized by domestic fishermen.

##### 14.2 Area, Fisheries, and Stocks Involved

This Fishery Management Plan and its management regime governs:

###### 14.2.1

Fishing by foreign and United States vessels in the U.S. Fishery Conservation Zone of that portion of the North Pacific Ocean adjacent to the Aleutian Islands which is west of 170°W up to the U.S.-Russian Convention Line of 1867, and of the Eastern Bering Sea (See Figure 26).

The FMP area is divided into four fishing areas as shown in Figure 26a and described in Appendix III.

###### 14.2.2

All stocks of finfish and marine invertebrates except salmonids, shrimps, scallops, snails, king crab, Tanner crab, Dungeness crab, corals, surf clams, horsehair crab, lyre crab, Pacific halibut, and herring which are distributed or are exploited in the area described in 4.2.1, above.

Five categories of species groups (Annex VI) that are likely to be taken by the groundfish fishery and to each of which the optimum yield concept is applied somewhat differently are:

1. Prohibited Species -- those species groups the harvest of which must be avoided and which must be immediately returned to the sea when caught and brought aboard. Records of catch of each species must be maintained. These include salmonids, shrimps, scallops, snails, king crab, Tanner crab, Dungeness crab, corals, surf clams, horsehair crab, lyre crab. Herring will be considered a prohibited species when the offshore herring allocation, if any, is caught and the allowable incidental catch (AIC) has been caught, as described in the Fishery Management Plan for Bering-Chukchi Sea Herring.

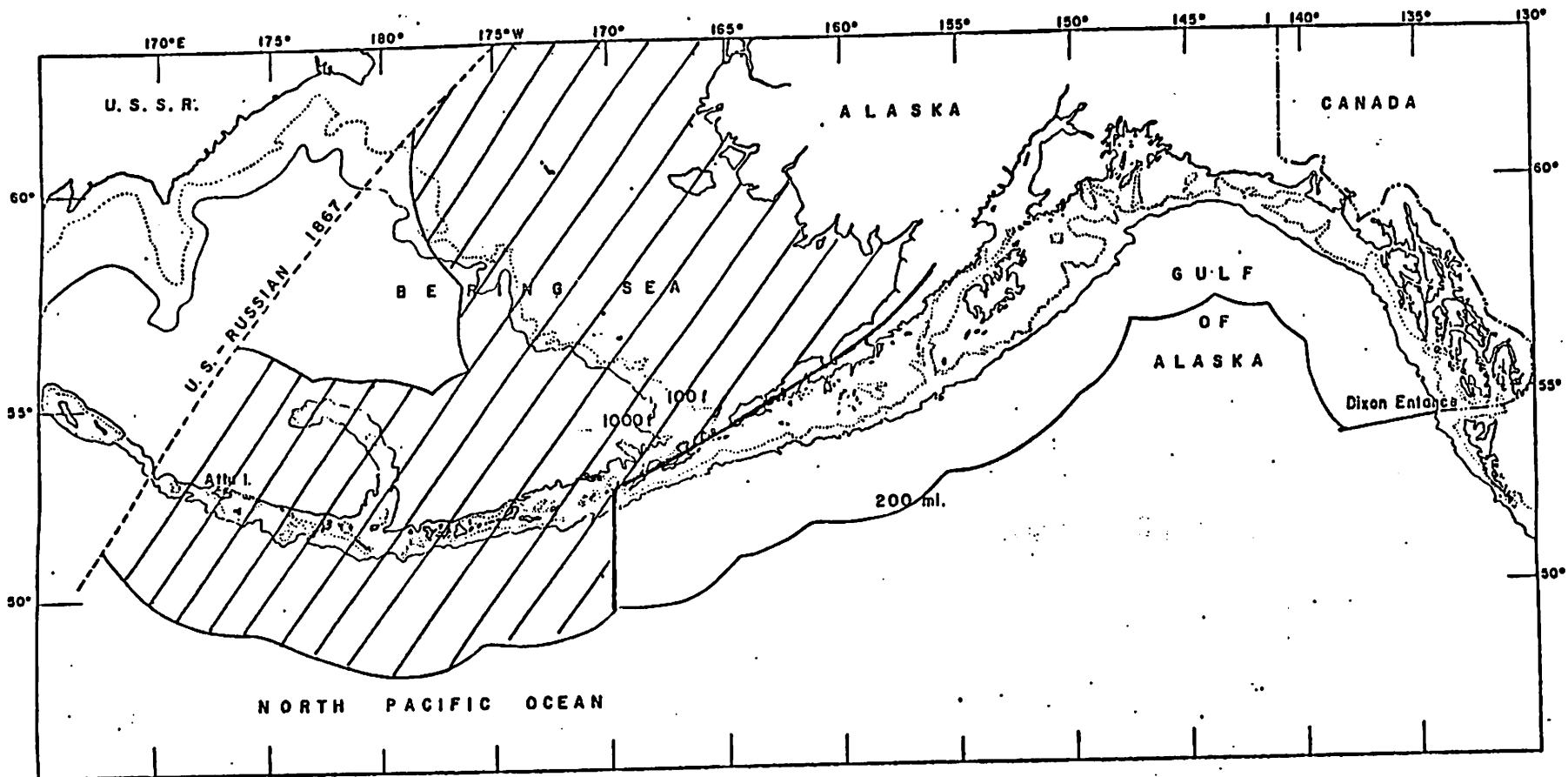


Figure 26.--Area (diagonal lines) over which this Fishery Management Plan applies.

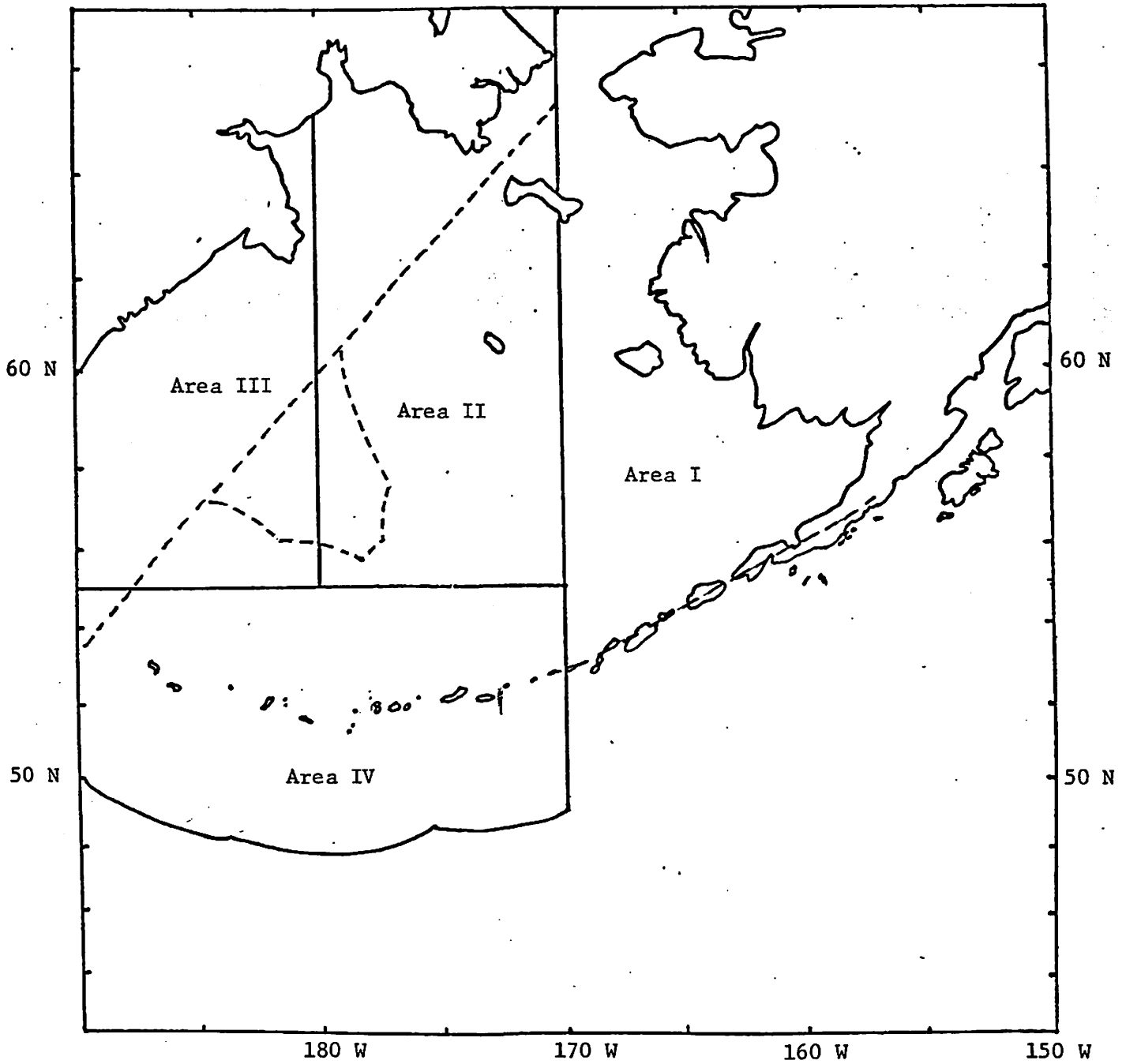


Fig. 26a Fishing areas in the Bering Sea and Aleutian Islands.  
 (See Appendix III for geographical coordinates.)

2. Target Species -- species groups which are commercially important, targeted upon by the groundfish fishery, and for which a sufficient data base exists that allows each to be managed on its own biological merits. Records of catch of each species group must be maintained.
3. Other Species -- species groups which currently are of slight economic value and not generally targeted upon. This category, however, contains species with economic potential or which are important ecosystem components, but sufficient data are lacking to manage each separately. Accordingly, a single TAC applies to this category as a whole. Records of catch of this category as a whole must be maintained.
4. Non-specified Species -- species groups of no current or foreseeable economic value taken in the fishery only as an incidental by-catch to target fisheries. These include all finfish and marine invertebrates, except those listed in 1-3, above. Virtually no data exist which would allow population assessments, but occasional records from U.S. observers aboard foreign and U.S. vessels show no noticeable decline in abundance. The OY for this category is the amount which is taken incidentally while fishing for target species, whether retained or discarded. If retained, records must be kept. (NOTE: If observer or enforcement records show that any species in this category is being actively targeted upon or that the abundance of any species is being substantially reduced, that species will be transferred to another species category through amendment of the plan.)
5. Incidental Species -- those species groups which are taken incidentally to United States and foreign groundfish fisheries. An Allowable Incidental Catch (AIC) is calculated annually and allocated to groundfish Domestic Annual Harvest (DAH) and Total Allowable Level of Foreign Fishing (TALFF), in accordance with the relative amounts of DAH and TALFF for groundfish species. Currently the only species in this category is Pacific herring (Clupea harengus pallasi), for which the AIC shall be calculated and allocated according to procedures described in the Fishery Management Plan for Bering-Chukchi Sea Herring.

### 14.3 Fishing Year

The fishing year shall be the calendar year (January 1 -December 31). Should this FMP be implemented at a date other than January 1, fish allocations will be prorated as if implementation had begun the previous January 1.

### 14.4 Management Measures -- Domestic Fishery

#### 14.4.1 Permit Requirements

All U.S. vessels harvesting and retaining groundfish or engaging in support activities in that part of the fishery conservation zone governed by this FMP must have on board a current permit issued by the Secretary of Commerce, or, if considered acceptable by the Secretary, a State of Alaska vessel license.

#### 14.4.2 Prohibited Species

United States vessels must minimize their incidental harvest of Pacific halibut, salmon, Tanner crab, and any other species the fishery for which in the area governed by this FMP is restricted by another FMP, and shall return those species to the sea promptly if they are taken.

#### 14.4.3 Fishing Area Restrictions

##### 14.4.3.1 General

None

##### 14.4.3.2 Trawl Fishery

1. Area A -- "Bristol Bay Pot Sanctuary" (as described in Appendix III and Figure 27) -- Reserved.
2. Area B -- "Winter Halibut Savings Area" (as described in Appendix III and Figure 27):
  - a. December 1 - May 31 -- domestic trawling will be permitted on an experimental basis and monitored closely by observers.
  - b. June 1 - November 30 -- no closures.

Rationale -- To reduce high incidental catches and mortality of juvenile halibut which are known to occur in winter concentrations in the Bristol Bay Pot Sanctuary and the Winter Halibut Savings Area while allowing some expansion in the traditional crab-bait trawl fishery and the development of a domestic groundfish fishery for human consumption.

3. Other Areas -- no closures

##### 14.4.3.3 Longline Fishery

1. Area B - Winter Halibut-Savings Area (as described in Appendix III and Figure 27):
  - a. December 1 - May 31 -- domestic longlining will be permitted landward of the 500 m isobath until the total U.S. longline catch (excluding halibut) from this area exceeds 2,000 mt.
  - b. June 1 - November 30 -- no closures.

Rationale -- To reduce high incidental catch and mortality of juvenile halibut which are known to occur in winter concentrations in the Winter Halibut-Savings Areas while allowing for some expansion in the domestic setline fishery for species other than halibut.

2. Other Areas -- no closures

##### 14.4.3.4 In-Season Adjustment of Time and Area

The Regional Director or his designee may issue field orders adjusting time and/or area closures for conservation reasons. The field orders may open or

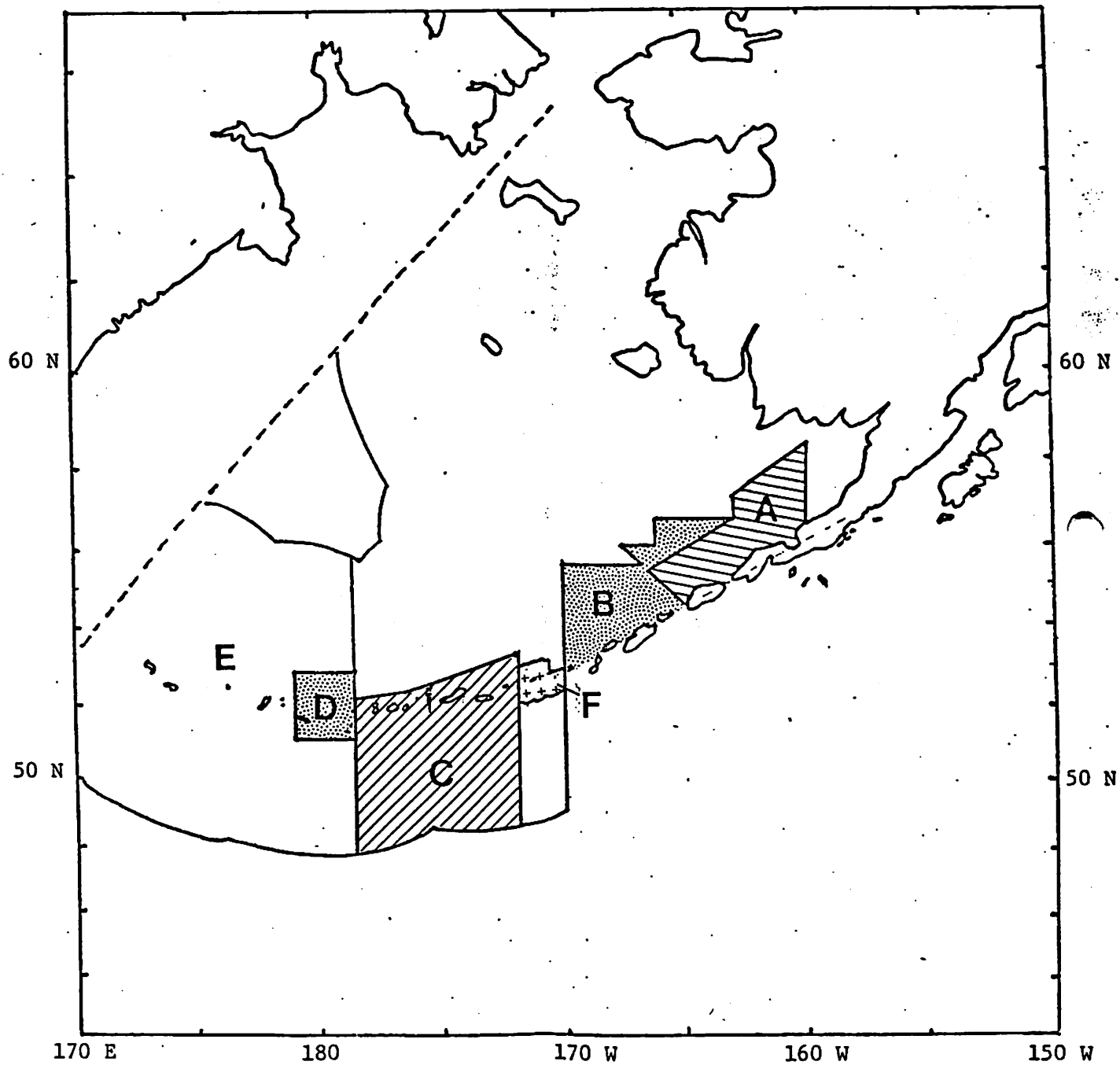


Fig. 27 Areas with special restrictions on foreign and/or domestic fisheries in the Bering Sea and Aleutian Islands Groundfish Plan area. (See Appendix III for geographical coordinates.)

close fishing areas, or parts thereof, and fishing seasons based upon the following considerations:

1. the amount of fish actually harvested compared to the Final Total Allowable Catch established for that fishing season;
2. the effect of overall fishing effort within a fishing area or part thereof;
3. catch-per-unit of effort and rate of harvest;
4. relative abundance of stocks within the area in comparison with pre-season expectations;
5. the proportion of prohibited species being caught;
6. general information on the condition of stocks within the area;
7. information pertaining to the State of Alaska guideline harvest level for species within a fishing area or part thereof; or
8. any other factors necessary for the conservation and management of the groundfish resource.

Rationale -- The TAC figures adopted under the procedures and standards presented in this FMP, which are based upon projections of the status of stocks, economic and other conditions several months in advance of the actual conduct of the fishery may not be realizable without harm to the fishery resource, in light of stock conditions which are revealed in the course of the fishery. Under such circumstances it is appropriate, for conservation purposes only, that the Regional Director in close coordination with the Commissioner of the Alaska Department of Fish and Game, take immediate action by issuing field orders adjusting time and/or area restrictions.

It is expected that the actual area opening and closing dates prescribed in this plan will be adjusted by the Regional Director pursuant to the authority described in this section. Such action is not emergency action that would require amendment of the plan, but an inherent feature of the management regime prescribed in this plan itself.

#### 14.4.4 Gear Restrictions

None

#### 14.4.5 Statistical Reporting Requirements

##### 1. Fishermen Reports

Fishery data compiled for the domestic groundfish fishery should be of the same general degree of precision as those required of foreign fishermen; catch by species, by  $\frac{1}{2}$  degree latitude x 1 degree longitude areas, by gear type and vessel class and by month; effort (e.g., hours towed, number of hooks, number of pots, number of landings, number of trips) by gear type and vessel class and by month.

In order to compile such data sets, the performance of individual vessels must be made available. To do so will probably require, in addition to fish sales tickets made out for each delivery, one or a combination of the following: logbooks, port sampling, and interviews with fishermen.

In addition to collecting this information from domestic vessels which land their catches at Alaskan ports, it must also be collected from those vessels which sell or use their catch for bait on the fishing grounds, from vessels which land their catches in other states, and from vessels which deliver their catches to foreign processing vessels.

Annual data compilations, in the above format, should be available to the Secretary by May 31 of the following year. In addition, preliminary catch data -- by species and by major fishing area (i.e., Areas I, II, III, IV) -- should be compiled by month and made available to the Secretary by the end of the following month.

Arrangements, including financing and schedule of implementation, for the collection, compilation, and summarization of these fishery data will be developed through consultations between officials of NMFS, the State of Alaska, and other states in which landings of catch from this fishery are likely.

## 2. Processor Reports

All processors of groundfish shall report information necessary for the periodic reassessment of the estimate of Domestic Annual Processing (DAP). The regulations implementing this plan shall specify the information to be reported and the time schedule for reporting.

## 3. Joint Venture Reports

Persons delivering U.S. caught groundfish to foreign processing vessels shall report information required for periodic reassessment of that portion of DAH to be delivered by United States vessels to foreign processors at sea in "joint ventures" (JVP). The joint venture processor will be responsible for reporting the catch statistics required of domestic trawlers since the entire catch is delivered in cod ends to the joint venture processor, making inventory of the catch by the United States vessel unfeasible. The regulations implementing this plan shall specify the information to be reported and the time schedule for reporting.

## 4. Non-Processed Fish Reports

Persons catching or delivering non-processed fish for use as bait or for direct consumption shall report information necessary for periodic reassessment of Domestic Non-Processed catch (DNP). The regulations implementing this plan specify the information to be reported and the time schedule for reporting.

### 14.4.6 Limited Entry

Implementation of a limited entry program is not currently necessary for the Bering Sea/Aleutians groundfish fishery. However, a limited entry program should be designed by the Council during the early stages of domestic fishery development so that it can be implemented well before the time that the fishery becomes fully or overcapitalized.



## 14.5 Management Measures -- Foreign Fisheries

### 14.5.1 Permit Requirements

All foreign vessels operating in this management unit shall have on board a permit issued by the Secretary of Commerce pursuant to the Magnuson Act.

### 14.5.2 Prohibited Species

#### 1. General

The prohibited species listed in Annex VI may not be retained, and their taking must be minimized in the course of foreign groundfish fishing operations.

#### 2. Conservation of Chinook Salmon

Amendment #1-a established a prohibited species catch (PSC) for chinook salmon of 55,250 fish for 1982. Procedures to distribute the PSC will be updated to conform this section to the system for distributing Initial TAC and Final TAC under Amendment #1.

### 14.5.3 Fishing Area Restrictions

#### 1. General

1. No harvesting year-round within 12 miles of the baseline used to measure the territorial sea, except as specified below.

Rationale -- To prevent conflicts with U.S. fixed gear and small inshore fishing vessels and to prevent catch of localized inshore species important to U.S. commercial and subsistence fishermen. If joint venture operations are permitted, foreign ships receiving fish from American fishermen may operate to within three miles of the baseline used to measure the territorial sea. However, when operating within the area between 3 and 12 miles of the baseline used to measure the territorial sea, such foreign processors may not receive fish from foreign vessels.

2. The area covered by this FMP (or an individual sub-area where a specific catch limit applies) will be closed to all fishermen of a nation for the remainder of the calendar year when that nation's allocation of any species or species group is exceeded, except that such closures will affect longline fishing only if the national allocation of any of the following species is exceeded: sablefish; Pacific cod; and Greenland turbot.

Rationale -- To discourage foreign fleets from covertly targeting on a species after the allowed catch for it has been taken.

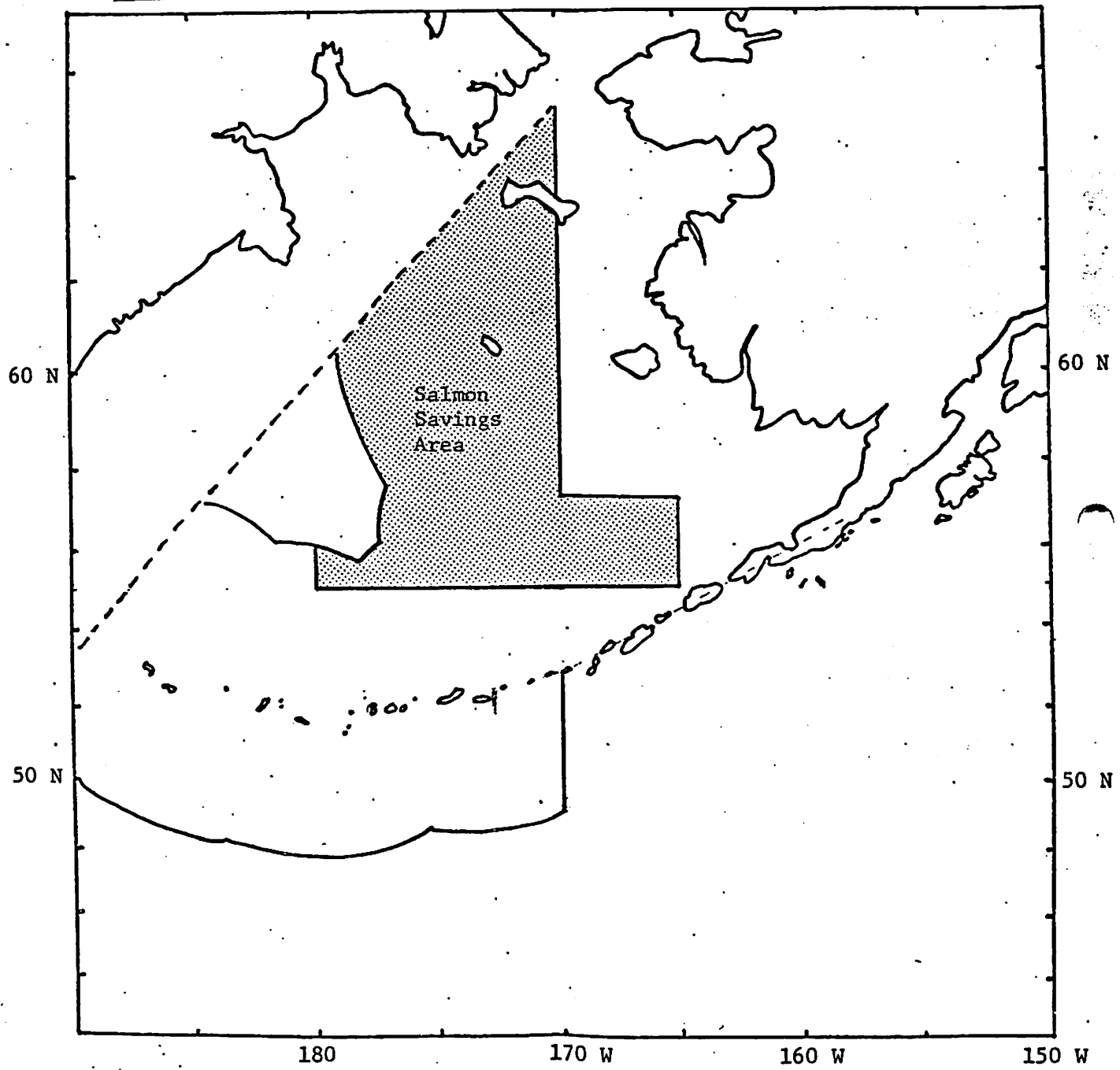


Fig. 28 Salmon Savings Area of the Bering Sea and Aleutian Islands Groundfish F<sub>3</sub>  
(See Appendix III for geographical coordinates.)

## 2. Trawl Fishery

1. Area A -- No trawling year-round in the Bristol Bay Pot Sanctuary (as described in Appendix III and Figure 27).

Rationale -- To prevent conflicts between foreign mobile gear and concentrations of U.S. crab pots; to prevent incidental catch of juvenile halibut which are known to concentrate in this area.

2. Area B -- No trawling from December 1 to May 31 in the Winter Halibut Savings Area (as described in Appendix III and Figure 27).

Rationale -- To protect winter concentrations of juvenile halibut, and to protect spawning concentrations of pollock and flounders.

3. Area C -- No trawling year-round in the Longline Sanctuary Area (as described in Appendix III and Figure 27).

Rationale -- To provide a sanctuary for foreign and domestic longline fishing in recognition of the situation in which highly developed trawl fisheries in both the Bering Sea/Aleutian area and the Gulf of Alaska have tended to preempt grounds from the traditional longline fishing method.

(Prior to 1977, no Danish seiners, side trawlers, or pair trawlers operated in this area, and less than one percent of the foreign stern trawl effort occurred in this area. Because of the displacement of the Japanese land-based dragnet fleet from the Soviet 200-mile zone, that fleet has, since 1977, increased its utilization of the trawl grounds surrounding the Aleutian archipelago. As a result, during the first 7 months of 1978, of the total foreign stern trawl effort in the Bering Sea/Aleutian region, about three percent occurred in this longline sanctuary area.)

4. Area D -- No trawling January 1 - June 30 in the area known as Petrel Bank (as described in Appendix III and Figure 27). Trawling is permitted seaward of three nautical miles from July 1 - December 31.

Rationale -- To avoid gear conflicts during the conduct of the domestic king crab fishery and to avoid the incidental catch of king crab by trawling. Data available from the fishery in the Petrel Bank area indicate a substantial incidental trawl catch of red, blue and golden king crab. The crab savings effected by the trawl closure is a direct benefit to the domestic fleet by preserving harvestable crabs from the rigors of a trawl effort during the softshell or moulting period.

5. Area E -- No trawling within 12 nautical miles of the baseline used to measure the U.S. territorial sea January 1 - April 30 in Area E (as described in Appendix III and Figure 27) EXCEPT trawling is permitted seaward of three nautical miles from May 1 - December 31.

Rationale -- To avoid gear conflicts during the conduct of the domestic king crab fishery and the development of the domestic bottomfish effort and to avoid the adverse effects of the incidental catch of king crabs by trawl.

6. Area F -- Trawling permitted seaward of three nautical miles from the baseline used to measure the U.S. territorial sea in Area F (as described in Appendix III and Figure 27).

3. Longline Fishery

1. Area B -- Winter Halibut Savings Area (as described in Appendix III and Figure 27).
  - a. December 1 - May 31 -- no longlining landward of the 500 m isobath.
  - b. June 1 - November 30 -- no closures.

Rationale -- To prevent high incidental catch and mortality of juvenile halibut which are known to occur in winter concentrations in the area.

2. Other areas -- no closures.
3. Throughout the area west of 170-00'W, longlining is permitted seaward of three nautical miles from the baseline used to measure the U.S. territorial sea.

4. In-Season Adjustment of Time and Area

The Regional Director or his designee may issue field orders adjusting time and/or area closures for conservation reasons as noted in Section 14.4.3.4.

14.6 Operational Needs and Costs (1000's dollars)

150 observer-months of foreign fishery observer coverage	450 <sup>1/</sup>
12 observer-months of domestic fishery observer coverage	35
NWAFc allocation compliance analyses	10
NMFS computerized foreign fishery information system	36
NMFS Alaska Regional Office Management Division	435
NOAA/Justice administration of penalties	12
800 Coast Guard ship patrol days	2800
2500 Coast Guard aerial patrol hours	1900
State of Alaska fishery data collection	<u>20</u>
Total	5698

Costs of federal, State, and IPHC biological research are not included inasmuch as they would be financed in the absence of this Fishery Management Plan.

8. Add the following to Section 18.0, REFERENCES:

Granfeldt, E. 1979. Marine ecosystems simulation for fisheries management. U.S. Dept. Commerce, NOAA, NMFS, NWAFc processed Report 79-10, Seattle, WA. Unpubl. manusc.

Laevastu, T. and F. Favorite. 1979. Ecosystem dynamics in the eastern Bering Sea. U.S. Dept. Commerce, NOAA, NMFS, NWAFc, Seattle, WA. unpubl. manusc.

Otto, R.S., T.M. Armetta, R.A. MacIntosh, and J. McBride. 1979. King and Tanner Crab research in the eastern Bering Sea, 1979. U.S. Dept. of Commerce, NOAA, NMFS, NWAFc, Seattle, WA. Unpubl. manusc. (Submitted to INPFC)

<sup>1/</sup> Reimbursed by foreign governments to the U.S. Treasury. Same degree of observer coverage as in 1979. The optimal coverage representing about 20% coverage is 270 observer-months costing \$810,000.

9. Replace Appendix III with the following:

Appendix III

1. Specific regulation areas opened or closed to fishing during certain times of the year for some fishing vessels are shown in Figure 27 and defined as follows:

Area A -- Bristol Bay Pot Sanctuary

The portion of the Fishery Conservation Zone encompassed by straight lines connecting the following points, in the order listed:

Cape Sarichef Light (54°36'N - 164°55'42"W)  
55°16'N - 166°10'W  
56°20'N - 163°00'W  
57°10'N - 163°00'W  
58°10'N - 160°00'W  
Intersection of 160°00'W with the Alaska Peninsula

Area B -- Winter Halibut-savings Area

That portion of the Fishery Conservation Zone encompassed by straight lines connecting the following points, in the order listed:

Cape Sarichef Light (54°36'N - 164°55'42"W)  
52°40'N - 170°00'W  
55°30'N - 170°00'W  
55°30'N - 166°47'W  
56°00'N - 167°45'W  
56°00'N - 166°00'W  
56°30'N - 166°00'W  
56°30'N - 163°00'W  
56°20'N - 163°00'W  
55°16'N - 166°10'W  
Cape Sarichef Light (54°36'N - 164°55'42"W)

Area C -- The area between 172-00'W and 178-30'W within the FCZ south of a line drawn to connect the following coordinates:

53°14'N - 172°00'W  
52°13'N - 176°00'W  
52°00'N - 178°30'W

Area D -- The area known as Petrel Bank on the north side of the Aleutian Islands between the following coordinates:

52°51'N - 178°30'W  
51°15'N - 178°30'W  
51°15'N - 179°00'E  
52°51'N - 179°00'E  
52°51'N - 178°30'W

Area E -- The area west of 178°30'W but excluding Area D, known as Petrel Bank that is defined above.

Area F -- The area between three and twelve nautical miles from the baseline used to measure the U.S. territorial sea bounded by 170°30'W and 172°00'W on the north side of the Aleutian Islands and by 170°00'W and 172°00'W on the south side of the Aleutians.

2. Fishing areas governed by this Fishery Management Plan and shown in Figure 26a are defined as follows:

Area I -- The area north of the Aleutian Islands and east of 170°W longitude.

Area II -- The area north of 55°N latitude and between 170°W longitude and 180° longitude.

Area III -- The area north of 55°N latitude and west of 180° longitude.

Area IV -- The area west of 170°W longitude, bounded on the north by 55°N latitude and on the south by the limit of the Fishery Conservation Zone south of the Aleutian Islands.

3. The Salmon Savings Area shown in Figure 28 is defined as follows:

Fishing Area II and that portion of Fishing Area I lying between 55°N and 57°N latitude and 165°W and 170°W longitude.