North Pacific Fishery Management Council

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FISHERY MANAGEMENT PLAN

AND ENVIRONMENTAL IMPACT STATEMENT

FOR THE

GULF OF ALASKA GROUNDFISH FISHERY

DURING 1978

REVISED PAGES ONLY

NORTH PACIFIC FISHERY MANAGEMENT COUNCIL

P.O. Box 3136 DT Anchorage, Alaska 99510 Shelf." Enforcement power under the bilateral agreements was allotted to the flag country.

The management regime draws from many different sources concerning groundfish stocks for allowable catches and efforts. Seasons, allocations among user groups, restrictions as to times, gear, quantities, methods, etc., are detailed and explained with references both historic and current.

The management provisions adopted by the North Pacific Council are based on a policy of protecting and rebuilding the halibut resource in the Gulf of Alaska and within that parameter encouraging as rapid a growth as possible of the U.S. groundfish fishery. To further that goal, the Council makes the following recommendations:

- 1. Close the Gulf of Alaska east of 140° West longitude to all foreign longlining. Elsewhere prohibit foreign longlining landward of the 500 meter isobath, except that a directed Pacific cod longline fishery may be conducted landward of the 500 meter isobath west of 157 degrees West longitude, except during the halibut season as set by the International Pacific Halibut Commission. Reduce the optimum yield for sablefish to 13,000 metric tons for the entire Gulf to encourage rapid rebuilding of these stocks to MSY and increase the size of fish available. These measures are designed to encourage the U.S. longine fishery and protect halibut.
- 2. Recommend the initial foreign allocation of surplus stocks be computed by the following formula: OY -(20% of OY = DAH) = initial foreign allocation. The 20 percent of OY held as a reserve should be reallocated either to the foreign fisheries or to the domestic fishery in-season, following a reassessment of U.S. development.

Table 58--The derivation of Optimum Yield (OY) for Gulf of Alaska groundfish resources, 1,000's mt.

	Species	Shu- magin	Chir- ikof	Kodiak	Valentas	. C	6/
Exploitable	Pollock	357-713	340-680	255 - 511	78-155	Southeast	TOTAL 6/
biomass	Cod Flounders POP Rockfish Sablefish	40-79 220	17-33 69	64-128 277 -Unknown- -Unknown-	18-36 154	5.9-12	145–288 772
	Atka mack. Squid						(110) <u>1</u> /
MSY	Pollock Cod Flounders POP Rockfish	·			•		169-338 34.8-69.1 67 125-150 7.6-10
	Sablefish Atka mack. Squid						22-25 (33) <u>1</u> / 2.0
When stock incapable of	Pollock Cod Flounders POP						N/A N/A N/A 50
producing MSY)	Rockfish Sablefish Atka mack. Squid					•	N/A 17.4-19.8 N/A 2.0
ABC	Pollock 2/Cod 2/Flounders 2/POP 3/Rockfish 3/Sablefish 3/Atka mack.4/Squid 5/Others	5.3 0.3 / 2.8	54.4 4.1 5.7 5.3 0.2 1.9 3.6 0.4 3.6	40.8 15.3 23.9 10.4 0.6 3.2 15.8 0.4 5.0	12.5 4.3 12.5 16.0 3.4 4.7 1.0 0.4 2.0	4.0 1.5 4.1 13.0 3.1 4.9 0	168.8 34.8 67 50 7.6 17.4 24.8 2.0 16.2
OY	Pollock Cod Flounders POP Rockfish Sablefish Atka mack. Squid Others TOTAL	57.1 9.6 10.4 2.7 0.3 2.1 4.4 0.4 4.3 91.3	54.4 4.1 2.8 2.7 0.2 1.4 3.6 0.4 3.6 73.2	40.8 15.3 11.9 5.2 0.6 2.4 15.8 0.4 5.0	12.5 4.3 6.3 8.0 3.4 3.5 1.0 0.4 2.0 41.4	4.0 1.5 2.1 6.5 3.1 3.7 0 0.4 1.1	168.8 34.8 33.5 25.0 7.6 13.0 24.8 2.8 16.2 325.7

From unsubstantiated report of Soviet scientists.

 $[\]overline{2}$ / Apportioned on basis of trawl survey data.

Apportioned on basis of 73-75 Japanese catch.

^{4/} Apportioned on basis of 73-75 Soviet catch.

^{5/} Apportioned equally to each area.

Totals may not equal column figures due to rounding.

natural mortality rate of 0.2, except for rock sole (0.26), are: turbot 24,300 mt; rock sole 21,300 mt; flathead sole 8,600 mt; and, other flounders combined 12,400 mt. For the flounder group as a whole (excluding halibut) the MSY is estimated to be 67,000 mt.

4.7.4.2 Equilibrium Yield (EY)

Although MSY's for some flounder species have been estimated, it is more appropriate at this stage to manage the flounder resources as a group rather than by individual species. With present knowledge, it is assumed that any flounder fishery in the Gulf of Alaska will simultaneously capture a number of species and stocks, each of which will be fished at a different rate. Until geographical and seasonal patterns and rates of fishing on these individual flounder stocks become better known, EY will be considered only for the flounders as a group. Since this group has been only lightly exploited, MSY is attainable.

4.7.5 Pacific Halibut

4.7.5.1 Maximum Sustainable Yield (MSY)

Chapman, Myhre, and Southward (1962) estimated the MSY of Pacific Halibut at 19,400 mt (14,550 mt dressed weight) in IPHC Area 2 (Southeastern-Vancouver) and 21,800 mt (16,350 mt dressed weight) in IPHC Area 3 (Shumagin-Yakutat), or 41,200 mt for the entire northeastern Pacific Ocean.

Gulf of Alaska. The predominant sizes of fish available to trawls were greater than 30 cm, which are mature fish older than 3-4 years. On the basis of analyses of biological characteristics, Soviet scientists believe that 30 percent of the adult stock can safely be harvested. Accordingly (and tentatively), MSY for Atka mackerel in the Gulf of Alaska is set at 33,000 mt.

4.7.8.2 Equilibrium Yield (EY)

Not applicable -- MSY attainable

4.7.9 Squid

4.7.9.1 Maximum sustainable Yield (MSY)

Although no published documentation or current research findings dealing with squid abundance or potential are available, incidental catches by commercial fishing and research vessels, and the incidence of squid in the stomachs of fish and marine mammals indicate a large standing stock. MSY is intuitively believed to be greater than 2,000 mt.

4.7.9.2 Equilibrium Yield (EY)

Not applicable -- MSY attainable

4.7.10 Other Species - MSY=16,200 mt

Very little is known about the distribution and abundance of the species of fish referred to as "other species." However, based on the best scientific evidence available derived from past performances of foreign fishing vessels, the MSY for "other species" is estimated at 16,200 mt.

4.8 Estimate of Future Stock Conditions

With the exception of Pacific ocean perch, Pacific halibut, and sablefish all other groundfish species in the Gulf of Alaska are believed to be at levels of abundance equal to or greater than those that would produce MSY. The management regime described in Section 8.0 is designed to keep those healthy stocks somewhat above the level of abundance required for MSY, while providing sufficient relief to halibut, ocean perch and sablefish so that their stocks can begin rebuilding.

In addition, there is no evidence of natural phenomena that could be expected to cause either serious biological or socio-economic consequences, although the possibility of undetected year-class failures, declines in growth rate, or other adverse symptoms cannot be completely discounted. On the other hand, unforseen enhancements of stock condition are equally unlikely.

In the context of the longer-term concern, there is reason (mostly circumstantial) to believe that the Gulf of Alaska ecosystem has changed significantly over the last decade -- Pacific ocean perch, which had been the dominant groundfish form, is no longer so, but pollock and Atka mackerel populations appear to have increased greatly in abundance and in dis-

on user groups, and, to some extent, the temporary loss to the users can be made up the following year).

Accordingly, ABC's for pollock, cod, flounders, squid, and rockfish (other than ocean perch), are considered equal to the low end of the MSY range (Table 58). The only estimate of MSY/EY for Atka mackerel is from a recent report of unsubstantiated Soviet research findings. Until those findings can be verified, ABC for that species should be no more than 75 percent of the reported EY (Table 58), again preferring the risk of short-term underexploitation to the risk of long-term effects of overharvest. This value (24,800mt) is near the 1975-76 average catch of 24,200 mt and will not result in a decrease in production.

Concerning sablefish, inasmuch as the most optimistic estimate of EY is 21 percent below MSY, ABC will be set below 17,400 mt (the low end of the EY range) to allow rebuilding to occur.

With regard to 'other species,' the concept of a phased reduction in the allowed catch of this category to force more accurate reporting of catch by species remains valid. As described in the <u>Preliminary Fishery Management Plan for the Gulf of Alaska Trawl Fishery</u> this will be accomplished by reducing the allowed catch of this category by 10 percent per year after 1978. ABC for 'other species' in 1978 is set equal to the 1977 total allowable catch of this category, or 16,200 mt (Table 58), with the expectation that a 10 percent annual reduction in the allowable catch will begin in 1979.

A final ABC consideration is that little is known concerning specific stock units for the Gulf of Alaska groundfish populations. If any of

FLOUNDERS -- ABC for this species complex was determined to be about 67,000 mt, more than twice the highest catch of record. of the flounder species are known to have a geographic and bathymetric distributional pattern that is similar to that of halibut, leading to the concern that a gross increase in flounder production would, through a commensurate increase in incidental catch (and mortality) of halibut, negate other conservation measures designed to grant additional halibut protection. In very simple economic terms and assuming that prices remain stable, the MSY of flounders at \$0.10/pound ex-vessel has a total annual value of \$14.8 million; the MSY of halibut in the Gulf of Alaska at \$1.00 (round weight) ex-vessel, has a total annual value of some \$70 million. Considering the disparity in potential value and the fact that the domestic fishery for halibut is fully developed and facing a current crisis, while the flounder fishery has operated at a very low level with its full domestic potential not expected to develop until some time in the future, optimum yield for flounders is set at 50 percent of ABC -- 33,500 mt. This level will still allow an expansion of the flounder fishery during which its impact on halibut can be evaluated.

Sablefish -- Because this species is of special importance in the development of a domestic groundfish fishery in the Gulf of Alaska, OY has been set at a level that: (1) will allow rebuilding to MSY within a minimum time frame; (2) takes account of recent reports of U.S. fishermen of a scarcity of sablefish on the traditional fishing grounds of Southeast (in both inside and outside

waters; and (3) reflects concern over the Japanese catch per boat-day trend which has declined much more sharply than the catch per skate indicator and used to estimate EY. Accordingly, OY for this species in 1978 is \$\mathcal{l}3,000\$ mt.

6.3 Optimum Yield (OY)

Optimum yield for the groundfish species and species groups of the Gulf of Alaska (except halibut) are shown in Tables 58, 62 and 64. Optimum yield for halibut in 1978 will be determined by the International Pacific Halibut Commission.

7.0 FOREIGN ALLOWABLE CATCH (FAC)

United States' fishermen will have reserved for their use during 1978 any amount of any species, up to the Optimum Yield, based on credible projections of catch as of September, 1977. The Optimum Yield (OY) of any species may not, for any reason, be exceeded by the all-nation fishery.

Optimum yields for each groundfish species or species group in the Gulf of Alaska are shown in Table 58; expected domestic annual harvest (DAH) projections are shown in Table 61. The Foreign Allowable Catch (FAC) will be determined and applied as described below.

Because: (1) growth of the domestic groundfish fishery cannot be accurately forecast; (2) constraints against growth of the domestic fishery up to the level of optimum yield are contrary to the intent of P.L. 94-265; (3) optimum yield should neither be exceeded nor should it go unrealized; and, (4) recognizing that domestic fishermen are often unrestricted in their activity during a season, it is, therefore, not unreasonable to make in-season amendments to measures applying to foreign fishermen, FAC will be set in a manner so as to allow in-season asjustments between foreign and domestic fisheries. Such adjustments will be dictated by domestic fishery performance and will be accomplished as follows:

The initial FAC of each species for 1978 will equal DAH subtracted from 80 percent of OY: FAC = (0.8 OY) - DAH. The remaining 20 percent of the OY will be apportioned to foreign or domestic fisheries, as the season progresses, on the basis of continuing appraisals of DAH. The

Gulf-wide schedule of OY/Reserve/DAH/FAC is given in Table 62. FAC and reserve has also been apportioned to individual statistical areas (Table 64).

This accomodates, initially, a conservative appraisal of DAH (and less risk of loss of credibility) because up to 20 percent of the OY for each species could later be added to the U.S. "share."

Table 62 -- Derivation of foreign allowable catch (FAC)1/
for Gulf of Alaska groundfish in 1978 (1000's mt)

<u>Species</u>	<u>oy</u>	Reserve	DAH	FAC <u>1</u> /
Pollock	168.8	33.8	14.2	120.8
Cod	34.8	7.0	15.5	12.3 <u>2</u> /
Flounders	33.5	7.0	7.2	19.3
Pacific ocean perch	25.0	5.0	1.1	18.9
Other Rockfishes	7.6	1.5	2.0	4.1
Sablefish	13.0	2.6	4.0	6.4
Atka mackerel	24.8	4.9	0	19.9
Squid	2.0	. 4	0	1.6
Other species	16.2	3.3	0.5	12.4
Totals	325.7	65.5	44.5	215.7

¹/ Initial FAC; may be increased as reserve is apportioned during year.

The area landward of the 500 m isobath and west of 157 degrees West longitude is designated as a longline fishery for Pacific cod. The maximum allowable foreign catch (including the 20 percent reserve) for the area would be 6,233 mt.

Species	Table 64 0Y ¹
Shumag	Table 64 $0Y^{\perp}$ /Reserve/DAH/FAC ² / Schedule, By Area (1000's mt)
Shumagin Chirikof Kodiak Yakutat Southea	Schedule, B
Kodiak Y	y Area (100
akutat	0's mt)
Southeast	
Total)

Other Species	Squid	Atka mackerel	Sablefish	Other rockfish	Pacific ocean perch	Flounders	Cod	Pollock	Species
OY Reserve DAH FAC	OY Reserve DAH FAC	OY Reserve DAH FAC	OY Reserve DAH FAC	OY Reserve DAH FAC	OY Reserve DAH FAC	OY Reserve DAH FAC	OY Reserve DAH FAC	OY Reserve DAH FAC	
4.3 0.9 0.1 2.9	0.4 0.1 0.0 0.3	4.4 0.9 0.0 3.5	2.1 0.4 0.1 1.6	0.3 0.1 0.1	2.7 0.5 0.1 2.1	10.4 2.1 2.2 6.1	9.6 1.9 4.3 3.4	57.1 11.4 4.8 40.9	Shumagin
3.6 0.7 0.1 2.4	0.4 0.1 0.0 0.3	3.6 0.7 0.0 2.9	1.4 0.3 trace 1.1	0.2 0.0 trace 0.2	2.7 0.5 0.1 2.1	2.8 0.6 1.6	4.1 0.8 1.8 1.5	54.4 10.9 4.6 38.9	Chirikof
5.0 1.0 0.2 3.3	0.4 0.1 0.0	15.8 3.2 0.0 12.6	2.4 0.5 0.1 1.8	0.6 0.1 0.2	5.2 1.0 0.2 4.0	11.9 2.4 2.6 6.9	15.3 3.0 6.8 5.5	40.8 8.1 3.4 29.3	Kodiak
2.0 0.4 0.1 1.4	0.4 0.1 0.0 0.3	1.0 0.2 0.0 0.8	3.5 0.7 0.8 2.0	3.4 0.7 0.9 1.8	8.0 1.6 0.4	6.3 1.3 3.6	4.3 0.9 1.9	12.5 2.5 1.1 8.9	Yakutat
1.1 0.2 trace 0.8	0.4 0.1 0.0 0.3	0000	3.7 0.7 3.0 0.0	3.1 0.6 0.8 1.7	1.3 0.3 4.9	2.1 0.4 0.4 1.3	1.5 0.3 0.7	4.0 0.8 0.3 2.9	Southeast
16.2 4.5 0.5 12.4	2.0 0.4 000.0 1.6	24.8 4.9 000.0 19.9	13.0 2.6 4.0 6.4	7.6	25.0 5.0 1.1 18.9	33.5 7.0 7.2 19.3	34.8 6.9 15.5 12.3	168.8 33.7 14.2 120.8	Total 4/

^{12/1/} Based on percentages shown in Table 63. Initial FAC; may be larger as reserve is apportioned during year. Of this total, only (including the 20 percent reserve), 6,233 mt can be taken west of 157 degrees West longitude. Totals may not equal column figures due to rounding.

^{4/}

Figure 15.--"Davidson Bank" winter closures, and area closed to foreign sablefish fishing described in Sections 8.3.2.1. (D).

- (d) Three "Kodiak Halibut Areas," described in Appendix I and shown in Figure 17 -- five days before to five days after the opening of the domestic halibut setline fishery. To allow halibut grounds to remain undisturbed prior to the opening of the halibut season and allow the initial halibut trip of the season to be made without interference from foreign trawlers; identical closures now in effect. This provision will be unnecessary unless the 1978 halibut season opens later than May 26 because of (2) (b) above.
- (3) The following areas shall be closed year-around to foreign setline fishing:
- (a) That portion of the gulf of Alaska east of 140 degrees W longitude. To prevent preemption of sablefish grounds and gear conflicts in the area where the U.S. sablefish fishery is expected to develop this closed area encompasses all of Southeast, where there is no sablefish FAC, and 30 percent of Yakutat, leaving the other portion open for attainment of the prescribed 1,787 mt FAC in that area.
- (b) The area east of 157 degrees West longitude and landward of the 500 m isobath. To prevent take of juvenile sablefish which have not yet reached their "critical size" and are generally distributed in shallower

(2) Longline

In the area landward of the 500 meter isobath and west of 157 degrees West longitude a directed fishery for Pacific cod may be conducted only by longline gear and is prohibited during the halibut season as established by IPHC.

(3) Sablefish longline fishery

Directed fisheries for sablefish may be conducted only with longline (hook & line) or pot gear.

12.8.4 Disposition of Comments Received

Inasmuch as the "joint venture" issue is of national scope and is being considered by the Director, National Marine Fisheries Service, comments received on that subject are not addressed in this FMP/EIS.

Responses, in identical serial order, to all of the numbered comments shown in Section 12.8.3, above, are as follows:

Comment Number

Response

- 1. No change made--flounders off Alaska are generally relatively small (flathead sole, rock sole) or of lower value than those taken off Washington-Califronia (starry flounder, turbots). Higher processing costs in Alaska would also result in lower exvessel price so that product could be competively priced.
- No change made--potential impact of flounder fishery on halibut already considered in setting OY.
- 3. Clarification made--proper formula is (90% of OY) DAH.
- 4. No change made--Table 61 does not deal with reserve concept.
 Without reserve, FAC will be less than OY simply because of DAH
 (FAC = OY DAH); with reserve, OY is, in effect, further reduced before DAH is subtracted (initial FAC = (.80 OY) DAH).
- 5. Correction made.
- 6. No change made--a vessel fishing off Washington would need
 whatever permit Pacific Council FMP requires; if that vessel is
 Alaskan or lands in Alaska, State of Alaska landing laws might

- impacted by incidental catches. Pacific ocean perch stock is of such low abundance in relation to MSY that any increase in OY will severely retard an already long rebuilding process.
- 29. Change made--foreign longlining for cod landward of 500 m will be permitted west of 157 degrees West.
- 30. No change made--U.S. assessment of sablefish stocks, based primarily on Japanese fishery data, indicates that abundance is substantially below that required to produce MSY.
- 31. No change made--30% decline refers to catch rate, not catch.
- 32. No change made—Japanese fishery has been limited to deep water where only the larger fish were available; the contention that average size has decreased is from U.S. fishermen who operate over entire range of stock.
- 33. No change made--sanctuary question is academic considering that DAH is greater than OY in Southeast, DAH is a substantial portion of OY in Yakutat, and foreign fishing for sablefish is prohibited east of 140 degrees West longitude.
- 35. Change made--reevaluation of sablefish stock condition led to reduction in OY to $13,000\,\mathrm{mt}$.
- 34. Change made--foreign longlining for cod will be allowed west of 157 degrees West longitude.
- 36. Change made—although Option II—A was chosen, domestic trawl fishery will not be subject to winter restrictions unless, or until, areaspecific indicental halibut catches are exceeded.
- 37. No change made--risk of potential conflicts between domestic users (trawlers vs. longliners) in 1978 not believed high.

- 38. Change made--option favoring halibut protection (ii-A) chosen.
- 39. See response #38.
- 40. No change made--management of halibut fishery in 1978 will remain with IPHC; see response #38.
- 41. Change made--no foreign longlining will be permitted east of 140 W.
- 42. No change made--no rationale has been presented to allow long-lining but prohibit fishing pots.
- 43. No change made--management of inside waters remains with State of Alaska.
- 44. No change made--DAH is only 40 percent of OY.
- 45. See response 344.
- 46. No change made--off-bottom restriction applies only duirng winter when halibut incidence is high.
- 47. Change made--Option 1B2 chosen.
- 48. Change made--Option III C chosen.
- 49. Change made--Option II-A chosen.
- 50. Change made--although not identical to foreign restrictions.
- 51. Change made--flexible allocation option chosen.
- 52. See response #38.
- 53. change made--Option II-A chosen; several time-area closures and gear restrictions to reduce incidental halibut catch will be in force.
- 54. Change made—no foreign longlining permitted east of 140 W; no reason, however, to prohibit foreign trawling in that area inasmuch as DAH's of trawl species much smaller than OY's.

- 55. Change made--Option II-A chosen; winter trawl closure extended to May 31.
- 56. Change made--domestic and foreign fishery restrictions are different.
- 57. Change made--sablefish OY reduced to 13,000 mt.
- 58. Change made--no foreign longlining permitted east of 140 degrees West.
- 59. See response #58.
- 60. No change made--original statement is correct but FMP attempts to find satisfactory compromise.
- 61. Change made--statement added to Sec. 2.0 to explain difference in treatment; table headings corrected.
- 62. No change made—OY is 50% of EY to allow rebuilding; POP not of high priority to U.S. industry so OY chosen so as to allow some foreign fishing to continue.
- 65. No change made--potential effect on halibut already considered in setting OY for other groundfish species.
- 66. No change made--halibut-savings closures apply only in portions of the Gulf for limited time periods.
- 68. No change made--gear technology not yet capable of producing single-species catching devices; pelagic and off-bottom trawls are required during winter to reduce incidental halibut catch.
- 67. No change made--not clear as to which or what kind of standards comment refers to.
- 69. No change made--in general terms, FMP does treat foreign and domestic vessels in similar manner, but recognizes inherent differences in vessel capabilities.

Table 8 and TALFF's Bering Sea and Aleutians, 1978 Allocations

Species	Japan	Korea	Taiwan	USSR	Initial TALFF2/
Cod, Pacific Yellowfin, sole Flounders, other Herring Mackerel, Atka Pollock Pacific O.P., Bering Sea " Aleutians Sablefish, Bering Sea " Aleutians Crabs, snow 5/ Snails 1/ Squid Other species 3/, Bering Sea Aleutians	38,850 63,900 83,800 2,580 2,000 792,300 3,100 6,200 1,870 1,170 3,000 9,870 45,415 25,900	100 100 100 20 100 60,000 300 700 200 125	50 50 50 10 100 5,000 25 50 65 40	17,500 41,950 55,050 6,060 22,600 92,700 3,075 8,050 265 165	56,500 106,000 139,000 8,670 24,800 950,000 6,500 15,000 2,400 1,500 3,000 10,000 59,600 34,000
Total	1,079,955	66,195	5,825	264,995	1,416,970

Meat weight.



Total allowable level of foreign fishing.

Incidental catch.

^{1/} 2/ 3/ 4/ 5/ Allocations of 299 tons or less are for by-catch only.

Still under review; subject to revision.