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DRAFT AMENDMENT 8
(Fixed Gear Sablefish Individual Quotas)
to the
PACIFIC COAST GROUND FISH
FISHERY MANAGEMENT PLAN

including
Draft Supplemental Environmental Impact Statement
Regulatory Impact Review
and Fishery Impact Statement

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COVER SHEET

Draft

Final Supplemental
Environmental Impact Statement

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Proposed Action

Approval and implementation of Amendment 8 to the fishery management plan for the Washington, Oregon and California groundfish fishery.

Abstract

The proposed action is to implement an amendment to the fishery management plan for the groundfish fisheries off the coast of Washington, Oregon and California under the provisions of the Magnuson Fishery Conservation and Management Act of 1976 as amended. The amendment (Amendment 8) would establish an individual quota program to cover the harvest of sablefish by vessels with groundfish limited entry permits for longline and fishpot gear. Harvest of sablefish by trawl gear in the license limitation fishery or longline, fishpot and other gear by unlicensed vessels in the open access fishery is not covered by the proposed individual quota program. The fixed gear sablefish individual quota program designed by the Council would allocate sablefish quota share (quota share is a percentage of the total annual harvest guideline) to persons based primarily on catch history. Each year, holders of quota share would be allocated an amount of sablefish individual fishing quota (individual fishing quota is an amount of sablefish pounds for the year based on the amount of quota share held) which could be taken anytime during the fishing season. A description of the affected marine, coastal and human environments is included.

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ACRONYMS LIST

ABC	acceptable biological catch
CFR	Code of Federal Regulations
Council	Pacific Fishery Management Council
CZMA	Coastal Zone Management Act
CPUE	catch per unit of effort
EIS	Environmental Impact Statement
ESA	Endangered Species Act
FMP	fishery management plan
GMT	Groundfish Management Team
IFQ	individual fishing quota(s)
INPFC	International North Pacific Fisheries Commission
IQ	individual quota(s)
IRFA	Initial Regulatory Flexibility Analysis
MFCMA	Magnuson Fishery Conservation and Management Act
MMPA	Marine Mammal Protection Act
MSY	maximum sustainable yield
mt	metric ton
NEPA	National Environmental Policy Act
NMFS	National Marine Fisheries Service
NOAA	National Oceanic and Atmospheric Administration
NPFMC	North Pacific Fishery Management Council
OY	optimum yield
PacFIN	Pacific Coast Fisheries Information Network
QS	quota share(s)
RFA	Regulatory Flexibility Act
RIR	Regulatory Impact Review
Secretary	Secretary of Commerce
USFWS	U.S. Fish and Wildlife Service

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EXECUTIVE SUMMARY

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AMENDMENT ISSUES AND PURPOSE OF DOCUMENT

This proposed amendment to the groundfish fishery management plan (FMP) would establish an individual quota (IQ) program to cover the harvest of sablefish by vessels with groundfish limited entry permits for longline and fishpot gear. Appendix A contains the amendment language which would be inserted as Chapter 15 of the Pacific Coast Groundfish Plan. Harvest of sablefish by trawl gear in the license limitation fishery or longline, fishpot and other gear by unlicensed vessels in the open access fishery is not covered by the proposed IQ program.

The purpose of this document is to analyze the alternatives being considered by the Council as part of Amendment 8 to the groundfish FMP and provide the background and assessment necessary for the Council and Secretary of Commerce to determine if the management measures are consistent with the Magnuson Fishery Conservation and Management Act (MFCMA), other applicable law and the FMP. Specific statutory and administrative requirements fulfilled by this document include those of the National Environmental Policy Act, Regulatory Flexibility Act, Executive Order 12866, Coastal Zone Management Act, Endangered Species Act (ESA) and Marine Mammal Protection Act (MMPA).

Specifically, this document is a draft FMP amendment including a draft supplemental Environmental Impact Statement, Regulatory Impact Review, Initial Regulatory Flexibility Analysis and Fishery Impact Statement.

STATUS QUO AND THE FIXED GEAR SABLEFISH INDIVIDUAL QUOTA PROGRAM

Description of the Fishery

Since 1984, the optimum yield (OY) for the sablefish fishery has declined from 17,400 mt to about the maximum sustainable yield (MSY) level of 7,000 mt. Over 90 percent of the sablefish resource has traditionally been harvested by trawl, longline (horizontal groundline, buoyed and anchored) and fishpot gear. In the trawl fishery, sablefish is typically taken in complexes with other groundfish species. In the longline and fishpot fisheries, there is relatively little landed bycatch. It is reported that fishpot gear has the lowest incidental harvest of other species. Trawl/nontrawl allocation of the resource began with an emergency action in the summer of 1986 with nontrawl gears receiving 45 percent of the allocation. In 1987 and 1988, the nontrawl allocation was 48 percent. The nontrawl allocation was dropped to 42 percent in mid-1989 and currently remains at that level. For 1994, 8.75 percent of the nontreaty sablefish harvest guideline was allocated to the open access fishery. This effectively dropped the longline and fishpot gear allocation for the limited access fishery to 38 percent (91.75 percent x 42 percent). Prior to 1985, the sablefish season lasted year round for all gears. By 1989, the unrestricted nontrawl gear sablefish fishery had declined to 6 months. In 1992 and 1993, the unrestricted nontrawl gear season lasted 3 weeks or less. When the unrestricted fishery is closed, there is generally a 250 pound daily trip limit in place.

The value of the harvest by hook-and-line and fishpot gear in 1993 was \$5.3 million. Sablefish landed by longline and fishpot gear are typically larger than those landed by trawl gear. This size difference is partly responsible for the typically higher price per pound that longline and fishpot sablefish receive as compared to trawl gear landings.

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Problem Statement

The following problem statement was first adopted by the IQ Industry Committee and presented to the Council in a November 1992 report.

At present, the problems described in Amendment 6 (Limited Entry) to the Fishery Management Plan for Pacific Coast Groundfish still exist; with or without license limitation allowable catches of groundfish stocks will remain stable or decline, fishing capacity is too high and will continue to increase (at a slower rate if Amendment 6 is enacted), existing capacity utilized in other fisheries will try to expend more effort in groundfish as conditions in other fisheries get more restrictive, the efficiency and safety of vessel operations will be compromised by the struggle of each vessel to increase its share of the allowable catch (the race for fish), and regulations will get more complex as the Council simultaneously constrains effort through enforced inefficiency and attempts to distribute the impact of effort constraints as widely as possible.

Each of these problems is directly related to excess capital which has been and continues to be invested in groundfish fishing vessels, groundfish gear and the training of groundfish fishers. Any solution to these problems will require a management regime under which additions to the capital stock (e.g., investments) remain below subtractions from the capital stock (e.g., depreciation and retirement) until the capital stock declines to an appropriate level.

Excess investment has been encouraged in the past by the open access institutional framework of the groundfish fishery and has resulted in a fishing fleet (physical capital) and trained fishers (human capital) which are too large for the fisheries involved. The economic waste which these excessive capital stocks represent cannot be reversed; to the extent that investment has produced capital which is specialized for the overcapitalized fisheries, it represents sunk costs. However, a change in the institutional structure which alters the rate of flow into those capital stocks (investment) or out of them (depreciation and retirement), or which directs the use of existing multipurpose capital into those activities in which it produces the highest value may prevent further waste which would occur under common access among license holders.

The problems in some parts of the Pacific groundfish fisheries are inextricably linked to fisheries conditions in Alaska, due to extensive participation in both areas by some segments of the fishing fleet. In particular, the longline sablefish fleets are dominated by vessels capable of fishing anywhere from Alaska to California. Thus, the proposed individual quota (IQ) plan for sablefish, if adopted, will have a direct impact on longline fisheries in the West Coast states. In the short run, it is anticipated that the Alaskan IQ plans will result in more longline effort in West Coast states not covered by the plans. This will occur partly because some vessels now fishing in Alaska will sell their Alaskan IQ and concentrate on the West Coast and partly because the IQ program will allow Alaskan participants to fish more efficiently, thus freeing up effort, some of which

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will be diverted to the West Coast. Therefore, problems described in the groundfish fisheries may be expected to grow worse temporarily for longliners in the event that the North Pacific Fishery Management Council (NPFMC) implements their proposed IQ programs. In the long run, however, the Alaskan IQ programs may be part of the solution for all fisheries in which the Alaskan longline fleet participate.

The Fixed Gear Sablefish Individual Quota Program

Summary

The fixed gear sablefish IQ program designed by the Council would allocate sablefish QS (quota share, a percentage of the total annual harvest guideline) to persons based primarily on catch history. Each year, holders of QS would be allocated an amount of sablefish IFQ (individual fishing quota, an amount of sablefish pounds for the year based on the amount of QS held) which could be taken anytime during the fishing season. The scope of the program would cover all sablefish harvested by vessels with a limited entry license for fixed gear (except for harvest by such vessels using groundfish trawl gear). The program would be incorporated as Chapter 15 of the groundfish FMP.

A recent participation requirement would require at least 1 landing of sablefish or groundfish (to be determined) with longline or fishpot gear between August 1, 1988 and November 13, 1991 in order for a person to qualify for an initial allocation of QS (Section 15.6.1).^{1/} There may also be a minimum amount of sablefish landings which must be made between January 1, 1984 and November 13, 1991 (Section 15.6.1.D). QS would be allocated to owners of "A" permits for longline or fishpot gear based at least in part on one of the following catch histories: (1) the catch history of the permit (vessel)^{2/} owned at the time QS is issued, (2) the catch history of the person as a vessel owner, or (3) some combination of the two (Section 15.6.2.1). Confidentiality issues may affect the choice among these options and the ability of National Marine Fisheries Service (NMFS) to implement this program. See the discussion of confidentiality in the section below on "Effects of Provisions of the IQ Program." Catch history occurring between January 1, 1984 and November 13, 1991 would be counted in determining the amount of QS issued (Section 15.6.2.3). The catch for each year would be weighted differently, with most recent years receiving the heaviest weight (Section 15.6.2.4). There may be a minimum amount of QS for which a person would have to qualify before any QS is issued (a cut off) or there may be a minimum amount given to everyone qualified to receive QS (a floor) (Section 15.6.2.6). There may or may not be a cap on the amount of QS which could be initially issued to a single person (Section 15.6.2.5). A procedure may be established by which QS would be reallocated

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- 1/ This landing may be required of the permit, the person as a vessel owner or both, depending on the catch history used in determining the allocation (see following discussion).
 - 2/ Where permit rights have not been transferred, permit and vessel history will be identical so long as a permit was issued for the vessel. Where permit rights have been transferred, the vessel catch history related to fixed gear sablefish will be considered transferred with the permit. A vessel which did not receive a permit at initial issuance will not entitle its owner to an allocation of QS on the basis of the vessel's catch history.

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by area should the need arise (Section 15.6.3). The amount of QS held by a person would determine the amount of IFQ which the person would receive for a year (Section 15.8). After QS is initially issued, acquisition of QS and IFQ may be restricted to corporations and partnerships receiving an initial allocation and any individual eligible to own a U.S. documented fishing vessel. If this restriction on acquisition is not adopted, anyone eligible to own a U.S. documented fishing vessel would be eligible to purchase or otherwise acquire QS from one of the initial recipients. This would include, but not be limited to, vessel operators, crew members, processors and banks, except that no foreign controlled entity could own QS or IFQ (Section 15.9.2.4). There would be caps on the amount of QS which could be controlled by a single person and the amount which may be used on a single vessel (Sections 15.9.2.1 and 15.10.3). There may be a requirement that the IFQ owner be on the vessel when the sablefish are caught and IFQ used (Section 15.10.2). Such a requirement, to be more effective, would be combined with options which prohibit leasing (Section 15.9.3) and prohibit new entry into the fixed gear sablefish fishery by anyone except individuals (i.e., corporations, partnerships, etc., which do not receive an initial allocation of QS would not be allowed to take part in the fishery, Section 15.9.2.4). A carry-over allowance would allow a small amount of unused IFQ to be carried over from one year to the next (Section 15.10.5). The IFQ monitoring and enforcement program may entail restrictions on where and when vessels may land IFQ fish, requirements for advanced notice of landings, and other rules designed to ensure compliance with the program (Section 15.12).

Definition of Permit History

The proposed plan contains options which involve a concept which is new to the Council's limited entry discussions, permit history. This concept grew from the idea that IQ might be allocated on the basis of the vessel currently owned, but that the catch history of a vessel would be considered transferred when the "A" permit to the vessel is transferred. A closer examination of this concept revealed that what was being discussed was permit history rather than vessel history. Permit history is defined as follows:

When an "A" permit or the rights to an "A" permit are transferred from the vessel on the basis of which the "A" permit was initially issued, the total sablefish catch history of the vessel (up to the time of the transfer) is considered to be transferred with the permit. The "A" permit rights accumulate the history of any vessel with which they are associated during the time they are associated with the vessel. (The intent of defining catch history as permit catch history would be not to separate the general privilege to harvest groundfish [an "A" permit] from the specific privilege of harvesting sablefish under the IQ program.)

Permit history and vessel history are identical as long as "A" permit rights have never been transferred separately from the vessel (i.e., a vessel receiving an "A" permit has not been transferred or the vessel and "A" permit rights were transferred together). Where a permit has been separated from the vessel whose history led to the initial issuance of the permit, the vessel from which the permit was separated would generally be credited with no sablefish catch history. The vessel to which the permit is transferred would receive credit only for the history associated with the permit prior to its transfer and the catch of the vessel after the permit rights were transferred to the vessel. The prior catch history of the vessel to which the permit was

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transferred would not be counted toward the IQ allocation formula, as this could lead to double counting of harvest or double credit for the same period of time in the allocation window.

The catch history embodied in the permit applies both to the allocation formula and to determining whether a recent participation requirement has been met.

Specific Options for Public Comment

In addition to comments on whether or not the Council should recommend implementation of an IQ program for the fixed gear sablefish portion of the limited entry fishery, there are a number of other issues within the program on which public comment would be particularly helpful. The following paragraphs give a general description of these options. The IQ program and specifics of the options to be considered are detailed in Appendix A. There is discussion of the implications of each of these options in Chapter 3.

I. Initial Allocation

- a. Which catch history should be used in determining whether a person qualifies for an initial allocation and what should the allocation be (Section 15.6.2.1)?
 1. Catch history of the person as a vessel owner;
 2. Catch history of the permit (vessel) currently owned;
 3. Fifty percent on catch history of the person as a vessel owner and 50 percent on catch history of the permit (vessel) currently owned; or
 4. Applicant chooses between allocation based on catch history of the person as a vessel owner and allocation based on catch history of the vessel currently owned, as long as the applicant has not sold or purchased permit rights (or a vessel with permit rights) after November 13, 1991. In cases where such transactions have occurred, the catch history used will be Option 4a, catch history of the person as a vessel owner, or Option 4b, catch history of the permit (vessel) currently owned.

If the catch history of the person is counted, how should the catch history of a partnership or corporation which is no longer in existence be treated if not all members of the partnership or corporation come forward to claim QS? Should partnership or corporate members coming forward be able to claim all unclaimed catch history or just the catch history in proportion to their ownership share of the vessel?

- b. The Council has tentatively decided that recent participation should be required in the form of 1 landing with longline or fishpot gear between August 1, 1988 and November 13, 1991. Should the required landing be a landing of any groundfish or a landing of sablefish (Section 15.6.1)?
- c. Should there be a cap on the amount of QS any single person may receive at initial issuance (Section 15.6.2.5)? Options under consideration are Package A, no cap, and Package B, a 3 percent cap.

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- d. What should be the formula for allocation (Section 15.6.2.6)?

The Package A allocation formula is based strictly on fishing history during the allocation period (the best 5 of 8 years between January 1, 1984 and November 11, 1991). Under the two Package B allocation formula options, up to 25 percent of the QS would be allocated in an equal fashion among all permits whose owners qualify for some QS. The remaining 75 percent would be allocated in a fashion similar to that specified for Package A. Under Package B, Option B-2 (complete equal distribution of 25 percent of the quota share), an applicant would need 3,000 pounds of sablefish landings during the allocation period before any allocation would be made.

- e. Should the means for establishing area-specific QS be specified as part of this program or left open as the possible subject for a future plan amendment (Section 15.6.3)?

II. Restrictions on Ownership

- a. Should the cap on the amount of QS and IFQ which a person may accumulate be limited to Package A, 5 percent of the total QS or IFQ issued, or Package B, 3 percent of the total QS or IFQ issued (Section 15.9.2.1)?
- b. Should partnerships, corporations and other non-individuals be allowed to acquire QS and IFQ? Partnerships and corporations receiving an initial allocation of QS would be grandfathered in and allowed to increase their holdings up to accumulation limits (Section 15.9.2.4).
- c. Should leasing of QS be allowed? Leasing is implicitly banned by an option which would require the IFQ owner to be on board the vessel when the IFQ is used. See III(a) below (Section 15.9.3).

III. Restrictions on Use

- a. Should the presence of the IFQ owner on board the vessel be required when an IFQ is used? A grandfather clause would allow corporations and partnerships already in the fishery to designate a hired skipper to use IFQ (Section 15.10.2).
- b. Should the cap on the amount of QS and IFQ which may be used with a single vessel be limited to Package A, 5 percent of the total QS or IFQ issued, or Package B, 3 percent of the total QS or IFQ issued (Section 15.10.3)?
- c. Should some elements of the enforcement program be specified as part of this plan amendment and if so what should those elements be (Section 15.12)?

While there may be particular interest in comment on areas of the program where the Council must decide among a number of options, comment is welcome and requested on any other aspects of the program over which there may be concern.

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Example Allocations

Appendix E provides worksheets to help interested persons work through their catch history and allocations. The following discussion is intended to illustrate the different allocation effects of catch history and allocation options. More generalized effects of the allocation formula are discussed below in sections on program impacts.

Allocation Options

The allocation option in Package A is based on the person's best 5 of 8 years between January 1, 1984 and November 13, 1991. The annual catches are weighted as per the following section.

Allocation Option B-1 of Package B is based at least 75 percent on the same formula as the Package A option and up to 25 percent on a modified equal allocation. Under the modified equal allocation portion of the formula, the owners of every permit qualifying for at least some QS would be allocated a minimum QS equivalent to 1,500 pounds of IFQ under a 2,500 mt quota and a maximum equivalent to about 9,000 to 10,000 pounds of IFQ under a 2,500 mt quota. The maximum is dependent on the number of permits among which the QS must be divided. The amount allocated would be based on the average catch for years fished.

Allocation Option B-2 of Package B is identical to Option B-1 except that (1) 3,000 pounds of landings would be required between January 1, 1984 and November 13, 1991 before any QS would be issued and (2) 25 percent of the allocation would be allocated equally to the owners of permits qualifying for QS without regard to their relative catch histories. Note that under both Package B options, only one equal allocation of QS would be issued per permit, even if allocation would be based on personal history and more than one owner of a permit applies.

Weighting of Annual Catch

Annual weighting factors were developed in order to measure pounds of catch in relation to catch opportunity in the year (hence, a heavier weighting for more recent years when catch opportunity has been lower) and to provide some additional credit for longer term history of participation and dependence on the fishery (hence, a heavier weighting for the earliest years relative to the middle years of the window period).

For the purpose of calculating the average of the best 5 of 8 years of catch in allocation formulas, the following weights are applied to the annual catches for each year before best years are selected.

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Year	Weighting for 1 Pound of Catch
1984	0.71
1985	0.50
1986	0.48
1987	0.45
1988	0.54
1989	0.68
1990	0.86
1991	1.00

Example Catch Histories

For persons who have owned the same vessel since 1984 and received an "A" permit, the question of whether to allocate on the basis of permit history or personal history of the vessel owner will not affect the number of pounds of catch they use under the allocation formula. Where transfers of vessels or permits have occurred, there may be dramatic differences in the catch histories which may be claimed depending on whether an allocation is based on permit or personal history. Table ES-1 shows five example histories of vessel and permit ownership and their effect on the amount of catch which may be used to claim QS. The first row of the table designates the person from whose perspective the catch history is being examined; the second row designates the vessels involved in the transactions; the third row designates whether or not the vessels qualified for "A" permits; and the fourth row provides a description of the transactions which have occurred. The middle rows of the table shows catch history of the vessels by year. The last two rows show, based on permit and personal catch history, the annually weighted 5-year average catch history which might be used in an allocation formula based on the best 5 of 8 years (parenthetical values show the unweighted catch histories). In Figures ES-1 through ES-4, estimated allocations and average catch history for years fished for four of the persons in Table ES-1 are shown. In these figures, the catch history options are grouped by allocation option. Comparison of the averages in the last two rows of Table ES-1 with the QS allocation may aid the reader in considering other performance histories and the expected outcomes in allocation results.

TABLE ES-1. Examples of catch histories which may be applied to QS initial allocation formulas given different histories of vessel and permit ownership (catch histories expressed in thousands of pounds, shaded cells show personal history).

Person	Person 1		Person 2		Person 3		Person 4		Person 5		
	L	M	N	O	P	Q	R	None	S	T	U
Vessel											
Vessel Qualifies for Permit	Y	Y	Y	N	Y	Y	N	-	Y	N	Y
Situation	Vessel L is sold in 1989 and Vessel M is purchased in 1990.		Vessel N is sold in 1988 and Vessel O is purchased in 1989. Vessel O does not receive a permit. A permit is purchased from Vessel P in 1992.		Vessel Q is sold in 1989 but the permit rights are reserved. Vessel R is purchased in 1990.		Was not a participant in the groundfish fishery prior to 1992. In 1992, buys Vessel S along with the groundfish permit rights.		Enters the sablefish fishery in 1990 and buys a permit in 1994 in order to remain active in the fishery.		

YEAR	VESSEL CATCH HISTORIES										
	80	10	120	-	-	240	40	240	40	28	18
1984	80	10	120	-	-	240	40	240	40	28	18
1985	80	10	120	-	-	240	40	240	40	(40)	(36)
1986	80	10	120	-	160	240	40	240	40	0	1.9
1987	80	10	120	-	160	240	40	240	40	(0)	(2)
1988	80	10	120	-	160	240	40	240	40		
1989	80	10	120	-	160	240	40	240	40		
1990	-	80	-	-	160	20	240	20	40	5	10
1991 (thru Nov. 13)	-	80	-	-	-	20	240	20	40	5	-
Average Catch History for 5 Best Years ^{a/} (Unweighted)	34	(38)	96	(160)	182	(240)	182	(240)	0	(0)	1.9

a/ Using annual weightings specified in Section 15.6.2.4.

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Figure ES-1. IFQ Allocation to Person 1 from Table E-1

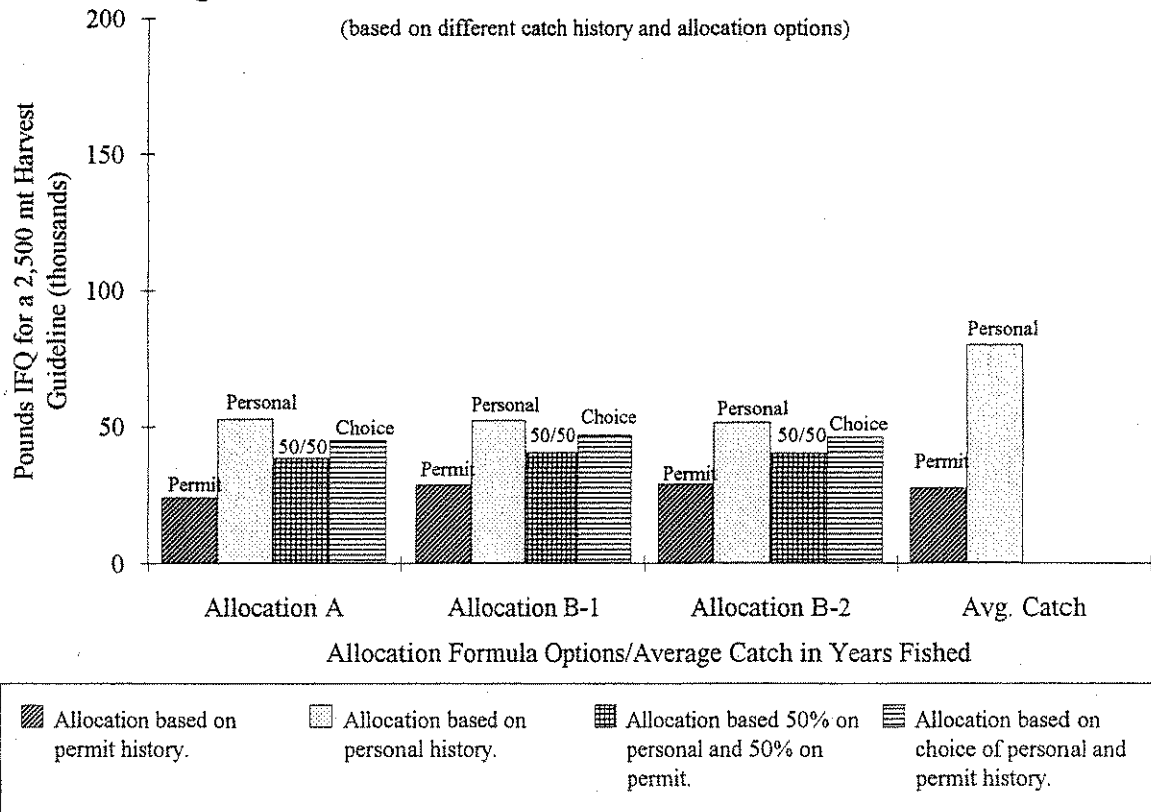
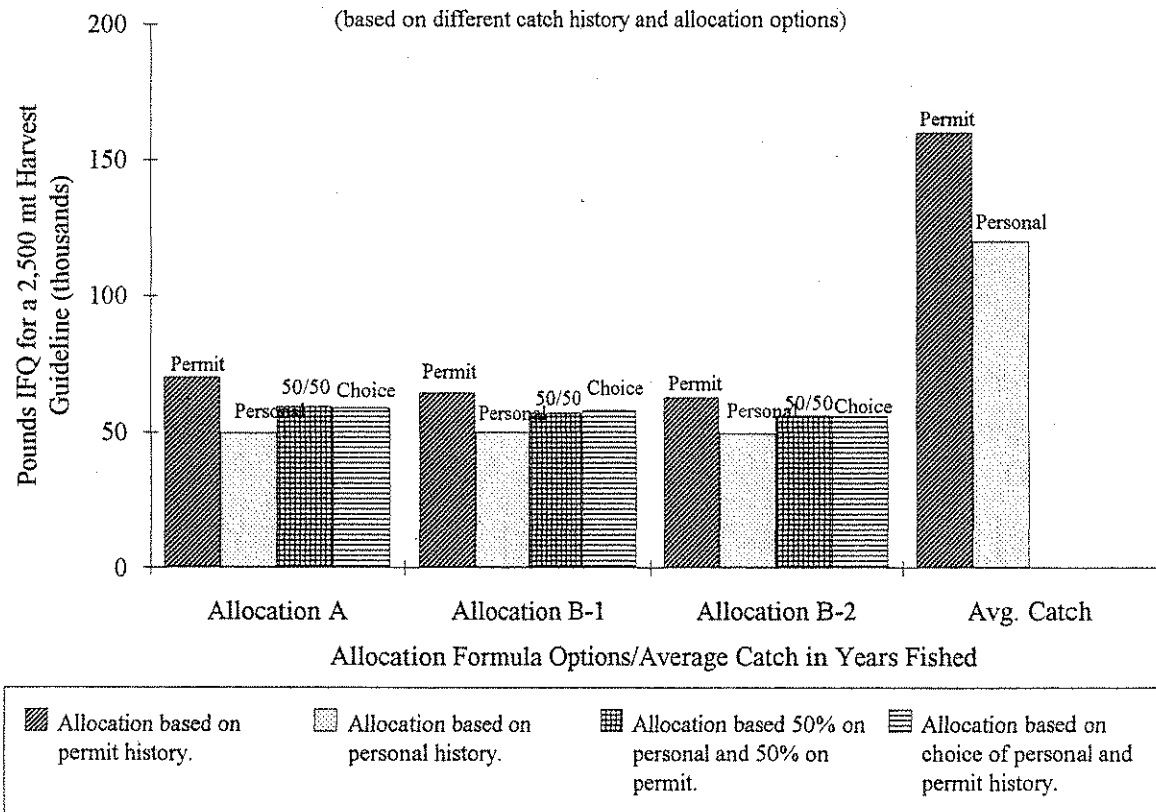


Figure ES-2. IFQ Allocation to Person 2 from Table E-1



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Figure ES-3. IFQ Allocation to Person 3 from Table E-1

(based on different catch history and allocation options)

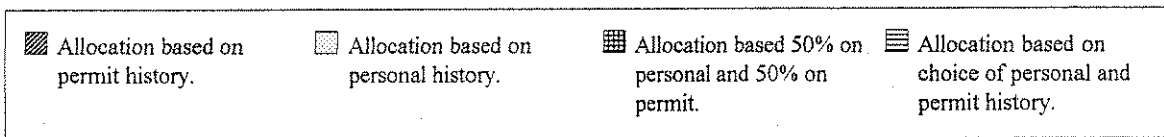
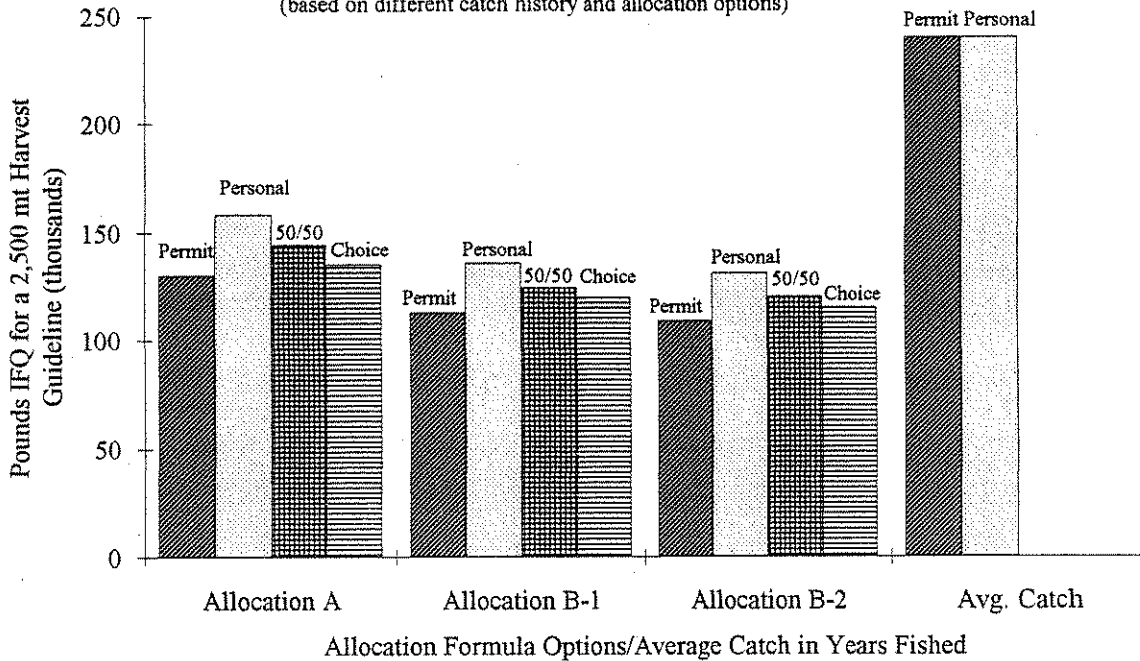
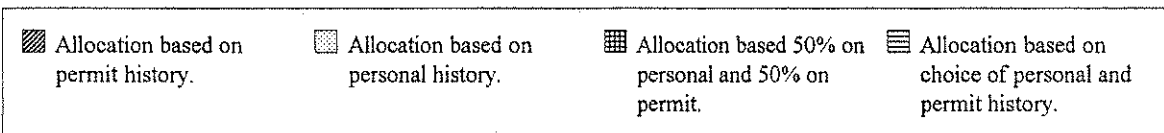
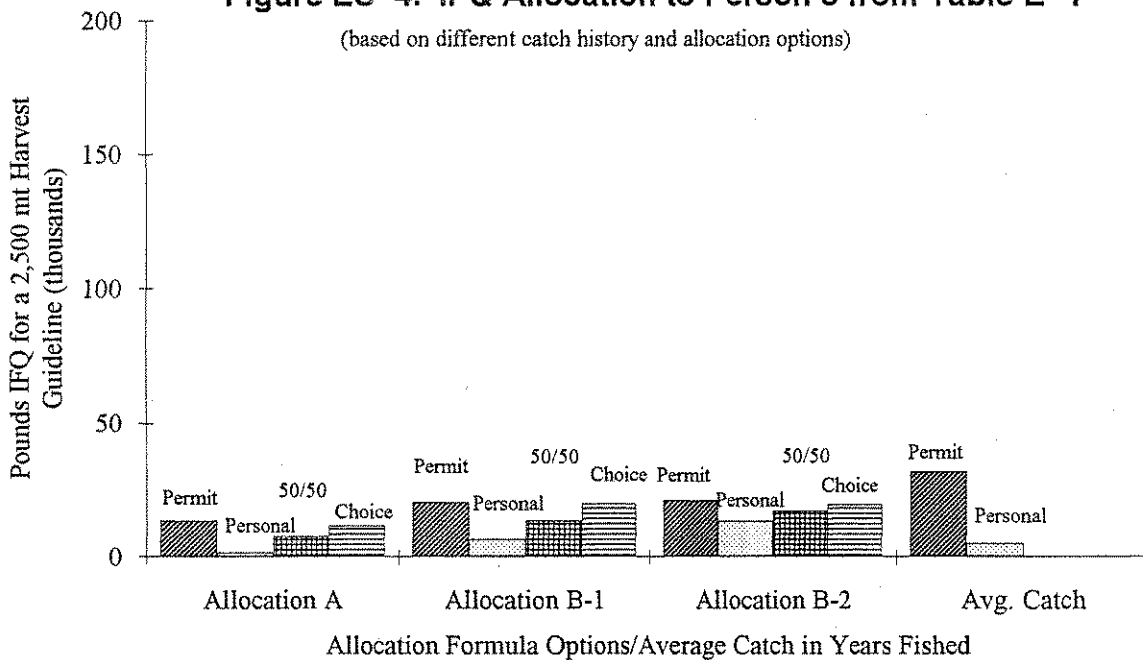


Figure ES-4. IFQ Allocation to Person 5 from Table E-1

(based on different catch history and allocation options)



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From the table and figures it can be seen that

- those with consistent participation and medium to large annual catches will receive considerably less IFQ than they have historically harvested (Figure ES-1, personal average catch; Figure ES-2; Figure ES-3; and Figure ES-4, permit average catch).
- those with low catch histories may receive more IFQ than their historical averages if allocation is based on the equal sharing option. Option B-1 keeps the IFQ allocated more in line with actual catch history than Option B-2 (Figure ES-4, personal average catch).
- as compared to Option A, the proportional effect of the equal sharing options (Options B-1 and B-2) on persons with catch histories smaller than 70 to 85 percent of the potential applicants is relatively small (Figure ES-1, personal average catch; Figure ES-2, personal average catch). The effects may be substantial for those with the largest catch histories, top 10 percent (Figure ES-3).
- for those who would receive about 50,000 pounds or less IFQ, the equal sharing options (Options B-1 and B-2) are not much different than the straight historic catch option (Option A). Roughly 75 to 80 percent of the fleet is expected to fall into this category (Figure ES-1; Figure ES-2, personal; and Figure ES-4).
- when permit and personal histories are identical, the option of choosing histories results in less IFQ than personal history and the 50/50 option. This would be the situation of anyone who had the same vessel throughout the allocation period and now holds the permit to that vessel (Figure ES-3).
- if a person with no personal history has paid to acquire a permit with substantial sablefish history, but the personal history option is chosen by the Council, this person receives no QS (Table ES-1, Person 4).
- by considering catch history to be transferred with the permit, permit history performs like personal history where a person has reserved permit rights or kept the permit when selling a vessel (Table ES-1, Person 3).

Not illustrated by the examples is the situation of the person who may have purchased Vessel Q from Person 3 in Table ES-1. If allocation is based on permit history, this individual would receive no allocation because (1) the catch history of Vessel Q prior to 1990 was transferred with the permit and (2) the catch history of Vessel Q in 1990 and 1991 cannot be claimed without a permit for the vessel. The catch history of any permit purchased for Vessel Q would replace the 1990 and 1991 catch history of Vessel Q.

Additional example catch histories are provided at the end of Appendix E.

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EFFECTS OF PROVISIONS OF THE INDIVIDUAL QUOTA PROGRAM

Nature of the Interest Created (Section 15.4)

The statement on the "Nature of the Interest Created" is intended to make it clear that the program may be modified or abolished, as necessary, without reimbursing fishers if the value of the QS they control decreases as a result. Its economic effect may be to dampen the value of QS. Included in the changes may be annual fees to cover program costs, if the MFCMA is amended to allow such charges.

Scope of the Program (Section 15.5)

The Council considered a variety of approaches to a groundfish IQ program, ranging in comprehensiveness from fixed gear sablefish IQ to IQ for all groundfish, either as IQ species or as groups of species with combined quotas. A general qualitative analysis indicated that potential benefits from an IQ program increase in proportion to the size of the fishery it is applied to and may increase by more if it encompasses competing gear groups or other groups which currently require separate allocations. The analysis also indicated that enforcement and administrative costs for implementing and operating such a system will increase as the scope is enlarged, but not in proportion to the size of the fishery covered. However, there is considerable uncertainty associated with the expected results of any of the more comprehensive approaches. The short- and long-run effects of these programs on vessel fishing strategies are not known with certainty. Problems and potential solutions have been tentatively identified with comprehensive approaches, but there is little historical experience with such systems to provide a basis for reliable estimates of costs and benefits. Moreover, by breaking more new ground, the comprehensive approach may take much longer to develop and implement.

In the face of this uncertainty, and in view of the fact that a restricted program scope could be implemented now without having to rule out later expansion to a comprehensive program, the Council chose to proceed cautiously by first considering a relatively simple IQ program, thus refraining from a larger scale commitment of resources which may be difficult to reverse. A pilot program for the sablefish fishpot and longline fishery was chosen because it is a relatively low bycatch fishery, it is threatened with increased effort if the Alaskan IQ plans for sablefish and halibut are implemented, and the Alaskan plans have broken ground for solving management and enforcement problems faced by both regional councils in developing IQ programs for their respective fisheries.

Initial Allocation

Qualifying to Receive an Allocation (Section 15.6.1)

In addition to requiring that an initial QS recipient hold an "A" permit, the group to whom allocation is made may be further restricted by a recent participation requirement (i.e., one landing of either Option 1: sablefish or Option 2: groundfish, with longline or fishpot gear between August 1, 1988 and November 13, 1991); and possibly a minimum landing requirement (i.e., 3,000 pounds of sablefish with longline or fishpot gear during the allocation period January 1, 1984 through November 13, 1991). The recent participation requirement based on sablefish

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is intended to increase the probability that QS will go to persons currently active in the sablefish fishery. This minimizes the dislocation and increases efficiency. Additionally, the MFCMA mandates consideration of current participation in the design of limited access programs. Requiring 1 groundfish landing instead of a sablefish landing to qualify for an initial allocation of QS, would allow individuals to qualify who have historic participation in the sablefish fishery and have remained a part of the West Coast groundfish fishery but who chose not to participate in the sablefish fishery due to shortened seasons in more recent years.

The 3,000 pound landing requirement option is explicitly linked to an allocation option which would divide 25 percent of the QS issued equally among all permits whose owners qualified for QS (Option B-2). The purpose of the minimum landing requirement is to prevent those with very small amounts of catch from receiving a large "unearned" benefit from the IQ program. Under this provision, about 14 applicants (10 percent) who would otherwise qualify for some QS (equivalent to an average of less than 200 pounds under allocation Option A and a 2,500 mt harvest guideline) would not qualify for any.

Catch History Considered (Section 15.6.2.1)

One of the most controversial decisions facing the Council is the catch history to be used in making the allocation; i.e., whether to allocate on the basis of the history of the permit a person currently owns (owns at the time of application and QS issuance) or on the basis of a person's catch history as a vessel owner. The controversy over this decision has led to two other options: (1) allocate 50 percent based on the catch history of the permit currently owned and 50 percent based on the catch history of the vessel owner and (2) allow applicants to choose between permit history and personal history (so long as there is no transfer of the permit or permit right after November 13, 1991).^{3/} If the Council chooses to allocate on the basis of permit catch history, such a decision would allow the program to take into account changes in the persons "currently participating" which occur between the control date and implementation. This would be accomplished by allowing persons to acquire the necessary catch history through the acquisition of permit rights which have an associated sablefish catch history. Additionally, if the purchase of a permit is viewed as the purchase of a business opportunity to engage in the sablefish fishery (along with other groundfish species), the price paid for the permit includes an estimate by the buyer and seller of the future earnings potential in the sablefish fishery. Under the license limitation program (Amendment 6), this is one of the primary rationales for allocating permits on the basis of vessel history--so that an individual having paid for a business in the form of a vessel purchase would be able to use the vessel in the manner anticipated when the purchase was made. On the other hand, some persons may have disposed of vessels which had a

3/ Not allowing permit holders their choice of history when a transfer has occurred after November 13, 1991 is intended to eliminate incentive for persons to make permit transfers for the purpose of increasing the total amount of quota share which the parties to the transfer may claim. For example, a permit holder with little personal sablefish catch history trades permits with a permit holder with substantial personal and permit sablefish catch history, then the person who originally had little permit history selects the permit history of the new permit and the other person selects personal history. Prior to final action, the Council will have to determine which history will apply in situations where a transfer has occurred after November 13, 1991 (personal history or permit history).

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significant sablefish catch history and which qualified for "A" permits and then acquired a replacement vessel which also qualified for an "A" permit but did not have a significant sablefish catch history expecting to be able to continue in the sablefish fishery. The price paid for the vessel with "A" permit rights likely included an estimate of their anticipated profitability with the new vessel in the sablefish fishery.

The allocation option which is based 50 percent on permit catch history and 50 percent on catch history of the person as a vessel owner, and the option which allows applicants to choose between allocation based on permit catch history and allocation based on personal history as a vessel owner, essentially spread among more applicants the burden of inequities which may exist under allocation systems based solely on permit catch history or solely on catch history of the person as a vessel owner.

Confidentiality Issues

In specifying the allocation formula, the Council must also take into account confidentiality issues. There are two issues of concern. The first has to do with revealing to the current owner of a permit financial information about a previous owner of the permit, permit rights or vessel from which the permit was derived. The second has to do with revealing to the vessel owner financial information about a lessee, skipper or other persons associated with the vessel in the past.

The first issue is primarily a concern only in cases where a portion of the allocation is based on the catch history of the permit currently owned. Unless the states are willing to allow revelation of catch history information to an individual who did not own the vessel at the time of the landings, applicants would not be allowed to view the basis on which NMFS calculated their QS. Applicants would be notified only of their allocation and not precisely how it was derived. The allocation formula is complex enough that, in most cases, the QS recipient would be unable to determine with much precision the actual catch history on which the allocation is based. However, there would still be a potential for revealing confidential vessel information in a restricted number of situations, those where the permit holder knows all but 1 year of the history of a vessel which is or has been associated with the permit. Additionally, among the industry, there may be dissatisfaction with a situation in which the applicant is not allowed to directly review and verify the basis on which the applicant allocation is derived.

The second issue has to do with the potential for releasing to vessel owner's financial information about a lease holder or other person who has fished their vessel. Revealing such financial information to the vessel owner would be similar to making confidential financial information about a construction firm available to a company from which it leases its trucks. The problem applies both in situations where allocations are based on permit history and on personal catch history as a vessel owner. It is similar to the issue discussed in the above paragraph in that even if the catch history information is not released to the applicant, in a restricted number of situations there is still a potential for the applicant to be able to derive some information about catch history from the amount of QS received.

As of the date this document was drafted, it appeared reasonably likely that the states would be willing to allow dissemination of vessel information to vessel owners for the time period that

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they owned the vessel. This would clear the way for allocation based on history of the person as a vessel owner. There is much less certainty about whether information on a vessel's catch history could be released to someone whose only relation to the vessel is that the person currently holds a permit that was in some way associated with the vessel at one time. The three states may respond to the issues in different ways. If the release of catch information is not possible, the only way the permit history option could be implemented would be to allow NMFS to calculate QS without letting the permit owner know the exact basis of the calculations. Any uncertainty by the applicant about the amount of QS received would have to be resolved by an appeals officer who would examine the record and verify the allocation without divulging it to the applicant.

Allocation Period (Section 15.6.2.3)

Under all allocation options being considered by the Council, most of the allocation would be based on a vessel's best 5 of 8 years during the allocation window (January 1, 1984 through November 13, 1991). Members of the industry committee which initially developed options for the window period generally held one of two positions. Longer term participants favored an allocation period based on the window period used for the license limitation program (1984-1988). More recent entrants favored using the period between the end of the license limitation window period and the control date (1989-1991). The committee finally recommended to the Council a balance between the two positions, 1984-1991. This compromise considers both historic participation and more current participation, and dependence on the fishery. The industry committee believed the result would be a balance of fairness and the Council concurred.

Allocation Formula (Section 15.6.2.6)

The allocation formula options are discussed above in the section describing the program. There are three allocation formula options which are grouped here by the catch history option with which they might be combined. In the section above with allocation examples, the possible effects of allocation and catch history options on the amount of QS and IFQ received by persons with particular catch histories are described. In this section, the focus is distribution of QS among all applicants. The results of both of these sections depend largely on the total amount of catch history all applicants would claim under the options considered. There is much uncertainty about what this total would be and thus significant uncertainty about the results. The personal history option, in particular, raises questions about the amount of QS which might eventually be claimed. One factor, which became apparent in evaluating the alternative formulas, is that under one interpretation of the personal history option it would be possible for some individuals to benefit from 8 years of catch history (rather than the five of eight specified in the allocation formulas). For example, two individuals who fished separately for the first 4 years of the allocation window may have fished as partners in the second 4 years, allowing them to make separate applications as individuals (one based on each of their earlier individual histories) and an application based on the current partnership. The degree to which instances such as these and other instances of changing ownership and participation occur, but were undetectable in the current data, will influence the results of the analysis.

The allocation options result in a spectrum of distributions. Option B-2 with its guaranteed minimum for anyone of at least 3,000 pounds of sablefish catch during the allocation period

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provides over about 50 percent of the qualified applicants with more QS than they would have otherwise received. Under Option B-2, combined with the personal catch history option, at least 58 percent would receive more than they would under Option A and 82 percent would be better off or no more than 4 percent worse off than they would under Option A. On the other hand, comparing the same options, the top 5 percent of the QS recipients would have their QS reduced by at least 15 percent under Option B-2. Additionally, 13 to 14 potential applicants would receive no QS because they did not land 3,000 pounds between 1984 and the end of the allocation period as required by Option B-2. Allocation Option B-1 takes a little less away from the those at the high end of the distribution and gives everyone meeting permit ownership and recent participation requirements at least some allocation of QS, but it is more complex.

Figure ES-5 shows how potential applicants fair under Option A comparing personal catch history to permit catch history. A 45° line divides the figure into two parts. A point above the line indicates that the person represented by the point would receive more under the permit history option than under the personal history option. A point below the line indicates a person would receive more under the personal history option than under the permit history option. Several persons toward the higher end have larger differences in shares depending on which of these catch history options is chosen. Most individuals receive larger shares with personal history. However, about 15 persons may receive 0.5 to 2.5 percent QS with permit history but would receive very small or no shares under personal history.

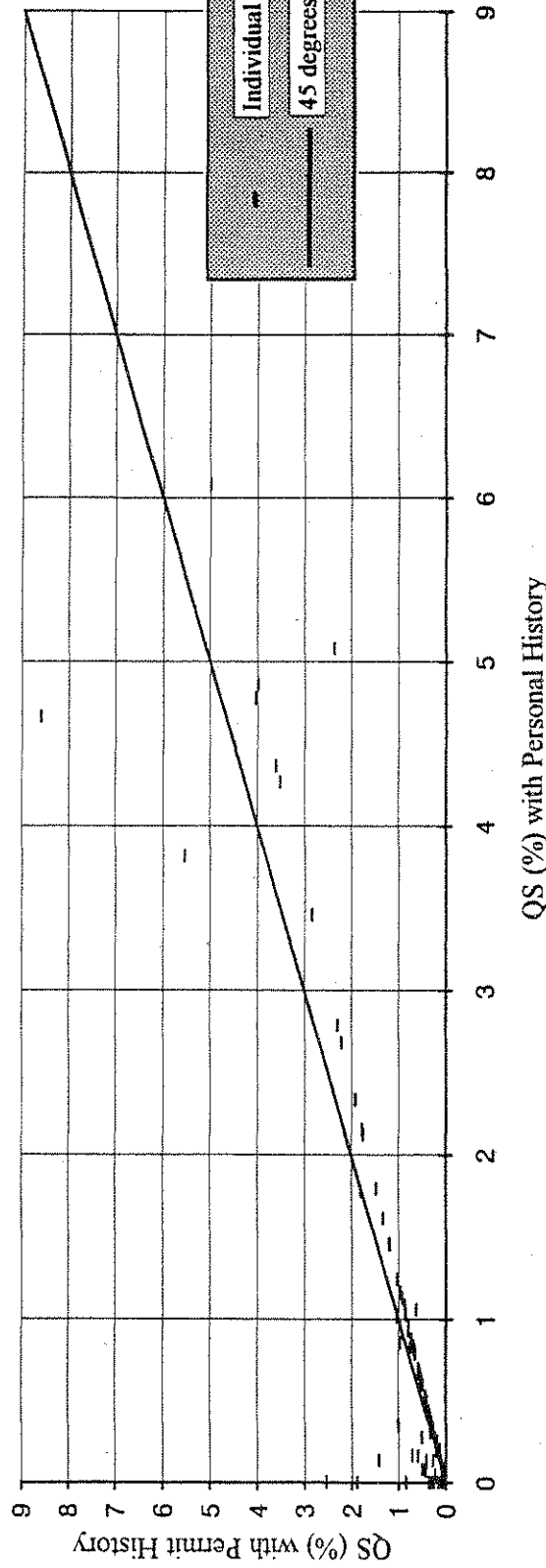
If one looks at the best allocation applicants would receive, comparing all options to their best results from allocation Option A combined with either the personal or permit catch history options, it can be seen that three options provide all permittees with at least 50 percent of this best allocation: allocation Options A and B-1 using the choice catch history option, and allocation Option B-1 with the permit catch history option. The choice catch history option combined with allocation Option A provides all permittees with at least 80 percent of there best from allocation Option A combined with either the personal or permit catch history options.

In general, a higher percentage of fishpot than longline applicants would receive large allocations. For example, considering Option A and personal history, the distributions reveal that both gears have 11 owners at or above 1.5 percent shares. However, there are far fewer fishpot permits, thus, the holder of a qualifying pot endorsement has a far greater likelihood of receiving a large share based on the catch history of the permittee.

Caps on Allocation (Section 15.6.2.5), Accumulation (15.9.2.1) and Use with a Vessel (Section 15.10.3)

The Council is considering several different options for imposing caps on the amount of QS that can be owned or used. These types of limitations are likely to have some impact on increasing the number of participants in the fishery, relative to a program without caps. On the other hand, if caps are set too low, they may impede fishing operations from attaining an efficient level of harvest. The fundamental problem is finding a means by which the past general structure of the industry, containing a large number of low-level producers in conjunction with a few large ones, can be maintained in the future.

Figure ES-5. -- Comparison of Individual Quota Share (QS) Percentages using Option A, with Personal History and Permit History.



Note: Observations falling below the line represent persons who would receive a larger quota share using Personal History

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As an alternative to no initial allocation cap, the Council is considering restricting initial allocation to no more than 3 percent. Option A distributions for personal and permit history indicates that 9 and 7 persons, respectively, would have their QS reduced by this option—some by more than 50 percent.

The Council is also considering placing caps on the amount of shares that could be accumulated by a person after the initial allocation and a cap on the amount of QS that could be landed using any single vessel. Given a 2,500 mt quota for the program, a cap on use at the 3 percent level would restrict annual landings to 165,000 pounds per owner or vessel, depending on the option. This is well below traditional landing amounts in the fishery and even below what several vessels have landed during recent years. A 5 percent limit on the amount that can be landed with one vessel would not infringe substantially on the desired levels of participation for too many fleet members, but would only guarantee a minimum fleet of 20 vessels. Attempts to maintain a larger fleet, through lowering the level of the cap, run the risk of restricting the profitability of the fishery for the segment which has typically landed most of the fish.

If the intent of a cap is to maintain some minimum size for the fleet, then caps on accumulation by persons are generally an ineffective means of accomplishing that by themselves. A cap on amount of IFQ used per vessel should guarantee a minimum fleet size.

Geographic Allocations (Section 15.6.3)

The geographic distribution of QS may have adverse biological consequences, because concentration of fishing effort could cause some localized reduction in stock abundance. In an ideal world, fishing effort would be distributed in proportion to fish abundance and the resulting fishing mortality rate would be evenly spread throughout the stock. However, a variety of factors, including interactions with other fisheries, location of major ports, variation in costs of fishing and variations in price of product, will cause the distribution of effort to differ from the distribution of fish. Given the amount of information that is unknown about the rate of stock immigration from other areas and the degree to which local recruitment is dependent on the abundance of the local spawning stock the Groundfish Management Team (GMT) has stated that the safest course of action is to attempt to maintain a relatively uniform rate of exploitation over the distribution of the stock.

Area specific QS may be needed because

1. the harvest guideline is already split between the Conception area and northern areas, and at least one fisher will want to fish in the Conception area;
2. the current distribution of sablefish abundance and of catch are similar, but not identical. In the future, further division of the coastwide harvest guideline into area specific harvest guidelines may be necessary; and
3. under an IQ program, the distribution of shares may become further concentrated in certain areas (this may exacerbate [2] above).

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The Council's preferred option is not to establish area specific QS at this time. It is considering whether to (1) establish in this plan amendment a process for allocating area specific QS to be implemented at such time as the need becomes apparent, or (2) defer the entire matter to a time when localized depletion becomes an issue.

Restriction on Control by Foreign Interests (Section 15.9.2.2)

The Council's preferred option is to require that any owner of QS or IFQ be eligible to document a U.S. fishing vessel. The intent of this option is to prevent foreign buyers of sablefish from increasing their market power by acquiring IFQ or QS. Significant increases in market power are also prevented by the 3 percent or 5 percent cap on accumulation of QS and IFQ. However, the ban of foreign ownership prevents any ownership of shares by foreign nationals or resident aliens, except for resident aliens in California who are exempted until the year 2000.

Presence of the Quota Share/Individual Fishing Quota Owner (Section 15.10.2)

An option has been proposed which would require QS/IFQ owners to be on board a vessel landing sablefish covered by IFQ derived from their QS and to sign the resulting fish ticket. The option would prevent the transformation of the fishery from a predominantly owner-operator fishery to one dominated by absentee vessel/IFQ owners with hired skippers. This option also implicitly prohibits leasing of QS and IFQ. Under the option, individuals, corporations, partnerships and others receiving initial QS allocations would retain the right to designate hired skippers to use their IFQ, but retirement of individuals and restrictions on changes in the identity of qualifying corporations and partnerships would lead to attrition and eventual disappearance of all but individual QS/IFQ owner fishers. QS and IFQ could be transferred to other owners, such as banks, heirs, etc., but could not be used until transferred back to a qualified user. However, one of the options proposed to reinforce the effectiveness of this option (prohibition of acquisitions by partnerships and corporations which are not initial QS recipients), depending on interpretation, could technically prevent banks and many other lending entities from securing their loans with QS equity.

During the period of attrition, two classes of fishers would exist: (1) those recipients of initial QS who can own multiple vessels operated by hired skippers in the fishery and who can designate someone to land fish on a temporary basis, if need be; and (2) those who enter the fishery later who must be aboard the vessel at all times while fishing IQ sablefish, unless an emergency exception is granted by NMFS.

Quota Share and Individual Fishing Quota Acquisition by Individuals, Partnerships, Corporations, Etc. (Section 15.9.2.4)

The Council is considering an option to prevent corporations, partnerships or other non-individual entities not receiving an initial allocation from acquiring ownership of access rights (QS or IFQ). The intent of this option would be to reinforce the effectiveness of the requirement for owners of QS/IFQ to be on board when the IFQ is used. The analysis of the owner on board requirement (Section 15.10.2) indicates that the goal of preventing an absentee owner fishery from developing would likely be achieved without the addition of this option restricting the acquisition of QS/IFQ by new corporations and partnerships. This addition may prevent some

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circumvention, by preventing partnerships and corporations from controlling QS/IFQ through financing arrangements whereby they are not listed as the actual owner of the QS or IFQ. This option requires QS to be held by individuals so that new vessel owner operators would not be able to include QS as an asset of any corporation or partnership they wished to form. In the meantime, corporations, partnerships and individuals receiving an initial allocation of QS would be able to own QS for multiple vessels with hired skippers, up to whatever accumulation cap is in effect.

Leasing (Section 15.9.3)

The option to prohibit leasing of QS and IFQ makes explicit the ban on leasing, which is implicit in the option requiring the QS owner to be on board (Section 15.10.2). The prohibition of leasing by itself, without the "owner on board requirement" would limit the flexibility of vessel owners who might find it convenient to lease QS or IFQ to other vessel owners from time to time. It will reduce the value of QS by reducing the flexibility of QS and IFQ use.

Individual Fishing Quota Possession Requirements (Section 15.10.4)

In order to facilitate enforcement of reporting requirements for landing IQ sablefish, the Council proposes to require the vessel owner to possess on board the vessel sufficient IFQ to cover sablefish prior to taking and retention. Other options allowing the fishers more flexibility, such as requiring a sufficient IFQ be held to cover the catch when the vessel arrives in port, prior to off-loading, or up to 2 weeks after arrival in port, were considered but rejected by the Council as being too difficult to enforce.

Carry-over Allowances (Section 15.10.5)

The Council considered two options to allow vessels to transfer landings of IFQ from one year to the next. The purpose of the option is to avoid creating incentive for vessels to fish up to an inflexible limit and then discard any excess catch. An option allowing QS owners to borrow up to 5 percent of IFQ from the following year to cover excess catch in the current year was considered but rejected because it would simply create a higher quota for the first year without actually adding flexibility. The Council's preferred option is to allow a QS owner to carry over unused IFQ from one year to the next, amounting to up to 5 percent of the total IFQ owned or 10,000 pounds, whichever is less. The flexibility provided by this option is expected to reduce discards.

INDIVIDUAL QUOTA ENFORCEMENT

Need for Enforcement

The incentive for cheating under a fixed gear sablefish IQ program may be greater than under other measures by which the Council controls much of the fishery, increasing the need for enforcement (Section 3.9). For individuals with sufficient quota to cover a landing, the decision to cheat does not have to be made until the product is in the plant and it is time to report the amount landed to the IFQ tracking system. If there has been no observer present, landings may be underreported by small amounts and the difference lost in product recovery rates. Compared

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to monthly cumulative trip limits, incentives for cheating under the IQ program may be greater because (1) the per pound value of the IQ sablefish being landed will generally be higher than for most landings being made under cumulative trip limits; (2) the use of smaller vessels and dressing at sea makes it easier to land and ship product outside of normal marketing channels; (3) the opportunity for additional harvest created by underreporting may potentially last into the next year, as opposed to the end of the month for cumulative limits; and (4) revenues for those willing to cheat through underreporting may be higher, thus, they may bid IQ away from honest fishers.

The Enforcement Program

The enforcement options being considered by the Council are to (1) leave the design of an enforcement program completely to NMFS or (2) specify in general terms certain elements which may or may not be included in an enforcement program (Appendix A, Section 15.12). While the specifics of an enforcement program are not part of the proposed plan amendment, an example of what might be a realistic and effective enforcement program is included in Appendix B. This example has been developed in order to assess the demands an IQ system could place on enforcement and the accompanying industry compliance burden.

The goals for enforcement, which have been identified, may be summarized as follows:

Design a system which

1. is conducive to voluntary compliance,
2. has adequate resources to respond to violations,
3. is cost effective, and
4. is least intrusive, (while at the same time recognizing that IQ systems by their nature imply the monitoring of a separate quota for each fisher).

Fisheries enforcement is generally a four-tier activity: (1) at sea and shoreside patrol operations; (2) monitoring landings; (3) auditing plants, fish buyers and commercial traffic; and (4) investigations. The following are the central elements of the example program:

1. Require federal licenses for all receivers of groundfish.
2. Limit IQ sablefish delivery hours (6 a.m. to 6 p.m.)
3. Require advance notice of landing and hail weights.
4. Limit the season to May through October (only if necessary to bring enforcement costs down to acceptable levels).
5. Implement an electronic reporting system (card swipe or hybrid paper/electronic system based on touch-tone telephones).
6. Impose strong sanctions for violations, including suspensions and revocation of QS and other federal permits.
7. Require that IFQ inspectors be present at every landing; or randomly monitor 25 percent or more of the landings with fisheries technicians.

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Total Enforcement Cost Estimates

The following is a summary of annual enforcement costs based on a 12-month fishery. Restricting the fishery to a 6-month season may reduce these costs but would also reduce program benefits.

Cost Category	Annual Enforcement Costs	
	IFQ Inspector Monitoring (34 Inspectors Providing 100 Percent Coverage)	Fishery Technician Monitoring (7 Fishery Technicians Providing 25 Percent Coverage)
Diversion of Existing Enforcement Resources (2 Full-time Employees)	\$160,000	\$160,000
General Groundfish Processing Permit	\$7,250	\$7,250
Additional Monitoring	\$408,000	\$280,000
TOTAL	\$575,250	\$447,250

Provisions for a general groundfish processing permit are not part of the proposed amendment.

INDIVIDUAL QUOTA PROGRAM ADMINISTRATION AND INDUSTRY COMPLIANCE COSTS

There are few details of the administrative program in the proposed FMP amendment. This lack of detail is intended to provide flexibility for administrators to determine the best means of implementing the proposed program. Examples of realistic administrative programs have been developed in order to generate estimates of administrative costs and provide the public with information about possible compliance requirements industry may face. Details on the example administrative program summarized here will be found in Appendix C.

Tracking and Accounting System

One of the primary administrative elements affecting administrative and enforcement costs will be the transfer and accounting system.

IFQ tracking and accounting involves maintaining an up-to-date record of the progress made by IFQ holders toward fulfilling their IFQ and cross checking this record against vessel landing tickets. The accounting and tracking system must

1. provide a means by which the IFQ holder records the use of IFQ;
2. allow a dealer to determine that an IFQ holder has sufficient IFQ to cover a landing and that the IFQ has been used for the landing made to the dealers plant;
3. allow enforcement personnel to immediately determine whether an IFQ holder has sufficient IFQ to cover a landing; and

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4. prevent fraud and abuse.

Three primary methods of tracking and accounting are discussed in Section 3.8 and Appendix C:

- Electronic/Credit Card

All IFQ landings are debited against accounts through a computer system involving IFQ account holder credit cards, card swipe machines owned by fish receivers and a central computer system tied to telephone lines. Field records are maintained through printers linked to the card swipe machines.

- Paper

All IFQ landings are debited against accounts either through the transfer of paper script or through the writing of IFQ checks. Field records are maintained through the transfer of script or checks with carbon copies.

- Hybrid Paper/Electronic System

All IFQ landings are debited against accounts through a system involving touch-tone dialing and a central computer system tied to telephone lines. A checkbook type system would be used to keep field records.

There are many ways such programs could be designed. Prior to implementation of an IQ program, representatives from agency departments involved in the collection and management of records of fishery landings should come together with representatives from the NMFS limited entry office, enforcement agencies and GMT to develop a tracking and accounting program.

Administrative Program

The functions of the NMFS office handling administration of the IQ program may be as follows:

- Determine the initial allocation of QS.
- Determine annual allocations of IFQ.
- Maintain the IFQ tracking and accounting system.
- Record the transfer of QS and IFQ and reissue QS and IFQ, as necessary, in accordance with the transfers.
- Maintain a system for receiving advance notice of IFQ landings.
- Provide enforcement agencies with information about the status of IFQ accounts and advance notice of landings.

In addition, administrative cost estimates include costs of the appeals process. The appeals operations would likely be located outside of the office directly administering the program (the NMFS limited entry office). There may also be a NMFS administrative cost entailed in implementing a fishery technician monitoring system or an IFQ inspector system. These costs are included under the estimates of enforcement costs.

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State costs have not been included in the estimate of administrative costs. State costs are expected to the degree that state personnel respond to inquiries regarding catch history during the implementation phase of the program and to the degree fishers need to be educated about the program. If state requirements for confidentiality of fish tickets do not allow the federal government to release fish ticket information, a significant demand may be placed on state personnel arising from requests to supply that information. Some state personnel would also be involved in the design phase of an implementation plan.

Effects on Council costs are also not included here. Because the proposed program does not address allocation issues currently on Council work load lists and because the cost of setting annual management measures is not expected to increase under status quo, little relief is expected from the Council current work load. Over the long term, the program may preclude allocation issues which may have otherwise arisen if the fixed gear sablefish season length had continued to decrease. On the other hand, as with any new management system, an IQ system would have a number of problems and idiosyncracies that would need to be corrected. Limited access systems established worldwide have required such adjustment after their initial implementation. This would likely result in a short term increase in Council work load.

The following are the estimated administrative costs.

Type of Tracking and Accounting System	Start-up Cost for Entire Administrative Program	Annual Cost for Entire Administrative Program
Electronic	\$450,000 to \$550,000	\$78,700
Hybrid Electronic/Paper	\$350,000 to \$450,000	\$54,200
Paper Script	\$375,000 to \$475,000	\$94,400
IFQ Checkbook	\$375,000 to \$475,000	\$83,400

In addition to these new annual costs, time would be contributed by the current limited entry office staff. An initial estimate for the value of this time is \$79,200.

The lower cost for the hybrid system is due primarily to the reduced annual cost for the system to manage advance notices of landings. If there are no advance notice of landings requirements, the costs of these programs will even out.

The annual costs for this IQ program are much lower than for the NPFMC IQ program because much of the supervisory structure is already in place in the limited entry office created for the license limitation program and because the program would be much smaller.

Industry Compliance

Compliance activities have been broken down into those associated with (1) the acquisition of IQ and (2) participation in the program.

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Acquisition

There are two categories of acquisition costs: (1) acquisition at initial issuance and (2) acquisition through transfer of another QS or IFQ owner. Acquisition costs for initial issuance are (1) a one-time fee paid to NMFS which will depend on estimated administrative costs and number of applicants and (2) the time involved in filling out paperwork and, if desired by the applicant, seeking the release of confidential information. Acquisition costs for the transfer of QS or IFQ from a seller to a buyer would likely be similar to those for most commercial transactions where something of value is exchanged. There may be a nominal fee from NMFS for recording the transactions.

The fees and purchase prices for IFQ are not additional program costs to be included in an assessment of costs and benefits of the program. Fees are payments to cover administrative costs which are counted in the section on administrative costs. Amounts paid for IQ when they are bought and sold are simply transfers of assets and imply neither additional costs or benefits. Items which are a cost of the program include the time spent filling out paperwork to apply for IQ and the time, legal and other expenses involved in the transfer of IQ (but not the price of the IQ).

Participation Costs

The primary direct expense associated with participation in the program has to do with the tracking and accounting system employed. If an electronic system is used, card-swipe machines and printers would be purchased for each site at which IFQ fish are received and for any vessels which make over-the-side sales. These materials are expected to run \$800 to \$900. If there were 100 sites (including machines purchased for over-the-side sales to consumers), the total expense would run about \$80,000 to \$90,000. Other expenses have to do with the time involved in taking part in the tracking and accounting system and giving advance notice of landings (if such notices are required).

BENEFIT COST ANALYSIS

The benefit cost analysis of the proposed IQ program compares the present value of quantifiable economic benefits and costs to the U.S. economy over the next 25 years. For the proposed program, incremental benefits to the economy, as a whole, are composed of changes in consumer surplus and producer surplus, while incremental costs are changes in administrative, enforcement and industry compliance costs.

Enforcement, administrative and industry compliance costs are discussed above. Consideration must also be given to consumer and producers surpluses before reaching a benefit cost conclusion. The direction of change in domestic consumer surplus is undetermined but expected to be small. Estimates of producer surplus are detailed in Appendix D. Producer surplus savings are expected to be generated as a result of increased sablefish prices, reduction in variable costs for harvesting by a given vessel, transfer of IQ from less efficient to more efficient members of the fleet, and reduction in fixed costs.

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For the purpose of the benefit cost analysis two future scenarios have been evaluated, one optimistic and one pessimistic. The following table presents these net benefit estimates for two assumed rates of decline of the fixed gear fleet.

	Annual Decline of Fleet for the First 15 Years	
	1 Percent	3 Percent
Optimistic	\$4.3 million ^{4/}	\$10.1 million
Pessimistic	-\$6.5 million ^{5/}	-\$1.7 million

Neither extreme is highly probable, but no points in between should be ruled out. Under the pessimistic scenario, the present value of program benefits is only \$7 million. If administrative and industry compliance start-up cost estimates are correct, then combined annual administrative and enforcement costs would have to be trimmed to about \$561,000 in order for the estimated costs and benefits under these assumptions just to break even. The closer to this \$561,000 these annual costs come, the greater the probability that benefits will equal or exceed the realized costs. If the current estimates of administrative and enforcement costs contained in this summary and the appendices to this document are correct, program costs would be at or below the \$561,000 level. Unquantified factors which need to be considered, along with this result, include increased state fishery agency (Section 4.2.1.3) and Council costs (Section 4.7.1), and benefits from increased safety in the sablefish harvest (Section 4.3.3).

INITIAL REGULATORY FLEXIBILITY ANALYSIS

This action has the potential to significantly affect a substantial number of small business entities. Up to about 200 vessels are expected to receive fixed gear "A" permits under the Amendment 6 groundfish license limitation program. The businesses owning these "A" permits would likely be considered small businesses based on their West Coast landings in all fisheries (includes Alaskan catch landed on the West Coast but not that landed in Alaska). The owners of approximately 50 of these permits are not expected to receive any QS and hence will have to purchase QS if they wish to participate in the sablefish fishery. However, only about 10 of those which are not expected to receive QS participated in the sablefish fishery in 1992. A large proportion of those receiving QS are likely to receive amounts of QS substantially below their average annual catches.

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- 4/ The optimistic scenario assumes that revenue from fixed gear sablefish increased by 10 percent as a result of the IQ program, while variable fleet costs of catching sablefish initially decline by 10 percent. The average annual turnover rate of capital invested in the fleet is assumed to be 5 percent and the enforcement costs are assumed to be close to \$450,000 per year (low estimated from Appendix B). The present value of the net benefits for this scenario is calculated for assumed rates of decline in fleet size of 1 percent and of 3 percent per year for the first 15 years of the program.
- 5/ The pessimistic scenario assumes a 5 percent increase in revenue, a 5 percent turnover rate of capital and enforcement costs of \$990,000 per year (based on estimated cost of 1 supervisory enforcement agent, 2 field agents, 8 fishery enforcement officers and 2 support personnel).

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There were 180 fish buying/processing sites at which nontrawl sablefish were received in 1991. Individually, these sites would all be considered small businesses, though it is known that single companies often own several processing plants which taken together may have receipts in excess of \$2 million and thus not be classified as small businesses. Of the 180 sites, 83 expended less than \$1,000 on nontrawl sablefish and 126 expended less than \$20,000. If an all electronic tracking and accounting system were implemented (requiring equipment purchase costs approaching \$1,000 for each site), the first-year compliance costs at these sites would exceed 5 percent of their gross receipts. At this expenditure level, some of these sites may choose not to participate in the sablefish IQ program. It is not known how many of the landings which have traditionally been received at these sites come from the fleet which will continue to fish sablefish in the open access fishery. Regardless of the number, open access vessels would likely be able to provide a nontrawl sablefish supply to these sites sufficient to maintain recent processing levels.

BIOLOGICAL EFFECTS

Discards and High-grading

The Council's GMT believes that there will be an increase in high-grading under an IQ system. If there is a corresponding shift in effort towards longline gear, then total mortality could increase under an IQ system.

Effects of Unreported and Underreported Landings on Stock Biomass

An inadequate enforcement program would result in an underreporting of total landings and consequently catches in excess of optimal levels. The effect of underreported catch is identical to consistent overage of recommended harvest guidelines and similar to the effect of unreported discards. All will cause a decline in the abundance of the population and a proportionate decline in the true future acceptable biological catch (ABC) levels.

The following table shows the results of a simulation of the effect of underreported catch for a species such as sablefish. If the reported catch remains equal to a constant harvest guideline of 7,000 mt, then the following table indicates the degree to which 10 years of underreporting depresses the stock level, hence depresses the true ABC.

Percent Underreport Relative to Harvest Guidelines	
7,000 mt	True ABC in 10 Years
0 Percent	7,000 mt (status quo)
5 Percent	6,800 mt
10 Percent	6,577 mt
15 Percent	6,326 mt
20 Percent	6,038 mt
25 Percent	5,714 mt
30 Percent	5,335 mt

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Potential for Localized Depletion

Biological concern related to the potential for localized depletion is discussed above in the section on area specific QS under "Effects of Provisions of the IQ program".

Endangered Species Act and Marine Mammal Protection Act Considerations

The alternatives in this amendment: (1) common access to sablefish among fixed gear license holders (status quo) or (2) access to sablefish within the license program controlled through a sablefish IQ system; are not anticipated to jeopardize survival of endangered/threatened species or have any adverse effects with regards to marine mammal populations. Under a fixed gear sablefish IQ system, the patterns of fixed gear sablefish harvest would change from primarily a very brief opening with highly concentrated effort to a fishery with effort extended over greater time and possibly greater space. Total catch or effort is not expected to change. Re-initiation of a Section 7 consultation under the ESA is not necessary because the activities covered are within the scope of activities covered in previous Section 7 consultations that apply to the groundfish fishery. These consultations found no jeopardy to threatened or endangered species from the groundfish fishery.

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1.0 INTRODUCTION

1.1 Amendment Issues and Purpose of Document

This proposed amendment to the groundfish fishery management plan (FMP) concerns whether or not the Council should develop an individual quota (IQ) program to cover the harvest of sablefish by vessels with groundfish limited entry permits for longline and fishpot gear (Appendix A). The proposed program (Appendix A) would be incorporated as Chapter 15 of the groundfish FMP. Harvest of sablefish by trawl gear in the license limitation fishery or longline, fishpot and other gear by unlicensed vessels in the open access fishery is not covered by the proposed IQ program.

The purpose of this document is to analyze the alternatives being considered by the Council as part of Amendment 8 to the groundfish FMP and provide the background and assessment necessary for the Council and Secretary of Commerce (Secretary) to determine if the management measures are consistent with the Magnuson Fishery Conservation and Management Act (MFCMA), other applicable law and the FMP. Specific statutory and administrative requirements fulfilled by this document include those of the National Environmental Policy Act (NEPA), Regulatory Flexibility Act (RFA), Executive Order 12866, Coastal Zone Management Act, Endangered Species Act and Marine Mammal Protection Act.

Specifically, this document is an FMP amendment including an supplemental Environmental Impact Statement (EIS), Regulatory Impact Review (RIR), initial Regulatory Flexibility Analysis (IRFA) and Fishery Impact Statement.

1.1.1 Supplemental Environmental Impact Statement and Fishery Impact Statement

In order to analyze the potential impacts of the proposed action on the quality of the human environment, compliance with NEPA requires that an Environmental Assessment or Impact Statement be prepared. According to National Oceanic and Atmospheric Administration (NOAA) directive, an EIS must be prepared if the proposed action may reasonably be expected to

1. jeopardize the productive capability of the target resource species or any related stocks that may be affected by the action;
2. allow substantial damage to the ocean or coastal habitats;
3. have substantial adverse impact on public health or safety;
4. affect adversely an endangered or threatened species or a marine mammal population; or
5. result in cumulative effects that could have a substantial adverse effect on the target resource species or any related stocks that may be affected by the action.

Additionally, controversy and socioeconomic effects should also be considered in any determination of significance.

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The decision to prepare an supplemental EIS was made because of the generally controversial nature of limited entry systems and wide-ranging effects on the fishing fleet and communities benefitting from fishing activities. The MFCMA requirements for a Fishery Impact Statement are fulfilled by the analysis conducted for the supplemental EIS.

The decision that an supplemental EIS would be prepared was not intended to prejudice any decision by the Council or Secretary, but, instead, was designed to provide the best information on which to base any such decisions.

1.1.2 Regulatory Impact Review and Regulatory Flexibility Act Determination

In compliance with Executive Order 12866 and the RFA, National Marine Fisheries Service (NMFS) requires the preparation of an RIR and analysis of impacts under the RFA for all regulatory actions or for significant policy changes that are of public interest. Findings regarding the significance of the proposed actions under the standards set out in Executive Order 12866 and the RFA may be found in Sections 5.2 and 5.3, respectively.

1.1.2.1 Executive Order 12866

Executive Order 12866, Regulatory Planning and Review, was signed on September 30, 1993 and established guidelines for promulgating new regulations and reviewing existing regulations. While the executive order covers a variety of regulatory policy considerations, the benefits and costs of regulatory actions are a prominent concern. Section 1 of the order deals with the regulatory philosophy and principles that are to guide agency development of regulations. The regulatory philosophy stresses that, in deciding whether and how to regulate, agencies should assess all costs and benefits of all regulatory alternatives. In choosing among regulatory approaches, the philosophy is to choose those approaches that maximize net benefits to society.

The regulatory principles in Executive Order 12866 emphasize careful identification of the problem to be addressed. The agency is to identify and assess alternatives to direct regulation, including economic incentives, such as user fees or marketable permits, to encourage the desired behavior. When an agency determines that a regulation is the best available method of achieving the regulatory objective, it shall design its regulations in the most cost-effective manner to achieve the regulatory objective. Each agency shall assess both the costs and the benefits of the intended regulation and, recognizing that some costs and benefits are difficult to quantify, propose or adopt a regulation only upon a reasoned determination that the benefits of the intended regulation justify the costs. Each agency shall base its decisions on the best reasonably obtainable scientific, technical, economic and other information concerning the need for and consequences of the intended regulation.

NMFS requires the preparation of an RIR for all regulatory actions that either implement a new FMP or significantly amend an existing FMP. The RIR is part of the process of preparing and reviewing FMPs and provides a comprehensive review of the changes in net economic benefits to society associated with proposed regulatory actions. The analysis also provides a review of the problems and policy objectives prompting the regulatory proposals and an evaluation of the major alternatives that could be used to solve the problems. The purpose of the analysis is to ensure that the regulatory agency systematically and comprehensively considers all available

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alternatives so that the public welfare can be enhanced in the most efficient and cost-effective way. The RIR addresses many of the items in the regulatory philosophy and principles of Executive Order 12866.

Executive Order 12866 requires that the Office of Management and Budget review proposed regulatory programs that are considered to be "significant." A "significant regulatory action" is one that is likely to

1. have an annual effect on the economy of \$100 million or more or adversely affect in a material way the economy; a sector of the economy; productivity; competition; jobs; the environment; public health or safety; or state, local, or tribal governments or communities;
2. create a serious inconsistency or otherwise interfere with an action taken or planned by another agency;
3. materially alter the budgetary impact of entitlements, grants, user fees, or loan programs of the rights and obligations of recipients thereof; or
4. raise novel legal or policy issues arising out of legal mandates, the President's priorities, or the principles set forth in this executive order.

A regulatory program is "economically significant" if it is likely to result in the effects described in Item 1 above. The RIR is designed to provide information to determine whether the proposed regulation is likely to be "economically significant" (see Section 5.2 for findings regarding significance under Executive Order 12866).

1.1.2.2 Regulatory Flexibility Act

The RIR is also designed to determine whether the proposed rule has a "significant economic impact on a substantial number of small entities" under the RFA. The purpose of the RFA is to relieve small businesses, small organizations and small governmental entities from burdensome regulations and record-keeping requirements. If the proposed action meets both the "significant" and "substantial" criteria, preparation of an IRFA is required.

The category of small businesses likely to be affected by the proposed regulation is that of commercial business currently engaged in the fixed gear sablefish fishery. The impacts of the proposed action on these entities have been discussed above. The following discussion of impacts focuses specifically on the consequences of the proposed action on the mentioned business entities. An IRFA is conducted to make a preliminary determination as to whether the proposed action would have a "significant economic impact on a substantial number of small entities." In addition, the IRFA provides an estimate of the number of small businesses affected, a description of the small businesses affected, and a discussion of the nature and size of the impacts.

The Small Business Administration defines a small business in the commercial fishing activity as a firm with receipts of up to \$2 million annually, thus eliminating at-sea processing vessels.

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In general, NMFS has indicated a "substantial number" of small entities to be more than 20 percent of those small entities engaged in the fishery.

Economic impacts on small business entities are considered to be "significant" if the proposed action would result in any of the following: (a) reduction in annual gross revenues by more than 5 percent; (b) increase in total costs of production by more than 5 percent as a result of an increase in compliance costs; (c) compliance costs as a percent of sales for small entities are at least 10 percent higher than compliance costs as a percent of sales for large entities; (d) capital costs of compliance represent a significant portion of capital available to small entities, considering internal cash flow and external financing capabilities; or (e) as a rule of thumb, 2 percent of small business entities being forced to cease business operations (see Section 5.3 for findings regarding significance under the RFA).

1.2 Status Quo and the Fixed Gear Sablefish Individual Quota Program

1.2.1 Problem Statement

The following problem statement was first adopted by the IQ Industry Committee and presented to the Council in a November 1992 report:

At present, the problems described in Amendment 6 (Limited Entry) to the Fishery Management Plan for Pacific Coast Groundfish still exist; with or without license limitation allowable catches of groundfish stocks will remain stable or decline, fishing capacity is too high and will continue to increase (at a slower rate if Amendment 6 is enacted), existing capacity utilized in other fisheries will try to expend more effort in groundfish as conditions in other fisheries get more restrictive, the efficiency and safety of vessel operations will be compromised by the struggle of each vessel to increase its share of the allowable catch (the race for fish), and regulations will get more complex as the Council simultaneously constrains effort through enforced inefficiency and attempts to distribute the impact of effort constraints as widely as possible.

Each of these problems is directly related to excess capital which has been and continues to be invested in groundfish fishing vessels, groundfish gear and the training of groundfish fishers. Any solution to these problems will require a management regime under which additions to the capital stock (e.g., investments) remain below subtractions from the capital stock (e.g., depreciation and retirement) until the capital stock declines to an appropriate level.

Excess investment has been encouraged in the past by the open access institutional framework of the groundfish fishery and has resulted in a fishing fleet (physical capital) and trained fishers (human capital) which are too large for the fisheries involved. The economic waste which these excessive capital stocks represent cannot be reversed; to the extent that investment has produced capital which is specialized for the overcapitalized fisheries, it represents sunk costs. However, a change in the institutional structure which alters the rate of flow into those capital stocks (investment) or out of them (depreciation and retirement), or which directs

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the use of existing multipurpose capital into those activities in which it produces the highest value may prevent further waste which would occur under common access among license holders.

The problems in some parts of the Pacific groundfish fisheries are inextricably linked to fisheries conditions in Alaska, due to extensive participation in both areas by some segments of the fishing fleet. In particular, the longline sablefish fleets are dominated by vessels capable of fishing anywhere from Alaska to California. Thus, the proposed individual quota (IQ) plan for sablefish, if adopted, will have a direct impact on longline fisheries in the West Coast states. In the short run, it is anticipated that the Alaskan IQ plans will result in more longline effort in West Coast states not covered by the plans. This will occur partly because some vessels now fishing in Alaska will sell their Alaskan IQ and concentrate on the West Coast and partly because the IQ program will allow Alaskan participants to fish more efficiently, thus freeing up effort, some of which will be diverted to the West Coast. Therefore, problems described in the groundfish fisheries may be expected to grow worse temporarily for longliners in the event that the North Pacific Fishery Management Council implements their proposed IQ programs. In the long run, however, the Alaskan IQ programs may be part of the solution for all fisheries in which the Alaskan longline fleet participate.

Data on the increasingly restrictive harvest regulations for the nontrawl sablefish fishery, declining quotas and harvest guidelines, and the numbers of vessels participating in the fishery are presented in Section 2.1.

1.2.2 Goals and Objectives for the Individual Quota Program

The following goals and objectives were first adopted by the IQ Industry Committee at their August 1992 meeting and were presented to the Council for initial review in November 1992. The goals were further refined before the committee included them in their final report (March 1993). The Council tentatively adopted the goals and objectives at their April 1993 meeting.

1.2.2.1 Goals

Conservation. Reduced discards and increased reliability of catch estimates.

Economic. Reduced total cost of catching groundfish, increased price through increased quality and minimized management costs and increased consumer satisfaction.

1.2.2.2 Objectives

Conservation.

- a. Minimize discard mortality; and
- b. Preserve integrity of catch data by ensuring that catch information is properly recorded.

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Economic.

- a. Reduce fishing costs through reduction of investment in harvest capacity, increase efficiency of vessel operations, increase adaptability of fleet size and operations to changing conditions, technology and markets, and increase efficiency of individual vessel operations;
- b. promote economic stability of fisheries;
- c. increase value of catch through better timing of catch, better quality of catch and elimination of discards;
- d. minimize management and enforcement costs through decreased frequency of management changes and elimination of some management measures currently used;
- e. reduce present and future needs for actions which are directly or indirectly allocative in nature;
- f. increase consumer satisfaction from the consumption of groundfish at higher qualities and/or lower prices;
- g. increase the value of processed fish through better timing of fish delivery; and
- h. decrease processing costs through reduced peak capacity requirements.

Social.

- a. Recognize and accommodate historical participation of those investing their life and resources in the fishery;
- b. increase safety; and
- c. maintain a mechanism for fishery entrance/exit and flexibility for change in the fleet.

1.2.2.3 Other Criteria and Standards

In addition to comparing alternative provisions of IQ programs in terms of how well they promote the above goals and meet the listed objectives, chosen alternatives must meet the requirements of the MFCMA and should be consistent with the National Standards. The MFCMA stipulates that in developing any limited access system, the Council and the Secretary must take into account the following:

- Present participation in the fishery.
- Historical fishing practices in and dependence on the fishery.
- Economics of the fishery.
- Capability of fishing vessels used in the fishery to engage in other fisheries.
- Cultural and social framework relevant to the fishery.
- Any other relevant considerations.

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The following National Standards are most directly related to the consideration of an IQ program:

National Standard 4. Conservation and management measures shall not discriminate between residents of different States. If it becomes necessary to allocate or assign fishing privileges among various United States fishermen, such allocation shall be (A) fair and equitable to all such fishermen; (B) reasonably calculated to promote conservation; and, (C) carried out in such manner that no particular individual, corporation, or other entity acquires an excessive share of such privileges.

National Standard 5. Conservation and management measures shall, where practicable, promote efficiency in the utilization of fishery resources; except that no such measure shall have economic allocation as its sole purpose.

National Standard 7. Conservation and management measures shall, where practicable, minimize costs and avoid unnecessary duplication.

In addition to evaluating alternative provisions of the proposed IQ program, the above goals, objectives and National Standards are important in the determining whether or not an IQ program should be implemented (the choice between status quo; no program; and the proposed alternative, an IQ program).

1.2.3 Description of Alternatives

1.2.3.1 Status Quo

Under status quo management, a license limitation program for the fixed gear groundfish fishery^{1/} will take effect January 1, 1994. This program is expected to slow the increase and eventually limit total capacity in the fixed gear groundfish fishery; however, it will not reduce the current level of overcapacity. In fact, some increase in capacity continues to be expected as less productive vessels are replaced by more productive vessels.

It is likely that the groundfish fishery will continue to be managed with trip limits and seasons. In particular, the sablefish fishery will likely continue to begin the year on a small daily trip limit, with removal of the trip limit in April or May, followed by its reimposition when just enough quota is left to take the fishery through the remainder of the year on the small trip limit. Issues of allocation between large and small vessels and geographic allocation between different areas of the coast will continue to be imbedded in the fixed gear sablefish management structures.

Vessels which have participated in the Alaskan sablefish and halibut fisheries will soon be on an IQ program which will allow them to participate in other fisheries without losing their opportunities in Alaska. Many of these vessels are high producers and some are expected to receive West Coast limited entry permits; others will likely acquire the permits through transfers. The result may be a further shortening of the fixed gear sablefish unrestricted season which has been open for only 2 to 3 weeks in each of the last 2 years.

1/ The program also covers trawl gear.

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1.2.3.2 Fixed Gear Sablefish Individual Quota

The fixed gear sablefish IQ program designed by the Council would allocate to holders of quota shares (QS) an amount of sablefish (individual fishing quota [IFQ]) which could be taken anytime during the year. The scope of the program would cover all sablefish harvested by vessels using fixed gear under a limited entry license. The program would be incorporated as Chapter 15 of the groundfish FMP. The following is a summary of the program which is detailed in full in Appendix A.

A recent participation requirement would require at least 1 landing of sablefish with fixed gear between August 1, 1988 and November 13, 1991 in order to qualify for an allocation of QS (Section 15.6.1).^{2/} QS would be allocated to owners of "A" permits for longline or fishpot gear^{3/} based at least in part on one of the following catch histories: (1) the catch history of the vessel owned at the time QS is issued, (2) the catch history of the person as a vessel owner or (3) some combination of the two (Section 15.6.2.1). Catch history occurring between January 1, 1984 and November 13, 1991 may be counted in determining the amount of QS issued (Section 15.6.2.4). The catch for each year would be weighted differently with most recent years receiving the heaviest weight (Section 15.6.2.3). There may be a minimum amount of QS for which a person would have to qualify before any QS is issued (a cut off) or there may be a minimum amount given to everyone qualified to receive QS (a floor) (Section 15.6.2.6). There may or may not be a cap on the amount of QS which could be initially issued to a single person (Section 15.6.2.5). The amount of QS held by a person would determine the amount of IFQ which the person would receive for that year. There may also be a need to allocate QS by area (Section 15.6.3). After QS is initially issued, anyone eligible to own a U.S. documented fishing vessel would be eligible to purchase or otherwise acquire QS from one of the initial recipients. This would include, but not be limited to, vessel operators, crew members, processors and banks; except that no foreign controlled entity could own QS or IFQ (Section 15.9.2). There would be caps on the amount of QS which could be controlled by a single person and the amount which may be used on a single vessel (Sections 15.9.2 and 15.10). There may be a requirement that the IFQ owner be on the vessel when the sablefish are caught and IFQ used (Section 15.10.2). Such a requirement, to be more effective, would be combined with options which prohibit leasing (Section 15.9.3) and prohibit new entry into the fixed gear sablefish IQ fishery by anyone except individuals (i.e., corporations, partnerships, etc. which do not receive an initial allocation of QS would not be allowed to take part in the fishery, Section 15.9.2.4). A carry-over allowance would allow a small amount of unused IFQ to be carried over from one year to the next (Section 15.10.5). The IFQ monitoring and enforcement program may entail restrictions on where and when vessels may land IFQ fish, requirements for advanced notice of landings and other rules designed to ensure compliance with the program (Section 15.12).

2/ This landing may be required of the vessel, the person as a vessel owner, or both, depending on the catch history used in determining the allocation. See Section 15.6.1 of Appendix A.

3/ If the allocation is based in whole or in part on the catch history of the vessel a person currently owns, the person must own an "A" permit registered for that vessel.

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1.2.4 Means by Which the Alternatives are Expected to Address the Problem

The following discussion outlines how status quo and IQ might address the overcapacity problem.

Capacity is the ability of a vessel to harvest some amount of fish over a period of time. Most of the sablefish harvested by fixed gear vessels is taken in a brief open season with no trip limits (for the rest of the year there is usually a small daily trip limit). This management method, similar to closure on attainment of a quota, reduces annual vessel capacity usable for sablefish harvest.

While the closure on attainment of a quota approach, together with small trip limits, may be generally effective in restricting the usable capacity of many vessels, reliance on closures and trip limits is not expected to prevent capacity from expanding even under the Amendment 6 license limitation program. The license limitation program effectively capped the number of additional vessels which could come into the fishery and uses length restrictions to slow the growth of capacity of individual vessels. However, capacity will likely continue to grow, albeit at a slower rate, as vessels which harvest less rapidly are replaced by vessels capable of harvesting more rapidly and more productive vessel operators take over permits from less productive operators. Thus, while the license limitation program slowed any tendency for capacity to increase, it did not halt the increase of capacity or reduce capacity to more appropriate levels. Additionally, licenses issued for vessels which did not previously participate in the sablefish fishery may be moved into this fishery, increasing the capacity within the groundfish fishery which targets on sablefish. As capacity targeting on sablefish increases, increasingly restrictive regulations are imposed resulting in higher harvest and compliance costs for participants. The nonfish resources utilized in prosecution of the fishery are not conserved, resulting in a dissipation of potential fishery profits (net benefits).

The underlying cause of this continuing tendency to introduce more capacity than necessary into the fishery is the "open harvest system"^{4/} under which most of the fishery is currently managed, including the fixed gear sablefish fishery. Under this system, there is a lack of clearly assigned "property" rights (or fishing "privileges") for the harvesting of the resource. A lack of specific harvest rights creates a situation in which all fishers together bear the costs (lost opportunity to harvest) from the harvest activities of any given fisher. Thus, the open harvest system, under which a license limited entry fleet operates, maintains the incentive to harvest as many fish as possible as fast as possible (i.e., to increase capacity) and results in the allocation of fish according to criteria other than efficiency. Management primarily by season closure allocates fish to vessels able to harvest the fish most rapidly, regardless of whether they do so most efficiently.

4/ "Open harvest" is a term used here to designate a situation where there is no specific limit on the catch by any individual harvester, even though the number of participants may be limited by a permit system. The permit system makes "open harvest" different from "open access"; however, the "Olympic" or "derby" fishery, characteristic of many "open access" management systems, may still be found in fisheries managed under "open harvest".

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When property rights (or harvest privileges) are clearly assigned, the costs borne by the fisher are closer to the actual costs of the fisher's activity. For example, if a fisher were given the right (or privilege) to harvest a set amount of fish within a given period of time (an IQ^{5/}), then the harvest of some part of the quota would reduce the fisher's harvest opportunity within the period by an identical amount (i.e., the fisher would bear the full cost in terms of the reduction of future harvest opportunities). In a situation where the rights to harvest a certain amount of fish have been assigned, the fisher would tailor the vessel's capacity to be appropriate for the fisheries in which it engages. In this way, the overcapacity problem is solved not through direct regulation but rather by creating the economic incentive for fishers to tailor their capacity to the amount of quota available.^{6/} Management by a method such as transferable IQ increases the degree to which efficiency determines the allocation of fish.

Under a sablefish IQ program, capital may be removed from West Coast fisheries in two ways: (1) a reduction in the number of vessels and (2) a reduction in the capital used on each vessel. The incentive to invest in fixed gear sablefish vessels or other vessels competing with fixed gear vessels will decline immediately with the consequence of an immediate decline in the flow of capital into the fishery. Investment in sablefish-specific gear or vessels will be discouraged by the price of sablefish shares while investment in other fisheries will be discouraged by the increased cost per pound of catching fish as the result of increased competition from fixed gear sablefish vessels that have left the sablefish fishery. This shift in the incentive to invest in the fishery will reduce the rate of entry of new vessels and increase the rate of retirement of existing vessels.

There may also be an immediate reduction in investment in fishing vessels and gear which are specific to sablefish. Once the race for sablefish is ended by the IQ program, there will be less incentive to invest in gear specifically for the purpose of increasing the speed with which each vessel can harvest sablefish.

While status quo and IQ each address the overcapacity problem to differing degrees, each also creates other problems which must be considered in determining which alternative best addresses the overcapacity problem along with other fishery goals and objectives. The assessment of these alternatives is contained in the following chapters.

1.3 History of the Groundfish Fishery Management Plan

The domestic and foreign groundfish fisheries in the exclusive economic zone of the U.S. (3 to 200 miles offshore) in the Pacific Ocean off the coasts of California, Washington and Oregon are managed under the Pacific Coast Groundfish Fishery Management Plan. The FMP was developed by the Council under the MFCMA. It was approved by the NOAA Assistant

5/ Assignment of harvest privileges by means of an IQ program would not assign private property rights or access privileges, but would tend to emulate such an assignment. Ownership of the resource would continue to reside with the public.

6/ At the same time, the assignment of IQ does not result in a complete emulation of private property rights. For example, when a fisher high-grades catch to optimize the value of the IQ owned, the cost of the adverse effect on the resource caused by the high-grading is borne by all fishers.

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Administrator for Fisheries on January 4, 1982 and became effective on September 30, 1982. Implementing regulations were published in the Federal Register on October 5, 1982 (at 47 FR 43964) and appear at 50 CFR 663 and Part 620. Seven amendments to the FMP have been implemented including, most recently, an amendment to create a license limitation program for groundfish trawl longline and fishpot gear (Amendment 6) and an amendment to allow the Council to manage the groundfish fishery to protect non-groundfish species (Amendment 7).

1.4 History of Amendment 8

At its November 1991 meeting, the Council (1) directed the initiation of a scoping session for IQ programs for the groundfish and halibut fisheries and (2) adopted November 13, 1991 as a control date beyond which any catch of coastal pelagics, Pacific halibut or any Council-managed groundfish would not be counted in evaluating catch history for the purpose of determining an initial allocation of IQ. The purpose of the announcement of this control date was to prevent speculative fishing which might disrupt the fishery by causing shorter seasons and tighter trip limits. On December 9, 1991, the Council distributed a bulletin announcing this control date coastwide to fishery agencies, industry organizations, Sea Grant field agents, the news media and interested persons. Federal Register notices announced the control date on January 16, 1992 and the initiation of the scoping process on March 6, 1992. The Council held scoping sessions at its March and April 1992 meetings in Seattle and San Francisco, respectively. At the conclusion of the April 1992 meeting, the Council decided to focus on the development of an IQ program for the halibut and fixed gear sablefish fisheries. The Council directed that there should be consideration of involvement of the sport interests in the halibut IQ program. The Groundfish Management Team and Council staff began developing the IQ programs, drawing, as appropriate, on the sablefish and halibut programs developed for Alaska. At the July 1992 meeting, the Council directed that an industry committee be appointed to continue the development of the IQ programs. An industry committee composed of representatives from the commercial and sport halibut fisheries, the fixed gear sablefish fishery, the groundfish trawl fishery and processors met three times between July 1992 and March 1993. Interim reports on the committee's progress were provided to the Council at their September and November 1992 Council meetings, with a final report being issued at the March 1993 Council meeting. At its November 1992, March 1993 and April 1993 meetings, the Council refined the options developed by the industry committee; in some cases expanding the options in new directions and in other cases narrowing them. At the April 1993 meeting, due to work load and budget constraints, the halibut IQ program was set aside in order to focus on rapid development of the sablefish IQ program. The draft program and analysis contained in this document were approved for public review at the November 1993 Council meeting.

1.5 Public Review Process and Schedule

Final action on this amendment is scheduled for the week of March 7, 1994 at the Council meeting in Portland, Oregon. Public hearings will be held in advance of the Council meeting starting at 7 p.m. on the following dates and locations.

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Date	Locations	
February 28	Seattle, Washington	San Francisco, California
March 1	Astoria, Oregon	Los Angeles, California
March 2	Eureka, California	
March 3	Coos Bay, Oregon	

Additional information on locations for hearings is provided with the cover letter to this document or may be acquired by contacting the Council office at 2000 SW First Avenue, Suite 420, Portland, Oregon 97201; telephone (503) 326-6352.

If the Council adopts an IQ program, it will require about 4 to 6 months to prepare the final package and have it clear the secretarial review process. Implementation would likely occur in 1996.

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2.0 DESCRIPTION OF THE FISHERY AND AFFECTED GROUPS

2.1 Sablefish Fixed Gear Fleet Harvest and Management Regulations

The following is a table that shows the acceptable biological catch (ABC), optimum yield (OY), nontrawl gear allocations and exvessel values for sablefish. All of the numbers in this table are in thousands.

Year	ABC (mt)	OY (mt)	Nontrawl Allocation (mt) ^{a/}	Hook-and-Line and Fishpot Catch (mt)	Exvessel Value of Hook-and-Line and Fishpot Catch (dollars)
1984	13.4	17.4	None	4,846.0	3,231
1985	12.3	13.6	None	6,391.2	6,420
1986	10.6	13.6	6.1	5,689.5	6,306
1987	12.0	12.0	5.8	6,169.6	8,580
1988	10.0	9.2-10.8	4.8	5,167.8	8,014
1989	9.0	10.4-11.0	4.6	4,489.6	6,049
1990	8.9	8.9	3.6	3,636.5	5,240
1991	8.9	8.9	3.6	4,444.8	9,746
1992	8.9	8.9	3.6	3,773.0	7,626
1993	5.0-7.0	7.0	2.8	3,125.0	5,336
1994	7.0	7.0	2.6	-	-

a/ Nontrawl limited entry allocation beginning in 1994.

Trawl/Nontrawl Allocation. The trawl/nontrawl allocation actions for 1986-1993 were as follows:

- August 22, 1986 Emergency regulation establishes 55 percent trawl/45 percent nontrawl gear split of remaining quota (OY = 13,600 mt).
- 1987 52 percent trawl/48 percent nontrawl gear split of the sablefish quota (OY = 12,000 mt).
- 1988 52 percent trawl/48 percent nontrawl gear split of the sablefish quota (OY = 10,000 mt).
- 1989 52 percent trawl/48 percent nontrawl gear split of the sablefish quota (OY = 10,378 mt).
- April 26, 1989 Revised quotas establish what was effectively a 58 percent trawl/42 percent nontrawl gear split of the 1989 sablefish OY.

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1990	58 percent trawl/42 percent nontrawl gear split of the sablefish quota (OY = 8,900 mt) (8,600 after deducting tribal catch).
1991	58 percent trawl/42 percent nontrawl gear split of the sablefish quota (OY = 8,900 mt) (8,600 after deducting tribal catch).
1992	58 percent trawl/42 percent nontrawl gear split of the sablefish quota (OY = 8,900 mt) (8,600 after deducting tribal catch).
1993	58 percent trawl/42 percent nontrawl gear split of the sablefish quota (OY = 7,000 mt) (6,700 after deducting tribal catch).

Nontrawl Gear Regulations. The nontrawl gear regulations for 1982–1993 were as follows:

October 13, 1982	3,000 pound trip limit.
December 6, 1985	Closed (all gears).
October 23, 1986	Closed.
October 14, 1987	Closed.
August 26, 1988	Closed.
July 17, 1989	100 pound trip limit.
October 4, 1989	Trip limit of the lesser of 2,000 pounds or 20 percent of total weight on board (no percentage restriction if less than 100 pounds of sablefish on board).
January 1, 1990	Trip limit of the lesser of 2,000 pounds or 20 percent of total weight on board (no percentage restriction if less than 100 pounds of sablefish on board).
January 30, 1990	All trip limits removed after the Secretary of Commerces' disapproval.
June 24, 1990	500 pound trip limit.
July 25, 1990	200 pound trip limit.
October 3, 1990	2,000 pound trip limit.
January 1, 1991	1,500 pound trip limit.
April 1, 1991	No limit (except limits on small fish).
May 24, 1991	500 pound trip limit.
July 1, 1991	Closed.
September 30, 1991	300 pound trip limit.
January 1, 1992	500 pound trip (daily) limit.
March 1, 1992	1,500 pound trip (daily) limit (unless it appears over 440 mt will be harvested, in which case the trip limit will revert back to 500 pounds).
March 21, 1992	500 pound trip (daily) limit.
April 17, 1992	250 pound trip (daily) limit.
May 12, 1992	No limit (except limit on small fish).

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May 21, 1992	250 pound trip (daily) limit.
January 1, 1993	250 pound trip (daily) limit.
May 8, 1993	Fishery closed.
May 12, 1993	No limit (except limit on small fish).
June 2, 1993	Fishery closed.
June 3, 1993	250 pound trip (daily) limit.
January 1, 1994	250 pound trip (daily) limit coastwide except Conception Area, 350 pound trip (daily) limit in Conception Area.
May 12, 1994	Fishery closed.
May 15, 1994	No limit (except small fish).

2.2 Harvesting Firms/Vessels

Harvesting vessels are held under a variety of types of ownership. Individuals, partnerships, corporations and trusts all own U.S. fishing vessels. Harvesting firms may employ one or several vessels.^{1/} There are 4 vessel owners who are expected to receive 2 "A" permits each for their fixed gear vessels. Some harvesting firms are vertically integrated and may also process and wholesale fish. Generally, harvesters of sablefish also harvest other species of fish. Table 2-1 displays the number of vessels which participated in the fixed gear sablefish fishery in 1991 by the number of other fisheries in which they participated. The Alaska data in this table includes only those landings made at ports on the West Coast. Table 2-2 shows number of vessels by the year that they participated and other fisheries these vessel participated in during the year previous to and year subsequent to their participation in the year shown.

Table 2-3 displays number of nontrawl vessels in the sablefish fishery for the last 3 years and the number of those vessels expected to be receiving "A" permits for fixed gear. Table 2-4 shows the percent of revenue from West Coast landings which nontrawl vessels derived from the sablefish fishery in 1991 by total vessel revenue. Table 2-5 shows the same information for vessels receiving "A" permits for fixed gear.

2.3 Processors

According the Fishery Statistics Division of the National Marine Fisheries Service (NMFS) there are approximately 350 fish processors employing approximately 11,000 persons in Washington, Oregon and California (Fisheries Statistic Division, 1991). Each of these processors may have multiple fish buying and processing sites. Processor license information was examined to determine the total number of processing sites handling fixed gear sablefish in 1991. Table 2-6 shows number of fish receiving locations by total amount expended on all fish products and percent expended on fixed gear sablefish in 1991. Table 2-7 shows the number of processing sites and average expenditure on fixed gear sablefish in 1991.

1/ For this reason, caution must be exercised in drawing conclusions about firms based on vessel level information.

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TABLE 2-1. Participation in other fisheries by vessels participating in the 1991 nontrawl sablefish fishery.

Other Fisheries	Vessels Expected to Receive "A" Permits	All Nontrawl Vessels
Tuna	7	19
Halibut	29	83
Salmon	23	89
Crab	41	109
Shrimp	1	90
Other Groundfish	15	436
Alaska ^{a/}	90	30
Other Fisheries	20	97
Total Vessels	117	492

a/ Includes only landings made on West Coast. Does not include Alaska catch landed in Alaska.

TABLE 2-2. Number of west coast nontrawl sablefish vessels by year, that participated in various west coast or Alaskan fisheries during the preceding or following year (non-exclusive categories).

	Sum	West coast sablefish	Other west coast and Alaska	Other west coast groundfish	West coast salmon	West coast other species	Alaska sablefish	Alaska other species	No west coast or Alaska
1985 sablefish vessels	172								
1984	172	63	29	105	45	105	20	38	34
1986	172	104	45	136	69	121	39	50	16
1986 sablefish vessels	237								
1985	237	104	38	166	93	161	28	46	31
1987	237	117	60	184	89	163	63	71	27
1987 sablefish vessels	246								
1986	246	117	51	171	83	163	45	58	45
1988	246	125	54	194	79	180	47	56	21
1988 sablefish vessels	253								
1987	253	125	53	194	78	165	53	61	36
1989	253	128	56	185	79	180	56	64	35
1989 sablefish vessels	256								
1988	256	128	47	202	76	168	43	50	31
1990	256	135	42	209	71	177	39	49	22
1990 sablefish vessels	267								
1989	267	135	41	222	102	186	35	43	21
1991	267	154	*	207	80	178	*	*	40*

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TABLE 2-3. Vessels participating in the nontrawl sablefish fishery in 1990 through 1992.

Vessels in the Nontrawl Sablefish fishery	Year		
	1990	1991	1992
All Vessels	478	492	730
Vessels with Fixed Gear "A" Permits	113	117	116
Vessels Expected to Recieve QS Under at Least One Allocation Option	107	114	105

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TABLE 2-4. Number of vessels nontrawl vessels by total revenue and percent revenue from nontrawl sablefish.

Total Fishing Revenue (\$1,000s)	Percent Revenue from Nontrawl Sablefish					
	<5	5-20	20-50	50-80	80-95	>95
<10	36	22	17	12	4	18
10-25	38	15	8	7	6	11
25-50	30	2	13	18	7	12
50-100	40	3	13	13	6	10
100-200	42	-	10	13	5	6
>200	43	1	3	7	-	1
Total	229	43	64	70	28	58

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TABLE 2-5. Number of vessels receiving permits by total revenue and percent revenue from nontrawl sablefish.

Total Fishing Revenue (\$1,000s)	Percent Revenue from Nontrawl Sablefish					
	<5	5-20	20-50	50-80	80-95	>95
<10	-	2	3	2	-	5
10-25	4	4	4	2	4	1
25-50	6	1	4	6	4	4
50-100	2	-	8	9	4	5
100-200	1	-	7	9	3	5
>200	1	1	2	3	-	1
Total	14	8	28	31	15	21

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TABLE 2-6. Fish receivers and expenditures on nontrawl sablefish as a percentage of West Coast landings received in 1991.

Total Expenditure on Landings (\$1,000s)	Percent Expended on Nontrawl Sablefish Landings					
	<5	5-20	20-50	50-80	80-95	>95
<20	21	3	3	2	1	-
20-100	27	2	2	6	-	3
100-500	28	10	1	1	-	1
500-1,000	22	6	5	-	-	-
1,000-2,000	26	5	4	1	-	-
>2,000	-	-	-	-	-	-
Totals	124	26	15	10	1	4

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TABLE 2-7. Number of processor fish receiving sites by dollars expended on nontrawl sablefish purchases in 1991.

Dollars Expended on Nontrawl Sablefish	Number of Processor Fish Receiving Sites
<1,000	83
1,000-10,000	34
10,000-20,000	9
20,000-100,000	31
100,000-500,000	20
>500,000	3
Total	180

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2.4 Crew

In 1988 a survey of longline and fishpot vessels catching sablefish off California, Oregon and Washington in 1987 was conducted by NMFS (contract with Robert Proctor and Associates). A random sample of 30 vessels stratified by principal sablefish gear, vessel size and state was interviewed to determine alternative fishing strategies (modes), number of trips in 1987 by mode, costs by mode and crew size by mode. These 30 vessels reported making an average of 10.6 sablefish trips in 1987 in waters subject to the Pacific Groundfish Management Plan.

The average crew size for these trips was reported as 4.94 (including the skipper). Average crew size was 5.43 for trips when the sablefish was dressed at sea and was 4.08 when fish were landed round. However, all of the vessels either landed round fish exclusively or dressed fish at sea exclusively, so that the difference in crew size confounds differences in vessels with the different requirements of landing dressed fish (if there is any difference). A higher percentage of California and Oregon landings by both gear types were not dressed at sea.

2.5 Local Communities

To examine "community" dependence redefined Pacific Coast Fishery Information Network database port codes were used to examine total exvessel revenues associated with various port areas and the percentage of there revenues attributed to the fixed gear sablefish fishery in 1991. This data is displayed in Table 2-8.

2.6 Consumers

In the past, most sablefish landings have been destined for the tables of overseas consumers. U.S. fish consumers average 14.9 pounds of fish per year, 6 pounds of which is composed of fresh and frozen finfish. The West Coast sablefish supply is a very small portion of the fish eaten by U.S. consumers.

A survey was conducted of 8 processors who handled about one third of the total 1991 fixed gear sablefish catch. These 8 processors reported that between 85 and 99 percent of the fixed gear sablefish they handled was exported to foreign markets. This information indicates that a substantial portion of the West Coast sablefish product is exported.

2.7 Enforcement

Fisheries enforcement for NMFS is carried out by the NMFS Office of Enforcement. For the State of Oregon, fish and wildlife enforcement is carried out by a division of the Oregon State Police. For Washington and California, fish and wildlife enforcement is carried out by agents employed by the state fish and wildlife management agencies. State fisheries enforcement is important for meeting state conservation goals and the collection of landings taxes.

The Council's Enforcement Consultant committee provides a forum for enforcement agencies to come together and share resources in the effort to jointly enforce compatible state and federal regulations. The Council's Enforcement Consultant committee is composed of representatives from each of the enforcement agencies with responsibility for enforcing regulations governing

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TABLE 2-8. Dependence of ports on nontrawl sablefish landings in 1991.

Thousands of Dollars in Exvessel Value	Percentage of Exvessel Value Landed from Nontrawl Sablefish			
	<5	5-20	20-50	>50
<20	7	-	-	-
20-100	10	-	-	-
100-500	10	-	-	-
500-1,000	8	-	3	-
1,000-5,000	24	2	1	-
>5,000	13	4	-	-
Total	72	6	4	-

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Council-managed fisheries. The group is generally chaired by a state agency representative and has representatives from NMFS, the Coast Guard, and Oregon, Washington and California enforcement bodies.

A cooperative enforcement system is in place which involves cross deputation of agents between the states and NMFS. State and federal agents work in cooperation with each other as necessary. NMFS supplies no funds to the state for enforcement; however, the Magnuson Fishery Conservation and Management Act (MFCMA) does allow reimbursement of state agencies for help in the successful prosecution of federal fishery cases.

NMFS. The NMFS Office of Enforcement is responsible for enforcement of federal regulations related to the Marine Mammal Protection Act, Endangered Species Act and the MFCMA and the investigation of illegal take of fish and wildlife in violation of any other state, federal and international laws (including the Lacey Act). With respect to illegal takings, the NMFS enforcement office is primarily responsible for marine species and the U.S. Fish and Wildlife Service is responsible for freshwater and terrestrial species.^{2/} The total budget for the NMFS Office of Enforcement is about \$10 million with a northwest area budget of \$1.5 million and a southwest area budget of \$1.8 million. These budgets are total figures representing all personnel, travel, contract, rents, communication, supplies and equipment costs. The northwest area staff consists of 19 supervisory and field enforcement officers and 4 administrative personnel. The southwest area staff includes 12 enforcement personnel for the California area and 8 assigned to Hawaii, Guam and American Samoa (Personal Communication from Deputy Special Agent in Charge, William Lutton).

Oregon. The State of Oregon budget for fisheries enforcement is \$390,000 for 5 field enforcement personnel and no support staff. The field enforcement personnel responsibilities include enforcement of all marine fishery regulations and providing routine assistance to NMFS and Coast Guard personnel in the performance of their enforcement duties. These duties include: licensing (sport, commercial, vessels, processors, etc.); monitoring landings of all state and federally regulated species (to ensure compliance with bag limits, trip limits, size and sex limits); monitoring closures (both of seasons and of areas); inspecting plants (to ensure accurate reporting offloadings); and inspecting vessel and gear (to ensure compliance with limited entry permits and harvest methods) (Personal Communication from Lt. L.A. Kraft, Oregon State Police).

Washington. The State of Washington budget for the 7 fishery patrol officers working the coast is \$424,341. These officers work all Pacific Ocean sport and commercial fisheries enforcing catch regulations, landing and recording regulations. They also enforce sport and commercial shellfish, sturgeon and salmon regulations, in inland waters and streams and are responsible for enforcement of habitat protection measures related to activities such as road building and some categories of wetland filling. Cross deputization by NMFS allows the officers to enforce federal laws which relate to their normal duties.

2/ The U.S. Fish and Wildlife Service is also responsible for walruses, sea otters and sea turtles when they come on shore.

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California. California Department of Fish and Game maintains 337 field officers statewide (including supervisors) and an additional 27.5 support staff. The total budget for these positions is \$22.5 million and includes vehicles, boats, supplies, benefits, etc. Responsibilities of these field officers include both fish and game enforcement and investigations of inland and coastal waters pollution violations. Of the field staff, there are about 65 wardens in coastal regions, 16 of which serve on boat crews which enforce marine fisheries laws. Most of the effort by state wardens pertains to state-managed fish. A few wardens familiarize themselves with the complexities of federal fisheries management regulations; however, this is primarily on their own initiative. Federal enforcement officials are largely relied on for enforcement of federal fisheries programs. (Personal Communication from Capt. Phil Nelms, California Department of Fish and Game)

Field Enforcement Activities. The following are the primary field elements of fisheries enforcement activities.

At sea Coast Guard aerial observers note where vessels are and whether they have gear in the water.

The Coast Guard provides a platform for multijurisdictional boarding parties which may include NMFS and state enforcement officers along with Coast Guard personnel. During a boarding, gear is checked, amounts and species of fish are noted, log books are examined and the vessel is checked for proper documentation and permits.

Dockside Enforcement officers may meet a vessel in order to determine whether the vessel has complied with trip limits.

Fish Plant Information on specific landings made by a vessel is obtained from log books and weighout sheets during at-sea and dockside enforcement activities. Enforcement visits to plants may be made to cross check this information against fish plant records and landing tickets. Underreporting on fish tickets may be detected during these visits.

Plants may also be audited to determine whether records for product coming into the plant match with records for product leaving the plant. All shipments leaving the plant must be properly marked and be accompanied by shipping documents which indicate where the shipment came from, the species being shipped, amount shipped, dealer, date and time. Audits of plant inventories, along with receiving, shipping and financial records are one of the most important means by which enforcement officers can detect whether all fish are being reported. The current plant inventory and records provide evidence of the history of activity for the plant and a number of vessels for a period of time. When product is trucked directly from a vessel to market, an "audit" of the truck yields information on only a single or few landings.

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Product in Transit Product in transit (for domestic or export markets) may be checked for proper documentation. If documents are present on all shipments from a plant and illegal or excessive quantities of fish have been received by the plant, some shipments of fish will either be (1) undocumented, (2) sent with documentation which incorrectly identifies the amount of the fish in the shipment or (3) sent with documents not matching shipment records at the plant. The only way to check the latter is with followup checks at the plant. When fish have been moved directly from a vessel to a truck, there must be similar consistencies between documents on the vessel and those with the truck.

2.8 Others

Other groups which may be affected by this program include anyone involved in sablefish market channels, including wholesalers, retailers, restaurants and those with an interest in the value of fishing assets (e.g., banks).

2.9 Social and Socioeconomic Characteristics of Fish Harvesters

Specific studies of the social characteristics of the West Coast sablefish and groundfish fisheries have not been conducted. The descriptive information provided in this section is drawn largely from a general review of the cultures of fishing people conducted by McGoodwin (1990) and studies of other West Coast and U.S. fisheries which may have relevance to the West Coast sablefish fishery.

In evaluating the applicability of information from other West Coast fisheries, it should be kept in mind that there are very few sablefish vessels which do not derive a substantial portion of their income from other fisheries. For example, in 1984, roughly 90 percent of the longline vessels participating in the sablefish fishery derived 50 percent or more of their income from other fisheries (Hastie, 1988). It follows, therefore, that individuals who own and work on these vessels are some segment of a broader fishing community and that studies of these broader communities are likely relevant in describing those who participate in the fixed gear sablefish fishery. The following descriptive information will provide the basis for evaluating some of the social impacts of an individual quota program.

Characteristics of Fishers. Wilen *et al.* (1991) surveyed commercial license holders for all California marine fisheries. This survey included participants in salmon, crab, albacore, shrimp, herring, sea urchin, mackerel, squid and groundfish fisheries. Table 2-9 summarizes household socioeconomic characteristics for owner/operators, nonowner operators and crew members.

Fishers are generally characterized as physically hardy individuals who enjoy outdoor work and take pride in their occupation (McGoodwin, 1990, p. 23). While Gatewood and McCay (1990) stress that there is a great deal of diversity in the characteristics and attitudes of fishers, McGoodwin points out that there appear to be certain commonalities which apply across most

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TABLE 2-9. Fishing Household Socioeconomic Characteristics, California^{a/}

	Total Sample	Owner Operators	Non- Owner Operators	Crew
Fishermen's Characteristics				
Age	45	48	40	38
Years of Education	14	14	13	14
Years of Fishing Experience	13	15	13	8
Years of Non-Fishing Experience	16	17	10	13
Health (scale from 1 to 5)	4.15	4.11	4.02	4.39
Percentage with Spouse	78%	84%	67%	65%
Spouse's Characteristics				
Age	44	45	37	41
Years of Education	13	13	13	13
Employment Experience	16	17	8	15
Health (scale from 1 to 5)	4.12	4.13	3.97	4.19
Percentage with Children				
Under 3	11	10	22	12
Between 4 and 6	9	9	15	7
Between 7 and 12	13	13	20	13
Between 13 and 18	15	17	13	12

a/ From: Wilen, James E., Tzy-Ning Chen, Frances Homaus. 1991. "Fishermen and Labor Markets: Participation, Earnings, and Alternatives in Pacific Coast Fisheries." Department of Agriculture Economics, University of California, Davis. Davis, California. Prepared for the National Marine Fisheries Service, Southwest Fisheries Center, Contract No. 50-ABNF-6-0016.

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of those in the fishing profession. Fishers have been found to have strong feelings of pride and satisfaction in nearly all studies, irrespective of culture and region. This pride in being identified as a fisher is held even by those who spend only a small percentage of time in the fishery (McGoodwin, 1990, p. 23). Though fishers may be proud of their occupation, they may often be held in low esteem by nonfishing neighbors. (McGoodwin, 1990, p. 26).

Fishers often manifest some attributes similar to those of gamblers: a predilection for economic and personal risks, emphasis on individualism and autonomy, desire to be socially unconventional and a need for excitement. (McGoodwin, 1990, p. 30). "Few land based occupations present individuals with the risk of losing all of their productive capital--as well as their lives--every time they go to work" (McGoodwin, 1990, p. 29).

Fishing is a dangerous activity. A study of fisheries in Britain showed a fatal incident rate 20 times greater than workers in manufacturing industries (Thompson *et al.*, 1983). In the U.S., it is more dangerous in terms of loss of life, than coal mining (Poggie, 1980, p. 123). The danger in the occupation may lend a heroic cast. For some, this excitement makes fishing more desirable than other higher income jobs which may provide a greater degree of safety. (McGoodwin, 1990, p. 28). Mortality rates for young crew members are substantially higher than for older fishers, a trend counter to that in most occupations. This higher than normal rate of young person mortality is not apparent for vessel owners and operators (Neutel, 1990). While the Coast Guard attributes many vessel accidents to equipment problems, fishers reviewing those same problems will often attribute accidents to the individuals involved (Van Noy, 1993).

Fishing Families. Table 2-10 indicates that 78 percent of California fishers responding to a survey were married and 36 percent had children. Owner operators were more likely to be married (84 percent) than crew (65 percent).

The physical remoteness of fishing activities has a strong influence on fishing families, particularly for those where the fisher is gone for extended periods of times. Division of labor by sex is reinforced. Fisher's wives may be more independent and accorded more respect within the community (McGoodwin, 1990, p. 24). Fishers who participate in long trips may become estranged from their families. On return to their families after prolonged absence, their presence is often disrupting to the established, ongoing social order. (McGoodwin, 1990, p. 35).

A thesis by Van Noy (1993) hypothesizes that with the rapid expansion of fisheries in the 1970s and 1980s, many of those who have become involved in the fishery no longer have the training and experience which comes from taking part in family fishing operations. Van Noy posits the lack of this experience and source of training as a significant factor contributing to fishing accident rates.

Patterns of Work and Social Relations. Cooperative behavior is an important aspect of the fisher's work environment and may be more significant than in most other work situations. Such behavior is encouraged by the share system (under which most fishers are paid) and safety and survival considerations. The share system makes earnings less certain than for hourly workers (McGoodwin, 1990, p. 33-34). At the same time, the share system "enhances each individual's

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TABLE 2-10. Non-fishing employment alternatives reported by California fishers^{a/b/}

Professional	Service	Skilled Labor	Labor
Accountant	Auto Salesman	Carpenter (7)	Laborer (10)
Aerospace	Apartment Manager	Boat Repair (12)	
Analyst	Barber	Electrician (4)	
Consultant (2)	Bartender	Dry Wall	
Engineer (6)	Bookkeeper (8)	Landscape (4)	
Teacher (9)	Fish Sales	Farmer (3)	
Dentist	Food Sales	Welder (7)	
	Health (2)	Logger (3)	
	Jeweler	Machinist	
	Law Enforcement (2)	Plumber (5)	
	Life Insurance	Waiter (4)	
	Mariculture	Mechanic (14)	
	Post Office	Millworker (2)	
	Printer	Painter (5)	
	Real Estate (6)	Roofer (2)	
	Retail	Service Station	
	Salesman (11)	Trucking (7)	
	Security	Assembly	
	Storage	Woodworker (2)	
	Museum		
	Technician (9)		
	Theater		
	Child Care		
	Finance		

a/ From: Wilen, James E., Tzy-Ning Chen, Frances Homaus. 1991.

"Fishermen and Labor Markets: Participation, Earnings, and Alternatives in Pacific Coast Fisheries." Department of Agriculture Economics, University of California, Davis. Davis, California. Prepared for the National Marine Fisheries Service, Southwest Fisheries Center, Contract No. 50-ABNF-6-0016.

b/ Responses are from 308 of 584 participants in a survey. The number of individuals specifying a category of employment alternatives is one unless otherwise specified by a number following the category.

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perception of himself as being a participant in a common endeavor." (Pollnac, 1988, p. 30). Gatewood and McCay (1990, p. 24) identify a positive relationship between the degree to which a fisher is involved in the strategic aspects of fishing and has control over the means of production and the degree of job satisfaction.

Kinship ties are often a strong factor underlying recruitment to the fishery "because of the need for highly coordinated teamwork at sea and the ever present problems of low incomes" (McGoodwin, 1990, p. 34).

Household Income. The average household incomes for owner/operators, hired operators and crew members responding to a survey of California fishers were \$55,700, \$43,200 and \$27,100, respectively. About 40 percent of fisher spouses work. Those working earn about \$20,000 and worked 43 weeks a year. Fishing income was about half of the total reported household income. Total (and weekly) fishing incomes for owner/operators, hired operators and crew members were \$33,225 (\$1,393 per week), \$32,807 (\$1,131 per week) and \$14,067 (\$730 per week), respectively. Less than \$10,000 was earned from fishing activities by 55 percent of crew respondents and 30 percent of owner/operators and nonowner/operators (Wilén et al., 1991). It should be noted that there may be response bias in the survey on which these numbers are based.

Alternative Employment Opportunities. "Compared with those who do not fish for a living, fishers are usually more mobile, especially geographically, and sometimes economically as well." (McGoodwin, 1990, p. 24).

In a survey of California fishers, a significant portion specified as their alternative trade jobs in the building (21 percent) and logging industries or other fisheries (Table 2-2). The realistic availability of the first two of these alternatives depends heavily on building and business cycles in the general economy. Fishers' income in their next best line of employment was expected to be substantially lower than their 1988 fishery income. Weekly earnings in alternative employment for owner/operators and crew members were expected to be \$627 and \$470, respectively. (Wilén et al., 1991).

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3.0 ANALYSIS OF PROVISIONS AND INTENT OF THE FIXED GEAR SABLEFISH IQ PROGRAM

This chapter contains an analysis of sections of the IQ program contained in Appendix A of this document. The heading for each section of this chapter includes a reference to the corresponding section in Appendix A. A number of sections in Appendix A do not require analysis and are not referenced here.

In some sections, there will be a number of options discussed. In certain cases, options in one section are related to options in another section (options on the general allocation formula and IQ caps).^{1/} Options which are related are grouped together as indicated by their designation as options under either Package A or Package B. Additionally, the second options in Sections 15.9.2.4, 15.9.3 and 15.10.2 are intended to be considered together as a means of reducing the opportunity for significant portions of the sablefish resource to be controlled by absentee interests.

3.1 Nature of the Interest Created (Section 15.4)

The statement on the "Nature of the Interest Created" is intended to make it clear that the Council may modify or abolish the program, as necessary, without reimbursing fishers if the value of the quota share (QS) they control decreases as a result. Its economic effect may be to dampen the value of QS to the extent that QS buyers and sellers believe the program will fail or require modifications which reduce the value of the QS. By making it clear that the public is not relinquishing its ownership and ultimate control of access to the resource, QS value should be somewhat lower, reducing the financial effect of any future change to the program.

3.2 Scope of the Fixed Gear Sablefish IO Program (Section 15.5)

The Council considered a variety of approaches to groundfish IQ, ranging in comprehensiveness from fixed gear sablefish IQ to IQ for all groundfish, either as IQ species or as groups of species with combined quotas. Although no detailed analysis of costs and benefits of the various approaches was available, the Council considered a general qualitative analysis which indicated that potential benefits from an IQ program increase in proportion to the size of the fishery it is applied to and may increase by more if it encompasses competing gear groups or other groups which currently require separate allocations. The analysis also indicated that enforcement and administrative costs for implementing and operating such a system will increase as the scope is enlarged, but not in proportion to the size of the fishery covered.

If it could be shown that the potential benefits would be realized, and if only the costs and benefits described above were considered, then the comprehensive IQ program would produce greater net benefits than the more restricted programs. However, there is considerable uncertainty associated with the expected results of any of these approaches. The short- and long-run effects of these programs on vessel fishing strategies are not known with certainty. Problems and

^{1/} IQ caps are maximum amounts of QS and IFQ which may be (1) held at initial issuance, (2) accumulated and (3) used with a single vessel.

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potential solutions have been tentatively identified with comprehensive approaches, but there is little historical experience with such systems to provide a basis for reliable estimates of costs and benefits. Moreover, by breaking more new ground, the comprehensive approach may take much longer to develop and implement.

In the face of this uncertainty, and in view of the fact that a restricted program scope could be implemented now without having to rule out later expansion to a comprehensive program, the Council chose to proceed cautiously by first considering a relatively simple IQ program, thus, refraining from a larger scale commitment of resources which may be difficult to reverse. The information gained in such a pilot program may then be applied to the design of a more comprehensive program, if the best evidence indicates that such an expansion of scope is desirable.

This incremental approach also involves some risks which must be considered. For example, there is the risk that monitoring mechanisms adopted for a specific fishery IQ program may not be compatible with mechanisms required by a more comprehensive program. Substantial costs could be incurred unnecessarily, for example, if software and hardware for monitoring share ownership and landings were installed which could not be built upon to accommodate any contemplated expansion of the program's scope. There may also be transitional costs associated with the disruption of established fishing practices due to effort being freed from the IQ fishery and diverted into other fully exploited fisheries, just as the Alaskan IQ programs threaten to divert effort into West Coast fisheries (See Section 4.6).

Three options concerning the scope of the fixed gear sablefish IQ program have also been considered by the Council. These options are as follows:

- Option 1. All nontreaty commercial harvest of sablefish in all Council-managed areas by persons using vessels with "A" permits for longline or fishpot gear.^{2/}
- Option 2. All nontreaty commercial harvest of sablefish in all Council-managed areas by persons using vessels with "A" permits for longline or fishpot gear, plus sablefish caught in excess of open access limits by persons using vessels without "A" permits for longline or fishpot gear.
- Option 3. Fifty percent of limited access fixed gear quota covered by the IQ program. ("A" permit holders would be allowed to choose whether or not to participate in the IQ fishery).

Option 3 was ruled out because it would greatly complicate management and enforcement of the fishery, it would introduce additional uncertainty for fishing enterprises, and it would reduce the beneficial effects of the program on fishing effort and capital costs without significantly reducing administrative and enforcement overhead. Management and enforcement would be complicated

2/ Sablefish caught by vessels with "A" permits endorsed for longline or fish pot gear within the Conception INPFC area would be counted as IQ fish even though the Conception area is not currently included in the allocation made to the fixed gear limited entry fishery.

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by the creation of a new quota fishery, the fixed gear limited entry non-IQ sablefish fishery. Great uncertainty as to the size of individual QS in the IQ fishery and the trip limits that would be needed to regulate the non-IQ limited entry fishery would be created by the fact that they would depend on how many vessels opted not to participate in the IQ fishery. The beneficial effects of reducing the incentive to invest new vessels and equipment in the fishery and of eliminating the race for fish would be reduced in direct proportion to the amount of the fishery removed from the program.

The chief benefits cited for Option 3 are (1) it would help "A" permit holders with little or no sablefish landings during the allocation period, (2) it would maintain more vessels in the fishery and would therefore maintain competition in the industry and (3) it would reduce the impact of the plan on coastal communities. Option 3 could help any fixed gear "A" permit holder who wants to fish more sablefish in the future than the permit holder caught during the allocation period, at least in the short run. Vessels which have geared up for sablefish recently, but have not yet established a substantial catch history, could conceivably catch more sablefish under this option by choosing to stay out of the IQ program. However, the desirability of this choice would depend entirely on how many vessels opted out of the IQ program. More vessels would end up in the fixed gear sablefish fishery under this option, which would mean more overcapitalization, more of a race for fish and less change from the status quo. Whether or not any eventual reduction in fleet size would have a negative impact on coastal communities depends on how many QS holders decide to leave fishing altogether and what they decide to do with the money they get when they cash out their QS. If those who sell their QS decide to leave the community, they may take with them at least some of the community income which would be generated from above normal rents expected from the fishery under an IQ program (processor businesses may not be affected since the same amount of fish will be landed by fewer vessels). If, on the other hand, the value of QS bought up in the consolidation process is reinvested locally or used to provide retirement income for exfishers still living in coastal communities, then there may be very little negative local impact of Option 1 and very little benefit to coastal communities of Option 3.

Option 2 would allow open access vessels to expand their sablefish landings beyond open access trip limits by purchasing QS or IFQ from limited entry vessels to cover their overages. It would also allow vessels with "A" permits to sell their permits, acquire additional sablefish QS and specialize in sablefish. This would allow an increase in the number of "A" permit vessels fishing groundfish other than sablefish undermining the effects of the license limitation program. In the absence of additional measures, this option would probably lead to a higher level of capitalization in the groundfish fishery than would Option 1.

Option 2 could also lead to additional discard of groundfish other than sablefish because it allows for a larger scale of sablefish fishing under open access trip limits than would occur otherwise. Bycatch of other species would likely increase but would continue to be restricted by open access trip limits. Hence discards might increase. The Council has indicated its preference to adopt an incremental approach with a pilot program to be developed for the sablefish fish pot and longline

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with increased effort if the Alaskan IQ plans for sablefish and halibut are implemented, and the Alaskan plans have broken ground for solving management and enforcement problems faced by both regional councils in developing IQ programs for their respective fisheries.

Option 1 is the Council's preferred option.

3.2.1 Catch of Fixed Gear Sablefish IQ with Other Gear

Under Amendment 6, all fish caught by a vessel with a limited entry permit count against the limited entry quota regardless of the gear used as long as the fishery for the limited entry gear is open. When the fishery is closed any catch would be counted against the open access quota. Under an IQ program, the limited entry fixed gear sablefish fishery would likely be open year round. Therefore, a vessel would not be able to use an open access gear without the catch counting against the limited entry quota and being subject to the requirement that an IFQ be held to cover the catch. This effectively brings the open access gear catch by these vessels under the limited entry program. The open access trip limits would have to be modified to exclude sablefish harvest by fixed gear limited entry vessels, otherwise the trip limits would limit the amount of IFQ catch which could be taken on a single trip.

3.2.2 Indian Fisheries

The scope of the sablefish IQ program is the fixed gear limited access fishery. There is currently a sablefish set aside for the Northwest Coastal treaty tribes which is made prior to the division of the allowable catch between limited and open access fisheries and the division of the limited entry gear fishery between trawl and fixed gear. Therefore, the amount set aside for Indians will be unaffected by the sablefish IQ program.

The full details of the interrelationship between the treaty and IQ fisheries have not been developed. If the fisheries are managed separately, complexities may arise because vessels move between the fisheries. Issuance of IQ will affect the value of vessels which move between the fisheries.

3.2.3 Recreational Fishery

Currently, there is no sablefish allocation made for the recreational fishery. If an allocation is made between commercial and recreational gear, Amendment 6 to the groundfish fishery management plan (FMP) will continue to apply. Any allocation to the recreational fishery will be made prior to the division of allowable catch between commercial gears. Under the program as specified, recreational fishers would not be allowed to use commercial sablefish IQ under recreational fishing regulations. Thus, there is no anticipated effect on the recreational fishery from the current amendment. Any inclusion of the recreational fishery under the sablefish IQ program would have to occur through a separate plan amendment and would not be likely until recreational/commercial allocation issues arise.

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3.3 Initial Allocation of Sablefish OS (Section 15.6)

In terms of eventual fleet composition and the economic efficiency with which the fleet harvests the sablefish resource, there are many radically different methods of distributing transferrable harvest rights that are likely to yield similar long-term results. If the market for harvest rights operates competitively, if the costs of finding available shares and executing transactions are not high and if efficient producers have reasonable access to the capital necessary for IQ purchases, nearly any initial distribution, even to nonfishing members of the general public, could produce an efficient fishery over some period of time. However, we cannot be sure to what extent any of these conditions will hold following implementation of IQ management. Furthermore, beyond the question of economic efficiency, there are considerations of equity and fairness which can vary considerably among the possible methods of distributing rights.

Particularly in the short term, there are no guarantees that those who would make the most efficient use of the resource will have the ability to purchase the IQ they desire at a competitive market price. Concern over this possibility may suggest that an initial allocation should attempt to direct a substantial amount of the quota towards the most efficient users. While such a course might improve the short-term economic performance of the program, the presence of serious market flaws, including poor access to capital, may adversely affect the long-term benefits.

The use of an IQ mechanism for determining who, over time, will have the right to harvest available fishery resources does not imply that anyone must be granted any amount of shares initially. Conceptually, it is possible to allocate shares through an auction format, to those who are willing to pay the most for harvest rights. An auction could convey rights in perpetuity, or for a shorter period of time, such as 5 years. An auction could even be implemented following an initial granting of rights. For instance, after 3 years, 10 percent of all initially allocated shares might be converted to public ownership and auctioned off, with a similar procedure occurring in each subsequent year.

Utilizing some form of auction system early on may expedite the transition towards a more efficient fishery. However, with a more rapid transition towards an efficient fleet comes an accelerated rate of dislocation for many current participants in the fishery. If the rate of transition does not allow for the assimilation of the fleet's least competitive members into other opportunities for employment, then society may face additional costs in the form of transfer payments (unemployment payments, welfare, etc.). In this regard, however, it should be remembered that status quo management, which has allowed a virtually year-round sablefish fishery to be reduced to an open season of less than a month in the span of 7 years, is not without its own future costs, in terms of dislocated fishers.

In addition to possible efficiency benefits, from an equity standpoint, an auction would place all potential fishery participants on a relatively level playing field--assuming no there are no significant barriers to the access to capital. In other approaches, where shares are given to selected members of the fishing community, those receiving shares are able to participate in the fishery incurring no out-of-pocket cost for the rights to land the amount of quota they were initially allocated. In contrast, anyone not receiving shares who wished to harvest that same amount of fish would have to purchase harvest rights in the market, at a price reflecting the profitability of those shares to their owner. What is likely to emerge following an initial granting

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of rights to some or all current participants, is a situation where different segments of the fleet operate with very different cost structures, as a result of the allocation. This situation would continue at least until all major initial recipients had exited the fishery.

Additionally, when shares are given to individuals, they receive the opportunity to gain a windfall from the sale or lease of fishing rights, unless provisions which would tax some of the benefit away at the time of sale or landing are incorporated into the program. The amount of money which many initial recipients could make upon selling their shares is not trivial. In the Canadian IQ program, the estimated sales price for sablefish QS is roughly three to four times the exvessel landing price in that fishery. Furthermore, this ratio reflects the fact that exvessel prices in that fishery rose considerably following the implementation of their IQ program.

Based on recent fixed gear prices for sablefish in the West Coast fishery, it is reasonable to expect that the price of QS could easily be in the \$2 to \$5 per pound range, initially and perhaps higher subsequently, if exvessel prices rise. An individual receiving a 5 percent share of the quota, would qualify for roughly 275,000 pounds of fish, given a 2,500 mt fixed gear quota. If this level of allowable catch were expected to continue into the future, the recipient might stand to make more than \$1 million from the sale of his QS. Alternatively, the individual would be able to lease out the shares for a sizable sum, perhaps \$100,000 per year, on a continuing basis.

The various approaches for auctioning harvest rights or for taxing IQ (in addition to capital gains taxes which would already apply) at the time of sale or landing, afford the public, as owner of the resource, the opportunity to capture some portion of the benefit that is created through restricting access to the fishery. However, neither of these avenues is currently within the scope of options available to the Council under the provisions of the Magnuson Fishery Conservation Act. The only available option by which the Council could attempt to distribute the newly created net benefit to the public involves initially allocating shares to the public at large. If an initial allocation is made to a large number of people these shares would be very small. These initial recipients would then sell their shares through the market to fishers. From a practical standpoint, however, the costs of initially allocating shares to a very large group of citizens, as well as the costs involved in assembling countless small blocks of fishing rights into usable sums, would likely dissipate much of the potential benefit from implementing IQ management.

Given the unavailability of auction alternatives, the question remains to whom shall harvesting rights be initially allocated. If the objective were to minimize the costs involved in assembling the rights for the future fishery, then allocating shares to those who are most efficient and who plan to remain in the fishery would make sense. If providing some measure of compensation to less efficient participants for leaving the sablefish fishery is a concern, then allocation to a broader set of fishers may be more appropriate. The program may endeavor to reward those who have incurred risk in order to develop the commercial value of this resource. But there are many types of risk involved in fishing.

In a market based economy, such as ours, it is generally the owners of capital, those who have risked a financial position by making an investment that may be lost, who reap the primary financial reward of successful business operations. This type of risk may also provide a rationale

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for issuing shares to the owners of vessels or potentially other operations, such as processing ventures that are dependent upon income from sablefish. However, owners are not the only participants who face risk. Crew members, including skippers, risk their lives routinely in an occupation whose rate of job-related mortality is as high or higher than rates in fire and police departments.

After considering the alternatives, the Council selected vessel owners as the group of individuals who would be the principal recipients of QS. This decision was not based solely on rewarding financial risk rather than personal risk, but also upon the relationship of this decision to numerous other interrelated components of the package. As discussed in subsequent sections, the general approach favored by the Council was to base the amount of the IQ received by a person on that person's level of participation in the fishery. Since all landings are associated with a vessel, the owner of that vessel, whether the current owner or the owner at the time of landing, is a matter of record. However, fish ticket and registration records do not provide a comparable means of establishing a record of participation by crew members.

3.3.1 Qualifying to Receive an Initial Allocation (Section 15.6.1)

The Council considered several options for determining which vessel owners would be eligible to receive an initial allocation of QS. At the most general level, the Council considered the possibility of issuing shares to all owners with a history of fixed gear sablefish landings within a specified window. Based on sablefish landings between 1984 and 1991, the owners of nearly 900 vessels would be eligible to receive QS under this option. Because a large number of these participants caught very small amounts of fish, the majority of recipients would be likely to receive an amount of QS that would entitle them to less than 200 pounds of sablefish per year, at the current level of allowable catch, unless the plan included further provisions addressing a minimum level of allocation. A more detailed review of the data pertaining to this issue and others is presented following discussion of the menu of alternatives addressed by the Council.

The Council considered two other alternatives which would allocate QS to a smaller subset of fixed gear vessel owners. The first alternative would reduce the set of eligible owners to those holding "A" permits for longline or fish pot vessels under the provisions of Amendment 6.

In addition to yielding a higher percentage of qualifiers who would receive meaningful amounts of IQ and requiring "A" permits be held to qualify an initial allocation this alternative builds upon the lengthy process of defining a limited entry fleet undertaken with Amendment 6. However, even though it is important to craft an IQ program that can work harmoniously with Amendment 6, it is also important to recognize that there is a distinct difference between the scope of the initial allocation process and the scope of the use provisions for IQ. In other words, it is possible to allocate QS to a group which is larger than the set of "A" permit holders, but require that an "A" permit be held for actually using IQ, if that is desirable.

The final alternative considered for establishing eligibility for initial allocation of QS was recent participation in the sablefish fishery. The Council evaluated several suboptions on this issue pertaining to the number of landings that would be used to identify recent participation and the time period over which the landings requirement would be evaluated.

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The principal rationale for this sort of requirement is to facilitate a relatively smooth transition into an IQ managed fishery, by focussing the initial allocation on those individuals who are likely to be continuing participants in the fishery. If QS are distributed among a large group, many of whom have no continuing interest in the fishery, it is necessarily the case that those who have remained active in the fishery will receive smaller shares than if those who have left the fishery are not included. This means that the people continuing in the fishery must invest more time and money in assembling an amount of shares that allows them to operate in an efficient manner. Some of the issues of importance for consideration are: (1) at what point does expanding the scope of the program result in an unacceptable proportion of active qualifiers receiving unworkably small amounts of shares and (2) does the fact that someone with previous participation who has left the fishery for several years make that person less deserving of this potential windfall.

In general, the option for requiring recent participation was considered as a narrowing of scope which would be used in conjunction with an "A" permit requirement, rather than being implemented separately. The chief reason for this requiring of an "A" permit along with recent participation involves the fact that the fleet which has traditionally relied upon groundfish, in general, and sablefish, in particular has had its fishing opportunities severely restricted by the influx of new vessels into the fishery. Although many of those entering the groundfish fishery have done so in response to worsening conditions in other fisheries, others who have fished sablefish for years have argued that it would be unfair to reward those who entered the fishery during the height of discussions regarding groundfish limited entry with QS. Therefore recent participation and an "A" permit are required. Still, this issue highlights the dilemma over the appropriate balance of consideration for historical versus current patterns of resource use and dependency.

The Council considered four options for the time frame of a window for determining recent participation. The shortest of these would run from January 1, 1989 to November 13, 1991, roughly 34-1/2 months. Another option utilizing the November 13, 1991 control date published in the Federal Register would begin on August 1, 1988 the day following the close of the Amendment 6 qualification period. This window is 36-1/2 months long. Two other options would run through the end of 1991, one beginning January 1, 1989 (36 months) and one beginning January 1, 1988 (48 months).

Since relatively little fixed gear sablefish fishing occurred between August 1 and the end of 1988, and even less between November 14 and the close of 1991, the largest difference in the number of qualifiers is between the option starting in January 1988 and the other three. The number of fixed gear "A" permit vessels with a sablefish landing between 1988 and 1991 is estimated at between 169 and 184, while the estimate ranges from 129 to 171 if 1989 is used as the beginning year.^{3/} Additionally, the Council considered the level of participation within this period that

3/ Based on data available in the spring of 1993.

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would suffice for indicating participation. Specifically, they considered an option of one landing within the period, versus some higher standard. The Council felt that one landing during the period was sufficient to convey continuing interest in participating in the fishery and that higher standards might unfairly eliminate long time participants whose recent participation was reduced as a result of the decreasing length of the open season.

One of the principal differences between a license limitation program and an IQ program is that licenses are typically all or nothing propositions. In the case of Amendment 6, either the criteria for receiving a permit is or is not met. If a permit is not received, a person is free to operate an appropriately registered vessel to the fullest extent possible within the bounds of prevailing groundfish regulations. However, those not receiving permits are left with no access to the limited entry fishery without buying a permit. IQ offer a greater opportunity for providing varying degrees of access to the resource. Thus, an individual who might be left with nothing under a permit program might be provided some amount of shares which could be viewed as compensation for leaving the fishery, should the person choose to do so. In other cases, this amount of fish may help to sustain fishers for several years until they can either acquire funds for increasing their IQ holdings, or make the transition to a different fishery or career. However, it is difficult to ascertain at what point an allocation of QS becomes so small that it has little chance of effectively serving either of these purposes.

The determination of where the line should be drawn for program eligibility is not an easy one. The decline in harvest levels in several other West Coast fisheries, such as salmon, led many fishers to become increasingly dependent upon sablefish since 1988. While their shift in effort is understandable, it may also be important to recognize that their entry came during a time when the Council was explicitly developing plans to restrict access to the groundfish fishery. From the viewpoint of that part of the fleet which was dependent upon sablefish in the mid-1980s and continues to be active in the fishery, the situation has a completely different appearance than to recent entrants. In 1984, 5,600 mt of sablefish was landed by a total of 109 longline and fishpot vessels, with harvest levels exceeding 6,000 mt in each of the next 3 years. By 1991, longline and fishpot harvests had fallen to 4,300 mt, while the number of vessels participating in this fishery had climbed to 340. Landings of sablefish by vessels which are anticipated to qualify for longline or pot "A" permits fell from 6,700 in 1985 to 2,300 in 1991.

The preferred option of the Council is to restrict the initial allocation to those holding "A" permits, who have also demonstrated recent participation in the sablefish fishery by having made one landing between 1988 and November 13, 1991. This decision was made with the recognition that nonqualifying vessel owners without "A" permits would, in addition to the option of buying their way into the program, have the ability to fish for sablefish in the open access fishery.

Another alternative under consideration is expanding the recent participation requirement to include any longline or fishpot groundfish trip, during the same time-period, as opposed to specifying that sablefish must have been landed. Tabular summaries are not presented to illustrate the difference between these options. There appear to be less than 10 potentially

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qualifying persons with vessels that had groundfish, but not sablefish, landings during the recent window. All of these operations had very small catch histories, and most would receive minimal shares under any of the options. The total shares that would be allocated to these vessels if they were included in the permit catch history, combined with allocation Option A, would be less than 0.3 percent.

3.3.2 General Formula for Initial Allocation to those Qualifying (Section 15.6.2)

3.3.2.1 Catch History Considered in the General Allocation Formula (Vessel/Permit History vs. History as a Vessel Owner) (Section 15.6.2.1)

The Council considered several options for identifying the catch history that would count towards an IQ allocation. The Council began with two original alternatives: one would assign all of the credit for a vessel's landings to the permit or permit rights associated with the vessel and hence the current owner of the permit, and the other would give credit for each landing to the person who owned the vessel at the time the landing was made. Consideration of this issue was complicated by the fact that many members of the fleet have bought or sold vessels and permits, which have varying sablefish catch histories over the past several years, largely with the intent of positioning themselves for a successful transition into the license limitation program. Under the provisions of that program, as long as the vessel meets the specified requirement for numbers of groundfish trips, its owner qualifies for a permit to continue fishing groundfish.

On the one hand, there are cases where a person who did not anticipate the development of an IQ program for sablefish sold vessel X, which had a sizable sablefish history and qualified for an "A" permit, in order to buy vessel Y, a better vessel which was also certain to qualify for an "A" permit, but which had very little in the way of sablefish landings. If all of the vessel's history is assigned to the current owner of the vessel's permit, then the person who sold vessel X in this example receives very little credit for a long and continuing history of participation in the fishery.

On the other hand, there are instances where an individual made conscious business decisions to obtain vessels with significant sablefish history, often paying a premium because of that history, with the expectation of receiving credit for the vessel's entire catch history. Others, without prior ownership experience, bought vessels that would qualify for "A" permits in the expectations of being able to use the vessels to fish for any groundfish species, including sablefish. On this point, it should be noted that for fishpot vessels, sablefish is nearly the exclusive groundfish species landed. If all catch history is assigned to the owner at the time of the landing, these individuals, having paid a premium for an "A" permit vessel with expectations of fishing for sablefish in the limited entry fishery, now find themselves with a qualifying vessel and no opportunity to fish for the principal fixed gear groundfish species without buying IQ.

The Council considered two alternatives which represent compromises between these two extremes. One of these would assign 50 percent of the credit for each pound of fish landed to the current owner of the "A" permit associated with the vessel at the time of the landing, and 50 percent to the person who was the owner at the time of the landing. The latter catch history would only be credited to the previous owner if that individual was currently the owner of an "A" permit with a fixed gear endorsement. This option would leave individuals who had owned the

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same vessel throughout the window period able to claim the same amount of catch as they would under either of the previous alternatives discussed. Someone who sold one vessel and purchased "A" permit rights in 1992 would receive credit for half of the poundage landed by the vessel associated with their current permit during the window, as well as half of the window poundage which was landed with their old vessel while they owned the vessel. This option would provide all individuals who currently own "A" permits and who bought or sold vessels or permits since 1984 with a larger catch history than their worst case scenario using the first two alternatives, but with less than their best case scenario. However, those who participated in the fishery, but do not own an "A" permit, would not qualify for any catch history.

This option becomes more complex with the addition of a recent participation requirement. For the owners of "A" permits to receive credit for their histories, the "A" permit rights must have been associated with a vessel which made a groundfish or sablefish landing during the recent participation period. For the owners of "A" permits to receive credit for their personal history as an owner, they must have made a landing with a vessel under their ownership during the recent participation period.

The fourth alternative which the Council is considering was one which would give individuals the option of basing their qualifying poundage on either their personal landings history as an owner, or the history of their current "A" permit. Although this alternative avoids the all-or-nothing problem for buyers and sellers, which is the dilemma inherent the first two alternatives, it would allow greater opportunity for manipulation of the system, through short term sales of permits with larger histories, which would entitle the seller to claim a large personal history and the buyer a large permit history. Therefore, the Council specified November 13, 1991 as the date after which any permit transfer would deprive the applicants who are party to the transfer of a choice under this option. The Council has yet to decide what allocation will be applied where a permit transfer occurred after that date: (1) permit history, or (2) personal history as a vessel owner.

3.3.2.2 Catch History Measured in Round Pounds (Section 15.6.2.2)

Two principal alternatives were considered in the search for a suitable measure of a vessel's catch history. These were round weight equivalent poundage and landed value. If poundage is used as a basis for catch history, then landings must be converted to a standard condition. If this adjustment were not made, then vessels which dressed fish prior to delivery would receive less IQ credit for the same amount of catch than vessels which delivered whole fish. The poundage that would have been landed if all fish had been delivered in the round is referred to as the round weight equivalent poundage and is used here as the standardized measure.

The use of poundage suffers from the drawback that the fish ticket codes which indicate whether the fish have been landed in a round or dressed condition are not always recorded. Roughly 25 percent of the fishpot and longline sablefish caught and landed between 1984 and 1991 did not have a condition code recorded. Nearly all of the poundage associated with these "unspecified" condition codes was landed at California ports. Where this information is lacking, assumptions must be made regarding the dress condition of the landings, which introduce an opportunity for error in calculating the round weight equivalent poundage of a landing. While this measure gives the appearance of regional bias, communications with California processors

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have indicated that virtually none of the sablefish they receive has been dressed. Therefore, the error involved in assuming that all landings without condition codes are round fish appears minimal. In circumstances where fish are dressed, various methods may be used, all of which have differing rates of product recovery from the original whole fish. Since the program proposes a single standard conversion ratio, some individuals may be credited with more or less round fish than their actual catch history.

Because of these problems, the value of sablefish landed was considered as an alternative to using poundage landed as a measure of participation. In its favor, the total value of a landing takes into account whether fish have been dressed at sea. Dressed fish normally receive a higher price per pound, helping to balance the fact that a smaller poundage has been delivered. But the higher price paid for dressed fish also is likely to include payment for the additional labor expended to dress them. Thus, those who dressed fish would be likely to receive more credit for each round weight equivalent pound of fish landed than those delivering whole fish. This bias would have a clear regional effect, since the proportion of fish landed dressed, since 1987, increases consistently from nearly zero in California to more than 99 percent at Puget Sound ports. Additionally, since large sablefish receive a price premium, fishers landing an above average portion of larger sablefish would also receive disproportionately more credit towards IQ. Furthermore, even when fish size and condition are held constant, to the extent allowed by the data, there can be significant variation in the price per pound paid to fishers from one port or region to another.

After weighing these considerations, round weight equivalent poundage was selected as the means quantifying participation in the fishery. Analysis of the allocation alternatives was conducted assuming that all landings which were not specifically coded as dressed fish were comprised of whole fish. Additionally, a factor of 1.6 was used to calculate the round weight equivalent of all dressed landings.

Another source of concern in relying on landings data, regardless of whether poundage or value is used, is the presence of unidentified or misidentified gear codings on the fish tickets. All of the landings information for vessels with longline or fish pot sablefish catch between 1984 and 1991 were examined, for evidence of fish tickets which were coded with trawl gear or tickets where the gear of catch was unspecified. In order to determine the potential magnitude of this problem, the sablefish poundage for vessels with some longline or fish pot sablefish catch was summed on trips where gear was unspecified, or where trawl gear was recorded and the species composition was more than 95 percent sablefish. As indicated in Table 3-1, the total amount of sablefish which fell into these two categories over the 1984-1991 period was roughly 1,675 mt, compared to the 41,651 mt attributed to longline or fish pot gear. In general, the problem diminished over the period examined, from 500 mt (10 percent of the longline/fish pot total) in 1984 to 7 mt (0.2 percent of the longline/fish pot total) in 1991. Of the 1,675 mt which appear likely to represent miscoding, roughly 1,200 mt were landed by "A" permit vessels which had recent participation in the sablefish fishery. For the purposes of the analysis, all of the deliveries falling into these two categories were treated as fixed gear landings. Table 3-2 shows the extent of this problem for vessels which made a sablefish landing between 1989 and 1991 and are expected to qualify for an "A" permit.

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TABLE 3-1. Annual amount (metric tons, round weight) of sablefish reported as having been landed with unspecified or trawl^{a/} gear by vessels that have made line^{b/} or pot groundfish landings.

	Tons of Sablefish Landed, By Region								
	1984	1985	1986	1987	1988	1989	1990	1991	1984-1991
Puget Sound	.0	.0	.0	.0	.0	.0	.0	.0	.0
Wash. Coast	.5	.0	.0	.0	.6	.0	.0	.0	1.1
N. Oregon	.0	.0	.0	.0	.0	.0	.0	.0	.0
S. Oregon	.0	.0	.0	.0	.0	.0	.0	.0	.0
N. Calif.	62.6	106.6	234.2	64.1	53.2	14.5	23.1	.2	558.5
Mid. Calif.	437.5	217.0	64.3	68.1	110.4	1.6	123.3	5.4	1,027.7
S. Calif	.3	34.1	16.9	1.2	.2	.3	33.6	1.0	87.7
Coastwide	500.9	357.7	315.4	133.4	164.5	16.5	180.0	6.7	1,675.0

a/ Trawl poundage for these vessels was included if sablefish comprised more than 95 percent of the landing, by weight.

b/ Line tonnage includes limited-entry longline, as well as exempted line gears.

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TABLE 3-2. Annual amount (metric tons, round weight) of sablefish reported as having been landed with unspecified or trawl^{a/} gear by vessels that made sufficient line^{b/} or pot groundfish landings to qualify for an A-permit and which also had recent participation.

	Tons of Sablefish Landed, By Region								
	1984	1985	1986	1987	1988	1989	1990	1991	1984-1991
Puget Sound	.0	.0	.0	.0	.0	.0	.0	.0	.0
Wash. Coast	.5	.0	.0	.0	.6	.0	.0	.0	1.1
N. Oregon	.0	.0	.0	.0	.0	.0	.0	.0	.0
S. Oregon	.0	.0	.0	.0	.0	.0	.0	.0	.0
N. Calif.	27.4	100.6	157.6	55.3	49.9	14.5	23.1	.2	428.6
Mid. Calif.	305.2	60.5	64.3	67.6	110.3	1.6	123.3	5.4	708.3
S. Calif	.0	.5	16.8	.1	.1	.3	33.6	1.0	52.5
Coastwide	333.1	131.6	238.6	123.0	161.0	16.5	180.0	6.7	1,190.5

a/ Trawl poundage for these vessels was included if sablefish comprised more than 95 percent of the landing, by weight.

b/ Due to ambiguous line coding in California, this line tonnage includes landings by vessels which had a sufficient number of landings to qualify for an A-permit, but may not have used limited-entry longline gear.

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An additional gear identification issue involves California landings of longline caught sablefish. Nearly all of such landings during the 1984-1991 period were coded as having been caught with "pole" or "hook and line" gear. These categories also include other types of line gear which are not included in the license limited entry program. Although the current analysis reflects some ambiguity over the number of these vessels which actually used longline gear and the amount of their catch history, it is anticipated that as Amendment 6 is implemented case by case evaluation of such landings will resolve most of the ambiguity regarding gear status of any qualifying vessel prior to initiation of an IQ program.

3.3.2.3 Allocation Period (Section 15.6.2.3)

The Council considered four, wide ranging options for the duration of the period over which to evaluate catch history. Allocation period length in these alternatives ranged from just under 10 years to just under 3 years.

Alternative 1, with the longest allocation period, would include landings from the beginning of 1981 through November 13, 1991, the control date published by the Council in the Federal Register. This option provides greater recognition for those who were active in the fishery earlier in its development. In doing so, however, this option provides the second least emphasis on recent catch patterns. Additionally, this option would go back significantly farther in time than the window which was used for determining qualifiers for "A" permits under Amendment 6. Since the "A" permit is incorporated as a preferred requirement of the IQ program, beginning the IQ window prior to the Amendment 6 window lacks consistency without a strong accompanying rationale.

Alternative 2 would establish an allocation period that would be essentially the same as the Amendment 6 window. While this alternative has a high degree of consistency with Amendment 6, it ignores changes that have taken place in the fishery since 1988. Any limited entry plan must address the recent patterns of resource use and a allocation period whose ending date is already 5 years distant and would be even more distant by the time of implementation would not seem to adequately address recent use.

Alternative 3, would use 3 recent years as the allocation period (August 1, 1988 through November 13, 1991, and would place all of the emphasis of the program upon recent users of the resource. Many vessel owners who for years depended on this fishery for a major part of their income, and who have experienced reduced landings in recent years due to the shortened open seasons and increases in the fleet, would receive smaller allocations than some owners who only began fishing sablefish more recently. Given that the proposed requirement, that only recent participants (who qualify for "A" permits) be included in the initial allocation, provides some assurance that qualifiers have remained involved in the fishery, the question is whether it is fair to totally discount catch during the 1984-1988 period.

The preferred alternative (January 1, 1984 through August 1, 1988 Alternative 4) provides a balance between the interests of those who were successful during the earlier history of the fishery, when year round sablefish fishing was common, and those who became more active

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fishing sablefish in recent years. The proposed requirement of an "A" permit and recent participation to qualify for an IQ allocation insures that a vessel has been active, to some extent, in these differing stages of the fishery. The longer window provides greater benefit to those who have participated throughout the 8-year period.

3.3.2.4 Annual Catch History Weighting Factor (Section 15.6.2.4)

The Council considered a number of different weighting options for different years of the allocation period. Applying no weighting factor was also considered. The two major methods considered were (1) explicit application of a heavier weighting for more recent years (1991=100 percent; 1990=90 percent; 1989=80 percent; 1984-1988=70 percent) and (2) weighting by dividing an individuals catch by the total catch by a group of vessels fishing sablefish in each years. These two weighting methods were not considered mutually exclusive. The groups considered for the latter weighting factor were (1) the total nontrawl gear sablefish catch in the year, (2) all vessels receiving "A" permits for longline and fishpot gear and (3) all vessels receiving "A" permits for longline and fishpot gear and meeting recent participation requirements with a sablefish landing. The Council's preferred option is the third group. Table 3-3 provides a comparison of several of the alternatives considered by the Council for weighting the poundage landed in the window years.

There are two principal purposes which can be served by weighting the actual pounds that were landed in various years differently. One reason for doing so would be to acknowledge that catch occurring in one part of the window period is in some way more important than in another period. For example, it could be argued that in order to minimize the disruptiveness of the program to the current fishery, recent years should receive a higher weight so that the shares allocated will more closely approximate the current pattern of use. Alternatively, it might be argued that those participating in early window years played a greater role in developing the fishery and hence their activity should receive a higher weight.

Another consideration that may be addressed by differential weighting of pounds is variation in the fleet's opportunity to catch fish. One measure of opportunity is the total amount of fish that were caught during a year. Table 3-3 illustrates the generally declining nature of total fixed gear sablefish landings from 1984-1991. The amount landed by the qualifying fleet during 1984-1991 is also shown in Table 3-3, along with the weighting factors that would, if applied to landings within each of the years, result in the same amount of landings across all of the years. Applying these weighting factors to each year's landings is equivalent to saying that individuals receive the same credit for landing one percent of the qualifying poundage in one year as they would for landing one percent in any other year. To achieve this result, a pound landed in 1984 would be worth 71 percent of a pound landed in 1991.

Although the Council's preferred option (represented by the second column from the right in Table 3-3) implies a rather substantial discounting of poundage landed between 1985 and 1988, the weighting scheme selected is designed to adjust the relative importance of landings, in part, on the basis of the changing opportunity across years. Other conditions include balancing credit for long-time participation against recent participation. Table 3-3 also shows how the weighting of the preferred approach would have been modified by an additional attempt to weight recent years more heavily.

TABLE 3-3. Comparison of the relative emphasis given to poundage landed between 1984 and 1991, given various denominators for calculating annual percentages. (Based on April 1993 estimates of vessels qualifying by meeting the Amendment 6 minimum landing requirements).

Year	Fixed-gear catch (Used as a Denominator)			Ratio of Catch to 1991 Catch	Implicit weighting of pounds, using various denominators to calculate annual percentages					
	All fixed gear vessels	A- permit vessels	With recent participation		All fixed- gear landings	All A-permit landings	A-permit vessels with recent participation	+ wtd ^{a/}	+ wtd ^{a/}	
1984	5,632	5,515	3,254	1.29	0.78	0.54	0.42	0.29	0.71	0.50
1985	9,946	6,706	4,581	1.59	0.63	0.44	0.34	0.24	0.50	0.35
1986	6,250	5,877	4,850	1.43	0.70	0.49	0.39	0.27	0.48	0.33
1987	6,435	5,945	5,147	1.47	0.68	0.48	0.39	0.27	0.45	0.31
1988	5,474	4,778	4,261	1.25	0.80	0.56	0.48	0.34	0.54	0.38
1989	4,491	3,388	3,388	1.03	0.97	0.78	0.68	0.54	0.68	0.54
1990	3,725	2,682	2,682	0.85	1.17	1.06	0.86	0.77	0.86	0.77
1991	4,373	2,306	2,306	1.00	1.00	1.00	1.00	1.00	1.00	1.00
	43,326	37,197	30,469							

a/ + wtd= The following explicit weighting scheme has been applied in addition to the weights established by using the measures of catch in the year as a denominator: 1991=1.00; 1990=0.9; 1989=0.8; and, 1984-1988=.07

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3.3.2.5 Allocation Formula (Section 15.6.2.5)

As of December 15, 1993 a total of 143 permits for longline or pot gear had been issued which also met the requirement of a fixed-gear sablefish landing during the recent window period. Using State registration files and Limited Entry application materials, an attempt was made to identify a personal ownership history for the current owners of these permits. A total of 139 owning entities were currently associated with these permits, with four parties owning 2 permits each. When reviewing the following material, it is important to remember that not all of limited entry permit applications had been resolved when the data for this analysis was compiled in mid-December. Analysis of cases that were pending indicate generally small catch histories. However, if an additional 10 to 15 qualifiers met the criteria for full equal shares under some of the options, the size of those equal shares could drop by 10 percent.

It is important to emphasize that this analysis has not attempted to identify a detailed ownership history for the vessels involved. In many cases the ownership history is a very complex mixture of individual owners for some periods mixed with partnership or corporate ownership for other years. It is difficult to reconcile some of the demands of the personal history approach with these complex ownership situations. Currently it is assumed that where current joint owners of a permitted vessel each had personal ownership history as individuals earlier in the window, that the program may allow the partnership and each of the individuals to claim a personal history. In some cases, this may give rise to some individuals receiving landing credit for all 8 of the window years.

Annual catch histories for each permit and each current owner of a permit were used to calculate weighted annual landings amounts and in turn, QS percentages based on whether all credit for the landings was given to the current owner of the permit (permit history) or the person who owned the vessel at the time of the landing (personal history). These values, along with the unweighted average and total window landings of fixed-gear sablefish for each owner, were then used to calculate QS under the options calling for some form of equal sharing among all qualifiers, and also for the parallel set of options involving either a 50/50 percent weighting of personal and permit histories, or offering owners their choice of either history.

The estimated distributions of QS among qualifiers are presented in Tables 3-4 through 3-7. Each table provides a set of information for the three allocation options combined with one of the catch history options. The three options within each catch history group ("family") are A) 100 percent allocation on the basis of the best 5 of 8 years; B-1) setting aside up to 25 percent of the total shares to be distributed using an equal sharing plan, in which owners would qualify for all or part of the full equal share on the basis of average landings during the window; and B-2) setting aside 25 percent of the shares to be divided equally among all qualifiers, but with the restriction that only those with 3,000 pounds of total allocation period landings would receive any allocation. The data for each option are shown in a set of five columns, with ranges of QS percentages indicated in the far left column of each table. The 5 columns provided for each option indicate, in order, the number of persons with QS percentages in the range specified; the percentage of all 139 owners accounted for by the number in that range; the cumulative percentage of owners in ranges up to through that level; the total amount of QS represented by owners in that range; and the cumulative percentage a QS in ranges up through that level.

TABLE 3-4. Distribution of Quota Shares, according to personal history, among A-permit owners (as of December 15, 1993) with recent sablefish landings using the best 5 of 8 years, under Options A, B-1, and B-2.

Quota share percentage	Option A: 100% Historical			Option B-1: Modified Equal Shares			Option B-2: Straight Equal Shares, 3,000 lb cutoff		
	#	applicants %	quota share cum %	#	applicants %	quota share cum %	#	applicants %	quota share cum %
no allocation	13	9.353	.000	13	9.353	.000	27	19.424	.000
.00001-.00010	2	1.439	10.791						
.00010-.00025	1	.719	11.511						
.00025-.00050	1	.719	12.230						
.00050-.00100									
.00100-.00200	4	2.878	15.108						
.00200-.00300	2	1.439	16.547						
.00300-.00400									
.00400-.00500	1	.719	17.266						
.00500-.00750	2	1.439	18.705						
.00750-.01000	5	3.597	22.302						
.01000-.02000	3	2.158	24.460						
.02000-.03000	1	.719	25.180	10	7.194	16.547			.281
.03000-.04000	1	.719	25.899	8	5.755	22.302			.268
.04000-.05000	2	1.439	27.338	1	.719	23.022			.590
.05000-.07500	3	2.158	29.496	1	.719	23.741			.646
.07500-.10000	8	5.755	35.252	1	.719	24.460			.743
.10000-.20000	15	10.791	46.043	6	4.317	28.777			1.820
.20000-.30000	7	5.036	51.079	14	10.072	38.849			5.331
.30000-.40000	10	7.194	58.273	13	9.353	48.201			9.734
.40000-.50000	7	5.036	63.309	12	8.633	56.835			15.239
.50000-.75000	12	8.633	71.942	21	15.108	71.942			13.013
.75000-1.00000	11	7.914	79.856	12	8.633	80.576			10.544
1.00000-1.50000	11	7.914	87.770	11	7.914	88.489			12.631
1.50000-2.00000	3	2.158	89.928	4	2.878	91.367			51.426
2.00000-3.00000	5	3.597	93.525	4	2.878	94.245			68.077
3.00000-4.00000	2	1.439	94.964	4	2.878	97.122			14.502
4.00000-5.00000	5	3.597	98.561	3	2.158	99.281			12.414
5.00000-7.00000	2	1.439	100.000	1	.719	100.000			5.006
7.00000-9.00000									100.000
	139			139			139		

TABLE 3-5. Distribution of Quota Shares, according to permit history, among A-permit owners (as of December 15, 1993) with recent sablefish landings using the best 5 of 8 years, under Options A, B-1, and B-2.

Quota share percentage	Option A: 100% Historical			Option B-1: Modified Equal Shares			Option B-2: Straight Equal Shares, 3,000 lb cutoff		
	#	applicants %	quota share cum %	#	applicants %	quota share cum %	#	applicants %	quota share cum %
no allocation									
.00001-.00010	3	2.158	.000				14	10.072	.000
.00010-.00025									
.00025-.00050	1	.719	.000						
.00050-.00100	3	2.158	.003						
.00100-.00200	4	2.878	.007						
.00200-.00300									
.00300-.00400	1	.719	.004						
.00400-.00500	1	.719	.005						
.00500-.00750	4	2.878	.026						
.00750-.01000	2	1.439	.016						
.01000-.02000	4	2.878	.060						
.02000-.03000	2	1.439	.049	11	7.914	7.914			.308
.03000-.04000	3	2.158	.098	9	6.475	14.388			.296
.04000-.05000	2	1.439	.087	1	.719	15.108			.645
.05000-.07500	5	3.597	.349	2	1.439	16.547			.118
.07500-.10000	6	4.317	.527	1	.719	17.266			.091
.10000-.20000	9	6.475	1.215	8	5.785	23.022			1.323
.20000-.30000	12	8.633	2.999	16	11.511	34.532			4.031
.30000-.40000	13	9.353	4.369	10	7.194	41.727			3.466
.40000-.50000	8	5.755	3.439	18	12.950	54.676			7.946
.50000-.75000	20	14.388	12.085	27	19.424	74.101			16.739
.75000-1.00000	11	7.914	9.429	14	10.072	84.173			12.323
1.00000-1.50000	8	5.755	9.665	5	3.597	87.770			6.087
1.50000-2.00000	5	3.597	9.103	7	5.036	92.806			11.962
2.00000-3.00000	5	3.597	12.216	4	2.878	95.683			9.575
3.00000-4.00000	3	2.158	11.082	3	2.158	97.842			9.884
4.00000-5.00000	2	1.439	9.040	2	1.439	99.281			8.851
5.00000-7.00000	1	.719	5.542	1	.719	100.000			6.958
7.00000-9.00000	1	.719	8.584						
	139	100.000	100.000	139	100.000	100.000			

TABLE 3-6. Distribution of Quota Shares, according to a 50-50% split of personal and vessel history, among A-permit owners (as of December 15, 1993) with recent sablefish landings using the best 5 of 8 years, under Options A, B-1, and B-2.

Quota share percentage	Option A: 100% Historical			Option B-1: Modified Equal Shares			Option B-2: Straight Equal Shares, 3,000 lb cutoff		
	#	applicants cum %	quota share % cum %	#	applicants cum %	quota share % cum %	#	applicants cum %	quota share % cum %
no allocation									
.00001-.00010	2	1.439	.000				13	9.353	.000
.00010-.00025	1	.719	.000						
.00025-.00050	1	.719	.000						
.00050-.00100	3	2.158	.003						
.00100-.00200	3	2.158	.004						
.00200-.00300	1	.719	.002						
.00300-.00400	1	.719	.004						
.00400-.00500	1	.719	.004						
.00500-.00750	3	2.158	.021						
.00750-.01000	6	4.317	.053						
.01000-.02000	1	.719	.015	3	2.158	.046			
.02000-.03000	2	1.439	.044	10	7.194	.317			
.03000-.04000	3	2.158	.110	9	6.475	.617			
.04000-.05000	2	1.439	.096						
.05000-.07500	4	2.878	.254	1	.719	.055			
.07500-.10000	7	5.036	.608	1	.719	.766			
.10000-.20000	14	10.072	3.282	10	7.194	2.390			
.20000-.30000	9	6.475	4.603	17	12.230	4.182	9	6.475	15.827
.30000-.40000	15	10.791	5.635	10	7.194	3.885	25	17.986	33.813
.40000-.50000	8	5.755	6.250	18	12.950	5.635	14	10.072	43.885
.50000-.75000	14	10.072	8.971	18	12.950	8.212	17	12.230	56.115
.75000-1.00000	14	10.072	12.153	20	14.388	10.933	21	15.108	71.223
1.00000-1.50000	8	5.755	15.485	7	5.036	16.547	19	13.669	84.892
1.50000-2.00000	4	2.878	18.363	4	2.878	19.425	6	4.317	89.209
2.00000-3.00000	3	2.158	20.521	3	2.158	21.583	4	2.878	92.086
3.00000-4.00000	4	2.878	23.399	5	3.597	25.186	4	2.878	94.964
4.00000-5.00000	3	2.158	25.557	2	1.439	26.625	5	3.597	98.561
5.00000-7.00000	2	1.439	27.000	1	.719	27.744	1	.719	99.281
7.00000-9.00000				1	.719	28.463	1	.719	100.000
	139			139			139		

TABLE 3-7. Distribution of Quota Shares, according to the permittee's choice of personal or permit history, among A-permit owners (as of December 15, 1993) with recent sablefish landings using the best 5 of 8 years, under Options A, B-1, and B-2.

Quota share Percentage	Option A: 100% Historical			Option B-1: Modified Equal Shares			Option B-2: Straight Equal Shares, 3,000 lb cutoff		
	#	applicants %	quota share % cum %	#	applicants %	quota share % cum %	#	applicants %	quota share % cum %
no allocation									
.00001-.00010	3	2.158	.000 .000				13	9.353	.000 .000
.00010-.00025									
.00025-.00050	1	.719	.000 .001						
.00050-.00100	1	.719	.001 .001						
.00100-.00200	6	4.317	.009 .010						
.00200-.00300									
.00300-.00400	1	.719	.004 .014						
.00400-.00500									
.00500-.00750	4	2.878	.026 .041						
.00750-.01000	2	1.439	.016 .056						
.01000-.02000	5	3.597	.066 .122						
.02000-.03000	2	1.439	.046 .168	17	12.230	.440 .440			
.03000-.04000	2	1.439	.069 .236	4	2.878	.134 .574			
.04000-.05000	2	1.439	.090 .326	1	.719	.049 .623			
.05000-.07500	5	3.597	.343 .669	1	.719	.055 .678			
.07500-.10000	6	4.317	.497 1.166	1	.719	.084 .762			
.10000-.20000	11	7.914	1.536 2.702	9	6.475	2.296 2.296	10	7.194	16.547 1.876
.20000-.30000	11	7.914	2.714 5.417	17	12.230	4.253 6.549	23	16.547	33.094 5.674
.30000-.40000	15	10.791	5.074 10.491	10	7.194	3.509 10.058	14	10.072	43.165 4.908
.40000-.50000	7	5.036	6.043 13.536	18	12.950	56.115 7.933 17.992	17	12.230	55.396 7.527
.50000-.75000	19	13.669	74.101 11.780 25.316	24	17.266	73.381 14.931 32.923	25	17.986	73.381 15.346
.75000-1.00000	13	9.353	83.453 11.348 36.663	14	10.072	83.453 12.030 44.952	15	10.791	84.173 12.792
1.00000-1.50000	5	3.597	87.050 6.122 42.785	8	5.755	89.209 9.972 54.924	7	5.036	89.209 8.678
1.50000-2.00000	6	4.317	91.367 10.299 53.084	4	2.878	92.086 6.924 61.847	6	4.317	93.525 10.603
2.00000-3.00000	4	2.878	94.245 9.769 62.853	3	2.158	94.245 6.629 68.477	2	1.439	94.964 5.402
3.00000-4.00000	2	1.439	95.683 7.363 70.216	5	3.597	97.842 17.036 85.513	5	3.597	98.561 17.296
4.00000-5.00000	4	2.878	98.561 17.277 87.493	2	1.439	99.281 8.448 93.961	1	.719	99.281 4.145
5.00000-7.00000	1	.719	99.281 5.188 92.681	1	.719	100.000 6.039 100.000	1	.719	100.000 5.753
7.00000-9.00000	1	.719	100.000 7.320 100.000						
	139			139			139		

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Table 3-4 shows distributions for the family of options which rely on personal history for determining the best 5 of 8 years. Data for Option A, in which all shares are distributed according to the best 5 of 8 years formula, are shown in the left set of columns. As an example of how the data are to be interpreted, consider the row of results associated with QS between 0.1 percent and 0.2 percent. For Option A, 15 owners fall within this category, representing roughly 11 percent of the total owners. Forty-six percent of the qualifiers would receive QS that are no larger than 0.2 percent. The total amount of QS that would be allocated to persons in the group is 2.2 percent. And only 3 percent of the total shares would be allocated to persons receiving no more than 0.2 percent shares. The two cumulative columns may be used together to draw the conclusion that the lowest 46 percent of the recipients would receive 3.3 percent of the total shares. Conversely, the top 54 percent would receive 96.7 percent of the shares. It should be noted that because they recently purchased vessels and have no history in the fishery as vessel owners, 13 persons would qualify for no shares under this alternative. This is the only family where options other than B-2--with its 3,000 pound cutoff--have permit owners who receive no allocation.

The second set of columns shows 6 owners, amounting to 4.6 percent of the total, in the 0.1 to 0.2 percent range. Since the cumulative percentage of owners is only 29 percent, this option is observed to provide more owners with at least 2 percent shares (71 percent) than under Option A (54 percent). In Option B-2, only those persons who have personal history of less than 3,000 pounds during the window (19.4 percent of the total) receive shares that are less than .1 percent, because the equal allocation share in this case is slightly more than .2 percent.

Table 3-5 provides a comparable set of information for the family of options where the best 5 of 8 years are based on permit history. In other words, the current owner of the permit receives all of the credit for landings made with the vessel(s) which represent the permit's history. In the case of Option A, it may be observed that no owners are left without an allocation. However, at the other end of the spectrum, this option is the only one in which an owner would receive more than 7 percent of the total shares. Precisely the same number of owners fall above and below the 1 percent to 2 percent levels in this option and Option A using personal history.

Option B-1 in this table, and in Table 3-7 (representing the choice of histories) are the only alternatives in which all permit owners in the generally qualifying group would receive at least a 0.02 percent share. As in Table 3-4, Option B-2 provides a higher minimum threshold for those meeting the 3,000 pound total of window landings.

Table 3-6 shows distributions for the family of options in which the main part of each owner's allocation is calculated by 50 percent based on personal catch history to 50 percent based on the permit catch history option. Because some individuals had no personal history, the minimum amounts of quota received--by those who qualified for some allocation--were somewhat lower in the equal sharing options in this family, than in the previous two.

Table 3-7 provides distributions for the family of options in which each owner is given his/her choice of using personal history or permit history. This family produces distributions that are most similar to those generated using permit history.

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Figures 3-1 and 3-2 provide an illustration of how individual permit holders QS differ under two pairs of options. Figure 3-1 compares allocations using Options A and B-1, using personal history. All of the individual beyond 1 percent QS receive noticeably smaller shares under B-1, as evidenced by the position of the dashed lines below the 45°-line. For Option-A QS below 0.75 percent, the dashes begin to be noticeable above the line, indicating larger shares under Option B-1. Figure 3-2 compares allocations using the Option A results for personal and permit History. Several persons toward the higher end of the distributions have larger differences in shares, depending on the approach. As reflected in the data presented below in Table 3-12, most individual receive larger shares with personal history. However, one can also see that a number of vessels who would receive 0.5 to 2.5 percent QS with permit history, would be allocated very small shares, or none at all.

Tables 3-8 through 3-10 show distributions for 3 of the 12 scenarios outlined above, but with distributions separated according to the gear endorsement(s) held by the owner. Three of the 139 qualifying owners hold endorsements for both gears, and their shares are included in each set of results. The set of columns on the left are for longline endorsements, and those on the right for pot endorsements.

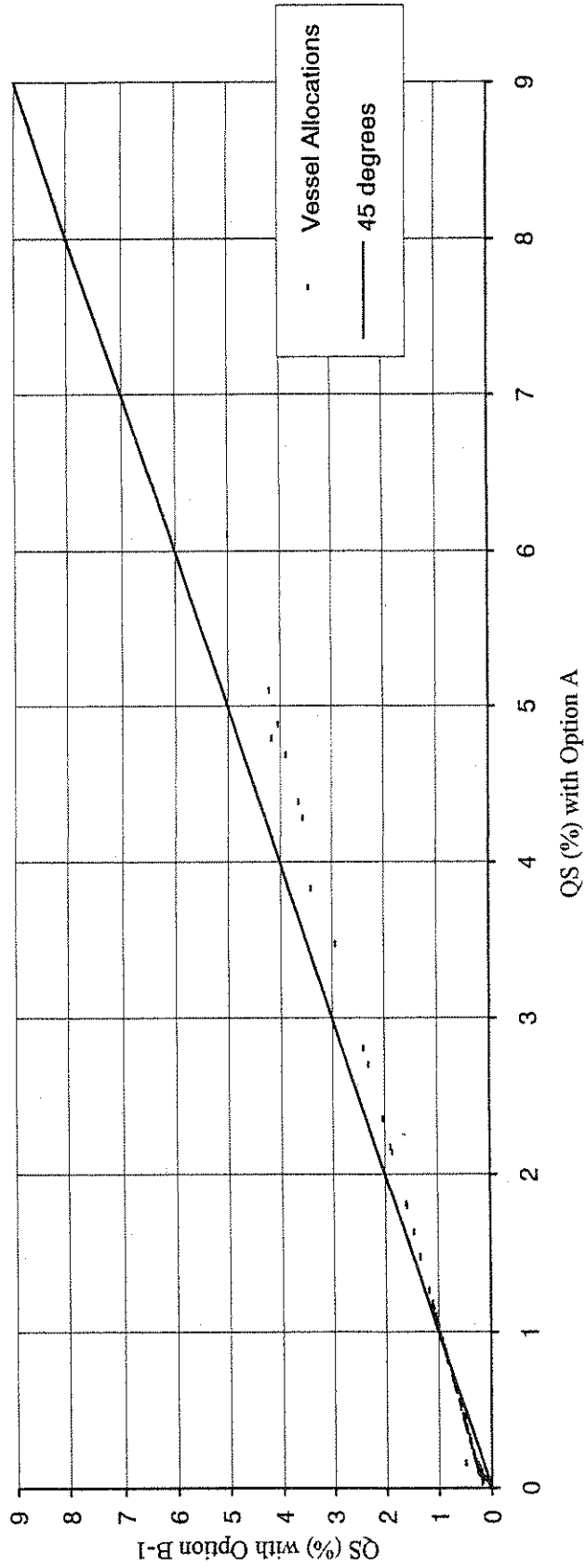
Table 3-8 indicates the distribution for personal history, Option A. The distributions reveal that a vessel receiving a relatively large share--1.5 percent provides a useful point of comparison--has a relatively even chance of being of either gear. Both gears have 11 owners at or above 1.5 percent shares. However, the holder of a qualifying pot endorsement has a far greater likelihood of receiving a large share, based on the catch history of the permittee. Only 3 of 23 pot permits, those from vessels purchased recently, would receive less than a 0.04 percent share, while 32 of 119 longline permits would receive less than this amount.

Table 3-9 illustrates the case of Option B-2, also using personal history. This table clearly illustrates that the chief beneficiaries of this equal sharing option are owners of longline permits. The increase in QS provided to these vessels comes primarily from those with the highest QS in Table 3-7. Proportionately, this burden falls most greatly upon holders of pot permits. However, in terms of numbers of vessels, far more longline vessels contribute to the redistribution of shares under this option.

For comparison with Table 3-8, Table 3-10 provides a gear break-down of the distributions for Option A, using permit history. This option increases the number of pot permits receiving at least 1.5 percent, from 9 to 11, while reducing the number of longline permits in this category, from 9 to 7. However, the number of permits receiving less than 0.5 percent is reduced for both gears, from 33 to 30 for longline, and from 4 to zero for pot.

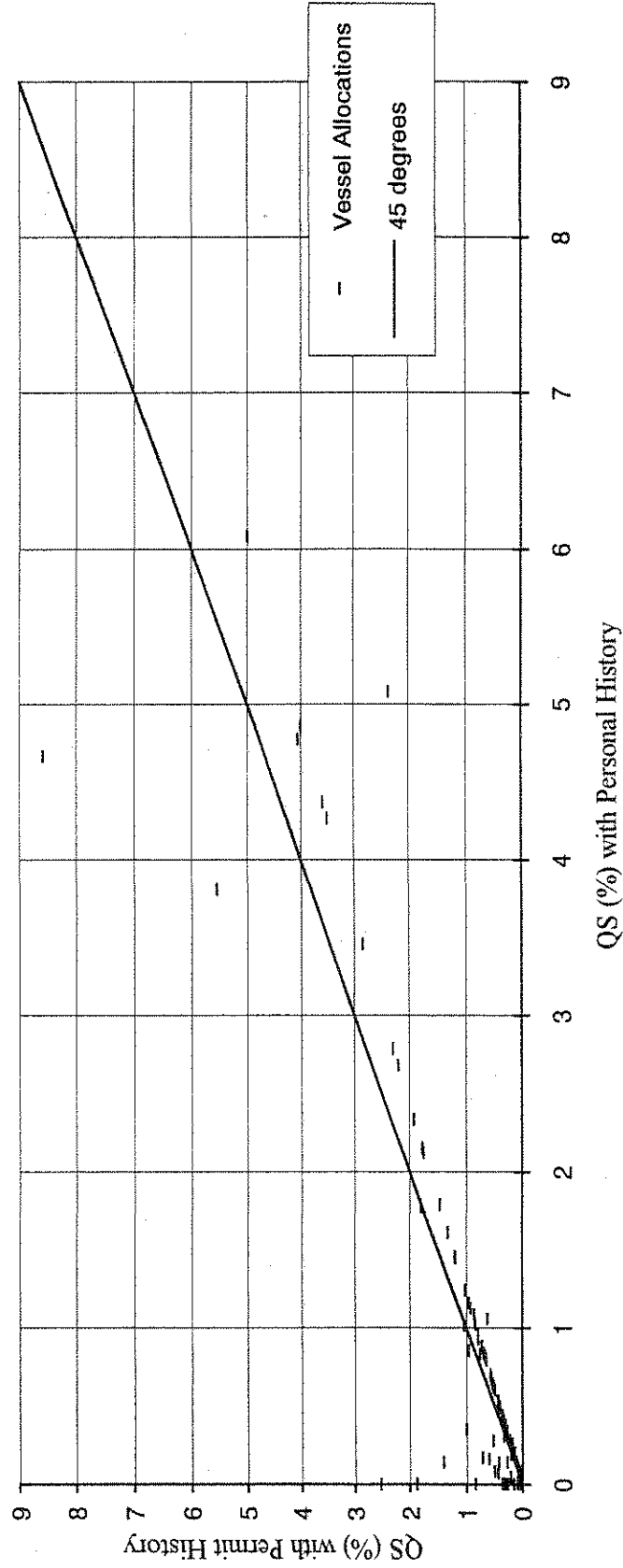
Table 3-11 provides overall distribution summary statistics for the 12 options. Where fewer than all of the 139 permittees qualify for some allocation, the distribution parameters are provided for both the total group, and for just those receiving some allocation. When all permittees are included, the highest median value is obtained with the 50/50 percent split, Option B-2. Where only those who receive shares are included, the personal history, Option B-2 produces the highest median allocation. Including all QS recipients, the highest minimum is produced by Option B-1, using permit history. While, if only QS recipients are included, personal history, Option B-2 results in the highest minimum allocation. Within each family, Option B-2 results

Figure 3-1. QS allocation under personal history with Option A, compared to personal history with Option B-1.



Note: Observations falling below the line represent persons who would receive larger Quota Shares using Option A.

Figure 3-2. QS Percentages using Option A, comparing personal history to permit history.



Note: Observations falling below the line represent persons who would receive a larger quota share using Personal History

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Table 3-8.

Distribution of Quota Shares between longline and pot permit holders, according to **personal history**, among A-permit owners (as of December 15, 1993) with recent sablefish landings using the best 5 of 8 years, under Options A, 100% historical allocation.

Quota share percentage	Quota Shares to longline permittees ¹					Quota Shares to pot permittees ¹				
	applicants			quota share		applicants			quota share	
	#	%	cum %	%	cum %	#	%	cum %	%	cum %
no allocation	10	7.194	7.194	.000	.000	3	2.158	2.158	.000	.000
.00001- .00010	2	1.439	8.633	.000	.000	.	.	.	.	.
.00010- .00025	1	.719	9.353	.000	.000	.	.	.	.	.
.00025- .00050	1	.719	10.072	.000	.001	.	.	.	.	.
.00050- .00100	.	.	.	.	.	.	.	.	.	.
.00100- .00200	4	2.878	12.950	.005	.006	.	.	.	.	.
.00200- .00300	2	1.439	14.388	.005	.011	.	.	.	.	.
.00300- .00400	.	.	.	.	.	.	.	.	.	.
.00400- .00500	1	.719	15.108	.004	.016	.	.	.	.	.
.00500- .00750	2	1.439	16.547	.015	.030	.	.	.	.	.
.00750- .01000	5	3.597	20.144	.043	.073	.	.	.	.	.
.01000- .02000	3	2.158	22.302	.044	.117	.	.	.	.	.
.02000- .03000	1	.719	23.022	.025	.142	.	.	.	.	.
.03000- .04000	1	.719	23.741	.037	.179	.	.	.	.	.
.04000- .05000	1	.719	24.460	.043	.223	1	.719	2.878	.047	.047
.05000- .07500	2	1.439	25.899	.106	.328	1	.719	3.597	.071	.117
.07500- .10000	7	5.036	30.935	.592	.920	1	.719	4.317	.088	.205
.10000- .20000	15	10.791	41.727	2.178	3.098	2	1.439	5.755	.306	.511
.20000- .30000	5	3.597	45.324	1.285	4.383	2	1.439	7.194	.511	1.022
.30000- .40000	9	6.475	51.799	3.275	7.658	1	.719	7.914	.351	1.373
.40000- .50000	7	5.036	56.835	3.093	10.751	.	.	.	.	.
.50000- .75000	12	8.633	65.468	7.455	18.205	.	.	.	.	.
.75000-1.00000	8	5.755	71.223	6.917	25.122	3	2.158	10.072	2.478	3.851
1.00000-1.50000	11	7.914	79.137	12.698	37.820	.	.	.	.	.
1.50000-2.00000	2	1.439	80.576	3.404	41.224	1	.719	10.791	1.777	5.628
2.00000-3.00000	4	2.878	83.453	9.286	50.510	1	.719	11.511	2.786	8.414
3.00000-4.00000	2	1.439	84.892	7.275	57.785	1	.719	12.230	3.813	12.227
4.00000-5.00000	1	.719	85.612	4.863	62.648	4	2.878	15.108	18.079	30.306
5.00000-7.00000	.	.	.	.	.	2	1.439	16.547	11.166	41.472
7.00000-9.00000	.	.	.	.	.	.	.	.	.	.

119

23

^v Three of the permit holders with recent sablefish landings hold endorsements for both longline and pot gear. These permit holders are included in both categories in this table.

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Table 3-9. Distribution of Quota Shares between longline and pot permit holders, according to personal history, among A-permit owners (as of December 15, 1993) with recent sablefish landings using the best 5 of 8 years, under Options B-1, Modified Equal Sharing.

Quota share percentage	Quota Shares to longline permittees ¹					Quota Shares to pot permittees ¹				
	applicants			quota share		applicants			quota share	
	#	%	cum %	%	cum %	#	%	cum %	%	cum %
no allocation	10	7.194	7.194	.000	.000	3	2.158	2.158	.000	.000
.00001- .00010	.	.	.	.	.	.	.	.	.	.
.00010- .00025	.	.	.	.	.	.	.	.	.	.
.00025- .00050	.	.	.	.	.	.	.	.	.	.
.00050- .00100	.	.	.	.	.	.	.	.	.	.
.00100- .00200	.	.	.	.	.	.	.	.	.	.
.00200- .00300	.	.	.	.	.	.	.	.	.	.
.00300- .00400	.	.	.	.	.	.	.	.	.	.
.00400- .00500	.	.	.	.	.	.	.	.	.	.
.00500- .00750	.	.	.	.	.	.	.	.	.	.
.00750- .01000	.	.	.	.	.	.	.	.	.	.
.01000- .02000	.	.	.	.	.	.	.	.	.	.
.02000- .03000	10	7.194	14.388	.281	.281	.	.	.	.	.
.03000- .04000	8	5.755	20.144	.268	.549	.	.	.	.	.
.04000- .05000	1	.719	20.863	.040	.590	.	.	.	.	.
.05000- .07500	1	.719	21.583	.056	.646	.	.	.	.	.
.07500- .10000	1	.719	22.302	.097	.743	.	.	.	.	.
.10000- .20000	5	3.597	25.899	.903	1.646	1	.719	2.878	.174	.174
.20000- .30000	12	8.633	34.532	3.038	4.684	2	1.439	4.317	.473	.647
.30000- .40000	11	7.914	42.446	3.614	8.298	4	2.878	7.194	1.415	2.062
.40000- .50000	11	7.914	50.360	5.035	13.333	1	.719	7.914	.470	2.532
.50000- .75000	21	15.108	65.468	13.013	26.346	.	.	.	.	.
.75000-1.00000	9	6.475	71.942	8.007	34.353	3	2.158	10.072	2.537	5.069
1.00000-1.50000	11	7.914	79.856	12.631	46.984	.	.	.	.	.
1.50000-2.00000	3	2.158	82.014	5.376	52.361	1	.719	10.791	1.598	6.667
2.00000-3.00000	3	2.158	84.173	7.280	59.641	1	.719	11.511	2.397	9.064
3.00000-4.00000	1	.719	84.892	3.401	63.042	4	2.878	14.388	14.502	23.566
4.00000-5.00000	1	.719	85.612	4.039	67.081	2	1.439	15.827	8.375	31.941
5.00000-7.00000	.	.	.	.	.	1	.719	16.547	5.006	36.947
7.00000-9.00000	.	.	.	.	.	.	.	.	.	.
	119					23				

¹ Three of the permit holders with recent sablefish landings hold endorsements for both longline and pot gear. These permit holders are included in both categories in this table.

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Table 3-10. Distribution of Quota Shares between longline and pot permit holders, according to permit history, among A-permit owners (as of December 15, 1993) with recent sablefish landings using the best 5 of 8 years, under Options A, 100% historical allocation.

Quota share percentage	Quota Shares to longline permittees ¹					Quota Shares to pot permittees ¹				
	applicants			quota share		applicants			quota share	
	#	%	cum %	%	cum %	#	%	cum %	%	cum %
no allocation	.	.	.	.	.	.	.	.	.	.
.00001-.00010	3	2.158	2.158	.000	.000	.	.	.	.	.
.00010-.00025	.	.	.	.	.	.	.	.	.	.
.00025-.00050	1	.719	2.878	.000	.001	.	.	.	.	.
.00050-.00100	3	2.158	5.036	.003	.003	.	.	.	.	.
.00100-.00200	4	2.878	7.914	.007	.011	.	.	.	.	.
.00200-.00300	.	.	.	.	.	.	.	.	.	.
.00300-.00400	1	.719	8.633	.004	.014	.	.	.	.	.
.00400-.00500	1	.719	9.353	.005	.019	.	.	.	.	.
.00500-.00750	4	2.878	12.230	.026	.045	.	.	.	.	.
.00750-.01000	2	1.439	13.669	.016	.061	.	.	.	.	.
.01000-.02000	4	2.878	16.547	.060	.122	.	.	.	.	.
.02000-.03000	2	1.439	17.986	.049	.171	.	.	.	.	.
.03000-.04000	3	2.158	20.144	.098	.269	.	.	.	.	.
.04000-.05000	2	1.439	21.583	.087	.356	.	.	.	.	.
.05000-.07500	4	2.878	24.460	.277	.633	1	.719	.719	.072	.072
.07500-.10000	6	4.317	28.777	.527	1.160	.	.	.	.	.
.10000-.20000	8	5.755	34.532	1.032	2.192	2	1.439	2.158	.322	.394
.20000-.30000	10	7.194	41.727	2.576	4.768	2	1.439	3.597	.423	.817
.30000-.40000	13	9.353	51.079	4.369	9.136	.	.	.	.	.
.40000-.50000	7	5.036	56.115	3.007	12.143	1	.719	4.317	.432	1.249
.50000-.75000	19	13.669	69.784	11.434	23.578	1	.719	5.036	.650	1.899
.75000-1.00000	8	5.755	75.540	6.865	30.442	3	2.158	7.194	2.564	4.464
1.00000-1.50000	7	5.036	80.576	8.659	39.101	2	1.439	8.633	2.416	6.880
1.50000-2.00000	3	2.158	82.734	5.424	44.526	2	1.439	10.072	3.679	10.559
2.00000-3.00000	2	1.439	84.173	5.041	49.567	3	2.158	12.230	7.175	17.733
3.00000-4.00000	1	.719	84.892	3.992	53.559	2	1.439	13.669	7.090	24.823
4.00000-5.00000	.	.	.	.	.	2	1.439	15.108	9.040	33.863
5.00000-7.00000	1	.719	85.612	5.542	59.101	1	.719	15.827	5.542	39.405
7.00000-9.00000	1	.719	16.547	8.584	47.989

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^{1/} Three of the permit holders with recent sablefish landings hold endorsements for both longline and pot gear. These permit holders are included in both categories in this table.

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Table 3-11. Comparison of the statistical parameters of the distributions of Quota Shares under 12 alternative allocation options.

	Number of vessels	Parameters of Quota Share distributions					
		Mean	Standard deviation	Minimum	Median	90th Percentile	Maximum
Personal History: A							
	139	.71942	1.18158	.00000	.27807	2.12189	6.08445
vessels w/ QS > 0	126	.79365	1.21735	.00005	.36254	2.15261	6.08445
Personal History: B-1							
	139	.71942	.97326	.00000	.41385	1.87094	5.00572
vessels w/ QS > 0	126	.79365	.99316	.02725	.48228	1.89524	5.00572
Personal History: B-2							
	139	.71943	.92444	.00000	.44123	1.80757	4.78068
vessels w/ QS > 0	112	.89286	.95195	.22123	.53395	1.96586	4.78068
Vessel History: A							
	139	.71942	1.18249	.00004	.34405	1.87770	8.58445
Vessel History: B-1							
	139	.71942	.96108	.02725	.44990	1.65858	6.95825
Vessel History: B-2							
	139	.71942	.91067	.00000	.45646	1.60396	6.63536
vessels w/ QS > 0	125	.79999	.92627	.20000	.50403	1.63209	6.63536
Choice of History: A							
	139	.71943	1.14705	.00004	.33953	1.83544	7.31962
Choice of History: B-2							
	139	.71943	.94767	.02365	.44107	1.64478	6.03874
Choice of History: B-1							
	139	.71942	.89467	.00000	.44592	1.58728	5.75334
vessels w/ QS > 0	126	.79365	.90791	.17457	.48462	1.70454	5.75334
50-50% Split: A							
	139	.71942	1.14613	.00004	.33687	1.93195	6.62577
50-50% Split: B-1							
	139	.71942	.93749	.01438	.44993	1.71115	5.42135
50-50% Split: B-2							
	139	.71942	.88863	.00000	.45815	1.65487	5.17630
vessels w/ QS > 0	126	.79365	.90134	.10067	.49309	1.67585	5.17630

Table 12a. For each of 12 alternative allocation options, the number of owners receiving the specified percentage of the maximum Quota Share under any option.

Size of Quota Share for each option relative to each permittee's largest QS under any option	Personal History			Permit History			Choice of histories			50-50% Split		
	A	B-1	B-2	A	B-1	B-2	A	B-1	B-2	A	B-1	B-2
> 90%	44	79	82	12	36	31	.	.	79	29	56	72
> 80%	45	26	19	37	62	71	50	97	26	22	40	19
> 70%	.	5	6	19	18	13	19	23	5	16	19	20
> 60%	.	4	1	17	10	9	17	6	4	8	6	1
> 50%	.	1	3	8	.	.	7	1	1	14	6	14
> 40%	.	.	.	8	.	.	.	.	.	12	2	.
> 30%	.	1	.	8	4	1	9	2	1	12	2	.
> 20%	10	2	1	8	1	.	8	2	2	8	1	.
> 10%	7	7	.	7	8	.	6	8	7	7	7	.
< 10%	33	14	27	23	.	14	23	.	14	23	2	13
Number of owners receiving their largest QS with this option	26	53	28	10	17	5	0	0	0	0	0	0

Table 12b. For each of 12 alternative allocation options, the number of owners receiving the specified percentage of the maximum Quota Share under Options Personal History-A and Vessel History-A.

Size of Quota Share for each option relative to the largest QS under Personal-A or Permit-A	Personal History			Permit History			Choice of histories			50-50% Split		
	A	B-1	B-2	A	B-1	B-2	A	B-1	B-2	A	B-1	B-2
> 90%	108	99	84	36	100	85	.	94	99	101	99	86
> 80%	10	18	18	95	20	18	139	25	18	7	22	17
> 70%	.	2	5	4	13	12	.	20	2	6	12	17
> 60%	.	1	1	1	6	9	.	.	1	7	5	4
> 50%	.	3	3	1	.	.	.	.	3	18	1	2
> 40%	.	.	.	.	.	.	.	.	.	.	.	.
> 30%	.	1	.	2	.	1	.	.	1	.	.	.
> 20%	3	1	1	.	.	.	.	.	1	.	.	.
> 10%	2	.	.	.	.	.	.	.	.	.	.	.
< 10%	16	14	27	.	.	14	.	.	14	.	.	13
Number of permit owners receiving their largest QS with this option	105	105	105	105	105	105	105	105	105	105	105	105

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in the distributions of QS having the lowest standard deviation, indicating that allocations in these options are more likely to occur within a smaller interval around the mean value of the distribution.

Table 3-12 provides an additional means of comparing how individuals fare, under each of the options described, relative to their best possible outcome. For comparative purposes, two different measures of the best outcome are used in Parts A and B of this table. In Part A, the result for each option is compared against the person's best result under all 12 options. For many individuals with small catch histories, the maximum will occur under one of the equal sharing options, so in Part B, only Option A from the personal and permit catch history options are used in determining the maximum. For both of these approaches, the number of permittees falling within 10 percent-intervals of their highest allocation for each option are shown. The bottom row in each section of the table shows the number of owners whose maximum QS would occur under each of the options.

When all options are included in determining an individual's best outcome, Options B-1 and B-2 for the permit and the 50/50 percent catch history options, along with Option B-1 for the choice of history, provide the fewest number of permittees that would receive less than 50 percent of their maximum (all in the range of 12 to 15 owners). In Part B where the maximum allocations are calculated as Option A, under personal or permit History, three options provide all permittees with at least 50 percent of their maximum: Options A and B-1 using the choice of histories, and Options B-1 using permit history. Noteworthy is the fact that with the choice option, Option A provides all permittees with at least 80 percent of the maximum they would achieve under either of the pure strategies using the best 5 of 8 formula. Option B-1 in the Choice family is not far behind, providing no one with less than 70 percent of the constrained maximum. Compared to other catch history options, the personal history options provide more people with their largest result, but also provide more people with their worst result. As noted previously, many of those who fare poorly under the personal history alternatives are persons who have purchased a qualifying vessel within the last 2 to 3 years.

Confidentiality

In specifying the allocation formula, the Council must also take into account confidentiality issues. There are two issues of concern. The first has to do with revealing to the current owner of a permit financial information about a previous owner of the permit, permit rights or vessel from which the permit was derived. The second has to do with revealing to the vessel owner, financial information about a lessee or other persons associated with the vessel in the past.

The first issue is primarily a concern only in cases where a portion of the allocation is based on the catch history of the permit currently owned. Unless the states are willing to allow revelation of catch history information to an individual who did not own the vessel at the time of the landings, applicants would not be allowed to view the basis on which NMFS calculated their QS. Applicants would be notified only of their allocation and not precisely how it was derived. The allocation formula is complex enough that in most cases the QS recipient would be unable to determine with much precision the actual catch history on which the allocation is based. However, there would still be a potential for revealing confidential vessel information in a restricted number of situations: those where the permit holder knows all but one year of the

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history of a vessel which is or has been associated with the permit. Additionally, among the industry there may dissatisfaction with a situation in which the applicants is not allowed to directly review and verify the basis on which the applicants allocation is derived.

The second issue has to do with the potential for releasing to vessel owners, financial information about a lease holder or other person who has licensed their vessel. Revealing such financial information to the vessel owner would be similar to making confidential financial information about a construction firm available to a company from which it leases its trucks. The problem applies both in situations where allocations are based on permit history and on personal catch history as a vessel owner. It is similar to the issue discussed in the above paragraph in that even if the catch history information is not released to the applicant, in a restricted number of situations there is still a potential for the applicant to be able to derive some information about catch history from the amount of QS received.

As of the date this document was drafted, it appeared reasonably likely that the states would be willing to allow dissemination of vessel information to vessel owners for the time period that they owned the vessel. This would clear the way for allocation based on history of the person as a vessel owner. There is much less certainty about whether information on a vessel's catch history could be released to someone whose only relation to the vessel is that the person currently holds a permit that was in some way associated with the vessel at one time. If this is not possible, the only way the permit history option could be implemented would be to allow NMFS to calculate QS without letting the permit owner know the exact basis of the calculations. Any uncertainty by the applicant about the amount of QS received would have to be resolved by an appeals officer who would examine the record and verify the allocation without divulging it to the applicant.

3.3.2.6 Caps on Allocation (Section 15.6.2.5), Accumulation (15.9.2.1) and Use with a Vessel (Section 15.10.3)

The Council is considering several different options for imposing caps on the amount of QS that can be owned or used. A program with caps is likely to result in more participants in the fishery than a program without caps. On the other hand, if caps are set too low, they may impede fishing operations from attaining an efficient level of harvest. If maintaining the past general structure is an objective of the industry, the fundamental problem is finding a means by which to maintain into the future a large number of low-level producers in conjunction with a few large ones. Table 3-4 through Table 3-10 provide information that can be used to assess how many vessels would be affected by imposing a cap on the amount of QS that could be received initially by any person. As an alternative to no initial allocation cap, the Council is considering restricting initial allocation to no more than 3 percent. The Option A distributions for personal and permit history (Tables 3-4 and 3-5) indicate that 9 and 7 persons, respectively, would have their QS reduced by this option, some by more than 50 percent. Restricting the shares allocated to these persons would result in proportionally equal increases in QS of all other qualifiers--except those just below 3 percent. This type of reallocation is, in this respect, somewhat different from the equal sharing options, which tend to redistribute shares obtained, in a proportional manner, from roughly the upper third of the distribution and re-allocate those shares more heavily to owners with the smallest catch histories.

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The Council is also considering placing caps on the amount of shares that could be accumulated by a person after the initial allocation and of the amount that could be landed using any single vessel. Highline fishing operations during the mid-1980s, when the quota and season lengths were both larger, commonly landed in the 200,000-300,000 pound range, with occasional quantities approaching 1,000,000 pounds. Although quotas have fallen considerably, the optimal amount of fish for a productive operation has probably not changed that much. Table 3-13 contains a chart for converting QS percentages into poundage equivalents, given a 2,500 mt quota for the program. A cap on use at the 3 percent level would restrict annual landings to 165,000 pounds per owner or vessel, depending on the option. This is well below traditional landings amounts in the fishery, and even below what several vessels have landed during the recent window. Even a 5 percent restriction would represent less than 300,000 pounds. A 5 percent limit on the amount that can be landed with one vessel, would not infringe substantially on the desired levels of participation for too many fleet members, but would only guarantee a minimum fleet of 20 vessels. Attempts to insure a larger fleet, through lowering the level of the cap, run the rapidly increasing risk of restricting the profitability of the fishery for the segment which has typically landed most of the fish.

If the intent of a cap is to insure some minimum size for the fleet, then caps on accumulation by persons are a generally ineffective means of accomplishing that by themselves. Alternatively, if the concern is that some individuals will seek to buy up a very large percentage of shares and control the fishery, existing anti-trust laws may already provide a reasonable safeguard.

3.3.3 Issuance of Area Specific QS (Section 15.6.3)

The geographic distribution of QS may have adverse biological consequences, because concentration of fishing effort could cause some localized reduction in stock abundance. In an ideal world, fishing effort would be distributed in proportion to fish abundance and the resulting fishing mortality rate would be evenly spread throughout the stock. However, a variety of factors including interactions with other fisheries, location of major ports, variation in costs of fishing and variations in price of product will cause the distribution of effort to differ from the distribution of fish.

Whether or not localized reduction in abundance has a significant biological impact is difficult to ascertain and depends on the size of the depleted area, the rate of immigration from other areas and the degree to which local recruitment is dependent on the abundance of the local spawning stock. Tagging studies indicate that some sablefish, particularly smaller individuals, may move great distances, but many tagged sablefish are recaptured within the International North Pacific Fisheries Commission (INPFC) area in which they were tagged. In addition, persistent latitudinal patterns in size-at-age indicate that along shore mixing of the West Coast sablefish adult stock is slow. Information on the degree of localized recruitment is completely unknown. Without this information, the safest course is to attempt to maintain a relatively uniform rate of exploitation over the distribution of the stock.

Area specific QS may be needed because:

1. The harvest guideline is already split between the Conception area and northern areas and at least one fisher will want to fish in the Conception area.

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Table 3-13. Chart for converting Quota Share percentages into annual IFQ poundage amounts, given a 2,500 mt quota.

Quota Share Percentage	Annual Poundage Equivalent	
	(mt)	(lbs)
0.00010	0.003	6
0.00025	0.006	14
0.00050	0.013	28
0.00100	0.025	55
0.00200	0.050	110
0.00300	0.075	165
0.00400	0.100	220
0.00500	0.125	276
0.00750	0.188	413
0.01000	0.250	551
0.02000	0.500	1,102
0.03000	0.750	1,653
0.04000	1.000	2,205
0.05000	1.250	2,756
0.07500	1.875	4,134
0.10000	2.500	5,512
0.20000	5.000	11,023
0.30000	7.500	16,535
0.40000	10.000	22,046
0.50000	12.500	27,558
0.75000	18.750	41,336
1.00000	25.000	55,115
1.50000	37.500	82,673
2.00000	50.000	110,230
3.00000	75.000	165,345
4.00000	100.000	220,460
5.00000	125.000	275,575
7.00000	175.000	385,805
9.00000	225.000	496,035
11.00000	275.000	606,265

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2. The current distribution of sablefish abundance and of catch are similar, but not identical (see Figure 3-3). In the future, further division of the coastwide harvest guideline into area specific harvest guidelines may be necessary.
3. Under an IQ program, the distribution of shares may become further concentrated in certain areas. This may exacerbate (2) above.

Table 3-14 shows that the landings pattern may start out being similar to historic catch patterns with the largest changes being a decrease in Puget Sound landings and an increase in southern Oregon landings. This may change over time.

Three possibilities for addressing this issue are:

1. **Ignore areas in the IQ program and accept that future area specific harvest guideline may cause competition (Olympic fisheries) within some areas.** When an area's harvest guideline is reached, fishers with remaining QS would be forced to work in another area for the remainder of the year or sell/lease their remaining QS to someone planning to fish in another area. Subsequently, market forces may redistribute QS among the areas. This option is the simplest to implement and has the greatest flexibility for future modification because IQ management is separate from area specific harvest guideline management. The burden in this option is on segments of the industry that may continue to have to compete for fish in some areas. This would likely reduce the economic benefits from the program.
2. **Ignore areas in the initial distribution of QS, then if area management becomes necessary, area endorsements could be established and each fisher's QS would be split among the areas.** For example, one coastwide QS would be converted into 0.2 southern area QS, 0.5 central area QS and 0.3 northern area QS. Subsequently, to the reissuance of QS as area specific QS, southern area fishers would buy southern QS owned by northern fishers and vice versa until market forces would cause sufficient redistribution. This option seems reasonably straightforward to implement. The work of share redistribution would be greatest under this option.
3. **Put an area endorsement on each initial QS with no trading between areas (as in Alaska).** Even if area specific harvest guideline did not become necessary, the area specific QS would maintain the current geographic distribution of catch. This option probably adds significantly to the complexity of the initial share distribution because each fishers' historical catch would have to be sorted by area.

The Council has rejected the third of these alternatives but has options covering the first two in the draft IQ program.

It is the Groundfish Management Team's (GMT) recommendation that if there is no geographic split in the harvest guideline, IFQs be required to harvest sablefish in the Conception INPFC area as well as northern areas. There is currently no harvest guideline or quota for the Conception area, therefore these fish are not allocated between open access and limited entry fisheries, nor are they allocated between trawl and nontrawl vessels. Since the amount of IFQs issued would be based on the areas north of the

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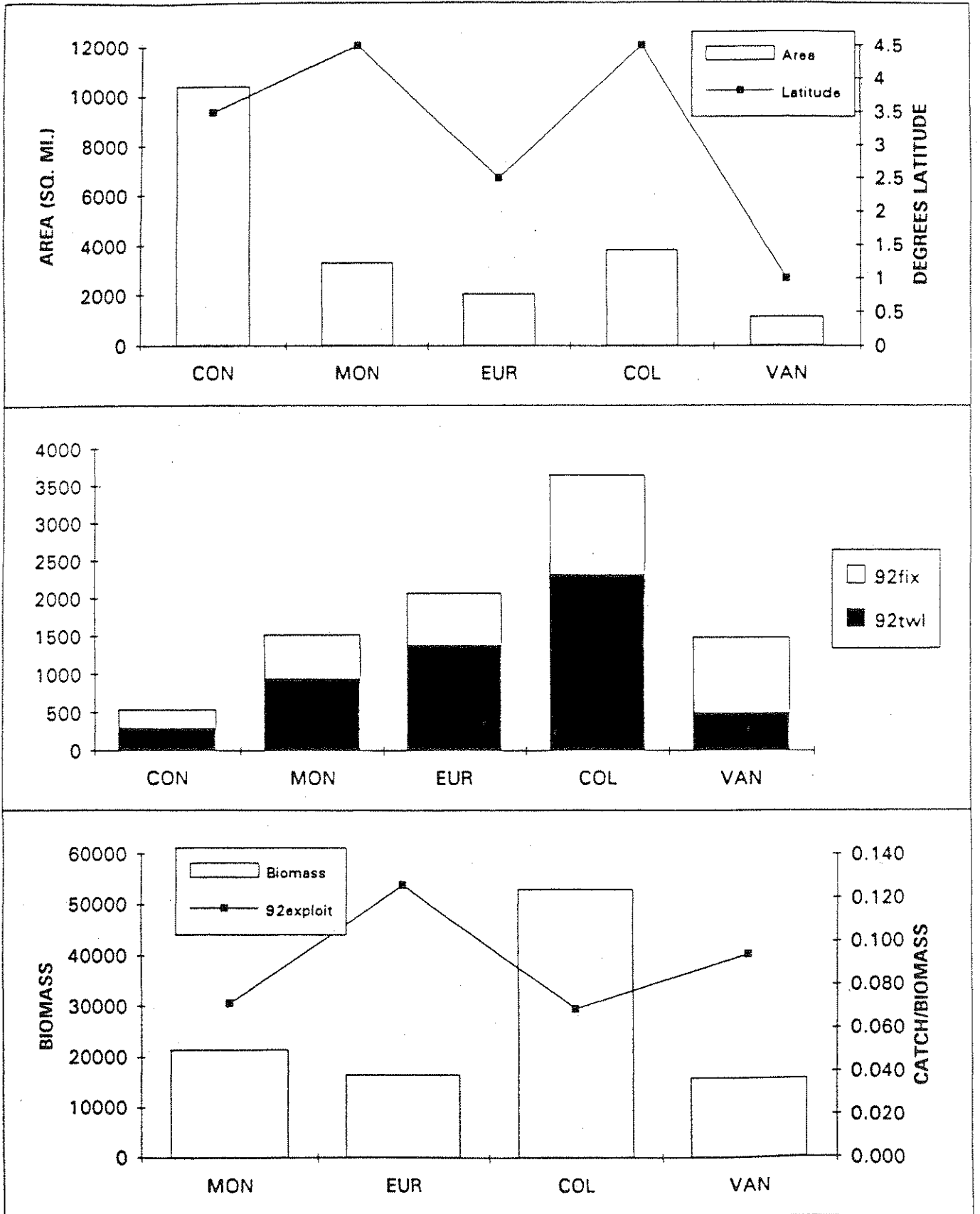
TABLE 3-14. Fixed gear landings and expected distribution of QS by management area.

	Total mt fixed gear landings by region 1984-1991 ^{a/}	Historic regional landings normalized to a 3,000 mt quota	Landings by region if initial IQ recipients retain the shares and land them according to their historical tendency	
			certain	certain+unc.
Puget Sound	11,460.8	793.6	688.1	668.5
Wash. Coast	3,300.4	228.5	187.6	182.5
N. Oregon	8,887.3	615.4	600.9	589.2
S. Oregon	7,899.4	547.0	721.8	702.8
N. Calif.	3,773.9 (3,215.4)	261.3	228.0	262.3
Mid. Calif.	1,680.7 (5,295.5)	116.4	87.7	88.5
S. Calif.	6,323.1 (1,593.0)	437.8	486.0	306.2
Coastwide	43,325.7	3,000.0	3,000.0	3,000.0

a/ Numbers in parentheses are based on actual gear codes reported on the fish ticket. The larger number reported for each area is based on adjustments made to account for misreadings of gear as evidenced by catch composition.

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FIGURE 3-3. Trawl/nonrawl harvest shares and total harvest relative to estimated biomass by International Pacific Halibut Commission area.



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Conception area, treating the Conception area in this way could result in the northern area harvest guideline not being fully taken. The amount of IFQs used in the Conception area is expected to be minimal. If harvest in the area expands at a later date, a harvest guideline may be created and included in the allocation to different groups including the sablefish IFQ program.

3.4 Issuance Appeal Process (Section 15.7)

Appeals will be made to the regional director. If appeals involve confidential information which may not be released to the appellant, records may be reviewed in camera (in private) by a designated hearings officer.

If QS are issued without revealing to the recipient the catch history on which the amount issued was determined, it may be difficult for a person to allege specific errors in the application of allocation rules. To detect an error related to evaluation of catch history, a person would have to know specific information about catch history. A person who does not have this information would have to seek release of the information from the persons whose rights are being protected by keeping the information confidential. This places a heavy burden on the QS applicant to acquire the release of information to which the applicant may not have a standing right of access. Once the information is known, the QS recipient may be able to determine if any errors have been made, but may not be able to determine the exact nature of the error. It may be possible to allow applicants to allege more general facts and circumstances in an appeal (e.g., allege conversion factors have not been properly applied to dressed landings). Absent the applicant's ability to evaluate whether or not allocation rules have been properly applied, a large number of applicants may appeal alleging a variety of general misapplications of the rules which would cover all possibilities.

3.5 Annual Processes under the Sablefish IQ Program (Section 15.8)

The annual allocation process specifies that a harvest guideline be set which may be less than the total amount of sablefish allocated to the limited entry fixed gear sablefish fishery.^{4/} The amount to be harvested under the IQ program is specified as a harvest guideline rather than a quota, so if the harvest guideline is reached prior to the use of all IFQ the fishery does not have to close. The harvest guideline may be reached prior to use of all IFQ due to detected cheating or overages by individual participants. If the fishery were to shut down on attainment of the harvest guideline, toward the end of the year there may be a rush by IFQ holders to use their IFQ

3/ Note that the allocation to the fixed gear fishery does not currently include the Conception INPFC area. However, according to the program scope, any sablefish caught by a vessel with a fixed gear limited entry license is within the scope of the program. This includes vessels operating in the Conception INPFC area. This could result in the under harvest of the quota for areas north of the Conception INPFC area. Based on historic fishing practices, IFQ harvest in the Conception area is not expected to occur to any significant degree. If at some point it becomes desirable, the Council may set a Conception area harvest guideline or quota and allocate a portion of this to the fixed gear limited entry fishery. This would effectively expand the overall harvest guideline on the basis of which IFQ is allocated. Such an action would not require an amendment to this program.

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prior to closure of the fishery (in the style of an open access fishery). This end of the year rush would reduce the expected benefits from the IQ system. If experience showed that overages would be a regular occurrence under the IQ program, the Council would be able to meet conservation goals by setting a harvest guideline below the amount allocated to the fixed gear fishery.

The deferral of harvest under the carryover provisions (Section 15.10.5) would not directly affect the setting of the following year's harvest guideline and amounts of IFQ issued for the year. Under carryover provisions, an IFQ holder may defer until the following year the harvest of an amount of IFQ which corresponds with up to 5 percent of the QS owned or 10,000 pounds of IFQ (whichever is less). Carryover provisions would tend to reduce any last minute rush for fish if the allowable catch for the IQ program was set as a quota rather than a harvest guideline.

3.6 Transfer of OS and IFO (Section 15.9)

3.6.1 Registration of OS and IFO Transfers (Section 15.9.1)

Section 15.9.1 requires that all sales, transfers or leases of QS or IFQs must occur in a manner approved by NMFS. All QS and IFQ assignments and transfers will be administered by NMFS based on regulations established by NMFS. Transfers would not be official until acknowledged by NMFS. The purpose of requiring acknowledgement by NMFS is to make sure the transaction is able to go forward before the purchaser begins to land fish and, for tracking systems which record landings on a real time basis, to make sure the buyers account has been properly credited. With respect to the former point, NMFS must verify that the seller has sufficient QS or IFQ to cover the transfer and that a purchaser is eligible to purchase IQ and will not exceed ownership caps. On the other hand, it might be possible to design a script based tracking system in which script could be signed and transferred between qualified IFQ account holders in the field with little involvement by NMFS, except for the need to verify the buyer's purchase eligibility and make sure that counterfeit script has not been produced. Costs and procedures for QS and IFQ transfers are discussed in Appendix C.

3.6.2 Limitations on Ownership and Holding of OS and IFO (Section 15.9.2)

3.6.2.1 Accumulation Cap (Section 15.9.2.1)

See Section 3.3.2.6.

3.6.2.2 Restriction on Control by Foreign Interests (Section 15.9.2.2)

The Council's preferred option is to require owners of any QS or IFQ to be eligible to document a U.S. fishing vessel. The requirements for documentation and endorsement for fishing are stated in 46 USCS § 8104 and 46 USCS § 12102. They generally require vessel owners to be citizens of the United States or, if the owner is a corporation, then controlling interest in the corporation must be held by U.S. citizens. For the purposes of the application of these sections to a fishing vessel operating in waters off California, aliens lawfully admitted to the U.S. for permanent residence are considered citizens of the U.S. through the year 2000. Greater direct restrictions

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were considered, but rejected as a significant option because of the enforcement burden which would be entailed as a questionable legal basis.

A second option considered was to have no restriction on ownership based on citizenship. Options requiring that the QS/IFQ owner be on board the vessel may also have a significant effect on limited the ability of foreign interests to acquire control of QS and IFQ.

In the absence of restrictions on foreign ownership of QS and IFQ, Japanese importers who currently purchase most of the West Coast fixed gear sablefish landings (or other foreign interests), might seek to control access to the sablefish supply by purchasing a substantial percentage of the total quota. This would have little effect in the short run, unless Japanese holdings were consolidated in a few hands, such that powers (monopoly of buyers) affecting the wholesale price were increased over what they are now. On the other hand, purchasing of QS by one group of buyers could be used as a tactic to prevent the growth of other markets for sablefish.

Given the restrictions on QS accumulation proposed by the Council (3 to 5 percent of total IQ allocation), and the fact that fishing vessels must be owned or controlled by U.S. citizens, it does not seem that a foreign entity could gain much market power through ownership of a QS over what it already has as a buyer of sablefish.

Resident aliens fishing in Oregon or Washington would be prevented from owning a QS or an IFQ by the preferred option, even if they have no connection with any foreign fishing interests.

3.6.2.3 Limited Entry Permit Ownership (Section 15.9.2.3)

The Council's preferred option is to not require ownership of an "A" permit in order to purchase, lease or otherwise acquire QS or IFQ. However, requirement of ownership of an "A" permit endorsed for fishpot or longline gear was also considered. Reasons offered for requiring ownership of an "A" permit are that it would prevent rapid change of the resource access rights and that it would prevent the fishery from being dominated by share owners who are not fishers. Transfers of QS or IFQ would be more restricted under the requirement of having the permit than under the Council's preferred option because it would require new participants in the fishery to raise sufficient capital to purchase "A" permits for groundfish in addition to acquiring sablefish QS or IFQ.

It is not clear what impact, if any, requiring an "A" permit would have on resource ownership. Since sablefish quotas are defined over large areas of the coast, a processor or other interest cannot control the supply of sablefish unless it purchases a large portion of the QS for the entire area over which the quota applies. If this kind of concentration were not prevented by a cap on share ownership, and if economic conditions favored such a concentration, then it would be a relatively minor matter for a processor with capital enough to pursue this strategy to also purchase the single "A" permit required under the alternative option.

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Under the Council's preferred option, it would be possible for investors to purchase shares and lease them to vessel owners assuming QS/IFQ owners are not required to be on board the vessel - see Section 3.7.2). However, in order for this kind of arrangement to dominate the industry it would be necessary for such investors to value the shares more than the fishers to whom the shares would be allocated in the first place. Under Option 1, it would be possible for owners of "A" permits to become such investors so that the majority of the fleet could be "sharecroppers" even though fishers owned all the QS. Without some economic advantage to absentee ownership, however, neither case seems likely to occur.

The alternative option could make it more difficult for a crew member to work into becoming a vessel owner because one route to that status would be to accumulate QS gradually and then use the QS as collateral in financing the purchase of a vessel and an "A" permit.

Requiring "A" permit ownership to own QS or IFQ also might impede the development of market driven specializations such as QS and IFQ arbitrage and brokerage. It could also impede municipalities from purchasing a QS in order to assure continuity in local sablefish harvesting and processing.

3.6.2.4 OS/IFO Acquisition by Individuals, Partnerships and Corporations, Etc. (Section 15.9.2.4)

Options specified in the IQ program are as follows.

Option 1. QS and IFQ may be transferred to any person meeting the other ownership criteria listed in Section 15.9.2. *If this option and Option 2 of Section 15.10.2 is selected, corporations, partnerships and other nonindividual entities will be allowed to hold but not use QS and IFQ.*

Option 2. QS and IFQ may only be transferred to (1) corporations or partnerships and other entities which received an initial allocation of QS and (2) individuals meeting other requirements of this section. *This option has been proposed to increase the effectiveness of Option 2 of Section 15.10.2 which requires the QS/IFQ owner to be on board the vessel when the IFQ is used.*

The intent of the ban on new entry by corporations and partnerships etc. is to make more effective the requirement that the IFQ owner be on board the vessel (Option 2, Section 15.10.2) thus reducing absentee ownership of QS/IFQ. Absent this ban on new entry by corporations and partnerships, under Option 2 of Section 15.10.2 it would be possible for new entrant corporations and partnerships to acquire but not use QS/IFQ. This acquisition could be used in two ways to circumvent the attempt to minimize absentee ownership of QS/IFQ. First, QS could be bought then sold to employees with financing supplied by the corporation or partnership. Contract clauses could stipulate resale to the corporation or partnership on termination of employment. Second, the corporation or partnership might finance the employee's purchase of QS/IFQ from other individuals, with payment due in full on termination. In the latter case, the need to own

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the QS/IFQ only comes into effect if the employee refuses to cooperate in returning the QS/IFQ in the event of termination and the corporation must take action to repossess the QS/IFQ. As is pointed out in Section 3.7.2, given that a number of corporations and partnerships are grandfathered into the IQ program, it is unlikely that absentee ownership of QS/IFQ will be prevented by these provisions.

There is additional discussion of the implications of a ban on leasing in Section 3.7.2 (below), and in Sections 4.3.7 and 4.5.2. in Chapter 5 under the section on National Standard 4.

3.6.3 Leasing (Section 15.9.3)

Options specified in the IQ program are as follows.

Option 1. There would be no restriction on leasing.

Option 2. QS and IFQ may not be leased. This option is implied by Option 2 of Section 15.10.2. *Specifying it as an option in this section makes the ban explicit.*

The intent of the option which would ban leasing is to make explicit for public review what is implicit in the option requiring that the IFQ/QS owner be on board the vessel when the IFQ is used (Option 2, Section 15.10.2). If Option 2 of Section 15.10.2 were selected but leasing explicitly allowed under this section there would be a contradiction within the plan. Therefore if Option 2 of Section 15.10.2 is selected, the option explicitly banning leases must also be selected.

There is additional discussion of the implications of a ban on leasing in Section 3.7.2 (below), and in Sections 4.3.7 and 4.5.2. in Chapter 5 under the section on National Standard 4.

3.7 Use of IFO (Section 15.10)

3.7.1 "A" Permit Required to Use IFO on a Vessel (Section 15.10.1)

The provision that an "A" permit endorsed for longline or fishpot gear must be held for a vessel in order for the vessel to land quota fish is a consequence of the program scope. (See Section 3.2).

3.7.2 Presence of the QS/IFO Owner (Section 15.10.2)

The provisions which would require QS/IFQ owner to be with the vessel when the IFQ is used are not necessarily preferred provisions. At the April 1993 Council meeting, Council members requested an analysis of an option requiring owners of QS/IFQ to be on board the vessel during fishing operations for IQ fish and to sign the fish ticket for such fish upon landing. The specific language of the option, particularly that which related to new entrants as opposed to original QS allocation recipients, and to corporations and partnerships as QS owners, was to be patterned after the North Pacific Fishery Management Council (NPFMC) provisions on this issue. Initial analysis of the option showed that it would be generally ineffective so long as leasing is allowed:

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On the surface, this option would maintain the fishery as one dominated by owner/operators while allowing existing hired skippers to continue. However, in theory at least, corporations could buy up QS, subject to accumulation caps and restrictions on foreign ownership, and lease QS to hired skippers. The lease of shares could be a condition of being hired as a skipper by the QS owner. In this way, a processor, for example, could purchase vessels and QS in order to guarantee itself a stable supply of fixed gear sablefish. Similarly, municipalities could assure themselves of continuity in local sablefish harvesting and processing activities by purchasing QS and leasing them to vessel owner/operators. This provision is more effective within the context of the NPFMC program in which only limited leasing is allowed and only in the early years of the program.

In response to this analysis, the Council directed that options be developed which would ban leasing and explicitly ban non-individual entities from owning QS/IFQ. The intent of the ban on new entrant corporation and partnership ownership of QS was to ensure that these entities do not find ways to acquire QS/IFQ and then arrange for temporary transfers of the QS/IFQ which would be recorded as permanent transfers with NMFS (see Section 3.6.2.4). Based on these directions, Option 2 of Section 15.10.2 was revised as follows:

In order to use IFQ, the [IFQ] owner or lessee must (1) own the QS on the basis of which the IFQ is issued, ~~(1)~~(2) be aboard the vessel during fishing operations and ~~(2)~~(3) sign the fish ticket upon landing, except as follows: corporations, partnerships and individuals who receive an initial allocation of QS may designate a skipper to use their IFQ provided the corporations, partnerships or individual owns the vessel on which the IFQ will be used. These recipients may purchase additional QS and IFQ to be used by a designated skipper, subject to accumulation caps. Provision for use of a designated skipper will cease if and when QS owned and not leased drops below the amount initially allocated to the corporation, partnership or individual, or if there is any change in the identity of a corporation or partnership owning the QS as follows:

A change in the identity of the corporation or partnership will be deemed to occur with a change in the corporate or partner membership, except a change caused by the death of a member providing the death did not result in any new members. Additionally, membership is not deemed to change if a member becomes legally incapacitated and a trustee is appointed to act on his behalf, nor is membership deemed to have changed if the ownership of shares among existing members changes, nor is membership deemed to have changed if a member leaves the corporation or partnership. Changes in the ownership of publicly held stock will not be deemed changes in ownership of the corporation.^{5/}

NMFS may, by regulation, designate exceptions to these provision to be employed in case of personal injury or extreme personal emergency which allows the transfer of QS/IFQ for limited periods of time.

5/ The NPFMC language did not address corporations with publicly held stock.

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In addition, to make the ban on leasing explicit, an option to ban leasing was created (Option 2 of Section 15.9.3). Further, an option to ban corporate and partnership ownership was added -- Section 15.9.2.4, Option 2.

Option 2, requiring the QS/IFQ owner to be on board the vessel, is designed to assure that the fishery will not become dominated by QS owners who do not operate fishing vessels. Option 2, Section 15.9.2.4 (no acquisition of QS/IFQ by corporations, partnerships, etc). is intended to increase the effectiveness of this option. The following analysis examines how effective this option alone would be in achieving the stated goal, considers how this effectiveness might change with the addition of the supporting option banning entry by corporations and partnerships, and finally describes some side effects which these options together may have.

Requiring the QS/IFQ owner to be on board the vessel would make it very difficult for individuals, corporations, or partnerships not qualifying for an initial allocation of QS to establish any kind of absentee owner relationship to the fishery. However, any corporation, partnership, or individual receiving an initial allocation of QS will be able to buy more QS (up to the cap), buy "A" permits and vessels, hire skippers, designate skippers as ITQ users and refrain from personally fishing. If social and economic conditions were to favor this kind of industry organization, then it would probably develop with or without Option 2, except that under this option the attrition of initial QS recipients would gradually reduce and eventually eliminate the class of persons eligible to act as absentee owners. The ban on corporate and partnership ownership (Option 2 of Section 15.9.2.4) would have little effect on this outcome. Corporations, partnerships, and individuals receiving initial allocations would still be able to accumulate QS and use hired skippers, even if no transfer of QS/IFQ were allowed to corporations and partnerships which are not already in the fishery.

By itself, the requirement that the QS/IFQ owner be on board the vessel would still allow the QS/IFQ to be transferred to banks or brokers of various kinds, though its usefulness as collateral might be diminished. Banning the entry by new corporations and partnerships may interfere with the financing of the purchase of QS/IFQ unless exceptions are created which would allow non-individuals to place loans on and repossess QS/IFQ. However, such an exception might create another means of circumventing restrictions intending to prevent absentee ownership. Corporations could finance the purchase of QS/IFQ by an employee conditioned on continuation of the employment. Termination would result in a demand for payment in full and initiation of proceedings to repossess the QS/IFQ.

The option requiring an IFQ owner to be on board the vessel would effectively create two classes of people: those initial QS recipients, who would be allowed to designate skippers to use their IFQ for the, either in response to temporary conditions (e.g., sickness, injury, vacations, conflicting business activities) or to become absentee owners, and those who must be on board their vessel at all times while their IFQ is being used, except when excused for unspecified personal emergencies by the NMFS.

Requiring the owner to be on board would also rule out the acquisition of sablefish QS by municipalities or other non-fishing entities for the purpose of stabilizing local economic activity.

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In general, restrictions on the exchange or use of QS and IFQ will reduce the efficiency gains from trade in QS and IFQ to the extent that they succeed in constraining activities in which owners would otherwise be engaged. It could also lead to increased discards of sablefish if mixed species fishing is pursued and no one than the owner can use the IFQ. This would result in lower prices for quota and thus lower rents to QS and IFQ holders. Since the rents generated by the QS program are a measure of its contribution to the economy as a whole, any measure which reduces them (as opposed to redistributing them) reduces the net economic contribution of the program to the U.S. as a whole.

3.7.3 Cap on Amount IFQ Used With a Single Vessel (Section 15.10.3)

See Section 3.3.2.6.

3.7.4 IFQ Possession Requirements (Section 15.10.4)

The Council considered a number of options for when to that sufficient IFQ be held to cover the IQ sablefish caught on a trip.

Option 1 from the following list has been incorporated into the draft IQ program as the Council's preferred possession requirement.

The vessel owner is responsible for securing sufficient IFQ for quota fish landings and maintaining documentation of the IFQ aboard the vessel:

- Option 1: prior to *take and retention* of quota fish the vessel owner must secure documentation that unused IFQ is held sufficient to cover the catch;
- Option 2. prior to *departure* the vessel owner must secure documentation that unused IFQ is held sufficient to cover the total catch to be harvested on the trip;
- Option 3. prior to *catching the sablefish*, the vessel owner must secure documentation that unused IFQ is held sufficient to cover the catch;
- Option 4. prior to *arrival in port* the vessel owner must secure documentation that unused IFQ is held sufficient to cover the total catch being brought into port;
- Option 5. prior to *offloading*, the vessel owner must secure sufficient IFQ to cover the total catch to be harvested on the trip; or
- Option 6. within two weeks after arrival in port, the vessel owner must secure sufficient IFQ to cover the total landing.

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IQ programs, like other quantitative controls on landings (e.g., fleet quotas and trip limits), can lead to degradation or total loss of management control through systematic underestimation of fishing mortality. Fishing mortality may be underestimated if substantial discard mortality is induced by regulations or if landings are systematically underreported. Effective control of fishing mortality also may be lost under IQ programs if there is no practical way for enforcement to compare a vessel's quota with its landings.

The operative assumption in stock assessment and Council management decisions has been that sablefish discarded in the longline and fishpot fisheries survive. If this is approximately correct, then discard mortality will not be a serious problem in the sablefish fishpot and longline fisheries so long as the regulations do not create situations where dead fish have to be discarded. Tracking fish landings on a round weight basis and tracking vessel IFQ holdings are technical problems which can be solved through development of appropriate reporting, data coding, and data entry procedures and the development of computer software and hardware, as long as fish are recorded in the tracking system. Making sure fish are recorded in the tracking system is a function of the IQ enforcement program.

The IFQ possession requirement options presented to the Council offer a variety of ways for fishing vessels to adjust their landings and their IFQ holdings so that their operations remain legal throughout the fishing year. Landings are adjusted through foresight by the timing of trips and the amount of gear fished. They can be adjusted after the fact of setting gear by discarding fish before or as they are brought on board. Under some conditions, which management regulations should be designed to avoid, they can be adjusted by dumping dead fish before making a landing. IFQ holdings can also be adjusted by leasing or purchasing QS or IFQ. However, the timing of such changes in IFQ holdings and hence the kinds of unexpected events which can be compensated for in this fashion vary according to the option being considered.

The Council's preferred option is to hold the vessel owner responsible for securing sufficient IFQ for quota fish landings and maintaining documentation of the IFQ to be used aboard the vessel. Specifically, prior to the take and retention of quota fish, the vessel owner or designated skipper must have on board documentation that unused IFQ is held sufficient to cover the retained fish. Under an electronic tracking program, prohibiting possession of sablefish without IFQ to cover it would allow the flexibility of purchasing IFQ while at sea in case of a change in plans or expectations concerning sablefish catch on the trip. Under a paper tracking system, this requirement would be the same as requiring the IFQ be held before leaving on a trip.

Other options discussed included requiring sufficient IFQ to cover the catch of sablefish to be held prior to departure, requiring IFQ accounting only on coming into port, requiring IFQ accounting at the commencement of offloading and requiring IFQ accounting two weeks after coming into port with IQ fish. Requiring IFQ accounting only upon entering into port would allow adjustments of IFQ holdings while at sea after fishing is completed. Requiring IFQ accounting at the commencement of offloading would allow a vessel to tie up and, if necessary, send someone ashore to acquire IFQ before the commencement of offloading. Requiring IFQ accounting two weeks after coming into port would allow two weeks to adjust IFQ holdings. The requirement to hold IFQ to cover all sablefish to be landed on a trip in advance of departing on that trip means that no adjustment of IFQ is legal after the trip begins (whether or not this prohibition is enforceable is another question).

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As long as the landings are eventually reported, and as long as vessels are not allowed to go back out and dump fish (they may be required to call in and give their hailed weight in advance of coming into port),^{6/} vessels landing fish in violation of the law can be identified and sanctions administered. However, it is not clear what individual vessels would gain from the added time between coming into port and two weeks later. If the fishery were characterized by sudden, unexpected large catches of sablefish, discarding them could represent a substantial cost to the vessel, while acquiring sufficient IFQ to allow them to be landed could take some time. However, the norm in this fishery is for the fisher to know in advance when to expect sablefish. Under these circumstances, the vessel owner can acquire IFQ in advance if he/she can finance their acquisition.

As the sablefish season winds down and unused IFQ becomes scarce, it will become increasingly difficult to acquire shares on the spur of the moment. Searching time for sellers of IFQ may increase and the price will surely increase. Thus, it will become increasingly risky, as the season progresses, for a vessel to come into port with more sablefish than IFQ. This is a predictable outcome which prudent vessel operators would take into account in planning their trips.

3.7.5 Carry-over Allowances (Section 15.10.5)

Options. Carry-over allowances are a way of adjusting the IFQ holdings in one year by adding or subtracting from the following year. It is equivalent to attributing landings in one year to IFQ held in the previous year. The following is the carry-over allowance option preferred by the Council.

Option 1: A QS *owner* may use a carry-over allowance to adjust their IFQ holdings in a subsequent year based on their use of IFQ in the current year. Up to 5 percent of the total IFQ *owned* or 10,000 pounds of unused IFQ (whichever is less) may be carried over to the next fishing year.

The other options considered were as follows:

Option 2: IFQ may only be used in the year for which they are issued.

Option 3: Up to 5 percent of the total QS, or the QS equivalent of 10,000 pounds (whichever is less) may be used from the next fishing year to cover overage in the current year. The amount of IFQ from the next fishing year used to cover an overage in the current fishing year will be determined on the basis of the QS to IFQ conversion rate

6/ If vessels are not required to provide notice in advance of a landing and vessels are allowed to have fish on board the vessel without having sufficient IFQ to cover the catch, an enforcement problem would be created. There could be little at-sea enforcement of the IQ program. Additionally, if it is permissible to offload without sufficient IFQ, a fisher intending to attempt to cheat by never declaring the catch who becomes aware a landing is being observed would need only acquire IFQ and there would be no penalty for the attempt at cheating. Once IFQ fish are in the plant and processed, variation in product recovery rates and the presence of non-IFQ sablefish will make it difficult to determine that an illegal landing has been made except in the grossest cases of underreporting.

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established for the next fishing year. All landings are credited first against any IFQ held and then against any overage allowance. A vessel owner which has fished into an overage may make subsequent trips to fish for the IQ species by acquiring the sufficient IFQ to cover the overage plus the requirements of the possession options listed above. (This carry-over limit would apply at any point in time during the fishing year under consideration.)

The preferred option and Option 3 are not mutually exclusive, though they may be redundant in meeting the objective for the provision.

The Council's preferred option is to allow a QS owner to carry over unused IFQ from one year to the next. If catch from one year is allowed to be attributed to unused IFQ from the previous year, there is no change in the effective quota each vessel is operating under over the 2-year period. It will be easier for vessels to come closer to just filling their quotas so the actual fleet retained catch could increase slightly (total catch including discard may be lower). Vessels which fall short of filling their IFQ in one year due to unexpected events will benefit from such a provision. However, if any vessel holding unused IFQ is free to sell or lease the remainder to other vessels during the year, the benefits would only be substantial in cases where the unexpected turn of events occurred with too little time left in the season to allow such transactions.

Other options considered by the Council were for no carry-over allowance, and for overages up to 5 percent in the current fishing year to be subtracted from the following year, with an adjustment of the nominal pounds involved in case the QS in the following year is applied to a different total allowable IQ program catch. Attributing overages in the current year to next year's IFQ was rejected by the Council because it would simply create a new, higher quota for the first year of the program without solving any flexibility problems in subsequent years. No carry-over allowance was rejected because fishers fishing up to their limit would likely go over and discard with the attendant discard mortality.

Effects of Carry-over Provisions on Stock Biomass: A 5 percent carry-over allowance is not expected to have a significant effect on stock biomass. If all IFQ holders exercised the carry-over option every year, it would amount to a one-time one-year delay of up to 5 percent of the harvest. In subsequent years, there would be no impact because harvest of the previous year's carryover would compensate for the new carry over into the next year. These effects would be (1) slightly more fishing mortality than would have been desired due to the fact that natural mortality would reduce the biomass of the "carried over" fish but there would be no reduction in the IFQ carried over and (2) another year of reproduction from the "carried over" fish. Both effects are expected to be insignificant. The carry over may have a positive effect on the stocks and their utilization to the degree that it allows fishers to forego some IFQ harvest without losing that harvest opportunity. If the choice presented to fishers is to harvest up to their IFQ limit or lose the harvest opportunity, some fishers would inevitably catch over their limit and discard the excess.

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3.7.6 IFQ Landing Procedures (Section 15.10.6)

The following is an administrative provision:

All landings of quota fish must comply with requirements of the IFQ accounting monitoring and enforcement system (See Section 15.12).

These systems and their impacts are discussed in Sections 3.8 and 3.9.

3.8 IFQ Tracking and Accounting System (Section 15.11)

IFQ tracking and accounting involves maintaining an up-to-date record of the progress made by IFQ holders toward fulfilling their IFQ and cross checking this record against vessel landing tickets. The accounting and tracking system must:

1. Provide a means by which the IFQ holder records the use of IFQ.
2. Allow a dealer to determine that an IFQ holder has sufficient IFQ to cover a landing and that the IFQ has been used for the landing made to the dealers plant.
3. Allow enforcement personnel to immediately determine whether an IFQ holder has sufficient IFQ to cover a landing.
4. Prevent fraud and abuse.

Two primary methods of tracking and accounting are discussed in the appendix on administrative costs. (Appendix C). One method is based on paper script and the other on an electronic accounting system. A third alternative presented in this report would combine elements of a paper script and electronic accounting system. There are many ways such programs could be designed. The programs presented here are examples by which cost estimates can be derived for the purpose of conducting the cost benefit analysis and notifying the public of the types of burdens which may be imposed by an IQ program. Prior to implementation of an IQ program, representatives from agency departments involved in the collection and management of records of fishery landings should come together with representatives from the NMFS limited entry office, enforcement agencies and the GMT to develop a tracking and accounting program.

Electronic System

An electronic system would be based on a credit card type system with card swipe terminals. All IFQ holders would be issued cards which would work similar to bank cards. Fish receivers would have card swipe machines. The IFQ holder would swipe his or her card through the machine and enter a personal identification number. The amount of fish being delivered would then be entered. The computer which would debit the account receipts would be printed out on a printer at the site. The receipts would be kept by the fish buyer and seller. All transfers of IFQ would be carried out by data entry personnel at the NMFS limited entry office. Parties to the transfer would be sent paper verification.

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Paper Tracking System

Two types of paper tracking systems have been discussed. One would be based on script and the other on a checkbook and register system.

Under the first system, script would be issued in various denominations. Each piece of script would have a unique serial number. Records of the serial numbers issued to each IFQ holder would be maintained at the limited entry office. When sablefish is landed, an amount of script at least equal to the sablefish landed would be transferred from the IFQ holder to the first receiver of the fish. The first receiver would then either (1) attach the script to the fish ticket for submission to the state or (2) fill out a form to accompany the script when it is sent to the limited entry office. The form would include such information as the fish ticket number used for the landing, the amount of sablefish landed, the amount of script received, the vessel from which the sablefish was received, the name of the first receiver, and the date or time and location. The fish ticket receiver would cancel the script in some manner. Ideally, this would be done by placing the fish ticket number used for the landing on every piece of script used. A fish ticket number on the script would allow script to be properly placed should it get separated from the fish ticket and allow quick processing of the script at the limited entry office. However, the task of placing fish ticket numbers on the script could become overwhelming if a vessel owner used many pieces of script to making a landing. Alternatively, script might be canceled with a date stamp with the receivers name on it. In most cases, it is likely that the date and receivers name combined with the serial number already on the script would provide sufficient information to match script with fish ticket numbers should the information become separated. To transfer IFQ, script might have to be returned to the limited entry office and reissued to the purchaser.

A checkbook and register system would work similar to bank checkbooks in which there is a carbon copy of each check written. A check would be filled out with the amount of fish landed and the fish ticket number under which the landing is made. Both the IFQ holder and the fish receiver would sign the check. Two copies of the check would go to the receiver one for the receiver's records and one to be sent to the state with the fishticket or to the limited entry office. The IFQ holder would keep a register of the amount of IFQ held and unused. The limited entry office would issue deposit and debit slips for transfers of IFQ.

Hybrid Electronic and Paper

Under a hybrid system, a checkbook system would be used to maintain records in the field (replacing the on-site printer of the electronic system discussed above) and records of transactions telephoned into a computer using a telephone with a digital dialing pad (replacing the card swipe machine). The IFQ holder would use a telephone to contact a computer at the NMFS limited entry office. The computer would then verbally prompt the IFQ holder to enter the account number, a personal identification number, the amount of fish being delivered and the account number of the fish receiver to whom the fish is being delivered. The computer would report back a confirmation number. Through this action the IFQ holder would set aside a portion

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of his or her IFQ for use by the fish receiver. The fish receiver would then claim the IFQ: either on a separate call or the same call, the fish receiver would enter his or her account number, personal identification number and the confirmation number given to the IFQ holder from whom the fish is being received. If the confirmation number and the dealer number matches, the computer would then report the amount of IFQ set aside for the dealer.

Pros and Cons of Each System

A detailed evaluation of costs is provided in Appendix C.

Electronic System

The electronic system provides real time verification to those receiving the fish and field enforcement personnel that sufficient IFQ is held in an account to cover a landing. It also minimizes paper work both in the field and in the NMFS limited entry office by reducing the need for data entry (as compared to a paper system).

The electronic system may be more expensive for administrators to set up than other systems, however, there is an advantage in that data entry work for the tracking and accounting system is eliminated (with the exception of recording share transfers). For an IQ system with broader scope, the electronic system may become cost effective from the administrators' standpoint as well.^{7/}

The electronic system is more expensive for industry as card swipe machines and printers must be maintained at all fish receiving sites. The cost of the on site equipment is estimated at \$800 to \$900 per site.

Paper Systems in General

The main disadvantage of paper systems is that because the most up-to-date records of transactions available in the field are held by the IQ owner, they become subject to manipulation and fraud. With the lag time between the time landings are made and when they are recorded in the NMFS IFQ accounting system, it becomes difficult for enforcement officers, fish receivers and IFQ buyers to know for certain whether or not the IFQ holders are accurately representing their holdings. On the other hand, a paper system appears to have been successfully implemented for the south Atlantic wreckfish IQ program.

Another disadvantage of a paper system is that it requires administrators to handle more paper and do more data entry work.

Two cost advantages of the paper system are (1) it is cheaper for those receiving fish, in that they do not have to invest in electronic card swipe equipment and printers and (2) the administrative startup costs maybe lower than the electronic system.

7/ An electronic system for IQ may also be a first step toward developing an electronic card swipe system to handle all fish tickets, eliminating state data entry expenses.

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Paper system requiring transfer through NMFS slow the transfer of QS and IFQ, making it impossible for fishers to take advantage of possession requirement options which would allow them to expand their IQ holdings if fishing plans changed during a trip or more fish than expected were caught.

Checkbook System

- There would be only one piece of paper to handle with each landings compared to a script system which may require handling many pieces of paper.
- IFQ could be used in any increments (increments would not be restricted by the denomination of a script system).
- In order to determine whether there was sufficient IFQ to cover a landing, an enforcement officer would have to contact the limited entry office to verify that the total IFQ held (used and unused) was the same as recorded in the IFQ register and check the IFQ register against the carbon copies contained in the checkbook.
- The fish receiver has no way of knowing whether the IFQ holder has sufficient IFQ to cover the delivery. The receiver could not be allowed to examine the IFQ holders register as this would reveal confidential information.

Script System

- An enforcement officer could immediately determine whether there was sufficient IFQ to cover a landing.
- The fish receiver would know by the amount of script presented whether there was sufficient IFQ to cover the landing.
- Some deliveries may require many pieces of script. Each piece will require individual handling for determining whether there is sufficient script to cover the landing, cancellation and data entry. (Larger minimum script denominations would reduce the problem.)
- The size of the minimum script denomination will determine incentives for discarding or cheating. For example, if the minimum script denomination were 100 pounds and an IFQ holder made a 1,130 pound landing, the holder would have either (1) enlist the fish receivers help in an attempt to cheat and underreport the landing, (2) discard 30 pounds or (3) use a 100 pound denomination script and forgo the opportunity to land 70 pounds.
- There may be a recurring administrative cost to replace/reissue scrip annually.

Hybrid System

- The hybrid system would have the same characteristics as the checkbook system except that the fish receiver and enforcement officer would be able to verify with a telephone call that there was sufficient IFQ to cover a landing.

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- The administrative startup costs and costs for field equipment would be much lower than the electronic system.
- The hardware and software communications interface supporting this system is computer based and managers can be easily trained to maintain and modify the system as necessary.
- The primary disadvantage of this system over the electronic system is the amount of data which must be entered over the telephone.
- The primary advantages provided by this system over the paper system is the provision of real time information for enforcement purposes, avoiding the use of script which in some cases may become cumbersome, elimination of data entry tasks related to the use of IFQ and use of the same computer hardware software package to manage a system for advance notification of landings.

3.9 IFO Monitoring and Enforcement System (Section 15.12)

Potential elements for a IQ monitoring and enforcement system are discussed in Appendix B to this document. Current enforcement activities are described in Chapter 2. For this plan amendment, the Council is considering two options. Under one option, elements of the enforcement program would be specified by NMFS during the implementation phase of the IQ plan. Under the other option, at least some of these elements would be developed as part of this amendment. Regardless of which option will be chosen, elements of likely enforcement programs need to be discussed in order to develop cost estimates and advise the industry of compliance burdens which may result from the enforcement program.

Before discussing the amendment options pertaining to enforcement, it is important to establish whether or not there is a need for additional enforcement and discuss the types of cheating activities an enforcement program must attempt to deter.

3.9.1 Cheating Opportunities and Incentives Under a Fixed Gear Sablefish IO Program

For those with a propensity to cheat, the decision to cheat on an IQ program will depend on such factors as the perceived social acceptability of cheating, operation costs of cheating, benefits from cheating, chances of getting caught and penalties for getting caught. If fishers perceive that an IQ program is not being adequately enforced, honest fishers may decide to cheat both because it appears to be socially acceptable within the industry and because the wide spread practice indicates the chances of getting caught and/or penalties for getting caught are low. Once these perceptions become ingrained in the fishing community, it becomes extremely difficult and costly to reestablish enforcement credibility and effective conservation of the resource. The history of collapses of IQ programs due to inadequate enforcement has lead Muse and Shelle (1989) to conclude that strong and credible enforcement from the inception of an IQ program is one of the most important elements of success.

While it is acknowledged that adequate enforcement is essential to an IQ program, the question has been raised as to whether current enforcement levels are inadequate. In other words, why should more cheating be expected under an IQ program than under the current management

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regime (particularly when the current management regime includes cumulative trip limits which appear to provide landing flexibility and cheating opportunities similar to those of an IQ program).

The basic objective for cheating in any IQ program is to land fish without recording their full round weight in the IQ system. An IQ tracking and accounting system cannot be effective if landings are not recorded in the system. There are two basic strategies which may be pursued in cheating: (1) underreporting the amount of fish landed and (2) not reporting that a landing was made; and there are two categories of cheaters: (1) program participants and (2) program nonparticipants. Program participants may be further broken down into those with and those without enough IQ to cover their landing.

One of the factors affecting the need for enforcement is opportunity for cheating. Opportunity for cheating is high when the period of high vulnerability to being caught is small.

In this regard it is instructive to consider the point at which, if one intends to cheat an irrevocable decision to cheat must be made (i.e., "At what point would an enforcement officer arriving at a scene be able to readily determine that someone intended to or had cheated on a particular landing?"). For a nonparticipant and an IQ participant without sufficient IFQ, this point occurs as soon as fish are taken and retained on board in excess open access trip limits or the amount of IQ the person has to use.^{8/} For a program participant with sufficient IFQ to cover a landing this point does not occur until after fish have been unloaded (at a fish plant or into a truck) and paperwork on the landing completed. Prior to the completion of paperwork, with any sign of an enforcement and monitoring presence, the plan to cheat may be reversed and the full landing recorded in the tracking and accounting system.

A second factor to consider is whether there is a point after which the chances of getting caught diminish significantly and, if so, when that point occurs. Such a point would appear to occur after the fish is unloaded and processed. For those with sufficient IFQ to cover a landing, the window of greatest vulnerability to being caught is very brief and consists of the period between when paperwork is completed and either (1) fish have been in the plant sufficiently long that they cannot be distinguished from other sablefish already in the plant or (2) the truck receiving the fish is far enough out of the area that the likelihood of drawing immediate suspicion is reduced. IQ sablefish going into a plant may be stored along with trawl caught and open access sablefish. Misreporting of trawl or open access sablefish may be a means to make room in the plant for unreported IQ sablefish. Assumed product conversion ratios will provide enough uncertainty as to the actual round weight equivalent of the plant inventory that a plant might need to have at least 5 or 10 percent more sablefish than reported from all sources (not just the IQ sablefish) before a case of underreporting could be made based on plant audits. Fish processed at-sea may

8/ Assuming IQ possession requirements specify that IQ sufficient to cover the catch must be held in advance of catch retention.

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be dispatched immediately (e.g., loaded directly to a truck) without going through a traditional processing facility at a traditional port location. For nonparticipants or those without sufficient IFQ to cover a landing, the period of highest vulnerability to being caught begins with the time excess fish are taken aboard and ends at the same time as for participants with the IFQ to cover the landing.

The following is a summary of some of the opportunities and incentives for underreporting or not reporting under various status quo management measures and a comparison to opportunities and incentives expected to be present under a fixed gear sablefish IQ program.

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Status Quo Management Measure	Status Quo	IQ Program
Closure on Attainment of Fishery Quota	The additional harvest which would be obtained by not reporting catch is shared with every other vessel through a lengthening of the season, while any penalties from being caught are borne only by the cheater. (The fixed gear sablefish harvest is managed under a fishery harvest guideline during the unrestricted season.)	For every pound of fish not reported the cheater has the opportunity to catch another pound at some time in the future. Benefits from cheating are not shared with other fishers.
Single trip (day) size limits	The decision to cheat by underreporting and landing more than allowed under a trip limit must be made prior to entering port, placing the vessel at risk of getting caught if an enforcement officer is present when the vessel arrives. (The fixed gear sablefish harvest is managed under a single trip limit during the restricted season.)	Given that sufficient IFQ is held to cover a landing, the decision to cheat by underreporting a landing and not using IFQ may be delayed until it is determined whether a landing has been monitored by an enforcement officer.

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Status Quo Management Measure	Status Quo	IQ Program
Trip frequency limits.	<p>Prior to reaching the frequency limit a decision to not report a legal sized landing may be delayed until it is determined whether enforcement is likely to monitor a landing. However, even in the absence of direct enforcement monitoring, the risk that an unreported landing will be detected seems greater than the risk that an underreported landing will be detected. Though it does not appear a landing was monitored, there may be a number of other information sources which would indicate that a fishing trip was made. Additionally, hiding an unreported landing of significant size in processing and marketing channels is more difficult than hiding a similar quantity of unreported fish landed over time in a series of underreported landings. Once the frequency limit for reported landings has been reached the risk of detection increases as an intent to cheat is easy to demonstrate from the moment fish are brought on board.</p>	<p>The primary means of cheating under an IQ program may be underreporting landings rather than not reporting landings. The incentives and risks for cheating by not reporting a landing are similar to those for the trip frequency limit. However, the number of opportunities for not reporting a landing would be much greater under an IQ program. For any trip during the year, the vessel would not have to decide until after unloading whether or not to report the trip. Thus, decisions to cheat may be made when it appears risks are the very lowest.</p>

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Status Quo Management Measure	Status Quo	IQ Program
Monthly cumulative trip limits.	<p>Monthly cumulative trip limits apply to fish species the majority of which may average about \$0.25 to \$0.30 a pound in exvessel price. (One of the notable exceptions is trawl sablefish, the trip limit for which is 25 percent of the deep water complex trip limit, or 1,000 pounds, whichever is greater.) The lower the price of the product landed the more of it which must be hidden in marketing channels to provide revenue sufficient to overcome the disincentives for cheating. The more of the product which is hidden, the greater the chances of getting caught.</p>	<p>The financial gains for not reporting a pound of IQ landing will generally be greater than for most species managed under cumulative trip limits. The price per round pound of sablefish is currently about two to three times more than the price per pound of most species managed under the cumulative trip limits. In the past, the sablefish price has been as high as three to four times greater than most species managed under the cumulative trip limit. The difference between trawl and nontrawl sablefish prices is much smaller. Under the IQ program, generally higher sablefish prices may be expected as fixed gear sablefish harvest is better timed with optimal market conditions.</p>
	<p>Monthly cumulative limits primarily constrain the trawl fishery. Because of the size of landings and practice of landing fish round, cheating on trawl landings generally requires the collusion of a processor. The generally large processors that purchase trawl landings have more to lose from being caught cheating than smaller operations.</p>	<p>On average, West Coast longline vessels generally make smaller landings than trawl vessels and often dress their fish. Dressing will likely increase under an IQ system. These landings may be transferred directly to trucks for transport to market without the involvement of a coastal processor.</p>

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Status Quo Management Measure	Status Quo	IQ Program
	Not reporting all fish landed creates an opportunity for landing additional fish which lasts for the remainder of the <u>a 2- to 4-week period.</u>	Not reporting all fish landed creates an opportunity for landing additional fish which lasts for the remainder of the <u>year.</u> When the opportunity created lasts for a longer period, there is greater certainty that the cheater will have a chance to reap the additional harvest, and the extra harvest can be taken when other opportunities are least attractive (when the opportunity cost of taking the additional harvest is lowest).
	Once an individual interested in cheating has reported landings equivalent to the monthly cumulative trip limit, attempts to make unreported landings require taking higher risks. Violations cannot be avoided by simply declaring the landing when an enforcement officer appears on the dock.	Once an individual interested in cheating has reported landings equivalent to the amount of IFQ held, the opportunity to continue cheating with a low probability of detection may be extended through the purchase of additional quota. <i>Those interested in cheating may bid quota away from honest individuals because a cheaters assessment of their expected revenue per unit of quota may be greater.</i>

This summary illustrates the increased cheating opportunities and incentives expected to be present under an IQ program. An enforcement program must be designed to counteract these factors.

3.9.2 Enforcement Options

In March 1993, enforcement consultants provided the following statement to the Council. "We believe success of any fishery plan developed by the Council must rely on existing enforcement In fact, enforcement capabilities are more likely to be reduced as agency budgets continue to lose funding for personnel, equipment, and operations." Given these situations the enforcement consultants also stated that the IQ program would have to include "options that may be considered highly restrictive in order to satisfy basic enforcement principles." Those principles were enumerated as follows.

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- *Accurate Report of Landing* – Enforcement officers must be able to make an immediate onscene determination that participants possesses sufficient documented QS to cover all fish on board.
- *Authenticity of QS* – Enforcement officers must also be able to simply and accurately verify the authenticity of Quota.
- *Monitoring Landings* – Enforcement officers must be able to efficiently monitor movement of all product through the commercial system. Limitation on place and time of offloading and requirements for mandatory enforcement presence may be necessary.
- *QS Denominations* – QS must be defined in round whole number of pounds rather than percentages. The minimum unit should be no smaller than 100 pounds.
- *Strong Sanctions for Violations/Fraud* – The program is absolutely dependent on enforcement ability to accurately monitor and track the take, landing and progress of fish through the system. Fraud will collapse the program. Penalties must include loss of permits and/or QS.

There are two enforcement options listed in the current program. The first option would leave the development of an enforcement plan for the implementation phase of the program. The second option would specify some elements of the enforcement program in the plan. Option 1 would provide flexibility for changing the enforcement program as necessary without needing to modify the management plan. Changes may be needed to take into account such factors as experience gained and changes in agency budgets. Under Option 1, the Council would have no mandatory role in determining the enforcement plan. Option 2 would allow the Council to specify enforcement measures the Council would like included or excluded from the enforcement plan. The current elements of the options specify only those measures to be included. Should any of the specified measures need to be changed a plan amendment would be required.

The following are some of the potential enforcement regulations identified in Section 15.12 of Appendix A and elsewhere in the program.

1. Require onboard evidence of unused IFQ sufficient to cover catch onboard.

This requirement would allow at-sea enforcement against program participants who may be intending to underreport. Options were considered which would have allowed vessel owners to secure IFQ up to 2 weeks after a landing had been made (see Section 3.7.4) on possession requirements for a more detailed discussion).

2. Require vessels to notify NMFS of their intent to land and estimated hail weight sufficiently in advance of unloading to allow an enforcement officer to be present.

This requirement would have the following benefits: (1) a significantly lower level of enforcement effort would be required to achieve the desired level of enforcement visibility as compared to random enforcement presence in ports (10 percent of all trips has been suggested by enforcement consultants as a sufficient deterrent level); (2) by providing

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information about when vessels are coming in, it would allow enforcement officers to target dockside checks on vessels which have engaged in suspicious activities; (3) it would require cheaters with the intent of underreporting to commit to a hail weight (when a vessel's landings are monitored, if they are consistently below hail weight, suspicion will be aroused and further monitoring and investigation of the vessel and catch recipient initiated); and (4) it would require cheaters with the intent of not reporting a landing to commit to the course of action before arriving in port, increasing their chances of being caught.

3. Landings must be made only to a registered buyer.

This identifies the points which enforcement will have to monitor and audit to detect the more likely cheating strategy of underreporting. Anyone making landings to other than registered buyers would be subject to immediate citation. If federal processing licenses are issued to these buyers this would also provide an effective enforcement sanction.

4. Limited landing/offloading hours and limited ports of landing.

The primary purpose of this provision would be to increase the number of trips monitored for a given level of enforcement staffing. The limited ports of landing is particularly useful in this regard as it dramatically narrows the area enforcement officers must cover in order to monitor potentially underreported landings. Amount of nontrawl sablefish landings by port are provided in tables accompanying Section 2.5.

5. All quota fish onboard must be offloaded including home pack and exceptional sales.

This provision is similar to provisions which currently apply to trip limit species. Its purpose is to ensure that all fish are properly weighed and recorded in the IQ tracking system.

6. Verification of landings.

Landings must be reported to the IQ tracking system and a confirmation received within a specified number of hours of completion of offloading. (For a paper script system this may not be required.) Requiring that confirmations be acquired ensures that landings will be reported in a timely manner and allows on the scene enforcement officers to determine that landings have been reported.

7. Shipping by registered buyers.

Reporting would be similar to current reporting requirements except that advance notice of shipments would be required. Advance notice of shipments would act in a manner similar to advance notice of landings in (1) providing enforcement the opportunity to efficiently establish a deterrent level of monitoring for each buyer and (2) forcing a shipper intent on cheating by not reporting a shipment to commit to the violation early on by not complying with reporting requirements.

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8. Transhipments.

Transhipments would be restricted to motherships and tenders which are registered as buyers and would require a specified number of hours in advance notice. This item would establish the same enforcement situation for mothership and tenders as is established for others in Items 3 and 7 above.

9. Dockside sales.

Vessels marketing their own catch would be required to be registered buyers and meet all the requirements which apply to registered buyers. This provision requires that vessels making dockside sales comply with enforcement requirements laid out in Items 5, 6 and 7 above. This allows continuation of the practice of dockside sales without damaging the effectiveness of the IQ program.

10. Vessel clearance.

Vessel clearance would be required before a vessel could land outside the Washington, Oregon and California area.

This provision prevents vessels from avoiding the enforcement and monitoring system by landing outside traditional landing areas. Any vessel accosted attempting to take fish out of the area would be in violation of the clearance provisions. It would not have to established that the vessel intended to not report the catch.

3.10 Discards and Wastage (Section 15.13)

No new provisions against the discard of legal sized sablefish are included in the program. The primary reason for such provisions would be the concern that an IQ program may encourage highgrading (see Section 4.1). The GMT discussed the need for regulations against discarding and decided that provisions which would achieve the desired goals are generally unenforceable. In the longline fishery, it is possible to highgrade fish by shaking the fish from the hook before bringing it on board. The mortality rate for this type of discard is expected to be low relative to mortality which might occur if the catch is brought on board the vessel and smaller fish discarded as larger ones come on board.

Because of enforceability problems with restrictions on discards, current antiwastage laws were considered. All three states have antiwastage provisions in their regulations. Enforcement of these regulations has proven to be difficult because the states must prove "wanton waste". In essence, the wardens must show that the fisher or processor knowingly allowed fish to be taken, for which it was known beforehand that there was no market. In the event the Council wishes to address the issue of wastage, it should probably not do so in the IQ amendment since such provision should probably be made to apply to all fisheries and not just the fixed gear sablefish fishery. The GMT advised the Council that all three states have had a difficult time enforcing the existing regulations, however, the GMT believes that the Council should consider development of a federal antiwastage provision.

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4.0 COMPARISON OF INDIVIDUAL QUOTA PROGRAM WITH STATUS QUO

4.1 Biological Impacts

4.1.1 Discards and Highgrading

Under an individual quota (IQ) system there is a potential for changes in discard rate, discard mortality and retention of small fish (less than 22 inches). The magnitude and direction of these changes would be driven by differential pricing of large versus small fish, changes in frequency and size of landings, and shifts in effort between different types of gear. To illustrate what might occur, three different scenarios are presented and then the likelihood of each scenario occurring is assessed.

Scenario 1. In this scenario, the price differential between small and large fish remains constant as does landing size and trip frequency; however, there is a shift from trap gear to longline gear. The sablefish discard mortality rate for longline gear is thought to be higher than for fishpot gear. If crucifiers are used, discard mortality is probably significantly higher. Based on tag recovery studies of sablefish off Oregon and California, discard mortality from traps is probably quite low (depending on how they are handled on deck). Therefore, a change in effort towards longline gear would result in a higher overall mortality rate. Since the fishers will not be forced to hurry to catch their share, there will be a lower opportunity cost for highgrading with the likely result being more highgrading and a higher total mortality. If the effort switched from longline to trap, the discard mortality rate would decrease; however, the increased level of highgrading would probably persist. It is not possible to predict whether there will be a switch in gear effort; however, it seems likely that a price differential will remain. Since fishers will have a greater opportunity to highgrade, they probably will do so.

Scenario 2. In this scenario, the price differential between small and large fish disappears and market demands result in vessels making smaller, more frequent landings. Under the Olympic style fishery, vessels had to reduce the number of landings to a minimum so they could continue fishing during the short season. Under an IQ system, they would be able to make more and smaller landings. For example, they might choose to make more mixed species trips. In this situation, there is the possibility of increased harvest of small fish because, the way size regulations are written, a vessel making a single 100,000 pound landing could only retain 3,000 pounds of small fish; however, the same vessel making ten 10,000 pound landings could legally retain 15,000 pounds of small fish. This scenario is not very likely since the price differential between small and large fish is likely to remain in effect. If this situation does occur, it could probably be handled by modifying the regulations on retention of small fish.

Scenario 3. In this scenario, there is a switch from longline gear to trap, the price differential between small and large fish disappears, and trip frequency decreases while landing size increases. A switch in effort from pot to longline gear appears to have occurred under the Canadian sablefish IQ program. This is the best case scenario. Regulation induced discard would be low, highgrading would not occur and those fish which were discarded would have a high probability of survival. This scenario is unlikely because it is not likely that the price differential will disappear.

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The Groundfish Management Team (GMT) believes that there will be an increase in highgrading under an IQ system. If there is a corresponding shift in effort towards longline gear, then total mortality could increase under an IQ system. If, however, prices of small and large fish equalize, then there is the possibility of a decrease in the total mortality.

4.1.2. Effects of Size Targeting and Highgrading on Stock Biomass

Targeting on larger fish may occur because of higher prices for larger fish. Over time, consistent targeting on larger, older fish may increase biomass. On the other hand, if fish are highgraded to achieve a landing of larger average size fish, discard mortality may reduce biomass levels. The rate of discard mortality for fish immediately released from longline gear is believed to be low. It is possible to "highgrade" with fishpot gear through the use of larger pot meshes. The biological effect of the carry-over allowance, which is part of this program, is discussed in Section 3.7.5. The effect is expected to be insignificant.

4.1.3. Effects of Unreported and Underreported Landings on Stock Biomass

An inadequate enforcement program would result in an underreporting of total landings and consequently catches in excess of optimal levels.

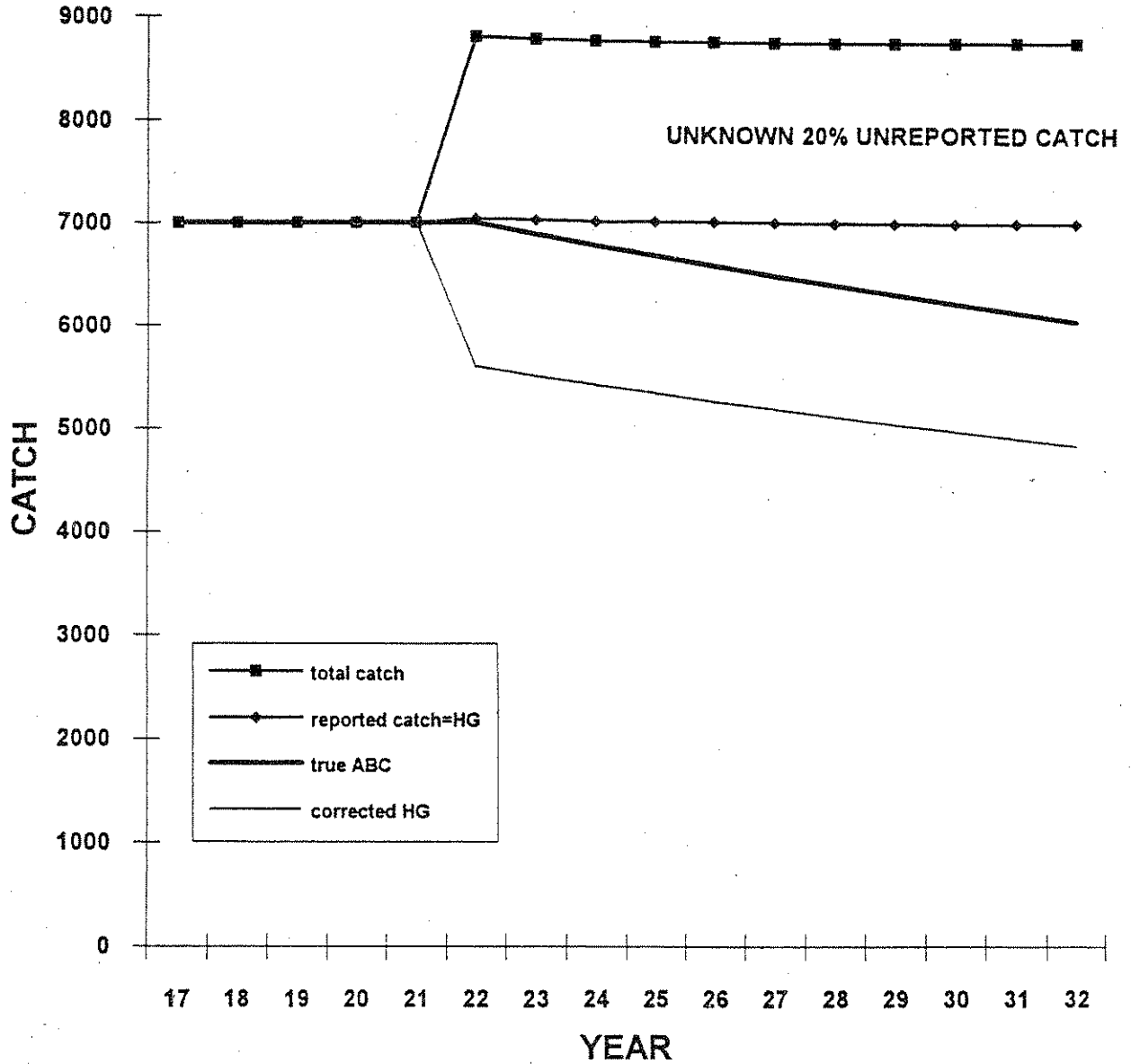
The effect of underreported catch is identical to consistent overage of recommended harvest guidelines and similar to the effect of unreported discards. All will cause a decline in the abundance of the population and a proportionate decline in the true future acceptable biological catch (ABC) levels. The biological effects of underreported catch will be identical to those of discards if these two sources of unmonitored mortality affect the same age groups of the population; they will have slightly different effects if discard primarily affects young fish and underreported catch primarily affects older fish.

It is straightforward to simulate the effect of underreported catch for a species such as sablefish, which has a natural mortality rate equal to 0.07 and an abundance sufficient to support an ABC of 7,000 mt annually. If the reported catch remains equal to a constant harvest guideline of 7,000 mt (Figure 4-1), then the following table indicates the degree to which 10 years of underreporting depresses the stock level, hence depresses the true ABC:

Percent Underreport Relative to Harvest Guidelines 7,000 mt	True ABC in 10 Years
0 percent	7,000 mt (status quo)
5 percent	6,800 mt
10 percent	6,577 mt
15 percent	6,326 mt
20 percent	6,038 mt
25 percent	5,714 mt
30 percent	5,335 mt

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FIGURE 4-1. The effects of 20 percent unreported sablefish catch on ABCs and harvest guidelines.



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A 10-year decline of 10 to 15 percent in stock abundance is equivalent to the same proportional decline in ABC as indicated above. Confident detection of such a population decline would be nearly impossible. This is partly due to the low frequency and precision of current indicators of sablefish abundance, and partly due to the fact that any observed trends in the indicators would be contradictory to trends predicted from the reported fishery removals. Knowledge of the actual level of stock removals by the fishery removes this contradiction and may enable assessment models to detect true trends in the population.

4.1.4 Geographic Distribution

If individual fishing quotas (IFQ) are not restricted by area, shifts in the harvest distribution may result in the concentration of harvest in some areas and may adversely impact stocks. Options have been suggested for implementing area restrictions either as part of the implementation of the program or at some later date, if it is determined that such area restrictions are needed. These options are discussed in Section 3.3.3. Reasons that a shift in the distribution of harvest may or may not be expected are discussed in Section 4.5.

4.1.5 Port Sampling Program

In 1993, port sampling routines were disrupted due to the concentration of sablefish harvest into the period of a few weeks. In order to sample the fixed gear sablefish catch, sampling of other components of the West Coast groundfish fishery was curtailed during this period. The IQ program may spread the harvest over a greater portion of the year ending this disruption. Port samplers are present in ports year round, therefore, there is no expected increase in costs for the port sampling program. If as a result of the IQ program more of the sablefish are processed at sea, collection of biological data may become more difficult.

4.1.6 Stock Assessments

As long as prices are higher for larger fish, there will likely be a tendency to target on larger fish or to highgrade. Adjustments in stock assessments will take this targeting and highgrading into account. Making these adjustments does not present a significant problem, though observer data would improve the accuracy of the adjustments.

4.2 Economic Impacts

4.2.1 Benefit Cost Analysis Summary

The benefit-cost analysis of the proposed IQ program compares the present value of quantifiable economic benefits and costs to the U.S. economy over the next 25 years. For the proposed sablefish IQ program, incremental benefits to the economy as a whole are composed of changes in consumer surplus and producer surplus, while incremental costs are changes in administrative, enforcement, and industry compliance costs. The net incremental benefit to the U.S. economy is the difference between the increased benefits and the increased costs attributable to the program.

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The preliminary benefit-cost analysis presented here is characterized by a fair degree of uncertainty regarding several variables that are important for estimating changes in producer surplus. First, the size and composition of the fleet that will qualify for limited entry permits for fixed gear, a key element of defining not only the status quo fleet, but the initial IQ fleet as well, is not yet identified. Additionally, very little can be said with confidence regarding the rate at which the IQ fleet will make the transition from its original size to a smaller equilibrium level, or what that equilibrium fleet size will be. The timing and extent of this reduction will affect the magnitude of savings in fixed and variable harvesting costs that result from the program. Other important fleet cost issues where considerable doubt persists include (1) the variation in rates of profitability among members of the status quo fleet, (2) the extent to which harvesting/processing costs can be reduced by eliminating the race for fish and (3) the amount of annual capital investment (turnover rate) required to maintain the fleet. In terms of the fishery's potential to generate more revenue with an IQ program, the amount of price increase at the exprocessor level, that would materialize with the program is difficult to predict, given the small number of reference cases from other, similar fisheries.

There is also great uncertainty with regard to the additional enforcement costs required to make the program work.

4.2.1.1 Producer Surplus (Exclusive of Compliance Costs)

This section contains a summary of information provided in Appendix E. Discounted present values of benefits given alternative rates of cost reductions or price increases are presented in Tables 4-1 through 4-3. These values reflect the use of a 7 percent discount rate over a 25-year time horizon. Table 4-1a assesses possible savings in variable costs as compared to variable costs under status quo management. The rows in this matrix reflect different rates of initial (first-year) reduction in total fleet variable costs, while the columns reflect differing rates of reduction in each subsequent year's total variable cost, from Year 2 through Year 15. Total variable costs are assumed to remain unchanged from Year 16 through Year 25. The initial reduction in variable costs is intended to represent, primarily the savings that arise from each operation having the opportunity to restructure its fishing activities, so that the cost of harvesting its allocation is reduced, compared to landing the same amount of fish under open access. The subsequent annual reductions reflect, primarily the gains that occur as inefficient members of the fleet elect to sell their shares to more efficient vessels remaining in the fishery. Savings may also occur to the degree that fleet variable costs may have increased if the season would have continued to shorten under status quo management. By Year 15, it is assumed that the fleet has been reduced to an equilibrium size and little additional reduction in fleet variable costs occurs. Table 4-1b shows the reduction in undiscounted fleet variable costs between Year zero and Year 15 for each combination of reduction rates.

Table 4-2a illustrates possible savings in discounted present value of fixed costs of the fleet qualifying for limited entry permits. Since the fixed gear permit list is not yet finalized, the 171-vessel fleet of vessels likely to receive permits, who also had recent sablefish participation, was used as the status-quo fleet. A capitalized value for this fleet was calculated, using advertised prices for vessels, by size class. The rows in Table 4-2a reflect different percentages of this capitalized value that are reinvested on an annual basis. Each of these rates implies a specific amount of total fleet fixed cost expenditures. The columns in the table represent different rates

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TABLE 4-1a. Present value of possible additions to producer surplus, through reductions in fleet variable costs (comparing the IQ program to status quo).

First-year Reduction in Variable Costs	Net Reduction in Total Fleet Variable Costs for 25 Years (7 percent discount rate)			
	Annual Reductions in Variable Costs (Years 2-15)			
	0.5 Percent	1 Percent	2 Percent	3 Percent
5 Percent	\$2,607,242	\$4,629,413	\$5,528,411	\$7,249,626
10 Percent	4,083,884	5,052,256	6,851,307	8,481,932
15 Percent	5,560,526	6,475,099	8,174,203	9,714,237
20 Percent	7,037,168	7,897,943	9,497,099	10,946,543

TABLE 4-1b. Percentage reduction in variable fleet costs for different rates of savings (comparing the IQ program to status quo).

First-year Reduction in Variable Costs	Reduction in Undiscounted Variable Costs for 25 Years			
	Annual Reductions in Variable Costs (Years 2-15)			
	0.5 Percent	1 Percent	2 Percent	3 Percent
5 Percent	11.4	17.5	28.4	38.0
10 Percent	16.1	21.8	32.2	41.2
15 Percent	20.8	26.2	35.9	44.5
20 Percent	25.4	30.5	39.7	47.8

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TABLE 4-2a. Present value of possible additions to producer surplus, through reductions in fleet variable costs (comparing the IQ program to status quo).

Annual Rate of Capital Reinvestment	Total Reduction in Fixed Costs (7 percent discount rate)			
	Annual Reduction in Fixed Costs (Years 1-15)			
	1 Percent	2 Percent	3 Percent	4 Percent
1 Percent	\$276,812	\$526,110	\$750,795	\$953,465
2 Percent	553,622	1,052,218	1,501,587	1,906,927
3 Percent	830,434	1,578,329	2,252,384	2,860,394
4 Percent	1,107,245	2,104,437	3,003,176	3,813,855
5 Percent	1,384,057	2,630,547	3,753,971	4,767,320

TABLE 4-2b. Percent reduction in undiscounted annual fleet fixed-costs over the first 15 years of the program

Annual Reduction in Fixed Costs			
1 Percent	2 Percent	3 Percent	4 Percent
14.0%	26.1%	36.7%	45.8%

TABLE 4-3. Present values from increased revenue associated with four alternative price increases under IQs. (Revenue totals based on annual harvest of 2,500 mt in the IQ fishery.)

	Price Per Pound Increase			
	\$0.04 5 Percent	\$0.08 10 Percent	\$0.12 15 Percent	\$0.20 25 Percent
Annual Increase in Revenue	\$220,460	\$440,920	\$661,380	\$1,102,300
Present Value Of Increase for 25 Year Period (7 Percent Discount Rate)	\$2,569,149	\$5,138,298	\$7,707,447	\$12,845,745

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at which these total expenditures are reduced, for each of the first 15 years. This reduction includes savings from vessels that exit all fishing and are not replaced, and also from vessels remaining in the fishery where the rate of reinvestment drops with implementation of an IQ program. As with variable cost, no further reduction is assumed after Year 15. Table 4-2b shows the reduction in undiscounted fleet fixed costs between Year zero and Year 15, for each combination of reduction rates.

Table 4-3 shows the discounted present value from four possible price increases that might arise from introducing IQ. Using an \$0.80 per pound price to represent the status quo, these increases range from 5 percent (\$0.04 per pound) to 25 percent (\$0.20 per pound). The prices that were obtained with each of these rates of increase during the first year were then maintained over the 25-year time horizon.

Values from Tables 4-1 to 4-3 are used in constructing the optimistic and pessimistic scenarios in the cost benefit conclusion (Section 4.2.1.6).

4.2.1.2 Consumer Surplus

- The direction of change in domestic consumer surplus is undetermined but expected to be small.

Product quality and prices are expected to increase, however, the direction of any change in consumer surplus is undetermined (see Section 4.6.5). While the direction of the change in consumer surplus is uncertain, the size of the change is expected to be insignificant because of the small portion of the harvest that goes to domestic consumption and the small portion of domestic fish and protein consumption which sablefish comprises.

4.2.1.3 Administrative Costs

Administrative costs enumerated in Appendix C are summarized below. The cost of the administrative programs vary primarily with the type of tracking and accounting system used (see Section 3.8).

Not included in the quantitative administrative cost estimate are state and Council costs, as well as National Marine Fisheries Service (NMFS) costs for administering an IFQ inspector certification program to support the enforcement plan--the latter are included in the enforcement cost estimates. The primary state costs would be for the time of state personnel involved with the development of an implementation plan and with responding to inquiries regarding catch histories. These costs would be considered start-up costs. The Council may also experience an increase in costs as the program is initiated. These costs are related to an increased work load expected as adjustments are made to the program. Council costs are discussed in Section 4.8.1. No monetary value has been assigned to impacts on Council work load.

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The following are the estimated administrative costs.

Type of Tracking and Accounting System	Start-up Cost for Entire Administrative Program	Annual Cost for Entire Administrative Program
Electronic	\$450,000 to \$550,000	\$78,700
Hybrid Electronic/Paper	\$350,000 to \$450,000	\$54,200
Paper Script	\$375,000 to \$475,000	\$94,400
IFQ Checkbook	\$375,000 to \$475,000	\$83,400

In addition to these new annual costs, time would be contributed by the current limited entry office staff. An initial estimate for the value of this time is \$79,200.

The lower cost for the hybrid system is due primarily to the reduced annual cost for the system to manage advance notices of landings. If there are no advance notice of landings requirements, the costs of these programs will even out.

The annual costs for this IQ program are much lower than for the North Pacific Fishery Management Council IQ program because much of the supervisory structure is already in place in the limited entry office created for the license limitation program and because the program would be much smaller. Additionally, there appears to be significant opportunities for reduction in costs of the electronic system through cooperation between the two programs.

4.2.1.4 Industry Compliance Costs

Compliance costs enumerated in Appendix C are summarized here. Compliance costs were broken down into those associated with the acquisition of IQ and participation in the program.

There are two categories of acquisition costs: (1) acquisition at initial issuance and (2) acquisition through transfer of another QS or IFQ owner. Acquisition cost for initial issuance are (1) a one time fee paid to NMFS which will depend on estimated administrative costs and number of applicants and (2) the time involved in filling out paperwork and, if desired by the applicant, seeking the release of confidential information. Acquisition costs for the transfer of QS or IFQ from a seller to a buyer are likely to be similar to those for most commercial transactions where something of value is exchanged. There may be a nominal fee from NMFS for recording the transactions.

The fees and purchase prices for IFQ are not additional program costs to be included in an assessment of costs and benefits of the program. Fees are payments to cover administrative costs which are counted in the section on administrative costs. Amounts paid for IQ when they are bought and sold are simply transfers of assets and imply neither additional costs or benefits. Items which are a cost of the program include the time spent filling out paperwork to apply for IQ and the time, legal and other expenses involved in the transfer of IQ (but not the price of the IQ).

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The primary direct expense associated with participation in the program has to do with the tracking and accounting system employed. If an electronic system is used, card-swipe machines and printers would be purchased for each site at which IFQ fish are received and for any vessels which make over-the-side sales. These materials are expected to run \$800 to \$900. If there were 100 sites (including machines purchased for over-the-side sales to consumers), the total expense would run about \$80,000 to \$90,000. Other expenses have to do with the time involved in taking part in the tracking and accounting system and giving advance notice of landings (if such notices are required).

4.2.1.5 Enforcement and Monitoring Costs

- The cost estimate for an enforcement program which relies primarily on IFQ inspectors for deterrence is estimated at about \$575,000.
- The cost estimate for an enforcement program which relies primarily on fishery technician observers for deterrence is estimated at about \$450,000.
- Status quo enforcement levels are expected to result in failure of the program.

The current enforcement program is described in Section 2.6 and the need for additional enforcement to implement a sablefish IQ program is discussed in Section 3.9. Appendix B specifies the elements of a possible enforcement program developed at an Enforcement/Industry Workshop held in November 1993. The details of the enforcement program are not a part of the plan amendment and have not been precisely determined. One option the Council is considering would leave these details completely to the implementation phase, the other would specify some general provisions as part of the plan. Regardless of which option is selected similar levels of enforcement activity will likely be necessary for a viable program. Even if no additional funds are made available for enforcement costs will be incurred as enforcement effort is diverted from other activities. The estimated costs of the enforcement options developed in Appendix B will be used for this cost benefit analysis.

Following is an outline of the options developed at the Enforcement/Industry meeting in November 1993 and the accompanying enforcement costs based on a 12 month fishery.

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Annual Enforcement Costs

Cost Category	Means of Supplying Additional Monitoring	
	IFQ Inspector Monitoring (34 inspectors providing 100 percent coverage)	Fishery Technician Monitoring (7 fishery technicians providing 25 percent coverage)
Diversion of Existing Enforcement Resources (2 Full-time Employees)	\$160,000	\$160,000
General Groundfish Processing Permit	\$7,250	\$7,250
Additional Monitoring	\$408,000	\$280,000
Total	\$575,250	\$447,250

In addition to these annual costs there is a one time start-up cost of \$25,000 for a computer.

This budget estimate assumes there would be no additional assistance from state enforcement or the Coast Guard. The state enforcement entities do not have the budget or manpower to take on the additional burden of enforcing an IQ program. Further, the sablefish resource is harvested primarily from federal waters, making it more of a federal responsibility. While states are not expected to incur significant additional enforcement burdens, their enforcement officers will have new regulations to enforce in the course of their routine duties.

4.2.1.6 Cost Benefit Conclusion

Two future scenarios have been evaluated, one optimistic and one pessimistic. The optimistic scenario is generated by making optimistic assumptions about the uncertain values of five key parameters of the analysis. The pessimistic scenario makes pessimistic assumptions about the same parameters. Each parameter estimate is taken to be a possible or even plausible value. However, since it is unlikely that the true values of all five parameters would be at one extreme, with no intermediate values, the resulting estimates of net benefits should be considered upper and lower bounds of the net benefits (positive or negative) which might actually result from adoption of the IQ program.

The optimistic scenario assumes that revenue from fixed gear sablefish increases by 10 percent as a result of the IQ program, while variable fleet costs of catching sablefish initially decline by 10 percent. The average annual turnover rate of capital invested in the fleet is assumed to be 5 percent, and the enforcement costs are assumed to be \$447,350 per year (low estimate from Appendix B). The present value of net benefits for this scenario is calculated for assumed rates of decline in fleet size of 1 percent and of 3 percent per year for the first 15 years of the program.

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The pessimistic scenario assumes a 5 percent increase in revenue, a 5 percent turnover rate of capital and enforcement costs of \$990,000 per year (based on estimated cost of 1 supervisory enforcement agent, 2 field agents, 8 fishery enforcement officers and 2 support personnel, this estimate is derived from an early Enforcement Consultant cost estimate which was latter replaced with those in Appendix B).

The present values of incremental net benefits under these scenarios are calculated using the Office of Management and Budget approved discount rate of 7 percent. The following table presents these net benefit estimates for two assumed rates of decline of the fixed gear fleet.

	Annual Decline of Fleet for the first 15 years	
	1 percent	2 percent
Optimistic	4,321,292	10,120,882
Pessimistic	-6,549,314	-1,697,688

Based on these figures, the net benefit of the fixed gear sablefish IQ program could range from a loss of \$6.5 million to a gain of \$10.1 million. Neither extreme is highly probable, but no points in between should be ruled out. Therefore, at the levels of administrative and enforcement costs considered for this analysis, the costs of the program could easily exceed the benefits, particularly if enforcement costs are above those esimated in Appendix B. Furthermore, this conclusion is not affected significantly by the adoption of a lower discount rate.

Under the pessimistic scenario the present value of program benefits is only \$7,028,996. If administrative and industry compliance start-up cost estimates are correct, then combined annual administrative and enforcement costs would have to be trimmed to about \$561,000 in order for the estimated costs and benefits under these assumptions just to break even. Unfortunately, the analysis does not show how close to \$561,000 the annual program costs would have to be in order to be reasonably confident that the realized benefits would equal or exceed the realized costs. If the current low estimate of enforcement costs and any of the administrative costs estimates are correct the annual costs would be below \$561,000.

If the Council desires a relatively high degree of confidence that the benefits from the sablefish IQ program will outweigh the costs, two general courses of action are available: the Council can identify a feasible administrative and enforcement program costing no more than the pessimistic estimate of benefits, or it can increase the level of benefits obtained through broadening the scope of the program.

Unquantified factors which need to be considered along with this result include increased state fishery agency (Section 4.2.1.3) and Council costs (Section 4.8.1) and benefits from increased safety in the sablefish harvest (Section 4.3.3).

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4.3 Social and Socio-Economic Impacts

4.3.1 Income and Employment

Effects on income and employment are discussed below in sections on groups affected. In particular the effects are discussed in sections on crew and communities. In general, a system which generates more efficient use of resources to generate the same amount of production will lead to an increase in income. The amount of associated employment may, however, go up or down.

4.3.2 Effects on Relative Bargaining Strength

- IQ will give more bargaining strength to those who hold it.
- The bargaining strength gained by any one group may be overcome by another group, as long as its members are not restricted from acquiring IQ.
- Effective restrictions requiring IQ owners to be on board a vessel when the IQ is used might advantage one group over another.
- Through the acquisition of IQ crew members will have an opportunity to gain bargaining strength relative to vessel owners.
- Vessel owners will have an initial advantage over others as (1) they are the group to whom IQ will initially be given and (2) they will be made wealthier by the initial allocation and more able to control IQ.

Those who acquire IQ will have more bargaining strength than before implementation of the program. This is because the IQ will be a required input for landing sablefish.

Persons may mitigate advantage that others may gain by themselves acquiring IQ. In evaluating the relative bargaining power one group may gain over another, it is important to identify groups which may be restricted from acquiring IQ and those who may have advantage in acquiring IQ.

Under one option, there would be no limits on the groups who could own IQ as long as owners were not dominated by foreign interests (Sections 15.9.2). While IQ would be initially issued only to vessel owners, others such as crew members, processors, banks and persons with no direct physical involvement in the fishery may acquire IQ through purchase from initial recipients.

An option which would require the owner of IQ to be on board a vessel when it is used could give an advantage to individuals (Section 15.10.2) and those exempt from the requirement (corporations and partnerships which receive an initial allocation of IQ) over corporations and partnerships which may wish to acquire IQ in the future. In particular, this places at a disadvantage processors owned by corporations, partnerships or other non-individual entities, foreigners who might otherwise acquire some control of IQ over through participation in a

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corporation or partnership and corporate or partnership vessel owners which did not receive an initial allocation of IQ.

Crew members would have the opportunity to gain some bargaining power which they previously did not have. Before IQ the vessel owner generally controlled the primary means of harvest except labor. When the IQ are initially issued this will continue to be true. However, crew members will be allowed to acquire IQ in the market place, creating some opportunity for them to increase their bargaining strength relative to the vessel owners.

Allocation formulas which provide an initial issuance of IQ only to vessel owners will benefit that group over other groups. Those who are initially given IQ will be made wealthier and thus will be more able to control and acquire additional IQ. They will be provided with an initial advantage in bargaining strength.

Summary. The IQ program will increase the relative bargaining strength of whoever controls the IQ. Since vessel owners will receive the initial allocation of IQ their position will be improved in comparison to other groups with whom they bargain. Their initial allocation will make them wealthier and put them in a better position to incrementally acquire IQ than they would otherwise have been. The initial bargaining strength of vessel owners will be mitigated as other groups begin acquiring IQ. In particular, crew members will have a new opportunity to acquire control over an essential and limiting element of production. Groups restricted from acquiring IQ or given extra burdens in their use of IQ by provisions of the program may be placed at a permanent disadvantage. Depending on options chosen by the Council, these groups may include foreign interests, vessel owner corporations and partnerships which do not receive an initial allocation of IQ, and corporations and partnerships owning processors.

4.4 Effects on Vessel Safety

- Incentive for engaging in unsafe fishing practices is expected to be reduced under an IQ program.

An IQ program is expected to increase vessel safety by reducing substantially the incentive fishers have to disregard factors that increase the risk of accidents. A vessel will not lose opportunity to harvest sablefish if it stays in port during bad weather, stops fishing to make repairs, or harvests at a slightly slower and safer rate. However, due to a lack of reliable data and methodological problems, it is hard to provide quantitative estimates on the linkages between vessel safety and other factors, such as management practices.

In their recently released book, *Fishing Vessel Safety, Blueprint for a National Program*, the National Research Council notes that commercial fishing has one of the highest mortality rates of any occupation and that safety has largely gone unregulated (p. 142). While attributing a large portion of the safety issues to the actual vessel (e.g., its structure, equipment and crew), the authors did consider fishery management practices to be one of three major external influences on vessel safety (p. 131).

They assert that the current fishery council structure has not been effective in resolving allocation conflicts and that has "resulted in a highly competitive operating environment in which fishers

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may take unnecessary risks to maintain their livelihood" (p. 132). The extremely short and inflexible halibut and salmon openings off the West Coast and Alaska were specifically mentioned as examples of management practices that had forced fishers to work under "extremely adverse environmental conditions or not at all" (p. 133). The length of the Council's unrestricted sablefish fishery has been reduced to three weeks in recent years, significantly increasing the probability that fishers will be tempted to engage in unsafe practices in order not to lose fishing opportunities. Although the data is inconclusive about whether the number of incidents for Olympic-style fishing is significantly higher than might have occurred during an extended season, the authors note numerous potential safety concerns with current management of these fisheries.

Safety issues can arise due to the opening dates being predetermined and with no allowance for bad weather being made. They recommend the establishment of flexible season openings with the provision of alternate dates if the weather forecast calls for marginal or adverse weather. Although there is no data to test the effectiveness of the program they cite that the addition of such a practice in the Atlantic surf clam fishery was viewed as a responsible council action to safety concerns.

Other safety issues that could stem from shortened seasons are fishers moving into new fisheries that are farther from home port than their vessel is safely designed for, and reduced time for on-the-job training of new and inexperienced crew.

Summary. Analysis of data has yielded inconclusive results on the relationship between accidents and severely reduced season lengths. However, there are several incentives for engagement in unsafe fishing practices which are expected to be lower under an IQ program compared to status quo management for the fixed gear sablefish fishery. Under an IQ program, a vessel will not lose opportunity to harvest sablefish if it stays in port during bad weather, stops fishing to make repairs or harvests at a slightly slower and safer rate.

4.4.1 Equity

National Standard 4 dictates that allocations be made in a fair and equitable manner. Because of the wide-ranging views in our society about what constitutes equitable allocation, there are not widely accepted standards against which an objective analysis can conclude that one allocation decision is more fair and equitable than another. There are no widely accepted measuring sticks for equity similar to those for evaluating such factors as efficiency. Therefore, analysis is limited to pointing out the major decision which would likely affect the perceived fairness and equity of a limited entry system and the rationale for those decisions. This analysis will be found in the discussion of National Standard 4 in Chapter 5. It will be up to each individual involved in the process to evaluate for him or herself whether the alternative adopted is, or would be evaluated by the general public to be, on the whole, fair and equitable.

4.4.2 Windfall Profits

When one group of citizens acquires unanticipated profits at the expense of others as a result of shifts in the economy, there is often a general feeling of unfairness. The creation of transferable harvest privileges will create such a windfall for some. The initial recipients will make only

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minor direct payments for their limited access rights but may receive significant profits from the sale of these rights. These profits will not be as large as they would appear on the surface for three primary reasons: (1) they are subject to income tax; (2) the value generated through the creation of the QS was most likely accompanied by a reduction in the value of the permit and/or vessel owned by the initial recipient of the quota share; and (3) to maintain historic fishing levels, those receiving the largest QS will likely have to purchase additional QS from others. At present, the Magnuson Fishery Conservation and Management Act does not allow the government to charge initial recipients more than the administrative costs which arise directly from the issuance of permits. Thus, other than through collection of income taxes, there is no means by which any windfall profits may be extracted for the benefit of the general public.

4.4.3 Effect on Fishermen Job Satisfaction and Lifestyle

Social and socio-economic characteristics of fishers are described in Section 2.9. One of the relationships discussed is the correlation between job satisfaction and control over the means of production. For crew members and skippers who acquire IQ there would be the opportunity to experience additional control over the means of production and therefore a possible positive effect on job satisfaction. On the other hand, there are a number of factors which may require social adjustment on the part of the crew, the skipper and vessel owner. For example, some studies show that there are similarities in the characteristics of fishers and gamblers. An IQ program will take many of these similarities away. With a restricted amount of fish, there is no longer the chance of making an unexpectedly large amount of money due to good fishing fortune or fishing skill. Additionally, harder work and longer hours will no longer bring in greater catches. Skills in handling, maintaining quality and timing catch with markets may replace hard work and endurance as the marks of a good fisher. Skill in locating fish may not be important so much for the greater harvests such skills bring as for their value in reducing harvest costs. As the importance and measures of various skills change, there may be some disruption in the strong sense of pride and job satisfaction generally experienced by individuals in the profession.

There is also expected to be a significant increase in safety conditions during the sablefish harvest as compared to those present during the recent two and three week openings.

While the changes discussed above may be significant for many fishing operations, sablefish harvesting may be only a small portion of the overall fishing operations of many vessels. To the degree that this is true for a particular operation, the impacts discussed in this section will be lessened.

4.4.4 Risk of Foreign Control

Concern has been expressed that transferable rights under an IQ program may be subject to foreign purchase and control. Foreign interests which were displaced from fisheries within 200 miles of the U.S. coast by the MFCMA have a continued interest in access to U.S. fishery resources.

In response to this concern the Council has specified provisions in the IQ program that would require anyone acquiring control of IQ to be eligible to own a U.S. fishing vessel. Despite this provision, there is concern by some that through corporate structuring or financing arrangement

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foreign interests may gain control over IQ. The Council is considering other provisions which would limit foreign control as well as participation by partnerships, corporations and absentee owners. These provisions would (1) require that a the owner of QS/IFQ be on board the vessel during fishing and landing operations, (2) prohibit leasing, and (3) prohibit corporations and partnerships which did not receive an initial allocation from acquiring QS. These provisions would have significant ramifications for the performance of the program. These effects are discussed in Section 3.7.2 and in Chapter 5 in the section on National Standard 4.

4.4.5 Free Enterprise and Privatization of a Public Resource

Concern is often expressed that limited entry goes against the "free enterprise system" and represents the privatization of a public resource--the creation of a private "property right." While what would be allocated are fishing "privileges," rather than "rights," these "privileges" are beneficial to the economy to the degree that they emulate private property "rights" and support the free enterprise system. The basis for the strength of this system is that individuals who own resources will husband them to achieve the greatest good for themselves and, in pursuit of that personal benefit, will be guided to use the resources to produce the greatest value for society.

Failings of the free enterprise system generally occur when property rights systems are not in place, so that the individual does not bear the full cost and benefit from his or her use of a resource. For example, wastes are released into the air and water, in part, because the person creating the waste bears only a very small portion of the costs of the pollution created. Fisheries is another area in which property rights are not assigned to a resource. License limitation and IQ are attempts to rectify the economic failures which occur as a result of the lack of property rights (e.g., overcapitalization) by assigning access privileges which behave in some ways like property rights.^{1/}

The fishery is a public resource held as common property by the people of the United States. Statements in the IQ program indicate that rather than a "right," an IQ constitutes a fishing "privilege" which may be revoked or modified by an amendment to the groundfish plan. At present, when QS allocated under the IQ program is sold, capital gains taxes may be charged against the value of QS, recovering some of the value of the resource for the general public. Future changes to the MFCMA may allow the government to directly extract a rent for the QS allocated.

4.5 Effects on Geographic Distribution of Fishery Impacts

There are two factors which may cause geographic redistribution of harvest: (1) net value of harvest and (2) restrictions on area of landing.

1/ Because of the fugitive nature of the resource, the rights to specific fish cannot be assigned. Therefore there is not full emulation of a private property system. For example, an individuals may find it in their best interest to highgrade because, despite the negative effect highgrading may have on productivity of the resource, the effect on their QS may be insignificant.

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First, if the net value generated is higher in some regions harvest may tend to occur in those regions. Higher net values might be expected if exvessel revenues are higher or operating costs are lower in some ports and fishing areas (e.g., catch per unit of effort (CPUE) in a sablefish directed fishery is higher, sablefish CPUE in a bycatch fishery is higher, travel time from fishing grounds is lower, the costs of inputs such as fuel and food are lower.) One would expect some costs to be lower and exvessel values to be higher in ports closer to central distribution points and those with more processors. The geographic differences in costs and revenues may be mixed resulting in a blend of strategies. For example, if CPUE is higher in fishing areas which are distant from high exvessel value ports, vessels would have to increase their travel time costs to benefit from both the port and fishing area advantages. It is also possible that processors may acquire IQ and ask vessels to deliver to ports in which they have plants rather than buying stations. However, processor operating decisions will likely be made in the context of all species they purchase and the need to compete with other processors through the provision of local buying stations at ports distant from their processing plant.

Regulations to make the IQ program more enforceable may include restrictions on ports of landings. The port restrictions and regulations may or may not be determined as part of this amendment (See Section 15.12). Restrictions on ports of landing, while reducing enforcement costs, could also reduce the net benefits generated in the harvesting and processing sectors by forcing landings away from optimal ports. Table 4-4 shows the historic distribution of fixed gear sablefish landings.

Regardless of the effects of the program on geographic distribution of harvest and landings, all of the benefits from the fishery do not necessarily follow the geographic distribution of harvest and landings. A large portion of the vessels harvesting sablefish also participate in numerous other fisheries. If there are local opportunities in other fisheries and social connections within communities, vessel home ports and the residences of their owners and crew may not change. Vessel operators wishing to take advantage of higher profit potential in other areas or required to land in certain open ports may choose to keep their same home port and travel to those areas, if benefits warrant the travel time. Hence, a portion of the benefits from the fishery may stay in the area of the original vessel ports and owner and crew residences.

If some ports have cost and revenue advantages due to more central locations, over time there may be a tendency for vessels operating out of those ports to bid quota away from vessels in other ports. On the other hand, if harvest areas with higher CPUE are more distant from central locations, there may be a countervailing effect. In particular, this countervailing effect may be expected if stocks are not very mobile and there is localized depletion around central areas.

4.6 Summary of Effects on Groups

4.6.1 Permit Owners

With the implementation of the groundfish license limitation program, vessel owners generally experienced a decrease in the value of their vessels. The size of the decrease is related to the degree to which groundfish fishing was the most profitable use of the vessel. The "A" permits issued were generally expected to capture the value of the groundfish fishing opportunity at the time the program was implemented as well as expectations about future profitability of the

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TABLE 4-4. Fixed gear sablefish by port with ports ranked by average fixed gear sablefish landings (1984-1991).

Ranking by 1984-1991 Average	Port	Metric Tons	Cumulative Percent of Landings	1989	1990	1991
1	Newport	7,125	16.4	2	1	4
2	Seattle	4,371	26.5	7	3	1
3	San Francisco	2,638	32.6	4	5	9
4	Neah Bay	2,560	38.5	6	2	3
5	Bellingham	2,486	44.3	3	10	2
6	Coos Bay	2,030	49.0	1	7	5
7	Bragg	2,018	53.6	15	9	7
8	Winchester	1,880	57.9	14	24	23
9	Orford	1,847	62.2	23	18	8
10	Westport	1,485	65.6	21	22	26
11	Florence	1,392	68.9	8	6	13
12	Astoria	1,360	72.0	25	8	6
13	Ilwaco/Chinook	1,313	75.0	10	17	29
14	Pedro	1,211	77.8	33	43	20
15	Oakland	1,140	80.4	5	4	14
16	Crescent	1,065	82.9	24	20	17
17	Monterey	1,017	85.3	11	12	19
18	Angeles	838	87.2	29	32	25
19	Moss	810	89.1	12	16	15
20	Everett	799	90.9	9	34	22
21	Eureka	691	92.5	26	13	16
22	LaPush	499	93.6	13	23	11
23	Brookings	391	94.5	46	19	12
24	Princeton	336	95.3	18	15	10
25	Depoe Bay	296	96.0	30	49	52
26	Blaine	242	96.6	32	30	37
27	Gold Beach	206	97.0	51	28	24
28	Newport Beach	204	97.5	19	14	18
29	Other Los Angeles Orange County	192	98.0	37	11	21
30	Bandon	154	98.3	16	47	33
31	Bodega	123	98.6	17	33	34

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TABLE 4-4. Fixed gear sablefish by port with ports ranked by average fixed gear sablefish landings (1984-1991).

Ranking by 1984-1991 Average	Port	Metric Tons	Cumulative Percent of Landings	1989	1990	1991
32	Tillamook/ Garibaldi	107	98.8	40	21	27
33	Other South Puget Sound	100	99.1	27	27	45
34	Northern California	70	99.2	47	53	56
35	Morro	65	99.4	22	29	30
36	Anacortes	54	99.5	42	26	44
37	Cruz	45	99.6	34	25	43
38	Other San Francisco San Mateo County	39	99.7	20	48	41
39	Tomales	39	99.8	50	56	59
40	San Diego	37	99.9	36	36	31
41	Other Santa Barbara/ Ventura County	21	99.9	28	31	28
42	Other North Puget Sound	9	99.9	52	57	60
43	Oxnard	7	100.0	31	35	39
44	Terminal Island	6	100.0	41	38	32
45	Grays	3	100.0	53	58	61
46	Avila	3	100.0	38	40	36
47	Hueneme	2	100.0	35	37	40
48	Townsend	1	100.0	54	39	46
49	Willapa	1	100.0	56	59	35
50	Barbara	1	100.0	39	50	53

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groundfish fishery. Those vessel owners who received "A" permits experienced little decrease in the value of their combined vessel/permit assets and likely have experienced a slight increase due to an increase in expectation about future profits caused by the license limitation program. Those who did not receive "A" permits probably experienced some decrease in the value of their vessel.

The value of longline and fishpot permits is derived, in part, from the opportunity the permit provides to harvest sablefish in common with all other permit holders. A sablefish IQ program would partially separate the opportunity to harvest sablefish from the other groundfish fishing opportunities provided by the limited entry permit (a limited entry permit would still be required to use the IQ). Thus it is expected that the value of permits will decline and that value will be captured by the sablefish IQ. In general, fishpot vessels are more dependent on sablefish than longline vessels (Hastie, 1988). For this reason, fishpot permits may decline more in value than longline permits. Because profit from the fishery is expected to increase under an IQ program, the market value of all the permits together with all the QS issued is expected to be greater than the value of the permits alone prior to implementation of the IQ program.

In individual circumstances, some permit owners will experience an increase in the total value of their permit/IQ assets. Other permit owners will receive no IQ or insufficient IQ to make up for the decrease in value of their permit.

"B" permits were issued for vessels which had some landings history in the fishery but did not meet requirements for an "A" permit. To receive a "B" permit, there must have been no change in vessel ownership since the last landings which qualified the vessel for the "B" permit. "B" permits are nontransferable and expire at the end of 1996. Ownership of a "B" permit will not entitle a person to an allocation of IQ. As the program currently stands, such owners may not acquire IQ and use them with a "B" permit vessel. Therefore, if an IQ program is implemented in 1996, "B" permit vessels would lose their ability to harvest sablefish in 1996, unless the owner (1) acquired an "A" permit and IQ, or (2) forfeited the "B" permit and opportunity to harvest non-sablefish groundfish species in favor of the opportunity to harvest sablefish and other groundfish in the open access fishery. As of November 1993, it was expected that 13 fixed gear "B" permits would be issued.

4.6.2 Harvesting Firms

Discussion in Appendix D on producer surplus covers many of the effects of the program on harvesting firms. In general, the QS initially received by most sablefish harvesting firms will not allow them to harvest their historic averages. Additional QS will have to be purchased in order to reach their historic harvest levels. On the other hand, increased flexibility in vessel operations may allow firms to reduce costs. Combined with the possibility of an increase in exvessel prices some of these firms may be able to achieve their previous profit levels with the lesser harvest.

Firms which receive an initial allocation may experience an advantage over firms trying to enter the fishery for the first time. Those vessels receiving an initial allocation will have a competitive advantage because they will not have to amortize the cost of the QS they were initially issued. Additionally, the QS asset they are issued will place them in a better financial position to bid for additional QS. If the Council adopts provisions banning entry by new corporations and

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partnerships, prohibiting leasing, and requiring the QS/IFQ owner to be onboard the vessel, new entrants will have significantly less flexibility. If a QS/IFQ owner needs to be away from a vessel to attend to business or due to a hardship circumstance, sablefish fishing activity will have to stop unless an exception is granted by the NMFS regional director. There are financial, liability and other benefits which may be derived from organization as a corporation or partnership. In order to enjoy some of the advantages held by corporations and partnerships which are grandfathered into the fishery, new entrants will have to own their QS outside the corporate or partnership structures. This reduction in flexibility is likely to be reflected in lower QS/IFQ prices.

Over the long run, there is likely to be little change for firms harvesting in other fisheries, assuming that most fisheries are generally at some highly overcapitalized level of equilibrium. Over the short run, vessels leaving the sablefish fishery may seek other harvest opportunities, decreasing profit levels in other fisheries and possibly stimulating bankruptcies.

4.6.3 Crew

Impacts on crew labor will generally be addressed in terms of the West Coast market for fishing labor as opposed to a market for labor specialized in the harvest of sablefish. It is assumed that crew labor skills used in the harvest of sablefish are not significantly different from those used in other West Coast fixed gear fisheries; i.e., any skills specialized for the sablefish fishery are easily learned by an experienced crew member. For skippers, the degree of specialization and difficulty of transferring those skills may be greater.

As discussed in Chapter 1, overcapitalization in an open access situation^{2/} results in the allocation of fish according to criteria other than efficiency. For example, management primarily by season closure allocates fish to vessels able to harvest the fish most rapidly, regardless of whether they do so most efficiently. Management by a method such as transferrable IQ increases the degree to which efficiency determines the allocation of fish and will likely result in a shift in the techniques and technologies used in the harvest sector of the fishery. These shifts combined with changes in the total amounts of capital employed in the fishery will have effects on (1) average number of job positions supported by the fleet's fishing activities, (2) stability and duration of employment (including certainty of job continuation), (3) total payments to labor, (4) earnings of individual members, (5) annual income of crew members, and (6) average number of jobs in shoreside processing.

The IQ program is expected to reduce the number of fishing vessels in the groundfish and related fisheries while output remains approximately constant and the value of sablefish output increases (compared to what would happen under status quo management). This will cause the productivity of labor (skipper and crew) and capital (vessels and gear) to increase in the fishery complex. At the same time, the cost of operating a vessel in the sablefish fishery is expected to decline as the race for fish is ended. This cost decline will take the form of fewer variable inputs per unit of output for each vessel. Since labor is one of the variable inputs, it may decline per

2/ Or "open harvest" situation where number of participants are limited by permits but there is no specific limit on the catch by any individual harvester.

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vessel. The total man-hours used in the fishery complex which includes sablefish may therefore decline, relative to its level without the IQ program.

It may happen that the IQ program will result in more sablefish being processed at sea, in which case crew size and time at sea in the sablefish fishery may increase. However, this increase would be offset by reduced man-hours spent dressing sablefish by shoreside processors, so that total man-hours including processing would still decline.

The increased productivity of labor in the fishery will eventually cause an increase in the rate of compensation for crew members throughout the fishery complex, although it may not be as large a percentage increase as the percentage decrease in man-hours, in which case the total payments to crew in the fishery complex would decrease. However, annual income to those members in the IQ fishery should increase as a result of the program.

Employment stability and duration for jobs associated with sablefish harvest is likely to increase. The most efficient vessels which engage in a sablefish directed fishery are likely to accumulate additional IQ, increasing the duration of their harvest activity. Vessels which have been fishing at levels of intensity similar to an Olympic fishery may slow their harvest to some degree, extending the duration of their sablefish directed activities and the duration of the crew employment. Stability of employment may be increased if use of the sablefish IQ is timed to occur between participation in other fisheries in order to maintain more continuous vessel operations. For jobs on vessels which take sablefish as a bycatch, the primary effect will be on crew earnings from these jobs.

4.6.4 Processors

An IQ program is expected to decrease processing and marketing costs in two ways. First, it provides greater flexibility for processors to select delivery schedules that reduce processing costs. Second, it may reduce freezing and cold storage costs.

In making a decision concerning when and how to fish, fishers would respond to market incentives. The ability of processors to influence these incentives by offering season and quality specific exvessel prices or other inducements means that the preferences of individual processors would be considered by fishers but would not necessarily dictate when and how fishers would fish. Because the decisions of fishers would reflect the desires of both fishers and processors of different uses of IQ, both groups could benefit from the opportunities offered by IQ. For example, it may become mutually beneficial for a fisher and processor to agree on delivery schedules, quality control measures and prices. Such agreements could decrease uncertainty, decrease costs and increase marketing opportunities.

Some processors may not want small deliveries throughout the year and would reflect this desire in setting their prices or delivery contracts. Other processors might adjust their production schedules to accommodate such deliveries. If a processor believed the most efficient use of manpower and space was to continue to process large quantities of sablefish in a short period, arrangements could be made with fishers to match this landing pattern. Due to the strong seasonality in consumption of sablefish in Japan, processors may prefer relatively short seasons

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but later in the year. Local fresh markets would likely be supplied year round by West Coast fisheries which may have a cost and quality advantage over Alaska fisheries.

There may also be a switch in processing activity from processors to vessels as vessels operating at a more leisurely pace attempt to maximize their profit per unit of QS held. Under the Canadian IQ systems there has been a reported change in some of the vessel-processor relationships. Rather than buying fish from vessels Canadian processors are reportedly providing processing and cold storage services to vessel owners who retain ownership of the fish and the attendant marketing risks and potential rewards.

4.6.5 Consumers

- Higher prices for sablefish do not necessarily imply greater or lesser consumer benefit (consumer surplus).
- Because most sablefish is exported, most of the effect will likely be on foreign consumers.

Higher exvessel prices for sablefish do not necessarily imply reduced or increased benefit to consumers. Consumer benefit (consumer surplus) is the difference between the amounts individual consumers would be willing to pay for sablefish and the market clearing price which they pay. Price may increase with higher quality products or production during a time of year when prices are higher. There is uncertainty concerning how much a sablefish IQ program will increase prices. With the IQ programs in Alaska and Canada, advantages from more flexible marketing opportunities may be reduced. Price increases may reflect an increase or decrease in consumer surplus depending on demand for different qualities of products at different times of year.

The U.S. sablefish harvest is consumed by both domestic and foreign consumers. The effects of the sablefish IQ program are expected to be less on domestic consumers than foreign consumers because most of the product is exported. While foreign markets are the primary consumers of West Coast and Alaska sablefish, under an IQ program local fresh markets would likely be supplied year round by West Coast fisheries which may have a cost and quality advantage over Alaskan and Canadian fisheries. Domestic consumers will benefit if the sablefish IQ program increases domestic sales. Ability to provide product throughout much of the year may be an important factor in increasing domestic sales. The net effect on consumers will be widely dispersed and minimal for most consumers because there are many substitutes for sablefish and because sablefish are a small part of the typical family's food budget.

4.6.6 Financial Institutions and Other Lenders

Lenders who have relied on the collateral provided by a vessel or limited entry permit to secure a loan will likely see a change in the value of that security. The value of vessels will have likely decreased with the license limitation program. The value of a portion of the above normal returns from the fishery which exist at the time permits are issued will be captured in the permit value (along with expected changes in those values in the future). With the implementation of a sablefish IQ program, it is likely that the IQ price will capture the value of the longline and fishpot permits which is attributed to opportunities in the sablefish fishery along with some of

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the value of sablefish vessels which are more efficient than the average sablefish vessel. Thus, any lenders which may be relying on the value of a limited entry permit and vessel as collateral may see a decline in that value.

4.6.7 Communities

The initial distribution of QS will generally reflect historic patterns of fishing and is not expected to have a significant initial effect on community income (Table 3-13). If the QS and their initial recipients stay in the communities, gross and net income from the sablefish harvest is expected to increase, increasing the direct, indirect and induced income within the communities. If after initial issuance QS is geographically redistributed, fishing sectors in some communities may suffer to the degree that they are dependent on the fixed gear sablefish harvest. There is a potential for a geographic shifting of QS harvest from one community to another as discussed in Section 4.4. Additionally, the program would create a situation in which processing may move offshore with benefits going primarily to the home ports of vessels such as freezer longliners.

An evaluation of 1991 PacFIN data shows that for 10 of 82 port codes, nontrawl sablefish revenues comprised between 5 and 50 percent of total fishing receipts (including landings from Alaska). The communities associated with these port codes, in order from least to most percentage of fishing revenue from nontrawl sablefish, were as follows: Brookings, Newport, Fort Bragg, Bellingham, Port Orford, Seattle, Newport Beach, Florence, Neah Bay, and La Push. While in the 82 ports with fixed gear sablefish landings dependence on fixed gear sablefish by the fishing industries as a whole may be relatively low, the impact on particular businesses may be more significant. For example, for Seattle processors as a whole fixed gear sablefish purchases are less than 20 percent of their entire fish purchases, but among processors handling fixed gear sablefish in Seattle over 50 percent of their purchases are of fixed gear sablefish. Should there be a geographical shift in harvest, the loss of sablefish processing together with recent declines in other fisheries such as salmon and the yet undetermined effects of Amendment 6 (license limitation) could cause some processors to close. If a geographic redistribution occurs, the possibility of processors closing together with lost harvesting activity may adversely affect some communities while other communities benefit from more sablefish harvest and an increase in personal income per pound of harvest.

4.6.8 Fisheries Enforcement

In May of 1993, estimates were made of the enforcement efforts required to implement an IQ program covering all West Coast groundfish fisheries. The lowest cost enforcement program identified would have required about 10 percent of the current NMFS enforcement office budget and the full time attention of a significant portion of the NMFS enforcement personnel in this region of the country. If enforcement of such a IQ program were made a top priority, effectiveness in fulfilling other enforcement responsibilities would likely deteriorate.

Subsequently, industry and enforcement representatives met to design an IQ enforcement program which would cover just the fixed gear sablefish fishery. The program developed was estimated to require two FTE NMFS enforcement officers and would rely on IFQ inspectors or fishery technician observers to provide additional deterrence against cheating. There are 31 enforcement officers operating on the West Coast out of the Northwest and Southwest Regions. Costs for two

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officers represent less than 2 percent of the national NMFS enforcement budget. However, it is not anticipated that new officers will be hired, but rather that time will be taken away from existing duties to enforce the IQ program. State enforcement agents would also experience some additional enforcement burden as they would have to monitor compliance with new IQ regulations in the course of their routine activities. A description of state and federal fisheries enforcement activities is included in Chapter 2. Appendix B and Section 3.7.5 describe enforcement systems proposed for an IQ program.

The cost for the IFQ inspectors might be born by industry through a requirement that "certified inspectors" be present. Some administrative costs would be expected for the certification program. The alternative, requiring the presence of fisheries technicians, could be funded through NMFS with possible grants to state fisheries agencies.

4.7 Effects on Other Fisheries

4.7.1 Non IFQ Fisheries

In the course of relieving pressure on the sablefish fisheries, an IQ program might tend to increase participation in other fisheries for two reasons. First, participation in other fisheries would probably increase as fishers attempt to create a record of participation in the expectation that IQ programs would eventually be introduced in those fisheries. The Council has given notice of a November 13, 1991 control date for Pacific halibut, all groundfish, and coastal pelagics in an attempt to minimize this effect. Second, some vessels which do not receive an initial allocation sufficient to maintain their previous level of net revenue may seek to recover this revenue through increased participation in other fisheries, rather than incurring the cost of acquiring additional IQ. However, this effect on other fisheries will be limited by the fact that in recent years most sablefish fishing activity has occurred within a two to three week opening. Therefore, assuming that vessels made optimum use of their year prior to the imposition of an IQ program, the most a fixed gear sablefish vessel would be expected to extend its time in other fisheries would be two to three weeks. This would be for vessels receiving no IQ. On the other hand, vessels receiving substantial amounts of IQ may slow their rate of fishing and spend more than two to three weeks fishing sablefish. Assuming these vessels were generally fully employed this would decrease the amount of time they spend in other fishing activities. If vessels receiving the larger allocations would otherwise have experienced substantial periods of unemployment there may be no decrease in their activity in other fisheries. Tables associated with Section 2.2 present information on cross participation of sablefish vessels in other fisheries. This table indicates the other fisheries fixed gear vessels may be likely to turn to in an attempt to make up lost revenue.

In the British Columbia fisheries, a slowing of the sablefish season due to the IQ program has been credited for an increase in the landings rate of other species. As vessels have more time, they land their bycatch rather than discarding it. This has resulted in quicker fulfillment of the quotas for rockfish species.

An indirect effect on all fisheries is expected as the consolidation of IQ results in the retirement of some vessels from the fishery. Over the short term, this will increase the number of surplus vessels on the market, reducing vessel prices making it viable for purchasers of these vessels to

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bring the vessels into open access fisheries with the expectation of a reasonable level of profits. This may stimulate the bankruptcy of vessels already in the fishery. As capital becomes worn out and is not replaced, the stock of capital will be reduced so that there will be little effect on other fisheries over the long term.

4.7.2 Fisheries in Adjacently Managed Waters

The primary adjacent water fisheries directly affected by a transition to a sablefish IQ program would be the Alaskan fisheries. In recent years the Council has managed the West Coast sablefish fishery opening to coincide with openings in Alaskan longline fisheries, forcing vessels to choose between the fisheries. Absent a limited entry program in those fisheries, some sablefish vessels would likely have used the flexibility provided by this sablefish longline program to fish in both fisheries. An IQ program is expected to be implemented for the Alaska water fisheries prior to the implementation of this program. Therefore there would likely be little direct effect on Alaskan fisheries.

4.8 Effects on the Council Process

4.8.1 Council Work Load and Costs

- IQ programs can resolve allocation issues, reducing operating costs and Council work loads.
- The proposed program may resolve allocation issues which may have arisen within the fixed gear component of the sablefish fishery.
- Major trawl-nontrawl sablefish allocation disputes are not addressed by this program. The program may result in intensified lobbying between gears.
- Over the short term, the Council will likely have to make some adjustments to the program.

User groups often place demands on the Council to allocate them more of a resource. In the past, trawl and nontrawl vessels have been the primary groups competing over the sablefish allocation. The response to such demands has probably not adversely affected sablefish stocks but it has placed a large burden on the Council process and increased Council operating expenses. More recently, issues with allocational implications have arisen within the fixed gear fishery. For example, decision on how much quota to allocate to the unrestricted season and trip limit nontrawl seasons, the timing of the nontrawl season, and the trip limits set for the restricted nontrawl season have allocational implications between large and small vessels and between different geographic areas. The controversy and time spent on these issues has been minor compared to that spent on the trawl/nontrawl allocation issue.

The need for the Council to respond to allocation issues within the fixed gear fishery would be decreased because the IQ program provides an efficient mechanism for allocating sablefish quotas among user groups. The market for fixed gear sablefish IQ will allow those who can make more efficient use of IQ to bid the IQ away from those who are less efficient. By relying on market allocations, there would be a reduction in the need for Council intervention to assure productive use of the resource.

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This IQ program would not eliminate sablefish allocation requests. There would still be a need to allocate between trawl and nontrawl gears and between the open access and limited access fisheries. In fact, between gear group allocation lobbying may intensify as individuals become aware of the exact effect of changes in allocation on their personal gross income.

The effectiveness of the IQ program in resolving allocation issues and minimizing the request for Council intervention will be reduced to the extent restrictions are placed on the transferability of IQ. If for example large boat and small boat IQ were distinguished from one another or fishpot and longline IQ were not interchangeable, new areas for allocational conflicts may be created.

Over the short term, (perhaps the first few years after implementation) an IQ system itself may increase the demands for Council attention. As with any new management system, an IQ system would have a number of problems and idiosyncracies that would need to be corrected. Limited access systems established world-wide have required such adjustment after their initial implementation.

Summary. An IQ program in which the quota shares are fully transferable between all users of the resource resolves allocation issues and so reduces the long term allocation problems which the Council must address and the expenses of addressing these problems. The proposed IQ program resolves allocation battles which might otherwise arise between fixed gear harvesters of sablefish. However, major allocation issues such as that between trawl and nontrawl vessels is not addressed and this conflict may intensify. To the degree that the program restricts the transfer of IQ, new allocation conflicts may arise. Additionally, the IQ program itself will likely need to be adjusted and generate workload over the short term.

4.8.2 Social and Political Pressure in Establishing Allowable Catches

- It is not certain what effect an IQ program may have on political and social pressure for the Council to allow greater catches.
- Regardless of the pressures, in the past the Council has generally performed well in preserving the long-term productivity of the resource.

It is not clear whether an IQ program would increase or decrease the pressure on the Council to set higher quotas. Compared to status quo, the owners of quota shares may have a greater interest in protecting stock productivity and hence the value of their quota shares. However, in a given year, an increase in a quota would directly translate into an increase in the IFQ allotted to each QS owner. A study of IQ prices for wreckfish in the south Atlantic shows that fishers may tend to heavily discount future production (Gauvin et.al., 1992). As has occurred in New Zealand, there could be increased pressure to raise quotas. While the effect of the IQ program on pressure to raise allowable catch is undetermined, given the history of the Council in effectively conserving the resource, it is not expected that any such pressure would result in Council decisions adversely affecting the long-term productivity of the stock.

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5.0 CONSISTENCY AND RELATIONSHIP WITH THE MAGNUSON FISHERY CONSERVATION AND MANAGEMENT ACT AND OTHER APPLICABLE LAW

5.1 Magnuson Fishery Conservation and Management Act (MFCMA) Requirements

The individual quota (IQ) program, if approved, must be consistent with and meet the requirements of the MFCMA. Specifically, the amendment must (1) be consistent with the National Standards, (2) take into account the considerations specified in Section 303(b)(6) and (3) include a Fishery Impact Statement.

5.1.1 Consistency with the National Standards

The MFCMA lists seven national standards with which any fishery management plan (FMP) must be consistent [Section 301(a)]. National Standard 4 specifically addresses allocation of fishing privileges.

National Standard 1. Conservation and management measures shall prevent overfishing while achieving, on a continuing basis, the optimum yield from each fishery for the United States fishing industry.

The MFCMA invests the Council with discretion to establish a system for limiting access to a fishery in order to achieve optimum yield (OY). OY is defined as the amount of fish which will provide the greatest overall benefit to the nation including maximum sustainable yield (MSY) as modified by any relevant economic, social or ecological factors [see 54 CFR Section 602.11(f)(1)].

Preventing overfishing is of paramount importance to the Council and an important goal under all management systems. This amendment does not change estimates of MSY, acceptable biological catch or harvest guidelines. As has been discussed elsewhere in this document, there are biological concerns with the present management system such as discards and unaccounted for fishing mortality. Under an IQ program, the biological concern would center around underreporting of landings and discard mortality caused by high-grading. The ability of an IQ program to minimize discards will depend heavily on the effectiveness of the enforcement program. With an inadequate enforcement program and without sufficient compliance support from the industry, the conservation benefits of an IQ program could be more than offset by increases in both high-grading and unreported landings.

By choosing to implement an IQ program, the Council would be stating that it expects the benefits (i.e., reducing harvest costs, increasing product quality and prices, and increasing safety) will likely outweigh the costs (i.e., additional administrative and enforcement costs, and additional costs some fishers would bear) and it expects the fishery will be moved closer to OY. These latter costs would include the social costs associated with a change in employment opportunities for some. See Chapter 4 for a full discussion of costs and benefits.

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National Standard 2. Conservation and management measures shall be based upon the best scientific information available.

In developing this proposed amendment, state, National Marine Fisheries Service (NMFS) limited entry office, Pacific Coast Fisheries Information Network (PacFIN) and vessel cost data bases were accessed in order to obtain the most up to date information available. The Council and work committees were provided with background documents covering the design and performance of IQ programs throughout the world.

National Standard 3. To the extent practicable, an individual stock of fish shall be managed as a unit throughout its range, and interrelated stocks of fish shall be managed as a unit or in close coordination.

This proposed amendment maintains the status quo sablefish management unit. While the amendment would focus solely on fixed gear sablefish harvest, the Council recognizes that the species caught by fixed gear, and all gears, are interrelated. To that end, the Council has already developed a license limitation program covering all groundfish species. Depending on the outcome of the Council's consideration of a fixed gear sablefish program, the Council may consider IQ programs for other species and gears. The Council has already established a control date (November 13, 1991) for all groundfish species and gears, halibut and coastal pelagic species. This control date puts fishers on notice that any catch subsequent to that date may not be considered as part of the catch history on which allocations may be based. All West Coast fisheries are interrelated to the degree that vessels move between different fisheries. Limited entry programs are either in place or being considered for other fisheries managed by the Council.

National Standard 4. Conservation and management measures shall not discriminate between residents of different states. If it becomes necessary to allocate or assign fishing privileges among various United States fishers, such allocations shall be (1) fair and equitable to all such fishers; (2) reasonably calculated to promote conservation; and (3) carried out in such a manner that no particular individual, corporation or other entity acquires an excessive share of such privileges.

The allocation of fishing privileges as set forth by the proposed IQ program would not discriminate among residents of different states. The prohibition on discrimination is

an extension of the federal privileges and immunities clause of the U.S. Constitution, which means that Councils may not rely on, nor incorporate within an FMP, a state law that discriminates against residents of a different state. Discrimination is a distinct concept from equity. (54 CFR Sec 602.14)

The proposed IQ program furthers neither the reliance on nor incorporation of any state laws. Based on the analysis of quota share (QS) distribution in this document, it is apparent that it reflects recent and historic participation levels without regard to state of residency.

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The greatest test of equity faced in allocating fishing privileges is determining who to allocate to and the basis on which allocation should be made. While this system is designed to allow almost anyone to purchase an IQ, those initially receiving harvesting privileges will have a competitive advantage by not having to amortize the cost of their privileges. There is not a generally accepted measure of equity in the same way that there is for efficiency. Equity does not necessarily imply a more equal allocation. An allocation to a few individuals might be considered equitable if the rationale for the allocation were well-reasoned and, for example, generated greater benefits for the nation as a whole. The remainder of this discussion on National Standard 4 focuses primarily on the reasoning behind allocation options currently under consideration. It will be up to each individual involved in the decisions process to evaluate whether the alternative adopted is, or would be evaluated by the general public to be on the whole, fair and equitable.

The Council's decision to allocate QS to permit owners is based on the effect the creation of sablefish harvest privileges will have on the value of assets. With the creation of a permit system (Amendment 6), a portion of the value of a vessel which is related to its potential profitability in the groundfish fishery is expected to have been captured by the value of the permit. Consequently, the value of all vessels will have declined to the degree that one of their most valuable uses was in the sablefish fishery. With the creation of the fixed gear sablefish IQ program, the value of the opportunity to harvest sablefish is being split off from the permit. This will result in a decline in the value of the permit. Similar declines in value are not expected for any other inputs related to harvest. While the total amount of labor employed may go down under an IQ program, precedence in the Canadian program shows that total income for labor may increase. Therefore, allocation to vessel owners with permits will compensate to some degree those whose assets will decline in value due to the creation of an IQ program.

The group to whom allocation is made is further restricted by a recent participation requirement (i.e., one landing of either Option 1: sablefish or Option 2: groundfish with longline or fishpot gear between August 1, 1988 and November 13, 1991); and possibly a minimum landing requirement (i.e., 3,000 pounds of sablefish with longline or fishpot gear during the allocation period, January 1, 1984 through November 13, 1991). The recent participation requirement based on sablefish is intended to increase the probability that QS will go to persons currently active in the sablefish fishery. Allocating to current participants based on sablefish landings (1) minimizes the dislocation caused by changes in the rules governing who is allowed to fish and (2) increases the efficiency of implementation by reducing the transaction costs which are incurred when QS must be transferred from initial recipients to current participants in the fishery. Additionally, federal policy established in the MFCMA mandates consideration of current participation in the design of limited access programs. Requiring 1 groundfish landing instead of a sablefish landing to qualify for an initial allocation of QS would allow individuals to qualify who have historic participation in the sablefish fishery and have remained a part of the West Coast groundfish fishery, but who chose not to participate in the sablefish fishery due to shortened seasons in more recent years.

The 3,000 pound landing requirement option is explicitly linked to an allocation option which would divide 25 percent of the QS issued equally among all permits whose owners qualified for QS. This option is expected to result in a minimum allocation of QS equivalent to about 9,000 to 10,000 pounds of individual fishing quota (IFQ) under a 2,500 mt harvest guideline. The

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purpose of the minimum landing requirement is to prevent those with very small amounts of catch from receiving a large "unearned" benefit from the IQ program and to reduce the administrative costs which might be entailed in handling small allocations. Under this provision, 14 applicants, who would otherwise qualify for some QS (about 10 percent of those otherwise expected to qualify), would receive no IFQ. Absent this minimum landing requirement, these applicants would otherwise have received an average of about 100 pounds of IFQ and a maximum of about 400 pounds of IFQ (based on permit history and the Package A allocation formula, which does not have an equal allocation component, and assuming a 2,500 mt harvest guideline).

The second decision facing the Council is the basis for making the allocation. Allocation options available are unlimited and might include consideration of some combination of factors such as number of years in the fishery, dollar value of capital investment, size of vessel (length, gross registered tons, etc.), gear used, dollar value of historic landings, weight of historic landings and equal allocation to all qualifiers. The allocation options currently under consideration by the Council focus on the last two factors, weight of landings and equal allocation. The focus on weight of historic landings takes into account present participation, historic fishing practices and dependence on the fishery as mandated by Section 303(b)(6). Using factors such as the size of the vessel in the allocation formula would create windfalls for owners of large vessels that have been relatively inactive in the fishery. It would penalize those small vessel owners who have outperformed their larger competitors. Similarly, number of years in the fishery or dollar value of capital invested in fishing may be totally unrelated to historic participation or dependence on the sablefish fishery. Dollar value of historic landings was rejected because of geographic variation in the price, it did not seem fair to penalize those delivering to locations where prices might be low due to distances from markets. The Council is currently considering three allocation formulas. Package A considers one allocation formula option based entirely on historical catch, and Package B considers two formulas which have a component based on the principle of equal allocation. Under all formulas most of the allocation will be based on catch history.

One of the most controversial decisions facing the Council is the catch history to be used in making the allocation; i.e., whether to allocate on the basis of the history of the permit (vessel)^{1/} a person currently owns (owns at the time of application and QS issuance), or on the basis of a persons catch history as a vessel owner. The controversy over this decision has led to two other options: (1) allocate 50 percent based on the catch history of the permit currently owned and 50 percent based on the catch history of the vessel owner and (2) allow applicants to choose between permit history and personal history (so long as there is no transfer of the permit or

1/ Permit history will generally be identical to vessel history in situations where the permit (or permit right) has never been transferred to a different vessel.

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permit right after November 13, 1991).^{2/} If the permit catch history option is chosen, such a decision would allow the program to take into account changes in the persons "currently participating" which occurred between the control date and implementation. This would be accomplished by allowing persons to acquire the necessary catch history through the acquisition of permit rights which have an associated sablefish catch history. Additional rationale for viewing catch history from the point of view of the permit owned rather than the vessel owner may be provided on the basis of the content of economic transactions. If the purchase of a permit is viewed as the purchase of a business opportunity to engage in the sablefish fishery (along with other groundfish species), the price paid for the permit includes an estimate by the buyer and seller of the future earnings potential in the sablefish fishery. The allocation of IQ is an allocation of future earnings potential. If IQ is allocated to the seller of the permit (allocated on the basis of personal history), this person would be twice compensated for a portion of the value of the permit and the buyer would not receive that for which a payment was made (the opportunity to participate in the sablefish fishery). Under the license limitation program (Amendment 6), this is one of the primary rationales for allocating permits on the basis of vessel history, so that an individual having paid for a business in the form of a vessel purchase would be able to use the vessel in the manner anticipated when the purchase was made. On the other hand, some persons may have disposed of vessels which had a significant sablefish catch history and which qualified for "A" permits and then acquired a replacement vessel which also qualified for an "A" permit but did not have a significant sablefish catch history. When these transactions were carried out, the value of the "A" permit may have been independent of the amount of sablefish catch associated with the permit. The transaction price will have been based, in part, on the person's historic fishing practices and their anticipated profitability with the new vessel. If catch history is measured in terms of permit history, these persons having paid a price for a vessel/permit/business will have to twice pay for that business potential in the form of a purchase of the QS/IFQ necessary for them to continue to fish at their historic levels. In summary, an allocation based on personal history as a vessel owner may force persons newly entering the fishery to purchase their access rights twice (a permit purchase followed by a QS/IFQ purchase), while an allocation based on permit history may force persons with significant personal history who have acquired permits with little sablefish history to purchase their sablefish access rights twice.

The Council initially discussed the "permit history" allocation option in terms of "vessel history" with the provision that the vessel history would be considered transferred with the permit, if the permit were separated from the vessel. On closer examination of the "vessel history" option, it became apparent that the more accurate description of the option was "permit history". If allocation is based on permit history, once the rights to a permit are established, as a permit or

2/ Not allowing permit holders their choice of history after November 13, 1991 is intended to eliminate incentive for persons to make permit transfers for the purpose of increasing the total amount of QS which the parties to the transfer may claim (e.g., a permit holder with little personal sablefish catch history trades permits with a permit holder with substantial personal and permit sablefish catch history, then the person who originally had little permit history selects the permit history of the new permit and the other person selects personal history). Prior to final action, the Council will have to determine which history will apply in situations where a transfer has occurred after November 13, 1991 (personal history or permit history).

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permit right is transferred from one vessel to another, catch history would be considered transferred with the permit. The catch history transferred with the permit would be (1) the catch history for the vessel which had the history necessary to qualify for the permit and (2) the catch history of any other vessel during the time the permit rights were associated with the vessel. An additional implication of the "permit history" option is that a vessel for which no "A" permit was issued or a vessel from which the "A" permit was transferred would not entitle the current owner of the vessel to any IQ, regardless of the vessel's catch history. The argument in support of considering "permit history" rather than "vessel history" without regard to the permit is as follows: once it was established that harvest privileges would go with permits, permit rights have been bought and sold on the basis of the earnings potential which they represent. As the harvest privileges conveyed by the permit are disaggregated through the creation of IQ programs, allocating IQ on the basis of vessel history without regard to the permits could cause dislocations. An individual having acquired the rights to a permit and transferred them to a vessel new to the sablefish fishery could end up with a permit but no rights to harvest sablefish. Additionally, by attaching harvest rights to a permit, if for example a vessel sank and the permit rights were transferred to a replacement vessel, the owner of the replacement vessel would receive allocation based on (1) the catch history of the vessel which sank and (2) the catch history of the replacement vessel during the time it is under the ownership of the owner of the permit rights. Developing the philosophy of maintaining catch history and harvest privileges (permits) together until separated by an IQ program could give fishers a better idea of the potential implications of their decisions to buy and sell vessels and permits. If the Council establishes that catch history goes with the permit when it is transferred and this becomes a precedent which the Council relies on as it considers other IQ programs, it could reduce the uncertainty and confusion which has been present in the industry since the Council first started serious consideration of limited entry programs in 1987.

The allocation option which is based 50 percent on permit catch history and 50 percent on catch history of the person as a vessel owner, and the option which allows applicants to choose between permit catch history and personal history as a vessel owner essentially spread among more applicants the burden of inequities which may exist under allocation systems based solely on permit catch history or solely on catch history of the person as a vessel owner. The persons most affected by the Council's choice of allocation options are those who have bought or sold vessels or permit rights during the allocation window. For those who have not been involved in a transfer during this period, all options allow them to claim the same historic catch. The impact of the choice of allocation option on these individuals has to do primarily with the difference in the total amount of historic catch claimed by all applicants. Options which allow all applicants as a group to claim more historic catch dilute the amount of QS received by those who have identical permit and personal histories.

Under both allocation options being considered by the Council, most of the allocation would be based on a vessel's best 5 of 8 years during the allocation window (January 1, 1984 through November 13, 1991). Members of the industry committee which initially developed options for the window period generally held one of two positions. Longer term participants favored an allocation period based on the window period used for the license limitation program (1984-1988). More recent entrants favored using the period between the end of the license limitation window period and the control date (1989-1991). The committee finally recommended to the Council a balance between the two positions, 1984-1991. Each group, which would benefit by

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either of these other two periods, will lose a little in the longer more inclusive period. This compromise considers both historic participation and more current participation and dependence on the fishery. The industry committee believed the result would be a balance of fairness and the Council concurred.

Allocation would be based on less than the full number of years in the allocation period (the best 5 of 8 years) because the Council recognized that some hardship circumstances may affect a vessel's performance. Circumstances such as breakdowns and injuries are a hazard of the fishery and shared by all vessels and crews. However, certain events are abnormal and radically affect the performance of the vessel. The Council concluded that some mechanism should be included in the plan to take into account such circumstances. The result is a provision which allows qualified QS recipients to drop 3 years of landings history for the 8-year period used to calculate their QS. By using their best 5 of 8 years, fishers are provided the benefit of not having a few bad years count against them in initial allocation of QS. This reduces the need for consideration of hardship circumstances in an appeals process. Additionally, it allows those entering the fishery more recently to count closer to the same number of years of catch history as those in the fishery for five or more years of the allocation period.

The industry committee's initial report included only options based entirely on catch history. The Package B allocation options, which include elements based on equal allocation, were developed in response to public concern over the size of the windfall which would go to long-time highliners^{3/} and the lack of opportunity for some who had only recently invested in the fishery to develop their catch history. Based on this public comment, the Council decided to consider an option which would base part of the allocation on an equal allocation between all who qualified. Responding to the Council's action, some members of the industry committee developed a "modified" equal allocation option which became allocation Option B-1 of Package B. One of the primary objections voiced to an allocation formula based in part on equal allocation was that someone who only landed a few pounds of sablefish would receive many more times the QS than the person had historically caught, while most persons with a larger catch history would likely receive considerably less QS than necessary to maintain their historic catch level. This objection was addressed in Option B-1 by basing the "equal" sharing portion of the formula primarily on the average catch for years fished. Under this option, 25 percent of the total QS would be allocated based on the average catch for years fished with a minimum allocation of the QS equivalent 1,500 pounds and some upper limit. The upper limit is expected to be the equivalent of between 5,000 and 15,000 pounds of quota. Thus, for the 25 percent of the allocation to be shared equally, a recent entrant who had only fished 2 years at a given level would receive an allocation which would be the same as someone who fished at the same given level for all 8 years of the window period. The remaining 75 percent of the allocation formula

3/ The net "windfall" created by the IQ program would be less than the value of the QS allocated for two primary reasons. First, the value of vessels and permits will be reduced by the value of their use in the fixed gear sablefish fishery. Those receiving the most QS would likely have experienced the largest decrease in value of their assets, absent the QS allocation. Second, profits from the sale of QS will be subject to state and federal income taxes, likely reducing the windfall by a quarter to a third. Income taxes and landings taxes will be one way in which some of the benefits from the fishery are shared by all citizens.

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would be allocated using a formula which results in allocations more proportional to total catch history for the allocation window (average of best 5 of 8 years).

Option B-2 of Package B was developed in part in response to the complexity of Option B-1. Under Option B-2, 25 percent of the allocation would be divided equally among all permits owned by persons qualifying for an initial allocation. The equal allocation is distributed for the permit rather than the individual applicant to prevent an expansion in the number of equal shares allocated, which might occur if allocation is based on personal history as a vessel owner. If an equal share were given to each individual applicant, individuals with a personal history but no permit would be able to enter into joint ownership of "A" permits for the purpose of increasing the number of equal allocations going to a particular permit with the result being a diminishment in the size of equal shares going to all applicants. By restricting the equal allocation to permits, each entity owning a permit will receive one equal share regardless of the number of participants in the entity which might qualify for an allocation. For example, if three individuals participate in a partnership which owns an "A" permit and has a qualifying history and each of these individuals also has a qualifying catch history, then under the personal history option there may be four separate applications made for QS. However, under Option B-2, there would be only one equal share issued and that share would be issued to the partnership, which currently owns the "A" permit. Option B-2 is linked with an additional criteria for qualifying for an initial allocation. The applicant must have landed at least 3,000 pounds during the allocation period (January 1, 1984 through November 13, 1991), see Section 15.6.1.(D).

In applying the general allocation formula, each year of an applicant's catch history (in round weight or round weight equivalent) will be multiplied by an annual weighting factor before it is evaluated in the general allocation formula. The intent of the weighting factor is to measure pounds of catch in relation to catch opportunity in the year (hence, a heavier weighting for more recent years when catch opportunity has been lower) and to provide some additional credit for longer term history of participation and dependence on the fishery (hence, a heavier weighting for the earliest years relative to the middle years of the window period). The weighting factor for each year was determined by taking the total 1991 fixed gear sablefish landings made by vessels expected to meet recent landing requirements and receive "A" permits for longline or fishpot gear (based on having met license limitation minimum landing requirements as estimated using data available in April 1993), and then dividing that number by the total fixed gear sablefish landings made by such vessels in the year. While weighting factors were based on preliminary estimates, the factors are considered to be adequate approximations which will not be adjusted as information on license limitation qualifying vessels and recent participation is refined. These adjustments will not be made because (1) the factors, as specified, meet the Council objectives; (2) the need for certainty is more important than making the adjustments; and (3) adjusting the factors over time would create administrative complexities and confusion in the industry.

Initial allocation is only one of the allocation decisions before the Council. Rules restricting the transfer and use of IQ affect how IQ will be distributed in the future. Rules being considered in this plan include the following:

- Restrictions on total amount of QS or IFQ a person may hold. (Intended to restrict any person from accumulating an excessive share.)

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- Restrictions on control by foreign entities. (Intended to maintain a greater portion of the benefits from the resource for U.S. citizens.)
- Whether or not to adopt a package of options which would ban (1) new entry by corporations, partnership or other entities which are not individuals, (2) leasing and (3) the use of IFQ by anyone other than the owner of the QS/IFQ. As a package these options would (1) prevent an increase and likely reduce corporate and partnership participation in the fishery, (2) reduce the opportunity for foreign interests to acquire control of IFQ, (3) reduce chances that the fishery will become controlled by absentee owners who may have less concern for vessel safety and may bring fewer benefits to coastal communities, and (4) reduce the opportunity for circumventing caps on the amount of QS controlled. Not adopting this package of options would (1) increase the efficiency and flexibility of the program by allowing market forces to function more fully, (2) increase the value of QS, (3) allow new entrants the same business organization advantages enjoyed by those grandfathered into the IQ program, (4) allow all persons eligible to acquire "A" permits to also acquire fixed gear sablefish QS, (5) provide flexibility and income to individuals who may have temporary reasons for not being present during fishing operations, and (6) reduce the administrative cost and industry burden created by the need to appeal to the regional director for a hardship exception to the restriction on use of IFQ.

The other elements of National Standard 4 concern the promotion of conservation and allocation in a manner that does not give an excessive share to any one entity. The discussion on National Standard 1 and in Section 4.1 demonstrate that the IQ program is "reasonably calculated to promote conservation". There are provisions in the IQ program which would allow the reduction of the IFQ allocated to QS holders to levels below the total allocation to the IQ program if such a reduction were necessary to account for overages and unreported landings thereby ensuring allowable catches are not exceeded. Tables in Chapter 3, covering the distribution of the initial allocation, consideration of an allocation cap and cap on amount of IQ which could be controlled by a single person, demonstrate the degree to which the program would prevent the granting of an excessive share to any one entity.

National Standard 5. Conservation and management measures shall, where practicable, promote efficiency in the utilization of fishery resources; except that no such measure shall have economic allocation as its sole purpose.

The IQ program encourages all industry sectors to use the most combined overall efficient techniques of harvesting and processing. The analysis clearly demonstrates that an IQ program will lead to reduced harvest costs and savings overall to most segments of the industry (Appendix D). By reducing overcapacity through market means, the industry itself will decide on the most efficient methods to harvest sablefish with fixed gear. This will reduce the future use of management measures based on operating inefficiencies and allow for even greater savings.

Current measures used to conserve the sablefish resource have allocation implications. Decisions on the amount of fish to allocate for an unrestricted fishery and the time of year to open the unrestricted fishery, as well as the amount of the harvest guideline to allocate for a year-round small trip limit fishery, all implicitly contain allocational elements. The proposed IQ program

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would present a means of conserving the resource which would have different allocation implications. Thus, while economic allocation is a central element of the program, it is not the sole purpose. In addition to conserving the resource, the proposed action lowers harvest costs by eliminating the need to race for fish, increasing the quality and value of landings and processed products, and possibly increasing longer term employment opportunities at the expense of short-term employment.

National Standard 6. Conservation and management measures shall take into account and allow for variations among, and contingencies in, fisheries, fishery resources and catches.

Overall, an IQ program will allow the industry to self-adjust to changes in allowable harvest levels through normal market mechanisms rather than through regulations. This will, for instance, prevent allocation conflicts within the fixed gear fisheries that take sablefish. Management agencies will be able to focus their limited resources towards other issues rather than concentrating on regulations restricting effort levels and settling allocation disputes.

Administratively, fluctuation in the amount of fish available for harvest is taken into account by allocating shares of harvest rather than absolute amounts of fish. The amount of fish which may be taken with the shares will fluctuate in proportion to the total amount of fish available for harvest.

National Standard 7. Conservation and management measures shall, where practical, minimize costs and avoid unnecessary duplication.

The intent of this standard is to ensure that management measures are

designed to give fishermen the greatest possible freedom of action in conducting business . . . consistent with ensuring the wise use of the resources and reducing conflict in the fishery.
(50 CFR Section 602.17).

As shown elsewhere in this document, the regulatory burden on fishers will be lessened under IQ as compared to status quo. Likewise, fishers will have greater freedom to design their own fishing operations and cost schedules.

The tracking system developed to implement the IQ program may entail some duplication of the information recorded for state fish tickets. This duplication would be necessary to provide timely monitoring of compliance. Ability for an enforcement officer to determine in the field that a landing is covered by IQ is important if sufficient deterrence is to be provided to achieve compliance and thus meet conservation objectives.

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5.1.2 Section 303(b)(6) Considerations

Section 303(b)(6) requires the Council and Secretary of Commerce (Secretary) to take into account the following factors when developing a limited access system: (a) present participation in the fishery; (b) historical fishing practices in, and dependence on, the fishery; (c) the economics of the fishery; (d) the capability of fishing vessels used in the fishery to engage in other fisheries; (e) the cultural and social framework relevant to the fishery; and (f) any other relevant considerations.

Three measures in the proposed IQ program may take present participation into account: (1) recent participation requirement (at least 1 landing must be made between August 1, 1988 and November 13, 1991); (2) consideration of permit catch history for the purpose of making an initial allocation, if the permit catch history option is chosen over or in combination with the personal catch history option; and (3) requirement that an "A" permit be held. The recent participation requirement is intended to result in the distribution of quota only to those involved in operations actively engaged in the fixed gear sablefish fishery. If there had been no activity in this time period, then it was assumed that the person or fishing operation was no longer a participant in the fishery. If the permit catch history option is chosen, such a decision would allow the program to take into account changes in the persons "currently participating" which occur between the control date and implementation. This would be accomplished by allowing persons to acquire the necessary catch history through the purchase of a permit right which has been in the sablefish fishery. Consideration of permit catch history is discussed more fully in the above section on National Standard 4. Requiring that an "A" permit be owned is intended to increase the probability that the applicant has some interest and ability to continue to participate in the fishery. Regardless of these measures, some allocation will likely be made to persons no longer active in the sablefish fishery, but, the distribution to non-active fishers would be substantially reduced.

Past landing history, as substantiated by fish ticket reports, is in the Council's opinion a barometer of participation in the fishery, historical fishing practices and dependence on the fishery. The allocations made by the Council would be based primarily on landing history. The specific decisions made which take into account historic fishing practices and dependence on the fishery are discussed in the above section on National Standard 4.

Capability for participation in other fisheries is taken into account in sections of Chapter 2 on actual fixed gear sablefish vessel participation in other fisheries and Chapter 4 on the impacts on other fisheries. These sections, along with the net benefit analysis (particularly Appendix D), also address economics of the fishery. Under an IQ program, the amount of sablefish allocated to the fixed gear fishery would be the same as under status quo. The total amount of sablefish harvested would not change and there should not be a net change in effort (assuming a constant catch per unit of effort). Thus, for any vessel which would have a portion of its fishing activity initially displaced by an allocation, there will be other vessels which will have the opportunity to expand their sablefish fishing activity, reducing their dependence on non-sablefish fishing opportunities. Most sablefish vessels participate in other fisheries and are likely to attempt to make up any revenue reduction by increasing effort in other fisheries. However, because most vessels generally have periods of unemployment, expansion of opportunity to harvest sablefish for some vessels does not necessarily imply that there will be additional opportunity for other

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vessels in other fisheries. If other fisheries are at economic equilibriums, it is possible that increased activity in these other fisheries will result in the displacement of some vessels or that the displaced sablefish vessels may be unable to remain economically viable.

One of the most difficult aspects of instituting an IQ system may be the change in management style and the effect the change has on fishers' perceptions. With IQ, the premium on the ability to harvest quickly is replaced by a premium on the ability to efficiently harvest fish and maintain product quality. Such change may well prove unsettling to some fishers as they are forced to redefine their relative performance. Of equal concern to the industry is the change from free access among permit holders to quasi-private harvest privileges for specific amounts of fish. These changes may be felt through the industry and fishing communities as changes in status positions. If the Council chooses to go ahead with an IQ program, it will reflect their judgement that the type of economic and social dislocation which might occur with overregulation and overcapitalization in the open access fishery would likely be greater than that experienced with an IQ program.

5.1.3 Fishery Impact Statement

Section 303(a)(9) of the MFCMA requires that any plan or amendment submitted by a council to the Secretary include a description of the potential impact of the plan or amendment on the participants in the fisheries and on participants in other fisheries managed by adjacent regional councils. This document describes the potential effects of an IFQ program on participants in the West Coast sablefish fishery. Regarding the effects on other fisheries, Section 4.6 of this document is devoted to assessing the possible effects on non-IFQ fisheries, recreational fisheries and fisheries in areas managed by other regional councils. It is not expected that this action would directly affect participants in those fisheries managed by other regional councils.

5.2 Executive Order 12866

IQ programs represent the type of alternatives to direct regulation which is encouraged by Executive Order 12866. As such, the focus of the program is on a performance objective (the harvest of the allowable catch) rather than behavior (time and manner of harvest). In an attempt to identify the most cost effective way an IQ program might be implemented, alternative enforcement and administrative programs have been examined (Appendices B and C). The cost benefit analysis mandated by Executive Order 12866 is provided in Chapter 4.

In summary, the analysis presented in Chapter 4 indicates that the proposed rule would not be considered economically "significant". The proposed action is not expected to have an annual effect on the economy of \$100 million or more or adversely affect, in a material way, the economy; a sector of the economy; productivity; competition; jobs; the environment; public health or safety; or state, local, or tribal governments or communities.

5.3 Regulatory Flexibility Act (RFA)

The RFA requires examination of the impacts of proposed actions on small businesses, small organizations and small jurisdictions to determine whether a substantial number of small entities will be significantly impacted by the management measures.

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Data utilized in the analyses of the proposed alternatives show that up to about 200 "A" permit owners may be affected by a change in management from common access among license holder to an IQ program. This is the number of "persons" who are expected to hold fixed gear "A" permits which, absent the IQ program, would entitle them to harvest the limited entry fixed gear sablefish quota. Of the vessels for which "A" permits will be issued, most affected would be the 11 vessels which fished sablefish in 1992 but will not likely receive an allocation of QS under any of the allocation formulas (November 13, 1991). All permit holders are believed to fall in the category of small business (gross receipts less than 2 million).

Changes which would be expected to occur in the nature of the sablefish fishery would affect all holders of "A" permits under the groundfish license limitation program, either positively or negatively. For those holding IQ or receiving IQ fish, increased flexibility in the timing of harvest is expected to increase vessel efficiency, reduce processing and marketing costs, and increase product prices. With this flexibility, there is expected to be some increase in compliance costs as all catch must be recorded in a special IQ tracking and accounting system and landed in compliance with rules established to create an effective enforcement and monitoring system. The major burden imposed on small business entities by an IQ program would be the cost of acquiring QS/IFQ by those who do not receive a sufficient share in the initial allocation process. This cost may be seen by some to represent a reduction in flexibility for "A" permit holders who do not receive an initial allocation of QS. The benefits and burdens to industry are enumerated in Chapters 3 and 4.

There were 180 fish buying/processing sites at which nontrawl sablefish were received in 1991 (Table 2-7). Individually, these sites would all be considered small businesses, though it is known that single companies often own several processing plants which taken together may have receipts in excess of \$2 million and thus not be classified as small businesses. Of the 180 sites, 83 expended less than \$1,000 on nontrawl sablefish and 126 expended less than \$20,000. If an all electronic tracking and accounting system were implemented (requiring equipment purchase costs approaching \$1,000 for each site), the compliance costs at these sites would exceed 5 percent of their gross receipts. At this expenditure level, some of these sites may choose not to participate in the sablefish IQ program. It is not known how many of the landings which have traditionally been received at these sites come from the fleet which will continue to fish sablefish in the open access fishery. Regardless of the number, open access vessels would likely be able to provide a nontrawl sablefish supply to these sites sufficient to maintain these processing levels. If a site chooses not to participate in the program and a landing by a nontrawl "A" permit vessel were received, any sablefish catch could not be landed.

At some point, most initial recipients of QS will likely receive a windfall from the transfer of their initial allocation of QS to another party. This analysis indicates that if allocation is based on personal history, those with some interest in an "A" permit who have participated in the recent past (August 1, 1988 through November 13, 1991) but are otherwise no longer involved in the fishery would receive an immediate "windfall" as a result of the action. This windfall would come in the form of compensation received from the likely transfer of their initial allocation of QS to a party active in the fishery. If an allocation is based on permit history, it is likely that the recipients of initial allocations of QS will be involved in fishing activities at the time of allocation. These persons would be less likely to turn their QS into an immediate windfall through the sale of their QS.

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The alternative of continued common access within the pool of license holders would also affect a substantial number of small entities, although the effects are less quantifiable and would likely be felt sometime in the future of the fishery. Under the license limitation program, it is expected that there will continue to be expansion of capacity, albeit at reduced rate, as permits are transferred from less productive to more productive vessels. Depending on stock fluctuations, status quo management would likely necessitate additional traditional management measures related to timing of seasons, gear restrictions and other effort limitations. The future impacts of such actions on the harvesting fleet are unclear.

5.4 National Environmental Policy Act (NEPA) Consistency

This document is consistent with NEPA requirements that an Environmental Assessment or Environmental Impact Statement (EIS) be prepared for any proposed federal action. The basis for preparation of this EIS was that this proposed action constituted a major action due to its controversial nature and potential socioeconomic effects. If the proposed action is approved by the Council, this document will be submitted for NEPA review.

5.5 Coastal Zone Management Act (CZMA)

The alternatives in this document are consistent to the maximum extent practicable with the coastal zone management programs of Washington, Oregon and California, within the meaning of Section 307(c)(1) of the CZMA and its implementing regulations. The relationship of the groundfish FMP with the CZMA of 1972 is discussed in Section 11.6.1 of the groundfish FMP.

5.6 Endangered Species Act (ESA) and Marine Mammal Protection Act (MMPA)

The alternatives in this amendment: (1) common access to sablefish among fixed gear license holders (status quo) or (2) access to sablefish within the license program controlled through a sablefish IQ system, are not anticipated to jeopardize survival of endangered/threatened species or have any adverse effects with regards to marine mammal populations. Under a fixed gear sablefish IQ system, the patterns of fixed gear sablefish harvest would change from primarily a very brief opening with highly concentrated effort to a fishery with effort extended over greater time and possibly greater space. Total catch or effort is not expected to change. Re-initiation of a Section 7 consultation under the ESA is not necessary because the activities covered are within the scope of activities covered in previous Section 7 consultations that apply to the groundfish fishery. These consultations found no jeopardy to threatened or endangered species from the groundfish fishery.

Background. The purposes of the ESA are to provide a means whereby the ecosystems upon which threatened and endangered species depend may be conserved, to provide a program for the conservation of such threatened and endangered species, and to take such steps as may be appropriate to achieve the objectives of the treaties and conventions created for these purposes. Section 7 of the ESA requires all federal agencies to ensure that any action authorized, funded or carried out by such an agency is not likely to jeopardize the continued existence of any threatened or endangered species. Consideration of the MMPA, as other applicable law, is included since some of the marine species are listed as threatened or endangered under the ESA.

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Incidental mortality of all marine mammals, including those listed under the ESA, is a rare occurrence in groundfish fisheries according to information collected by NMFS (NMFS 1989 and 1991). Incidental mortality of marine mammal species is authorized under Section 114 of the MMPA. For Steller sea lions, which are listed as threatened under the ESA, incidental taking is authorized in the regulations at 50 CFR 227.12. With regard to the impacts of the groundfish harvests on marine mammal prey species, there is no evidence that the operation of groundfish fisheries off the coasts of Washington, Oregon and California is displacing marine mammals from essential habitat or depleting populations of forage species. Groundfish stock assessments do take predator removals into account as natural mortality and therefore the determination of allowable harvests should not adversely affect marine mammal food needs. Further, the coastal populations of marine mammals that prey on groundfish are either increasing (e.g., California sea lions, harbor seals, elephant seals) or have remained stable (e.g., Steller sea lions) for many years according to NMFS (1991), thereby indicating harvests are not adversely affecting these species. This information has been included in several Section 7 consultations (described below) that concluded the groundfish fisheries are not likely to jeopardize the continued existence of any threatened or endangered species.

A July 5, 1989 biological opinion prepared by NMFS on its Marine Mammal Exemption Program, concluded that incidental mortality of threatened or endangered marine mammals and marine turtles in association with all West Coast fisheries, including groundfish fisheries, is unlikely to jeopardize their continued existence. U.S. Fish and Wildlife Service (USFWS) also prepared a biological opinion, dated July 3, 1989, which concluded that the exemption program and related fishing activities, including the groundfish fishery were not likely to jeopardize the continued existence of any endangered or threatened species under the jurisdiction of USFWS (e.g., seabirds). Since these biological opinions directly addressed the potential impacts of groundfish fisheries, the findings apply to the Pacific coast groundfish FMP and this action.

Subsequent to the USFWS opinion, another seabird, the marbled murrelet, was listed by USFWS as a threatened species (October 1, 1992, 57 FR 45328). However, there is no information to indicate that marbled murrelets interact in any way with the groundfish fishery, directly or indirectly, and therefore no effects to this species are anticipated due to the groundfish FMP or this proposed amendment.

Subsequent to the aforementioned biological opinions, NMFS published emergency interim rules listing the Sacramento River winter-run chinook salmon (August 4, 1989, 54 FR 149) and the Steller sea lion (April 5, 1990, 55 FR 66) as threatened under the ESA. A Section 7 consultation was therefore re-initiated on Amendment 4 to the FMP. On August 10, 1990, NMFS issued a biological opinion that considered the effects Amendment 4 to the FMP may have on the threatened and endangered populations off of the Washington, Oregon and California coasts. The opinion reviewed impacts on marine mammals, sea turtles and Sacramento River winter-run chinook salmon and concluded that the FMP, as amended, would not jeopardize the continued existence of any of the species considered. Final rules listing the Sacramento River winter-run chinook salmon and the Steller sea lion as threatened under the ESA were published on November 5, 1990 (55 FR 46515) and November 26, 1990 (55 FR 49204), respectively.

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On November 26, 1991, NMFS issued a biological opinion that considered the effects of the domestic whiting fishery on Sacramento River winter-run chinook and concluded that the whiting fishery would not jeopardize the continued existence of Sacramento River winter-run chinook. An incidental take statement for Sacramento River winter-run chinook was included with the opinion. The opinion also stated that Snake River sockeye salmon, which was listed as endangered under the ESA on November 20, 1991 (56 FR 58619), would not be adversely affected.

5.7 Paperwork Reduction Act (PRA)

The major purposes of the PRA of 1980 are to (1) minimize the federal paperwork burden for individuals, small businesses, state and local governments; (2) minimize the cost to the federal government of collecting, maintaining, using and disseminating information; and (3) ensure the collection, maintenance, use and dissemination of information by the federal government is consistent with applicable laws relating to confidentiality. If this amendment is approved by the Council and Secretary, the following categories of information collecting activities would be undertaken and require a PRA analysis and Office of Management and Budget authorization.

1. Initial Issuance. Applicants would be required to submit proof of vessel ownership for vessels for which they are claiming landing history (one time submission). Confidential information on vessel catch history would be acquired from the PacFIN data base maintained by Pacific States Marine Fisheries Commission and used to determine the amount of QS to allocate to applicants.
2. Transfers. All transfers of QS and IFQ would require the submission of information on the transfer to NMFS (transfers to a new entrant to the fishery would require submission of information showing that the new entrant is eligible to own QS and IFQ).
3. IFO Tracking. In order to track the use of IFQ in a timely manner, landings of sablefish under the IQ program may require the submission of paperwork in addition to the state fish tickets currently required for all landings.

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6.0 LIST OF PREPARERS AND COORDINATION WITH OTHERS

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The preparers of the supplemental Environmental Impact Statement consulted with members of the Council's Groundfish Management Team (GMT) and Enforcement Consultants. The GMT includes members from California Department of Fish and Game, Oregon Department of Fish and Wildlife, Washington Department of Fisheries and National Marine Fisheries Service. In addition, an industry committee on individual quotas (IQ) developed the IQ proposal which served as the basis for this amendment.

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7.0 LIST OF AGENCIES, ORGANIZATIONS AND PERSONS RECEIVING THE SUPPLEMENTAL ENVIRONMENTAL IMPACT STATEMENT

California Department of Fish and Game
Environmental Protection Agency
North Pacific Fishery Management Council
Northwest Indian Fisheries Commission
Oregon Department of Fish and Wildlife
Pacific States Marine Fisheries Commission
U.S. Army Corp of Engineers
U.S. Coast Guard
U.S. Department of Interior
U.S. Department of State
U.S. Fish and Wildlife Service
Washington Department of Fisheries

This document was sent to approximately 200 persons on the Council mailing lists including conservation organizations, fisher and processor organizations, fishery management agencies, state clearinghouses, and other organizations and individuals.

An additional 450 persons on the Council interested persons list and fixed gear license holders were sent the executive summary and Appendices A and E, along with a notice of availability for the full document.

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APPENDIX A
FIXED GEAR SABLEFISH
INDIVIDUAL QUOTA PROGRAM

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SUMMARY

The fixed gear sablefish individual quota (IQ) program designed by the Council would allocate sablefish quota shares (QS) to persons based primarily on catch history. Each year, holders of QS would be allocated an amount of sablefish individual fishing quotas (IFQ) which could be taken anytime during the fishing season. The scope of the program would cover all sablefish harvested by vessels with a limited entry license for fixed gear (except for harvest by such vessels using groundfish trawl gear). The program would be incorporated as Chapter 15 of the groundfish fishery management plan (FMP).

A recent participation requirement would require at least 1 landing of sablefish or groundfish (to be determined) with longline or fishpot gear between August 1, 1988 and November 13, 1991 in order for a person to qualify for an initial allocation of QS (Section 15.6.1).^{1/} There may also be a minimum amount of sablefish landings which must be made between January 1, 1984 and November 13, 1991 (Section 15.6.1). QS would be allocated to owners of "A" permits for longline or fishpot gear based, at least in part, on one of the following catch histories: (1) the catch history of the permit (vessel)^{2/} owned at the time QS is issued, (2) the catch history of the person as a vessel owner, or (3) some combination of the two (Section 15.6.2.1). Catch history occurring between January 1, 1984 and November 13, 1991 would be counted in determining the amount of QS issued (Section 15.6.2.3). The catch for each year would be weighted differently, with most recent years receiving the heaviest weight (Section 15.6.2.4). There may be a minimum amount of QS for which a person would have to qualify before any QS is issued (a cut off) or there may be a minimum amount given to everyone qualified to receive QS (a floor) (Section 15.6.2.6). There may or may not be a cap on the amount of QS which could be initially issued to a single person (Section 15.6.2.5). A procedure may be established by which QS would be reallocated by area should the need arise (Section 15.6.3). The amount of QS held by a person would determine the amount of IFQ which the person would receive for a year (Section 15.8). After QS is initially issued, acquisition of QS and IFQ may be restricted to corporations and partnerships receiving an initial allocation and any individual eligible to own a U.S. documented fishing vessel. If this restriction on acquisition is not adopted, anyone eligible to own a U.S. documented fishing vessel would be eligible to purchase or otherwise acquire QS from one of the initial recipients. This would include, but not be limited to, vessel operators, crew members, processors and banks, except that no foreign controlled entity could own QS or IFQ (Section 15.9.2.4). There would be caps on the amount of QS which could be controlled by a single person and the amount which may be used on a single vessel (Sections 15.9.2.1 and 15.10.3). There may be a requirement that the IFQ owner be on the vessel when the sablefish are caught and IFQ used (Section 15.10.2). Such a requirement, to be more effective, would be combined with options which prohibit leasing (Section 15.9.3) and prohibit new entry into the fixed gear sablefish fishery by anyone except individuals; i.e., corporations, partnerships, etc., which do not receive an initial allocation of QS would not be allowed to take part in the fishery (Section 15.9.2.4). A carry-over allowance would allow a small amount of unused IFQ to be carried over from one year to the next (Section 15.10.5). The IFQ monitoring and enforcement program may entail restrictions on where and when vessels may land IFQ fish, requirements for advanced notice of landings and other rules designed to ensure compliance with the program (Section 15.12).

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- 1/ This landing may be required of the permit, the person as a vessel owner or both, depending on the catch history used in determining the allocation.
 - 2/ Where permit rights have not been transferred, permit and vessel history will be identical so long as a permit was issued for the vessel. Where permit rights have been transferred, the vessel catch history related to fixed gear sablefish will be considered transferred with the permit. A vessel which did not receive a permit at initial issuance will not entitle its owner to an allocation of QS on the basis of the vessel's catch history.

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15.0 FIXED GEAR SABLEFISH INDIVIDUAL QUOTA PROGRAM

This is the Council's draft fixed gear sablefish individual quota program as approved for public review at its November 1993 meeting. The IQ program amendment would be incorporated as Chapter 15 of the groundfish FMP.

15.1 Problem Statement

At present, the problems described in Amendment 6 (Limited Entry) to the Fishery Management Plan for Pacific Coast Groundfish still exist. With or without license limitation, allowable catches of groundfish stocks will remain stable or decline; fishing capacity is too high and will continue to increase (at a slower rate when license limitation [Amendment 6] is in effect); existing capacity utilized in other fisheries will try to expend more effort in groundfish as conditions in other fisheries get more restrictive; the efficiency and safety of vessel operations will be compromised by the struggle of each vessel to increase its share of the allowable catch (the race for fish); and regulations will get more complex as the Council simultaneously constrains effort through enforced inefficiency and attempts to distribute the impact of effort constraints as widely as possible.

Each of these problems is directly related to excess capital, which has been and continues to be invested in groundfish fishing vessels, groundfish gear and the training of groundfish fishers. Any solution to these problems will require a management regime under which additions to the capital stock (e.g., investments) remain below subtractions from the capital stock (e.g., depreciation and retirement) until the capital stock declines to an appropriate level.

Excess investment has been encouraged in the past by the open access institutional framework of the groundfish fishery and has resulted in a fishing fleet (physical capital) and trained fishers (human capital) which are too large for the fisheries involved. The economic waste which these excessive capital stocks represent cannot be reversed; to the extent that investment has produced capital which is specialized for the overcapitalized fisheries, it represents sunk costs. However, a change in the institutional structure which alters the rate of flow into stocks (investment) or out of stocks (depreciation and retirement), or which directs the use of existing multipurpose capital into those activities in which it produces the highest value may prevent further waste which would occur under common access among license holders.

The problems in some parts of the Pacific groundfish fishery are inextricably linked to fishery conditions in Alaska, due to extensive participation in both areas by some segments of the fishing fleet. In particular, the longline sablefish fleets are dominated by vessels capable of fishing anywhere from Alaska to California. Thus, the proposed IQ plan for sablefish, if adopted, will have a direct impact on longline fisheries in the West Coast states. In the short run, it is anticipated that the Alaskan IQ plans will result in more longline effort in West Coast states not covered by the plans. This will occur partly because some vessels now fishing in Alaska will sell their Alaskan IQ and concentrate on the West Coast and partly because the IQ program will allow Alaskan participants to fish more efficiently, thus freeing up effort, some of which will be diverted to the West Coast. Therefore, problems described in the groundfish fisheries may be

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expected temporarily to grow worse for longliners in the event that the North Pacific Fishery Management Council (NPFMC) implements their proposed IQ programs. In the long run, however, the Alaskan IQ programs may be part of the solution for all fisheries in which the Alaskan longline fleet participates.

15.2 Goals and Objectives

The IQ program being considered by the Council is a form of limited entry. As such, it is measured against the Council's goals and objectives for limited entry, the groundfish FMP goals and objectives, Magnuson Fishery Conservation and Management Act (MFCMA) mandated considerations for limited access systems listed at 16 USC 1853 B(6) and the National Standards. Drawing from these sources, the following are goals and objectives for the West Coast sablefish IQ program.

15.2.1 Goals

Conservation. Reduce discards and increase reliability of catch estimates.

Economic. Reduce total cost of catching groundfish, increase price through increased quality, minimize management costs and increase consumer satisfaction.

15.2.2 Objectives

Conservation.

- a. Minimize discard mortality; and
- b. Preserve integrity of catch data by ensuring that catch information is properly recorded.

Economic.

- a. Reduce fishing costs through reduction of investment in harvest capacity, increase efficiency of vessel operations, increase adaptability of fleet size and operations to changing conditions, technology and markets, and increase efficiency of individual vessel operations;
- b. Promote economic stability of fisheries;
- c. Increase value of catch through better timing of catch, better quality of catch and elimination of discards;
- d. Minimize management and enforcement costs through decreased frequency of management changes and elimination of some management measures currently used;
- e. Reduce present and future needs for actions which are directly or indirectly allocative in nature;

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- f. Increase consumer satisfaction from the consumption of groundfish at higher qualities and/or lower prices;
- g. Increase the value of processed fish through better timing of fish delivery; and
- h. Decrease processing costs through reduced peak capacity requirements.

Social.

- a. Recognize and accommodate historical participation of those investing their life and resources in the fishery;
- b. Increase safety, and
- c. Maintain a mechanism for fishery entrance/exit and flexibility for change in the fleet.

In addition to comparing alternative IQ programs, in terms of how well they promote the above goals and meet the listed objectives, the choice among alternatives must meet the requirements of the MFCMA and be consistent with the National Standards. The MFCMA stipulates that in developing any limited access system, the Council and the Secretary of Commerce must take into account the following:

- Present participation in the fishery.
- Historical fishing practices in and dependence on the fishery.
- Economics of the fishery.
- Capability of fishing vessels used in the fishery to engage in other fisheries.
- Cultural and social framework relevant to the fishery.
- Any other relevant considerations.

While all National Standards must be considered, the following are the National Standards most directly related to the consideration of an IQ program:

National Standard 4. Conservation and management measures shall not discriminate between residents of different States. If it becomes necessary to allocate or assign fishing privileges among various United States fishermen, such allocation shall be (A) fair and equitable to all such fishermen; (B) reasonably calculated to promote conservation; and, (C) carried out in such manner that no particular individual, corporation, or other entity acquires an excessive share of such privileges.

National Standard 5. Conservation and management measures shall, where practicable, promote efficiency in the utilization of fishery resources; except that no such measure shall have economic allocation as its sole purpose.

National Standard 7. Conservation and management measures shall, where practicable, minimize costs and avoid unnecessary duplication.

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15.3 Definitions

Definitions for terms used herein shall be the same as those contained in the MFCMA, except as follows:

a. "A" permit

A permit with an "A" endorsement issued pursuant to Amendment 6 to the groundfish FMP.

b. Currently Owned Vessel or Permit

The vessel or permit owned at the time of application and initial issuance of QS.

c. Fixed Gear

For the purpose of the fixed gear sablefish IQ program, fixed gears include only longline and fishpot gear.

d. Harvest Guideline

Unless otherwise noted, the harvest guideline referenced in this chapter is the harvest guideline for the fixed gear sablefish IQ program. The harvest guideline will generally be the entire limited entry fixed gear sablefish allocation, however, an amount of this allocation may be set aside from the IQ program, if necessary to account for overages.

e. Holdings of QS and IFQ

A person's QS and IFQ "holdings" include QS and IFQ owned, leased, controlled or otherwise maintained for the benefit of the person.

f. Individual

A natural person who is not a corporation, partnership, association or other entity.

g. Individual Fishing Quota (IFQ)

An amount of fish (round weight pounds) which a person may catch in a year derived by applying the person's QS to the annual harvest guideline under the IQ program.

h. Individual Fishing Quota Tracking System

The method established by which IFQ landings will be recorded and reported to National Marine Fisheries Service (NMFS).

i. Individual Quota Program

The limited access program under which QS and IFQs are issued.

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j. Permit (Vessel) Catch History, Permit Catch History

When an "A" permit or the rights to an "A" permit are transferred from the vessel on the basis of which the "A" permit was initially issued, the total sablefish catch history of the vessel (up to the time of the transfer) is considered to be transferred with the permit. The "A" permit rights accumulate the history of any vessel with which they are associated during the time they are associated with the vessel. (The intent of defining catch history as permit catch history would be to not separate the general privilege to harvest groundfish [an "A" permit] from the specific privilege of harvesting sablefish under the IQ program.)

k. Quota Fish

Fish falling within the scope of the IQ program.

l. Quota Share (QS)

The right to harvest a portion of the harvest guideline. The QS is used in annual determination of the amount of IFQ to be allotted to the QS holder.

m. Registered Buyer

A licensed fish buyer who has acquired the materials needed to take part in an IFQ tracking system, and entered into an agreement with NMFS to open their financial records and inventories for IFQ audits.

15.4 Nature of the Interest Created

Sablefish QS and IFQs confer privileges to harvest sablefish within the scope of the IQ program as specified in this document or any future amendment to this document which may modify this IQ program. Conditions and restrictions on the exercise of these privileges may be changed or the privileges may be abolished by future amendments to this document. The sablefish QS and IFQs are also subject to sanctions, including revocation, as provided by the MFCMA, 16 USC at 1858(g) and 15 CFR Part 904, Subpart D.

15.5 Scope of the Fixed Gear Sablefish Individual Quota Program

All nontreaty commercial harvest of sablefish in all Council-managed areas by persons using vessels with "A" permits for longline and fishpot gear, except for harvest by such vessels using groundfish trawl gear under an "A" permit for trawl gear.

15.6 Initial Allocation of Sablefish Quota Share

15.6.1 Qualifying to Receive an Initial Allocation

A. Ownership of an "A" permit required:

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To qualify for an initial allocation of QS, a person must own an "A" permit for longline or fishpot gear.

~~For any portion of the allocation which is based on the catch history of the vessel a person currently owns, the "A" permit must be registered to that vessel at the time of application and issuance. After the November 1993 Council meeting, this provision was deleted because it became apparent that the provision may be at best meaningless and at worst misleading. If only the permit catch history is considered (see definitions), then it will not be possible for a person to receive an allocation based on vessel history. Permit history and vessel history would be the same only where the permit rights have never been transferred from the vessel).~~

To meet this requirement for allocation based on personal history as a vessel owner, a person must participate in the ownership of an "A" permit endorsed for longline or fishpot gear at the time QS is initially issued.

- B. Recent participation by the permit (vessel) required to receive credit for permit (vessel) history (this paragraph will be deleted if no part of the final allocation formula is based on permit history):

To qualify for an initial allocation based on the catch history of the permit (vessel) a person currently owns, the vessel associated with the permit rights must have had at least 1 landing (Option 1: sablefish, Option 2: groundfish) with longline or fishpot gear between August 1, 1988 and November 13, 1991. When an "A" permit or the rights to an "A" permit are transferred from the vessel on the basis of which the "A" permit was initially issued, the total sablefish catch history of the vessel (up to the time of the transfer) is considered to be transferred with the permit. The "A" permit rights accumulate the history of any vessel with which they are associated during the time they are associated with the vessel. (The intent of this transfer provision is to not separate the general privilege to harvest groundfish [an "A" permit] from the specific privilege of harvesting sablefish under the IQ program.)

- C. Recent participation by the person is required to receive credit for personal history as a vessel owner (this paragraph will be deleted if no part of the final allocation formula is based on personal history as a vessel owner):

To qualify for an initial allocation, based on a person's history as a vessel owner, that person must have used a vessel under his/her/its ownership, in whole or in part, to make at least 1 landing (Option 1: sablefish, Option 2: groundfish) between August 1, 1988 and November 13, 1991. The landing must have been made with the fixed gear for which the person owns an "A" permit at the time QS is applied for and received.

- D. Minimum participation: (this paragraph applies only if Option B-2 of Section 15.6.2.6 is adopted.) Three thousand pounds of sablefish must have been landed between January 1, 1984 and November 13, 1991.

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15.6.2 General Formula for Initial Allocation to Those Qualifying

15.6.2.1 Catch History Considered in the General Allocation Formula

The catch history used in the general allocation formulas (and to determine who qualifies for an allocation; Section 15.6.1) will be one of the following:

Option 1	Option 2	Option 3	Option 4
Catch history of the person as a vessel owner.	Catch history of the permit (vessel) currently owned.	Fifty percent on the catch history of the permit (vessel) currently owned and 50 percent on catch history of the person as a vessel owner.	Each applicant chooses between Option 1 and Option 2 so long as the applicant has not sold or purchased permit rights (or a vessel with permit rights) after November 13, 1991. In cases where such transactions have occurred, the catch history used will be Option 4a catch history of the person as a vessel owner, or Option 4b catch history of the permit (vessel) currently owned.

The catch history of a person as a vessel owner is the catch history of a corporation, partnership, individual, association or other entity. When entities other than individuals are involved and there is a change in the ownership or control of the entity, the catch history of the entity will remain with any successor in interest to the entity. If there is no successor in interest to the entity, the entities (including individuals) which comprised the dissolved entity will be entitled to claim a portion of the catch history, provided that the entity claiming catch history (1) currently participates in the ownership of an "A" permit endorsed for longline or fishpot gear and (2) participated in the ownership of a vessel during the time in which it met the recent participation requirements. A participant in a dissolved entity that meets the other QS requirements is entitled to the same percentage of the catch history from the vessel (during the period the vessel was owned by the dissolved entity) as the percentage ownership the participant had in the dissolved entity.

For unclaimed catch history from defunct partnerships and corporations or other entities for which there is no successor in interest: Option A - all catch history for the entity will be divided among the qualifying participants in the partnership or corporation who apply. Option B - some of the entity's catch history will go unclaimed if one of the partners or corporate members does not qualify and apply.

15.6.2.2 Catch History Measured in Round Pounds Landed with Fishpot and Longline Gear

Fixed gear catch history will be measured in round pounds landed or the round weight equivalent of pounds landed.

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- A. Dressed pounds will be converted to round pounds by multiplying by 1.6 (the inverse of the recovery rate used by all three states). Landings with unspecified condition codes will be considered round pounds.
- B. Unspecified gear and California "POL" landings of sablefish will be considered longline landings if (1) an "A" permit was issued based on the vessel having met the Amendment 6 (Chapter 14) "A" endorsement minimum landing requirements for longline gear or provisional "A" upgrade provisions for a longline gear and (2) shrimp and salmon were not included in the same landing. If no "A" permit has been issued for a vessel, NMFS may examine other evidence to determine gear used in the landings. Such evidence may include, but is not limited to, species composition in the catch, receipts for gear purchases around the time that the landing was made, and sworn affidavits by disinterested third parties. States will be asked to participate in developing decision rules used to be used in evaluating this evidence.

15.6.2.3 Allocation Period

The allocation period for determining catch history is January 1, 1984 through November 13, 1991.

15.6.2.4 Annual Catch History Weighting Factor

In applying the general allocation formula, each year of an applicant's catch history (in round weight or round weight equivalent) may be multiplied by an annual weighting factor before it is evaluated in the general allocation formula. The annual weighting factors are as follows:

Year	Weighting for 1 Pound of Catch
1984	0.71
1985	0.50
1986	0.48
1987	0.45
1988	0.54
1989	0.68
1990	0.86
1991	1.00

The intent of the weighting factor is to measure pounds of catch in relation to catch opportunity in the year (hence, the heavier weights for more recent years when catch opportunity has been lower) and provide some additional credit for longer term history of participation and dependence on the fishery (hence, the heavier weighting for the earliest years relative to the middle years of

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the window period). The weighting factor for each year has been determined by taking the total 1991 fixed gear sablefish landings made by vessels expected to meet recent landing requirements and receive "A" permits for longline or fishpot gear (based on data available as of April 1993) and then dividing that number by the total fixed gear sablefish landings made by such vessels in each year. The weighting factors are considered to be adequate approximations which will not be adjusted as information on license limitation qualifying vessels and recent participation is refined. These adjustments will not be made because (1) the factors as specified meet the Council objectives, (2) the need for certainty is more important than making the adjustments, and (3) adjusting the factors over time would create administrative complexities and confusion in the industry.

15.6.2.5 Caps on Amount of Quota Share Initially Issued to a Single Person

Package A. No limit on amount initially issued to a single person.

Package B. At initial issuance, no person may receive more than 3 percent of the total QS issued.

15.6.2.6 Allocation Formula

Catch history will be evaluated using one of the following formulas.

Package A. Qualifying applicants will receive QS based on their average catch history in the best 5 of 8 calendar year periods during the allocation period (with catch history weighted as per Section 15.6.2.4). There may be some established minimum amount of QS a person must qualify for before any QS is allocated.

Package B.^{3/}

Option B-1 (Modified "Equal Allocation").

There is a two step allocation process. In Step 1, the applicant receives QS on the basis of whichever formula will provide the most QS. Not more than 25 percent of the total QS allocated will be allocated in Step 1. Step 2 consists of a second allocation formula on the basis of which the applicant will also receive QS.

1a. The qualifying applicant receives an amount of QS expected to be equivalent to 1,500 pounds of IFQ under a 2,500 mt fixed gear limited access quota;

OR

1b. The qualifying applicant receives QS based on the applicant's average annual landings for calendar years in which the applicant fished in the allocation period but not more than XX

3/ Under another version of this option, everyone would receive some quota based on each of the three parts of this allocation option.

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shares will be allocated to a single applicant on this basis, XX shares would be expected to result in the issuance of about 9,000 to 10,000 pounds of IFQ under a 2,500 mt fixed gear limited access quota. [The exact value for the maximum equal share portion (XX) will depend on the number of permits held by qualifying applicants. The value will be set by dividing 25 percent of the QS by the number of "A" permits held by those eligible to receive QS. Only one "equal allocation" will be made per permit. QS available for equal allocation which is not allocated because the applicant does not qualify for the maximum XX shares will be reallocated among all QS recipients in proportion to the QS for which they qualify. Not more than 25 percent of the total shares will be allocated on the basis of Parts 1a and 1b];

AND

2. The qualifying applicant receives QS based on the average of the applicant's five best calendar years of the 8-year allocation period (weighted as per Section 15.6.2.4), regardless of whether the applicant fished in 5 years (e.g., if an individual only fished 3 years, then the 5-year average would include 2 years of 0 catch). At least 75 percent of the total shares would be allocated on this basis.

Option B-2. Straight "Equal Allocation".

In addition to meeting the requirements of Section 15.6.1 A, B and C, an applicant's catch history must include 3,000 pounds of fixed gear sablefish landings (Section 15.6.1 D). For applicants meeting these requirements, QS will be issued to qualifying applicants on the following basis:

1. All qualifying applicants will receive some allocation based on equal sharing, 25 percent of the QS will be divided by the number of "A" permits held by qualifying applicants to determine equal allocation share. One equal share will be distributed to the ownership of each of the "A" permits.
2. The remaining 75 percent of QS will be distributed on the basis of the average of the applicants best five calendar years of catch history from the 8-year allocation period (weighted as per Section 15.6.2.3)

15.6.3 Area Specific Quota Shares

Option 1. No area specific QS will be issued. If area specific harvest guidelines are established in the future, IFQ holders will compete for catch in the area. After the harvest guideline for an area is taken, remaining IFQ will have to be used in other areas.

Option 2. Area specific QS will be issued if area specific harvest guidelines are established. Each persons QS will be reissued as area specific QS. The proportion of QS the person will receive for each area will be the same as the proportion of the overall harvest guideline designated for the area (e.g., if the harvest guideline is divided 0.2 for a southern area and 0.8 for a northern area, then everyone's QS would be reissued with those proportions of the persons total QS designated for southern and northern areas). After the QS has been divided by area, QS holders will have to exchange QS to acquire QS for the areas in which they would like to fish.

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15.7 Issuance Appeal Process

Appeals will be made to the regional director. When appeals involve confidential information which may not be released to the appellant, records may be reviewed in camera (in private) by a hearings officer. Any dispute over how the issuing authority has applied provisions of the program may be applied.

15.8 Annual Processes Under the Sablefish Individual Quota Program

15.8.1 Allocation to the Program

In the fall of each year, the allocation for the fixed gear sablefish IQ program will be determined by the Council and will be the fixed gear portion of the allocation of sablefish made to the limited entry fishery.^{4/}

15.8.2 Setting a Harvest Guideline

A harvest guideline for the fixed gear sablefish IQ program will be determined by the Council for the coming year based on the allocation to the IQ program. The Council may reduce the harvest guideline for the IQ fishery to a level below the allocation to the sablefish IQ program, as necessary, to meet conservation objectives. This reduction may be necessary because individual overages or detected cheating by program participants may otherwise result in harvests which exceed the harvest guideline. The fishery will not be closed until all issued IFQ have been harvested. Overages and detected cheating by program participants will count against the sablefish IQ program harvest guideline.

15.8.3 Specification of Individual Fishing Quotas

Prior to December 31 of each year, NMFS will (1) determine the amount of outstanding QS for the coming year; (2) based on the harvest guideline and amount of outstanding QS, determine and announce the IFQ pounds to be allocated per QS; and (3) distribute and record materials necessary to allow participants to begin using their IFQ as of January 1 of the year for which it is allocated.

4/ Note that the allocation to the fixed gear fishery does not currently include the Conception International North Pacific Fisheries Commission (INPFC) area. However, according to the program scope, any fish caught by a vessel with an "A" permit for fixed gear (except trawl catch) is within the scope of the program. This includes vessels operating in the Conception INPFC area. This could result in the underharvest of the quota in areas north of the Conception INPFC area. Based on historic fishing practices, IFQ harvest in the Conception area is not expected to occur to any significant degree. If at some point it becomes desirable, the Council may set a Conception area harvest guideline or quota and allocate a portion of this to the fixed gear limited entry fishery. This would effectively expand the overall harvest guideline on the basis of which IFQ is allocated. Such an action would not require an amendment to this IQ program.

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15.9 Transfer of Quota Shares and Individual Fishing Quotas

15.9.1 Registration of Quota Share and Individual Fishing Quota Transfers

All sales, transfers or leases of QS or IFQ must occur in a manner approved by NMFS. All QS and IFQ assignments and transfers will be administered by NMFS based on regulations established by NMFS. QS and IFQ transfers will not be official until processed and acknowledged by the NMFS limited entry office.

15.9.2 Limitations on Ownership and Holding of Quota Shares and Individual Fishing Quotas

15.9.2.1 Accumulation Cap

Package A. There will be a 5 percent cap on the amount of QS and IFQ a person may hold.

Package B. There will be a 3 percent cap on the amount of QS and IFQ a person may hold.

Any person who receives an initial assignment of QS in excess of this cap shall (1) be prohibited from acquiring additional holdings of QS or IFQ until that person's QS and IFQ holdings fall below the 5 percent limit and (2) be prohibited from selling, trading, leasing or otherwise transferring any interest, in whole or in part, of an initial assignment of QS to any other person in excess of the 5 percent limit. Once a person's QS and IFQ holdings fall below the limit, holdings in excess of the limit by the person will no longer be allowed.

15.9.2.2 Restriction on Control by Foreign Interests

Only a person eligible to own a documented vessel under the terms of 46 U.S.C. 12102(a) may be issued or may hold (by ownership or otherwise) QS or IFQ. Under this provision, foreign ownership or holding of QS and IFQ will be limited to the degree that foreign ownership of a U.S. documented vessel is limited. (Note: Resident aliens in California may own fishing vessels through the year October 1, 2000.)

15.9.2.3 Limited Entry Permit Ownership

Ownership of a limited entry "A" permit is not required for a person to acquire ownership QS after initial allocation. A limited entry "A" permit for longline or fishpot gear is required to receive an initial allocation of QS (see Section 15.6.1) and IFQs may only be used on vessels for which such a limited entry permit is held (see Section 15.10.1).

15.9.2.4 Quota Share and Individual Fishing Quota Acquisition by Individuals, Partnerships and Corporations, Etc.

Option 1. QS and IFQ may be transferred to any person meeting the other ownership criteria listed in Section 15.9.2. *If Option 2 of Section 15.10.2 is selected, corporations, partnerships and other non-individual entities will be allowed to hold but not use QS and IFQ.*

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Option 2. QS and IFQ may only be transferred to (1) corporations, partnerships and other entities which received an initial allocation of QS and (2) individuals meeting other requirements of this section. *(This option has been proposed to increase the effectiveness of Option 2 of Section 15.10.2 which requires the QS/IFQ owner to be on board the vessel when the IFQ is used.)*

15.9.3 Leasing

Option 1. There would be no restriction on leasing.

Option 2. QS and IFQ may not be leased. *(This option is implied under Option 2 of Section 15.10.2. Specifying it as an option in this section makes the ban on leasing explicit.)*

15.10 Use of Individual Fishing Quotas

15.10.1 "A" Permit Required to Use Individual Fishing Quotas on a Vessel

An "A" permit endorsed for longline or fishpot gear must be held for a vessel in order for the vessel to land quota fish.

15.10.2 Presence of the Quota Share and Individual Fishing Quota Owner^{5/}

Option 1. There are no requirements that the owner of the IFQ be on board the vessel when the IFQ is used.

Option 2. In order to use IFQs, the owner must (1) own the QS on the basis of which the IFQ is issued, (2) be on board the vessel during fishing operations and (3) sign the fish ticket upon landing, except as follows: any person who receives an initial allocation of QS may designate a skipper to use their IFQ provided the corporations, partnerships or individual owns the vessel on which the IFQ will be used. These recipients may purchase additional QS and IFQ to be used by a designated skipper, subject to accumulation caps (see Section 15.9.2.1). Provision for use of a designated skipper will cease if and when there is any change in the identity of a corporation or partnership owning the QS as follows:

A change in the identity of any entity other than an individual will be deemed to occur with a change in the corporate or partner membership, except a change caused by the death of a member providing the death did not result in any new members. Additionally, membership is not deemed to change if a member becomes legally incapacitated and a trustee is appointed to act on his

^{5/} Option 2 adopted from the NPFMC program.

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behalf, nor is membership deemed to have changed if the ownership of shares among existing members changes, nor is membership deemed to have changed if a member leaves the corporation or partnership. A change in the ownership of publicly held stock will not be deemed a change in ownership of the corporation.

NMFS may, by regulation, designate exceptions to these provision to be employed in cases of extreme personal emergency which allows the transfer of QS/IFQ for limited periods of time.

Selection of Option 2 of Section 15.9.2.4 and Option 2 of Section 15.9.3 would be necessary to make this option reasonably effective. (Option 2 of Section 15.9.3 is implicitly incorporated in the language of this option.)

15.10.3 Cap on Amount IFQ Used With a Single Vessel

Package A. There will be a 5 percent cap on the amount of IFQ used with a single vessel. If a person receives more than 5 percent of the total QS initially issued, all of the IFQ arising from the QS allocated to the individual may be harvested on a single vessel.

Package B. There will be a 3 percent cap on the amount of IFQ used with a single vessel.

15.10.4 Individual Fishing Quota Possession Requirements

The vessel owner is responsible for securing sufficient IFQ for quota fish landings and maintaining documentation of the IFQs on board the vessel. Prior to take and retention of quota fish, the vessel owner must secure documentation that unused IFQ is held sufficient to cover the catch.

15.10.5 Carry-over Allowances

A QS owner may use a carry-over allowances to adjust their IFQ in a subsequent year based on unused IFQ from the current year. Up to 5 percent of the total IFQ owned or 10,000 pounds of unused IFQ (whichever is less) may be carried over to the next fishing year.

15.10.6 Individual Fishing Quota Landing Procedures

All landings of quota fish must be reported to the IFQ tracking and accounting system and comply with the requirements of the IFQ monitoring and enforcement system.

15.11 Individual Fishing Quota Tracking and Accounting System

NMFS will develop an IFQ tracking and accounting system. This system may be based either on a manual paper system or on an electronic debit system. A central office will issue QS and IFQs, record the transfer of QS and IFQs, monitor the fulfillment of IFQs during the year and provide enforcement officers with information necessary for field enforcement.

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15.12 Individual Fishing Quota Monitoring and Enforcement System

NMFS will promulgate additional regulations for monitoring and enforcement to assure compliance with this program. Persons holding QS or IFQs who are found to be in violation of groundfish management regulations, including this IQ program, will be subject to appropriate penalties, including revocation of their QS.

Option 1. No details for the monitoring and enforcement system will be developed as part of this amendment. The landings monitoring system may (but will not necessarily) entail notification prior to landing; limits on locations at which landings may be made; limits on the hours in which landings may be made; requirements for complete off-loading; requirements for reporting of completed off-loadings; and requirements for notification of the shipment, transshipment of product, and a satellite-based vessel tracking system and other appropriate restrictions.

Option 2. The IFQ monitoring and enforcement system will include the following elements:

A. Advance Notice of Landings

NMFS must be notified prior to off-loading. Notices might be made prior to departure by a vessel at sea or after a vessel's return to port.

B. Landing May Be Made Only To Registered Buyers

C. Limited Landing/Off-loading Hours and Ports

Landings may only be made between 6 a.m. and 6 p.m. Off-loading that begins during the allotted window will be allowed to continue to completion. The ports in which landings may be made will be restricted. Alternative off-loading schedules may be authorized on a port-by-port basis at the discretion of the regional director.

D. All Quota Fish On Board Must Be Off-loaded

All quota fish including any home pack and exceptional sales must be off-loaded and reported to the buyer along with all other IFQ fish sold to the buyer.

E. Verification of Landings

Landings must be reported to the IFQ tracking system and a confirmation received within W hours of completion of off-loading (value for W to be determined in the implementing regulations). (For a paper script system, fish ticket numbers must be entered on the paper script at the time the fish ticket is filled out or within X hours of off-loading, whichever is less.) (Value for X to be determined in the implementing regulations.)

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F. Shipping by Registered Buyers

All shipments of quota fish from the original landing site to any other site must be reported. Reporting will be similar to current reporting requirements. Registered buyers will be allowed to use their own bills of lading. A copy of the bill of lading will have to accompany the shipment to its first point of landing. For domestic shipments, bills of lading will have to be received by NMFS prior to shipment. Shipments in foreign commerce will have to be reported Y hours before transportation from the Washington, Oregon and California area. (Value for Y to be determined in the implementing regulations.)

G. Transshipments

Transshipments from one vessel to another would be restricted. Only motherships and tenders operating as registered buyers may receive quota fish at sea. All processing vessels transshipping frozen or processed product vessel to vessel must give Z hours advance notice of any such transshipment. (Value for Z to be determined in the implementing regulations.)

H. Dockside Sales

Vessels marketing their own catch must become registered buyers and meet all the requirements of a registered buyer including reporting of landings, receipt of confirmation and reporting of shipments. Reports would have to be made for all IFQ fish on board before any dockside sales, shipment or off-loading.

I. Vessel Clearances

Harvesting vessels, catcher-processors, motherships and tenders landing catch outside the Washington, Oregon and California area will have to obtain a vessel clearance at a primary port (to be determined) before departure from the Washington, Oregon and California area.

15.13 Discards and Wastage

Discarding. This program will create no new provisions against discarding legal sized catch. Of particular concern are high-grading practices which cause excessive mortality. (High-grading is the practice of discarding the less valuable portion of a catch in order to increase the amount of higher value catch and increase the average revenue per pound landed.) The IQ plan is not intended to encourage the high-grading of legal sized fish. State antiwastage laws could be applied to mortality caused by wasteful high-grading.

15.14 Prohibitions on Retention

Retention of quota fish is prohibited by vessels holding a limited entry permit for longline and fishpot gear unless sufficient IFQ is held to allow for a legal landing of the catch retained.

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APPENDIX B
INDIVIDUAL QUOTA ENFORCEMENT PROGRAM

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The need for an increase in effort to enforce individual quota (IQ) programs is discussed in Section 3.9. The enforcement options being considered by the Council are (1) leave the design of an enforcement program completely to National Marine Fisheries Service (NMFS) or (2) specify in general terms certain elements which may or may not be included in an enforcement program (Appendix A, Section 15.12).

While the specifics of an enforcement program are not part of the proposed plan amendment, this appendix contains an example of what might be a realistic and effective enforcement program. This example has been developed in order to assess the demands an IQ system could place on enforcement and the accompanying industry compliance burden. An earlier example program developed during a May 1993 enforcement workshop was intended to be sufficient to handle any IQ program the Council might develop at some later date. This program was largely revised after it became apparent that the costs of such a comprehensive enforcement system could not be offset by the benefits of a fixed gear sablefish IQ program. The current example program was developed during a November 1993 enforcement/industry meeting.

GOALS FOR IQ ENFORCEMENT

The report from the May 1993 enforcement workshop listed four goals for an enforcement program.

1. Create an environment conducive to voluntary compliance.
2. Design a program which provides adequate enforcement resources to respond to known violations. (For any enforcement program to be effective it is vital that it be capable of apprehending and prosecuting known violators. Failure to prosecute known violators can have the effect of encouraging even more noncompliance.)
3. Provide an enforcement program that is both cost effective and realistic in terms of current budget concerns.
4. Provide an enforcement program that does not needlessly interfere with normal and traditional business practices. (The net result of an IQ program should be a better product for the consumer and a higher return to the industry. However, IQ enforcement necessitates a much more intrusive interaction between government and industry. Instead of managing one quota for each management area or fishery, IQ programs result in managing hundreds of individual quotas. This requires a direct link between the fisheries manager, enforcement personnel and the individual fishers.)

Additionally, an Enforcement Consultant report from March 1993 listed a number of basic enforcement principles for an IQ program which may be summarized as follows:

Accurate Landings Reports and Quota Share (QS) Authenticity. Enforcement officers must be able to quickly, simply and accurately determine that participants possess sufficient documented and authentic QS to cover all fish on board a vessel.

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Monitoring Landings. Enforcement officer must be able to efficiently monitor movement of all IQ product through the commercial distribution system.

Strong Sanctions for Violations/Fraud. Penalties must include loss of permits and/or QS. Fraud would collapse the program making it impossible to accurately monitor and track IQ sablefish landings as the fish progress through the distribution system.

Enforcement of an IQ program will differ from traditional fishery enforcement in that enforcement will occur primarily at the point of landing and beyond, as compared to traditional fishery enforcement efforts which put more emphasis on at-sea enforcement. While at-sea enforcement will remain largely unchanged, additional shoreside presence will be required.

FISHERY ENFORCEMENT: A FOUR-TIER ACTIVITY

Fisheries enforcement generally relies upon four separate enforcement functions, each cohesively interfacing with the others. The four-tier profile is composed of patrol operations, monitoring activities, auditing activities and investigative operations. Development of an enforcement program adequate to achieve compliance with an IQ program would rely on the enhancement of activities in one or more of these tiers. The detection/deterrence balance would be the cornerstone of the IQ enforcement operation.

For an IQ program, the four-tier enforcement system provides the ability to ensure accurate accounting of the resource and the ability to apprehend commercial enterprises which operate outside the auspices of the IQ program. These tiers are described below in the context of an IQ program.

Tier I: Patrol Operations

The patrol mission is comprised of two areas: offshore and inshore.

- a. Offshore patrols would detect non-IQ participants who engage in IQ fishing, including those fishers who may be quota busting (this term is used to denote someone who continues to fish after reaching their quota).
- b. Inshore patrols operate as a unit designed to detect and deter fish landings outside authorized channels, nonparticipant landings to unlicensed buyers and licensed buyers purchasing illegally harvested fish. This function is also tasked with random monitoring, random inspections, monitoring of transshipment and enforcement of regulations.

Tier II: Monitoring Operations

The primary method of assuring accurate IQ harvest data would be random monitoring of landings and transshipments. Monitoring may also be conducted through various enforcement efforts such as vessel clearances and tracking, inspections of fishing vessels, processing plants and shipping containers. The fundamental enforcement concept is to establish an environment conducive to program compliance by elevating the probability of detection and apprehension of illegal activities.

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Tier III: Auditing Operations

The auditing branch is tasked with the random and systematic review of processing facilities and other licensed buyers. Additionally, auditors may be tasked with inspecting commercial traffic of nonparticipants in the IQ program. Inspections of processors and buyers would include a complete review of shipping records and other documents which would reflect the accuracy of the IQ fish received and processed. This would provide a check and balance system for fish received and shipped.

Tier IV: Investigation Operations

The investigation operations section would be tasked with two types of activities: routine and complex.

- a. Routine investigations would consist of fraud review of applications for permits and verification and insurance of compliance with processing and buyer permit requirements.
- b. Complex investigations would consist of those investigations of interstate or international shipments of fish which were taken or possessed in violation of IQ regulations. These types of cases would have to be investigated by specialists trained in the detection of fraud and "white collar" crimes. These complex cases would involve the following of paper trails composed of the various commercial documents as an integral part of their investigations.

EXAMPLE ENFORCEMENT PROGRAM

In attempting to develop the most cost effective program possible, the enforcement/industry meeting focused primarily on additional enforcement effort needed at the point of landing. Those at the meeting believed the following measures would provide for an effective enforcement system:

1. Require federal licenses for all receivers of groundfish.
2. Limit IQ sablefish delivery hours (6 a.m. to 6 p.m.)
3. Require advance notice of landing and hail weights.
4. Limit the season to May through October (only if necessary to bring enforcement costs down to acceptable levels).
5. Implement an electronic reporting system (card swipe or hybrid paper/electronic system based on touch tone telephones).
6. Impose strong sanctions for violations, including suspensions and revocation of QS and other federal permits.
7. Require that individual fishing quota (IFQ) inspectors be present at every landing; or randomly monitor 25 percent or more of the landings with fisheries technicians.

What follows is a description of how these elements might work together to create an effective enforcement program.

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Annual Individual Quota Statement and Quota Share Account Verification

Under the proposed IQ regulatory system, all harvesting vessels fishing for or possessing IQ fish would be required to have IFQ assigned to persons associated with the fishing vessel or to the vessel itself. This must be verified by either the possession on board the vessel of appropriate paper documentation or an IQ account card. The vessel would be required to have access to annual IFQ poundage in IQ accounts which equals to or exceeds the poundage of IQ fish in possession.

The first enforcement check point would be random boarding both at sea and in port by the U.S. Coast Guard, state and NMFS enforcement officers. Vessels found in possession of IQ fish would be required to produce paper documentation on their IFQ or an IQ account card. An account query would allow the boarding personnel to verify that IQ fishers have sufficient IFQ in their accounts to cover the fish in their possession. Failure to have sufficient poundage would trigger immediate enforcement action. Queries to a central data point would also flag the IFQ holders account to insure that a landing did take place at a later time and at a authorized dealer. An electronic system with immediate inquiry capability would provide industry with the greatest flexibility in making IFQ/QS transfers while at the same time providing enforcement on site ability to determine that sufficient IFQ is held and that the evidence of IFQ holdings is authentic.

Vessel Landings

The second check point in the IQ enforcement system would be at the point of landing and require advance notice of landings. All vessel could be required to notify NMFS before off-loading. Notices would be by touch-tone telephone made from the vessel or through a shore-based site. Notices could be made before departure to the grounds, by a vessel at sea or after a vessel's return to port. NMFS would establish a 1-800 hotline to accept all notices required by these regulations. Landings could be made to licensed buyers within the Washington, Oregon and California IQ system. Landings would be allowed only during certain hours of the day (6 a.m. to 6 p.m.). Off-loading that begins during the allotted window would be allowed to continue to completion. Alternate off-loading schedules could be authorized on a port-by-port basis at the discretion of the regional director.

Advance notices would alert enforcement personnel to legal landings. Enforcement and monitoring personnel would be able to query central processing at any time to ascertain in progress or pending landings. Legal landing would be randomly monitored by enforcement. Additionally, either 25 percent or more of all landings would be observed randomly by fishery technicians or 100 percent of all landings would be monitored by IQ inspectors. Landings which have not been preceded by advance notice would be illegal and trigger immediate enforcement action. Hail weights substantially different from weights observed at landing by technicians or observers may trigger either enforcement action or more intense monitoring of the vessel's activities.

Verification of Landings

To off-load any IQ fish, the harvesting vessel would have to present an IQ account card or the appropriate paper documentation to the registered dealer/buyer. Once the off-load is complete, the buyer would query the central IQ exchange using either a credit card style machine or a

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touch-tone telephone. With an account card, the buyer would run the IQ account card through the machine which would read the sellers account information from the card's magnetic stripe. With a touch-tone telephone system this information would be entered manually. The buyer would then input the delivery vessel identification number, IQ account number, landing condition and poundage. The sellers account would be queried to determine if sufficient annual IFQ is available. The buyer would receive a confirmation of sale authorizing completion of the transaction. If sufficient IFQ is not available, no confirmation would be given. NMFS Office of Enforcement would be immediately notified of the overage and the buyer would be unable to complete the transaction until cleared by NMFS. Confirmation of landings are required within 6 hours of the completion of the off-loading.

Harvesting vessels delivering IQ fish would be required to off-load all IQ fish on board, including any home pack or exceptional sales. Dockside sales would be facilitated by allowing the vessel to act as the first fish receiver. Home packs and exceptional sales would have to be reported by the buyer along with all other IQ fish sold to the buyer. Overdrawing an IQ account would trigger immediate enforcement action. Failure to obtain a confirmation within 6 hours would trigger enforcement action when detected.

MONITORING OF POST LANDING MOVEMENTS OF IQ PRODUCT

Discussed in the enforcement workshop but not included in the enforcement/industry meeting report was the monitoring of product distribution channels. The enforcement/industry meeting report did not recommend that significant additional effort be put into the monitoring of post landing movement of product. However, ongoing enforcement activity in these areas accompanied by some additional restrictions on the movement of IQ product may implement some of the distribution channel monitoring measures sufficiently to make them an effective part of the enforcement program at small additional cost. These measures were reported out of the May 1993 enforcement workshop as follows.

Shipping by Registered Buyers

Registered buyers of IQ fish would have to report all shipments of IQ fish from the original landing site to any other site. Reporting would be similar to current reporting requirements. Registered buyers would be allowed to use their own company bill of lading. Bills of lading would include specific information including species, product type, number of shipping units, product weight, shipper and details of the shipping means and route. For domestic shipments, the bill of lading would have to be received by NMFS before the shipment. A copy of the bill of lading would have to accompany the shipment to its first point of landing.

Shipments detected by NMFS and state officers that are not accompanied by a bill of lading would trigger enforcement action. Shipments that are not reported before transportation would also trigger enforcement action.

Shipments in foreign commerce would have to be reported 24 hours before transportation from the Washington, Oregon and California area. These shipments would also have to be shipped from or through a primary port (not determined at this time). The advance notice and routing through primary port would provide NMFS and the U.S. Coast Guard an opportunity to inspect the fish before departure from U.S. jurisdiction.

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Motherships and Tenders

Motherships and tenders would operate much the same way as shoreside registered buyers. Tenders and motherships would have to register as IQ buyers. The primary difference would be that motherships and tenders could use INMARSAT or marine radio to report deliveries and receive sale confirmations. The use of credit card machines would not be mandatory unless suitable electronics become available. Motherships and tenders would have to have the ability for voice communications with NMFS from any receipt location. Motherships and tenders would need to meet transshipment or vessel clearance requirements of these regulations. Off-loading of a mothership or tender would have to meet the advance notice of landing and shipping requirements.

Transshipments

Transshipping of IQ fish from one vessel to another would be restricted. Only motherships and tenders operating as registered buyers would receive unfrozen IQ fish at sea. All processing vessels transshipping frozen or processed product vessel to vessel would give 24 hours advance notice of any such transshipment. All transshipments of IQ fish would be required to be completed within the confines of a primary port (not determined at this time). The advance notice and routing through primary port would provide NMFS and the U.S. Coast Guard an opportunity to inspect the fish before departure from U.S. jurisdiction.

Dockside Sales

Vessels wishing to sell IQ fish dockside or market their own fish through means other than a fixed shoreside buyer could do so with certain restrictions. Vessels marketing their own catch have to become registered buyers. The vessel would have to meet all the requirements of a registered buyer including reporting of landing, receive confirmations and reporting of shipments. Such vessels would have to report and receive lading confirmation for all IQ fish on board before any dockside sales, shipment or off-loading.

Vessel Clearances

Harvesting vessels, catcher-processors, motherships and tenders landing catch outside Washington, Oregon and California would have to obtain a vessel clearance at a primary port (not determined at this time) before departure from the Washington, Oregon and California fishery. The vessels would have to enter a primary port to receive clearance. At time of clearance, the vessel may undergo inspection and have its hold sealed. The vessel would have to present a IFQ card or appropriate paper script for all IQ fish on board. The vessel would additionally hail its catch and provide intended date, time and location of off-loading. All such vessels would have to provide the same advance notice of landing requirements as a vessel landing within Washington, Oregon and California. Harvesting vessel would have to become registered buyers and report their landing in the same manner as dockside sales in Washington, Oregon and California.

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PARTICIPATION IN VESSEL TRACKING SYSTEM

At the November 1993 Council meeting, a provision was added to Option 1 of Section 15.12 (Appendix A) which would allow NMFS to require vessels participating in the IQ program to also participate in a satellite-based vessel tracking system. Equipment for this tracking system would run \$6,000 to \$11,000 (including \$1,000 to \$3,000 for a personal computer). Annual costs for participating in the system have been estimated at between \$500 and \$1,000 depending on the fishery. If 200 vessels participate in the IQ fishery and every vessel were required to participate in the vessel tracking system, the start up costs would be between \$1.2 and \$2.2 million and annual costs would be \$100,000 to \$200,000. Such a system would provide information on the location of vessels and could replace expenses of the hailing system discussed in Appendix C. This would save up to \$60,000 in start up costs and \$7,000 in annual costs. The mechanism by which other categories of enforcement effort might be reduced is not clear. Unless such a vessel tracking system were restricted to fewer vessels or has significant benefits outside the fixed gear sablefish IQ program, it does not appear that its costs would be greater than its benefits.

COSTS OF EXAMPLE PROGRAM

The costs estimated here are the direct costs of the example program. Costs of industry compliance (except for costs for inspectors/observers) and costs of an electronic reporting system are included in Appendix C under sections on industry compliance and administrative costs.

Diversion of Existing Enforcement Effort

It was estimated that existing enforcement personnel will divert the equivalent of two full-time employees of time from other activities to enforcement activities related to the IQ program. While this diversion of effort will have no direct impact on agency budgets, there is some opportunity cost which must be estimated. The nominal value of the time diverted from other activities was estimated at the rate of compensation for NMFS enforcement officers used in the May 1993 enforcement workshop (\$80,000 per officer, including taxes, benefits and overhead). This value may be an underestimate to the degree that the benefits from the forgone enforcement activities were greater than the nominal cost of the time spent on them.

Cost of a Federal Permit System for Groundfish Processors

The start-up cost for a federal groundfish processor permit has been estimated at \$10,000 to \$25,000 with an ongoing annual cost of \$6,250 (1/4 full-time employee, cost estimate provided by the report from the May 1993 enforcement workshop). In addition there would be some costs for materials and mailings (estimate \$1,000 per year).

Costs of New Monitoring Effort

Individual Fishing Quota Inspector Option

The IFQ inspector option would require that an IFQ inspector be present at every landing (100 percent coverage). Industry would be responsible for acquiring and paying for inspector services. Industry cooperatives or organizations, such as Pacific States Marine Fisheries

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Commission, would provide pools of inspectors. These organizations could levy fees for their services based on the amount of fish landed. It might also be possible to form cooperative arrangements with observers employed by the Fishermen's Marketing Association.

After examining information on historic landings patterns, individuals at the industry/enforcement consultant workshop estimated that 34 inspectors would be able to cover all coastal ports where fixed gear sablefish landings have been made. It was generally agreed that it should be possible to retain and train these inspectors for less than \$12,000 per year per inspector (a figure identified as that which would result in a total IQ program administrative and enforcement costs--\$700,000--equal to or less than likely program benefits). If the full \$12,000 per year was required to retain and train inspectors, the cost of this portion of the monitoring program would be \$408,000. (A 6-month season would reduce this cost by less than \$204,000. The amount of reduction depends on the amount of overhead going to recruitment and training).

Fishery Technician Observer Option

Under this option, 25 percent or more of the landings would be observed by 7 fisheries technicians hired by state fisheries agencies with grant money provided through NMFS. These individuals would receive a higher level of training than IFQ inspectors. Total costs for the technicians would be \$280,000. (A 6-month season is assumed to reduce this cost to \$140,000).

The deterrence value of these technicians would depend largely on the requirement that hail weights be provided in advance of unloading. These technicians would not be in a position to arrive during or just after a landing and determine whether a landing had been accurately recorded. They would be effective in judging the accuracy of landings reports only on those landings which they observed from start to end. Therefore, the deterrence value of the technician would be minimal the landings (up to 75 percent) that they did not observe (i.e., once it was determined that no inspector would be present for the off-loading, the primary deterrence for misreporting would be the chance that an enforcement officer would show up after the landing had been reported to the tracking system). The deterrence value of a technician in combination with the requirement that hail weights be provided in advance of unloading is much greater. The requirement that hail weights be provided forces the vessel to commit to an approximate landings amount before it is known whether a technician or enforcement officer will be present at the landing. An observed landing grossly over hail weight could trigger enforcement action. Vessels or processors with landings consistently a small amount under hail weight could attract attention and additional monitoring by enforcement officers.

Comparison to Status Quo

Anticipated new costs for an observer program must be compared to the costs expected under status quo management. There is much uncertainty about what might occur under status quo, due to the implementation of a license limitation program in 1994 and pending implementation of an IQ system for the Alaskan sablefish and halibut fisheries. Under best case scenarios, seasons might be slightly longer due to the effects of the license program. Under the worst case scenarios, Alaska sablefish fishery participants, who have not participated in recent West Coast sablefish openings, might acquire West Coast licenses and as a result seasons substantially shorten. Under either of these scenarios, it is not clear that enforcement costs would change substantially. A shortening of the season may actually reduce enforcement costs.

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Total Enforcement Cost Estimates

The following is a summary of annual enforcement costs based on a 12-month fishery.

Cost Category	Annual Enforcement Costs	
	IFQ Inspector Monitoring (34 Inspectors Providing 100 Percent Coverage)	Fishery Technician Monitoring (7 Fishery Technicians Providing 25 Percent Coverage)
Diversion of Existing Enforcement Resources (2 Full-time Employees)	\$160,000	\$160,000
General Groundfish Processing Permit	\$7,250	\$7,250
Additional Monitoring	\$408,000	\$280,000
TOTAL	\$575,250	\$447,250

Costs of additional monitoring could be significantly reduced by limiting the IFQ sablefish season to 6 months. However, this would have the potential of reducing program benefits.

In addition to these annual costs, a one time start-up cost of up to \$25,000 has been identified for computer software and hardware to support the issuance of a general groundfish processing permit. Requirements for such a permit are not part of the current proposed amendment, but are under consideration by the Council.

Not included in this cost example is the cost for a satellite vessel tracking system which is identified as an option in Section 15.12 (Appendix A). Based on current knowledge about the costs and benefits of such a system, it does not appear that the system would be justified by the potential fishery benefits from a fixed gear sablefish IQ fishery.

While enforcement costs are included in the cost benefit analysis, their impact on agency budgets may be defrayed by fees on QS/IFQ owners which may be charged if the Magnuson Fishery Conservation and Management Act is amended to allow such fees.

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APPENDIX C
ADMINISTRATIVE AND INDUSTRY COMPLIANCE COSTS

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ADMINISTRATIVE COSTS

This appendix contains a description of example administrative programs which have been developed in order to generate estimates of administrative costs. The only details of the administrative structure and process, which are fixed by this amendment, are those specified in the amendment. The functions of the National Marine Fisheries Service (NMFS) office handling administration of the IQ program may be as follows:

- Determine the initial allocation of quota shares (QS).
- Determine annual allocations of individual fishing quotas (IFQ).
- Maintain the IFQ tracking and accounting system.
- Record the transfer of QS and IFQ and reissue QS and IFQ as necessary in accordance with the transfers.
- Maintain a system for receiving advance notice of IFQ landings.
- Provide enforcement agencies with information about the status of IFQ accounts and advance notice of landings.

In addition, estimates are included here for appeals. The appeals operations should be located outside of the NMFS limited entry office.

No state costs have been estimated in this appendix. State costs are expected to the degree that state personnel respond to inquiries regarding catch history during the implementation phase of the program. If state requirements for confidentiality of fish tickets do not allow the federal government to release fish ticket information, a significant demand may be placed on state personnel arising from requests to supply that information. Some state personnel would also be involved in the design phase of an implementation plan.

Effects on Council costs are discussed in Section 4.7.1.

Administrative cost estimates and staffing requirements are summarized in Tables C-1 and C-2, respectively. The estimates in this document are generally high-end estimates for administrative costs. The exception to this may be the cost estimates for legal counsel. The following is a summary of the assumptions and methods used to develop these estimates.

Initial Allocation

Initial allocation of QS will involve

- accessing fish ticket records from the Pacific Coast Fisheries Information Network (PacFIN) data base;
- developing a vessel/permit ownership file from records of historic ownership submitted by applicants (applies primarily if QS is allocated on the basis of personal history as a vessel owner); and
- correlating QS applications with fish ticket and vessel ownership files.

There are about 140 vessels which have received "A" permits for longline or fishpot gear and are expected to have met the recent participation requirements (as of mid-December 1993).

Table C-1. Summary of administrative costs for IO program by tracking and accounting system method, with comparison to NPFMC program.^{a/}

		Tracking and Accounting Systems			
	NPFMC Electronic System	Council Electronic System	Council Script System	Council IFQ Checkbook System	Council Hybrid System
Initial Allocation (Section 3.3.2.7)					
Start-up Costs		<i>Initial allocation expenses do not vary with accounting and tracking systems.</i>			
Computer Hardware Costs	No Separate Estimation	\$0. It is assumed that computers used for the license limitation program and those purchased for the monitoring and tracking program will provide adequate capacity for the initial allocation process.			
Personnel	No Separate Estimation	\$27,500. Allocation based on vessel history (1 application reviewer at the GS-07 level for 6 months, 1 full-time employee).			
Equipment and Supplies	No Separate Estimation	\$55,000 to \$110,000. Allocation based personal history as a vessel owner (2 to 4 application reviewers at the GS-07 level for 6 months, 2 full-time employees).			
Start-up Cost Subtotal		\$3,000			
		\$30,500 to \$113,000			
Appeals (Section 3.4)					
<i>Appeal expenses do not vary with accounting and tracking systems.</i>					
Computer Hardware	No Separate Estimation	\$5,000. One computer, printer and software.			
Personnel	\$100,000 per year	\$116,000 (Year 1). Hearings officer (GS-13) to handle appeals and follow-up actions. \$116,000 (Year 2). Hearings officer (GS-13) to handle appeals and follow-up actions.			
Travel and Expenses	No Separate Estimation	\$11,500 (Year 1). 1 month of time from NOAA legal counsel at GS-14 level. \$11,500 (Year 2). 1 month of time from NOAA legal counsel at GS-14 level.			
Equipment and Supplies	No Separate Estimation	\$5,000 (Year 1) \$5,000 (Year 2)			
Start-up Cost Subtotal		\$500 (Year 1) \$500 (Year 2)			\$271,000 ^{b/}

Table C-1. Summary of administrative costs for IQ program by tracking and accounting system method, with comparison to NPFMC program.^{a/}

	Tracking and Accounting Systems			
	NPFMC Electronic System	Council Electronic System	Council Script System	Council IFQ Checkbook System
Start-up Costs				
Computer Hardware	No Separate Estimation	\$0. Computer equipment counted as a cost for the IFQ tracking and monitoring program will be used for this task.		
Start-up Cost Subtotal				
Annual Costs				
Personnel	No Separate Estimation	\$1,700 (<2 weeks of work)	\$3,400 (4 weeks of work at the GS-05 level)	\$1,700 (<2 weeks of work)
Equipment and Supplies	No Separate Estimation	\$5,500 (\$2,000 + 700 IFQ owner and fish buyer magnetic cards at \$5 per card)	\$4,000 (\$2,000 for multi-color script with unique serial numbers.)	\$4,000 (\$2,000 for IFQ "checkbooks" with 2 copies and an original)
Annual Cost Subtotal		\$7,200	\$7,400	\$5,700
Start-up Costs				
Computer Hardware	No Separate Estimation			
Start-up Cost Subtotal				
Annual Costs				
Personnel	No Separate Estimation	\$27,500. Transfer Clerk GS-7 (1/2 a full-time employee).		
Office Supplies	No Separate Estimation	\$2,000		
Annual Cost Subtotal		\$29,500		

IQ Transfers (Section 3.6.1)

Transfer cost expenses do not vary with accounting and tracking systems.

\$0. Computer equipment counted as a cost for the IFQ tracking and monitoring program will be used for this task.

Table C-1. Summary of administrative costs for IQ program by tracking and accounting system method, with comparison to NPFMC program.^v

	Tracking and Accounting Systems				
	NPFMC Electronic System	Council Electronic System	Council Script System	Council IFQ Checkbook System	Council Hybrid System
Tracking and Accounting System (Section 3.8)					
Start-up Costs					
Hardware Costs	\$120,000	\$50,000 ^v	\$5,000. Personal Computer (1)	\$5,000. Personal Computer (1)	\$30,000. Electronic mail system with touch-tone telephone data entry (2)
Software Costs	\$40,000	\$40,000	\$2,000	\$2,000	d/
Planning, Analysis, Design and Training	\$400,000	\$20,000. Training only.	\$25,000. Computer programmer 1/4 year.	\$25,000. Computer programmer 1/4 year.	\$15,000
Coding Testing and Conversion	\$240,000	\$40,000	\$50,000. Computer programmer 1/2 year.	\$50,000. Computer programmer 1/2 year.	\$15,000
Toll-free Telephone Lines (8)	No Separate Estimation	\$600			\$600
Start-up Cost Subtotal		\$150,600	\$82,000	\$82,000	\$60,600
Annual Costs					
Telephone Lines	No Separate Estimation	\$7,000 per year (assuming 30 hours of calls per month)			\$7,000 per year (assuming 30 hours of calls per month)
Additional Personnel for Limited Entry Office	\$320,000. Covers all administrative personnel costs: system manager (1), programmer (1), system administrator (1), data entry clerks (2)		\$11,250. Data entry clerk, GS-05, (1/4 full-time employee)	\$11,250. Data entry clerk (1/4 full-time employee)	
Annual Cost Subtotal		\$7,000	\$11,250	\$11,250	\$7,000

Table C-1. Summary of administrative costs for IQ program by tracking and accounting system method, with comparison to NPFMC program.^v

	Tracking and Accounting Systems			
	NPFMC Electronic System	Council Electronic System	Council Script System	Council IFQ Checkbook System
Start-up Costs				
Toll-free Lines	No Separate Estimation	\$200 (2 toll-free lines)	\$200 (2 toll-free lines)	\$200 (2 toll-free lines)
Hardware Costs		\$5,000	\$5,000	\$200. All notice system costs included as part of monitoring and tracking system except telephone lines.
Start-up Cost Subtotal		\$5,200	\$5,200	\$200
Annual Costs				
Personnel	No Separate Estimation	\$22,500. Telephone and data entry clerk GS-05 (1/2 a full-time employee)	\$22,500. Telephone and data entry clerk GS-05 (1/2 a full-time employee)	\$0
Equipment and Supplies	No Separate Estimation	\$500	\$500	\$0
	No Separate Estimation	\$7,000 per year (assuming 30 hours of calls per month)	\$7,000 per year (assuming 30 hours of calls per month)	\$7,000 per year (assuming 30 hours of calls per month)
Annual Cost Subtotal		\$30,000	\$30,000	\$7,000
Annual Costs				
Additional Travel/Per Diem for Program Administrator	No Separate Estimation	\$3,000	\$3,000	\$3,000
Supplies and Materials	No Separate Estimation	\$2,000	\$2,000	\$2,000
Annual Cost Subtotal		\$5,000	\$5,000	\$5,000
		Additional Administrative Costs		

Table C-1. Summary of administrative costs for IQ program by tracking and accounting system method, with comparison to NPFMC program.^{a/}

	Tracking and Accounting Systems				
	NPFMC Electronic System	Council Electronic System	Council Script System	Council IFQ Checkbook System	Council Hybrid System
Total Marginal Implementation Costs	\$800,000	\$457,300-\$539,800 ^{e/}	\$388,700-\$471,200 ^{e/}	\$388,700-\$471,200 ^{e/}	\$362,300-\$444,800 ^{e/}
Total Marginal Annual Costs	\$320,000	\$78,700	\$94,400	\$83,450	\$54,200
Additional Annual Contribution from Current Limited Entry Office Staff (30 percent of time for all staff members), includes start-up year.		\$79,170	\$79,170	\$79,170	\$79,170

- a/ All federal pay grade cost estimates include 113 percent of the gross pay to cover employee contributions, benefits, overhead and rent charges.
- b/ Based on a 10 percent appeals rate for appeals which involve more than a re-examination of the catch history records and calculation of QS allocation.
- c/ The NPFMC system includes the purchase of 3 to 5 personal computers. It is expected that the current staff of the limited entry office would need to be expanded by only 1 person under an electronic system. The NPFMC system also includes a duplicate back-up system. With implementation of a Council system identical to the NPFMC system, the Council and NPFMC systems could serve as backups for each other.
- d/ The hardware cost for the electronic mail system includes software and development costs.
- e/ \$133,000 of these start-up costs would occur in the second year of the program.

Table C-2. Summary of personnel requirements for the IQ program by tracking and accounting system method, including current limited entry office staff.

		Tracking and Accounting System			
		Council Electronic System	Council Script System	Council IFQ Checkbook System	Council Hybrid System
NMFS Limited Entry Office					
Temporary Personnel and Services	Year 1	1 full-time employee, document processing clerk GS-04)	1 full-time employee, hearings officer GS-13; 1-2 full-time employees, 2-4 application reviewers GS-07 for 6 months	1 full-time employee, hearings officer GS-13; 1-2 full-time employees, 2-4 application reviewers GS-07 for 6 months	1 full-time employee, hearings officer GS-13; 1-2 full-time employees, 2-4 application reviewers GS-07 for 6 months
	Year 2		1 contract computer programmer (\$60,000) 1 full-time employee, hearings officer GS-13	1 contract computer programmer (\$75,000) 1 full-time employee, hearings officer GS-13	1 contract computer programmer (\$75,000) 1 full-time employee, hearings officer GS-13
Permanent Personnel		1 full-time employee, branch chief GS-13; 3 full-time employees program support assistants GS-05, GS-06 and GS-07	1/2 full-time employee, transfer clerk GS-07	1/2 full-time employee, transfer clerk GS-07	1/2 full-time employee, transfer clerk GS-07
			1/4 full-time employee, tracking system data entry clerk GS-05	1/4 full-time employee, tracking system data entry clerk GS-05	1/4 full-time employee, tracking system data entry clerk GS-05
		1/2 full-time employee, notice system telephone and data entry clerk GS-05	1/2 full-time employee, notice system telephone and data entry clerk GS-05	1/2 full-time employee, notice system telephone and data entry clerk GS-05	1/2 full-time employee, notice system telephone and data entry clerk GS-05

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There are about 60 additional vessels which will receive "A" permits but do not appear to have met recent participation requirements. Thus, the maximum number of applicants which may qualify for QS, based on permit history, is probably 140 vessels.

Determining the number of applicants, which may apply under an allocation based on personal catch history, is more difficult because of complexities created by vessel ownership through multiperson entities (e.g., corporations and partnerships). The number of permits does not constrain the number of applicants because an individual must be only a part owner of a permit in order to qualify for an initial allocation. It is assumed that many fishers who meet recent participation requirements, but did not previously receive or acquire an "A" permit, will make arrangements to acquire at least partial interest in an "A" permit in order to qualify for a QS. Information on the change in ownership for 171 vessels which met both the minimum landing requirement for a permit and the IQ program recent participation requirement can be used to extrapolate the total number of applications which might be received under an allocation based on personal catch history. These vessels were owned by 249 different persons during the 8-year allocation period. Assuming that ownership records were complete for the 8-year period, the 1.5 to 1 ratio of vessel owners to vessels implies an average ownership turnover of 50 percent for the 8-year period. There were 550 vessels which had at least 1 sablefish landing during the recent participation period. If the ownership to vessel ratio holds for these vessels, then approximately 825 different persons owned the 550 vessels at some time during the 8-year allocation period. However, only those who owned the vessels during the recent participation period may qualify for QS. The recent participation period comprised 3 years of the 8-year allocation window. Therefore, the 50 percent turnover in vessel ownership for the 8-year period may imply an 18 percent turnover for the 3-year recent participation period ($3/8 \times 0.5$). Applying this factor to the 550 vessels meeting the recent participation requirement, yields an estimate of about 650 vessel owners. Not all of these owners may be assumed to have owned the vessel at a time when recent participation requirements were met. Therefore, this estimate would tend to be a high-side estimate of the number which may apply. Further, this number will tend to be an overestimate to the degree that what may appear to be different owning entities are really just changes in the form of ownership (e.g., incorporation of a partnership or individual) and to the degree that these owners do not acquire at least part ownership in an "A" permit at the time application is made for a QS. On the other hand, the number may be an underestimate to the degree that individuals who are partners in current fishing enterprises have their own catch history prior to the recent participation period. These persons may file an application separate from their partnership based on their previous ownership history provided other conditions are met.^{1/} Basing an allocation 50 percent on personal history and 50 percent on vessel history will increase the number of applications above that for personal history alone to the degree that the owner of a permit with a qualifying catch history did not participate as a vessel owner during the recent participation period (as could be the case for someone who purchased a permit after the recent participation period). These individuals would receive no QS under personal history allocation criteria, but would receive a QS under permit catch history criteria.

1/ Those other conditions are that the person also participated in the ownership of a vessel at the time the vessel met recent participation requirements and participates in the ownership of an "A" permit at the time QS are applied for and issued.

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For an allocation based on permit catch history, evaluation of the application would involve

- verifying that the applicant owns a limited entry permit;
- verifying that the permit meets the recent participation requirement;
- retrieving and examining all allocation period records for landings of sablefish by vessels with which the applicants permit rights had been associated;
- determining whether it appears that gear had been properly coded on the landings records (this may require evaluation of non-sablefish landing records);
- determining how to handle unspecified sablefish condition codes;
- applying annual weighting factors (Section 15.6.2.3); and
- applying the adopted allocation formula.

For an allocation based on personal catch history evaluation of the application would involve

- verifying that the applicant owned, at least in part, each of the vessels for which catch history is claimed and currently has at least part ownership in a limited entry permit;
- verifying that one of the vessels owned by the applicant met the recent participation requirement at the time it was owned by the applicant;
- verifying that there are no conflicting claims for each vessel and time period for which catch history is claimed;
- retrieving and examining all records for the landing of sablefish by the vessels the applicant owned for the periods which the applicant claims ownership;
- determining whether it appears that gear had been properly coded (this may require evaluation of non-sablefish landing records for the vessel);
- determining how to handle unspecified sablefish condition codes;
- applying annual weighting factors for each landing (Section 15.6.2.3);
- dividing the catch as appropriate between owners claiming the same vessel for the same period (e.g., where a partnership or corporation has dissolved);
- summing, by year, all catch history claimed by the applicant; and
- applying the adopted allocation formula.

(Note: If an applicant is not the sole owner of a limited entry permit, verification would be required that an applicant is eligible to own a U.S. fishing vessel.)

The NMFS limited entry office is processing approximately 900 applications for the license limitation program with a staff of 5 individuals: branch chief (GS-13), 3 program support assistants (GS-07, GS-06 and GS-05) and 1 document processing clerk (temporary, GS-04). The branch chief is an officer on loan from National Oceanic and Atmospheric Administration. Assuming that QS are issued sometime in 1995, the primary license limitation work should be down to resolving appeals and facilitating the transfer of permits and some of this staff should have time to work on QS allocation.

The limited entry office made some rough initial estimates of processing time for initial allocation. Processing time for an allocation based on the vessel owned may average between 3 and 4 hours per application (including time on the telephone with applicants) and for an allocation based on personal history as a vessel owner to average between 6 and 7 hours per application. Above, it is estimated that there may be about 140 applicants under a system in

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which the allocation is based on catch history of the permit currently owned. Under this scenario, processing time would be between 420 hours (10 weeks) and 560 hours (14 weeks). One additional individual working with the current limited entry office staff could probably accomplish the task in less than 6 months. With a similar number of applicants for QS based on the persons history as a vessel owner, total processing time would be between 1,680 hours (42 weeks) and 1,960 hours (49 weeks). It would probably take 2 individuals working with the current limited entry office staff to finish the allocation task within 6 months. If the estimate of the number of persons who may meet recent participation requirements is correct and every person meeting those requirements acquires at least part interest in an "A" permit (a possibility discussed above) there could be around 650 applicants, total processing time would run between 3,900 hours (97 weeks) and 4,550 hours (113 weeks). It would probably take 4 individuals working with the current limited entry office staff to finish the allocation task in 6 months. This work should probably be carried out by individuals working at the GS-07 level.

For the purpose of this cost estimate, it is assumed that the computer used for the license limitation program and those purchased for the tracking and accounting program will provide adequate capacity for the initial allocation process. Additionally, it is assumed there will be no major programming tasks necessary for determining the initial allocation. For the relatively small number of applications to be handled for this program, individual searches of the PacFIN data base are probably more cost effective than developing a new data base and program to evaluate applications. The existence of the PacFIN data base makes this task much simpler and less expensive than it will be for the North Pacific Fishery Management Council (NPFMC) IFQ program. A special PacFIN summary routine may have to be written to facilitate these searches^{2/} alternatively, a PacFIN summary file may be created and down-loaded to a computer in the limited entry office.^{3/} A simple data base management program could be used to generate reports on individual vessels for specific periods of time.

Appeals

High-end estimates for the total number of applicants run between 280 and 650. If there were to be 650 applicants (at this time, believed to be a high-end estimate) and 10 percent of these applicants appealed, resolving 3 appeals per week would require a hearings officer 22 weeks of work. These appeal and appeal resolution rates are based on Alaska's Limited Entry Commission experiences as reported in NPFMC IFQ supplemental Environmental Impact Statement/Regulatory Impact Review. On the other hand, if applicants are not allowed access to the records on which their allocation is based, the number of appeals may be quite large. While it is possible that a second hearings officer may need to be hired if the appeals number is large, most of the appeals

2/ Such a routine would allow a user from the limited entry office to specify a vessel number and dates of ownership and in response receive a report containing individual records on all sablefish landings by the vessel by gear and condition code, together with all other species and gears reported by the same vessel on the same day and annual summary information of other species and gears used by the vessel. This should provide sufficient information to identify and resolve most coding problems, though in a few cases some additional investigation may be required.

3/ Such a summary file would contain information for the 900 vessels which would show at least 1 sablefish landing with fixed gear. This could be down-loaded to a large hard disk on a computer or stored on a CD ROM disk. Sorted by vessel, such a file would allow for rapid searches of the data.

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generated in response to the applicant's lack of knowledge about actual landing history may be resolved with a relatively brief examination of landing records. A hearings officer at a GS-13 level may be required to review appeals (\$116,000 per year). This person would probably be retained at least 2 years to handle appeals and take part in responding to follow-up law suits. It is assumed that administrative support would be provided by existing personnel outside the limited entry office. The cost estimate for appeals (\$271,000) includes the purchase of a personal computer and travel expenses.

Annual Individual Fishing Quota Allocation Process

The cost of this process should be minimal. An up-to-date record of the amounts of QS held and addresses of every holder will be maintained on an ongoing basis as part of the task of recording QS initial issuance and transfers. After the amount of IFQ to be issued for each unit of QS is determined, reports will be generated to notify the QS holders of the amount of IFQ they will receive for the following year. These notices will be mailed out in a bulk mailing together with magnetic quota cards, checkbooks or script depending on the tracking and accounting system employed. In general, this process might require less than 1 week of work. However, if script is used for the tracking and accounting system, some time will be required to count out script and record script serial numbers. The number of QS holders may eventually be larger or smaller than the number of initial recipients. If eventually there were to be 700 QS holders and each package of script required 5 minutes to process, it would require about 2 weeks of work to process all the script. At the end of each year, each account would have to be evaluated for unused IFQ and IFQ holders notified of the amount of IFQ which would be reauthorized for use in the subsequent year. This process may require another week of work by one individual. The total amount of labor required would be about 2 weeks by someone working at the GS-05 level (or 4 weeks if a script system is used). On the other hand, the number of QS holders may be well less than the number of initial QS recipients, possibly between 100 and 200 and even as low as 20 (the minimum allowed under a 5 percent accumulation cap). For the purpose of the cost estimate, it is assumed that someone working in the current limited entry office would pick up this task and use the computers dedicated to the tracking and accounting system. Printing costs of script and IFQ checkbooks are both estimated at \$2,000. Costs for mailing and supplies are also estimated at \$2,000.

Transfer of Quota Shares and Individual Fishing Quotas

The transfer of QS and IFQ will involve

1. verifying that the buyer is eligible to own a U.S. documented fishing vessel (if the buyer is the current owner of IQ this step will not be required);^{4/}
2. verifying that the purchase will not place the buyer over any ownership cap;
3. debiting the seller's ownership account and adjusting documents in the IQ tracking system to reflect the debit;

4/ This step may be carried out primarily through submission of documents and affidavits by the buyer. Enforcement follow-up would be required to determine whether false submissions had been made.

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4. crediting the buyer's accounts and adjusting documents in the IQ tracking system to reflect the credit; and
5. issuing written verification to the buyer and seller that their transfer has been recorded.

The method used for tracking and accounting will determine the amount of work involved in the transfer of shares.

Identified alternative tracking and accounting methods are as follows:

- Electronic/Credit Card:

All IFQ landings are debited against accounts through a computer system involving IFQ account holder credit cards, card swipe machines and printers owned by fish receivers and a central computer system tied to telephone lines. Field records are maintained through printers linked to the card swipe machines.

- Paper:

All IFQ landings are debited against accounts either through the transfer of paper script or through the writing of IFQ checks. Field records are maintained through the transfer of script or checks with carbon copies.

- Hybrid Paper/Electronic System:

All IFQ landings are debited against accounts through a system involving touch-tone dialing and a central computer system tied to telephone lines. A checkbook type system would be used to keep field records.

These systems are discussed in detail together with their advantages and disadvantages in the following section.

The transfer of QS and IFQ in all systems would be carried out through the modification of computer records in the limited entry office. Notice would be sent to the buyer and seller verifying the completion of the transfer. For a paper script system, script might have to be returned by the seller. Upon receipt, the limited entry office would issue new script to the buyer. Serial numbers for the script returned and issued would be recorded. On the other hand, it might be possible for script to change hands in the field, similar to the arrangements established for the Atlantic wreckfish IQ program. The all-electronic and the checkbook system would appear to entail similar work loads. The script would require the handling of more paper and recording of more data than the other systems.

Both QS and IFQ may be transferred. Separate QS and IFQ data bases would be maintained to distinguish the two types of transfers. The transfer of QS and IFQ may be carried out in any increment of shares, therefore transfers may be numerous. There may be many transfers of small amounts of IFQ particularly towards the end of the year when some vessels may have small amounts of IFQ remaining and others are trying to put together a full trip, though carry-over allowances and NMFS transfer fees may reduce the number of small end-of-season transfers.

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Since the NMFS fees will reflect government transfer costs, any inhibition of transfers due to the size of the fee will result in an efficient social outcome (i.e., it would have cost society more to transfer the IFQ than could have been gained from harvesting the fish). On the other hand, processing time for transfers may inhibit end of year transfers more than transfer fees. This may be particularly true for paper-based tracking and accounting systems.

While it is difficult to anticipate the exact number of transactions which may occur in a year and the time which may be involved in carrying out the transaction, some assumptions may be made to estimate the magnitude of the work which might be involved. The intent of this cost analysis is not to underestimate costs. Assumptions:

1. QS will be owned by 650 different individuals.

This is the same as the estimate for the number of persons which might apply for a QS if allocation is based on personal history as a vessel owner. After initial allocation, ownership of a QS may become more concentrated or it may disperse. However, because leasing is allowed, harvest (IFQ) can concentrate without the concentration of QS ownership. Additionally, provisions which allow ownership by anyone, including crew members, may serve to disperse QS ownership, while at the same time allowing concentration of harvest.

2. The average number of QS and IFQ transfers per year is two.

This is an arbitrary assumption. It is likely that some individuals will not transfer any IQ during a year, others may make numerous transactions. There is a tendency for transfers to be high in number at the start of a program and decline in subsequent years. NMFS transfer fees may inhibit some small transfers. Transfers of QS or IFQ related to leases are included with ownership transfers as they would require the same type of administrative work load.

3. The average length of time to conduct a transfer is 45 minutes.

Thirty minutes is probably a reasonable period of time to review the documents on the transfer, verify that sufficient IQ is in the account to cover the transfer, make computer changes, generate computer reports, mail the reports out, and copy and file the documents. When IQ is being transferred to a first time holder, new account records will have to be generated, account numbers assigned and eligibility to own IQ verified. This work may take an additional half hour. In addition to the work of making the transfer, time will likely be spent in telephone conversations with the private parties involved in the transfer. Therefore, an average transaction time of 45 minutes has been estimated.

Based on these assumptions, 1,300 transactions would occur a year. At 45 minutes a transaction, this would require 975 hours or just over 24 weeks of work. Add to this time for maintaining computer programs and implementing improvements, handling correspondence, staff meetings, etc. and it may be possible to justify one half-time job at the GS-07 level in combination with the efforts of the current limited entry office staff. This is likely a high-end estimate.

The computer equipment used for the tracking and accounting system would also be used for this task.

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Tracking and Accounting Systems

Electronic

Under an electronic system, much of the work done for the NPFMC program would be transferable to the Council's program. The NPFMC program hardware and this IQ program's hardware could back each other up reducing hardware costs to \$50,000 as compared to \$120,000 for the NPFMC program. Prepackaged software would still have to be purchased (\$40,000). Costs for training and installing the system are estimated at \$60,000 as compared to \$640,000 for the NPFMC. Note that NPFMC costs include planning, analysis, design, coding, testing and conversion. A significant portion of NPFMC's program is related to the transfer of state and federal data to the their new system. This is necessary because the system is intended to handle initial allocations along with the tracking and accounting tasks. The small size of the Council's program combined with the availability of the PacFIN data base make it unnecessary for the new system to handle this function (see section on allocation costs) and the tracking of accounting computer codes will probably be identical. Installation costs for 4 toll-free lines (2 primary and 2 backup) is estimated at \$600. This cost was not separately estimated for the NPFMC program. The total start-up costs of an electronic system are estimated at \$150,000 as compared to \$800,000 for NPFMC. The annual variable costs for the electronic system are estimated at \$7,000. This covers the variable cost of 30 hours of calls per month on the toll-free lines. Other administrative personnel costs included in the NPFMC cost estimate are either included here under cost estimates for separate tasks or are expected to be covered by the personnel of the current limited entry office. It is assumed that the programmer hired to maintain the NPFMC system will implement any fixes on both the NPFMC and this system since this system would serve as the backup to the NPFMC system. These costs are summarized in Table C-1. There is also a possibility that rather than creating a separate system of any kind, the Council's program would exist as additional account numbers completely within the system already developed by the NPFMC program. In that case, costs of the tracking and accounting system would probably be little more than the training and time required to query the computer and generate reports.

Paper

The cost of a paper system will depend on the number of landings made and the number of IFQ holders. An entry will have to be made on a separate IFQ account for each holder who contributed IFQ to the landing. One individual might be able to process 20 landing records an hour, fewer (perhaps 10) if paper script is involved. For a checkbook system, if 6 hours a day were devoted strictly to processing landing records, this would be about 120 landings a day, 600 landings a week and about 28,800 landings a year (assuming 48 weeks of work). If the eventual fleet size for the sablefish fishery is about 300 vessels, including those vessels which take sablefish as bycatch, a one-quarter full-time employee GS-05 for either system would likely be more than sufficient to handle IFQ transactions.

The tracking and accounting system would require a personal computer with a good size hard drive (200 mb would be more than sufficient) and a local printer. The computer would be tied into the network with the other computers in the limited entry program. Estimated cost for this hardware is \$5,000. A standard data base management package could be used to track landings and accounts. Operating system, word processing, data base and other software might run

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\$2,000. A NMFS data base management specialist or private consultant should be hired to design the data tables and data entry forms. A good consultant can be retained for about \$50 per hour. If 3 full-time months are allocated to planning meetings and system design and 6 full-time months for implementation and documentation, the costs could run about \$75,000.

Costs for the script or IFQ checkbooks are included in the estimate of costs for the annual allocation process.

Hybrid

The administrative equipment, planning, development and training start-up costs of \$60,000 for the hybrid system were estimated by a supplier of digital and voice mail systems. This estimate included the design and programming costs for a vessel landing notice system.

Vessel Landing Notice

A vessel landing notice system would allow vessels to notify NMFS of their intent to land and estimated amount to be landed in advance of landing. The computer system used in the hybrid paper/electronic tracking and accounting program could handle the advance notice of landings and relay them to field officers without additional manpower. A vessel would call in using a digital telephone and be prompted for a permit identification number, port and time of landing and estimated haul weight. The computer record would be stamped with the time and date of the call. An enforcement officer calling on a different line with a special access code would be able to retrieve information on landing notices by port or area and time. Moreover, it may be possible to set up a special mailbox for "hot" notices (those for vessels which enforcement has a particular interest in observing). The computer would automatically route notices on these vessels to that box for an enforcement officer to retrieve. A routine could also be established by which enforcement officers could inquire and be given the number of reported landings made by the vessel, the total weight of those landings and the number of landings which had been observed. The programming and equipment costs for this system are included in that for the tracking and accounting system. Installation of 2 new non-dedicated toll-free lines for this service would run about \$200 and yearly charges for 30 hours of calls a month about \$7,000 (this includes the fixed monthly fee). Other options include a human contact backed up by an answering machine, limited hours for calling in or 24-hour staffing. Twenty-four hour staffing would require three additional shifts of work at the NMFS Northwest Region limited entry office. It may be possible that individuals with other data entry responsibilities under the license and IQ programs could be scheduled to work evenings and weekends and at the same time covering the notification telephone lines. It seems likely that at least 1 additional person would have to be hired to provide 24-hour coverage. For the purpose of this analysis, it is assumed that the equivalent of a one-half time GS-05 employee would be required to handle daytime calls and do data entry work related to landing notices and that an answering machine would provide backup in the evenings and on weekends. A separate personal computer and some equipment and supplies would likely be required.

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INDUSTRY COMPLIANCE COSTS

There are two types of compliance costs considered here. The first is the cost of acquiring QS or IFQ and the second is the cost of participating in the IQ program once QS or IFQ have been acquired. Additional industry costs which might be expected under status quo management are addressed in Appendix D on producer surplus.

Acquisition of Quota Shares or Individual Fishing Quotas

Initial Allocation of Quota Shares

The initial allocation process will involve filling out and submitting application forms. There may also be an application fee based on the federal costs of issuing a permit. If 200 applicants were anticipated, initial issuance costs may run between \$150 and \$500 per applicant, depending on complexities arising from the allocation formula.

The acquisition costs may be higher if a person decides to attempt to independently verify the allocation provided by NMFS. In this case, the person may have to contact individuals who owned or leased the vessel during the allocation period to acquire releases for information on landings during their ownership or operation of the vessel.

Persons who decide that the allocation formula has been misapplied or are uncertain as to whether or not it has been applied properly may choose to appeal. Such appeals will require additional time to develop and submit the paper work.

There may be a fee for the annually issued IFQ, primarily to cover the cost of script of IFQ checkbooks. However, such a fee may not be implemented if the cost of collecting the fee is greater than the fee. The cost of issuing the IFQ is expected to be minimal (see Table C-1).

Quota Share or Individual Fishing Quota Transfers

Persons not receiving an initial allocation of QS adequate to support their fishing operation at the desired level will have to acquire QS or IFQ (this includes those who will receive no initial allocation of QS). Arrangements to acquire harvest rights may involve (1) the purchase of QS (providing a harvest right of indefinite duration); (2) purchase of IFQ (providing the right to harvest for one year); and (3) the lease of QS over a longer than one-year period or long-term arrangement to receive a certain amount of IFQ each year from a QS holder.

The costs of acquiring QS or IFQ will include transaction costs as well as the cost of the QS or IFQ itself. Transaction costs will likely include an administrative fee established by NMFS and whatever legal fees the participants in the transfer incur while developing a contract for the transfer. In the simplest situation, the transfer may involve drawing up a bill of sale. The price of the QS itself would reflect expected above normal profits for the fishery. This cost would not be considered a cost of the program for the purposes of the cost benefit analysis, because the amount paid is simply a transfer of wealth from one fisher to another. No estimate of this value has been made at this time.

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Costs of Participating in the Program

Direct costs to industry for participating in compliance with the program would occur only under an electronic tracking and accounting system. Such a system would require fish receivers, including vessels selling over-the-side, to acquire a card-swipe machine and printer to link with a central NMFS computer. Expenses for this equipment have been estimated at \$800 to \$900 per site. If there are 100 landing sites (including vessels selling over-the-side), the total expense to industry would run about \$80,000 to \$90,000. The other cost of the electronic system is the time spent with the card-swipe machine entering landing information and waiting for the printing of a receipt.

All IFQ tracking and accounting systems will require additional paperwork on the part of participants. Even under an electronic system, IFQ holders will likely maintain paperwork which tells them how much of their IFQ they have left. Fish receivers would have to maintain records of confirmation numbers and receipts for all IFQ fish received. The script system may require the least paperwork for the IFQ holder. IFQ holders will probably want to keep track of the script they have used by recording serial numbers. For the fish receiver, a script system would probably be most cumbersome because of the number of pieces of paper which must be handled. The script will have to be totaled and checked against landing receipts, each piece of script canceled in some fashion and a report form on the landing filled out and submitted with the script to NMFS or the states. The IFQ checkbook system would require the handling of fewer pieces of paper and provide both the IFQ holder and fish receiver with a concise record of the transaction. The main flaw of the checkbook system, which to date has not been resolved, is that the fish receiver would have no way to know if the IFQ holder had a balance sufficient to cover the landing. The hybrid system overcomes this flaw and provides real time information to the fish receiver and enforcement personnel. The additional cost to industry would be the time spent on the telephone digitally entering account numbers and delivery amounts. Toll-free lines would be provided for the system.

Enforcement requirements for record keeping on shipments by fish receivers would not place significant additional burdens on fish receivers as most of these records are already required by law.

An additional industry cost would be incurred if vessels were required to call in with advance notice of an IFQ landing. One of the costs would be time spent contacting a clerk or computer and providing information on port of landing, estimated time of unloading and hail weight. Toll-free lines would be provided to eliminate long distance charges to industry.

The Magnuson Fishery Conservation and Management Act does not currently allow for the charge of fees in excess of the costs of issuing QS/IFQ. If the act were changed to allow such fees, an additional cost burden may be placed on industry. For the cost benefit analysis, these fees would not be considered a new cost but rather a shift in the cost burden from tax payers to the fishing industry.

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APPENDIX D PRODUCER SURPLUS

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Adoption of an individual quota (IQ) program for fixed gear sablefish has the potential of increasing the total value of goods and services produced and consumed by the U.S. economy. As explained in Section 4.2.1, whether or not this happens will depend on the magnitude of the economic surplus created in consumption and production of sablefish, compared to the sum of incremental administrative costs, industry compliance costs and incremental enforcement and monitoring costs of the program. This appendix presents a range of estimates of the difference between future producer surplus with current management and with the proposed IQ program.

Producer surplus in the sablefish fixed gear fishery is the difference between the amount of value received by producers from consumers for processed sablefish and the value of the inputs used in the production process. The value of the inputs used in production is their opportunity cost to the national economy; that is, their cost to the economy when expended in fishing is equal to the value of what they would produce in their best alternative use. Generally, this value is assumed to be equal to the market value of the inputs, but external costs such as pollution and government actions to impose taxes on or grant subsidies to firms producing the inputs may cause their economic cost to be higher or lower than their market value.

The producer surplus does not necessarily accrue to fishing firms or processing firms. In the long run, when all firms have had time to adjust their activities to a given set of external conditions, the surplus will take the form of resource rents to the owners of primary inputs (e.g., individual fishing quota (IFQ), property with access to harbor facilities, etc.), the Yinfra-marginal rents to owners of variable inputs (e.g., labor, etc.), and tax revenues generated by fishing. The value of the shares created by the proposed IQ program would be included in producer surplus as a rent to owners of harvest rights for the stock of fish required for production.

The focus of this analysis is to determine the difference in producer surplus between two hypothetical scenarios. In the first case, future fishery conditions are assumed to develop under the license limitation plan for the Pacific groundfish fishery and under IQ programs for Alaskan halibut and sablefish. The second case assumes the continuation of license limitation and the implementation of the Alaskan IQ programs, but adds the effect of the proposed IQ program for the Washington, Oregon and California fixed gear sablefish fishery.

The difference in producer surplus between these two cases, theoretically could be measured by estimating shifts in the general equilibrium supply and demand curves for the dressed/frozen sablefish market resulting from the proposed IQ program. However, this is not feasible in the present case due to the lack of data relevant to how this market would behave in the future under license limitation. The alternative used here is to estimate shifts in revenue and costs of inputs in the sablefish market and in other closely related markets. The prices of inputs are assumed to be constant across both cases, with the differences being determined by changes in the quantities of inputs.

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CHANGES IN REVENUE

It is generally acknowledged that the adoption of the proposed IQ program will eliminate or greatly reduce the race for fish, which has led recently to shorter and shorter open seasons, with smaller trip limits the remainder of the year. With less need to race for fish, skippers should be able to schedule fishing operations in the most efficient manner for their own vessels.

Effort in other longline and pot fisheries may increase in the short run as sablefish IQ is bought up by those operations willing to pay the highest price for it. Since the species landed by longline and pot vessels (even when fishing other gear) are generally fully utilized, substantial increases in the total landings of these other species over the long run are unlikely, although a small increase for some species may be sustainable. Thus, the catch of other fish is likely to be at least as high under the IQ program as it would be without the program.

Any increased revenue from expansion into alternate under-utilized fisheries would be added to whatever increases in revenue are realized from higher sablefish prices with IQs. Therefore, revenue to the fishing fleet as a whole would expand by at least as much as the increased exvessel value of the sablefish landed.

Relaxation of the race for fish may increase the amount of sablefish which is dressed (and possibly frozen) at sea. From the standpoint of fishers, the opportunity to dress more fish at sea is likely to produce an increase in average exvessel price. But increases in revenue to the fleet that arise from shifting more fish preparation activities offshore represent an increased cost to processors and distributors buying the fish from the fleet. Similarly, the fleet may incur additional costs--in the form of higher crew payments--by processing at sea while processors may avoid costs by not having to dress or freeze those fish. Considerable information--which is neither currently available nor planned for acquisition--would be required in order to evaluate whether the producer surplus generated by increased at-sea handling outweighs the producer surplus arising from the delivery of round fish. Since the authors have no basis for assuming a difference one way or the other, this analysis does not attribute any additional surplus to the possibility that a higher percentage of fish will be dressed and possibly frozen at sea. In examining the subject of how price may change under IQs, it will be useful to focus on price at the exprocessor level, where the product being sold retains the same degree of processing, with or without IQs.

Any increases in the revenue generated by sablefish sales, post-processing, are anticipated to originate from two sources. First, the quality of fish landed may improve. Quality improvements may arise from the fish being handled with greater care, because speed of handling will receive a lower premium under IQs than the status quo. Another source of quality improvement that has been suggested in the context of scheduling seasons for various species, including sablefish, is that the quality of the fish flesh will be higher if harvesting is undertaken after the fish have had

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greater opportunity to recover from **late-winter** spawning. As noted in analysis of a proposed change in season opening for the Gulf of Alaska sablefish fishery (NPFMC GOA Groundfish Plan Amendment 17)

"Historical memoranda and letters regarding winter closures in the Gulf of Alaska, discuss the lean and soft flesh of sablefish harvest in the winter and early spring seasons."

In a study of factors affecting sablefish quality, Norris et al. (1987) noted little seasonal variation in sensory characteristics of West Coast sablefish; however, that study included no samples of fish caught prior to June. At the time that study was conducted, most of the West Coast's sablefish was landed between June and December; however, more than 70 percent of the West Coast sablefish taken with fixed gear are now caught in April and May.

The second principal source of revenue enhancement involves the opportunity for the industry to schedule harvest in a manner which is more consistent with the seasonal consumption patterns of sablefish. Through improving the timing of harvest, sablefish storage costs, which are currently incurred primarily by agents positioned between the processor and consumer would be reduced. By lowering the costs faced by downstream handlers of sablefish, the fishing industry may be able to appropriate, in the form of higher exprocessor prices, some of the difference between the previous and new costs of supplying fish to consumers. Nearly all sablefish caught with fixed gear off the West Coast is destined for consumers in Japan. Available information (Hastie, 1989) suggests that Japanese consumption of sablefish peaks in the winter months, when the fish is valued for its high oil content. Consistent with this view of Japanese consumption is the fact that, during the 1981-1984 period, when Japan was still allowed to retain sablefish in the U.S. waters off Alaska, more than 55 percent of its annual harvests were conducted after September, with more than 70 percent of the catch occurring after July.

The IQ program for sablefish in British Columbia provides the only closely related opportunity to empirically assess the changes in price and scheduling of harvest that are likely to accompany the implementation of IQs in the West Coast sablefish fishery. Initially, it may be noted that exvessel price rose considerably following the introduction of IQs. As shown in Table D-1a, the price during the final year of open access (1989) was \$1.29 a pound (Canadian). Over the next two years, price rose to C\$1.81 and then C\$2.52, before slipping to C\$2.24 in 1992. On the surface, this suggests that the program accounted for an increase of 75 percent or more in the exvessel value of the fishery. However, staff of the Canadian Office of Fisheries and Oceans have conveyed that the percentage of fish that were landed in a dressed condition declined throughout the late 1980s, as seasons were progressively shortened (Bruce Turriss, pers. comm.). Since IQs were introduced, most vessels have resumed the practice of dressing fish prior to landing and many vessels also freeze their fish at sea. Therefore, it is very likely that a significant component of the observed price increase reflects merely a transfer of revenue from processors to fishers. As noted above, in the absence of more complete information regarding the costs and value added by dressing and/or freezing at sea and on shore, none of this transferred revenue is being considered a net benefit in the context of the current analysis.

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In addition to changes in the percentage of fish that were landed dressed, it is also important to note that the price of sablefish in other nearby open-access fisheries was rising during the 1989-1991 period. While Canadian exvessel price rose by 95 percent during the first two years of the program, longline price in Washington rose by 71 percent. Alaskan longline price also increased during this period, but by a smaller 17 percent margin. Both of these U.S. fisheries supply product to similar Japanese markets as the Canadian fishery and the percentage of dressed fish within both of the U.S. fisheries remained relatively constant over this period.

The likelihood that much of the price increase observed in the Canadian fishery between 1989-1991 can be accounted for by rising demand and increased dressing of fish is further supported by the magnitude of the jump in monthly prices observed following the introduction of IQs. Average prices in every month of 1991 were at least 55 percent higher than for the same month during 1989 (Table D-1a). For 7-monthly periods, the increase was more than 75 percent of the 1989 price. Comparison of prices in this manner permits factors other than those related to better timing of harvest to be isolated. In addition to better handling, the higher monthly prices may reflect a higher percentage of large fish. The scheduling freedom afforded by IQs has apparently allowed fishers to travel greater distances to locations having a greater abundance of large fish^{1/}. However, the increase observed within each monthly period appears larger than can be accounted for strictly through better handling of fish and a modest increase in the percentage of large fish. Therefore, it seems reasonable to conclude that increased demand and at-sea dressing of fish have played an important role in the overall price rise observed following Canadian implementation of IQs.

On the other hand, it is also apparent that the shift in timing of Canadian landings has contributed, in some measure, to the higher average price observed under IQ management. During the 1986-1987 seasons, the prices during the period from January through March and October through December averaged 10 percent higher than the yearly average, however less than 7 percent of the total landings occurred during these 6 months (Table D-1.d). During 1988 and 1989, management changes spread out landings more, with the result that 17 percent of the landings were made in these months. Over the 3 years following implementation of IQs, however, these 6 "winter" months have averaged more than 60 percent of the landings, with prices that have been an average of 8 percent above the mean for the year.

Considerable seasonal variation has also been observed in U.S. West Coast prices over the past few years. Table D-2 shows quarterly sablefish prices, averaged over the 3 years 1990-1992, by gear and state of landing. In most instances, prices in both the third and fourth quarters are higher than in the second quarter, where most of the poundage is landed. And in every gear/state category where some harvest occurred after the second quarter, at least one of the subsequent quarters had an average price that was at least 19 percent higher than that of the second quarter. Depending on vessel size and weather conditions, not all participants might choose to land fish during winter months, but it should be noted that restricting the IQ season to the period running from May through October would likely reduce the income potential of those who would fish during some winter months.

1/ Canadian Fisheries staff do not feel the increased landing of large fish represents highgrading, as the percentage of large fish caught in particular areas has not increased dramatically since IQs were introduced.

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Clearly, many forces have contributed to the changes observed in Canadian sablefish prices since the inception of the IQ program. Attributing a specific percentage of the observed increase to factors which are directly linked to the IQ program is problematic. Demonstrated seasonal variation in U.S. and Canadian sablefish prices provides strong evidence that opportunities will exist to increase price by at least 5 to 10 percent. However, the speed and extent to which future harvest in the West Coast fishery shifts to months exhibiting the highest prices are unknown parameters of considerable importance. Despite these uncertainties, there is little doubt that some increase in the price of comparably processed fish will occur under an IQ program. Past seasonal variation in price suggests that 5 percent is a reasonable lower bound for the increase that will be observed under IQs. On the other hand, some years have witnessed a considerably larger differential between landing prices in the late spring and those in fall and winter. Adding improved handling to whatever seasonal advantages may be realized in the flesh quality and marketing of the product, it would appear that a 25 percent increase in price for comparably processed fish is within the realm of possibility. Percentage increases within the 5 to 25 percent range are applied to an estimate of the exvessel price, so that an annual estimate of the increase in revenue can be calculated.

Projecting next year's price under the status quo is difficult enough, given possible changes in currency exchange rates, inventory adjustments and other factors affecting Japanese demand. Projecting price 15 to 25 years into the future compound these difficulties many fold, as price will also be affected by major changes in the availability of sablefish throughout its range, by the emergence or disappearance of major substitutes for sablefish in existing markets and finally by major shifts in tastes and preferences of consumers in existing and potential markets for sablefish.

Because we cannot predict these factors with any accuracy over the timeframe of the analysis, a constant price is projected for the status quo case. The West Coast fixed gear price has fluctuated considerably since 1990. In that year, average round-weight equivalent price was \$0.65 a pound. However, the following year, price rose sharply to \$1.00 a pound, falling back slightly in 1992, to \$0.92 a pound. This decline accelerated during 1993, as price dropped to \$0.76 a pound. Based on recent prices, a value of \$0.80 a pound was selected to represent the status quo. Accordingly, the prices considered for the IQ fishery range from \$0.84 a pound (5 percent increase) to \$1.04 a pound (25 percent increase). The effects of four possible price increases--5 percent, 10 percent, 15 percent and 25 percent--are presented in Table D-3. The present values of these price increases are calculated assuming 2,500 mt of IQ landings annually over the 25 years of the period of analysis. In the unlikely event that the program did not increase average price--either by increasing quality and price within particular months or by shifting landings to months with higher prices--then no enhancement of revenue would be expected under the program.

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CHANGES IN COST

With respect to harvesting, the adoption of an IQ program can be expected to lower costs in a number of ways. First, since the race for sablefish will be substantially reduced, individual share holders will be relatively free to take their shares anytime during the year without regard to how fast other shares are taken. Vessels will be free to schedule the most beneficial trip lengths, seasons and modes of operation. Crew sizes may be reduced if speed is no longer at a premium. In general, vessels may adopt the scale of trip appropriate for their individual operation. Accidents and delays due to haste or to congestion on the grounds or in the harbors will be reduced to the extent that fishing effort is more evenly distributed throughout the year. Losses of gear, vessels and human lives, arising from pressure to fish in bad weather conditions that may occur during short olympic fisheries are likely to be reduced. Reductions that occur in the rate at which gear is lost are included in the variable cost portion of the analysis. No attempt is made to quantify the savings that may result from fewer losses of people and vessels though these are clearly important concerns.

In addition, under the IQ program with transferable shares and annual IFQ's, the rights to harvest sablefish will be purchased and concentrated in the control of those willing to pay the most for the opportunity to fish sablefish. Since one reason for being willing to pay more for sablefish shares is a higher profit margin on additional (marginal) sablefish landed, this will tend to concentrate sablefish harvest among vessels with lower marginal costs thus lowering the average cost of harvesting sablefish. These gains in efficiency from the transfer of shares would be limited by any constraining cap on accumulation of shares or use of shares by a single vessel.

The savings to the U.S. economy from the accumulation of shares by more efficient vessels will depend on the situation of the vessels involved in the exchange of shares. This point can be illustrated by describing the effects of the IQ program under two extreme sets of conditions. In the first case, all the fisheries which the sablefish longline and pot vessels participate in are highly regulated, so that each vessel in the existing fleet has a significant amount of time during the year when it is not actively fishing. Under these conditions, more efficient vessels which accumulate sablefish IQ may increase the amount of variable inputs going into sablefish fishing without decreasing their efforts in other fisheries. However, vessels which sell their interest in the sablefish fishery will have no viable alternatives and will decrease their variable costs by the amount they were expending in the sablefish fishery. The net economic benefit in this case would be the difference in the cost of catching the fixed gear sablefish harvest with as compared to without the IQ program.

The opposite extreme would hold if all vessels were fully employed and had viable alternative fishing strategies. In this case any vessel increasing its sablefish activities would have to decrease other activities. There would be very little change in the fleet-wide variable cost of fishing even though a concentration of efficient vessels in the sablefish fishery could still lower the cost of sablefish fishing. The saving in the one fishery would be generally offset by increased costs in other fisheries.

The actual situation of most vessels in the fishery falls somewhere between these two extremes although the average is probably closer to the first case, where vessels cannot fish full-time, all the time. Therefore, lower costs in the sablefish fishery due to trade in shares, as well as lower

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costs due to the reduction in the race to fish, should largely be realized by the U.S. economy as a whole without being offset by contrary changes outside the sablefish fleet.

In any case, the incentive to invest in fixed gear sablefish vessels, or vessels competing with them in other fisheries will decline. Investment in sablefish-specific gear or vessels will be discouraged by the price of sablefish shares, while investment in other fisheries will be discouraged by the increased cost per pound of catching fish as the result of increased competition from displaced fixed gear sablefish vessels. This shift in the incentive to invest in the fishery will reduce the rate of entry of new vessels and increase the rate of retirement of existing vessels. As a result, the stock of vessels (i.e., the fleet), will be reduced over time until it reaches a balance between entry and exit at a lower fleet size. At this lower fleet size, the amount of waste in variable costs due to congestion and regulations to limit the catch will be reduced.

Many of the vessels displaced from the sablefish fishery will continue fishing in other fisheries, so that a decrease in the sablefish fleet will not automatically translate to an identical decrease in the total West Coast fishing fleet. However, since almost all the alternative fisheries for the fixed gear fleet are fully utilized, they cannot support more vessels over the long run than they do now (assuming relative input and output prices are constant). As a consequence, vessels shifting from sablefish into other fisheries in the short run will cause investment in those fisheries to drop until the fleet size is once again sustainable.

In summary, the changes in the economic cost of fishing due to adoption of the proposed fixed gear sablefish IQ program can be decomposed into a short-run effect on variable costs and a long-run effect on variable and fixed costs. In the short run, costs are expected to decline by an unknown amount due to adjustments in the scale of individual vessel operations, use of sablefish IQ by more efficient sablefish vessels, reduced congestion and increased safety. In the long run, total fleet size will decline causing further declines in variable and capital costs.

APPROACH TO ESTIMATION OF REDUCED ECONOMIC COST OF FISHING

The method of cost estimation adopted here combines empirical methods, based on available data with alternative hypotheses where data is unavailable. Short-run variable and fixed costs for the initial fixed gear limited entry sablefish fleet are estimated using available data described below. Three alternative reductions in variable cost which might be realized in the first year of the proposed program are considered along with alternative rates for continued reduction over the following 14 years.

Based on the arguments already presented above, it is assumed that the size and value of the entire fleet will be less over the long run with the IQ program than without it. The difference will be equal to or less than the difference in the size/value of the fleet actually fishing sablefish under the two options. Alternative plausible scenarios for reduction of the sablefish fleet, given the IQ program, are presented. Fixed costs are assumed to decline by a similar percentage as the decline in the capitalized value of the fleet, while variable costs are assumed to decline at a lower rate. Costs within the IQ fleet, given alternative rates of cost reduction, are compared with costs projected for the status quo over a 25-year period. Under IQs, the fleet is assumed to reach a

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stable equilibrium size by Year 15 of the analysis. For the final 10 years of the analytical period, the IQ program is projected to result in no further reduction in fleet size or variable and fixed costs.

The preceding discussion has highlighted many of the uncertainties associated with quantifying the benefits that would arise from implementing an IQ program for the fixed gear sablefish fishery. Because of this uncertainty, ranges of potential improvements in producer surplus have been provided, reflecting varying degrees of opportunity for reducing variable harvesting costs and fixed vessel costs. Within each of the matrices presented, there is considerable room for discussion and disagreement regarding which outcomes are most likely.

The uncertainty that is perhaps most central to the estimation of producer surplus involves the rate and extent of fleet reduction over the next 15 to 25 years. If very few individuals elect to leave the fishery, not only will little of the potential for fixed cost savings be realized, but the variable cost savings that arise from transferring catch from less efficient to more efficient vessels will be minimal as well. Even if the fleet is reduced substantially within 25 years, the benefits conferred by that reduction will be dependent upon the rate at which transformation of the fleet occurs. If reduction of the fleet does not really begin until the program has been under way for 10 or 15 years, the present value of the savings will be far less than if the same eventual fleet size is reached by adjustments that begin immediately.

As one approach to estimating the eventual fleet size, an initial distribution of quota shares, using the best 5 of 8 approach, was used to identify the approximate total poundage--assuming a 2,500 mt allocation--that would be allocated to vessels within each of four categories (Table D-4). The categories were constructed on the basis of gear--pot or longline--and vessel size--less than or at least 50 feet in length. Fishticket data from 1987 were used to identify catch rates for vessels in each category, for the fishing year, which ran from January through October 14. Even though most of that year's poundage was landed after May, as noted above, it was felt that the average landings for that year might still overstate average vessel landings in the IQ fishery for two reasons. First, if higher prices are available during the late fall and winter the duration of harvesting activities may be shorter than during 1987. Second, the initial allocation of shares will result in a lower average catch per vessel than in 1987 and inertia may contribute to a larger fleet, with a lower average catch, well into the future. Based on these assumptions, a hypothetical IQ fleet size was calculated by dividing the total poundage allocated to vessels in each size/gear category by an amount equal to three-quarters of the annual catch rate from the 1987 fishery for vessels in that category.

Using this approach, an overall fleet reduction of 46 percent is suggested, with about one-half of the vessels under 50 feet being unnecessary, along with about one-third of the vessels greater than 50 feet. Because a greater percentage of small vessels leave the fishery in this scenario, applying the average capital values presented in the discussion of fixed costs, results in a 42 percent reduction in capital stock. Furthermore, since the vessels leaving the fishery are likely to be older and below the average fleet value, it is likely that the fixed cost saving in this scenario would be less than 42 percent. Also, while it is reasonable to assume that the reduction in fixed costs will be tied rather closely to the reduction in the capitalized value of the fleet, it is not clear that all of the vessels which leave the sablefish fishery will have been retired from all fishing activity within the timeframe of this analysis. If it is assumed that, by the time the

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size of the IQ fleet has stabilized, most of the vessels leaving the sablefish fishery have either discontinued all fishing or encouraged the retirement of other vessels, by displacing them from other fisheries, a reduction in fixed costs in the range of 35 to 40 percent seems plausible.

This range may also serve as an upper bound for the savings in variable costs although it appears more likely that the percentage reduction in variable costs will be somewhat smaller than for fixed costs. Particularly after the initial phase, in which vessels adjust their fishing strategy to lower the costs of harvesting their initial allocation, any gains that occur from transferring landings from less efficient producers to more efficient ones must be averaged across the total poundage of the fishery. Since the 46 percent of vessels, which are assumed to leave the fishery, are likely to be smaller IQ recipients, on average they are not likely to account for more than 30 percent of the initial allocation. To illustrate the significance of this, if the 54 percent of vessels remaining in the fishery accounted for 70 percent of the initial allocation, and if those vessels all had variable costs that were 40 percent lower than the vessels exiting the fishery, the net reduction in variable costs from transferring shares would be roughly 17 percent. Obviously, if the cost differential between exiting and remaining vessels is smaller than 40 percent, the resulting reduction in variable costs following the initial adjustment phase will be less.

VARIABLE COSTS

Variable costs in the status quo fishery were estimated using information gathered during a 1987 survey of pot and longline vessels. All costs from this survey were adjusted to 1992 dollars using the GNP implicit price index. Only those costs for vessels targeting sablefish off California, Oregon or Washington were included. The survey results include variable cost per trip for fuel, oil, bait, ice, provisions, gear replacement and crew payment. These were available for several different modes of fishing so that values appropriate for sablefish fishing could be singled out. Many expenditures for maintenance of gear and vessel also represent variable costs, however, these categories were not available on a per-trip basis. Expenses in these categories were converted to similar per-trip amounts by dividing the reported annual figures by the number of non-Alaska trips. It was assumed that average maintenance costs were the same for sablefish and non-sablefish trips. The number of trips per year for each survey vessel was identified using PacFIN records. Landings taxes represent transfer payments from the private sector to the public sector and hence are not included as economic costs.

These variable (economic) costs were summed, yielding a total variable cost per trip and then divided by the round-weight equivalent poundage of sablefish per trip--also identified from PacFIN records--to yield a variable cost per pound for each vessel in the survey. While the analysis of survey data disaggregated the fleet into pot and longline vessels greater than and less than 50 feet in length, sample sizes were small in some categories. Also, the categories differed considerably in the degree to which fish were dressed at sea during the study year. Because crewshare costs are calculated as a percentage of gross revenues, the varying degrees of fish handling produced widely differing measures of cost per pound among the vessel categories. Since the present analysis was not equipped to address the net impacts associated with where fish are dressed, the average harvesting cost per pound of 47.7 cents was assumed for all vessels in the status quo fleet.

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Savings in variable costs were calculated for several scenarios reflecting different rates of cost reduction. Each of the scenarios assumed a first year reduction of at least 5 percent, relative to the status quo, in the total amount of variable costs required for a 2,500 mt fishery. A lower rate of reduction--between 0.5 percent and 4 percent--was applied on an annual basis for the next 14 years of the simulation. Tables D-5, D-7 and D-8 illustrate the present value of annual fleet variable costs, using an initial 5 percent reduction, under three different discount rate assumptions. Table D-5 illustrates these annual costs, when the future values are not discounted. It may be noted that the values in Table D-5 do not change after year 15, reflecting the assumption that the fleet will have reached a smaller equilibrium size by that time. Table D-6 summarizes the percentage reductions in the undiscounted annual variable costs over the period from Year zero to Year 15, that result from the combinations of first-year and subsequent-year rates of cost reduction that were considered. The 11.4 percent reduction shown in the upper corner of this table represents $(1 - (2,330,280/2,631,245))$, drawn from the first column of Table D-5. Table D-7 shows the values from Table D-5, discounted at a 3 percent annual rate, while Table D-8 reflects the use of the OMB-approved 7 percent discount rate. The reader may note that even though nominal costs remain unchanged beyond Year 15 of the study period the discounted values grow smaller through Year 25.

Table D-9a indicates the total present value of variable costs, discounted at a 7 percent rate, under the various scenarios of cost reduction. The difference between these values and the present value of 25 years of constant variable costs under the status quo, \$30,663,435, represents gains to producer surplus and are shown in Table D-9b. Comparable tables reflecting discount rates of 3 percent and zero percent are presented in Tables D-10 and D-11.

FIXED COSTS

Fixed cost expenditures by the status quo fleet are presented as a range of possibilities, based on the application of varying rates of re-investment to the estimated capitalized value of the fleet. Market values for vessels were based on the average of reported vessel prices (1992 dollars) in Pacific Fishing magazine, from 1991 through the fall of 1993. Using the previously discussed estimates for the number of permit qualifiers, vessels were divided into two groups, at 50 feet in length. Vessels in the smaller category were assigned a value of \$124,907, based on advertised prices of 28 vessels less than 50 ft, while the larger vessels were valued at \$268,160, based on 30 advertised prices.

Table D-12 shows the time streams of discounted fixed-cost payments per boat, in each vessel size category for the status quo. The undiscounted stream of payments would be equivalent to 25 times the value in Year zero. Table D-13 provides an example, for the scenario in which initial annual re-investment equals 1 percent of the capital stock, of the undiscounted stream of fixed costs associated with varying rates of fixed-cost reduction over the first 15 years of the analysis. Table D-14 and Table D-15 provide comparable values for discount rates of 3 percent and 7 percent, respectively. Table D-16, Table D-17 and Table D-18 provide summary comparisons of fixed costs under the various IQ scenarios with the status quo, using 7 percent, 3 percent and zero percent rates of discount. The bottom 3 panels in each table show the present value of fixed costs for the fleet under IQs, under the status quo and the net reduction of fleet fixed costs under IQs.

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CONCLUSION

Evaluating the producer's surplus of a fleet, such as the fixed gear sablefish fleet, for any given year requires information about the cost of harvesting, the productivity of operations and the revenue generated by the outputs of the industry. While the amount of fish harvested and the exvessel revenue received are known within reasonable bounds of error, the costs associated with the harvest of each vessel in the fleet are not well known. Survey work conducted during 1988-1989 provides a basis for estimating what these costs are for vessels of various sizes and gear types. But, these estimates are subject to much wider confidence intervals, due to the relatively small sample size of the survey and the likelihood that some changes have occurred in the fishery's cost-productivity relationships since 1987.

The task at hand, however, is not just to evaluate the producer surplus of the existing fishery, but to evaluate the change in the surplus that would result from the imposition of IQ management on this fishery. None of the cost survey information previously obtained provides a basis for estimating how much operating costs will be reduced as a result of lessening the race for fish. Furthermore, a large portion of the potential cost savings in the fishery is dependent directly upon a reduction in fleet size. There is little doubt that the IQ fleet will be smaller than the status quo fleet. However, there is very little information available that provides guidance on the speed and magnitude of that reduction or the composition of the resulting fleet. Since the impacts of the IQ decision will be felt over a long time horizon, the conditions which characterize the status quo must also be projected well into the future. The task of correctly identifying changes in stock size, input and output prices and fleet composition would be difficult under any circumstances. It is even more complicated at the present, since the license limitation plan, which is the cornerstone of the status quo, has only just been implemented.

In the context of these many uncertainties, the present analysis has not attempted to identify one number that represents the producer surplus that will accrue from the program. Rather, ranges of possible outcomes have been presented for the three main components involved: fixed costs, variable costs and revenue. To the extent that the values presented in the tables of this appendix reflect a reasonable characterization of possible outcomes under IQs, they suggest that the benefits of the program could vary dramatically depending on how the fishery evolves. The discussion which is provided in this appendix is intended to help readers draw conclusions regarding which outcomes are most likely.

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TABLE D-1a. Average monthly and annual prices (Canadian\$/pound) for sablefish landed in British Columbia, Canada, 1986-1992.

Year	Month												Annual Average
	1	2	3	4	5	6	7	8	9	10	11	12	
1986	--	1.41	1.37	1.26	1.35	1.20	--	--	--	1.05	--	1.76	1.25
1987	--	1.40	1.23	1.27	1.19	1.15	1.37	1.18	1.70	1.76	1.57	1.63	1.45
1988	1.29	1.53	1.77	1.78	1.67	1.64	1.57	1.61	1.69	1.71	1.76	--	1.66
1989	1.33	1.38	1.38	1.44	1.29	1.20	1.17	1.26	1.34	1.32	1.56	--	1.29
1990	--	1.44	--	1.37	1.45	1.45	1.57	1.52	1.80	2.03	2.19	2.28	1.81
1991	2.71	3.08	2.47	2.35	2.03	1.97	2.10	2.37	2.42	2.80	2.51	2.20	2.52
1992	2.77	2.68	2.40	2.36	2.08	2.03	2.16	2.09	1.99	2.10	1.93	1.64	2.24

TABLE D-1b. Monthly and annual poundage (1,000s pound) for sablefish landed in British Columbia, Canada, 1986-1992.

Year	Month												Annual Total
	1	2	3	4	5	6	7	8	9	10	11	12	
1986	--	56	76	4,184	553	4,131	--	--	--	0	--	92	9,091
1987	--	22	511	3,692	294	419	286	128	3,723	430	0	0	9,505
1988	0	158	732	478	1,419	1,893	1,634	886	2,528	453	80	--	10,263
1989	64	1,099	437	1,082	2,726	2,268	1,059	549	881	492	79	--	10,735
1990	--	56	--	164	1,664	1,168	1,191	336	955	2,346	1,721	699	10,301
1991	554	1,584	2,764	1,859	506	227	284	364	593	1,036	809	709	11,291
1992	430	1,586	2,009	607	310	679	423	276	454	1,898	1,630	238	10,539

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TABLE D-1c. Percentage of annual sablefish landings occurring in each month in British Columbia, Canada, 1986-1992.

Year	Month												Annual Total
	1	2	3	4	5	6	7	8	9	10	11	12	
1986	---	1	1	46	6	45	---	---	---	a/	---	1	100
1987	---	a/	5	39	3	4	3	1	39	5	a/	a/	100
1988	a/	2	7	5	14	18	16	9	25	4	1	---	100
1989	1	10	4	10	25	21	10	5	8	5	1	---	100
1990	---	1	---	2	16	11	12	3	9	23	17	7	100
1991	5	14	25	17	5	2	3	3	5	9	7	6	100
1992	4	15	19	6	3	6	4	3	4	18	16	2	100

a/ Less than .5 percent.

TABLE D-1d. Average sablefish prices for April-September and remaining months (relative to annual average price) and percentage of annual landings occurring in each group of months in British Columbia, Canada, 1986-1993.

Years	Price relative to annual average		Percentage of total annual landings	
	April to September	Other Months	April to September	Other Months
1986-1987	.99	1.10	93.62	6.38
1988-1989	.99	1.02	82.88	17.12
1990-1992	.87	1.08	37.53	62.47
All Years	.95	1.07	71.34	28.66

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TABLE D-2. Quarterly landings, average prices and ratios of quarterly prices to annual average prices by state and gear for 1990-1992 combined.

Gear/State	First Quarter	Second Quarter	Third Quarter	Fourth Quarter
HOOK AND LINE				
California				
Thousands of pounds	1,096	2,676	165	501
Price per pound (dollars)	.76	.77	.93	.84
Ratio of quarter price to annual average	.98	.98	1.19	1.08
Oregon				
Thousands of pounds	490	3,750	97	141
Price per pound (dollars)	.80	.80	1.10	.89
Ratio of quarter price to annual average	.97	.99	1.34	1.09
Washington				
Thousands of pounds	1,986	6,791	944	325
Price per pound (dollars)	1.06	1.03	1.05	1.23
Ratio of quarter price to annual average	1.01	.98	1.00	1.19
Pot				
California				
Thousands of pounds	690	1,808	30	239
Price per pound (dollars)	.50	.48	.68	.78
Ratio of quarter price to annual average	1.00	.96	1.27	1.56
Oregon				
Thousands of pounds	385	3,752	1	33
Price per pound (dollars)	.77	.74	.83	.65
Ratio of quarter price to annual average	1.02	.99	1.24	.99
Washington				
Thousands of pounds	5	236	--	--
Price per pound (dollars)	1.04	.70	--	--
Ratio of quarter price to annual average	1.05	.99	--	--

DRAFT - Never Adopted by the PFMC

TABLE D-3. Discounted present values from increased revenue associated with four alternative price increases under IQs. (Revenue totals based on annual harvest of 2,500 mt in the IQ fishery.)

	Price Per Pound Increase			
	\$0.04 (5 percent)	\$0.08 (10 percent)	\$0.12 (15 percent)	\$0.20 (25 percent)
Annual Increase in Revenue	\$220,460	\$440,920	\$661,380	\$1,102,300
Discount Rate				
7 percent	\$2,569,149	\$5,138,298	\$7,707,447	\$12,845,745
3 percent	\$3,838,903	\$7,677,805	\$11,516,708	\$19,194,513
zero percent	\$5,511,500	\$11,023,000	\$16,534,500	\$27,557,500

DRAFT - Never Adopted by the PFMC

TABLE D-4. Hypothetical reduction in fleet size, using three-quarters of the 1987 annual catch per vessel to estimate the number of vessels within each category, based on the poundage initially allocated to that category.

	Projected Initial IQ Fleet		1987 Fleet Landings		Hypothetical size of fleet in 15 years			
	Number of Boats	Category	Pounds of IFQ	Average per Boat					75 Percent of Average
Hook and Line								
<50 feet	102		1,151,920	11,293	36,366	27,275	42	
>=50 feet	43		1,736,606	40,386	89,884	67,413	26	
Pot								
<50 feet	14		982,623	70,187	98,940	74,205	13	52.6% small boats
>=50 feet	12		1,640,351	136,696	206,167	154,625	11	32.7% large boats
Total	171		5,511,500				92	46.2% total fleet

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TABLE D-5. Annual total fleet variable costs, using a zero percent discount rate, given a 5 percent reduction in cost per pound during the first year and a further specified percentage reduction for each subsequent year through Year 15. (Initial fleet cost based on 2,500 mt of fish and a variable cost of \$0.477 per pound.)

<u>Annual fleet variable costs (millions of dollars)</u>						
<u>Annual Percent Reduction in Fleet Variable Costs (Years 2-15)</u>						
Year	0.5 Percent	1 Percent	2 Percent	3 Percent	4 Percent	5 Percent
0	2.6	2.6	2.6	2.6	2.6	2.6
a/	2.5	2.5	2.5	2.5	2.5	2.5
2	2.5	2.5	2.4	2.4	2.4	2.4
3	2.5	2.4	2.4	2.4	2.4	2.3
4	2.5	2.4	2.4	2.4	2.3	2.2
5	2.5	2.4	2.3	2.3	2.2	2.1
6	2.4	2.4	2.3	2.3	2.1	2.0
7	2.4	2.4	2.2	2.2	2.1	2.0
8	2.4	2.3	2.2	2.2	2.0	1.9
9	2.4	2.3	2.1	2.1	2.0	1.8
10	2.4	2.3	2.1	2.1	1.9	1.7
11	2.4	2.3	2.0	2.0	1.8	1.7
12	2.4	2.2	2.0	2.0	1.8	1.6
13	2.4	2.2	2.0	2.0	1.7	1.5
14	2.3	2.2	1.9	1.9	1.7	1.5
15	2.3	2.2	1.9	1.9	1.6	1.4
16	2.3	2.2	1.9	1.9	1.6	1.4
17	2.3	2.2	1.9	1.9	1.6	1.4
18	2.3	2.2	1.9	1.9	1.6	1.4
19	2.3	2.2	1.9	1.9	1.6	1.4
20	2.3	2.2	1.9	1.9	1.6	1.4
21	2.3	2.2	1.9	1.9	1.6	1.4
22	2.3	2.2	1.9	1.9	1.6	1.4
23	2.3	2.2	1.9	1.9	1.6	1.4
24	2.3	2.2	1.9	1.9	1.6	1.4
25	2.3	2.2	1.9	1.9	1.6	1.4

a/ First-year reduction equals, 5 percent for all columns.

DRAFT - Never Adopted by the PFMC

TABLE D-6. Overall percentage reduction in undiscounted fleet variable costs between Year zero and Year 15 for each pair of rates for initial cost reduction and continuing cost reduction through Year 15.

First-year reduction in variable costs	Overall percent reduction in undiscounted variable cost (Year zero to Year 15).				
	Annual Percent Reduction in Fleet Variable Costs (Years 2-15)				
	0.5 Percent	1 Percent	2 Percent	3 Percent	4 Percent
5 Percent	11	18	28	38	46
10 Percent	16	22	32	41	49
15 Percent	21	26	36	45	52

DRAFT - Never Adopted by the PFMC

TABLE D-7. Annual total fleet variable costs, using a 3 percent discount rate, given a 5 percent reduction in cost per pound during the first year and a further specified percentage reduction for each subsequent year through Year 15. (Initial fleet cost based on 2,500 mt of fish and a variable cost of \$0.477 per pound.)

Annual fleet variable costs (millions of dollars)					
Annual Percent Reduction in Fleet Variable Costs (Years 2 to 15)					
Year	0.5 Percent	1 Percent	2 Percent	3 Percent	4 Percent
0	2.6	2.6	2.6	2.6	2.6
a/	2.4	2.4	2.4	2.4	2.4
2	2.3	2.3	2.3	2.3	2.3
3	2.3	2.2	2.2	2.2	2.1
4	2.2	2.2	2.1	2.0	2.0
5	2.1	2.1	2.0	1.9	1.8
6	2.0	2.0	1.9	1.8	1.7
7	2.0	1.9	1.8	1.7	1.6
8	1.9	1.8	1.7	1.6	1.5
9	1.8	1.8	1.6	1.5	1.4
10	1.8	1.7	1.6	1.4	1.3
11	1.7	1.6	1.5	1.3	1.2
12	1.7	1.6	1.4	1.3	1.1
13	1.6	1.5	1.3	1.2	1.0
14	1.5	1.5	1.3	1.1	1.0
15	1.5	1.4	1.2	1.0	0.9
16	1.5	1.4	1.2	1.0	0.9
17	1.4	1.3	1.1	1.0	0.9
18	1.4	1.3	1.1	1.0	0.8
19	1.3	1.2	1.1	0.9	0.8
20	1.3	1.2	1.0	0.9	0.8
21	1.3	1.2	1.0	0.9	0.8
22	1.2	1.1	1.0	0.9	0.7
23	1.2	1.1	1.0	0.8	0.7
24	1.1	1.1	0.9	0.8	0.7
25	1.1	1.0	0.9	0.8	0.7

a/ First-year reduction, 5 percent for all columns.

DRAFT - Never Adopted by the PFMC

TABLE D-8. Annual total fleet variable costs, using a 7 percent discount rate, given a 5 percent reduction in cost per pound during the first year and a further specified percentage reduction for each subsequent year through Year 15. (Initial fleet cost based on 2,500 mt of fish and a variable cost of \$0.477 per pound.)

<u>Annual fleet variable costs (millions of dollars)</u>					
<u>Annual Percent Reduction in Fleet Variable Costs (Years 2-15)</u>					
Year	0.5 Percent	1 Percent	2 Percent	3 Percent	4 Percent
0	2.6	2.6	2.6	2.6	2.6
a/	2.3	2.3	2.3	2.3	2.3
2	2.2	2.2	2.1	2.1	2.1
3	2.0	2.0	2.0	1.9	1.9
4	1.9	1.9	1.8	1.7	1.7
5	1.7	1.7	1.6	1.6	1.5
6	1.6	1.6	1.5	1.4	1.4
7	1.5	1.5	1.4	1.3	1.2
8	1.4	1.4	1.3	1.2	1.1
9	1.3	1.3	1.2	1.1	1.0
10	1.2	1.2	1.1	1.0	0.9
11	1.1	1.1	1.0	0.9	0.8
12	1.1	1.0	0.9	0.8	0.7
13	1.0	0.9	0.8	0.7	0.6
14	0.9	0.9	0.7	0.7	0.6
15	0.8	0.8	0.7	0.6	0.5
16	0.8	0.7	0.6	0.6	0.5
17	0.7	0.7	0.6	0.5	0.4
18	0.7	0.6	0.6	0.5	0.4
19	0.6	0.6	0.5	0.5	0.4
20	0.6	0.6	0.5	0.4	0.4
21	0.6	0.5	0.5	0.4	0.3
22	0.5	0.5	0.4	0.4	0.3
23	0.5	0.5	0.4	0.3	0.3
24	0.5	0.4	0.4	0.3	0.3
25	0.4	0.4	0.3	0.3	0.3

a/ First-year reduction, 5 percent for all columns.

DRAFT - Never Adopted by the PFMC

TABLE D-9a. Total fleet variable costs for 25 years, discounted at a 7 percent rate, given a specified one-time reduction in cost per pound during the first year and a further percentage reduction for each subsequent year through Year 15. (Initial fleet cost based on 2,500 mt of fish and a variable cost of \$0.477 per pound).^{a/}

<u>Total variable costs (millions of dollars)</u>					
First-year reduction in variable costs	Annual Percent Reduction in Fleet Variable Costs (Years 2-15)				
	0.5 Percent	1 Percent	2 Percent	3 Percent	4 Percent
5 Percent	28.1	27.0	25.1	23.4	21.9
10 Percent	26.6	25.6	23.8	22.2	20.7
15 Percent	25.1	24.2	22.5	20.9	19.6

a/ Total variable costs assumed for 25 years under status quo management, using a 7 percent discount rate: \$30,663,435.

TABLE D-9b. Net reduction in total fleet variable costs for 25 years, discounted at a 7 percent rate, given a specified one-time reduction in cost per pound during the first year and a further percentage reduction for each subsequent year through Year 15. (Initial fleet cost based on 2,500 mt of fish and a variable cost of \$0.477 per pound).

<u>Net reduction in variable costs (millions of dollars)</u>					
First-year reduction in variable costs	Annual Percent Reduction in Fleet Variable Costs (Years 2-15)				
	0.5 Percent	1 Percent	2 Percent	3 Percent	4 Percent
5 Percent	2.6	3.6	5.5	7.2	8.8
10 Percent	4.1	5.1	6.9	8.5	10.0
15 Percent	5.6	6.5	8.2	9.7	11.1

DRAFT - Never Adopted by the PFMC

TABLE D-10a. Total fleet variable costs for 25 years, discounted at a 3 percent rate, given a specified one-time reduction in cost per pound during the first year and a further percentage reduction for each subsequent year through Year 15. (Initial fleet cost based on 2,500 mt of fish and a variable cost of \$0.477 per pound).^{a/}

<u>Total variable costs (millions of dollars)</u>					
First-year reduction in variable costs	Annual Percent Reduction in Fleet Variable Costs (Years 2-15)				
	0.5 Percent	1 Percent	2 Percent	3 Percent	4 Percent
5 Percent	41.7	39.9	36.6	33.7	31.0
10 Percent	39.5	37.8	34.7	31.9	29.4
15 Percent	37.3	35.7	32.8	30.1	27.7

a/ Total variable costs assumed for 25 years under status quo management, using a 3 percent discount rate: \$45,818,262.

TABLE D-10b. Net reduction in total fleet variable costs for 25 years, discounted at a 3 percent rate, given a specified one-time reduction in cost per pound during the first year and a further percentage reduction for each subsequent year through Year 15. (Initial fleet cost based on 2,500 mt of fish and a variable cost of \$0.477 per pound).

<u>Total variable costs (millions of dollars)</u>					
First-year reduction in variable costs	Annual Reduction in Fleet Variable Costs (Years 2-15)				
	0.5 Percent	1 Percent	2 Percent	3 Percent	4 Percent
5 Percent	4.2	5.9	9.2	12.2	14.8
10 Percent	6.4	8.0	11.1	13.9	16.4
15 Percent	8.5	10.1	13.1	15.7	18.1

DRAFT - Never Adopted by the PFMC

TABLE D-11a. Total fleet variable costs for 25 years, discounted at a zero percent rate, given a specified one-time reduction in cost per pound during the first year and a further percentage reduction for each subsequent year through Year 15. (Initial fleet cost based on 2,500 mt of fish and a variable cost of \$0.477 per pound).^a

First-year reduction in variable costs	Total variable costs, given the specified annual reduction in total variable cost for Years 2-15 (millions of dollars)				
	0.5 Percent	1 Percent	2 Percent	3 Percent	4 Percent
5 Percent	59.5	56.7	51.5	46.9	42.7
10 Percent	56.4	53.7	48.8	44.4	40.5
15 Percent	53.2	50.7	46.1	41.9	38.2

a/ Total variable costs assumed for 25 years under status quo management, using a zero percent discount rate: \$65,781,130.

TABLE D-11b. Net reduction in total fleet variable costs for 25 years, discounted at a zero percent rate, given a specified one-time reduction in cost per pound during the first year, and a further percentage reduction for each subsequent year through Year 15. (Initial fleet cost based on 2,500 mt of fish and a variable cost of \$0.477 per pound).

First-year reduction in variable costs	Total variable costs, given the specified annual reduction in total variable cost for Years 2-15 (millions of dollars)				
	0.5 Percent	1 Percent	2 Percent	3 Percent	4 Percent
5 Percent	6.3	9.1	14.3	18.9	23.1
10 Percent	9.4	12.1	17.0	21.4	25.3
15 Percent	12.5	15.1	19.7	23.8	27.5

TABLE D-12. Per vessel discounted status quo fixed costs, where nominal costs remain unchanged over the 25-year period. (Page 1 of 2)

Year	Vessels less than 50 feet					Vessels greater than 50 feet				
	Assumed annual reinvestment rate					Assumed annual reinvestment rate				
	1 percent	2 percent	3 percent	4 percent	5 percent	1 percent	2 percent	3 percent	4 percent	5 percent
0	1,249	2,498	3,747	4,996	6,245	2,682	5,363	8,045	10,726	13,408
1	1,167	2,335	3,502	4,669	5,837	2,506	5,012	7,519	10,025	12,531
2	1,091	2,182	3,273	4,364	5,455	2,342	4,684	7,027	9,369	11,711
3	1,020	2,039	3,059	4,078	5,098	2,189	4,378	6,567	8,756	10,945
4	953	1,906	2,859	3,812	4,765	2,046	4,092	6,137	8,183	10,229
5	891	1,781	2,672	3,562	4,453	1,912	3,824	5,736	7,648	9,560
6	832	1,665	2,497	3,329	4,162	1,787	3,547	5,361	7,147	8,934
7	778	1,556	2,334	3,111	3,889	1,670	3,340	5,010	6,680	8,350
8	727	1,454	2,181	2,908	3,635	1,561	3,121	4,682	6,243	7,804
9	679	1,359	2,038	2,718	3,397	1,459	2,917	4,376	5,834	7,293
10	635	1,270	1,905	2,540	3,175	1,363	2,726	4,090	5,453	6,816
11	593	1,187	1,780	2,374	2,967	1,274	2,548	3,822	5,096	6,370
12	555	1,109	1,664	2,218	2,773	1,191	2,381	3,572	4,763	5,953
13	518	1,037	1,555	2,073	2,592	1,113	2,226	3,338	4,451	5,564
14	484	969	1,453	1,938	2,422	1,040	2,080	3,120	4,160	5,200
15	453	905	1,358	1,811	2,264	972	1,944	2,916	3,888	4,860
16	423	846	1,269	1,692	2,116	908	1,817	2,725	3,633	4,542
17	395	791	1,186	1,582	1,977	849	1,698	2,547	3,396	4,245
18	370	739	1,109	1,478	1,848	793	1,587	2,380	3,174	3,967
19	345	691	1,036	1,382	1,727	741	1,483	2,224	2,966	3,707
20	323	646	968	1,291	1,614	693	1,386	2,079	2,772	3,465

TABLE D-12. Discounted status quo fixed costs, where nominal costs remain unchanged over the 25-year period. (Page 2 of 2)

Year	Vessels greater than 50 feet									
	Vessels less than 50 feet					Vessels greater than 50 feet				
	Assumed annual reinvestment rate					Assumed annual reinvestment rate				
	1 percent	2 percent	3 percent	4 percent	5 percent	1 percent	2 percent	3 percent	4 percent	5 percent
21	302	603	905	1,207	1,508	648	1,295	1,943	2,591	3,238
22	282	564	846	1,128	1,410	605	1,211	1,816	2,421	3,026
23	263	527	790	1,054	1,317	566	1,131	1,697	2,263	2,828
24	246	492	739	985	1,231	529	1,057	1,586	2,115	2,643
25	230	460	690	921	1,151	494	988	1,482	1,976	2,470
Discounted sum per	14,556	29,112	43,668	58,224	72,780	31,250	62,500	93,751	125,001	156,251

TABLE D-13. Annual fixed-cost expenditures, on a per vessel basis, for a 1 percent rate of reinvestment, for 25 years into the future discounted at a rate of zero percent per year. (Page 1 of 2)

Year	For each vessel no greater than 50 feet				For each vessel greater than 50 feet			
	Assumed annual reinvestment rate				Assumed annual reinvestment rate:			
	1 percent	2 percent	3 percent	4 percent	1 percent	2 percent	3 percent	4 percent
0	1,249	1,249	1,249	1,249	2,682	2,682	2,682	2,682
1	1,237	1,224	1,212	1,199	2,655	2,628	2,601	2,574
2	1,224	1,200	1,175	1,151	2,628	2,575	2,523	2,471
3	1,212	1,176	1,140	1,105	2,602	2,524	2,447	2,373
4	1,200	1,152	1,106	1,061	2,576	2,473	2,374	2,278
5	1,188	1,129	1,073	1,018	2,550	2,424	2,303	2,187
6	1,176	1,106	1,040	978	2,525	2,375	2,234	2,099
7	1,164	1,084	1,009	939	2,499	2,328	2,167	2,015
8	1,153	1,063	979	901	2,474	2,281	2,102	1,934
9	1,141	1,041	950	865	2,450	2,236	2,039	1,857
10	1,130	1,021	921	830	2,425	2,191	1,977	1,783
11	1,118	1,000	893	797	2,401	2,147	1,918	1,712
12	1,107	980	867	765	2,377	2,104	1,861	1,643
13	1,096	961	841	735	2,353	2,062	1,805	1,577
14	1,085	941	815	705	2,330	2,021	1,751	1,514
15	1,074	923	791	677	2,306	1,981	1,698	1,454
16	1,074	923	791	677	2,306	1,981	1,698	1,454
17	1,074	923	791	677	2,306	1,981	1,698	1,454
18	1,074	923	791	677	2,306	1,981	1,698	1,454

TABLE D-13. Annual fixed-cost expenditures, on a per vessel basis, for a 1 percent rate of reinvestment, for 25 years into the future discounted at a rate of zero percent per year. (Page 2 of 2)

Year	For each vessel no greater than 50 feet				For each vessel greater than 50 feet			
	Assumed annual reinvestment rate				Assumed annual reinvestment rate:			
	1 percent	2 percent	3 percent	4 percent	1 percent	2 percent	3 percent	4 percent
20	1,074	923	791	677	2,306	1,981	1,698	1,454
21	1,074	923	791	677	2,306	1,981	1,698	1,454
22	1,074	923	791	677	2,306	1,981	1,698	1,454
23	1,074	923	791	677	2,306	1,981	1,698	1,454
24	1,074	923	791	677	2,306	1,981	1,698	1,454
25	1,074	923	791	677	2,306	1,981	1,698	1,454
Reduction in cost from Year zero to Years 15 and beyond	14%	26%	37%	46%	54%	26%	37%	46%

TABLE D-14. Annual fixed-cost expenditures, on a per vessel basis, for a 1 percent rate of reinvestment, for 25 years into the future discounted at a rate of 3 percent per year. (Page 1 of 2)

Year	Vessels no less than 50 feet				Vessels greater than 50 feet			
	1 percent	2 percent	3 percent	4 percent	1 percent	2 percent	3 percent	4 percent
0	1,249	1,249	1,249	1,249	2,682	2,682	2,682	2,682
1	1,201	1,188	1,176	1,164	2,577	2,551	2,525	2,499
2	1,154	1,131	1,108	1,085	2,477	2,428	2,378	2,329
3	1,109	1,076	1,043	1,011	2,381	2,310	2,240	2,171
4	1,066	1,024	982	943	2,289	2,198	2,109	2,024
5	1,025	974	925	879	2,200	2,091	1,986	1,886
6	985	927	871	819	2,114	1,989	1,871	1,758
7	947	882	821	763	2,032	1,893	1,762	1,638
8	910	839	773	711	1,953	1,801	1,659	1,527
9	875	798	728	663	1,877	1,714	1,562	1,423
10	841	759	685	618	1,805	1,630	1,471	1,327
11	808	723	645	576	1,734	1,551	1,386	1,236
12	777	687	608	537	1,667	1,476	1,305	1,152
13	746	654	572	500	1,602	1,404	1,229	1,074
14	717	622	539	466	1,540	1,336	1,157	1,001
15	690	592	508	435	1,480	1,271	1,090	933
16	669	575	493	422	1,437	1,234	1,058	906
17	650	558	479	410	1,395	1,198	1,027	879
18	631	542	465	398	1,355	1,163	997	854

TABLE D-14. Annual fixed-cost expenditures, on a per vessel basis, for a 1 percent rate of reinvestment, for 25 years into the future discounted at a rate of 3 percent per year. (Page 2 of 2)

Year	Vessels no less than 50 feet				Vessels greater than 50 feet			
	Annual percent reduction in fixed cost reinvestment rate (Years 1-15)				Annual percent reduction in fixed cost reinvestment rate (Years 1-15)			
	1 percent	2 percent	3 percent	4 percent	1 percent	2 percent	3 percent	4 percent
20	595	511	438	375	1,277	1,097	940	805
21	577	496	425	364	1,240	1,065	913	781
22	561	481	413	353	1,204	1,034	886	759
23	544	467	401	343	1,169	1,004	860	737
24	528	454	389	333	1,135	974	835	715
25	513	441	378	323	1,102	946	811	694

TABLE D-15. Annual fixed-cost expenditures, on a per vessel basis, for a 1 percent rate of reinvestment, for 25 years into the future discounted at a rate of 7 percent per year. (Page 1 of 2)

Year	Vessels no less than 50 feet				Vessels greater than 50 feet			
	Annual percent reduction in fixed cost reinvestment rate (Years 1-15)				Annual percent reduction in fixed cost reinvestment rate (Years 1-15)			
	1 percent	2 percent	3 percent	4 percent	1 percent	2 percent	3 percent	4 percent
0	1,249	1,249	1,249	1,249	2,682	2,682	2,682	2,682
1	1,156	1,144	1,132	1,121	2,481	2,456	2,431	2,406
2	1,069	1,048	1,027	1,005	2,296	2,249	2,204	2,159
3	989	960	931	902	2,124	2,060	1,998	1,937
4	915	879	844	809	1,965	1,887	1,811	1,738
5	847	805	765	726	1,818	1,728	1,642	1,559
6	784	737	693	651	1,682	1,583	1,488	1,399
7	725	675	628	585	1,557	1,450	1,349	1,255
8	671	618	570	524	1,440	1,328	1,223	1,126
9	621	566	517	471	1,332	1,216	1,109	1,010
10	574	519	468	422	1,233	1,114	1,005	906
11	531	475	424	379	1,141	1,020	911	813
12	492	435	385	340	1,055	934	826	730
13	455	399	349	305	976	856	749	655
14	421	365	316	274	903	784	679	587
15	389	334	287	245	836	718	615	527
16	364	312	268	229	781	671	575	492
17	340	292	250	214	730	627	538	460
18	318	273	234	200	682	586	502	430

TABLE D-15. Annual fixed-cost expenditures, on a per vessel basis, for a 1 percent rate of reinvestment, for 25 years into the future discounted at a rate of 7 percent per year. (Page 2 of 2)

Year	Vessels no less than 50 feet				Vessels greater than 50 feet			
	1 percent	2 percent	3 percent	4 percent	1 percent	2 percent	3 percent	4 percent
20	278	238	204	175	596	512	439	376
21	259	223	191	164	557	478	410	351
22	242	208	179	153	521	447	383	328
23	227	195	167	143	487	418	358	307
24	212	182	156	133	455	390	335	287
25	198	170	146	125	425	365	313	268

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TABLE D-16. Present value (7 percent discount rate) of per vessel fixed costs under IQ's and the status quo and estimated gains in producer surplus given alternative rates of reduction in fixed costs over a 25-year period. (Page 1 of 2)

Vessels less than or equal to 50 feet (per vessel) ^{a/}				
Annual Percent Reduction in Fixed Cost Reinvestment Rate (Years 1-15)				
Rate of reinvestment	1 Percent	2 Percent	3 Percent	4 Percent
1 Percent	\$13,000	\$12,000	\$11,000	\$10,000
2 Percent	27,000	25,000	23,000	21,000
3 Percent	40,000	37,000	34,000	31,000
4 Percent	53,000	49,000	45,000	42,000
5 Percent	67,000	62,000	57,000	52,000

Vessels greater than or equal to 50 feet (per vessel) ^{a/}				
Annual Percent Reduction in Fixed Cost Reinvestment Rate (Years 1-15)				
Rate of reinvestment	1 Percent	2 Percent	3 Percent	4 Percent
1 Percent	\$29,000	\$26,000	\$24,000	\$23,000
2 Percent	57,000	53,000	49,000	45,000
3 Percent	86,000	79,000	73,000	68,000
4 Percent	110,000	110,000	97,000	90,000
5 Percent	140,000	130,000	120,000	110,000

Reduction in Fleet Costs over 25 Years ^{b/c/}				
Annual Percent Reduction in Fixed Cost Reinvestment Rate (Years 1-15)				
Rate of reinvestment	1 Percent	2 Percent	3 Percent	4 Percent
1 Percent	\$3,100,000	\$2,900,000	\$2,700,000	\$2,500,000
2 Percent	6,300,000	5,800,000	5,300,000	4,900,000
3 Percent	9,400,000	8,600,000	8,000,000	7,400,000
4 Percent	12,500,000	11,500,000	10,600,000	9,800,000
5 Percent	15,700,000	14,400,000	13,300,000	12,300,000

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TABLE D-16. Present value (7 percent discount rate) of per vessel fixed costs under IQ's and the status quo and estimated gains in producer surplus given alternative rates of reduction in fixed costs over a 25-year period. (Page 2 of 2)

Rate of reinvestment	Total fleet fixed costs over 25 years ^{b/}
1 Percent	\$3,400,000
2 Percent	6,800,000
3 Percent	10,200,000
4 Percent	13,600,000
5 Percent	17,000,000

Rate of reinvestment	Reduction in fixed costs over 25 years ^{b/}			
	Annual Percent Reduction in Fixed Cost Reinvestment Rate (Years 1-15)			
	1 Percent	2 Percent	3 Percent	4 Percent
1 Percent	\$300,000	\$500,000	\$800,000	\$100,000
2 Percent	600,000	1,000,000	1,500,000	1,900,000
3 Percent	800,000	1,600,000	2,300,000	2,900,000
4 Percent	1,100,000	2,100,000	3,000,000	3,800,000
5 Percent	1,400,000	2,600,000	3,800,000	4,800,000

a/ Values reported to 2 significant digits.

b/ Values reported to nearest tenth of million.

c/ Twenty five-year sum of fixed costs, discounted at a 7 percent annual rate, for an initial fleet of 171 vessels, comprised of 116 vessels under 50 feet and 55 vessels over 50 feet.

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TABLE D-17. Present value (3 percent discount rate) of per vessel fixed costs under IQ's and the status quo and estimated gains in producer surplus given alternative rates of reduction in fixed costs over a 25-year period. (Page 1 of 2)

Vessels less than or equal to 50 feet (per vessel) ^{a/}				
Annual Percent Reduction in Fixed Cost Reinvestment Rate (Years 1-15)				
Rate of reinvestment	1 Percent	2 Percent	3 Percent	4 Percent
1 Percent	\$20,000	\$18,000	\$16,000	\$15,000
2 Percent	39,000	36,000	32,000	30,000
3 Percent	59,000	54,000	49,000	45,000
4 Percent	79,000	72,000	65,000	60,000
5 Percent	99,000	90,000	82,000	74,000

Vessels greater than or equal to 50 feet (per vessel) ^{a/}				
Annual Percent Reduction in Fixed Cost Reinvestment Rate (Years 1-15)				
Rate of reinvestment	1 Percent	2 Percent	3 Percent	4 Percent
1 Percent	\$42,000	\$38,000	\$35,000	\$32,000
2 Percent	85,000	77,000	70,000	64,000
3 Percent	130,000	120,000	110,000	96,000
4 Percent	170,000	150,000	140,000	130,000
5 Percent	210,000	190,000	180,000	160,000

Reduction in Fleet Costs over 25 Years ^{b/c/}				
Annual Percent Reduction in Fixed Cost Reinvestment Rate (Years 1-15)				
Rate of reinvestment	1 Percent	2 Percent	3 Percent	4 Percent
1 Percent	\$4,600,000	\$4,200,000	\$3,800,000	\$3,500,000
2 Percent	9,200,000	8,400,000	7,600,000	7,000,000
3 Percent	13,900,000	12,600,000	11,500,000	10,400,000
4 Percent	18,500,000	16,800,000	15,300,000	13,900,000
5 Percent	23,100,000	21,000,000	19,100,000	17,400,000

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TABLE D17. Present value (3 percent discount rate) of per vessel fixed costs under IQ's and the status quo and estimated gains in producer surplus given alternative rates of reduction in fixed costs over a 25-year period. (Page 2 of 2)

	Rate of reinvestment	Total fleet fixed costs over 25 years ^{b/}
	1 Percent	\$5,100,000
	2 Percent	10,200,000
	3 Percent	15,300,000
	4 Percent	20,400,000
	5 Percent	25,500,000

	Reduction in fixed costs over 25 years ^{b/}			
Rate of reinvestment	Annual Percent Reduction in Fixed Cost Reinvestment Rate (Years 1-15)			
	1 Percent	2 Percent	3 Percent	4 Percent
1 Percent	\$500,000	\$900,000	\$1,300,000	\$1,600,000
2 Percent	946,000	1,800,000	2,500,000	3,200,000
3 Percent	1,400,000	2,700,000	3,800,000	4,800,000
4 Percent	1,900,000	3,600,000	5,100,000	6,400,000
5 Percent	2,400,000	4,500,000	6,400,000	8,000,000

a/ Values reported to 2 significant digits.

b/ Values reported to nearest tenth of million.

c/ Twenty five-year sum of fixed costs, discounted at a 3 percent annual rate, for an initial fleet of 171 vessels, comprised of 116 vessels under 50 feet and 55 vessels over 50 feet.

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TABLE D-18. Present value (zero percent discount rate) of per vessel fixed costs under IQ's and the status quo and estimated gains in producer surplus given alternative rates of reduction in fixed costs over a 25-year period. (Page 1 of 2)

Vessels less than or equal to 50 feet(per vessel) ^{a/}				
Annual Percent Reduction in Fixed Cost Reinvestment Rate (Years 1-15)				
Rate of reinvestment	1 Percent	2 Percent	3 Percent	4 Percent
1 Percent	\$28,000	\$25,000	\$23,000	\$20,000
2 Percent	56,000	50,000	45,000	41,000
3 Percent	84,000	76,000	68,000	61,000
4 Percent	110,000	100,000	91,000	82,000
5 Percent	140,000	130,000	110,000	100,000

Vessels greater than or equal to 50 feet (per vessel) ^{a/}				
Annual Percent Reduction in Fixed Cost Reinvestment Rate (Years 1-15)				
Rate of reinvestment	1 Percent	2 Percent	3 Percent	4 Percent
1 Percent	\$60,000	\$54,000	\$49,000	\$44,000
2 Percent	120,000	110,000	98,000	88,000
3 Percent	180,000	160,000	150,000	130,000
4 Percent	240,000	220,000	200,000	180,000
5 Percent	300,000	270,000	240,000	220,000

Reduction in Fleet Costs over 25 Years ^{b/c/}				
Annual Percent Reduction in Fixed Cost Reinvestment Rate (Years 1-15)				
Rate of reinvestment	1 Percent	2 Percent	3 Percent	4 Percent
1 Percent	\$6,600,000	\$5,900,000	\$5,300,000	\$4,800,009
2 Percent	13,100,000	11,800,000	10,600,000	9,600,000
3 Percent	19,700,000	17,700,000	16,000,000	14,400,000
4 Percent	26,300,000	23,600,000	21,300,000	19,200,000
5 Percent	32,800,000	29,500,000	26,600,000	24,000,000

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TABLE D-18. Present value (zero percent discount rate) of per vessel fixed costs under IQ's and the status quo and estimated gains in producer surplus given alternative rates of reduction in fixed costs over a 25-year period. (Page 2 of 2)

Rate of reinvestment	Total fleet fixed costs over 25 years ^{b/}
1 Percent	\$7,300,000
2 Percent	14,600,000
3 Percent	21,900,000
4 Percent	29,200,000
5 Percent	36,500,000

Rate of reinvestment	Reduction in fixed costs over 25 years ^{b/}			
	Annual Percent Reduction in Fixed Cost Reinvestment Rate (Years 1-15)			
	1 Percent	2 Percent	3 Percent	4 Percent
1 Percent	\$744,000	\$1,400,000	\$2,000,000	\$2,500,000
2 Percent	1,500,000	2,800,000	4,000,000	5,000,000
3 Percent	2,200,000	4,200,000	6,000,000	7,500,000
4 Percent	3,000,000	5,600,000	8,000,000	10,000,000
5 Percent	3,700,000	7,000,000	10,000,000	12,600,000

a/ Values reported to 2 significant digits.

b/ Values reported to nearest tenth of million.

c/ Twenty five-year sum of fixed costs, discounted at a zero percent annual rate, for an initial fleet of 171 vessels, comprised of 116 vessels under 50 feet and 55 vessels over 50 feet.

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APPENDIX E
CATCH HISTORY WORK SHEET, ALLOCATION
WORK SHEET AND EXAMPLE ALLOCATIONS

The Catch History Work Sheet of this appendix starts on Page E-1. The Catch History Work Sheet aids the reader in compiling personal and permit catch history for the purpose of evaluating the amount of quota shares which might be issued under different allocation formula options. The results from the Catch History Work Sheets should be entered in the Catch History Value Table which will be found on the second page (Page E-15) of the Allocation History Work Sheet. These are the catch history values which will be used in the Allocation History Work Sheet. The Council will adopt one of the catch history options prior to final action on the individual quota program. The details of the allocation options will be found in Section 15.6.2 of Appendix A. There are 12 combinations of catch history and allocation formula options. The Allocation History Work Sheet is intended to aid the reader in working through these options and begins on Page E-14. The first page of the work sheet contains an Allocation Results Table which provides a place for the reader to record the results from each allocation formula for the purposes of comparison and to calculate the pounds of individual fishing quotas which might be allocated for a given amount of quota shares.

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CATCH HISTORY WORK SHEET

There are two parts to the Catch History Work Sheet. The first part covers catch history of the person as a vessel owner and the second part covers catch history of the permit.

Who Should Fill Out The Catch History Work Sheet?

Only persons owning a longline or fishpot "A" permit, in whole or in part, may qualify for an initial allocation of quota shares (QS) and should fill out this work sheet.

What Catch History Should Be Entered On The Work Sheet?

The landings entered in this work sheet should be landings of West Coast sablefish made during the allocation period (January 1, 1984 through November 13, 1991) with longline or fishpot gear. Additional directions on the catch history to be used are included in the following sections on personal history as a vessel owner and permit history.

Catch History Used in the Personal History Section

For applications based on personal history as a vessel owner, one application should be filled out by each entity with a personal history.

Example A

- Individual A owned a vessel from 1981-1988.
- Individual B owned a vessel from 1984-1988.
- In 1988, Individual B sold the vessel and joined in a partnership with Individual A.
- *Individual A fills out a work sheet using the history from 1984-1988.*
- *Individual B fills out a work sheet using the history from 1984-1988.*
- *The partnership fills out a work sheet using its history from 1988 through November 13, 1991.*
- *While three separate applications may be made under the partnership's "A" permit, portions of the allocation formula, based on equal sharing, would be claimed on only one of the applications.*

Example B

- From 1984-1987, Individuals A and B own equal shares in a vessel.
- Their partnership breaks up in 1987.
- Individual B continues fishing with the same vessel.
- In 1988, Individual A enters into joint ownership of a vessel with Individual C.
- *Individual A fills out a work sheet, claiming 50 percent of the catch history of the vessel owned from 1984-1987.*
- *The partnership of Individuals A and C fills out a work sheet based on the catch history of their partnership.*

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- *Individual B fills out a work sheet using complete personal history from 1988 through November 13, 1991, but claims only 50 percent of the history of the vessel owned from 1984-1987.*

Example C

- From 1984-1987, Individuals A and B own equal shares in a vessel.
- Their partnership breaks up in 1987.
- Individual B continues fishing with the same vessel.
- After the partnership breaks up, Individual A temporarily leaves the fishery.
- In 1993, Individual A joins a partnership owning a vessel.
- *Individual A cannot claim any catch history because he/she did not meet recent participation requirements (he/she did not use a vessel under his/her ownership to catch sablefish between August 1, 1988 and November 13, 1991).*
- *Individual B fills out a work sheet using complete personal history from 1988 through November 13, 1991, but . . . Option 1: claims only 50 percent of the history of the vessel owned in partnership from 1984-1988 . . . Option 2: claims 100 percent of the history of the vessel owned in partnership from 1984-1988. (Option to be decided by the Council prior to final adoption.)*

Catch History Used in the Permit History Section

If a person applies for QS based on permit history, that person may be eligible for QS for each permit owned and may include the calculations for each permit in the work sheet. If the person continuously owned the same vessel throughout the entire allocation period and that vessel qualified for a permit, the permit history will be identical to personal history. If the permit or permit rights have been separated from the qualifying vessel and transferred to another vessel (for example, a vessel is sold and the seller reserves the permit rights in the sales contract), the permit history includes (1) the history of the vessel with the catch history that qualified for the permit, up through the time the permit or permit rights were separated from the vessel and (2) the catch history of any other vessel with which the permit rights have been associated during the time those rights were associated with the vessel. A more exceptional case might be that where a vessel qualifying under construction provisions was lost and replaced in the middle of its provisional "A" endorsement upgrade period. In this situation, the permit catch history would include the catch history of the vessel which initially qualified under the construction provision, plus the catch history of the vessel which replaced the lost vessel. In general, the permit history includes (1) the catch history of the first vessel whose catch, construction, conversion, purchase or other history did or would have initially qualified the vessel for a permit and (2) the catch history of any other vessel with which the permit rights have been associated during the time those rights were associated with the vessel.

Note: Permit history may only be claimed once. Co-owners of a permit would have to decide among themselves who would file an application for the permit QS based on permit history.

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Vessel X owned by Individual A qualified for an "A" permit. Vessel X was purchased in 1990 by Individual B and continued to fish in the sablefish fishery. An "A" permit was issued to Individual B based on the qualifying history of Vessel X.

Individual B may claim QS based on the history of the permit issued for Vessel X. The permit history is identical to the Vessel X catch history.

Example B

Vessel X, owned by Individual A, met the minimum landing requirements for an "A" permit. Individual A sold Vessel X to Individual B in 1989, but reserved in the sale contract the rights to the "A" permit from Vessel X. Individual A then acquired Vessel Y which did not qualify for an "A" permit. Individual A has fished Vessel Y through to the present.

The permit history used by the owner of Vessel Y to claim QS is (1) the history of Vessel X up through 1989, plus (2) the history of Vessel Y from the date it was purchased through November 13, 1991. Individual B would not be entitled to QS based on the catch history of Vessel X because Vessel X's catch history was considered transferred with the permit.

Example C

In 1989, Individual A purchased Vessel Y which did not qualify for a permit. Individual A acquired permit rights from Vessel Z in 1990.

The catch history used by the owner of Vessel Y would be the catch history of the permit from Vessel Z: the catch history of Vessel Z; i.e., up through 1990 and the catch history of Vessel Y from the date the permit rights were purchased through the end of the allocation period (November 13, 1991) would be used.

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Part I: Personal History

I-1. Did you land West Coast sablefish using longline or fishpot gear between August 1, 1988 and November 13, 1991 using a vessel that was owned by you, in whole or in part, at the time of the landing? (There is an option which would allow this requirement to be met with any groundfish, rather than requiring the landing be sablefish. See Section 15.6.1 of Appendix A.)

- Yes. You will likely qualify for some allocation based on your personal history as a vessel owner. Continue with I-2. and complete the remainder of the personal history section of this work sheet.
- No. You would not qualify for any allocation based on personal history as a vessel owner. Stop here and go to Part II.

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I-2. If you answered yes in Part I-1, complete a separate copy of this page for each vessel you owned and for which you would claim some QS based on your catch of sablefish with longline and fishpot gear during the allocation period.

Enter the vessel identification number and dates you owned the vessel.

Enter your share in the ownership of the vessel in Column E. Two lines are provided for each year to facilitate mid-year changes in ownership shares. If there was more than one change in ownership shares within a year, you may wish to start a second copy of this sheet with the date of the second change in ownership for the year.

Enter the amount of sablefish caught for each year (Columns A), calculate the round pound equivalent for dressed catch (Column A x 1.6), and total pounds of catch (Columns B + C).

Multiply the total pounds in Column D by your ownership share from Column E and determine your personal catch history for the vessel. Place the result in Column F.

Vessel Identification Number: _____

Dates Owned: _____

to _____

	(A)		(B)		(C)		(D)		(E)		(F)
Year	Dressed Pounds		Round Pound Equivalent	+	Round Pounds	=	Total Pounds (B + C)	x	Ownership Share	=	Total (D x E)
1984	_____	x 1.6 =	_____	+	_____	=	_____	x	_____	=	_____
	_____	x 1.6 =	_____	+	_____	=	_____	x	_____	=	_____
1985	_____	x 1.6 =	_____	+	_____	=	_____	x	_____	=	_____
	_____	x 1.6 =	_____	+	_____	=	_____	x	_____	=	_____
1986	_____	x 1.6 =	_____	+	_____	=	_____	x	_____	=	_____
	_____	x 1.6 =	_____	+	_____	=	_____	x	_____	=	_____
1987	_____	x 1.6 =	_____	+	_____	=	_____	x	_____	=	_____
	_____	x 1.6 =	_____	+	_____	=	_____	x	_____	=	_____
1988	_____	x 1.6 =	_____	+	_____	=	_____	x	_____	=	_____
	_____	x 1.6 =	_____	+	_____	=	_____	x	_____	=	_____
1989	_____	x 1.6 =	_____	+	_____	=	_____	x	_____	=	_____
	_____	x 1.6 =	_____	+	_____	=	_____	x	_____	=	_____
1990	_____	x 1.6 =	_____	+	_____	=	_____	x	_____	=	_____
	_____	x 1.6 =	_____	+	_____	=	_____	x	_____	=	_____
1991	_____	x 1.6 =	_____	+	_____	=	_____	x	_____	=	_____
	_____	x 1.6 =	_____	+	_____	=	_____	x	_____	=	_____

(through 11/13/91)

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I-3. Enter the information from Column F of I-2 for each copy of I-1 you filled out. Total the catch for each year (Column Z). (If necessary add more columns to the back side of this sheet.)

	(A) Vessel 1 (Vessel Currently Owned)	(B) Vessel 2	(C) Vessel 3	(D) Vessel 4	(E) Vessel 5	(Z) Total
Vessel ID:	_____	_____	_____	_____	_____	_____
1984	_____	_____	_____	_____	_____	_____
1985	_____	_____	_____	_____	_____	_____
1986	_____	_____	_____	_____	_____	_____
1987	_____	_____	_____	_____	_____	_____
1988	_____	_____	_____	_____	_____	_____
1989	_____	_____	_____	_____	_____	_____
1990	_____	_____	_____	_____	_____	_____
1991 (through 11/13/91)	_____	_____	_____	_____	_____	_____

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I-4. Enter the total pounds from Column Z of I-3 into Column A. Total Column A. Multiply Column A by the adjustment factor for the year to determine adjusted personal catch history as a vessel owner. Also, enter the Column A total as Value E on the Catch History Value Table on Page E-15.

Year	(A) Total Pounds From Z	(B) Adjustment Factor	(C) Adjusted Personal Catch History
1984		x 0.71 =	
1985		x 0.50 =	
1986		x 0.48 =	
1987		x 0.45 =	
1988		x 0.54 =	
1989		x 0.68 =	
1990		x 0.86 =	
1991		x 1.00 =	
(through 11/13/91)			
Total			

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I-5. Personal catch history to be used in evaluating your share based on best 5 of 8 years.

Enter the 5 highest values from Column C of I-4. Total the result and divide by 5.

Year	Adjusted Catch History
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
Total	_____

+ 5 = _____

This result will be entered as Value A in the first part of the Allocation History Work Sheet on Page E-15.

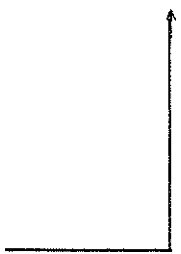
(Your total catch history would be divided by 5 even if you fished sablefish fewer than 5 years during the allocation period.)

I-6. Personal catch history to be used in evaluating your share based on equal allocation.

Divide the total from Column A of I-4 by the total number of years in which at least some fixed gear sablefish landing was made.

Total from Column A ==>> _____ ÷ _____ = _____

Enter number of years in which some sablefish were landed here.



This result will be entered as Value B in the first part of the Allocation History Work Sheet on Page E-15.

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Part II: Permit History

If you own more than one permit, fill out a separate copy of Part II for each permit you own.

II-1. Do you meet the recent participation requirement for permit history? Does your permit history include at least 1 longline or fishpot landing of West Coast sablefish between August 1, 1988 and November 13, 1993? If your permit rights were not transferred from one vessel to another prior to permit issuance, your permit history for the time period considered here is identical to the history of the vessel for which your permit was initially issued. For other situations, see Page E-2 for additional explanation of permit catch history.

(There is an option which would allow this requirement to be met with any groundfish, rather than requiring the landing be sablefish. See Section 15.6.1 of Appendix A.)

Yes. Your permit would likely qualify you for some allocation based on its history. Continue with II-2.

No. You do not qualify for any allocation based on permit history. Do not complete the rest of Part II. If you also answered no in Part I., you would not qualify for an allocation of QS and should not fill out the Allocation History Work Sheet. If you answered yes at the start of Part I., you may qualify for QS if some part of the allocation is based on personal history. You should proceed with filling out the Allocation History Work Sheet.

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II-2. Enter the identification number for the vessel which initially established that an "A" permit might be issued, the permit identification number, and date the permit rights were transferred from the vessel (if there has been a transfer)—see Page E-2. For this vessel, enter the sablefish caught each year from 1984 through the date the permit rights were transferred from the vessel (Columns A and C). Calculate the round pound equivalent for dressed catch (Column A x 1.6) and total pounds of catch (Columns B + C).

Vessel Identification Number: _____

Permit Identification Number: _____

Date Permit Rights Were Transferred From the Vessel:
(if there was a transfer) _____

Year	(A) Dressed Pounds		(B) Round Pound Equivalent	+	(C) Round Pounds	=	(D) Total Pounds (B + C)
1984	_____	x 1.6 =	_____	+	_____	=	_____
1985	_____	x 1.6 =	_____	+	_____	=	_____
1986	_____	x 1.6 =	_____	+	_____	=	_____
1987	_____	x 1.6 =	_____	+	_____	=	_____
1988	_____	x 1.6 =	_____	+	_____	=	_____
1989	_____	x 1.6 =	_____	+	_____	=	_____
1990	_____	x 1.6 =	_____	+	_____	=	_____
1991	_____	x 1.6 =	_____	+	_____	=	_____

(through 11/13/91)

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II-3. Prior to November 13, 1991, were the rights to the permit you own associated with a vessel other than the vessel with the catch, construction, conversion, purchase or other history that established the "A" permit might be issued (see page E-2).

_____ Yes. Complete this part.

_____ No. Go on to II-4.

Fill out a separate copy of this page for each vessel with which the rights to the permit you currently own have been associated (except the vessel whose history you included in II-2.).

Enter the identification number for the vessel with which your permit rights have been associated and the dates with which it was associated with the vessel.

Enter the amount of sablefish caught for those dates up through November 13, 1991 (Columns A and C). Calculate the round pound equivalent for dressed catch (Column A x 1.6) and total pounds of catch (Columns B + C).

Vessel Identification Number: _____

Date Permit Rights Were Associated With the Vessel: _____

Year	(A) Dressed Pounds	x 1.6 =	(B) Round Pound Equivalent	+	(C) Round Pounds	=	(D) Total Pounds (B + C)
1984	_____	=	_____	+	_____	=	_____
1985	_____	=	_____	+	_____	=	_____
1986	_____	=	_____	+	_____	=	_____
1987	_____	=	_____	+	_____	=	_____
1988	_____	=	_____	+	_____	=	_____
1989	_____	=	_____	+	_____	=	_____
1990	_____	=	_____	+	_____	=	_____
1991	_____	=	_____	+	_____	=	_____

(through 11/13/91)

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II-4. Enter the information from Column D of II-2. and from Column D of each copy of II-3. you filled out. Total the catch for each year (Column Z). (If necessary add more columns to the back side of this sheet.)

	(A) Vessel 1 (From II-2.)	(B) Vessel 2 (From II-3.)	(C) Vessel 3 (From II-3.)	(D) Vessel 4 (From II-3.)	(E) Vessel 5 (From II-3.)	(Z) Total
Vessel ID:	_____	_____	_____	_____	_____	_____
1984	_____	_____	_____	_____	_____	_____
1985	_____	_____	_____	_____	_____	_____
1986	_____	_____	_____	_____	_____	_____
1987	_____	_____	_____	_____	_____	_____
1988	_____	_____	_____	_____	_____	_____
1989	_____	_____	_____	_____	_____	_____
1990	_____	_____	_____	_____	_____	_____
1991	_____	_____	_____	_____	_____	_____
(through 11/13/91)						

II-5. Enter the pounds from Column Z of II-4. into Column A. Total Column A. Multiply Column A by the adjustment factor for the year to determine the adjusted catch history for your current vessel. Also, enter the Column A total as Value F in the Catch History Value Table on Page E-15. (If you own more than one permit, enter a separate Value F in the Catch History Value Table for each copy of Part II. you fill out.)

Year	(A) Total Pounds From Z	(B) Adjustment Factor	(C) Adjusted Personal Catch History
1984	_____	x 0.71 =	_____
1985	_____	x 0.50 =	_____
1986	_____	x 0.48 =	_____
1987	_____	x 0.45 =	_____
1988	_____	x 0.54 =	_____
1989	_____	x 0.68 =	_____
1990	_____	x 0.86 =	_____
1991	_____	x 1.00 =	_____
(through 11/13/91)			
Total	_____		

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II-6. Permit catch history to be used in evaluating your share based on best 5 of 8 years.

Enter the 5 highest values from Column C of II-5. Total the result and divide by 5.

Year	Adjusted Catch History	
_____	_____	
_____	_____	
_____	_____	
_____	_____	
_____	_____	
Total	_____	+ 5 = _____

This result will be entered as Value C in the first part of the Allocation History Work Sheet on Page E-15. (If you own more than one permit, total this result from each copy of Part II. you filled out and enter as Value C in the Catch History Value Table.)

(Your total catch history would be divided by 5 even if you fished sablefish fewer than 5 years during the allocation period.)

II-7. Permit catch history to be used in evaluating your share based on equal allocation.

Divide the total from Column A of II-5. by the total number of years in which at least some fixed gear landing was made.

Total from Column A ==>> _____ ÷ _____ = _____

This result will be entered as Value D in the first part of the Allocation Work Sheet on Page E-15. (If you own more than one permit, enter a separate Value D in Allocation History Work Sheet for each copy of Part II. you fill out.)

Enter number of years in which some sablefish were landed here.

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ALLOCATION HISTORY WORK SHEET

The following table contains a key to the allocation formulas contained in this work sheet. Locate the allocation formula according to the key provided for each cell in the table, calculate your QS and record the resulting QS in this table for comparison. For an example of how many pounds of individual fishing quotas (IFQ) you might receive for your QS, multiply your percentage share by 55,100 to estimate the amount of IFQ you might receive in a year in which the allocation to the fixed gear limited entry fishery is 2,500 mt. Note that the adjustment factors used in the allocation work sheets are based on data which may be incomplete, particularly with respect to ownership histories. The adjustment factors used here are the best estimates available at this time, however, they are likely to be somewhat different from those used when the program is implemented.

Allocation Results Table

Catch History Options (Section 15.6.2.1)				
Allocation Options (Section 15.6.2.6)	Permit Catch History	Personal Catch History as a Vessel Owner	50 Percent Permit Catch History 50 Percent Personal Catch History	Choice of Personal or Permit Catch History (Cut-off Date 11/13/91)
Option A (Best 5 of 8 Years)	1. (Page E-16) QS% = <input style="width: 50px; height: 15px;" type="text"/> x 55,100 IFQ = <input style="width: 50px; height: 15px;" type="text"/>	2. (Page E-16) QS% = <input style="width: 50px; height: 15px;" type="text"/> x 55,100 IFQ = <input style="width: 50px; height: 15px;" type="text"/>	3. (Page E-17) QS% = <input style="width: 50px; height: 15px;" type="text"/> x 55,100 IFQ = <input style="width: 50px; height: 15px;" type="text"/>	4. (Page E-17) QS% = <input style="width: 50px; height: 15px;" type="text"/> x 55,100 IFQ = <input style="width: 50px; height: 15px;" type="text"/>
Option B-1 (Modified Equal Allocation)	5. (Page E-18) QS% = <input style="width: 50px; height: 15px;" type="text"/> x 55,100 IFQ = <input style="width: 50px; height: 15px;" type="text"/>	6. (Pages E-19, E-20) QS% = <input style="width: 50px; height: 15px;" type="text"/> x 55,100 IFQ = <input style="width: 50px; height: 15px;" type="text"/>	7. (Page E-21) QS% = <input style="width: 50px; height: 15px;" type="text"/> x 55,100 IFQ = <input style="width: 50px; height: 15px;" type="text"/>	8. (Page E-21) QS% = <input style="width: 50px; height: 15px;" type="text"/> x 55,100 IFQ = <input style="width: 50px; height: 15px;" type="text"/>
Option B-2 (Straight Equal Allocation)	9. (Page E-22) QS% = <input style="width: 50px; height: 15px;" type="text"/> x 55,100 IFQ = <input style="width: 50px; height: 15px;" type="text"/>	10. (Pages E-23, E-24) QS% = <input style="width: 50px; height: 15px;" type="text"/> x 55,100 IFQ = <input style="width: 50px; height: 15px;" type="text"/>	11. (Page E-25) QS% = <input style="width: 50px; height: 15px;" type="text"/> x 55,100 IFQ = <input style="width: 50px; height: 15px;" type="text"/>	12. (Page E-25) QS% = <input style="width: 50px; height: 15px;" type="text"/> x 55,100 IFQ = <input style="width: 50px; height: 15px;" type="text"/>

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Catch History Value Table

Enter catch history values from the Catch History Work Sheet. These are the values which will be used in the allocation work sheet.

Catch History Values		
	Catch History for Portion of Allocation Based on Best 5 of 8 Years	Catch History for Equal Allocation Portion of Allocation Formulas
Personal History as a Vessel Owner	Value A (from Catch History Work Sheet I-5 on Page E-8) _____	Value B (from Catch History Work Sheet I-6 on Page E-8) _____
History of Permit Currently Owned	Value C (from Catch History Work Sheet II-6 on Page E-13) _____	Value D (from Catch History Work Sheet II-7 on Page E-13) _____ If you own more than one permit, use the extra space in this block to fill in a value for D for each copy of Part II. you filled out.
Enter Your Total Personal Catch History From Column A of I-4 on Page E-7	Value E _____	
Enter Your Total Permit Catch History From Column A of II-5 on Page E-12 If you own more than one permit, use the extra space in this block to fill in a value for D for each copy of Part II. you filled out.	Value F _____	

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Allocation Formulas

1. Allocation **Option A** (Best 5 of 8 Years), based on **permit** catch history.

Enter Value C from the Catch History Value Table on Page E-15.	
Multiply by Adjustment Factor==>>	_____ x 0.0000130
Result is Your QS Expressed as a Percent of the Total QS (For example, a QS of 0.01 equals 1/10,000 of the total QS issued. A QS of 1 equals 1/100 of the total QS issued.)	_____ Enter this result in Cell 1 of the Allocation Results Table on Page E-14.

2. Allocation **Option A** (Best 5 of 8 years), based on **personal** catch history as a vessel owner.

Enter Value A from the Catch History Value Table on Page E-15.	
Multiply by Adjustment Factor==>>	_____ x 0.0000158
Result is Your QS Expressed as a Percent of the Total QS (For example, a QS of 0.01 equals 1/10,000 of the total QS issued. A QS of 1 equals 1/100 of the total QS issued.)	_____ Enter this result in Cell 2 of the Allocation Results Table on Page E-14.

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3. Allocation **Option A** (Best 5 of 8 years), based **50 percent** on permit catch history and **50 percent** on personal catch history as a vessel owner.

Multiply your permit history QS from Number 1 on Page E-16 by 0.5.	_____ x 0.5 = _____
Multiply your personal history QS from Number 2 on Page E-16 by 0.5.	_____ x 0.5 = _____
Total the results from the last two calculations in this box and enter final result (QS) in Cell 3 of the Allocation Results Table on Page E-14.	_____
Final result is your QS expressed as a percent of the total QS. For example, a QS of 0.01 equals 1/10,000 of the total QS issued. A QS of 1 equals 1/100 of the total QS issued.	

4. Allocation **Option A** (Best 5 of 8 years), based on your **choice** of **permit** catch history and **personal** catch history as a vessel owner. (The choice of catch history option would only be available to you only if you have not bought or sold a permit or permit rights since November 13, 1991. For everyone who has engaged in such a transaction the catch history to be applied will be . . . (Option 4a, Personal Catch History . . . Option 4b, Permit Catch History, to be determined by the Council prior to final adoption of the program. See section 15.6.2.1)

Multiply your permit history QS from Number 1 on Page E-16 by the adjustment factor for the choice option.	_____ x 0.853 = _____
Multiply your personal history QS from Number 2 on Page E-16 by the adjustment factor for the choice option.	_____ x 0.853 = _____
Choose the largest of the two shares and enter in Cell 4 of the Allocation Results Table on Page E-14. (The result is your QS expressed as a percent of the total QS. For example, a QS of 0.01 equals 1/10,000 of the total QS issued. A QS of 1 equals 1/100 of the total QS issued.)	_____ Best of the shares based on personal history and the shares based on permit history.

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5. Allocation Option B-1 (Modified Equal Allocation), based on permit history.

Under this formula, up to 25 percent of the QS allocated will be based on a "modified equal allocation" and at least 75 percent will be based on best 5 of 8 years.

Your share of the QS "equally" allocated and based on the permit catch history (multiple permit owners should go through the calculation of the QS "equally" allocated once for each permit they own and total the results):

Enter Value D from the Catch History Value Table on Page E-15.	
Multiply by Adjustment Factor==>>	x 0.0000181
Enter result here==>>	
Re-enter the result, or enter 0.027 if the result is less than 0.027, or enter 0.175 if the result is greater than 0.175.	Equal allocation share based on permit history. (The value you entered here should not be less than 0.027 or greater than 0.175.)

Your share of the 75 percent allocated based on best 5 of 8 years and permit catch history:

Enter Value C from the Catch History Value Table on Page E-15.	
Multiply by Adjustment Factor==>>	x 0.0000103
Enter Result Here==>>	
	Share based on your best 5 of 8 years and permit history.

Total for your QS based on permit history:

Total your shares from the two boxes above to get your total QS, expressed as a percent of the total QS issued. For example, a QS of 0.01 equals 1/10,000 of the total QS issued. A result of 1 equals 1/100 of the total QS issued.	

	Enter this result in Cell 5 of the Allocation Results Table on Page E-14.

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6. Allocation Option B-1 (Modified Equal Allocation), based on personal catch history as a vessel owner.

Under this formula, up to 25 percent of the QS allocated will be based on a "modified equal allocation" and at least 75 percent will be based on "best 5 of 8 years."

Your share of the QS "equally" allocated based on personal catch history:

Enter Value B from the Catch History Value Table on Page E-15.	
Multiply by Adjustment Factor==>>	x 0.0000181
Enter result here==>>	_____
Re-enter the result; or enter 0.027 if the result is less than 0.027; or enter 0.192 if the result is greater than 0.192. Only one "equal allocation" will be made per permit. If some other person is claiming an equal share, based on their part ownership of the same permit you own, you may not also claim an equal share. In that case, you would enter 0 here and proceed with the remainder of the allocation work sheet.	The value you enter here should <u>not</u> be less than 0.027 or greater than 0.192, unless someone else who shares ownership of your permit is claiming an equal share based on their part in the ownership of your permit, in which case you must enter 0.
Enter the number of longline or fishpot "A" permits owned for which no one else is claiming an equal share <u>and</u> multiply by the result you re-entered or entered in the step immediately above. If you only own one permit and someone else is claiming an equal share allocation, based on their part ownership of the permit, you would enter a 0 here. If you own more than one permit for which no one else is also claiming an equal share, based on their part ownership of the permit, then enter that number of permits.	x _____ = _____ Equal allocation share based on personal history.

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6. (Continued)

Your share of the 75 percent allocated based on best 5 of 8 years and **personal** catch history:

Enter Value A from the Catch History Value Table on Page E-15.	_____
Multiply by Adjustment Factor==>>	x 0.0000125
Enter result here==>>	_____
Share based on your best 5 of 8 years and personal history.	

Total for your QS based on **personal** history:

Total your shares from the two boxes above and the last box on the previous page to get your total QS, expressed as a percent of the total QS issued. For example, a QS of 0.01 equals 1/10,000 of the total QS issued. A result of 1 equals 1/100 of the total QS issued.	_____
Enter this result in Cell 6 of the Allocation Results Table on Page E-14.	

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7. Allocation **Option B-1** (Modified Equal Allocation), based **50 percent** on **permit catch history** and **50 percent** on **personal catch history**.

Multiply your permit history QS from Number 5 on Page E-18 by 0.5.	_____ x 0.5 = _____
Multiply your personal history QS from Number 6 on Page E-20 by 0.5.	_____ x 0.5 = _____
Total the results from the last two calculations in this box and enter final results (QS) in Cell 7 of the Allocation Results Table on Page E-14.	
Final result is your QS expressed as a percent of the total QS. For example, a QS of 0.01 equals 1/10,000 of the total QS issued. A QS of 1 equals 1/100 of the total QS issued.	

8. Allocation **Option B-1** (Modified Equal Allocation), based on your **choice** of **permit catch history** and **personal catch history** as a vessel owner. (The choice of catch history option would only be available to you only if you have not bought or sold a permit or permit rights since November 13, 1991. For everyone who has engaged in such a transaction, the catch history to be applied will be . . . (Option 4a, Personal Catch History . . . Option 4b, Permit Catch History, to be determined by the Council prior to final adoption of the program. See Section 15.6.2.1.)

Multiply your permit history QS from Number 5 on Page E-18 by the adjustment factor for the choice option.	_____ x 0.868 = _____
Multiply your personal history QS from Number 6 on Page E-20 by the adjustment factor for the choice option.	_____ x 0.868 = _____
Choose the largest of the two shares and enter in Cell 8 of the Allocation Results Table on Page E-14. (The result is your QS expressed as a percent of the total QS. For example, a QS of 0.01 equals 1/10,000 of the total QS issued. A QS of 1 equals 1/100 of the total QS issued.)	
Best of the shares based on personal history and the shares based on permit history .	

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9. Allocation Option B-2 (Straight Equal Allocation), based on permit history.

Under this formula, 25 percent of the QS allocated will be based on a "straight equal allocation" and 75 percent will be based on best 5 of 8 years.

Your share of the QS "equally" allocated and based on permit history (multiple permit owners should go through the calculation of the QS "equally" allocated once for each permit they own and total the results):

<p>Enter Value F from the Catch History Value Table on Page E-15.</p> <p>If this value is less than 3,000 pounds you would not qualify for any allocation of QS based on the Option B-2 formula-- STOP HERE AND GO ON TO 10.</p> <p>If this value is 3,000 pounds or greater you would qualify for an allocation.</p>	<p>_____</p>
<p>If you qualify for an allocation, your share, based on the straight equal allocation portion of the formula, would be derived by taking 25 percent of the total QS to be allocated and dividing that amount by the number of permits owned by persons receiving QS. Only one "equal allocation" will be made per permit. The current estimate for the equal value share is 0.195.</p>	<p>If the value above is 3,000 or greater, enter your estimated equal share value (0.195).</p> <p>_____</p>

Your share of the 75 percent allocated based on best 5 of 8 years and permit catch history:

<p>Enter Value C from the Catch History Value Table on Page E-15.</p> <p>Multiply by Adjustment Factor==>></p>	<p>_____</p> <p>x 0.0000098</p>
<p>Enter Result Here==>></p>	<p>_____</p> <p>Share based on your best 5 of 8 years and permit history.</p>

Total for your QS based on permit history:

<p>Total your shares from the two boxes above to get your total QS, expressed as a percent of the total QS issued. For example, a QS of 0.01 equals 1/10,000 of the total QS issued. A result of 1 equals 1/100 of the total QS issued.</p>	<p>_____</p> <p>Enter this result in Cell 9 of the Allocation Results Table on Page E-14.</p>
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10. Allocation **Option B-2** (Straight Equal Allocation), based on **personal** catch history as a vessel owner.

Under this formula, 25 percent of the QS allocated will be based on a "straight equal allocation" and 75 percent will be based on best 5 of 8 years.

Your share of the QS equally allocated based on **personal** history:

<p>Enter Value E from the Catch History Value Table on Page E-15.</p> <p>If this value is <u>less than 3,000 pounds</u>, you would not qualify for any allocation of QS based on the Option B-2 formula -- STOP HERE AND GO ON TO 11.</p> <p>If this value is 3,000 pounds or greater, you would qualify for an allocation.</p> <p>If you qualify for an allocation, your share, based on the straight equal allocation portion of the formula, would be derived by taking 25 percent of the total QS to be allocated and dividing that amount by the number of permits owned by persons receiving QS.</p> <p>However, only one "equal allocation" will be made per permit. If some other person is claiming an equal share, based on their part ownership of the same permit, you own, you may not also claim an equal share.</p>	
<p>Enter the number of longline or fishpot "A" permits owned for which no one else is claiming an equal share and multiply by the estimated equal share value, which is currently 0.216.</p> <p>If you only own one permit and someone else is claiming an equal share allocation based on their part ownership of the permit, you would enter a 0 here for number of permits. If you own more than one permit for which no one else is also claiming an equal share, based on their part ownership of the permit, then enter that number of permits.</p>	<div style="text-align: right;"> <p>_____</p> <p>x 0.216</p> <p>= _____</p> <p>Equal allocation share based on personal history.</p> </div>

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10. (Continued)

Your share of the 75 percent allocated based on best 5 of 8 years and **personal** history:

Enter Value A from the Catch History Value Table on Page E-15.	
Multiply by Adjustment Factor==>>	x 0.0000119
Enter result here==>>	Share based on your best 5 of 8 years and personal history.

Total for your QS based on **personal** history:

Total your shares from the two boxes above to get your QS (if any), expressed as a percent of the total QS issued. For example, a QS of 0.01 equals 1/10,000 of the total QS issued. A result of 1 equals 1/100 of the total QS issued.	Enter this result in Cell 10 of the Allocation Results Table on Page E-14.
---	--

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11. Allocation **Option B-2** (Straight Equal Allocation), based **50 percent** on **permit** catch history and **50 percent** on **personal** catch history as a vessel owner.

Multiply your permit history QS from Number 9 on Page E-22 by 0.5.	_____ x 0.5 = _____
Multiply your personal history QS from Number 10 on Page E-24 by 0.5.	_____ x 0.5 = _____
Total the results from the last two calculations in this box and enter final results (QS) in Cell 11 of the Allocation Results Table on Page E-14.	
Final result is your QS expressed as a percent of the total QS. For example, a QS of 0.01 equals 1/10,000 of the total QS issued. A QS of 1 equals 1/100 of the total QS issued.	

12. Allocation **Option B-2** (Straight Equal Allocation), based on your **choice** of **permit** catch history and **personal** catch history as a vessel owner. **(The choice of catch history option would only be available to you only if you have not bought or sold a permit or permit rights since November 13, 1991. For everyone who has engaged in such a transaction, the catch history to be applied will be . . . (Option 4a, Personal Catch History . . . Option 4b, Permit Catch History, to be determined by the Council prior to final adoption of the program. See Section 15.6.2.1.)**

Multiply your permit history QS from Number 9 on Page E-22 by the adjustment factor for the choice option.	_____ x 0.867 = _____
Multiply your personal history QS from Number 10 on Page E-24 by the adjustment factor for the choice option.	_____ x 0.867 = _____
<p>Choose the largest of the two shares and enter in Cell 12 of the Allocation Results Table on Page E-14. (The result is your QS expressed as a percent of the total QS. For example, a QS of 0.01 equals 1/10,000 of the total QS issued. A QS of 1 equals 1/100 of the total QS issued.)</p>	
<p>Best of the shares based on personal history and the shares based on permit history.</p>	

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EXAMPLES

Example Catch Histories

For persons who have owned the same vessel since 1984 and received an "A" permit, the question of whether to allocate on the basis of permit history or personal history of the vessel owner will not affect the number of pounds of catch they use under the allocation formula. Where transfers of vessels or permits have occurred, there may be dramatic differences in the catch histories which may be claimed depending on whether an allocation is based on permit or personal history. Table E-1 shows five example histories of vessel and permit ownership and their effect on the amount of catch which may be used to claim QS. The first row of the table designates the person from whose perspective the catch history is being examined; the second row designates the vessels involved in the transactions; the third row shows whether or not the vessels qualified for "A" permits; and the fourth row provides a description of the transactions which have occurred. The middle rows of the table show catch history of the vessels by year. The last two rows show, based on permit and personal catch history, the annually weighted 5-year average catch history which might be used in an allocation formula based on the best 5 of 8 years (parenthetical values show the unweighted catch histories). In Figures E-1 through E-4, estimated allocations and average catch history for years fished for four of the persons in Table E-1 are shown. In these figures, the catch history options are grouped by allocation option. Comparison of the averages in the last two rows of Table E-1 with the QS allocation may aid the reader in considering other performance histories and the expected outcomes in allocation results.

From the table and figures it can be seen that

- those with consistent participation and medium to large annual catches will receive considerably less IFQ than they have historically harvested (Figure E-1, personal average catch; Figure E-2; Figure E-3; and Figure E-4, permit average catch).
- those with low catch histories may receive more IFQ than their historical averages if allocation is based on the equal sharing option. Option B-1 keeps the IFQ allocated more in line with actual catch history than Option B-2 (Figure E-4, personal average catch).
- as compared to Option A, the proportional effect of the equal sharing options (Options B-1 and B-2) on persons with catch histories smaller than that of than 70 to 85 percent of the potential applicants is relatively small (Figure E-1, personal average catch; Figure E-2, permit average catch); the effects may be substantial for those with the largest catch histories, top 10 percent (Figure E-3).
- for those who would receive about 50,000 pounds or less IFQ, the equal sharing options (Options B-1 and B-2) are not much different or better than the straight historic catch option (Option A). Roughly 75 to 80 percent of the fleet is expected to fall in this category (Figures E-1; Figure E-2; and Figure E-4).
- when permit and personal histories are identical, the option of choosing histories results in less IFQ than personal history and the 50/50 option, but more than permit history. This

TABLE E-1. Examples of catch histories which may be applied to QS initial allocation formulas given different histories of vessel and permit ownership (catch histories expressed in thousands of pounds, shaded cells show personal history).

Person	Person 1			Person 2			Person 3		Person 4		Person 5		
	L	M	N	O	P-1	P-2	P-3	Q	R	None	S	T	U
Vessel													
Vessel Qualifies for Permit	Y	Y	Y	N	Y	Y	Y	Y	N	-	Y	N	Y
Situation	Vessel L is sold in 1989 and Vessel M is purchased in 1990.			Vessel N is sold in 1988 and Vessel O is purchased in 1989. Vessel O does not receive a permit. A permit is purchased from Vessel P in 1992. Three alternative example catch histories for the permit from Vessel P are presented (P-1, P-2 and P-3).				Vessel Q is sold in 1989 but the permit rights are reserved. Vessel R is purchased in 1990.		Was not a participant in the groundfish fishery prior to 1992. In 1992, buys Vessel S along with the groundfish permit rights.		Enters the sablefish fishery in 1990 and buys a permit from Vessel Y in 1994 in order to remain active in the fishery.	
YEAR	VESSEL CATCH HISTORIES												
1984	80	10	120	-	10	-	40	240	40	-	-	-	-
1985	80	10	120	-	10	-	40	240	40	-	-	-	40
1986	80	10	-	-	10	160	40	240	40	-	-	-	40
1987	80	10	-	-	10	160	40	240	40	-	40	-	40
1988	80	10	120	-	10	160	-	240	40	-	40	-	40
1989	80	10	-	120	10	160	-	240	40	-	40	-	20
1990	-	80	-	-	10	160	-	20	240	-	40	5	10
1991 (thru Nov. 13)	-	80	-	-	10	-	-	20	240	-	40	5	-
Average Catch History for 5 Best Years ^{a/} (Unweighted)	34 (38)	61 (80)	182 (240)	10 (80)	57 (96)	57 (96)	0 ^{b/} (0)	182 (240)	182 (240)	28 (40)	0 (0)	18 (36)	1.9 (2)

a/ Using annual weightings specified in Section 15.6.2.4.

b/ Permit had no history of recent participation; therefore, no catch history could be counted toward the quota.

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Figure E-1. IFQ Allocation to Person 1 from Table E-1

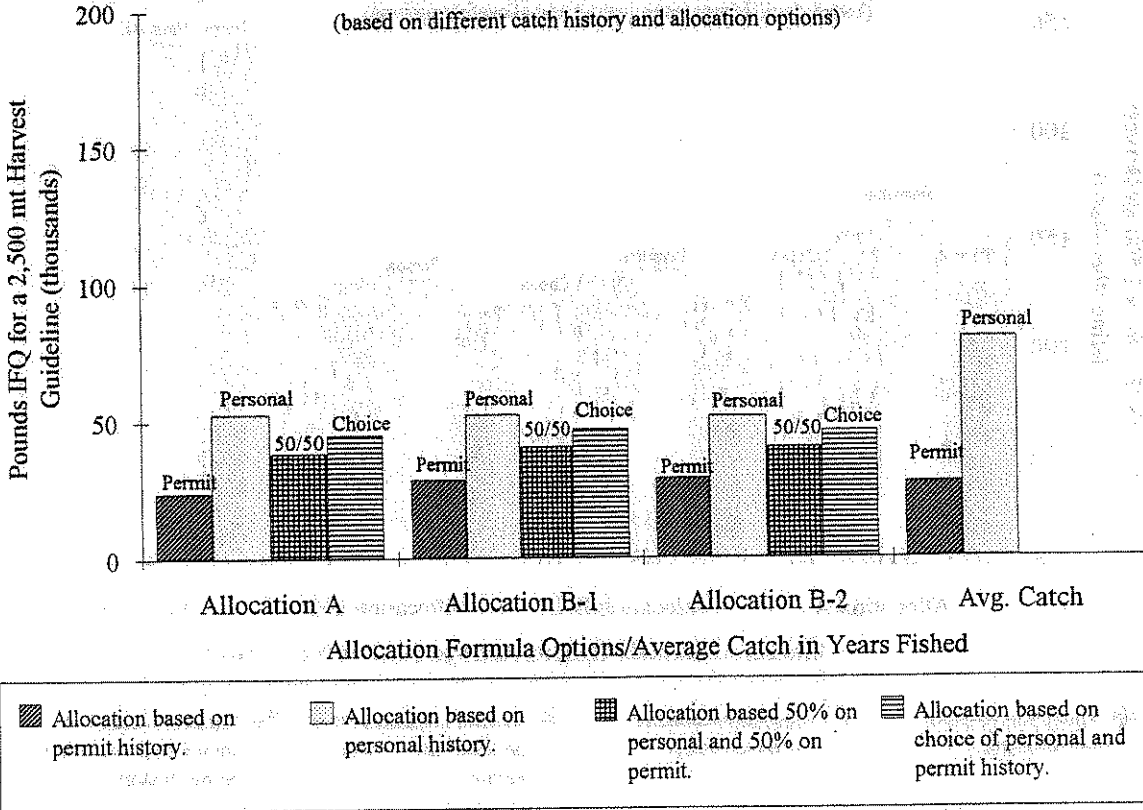
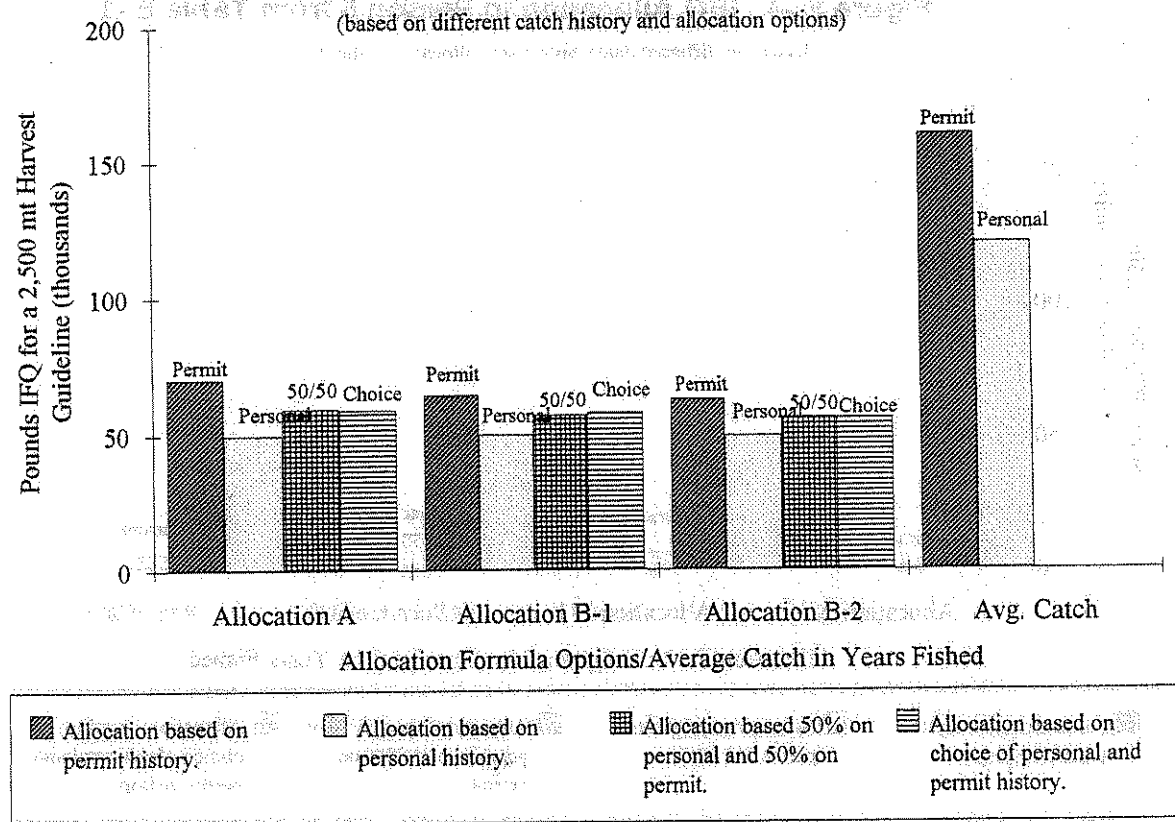


Figure E-2. IFQ Allocation to Person 2 from Table E-1



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Figure E-3. IFQ Allocation to Person 3 from Table E-1

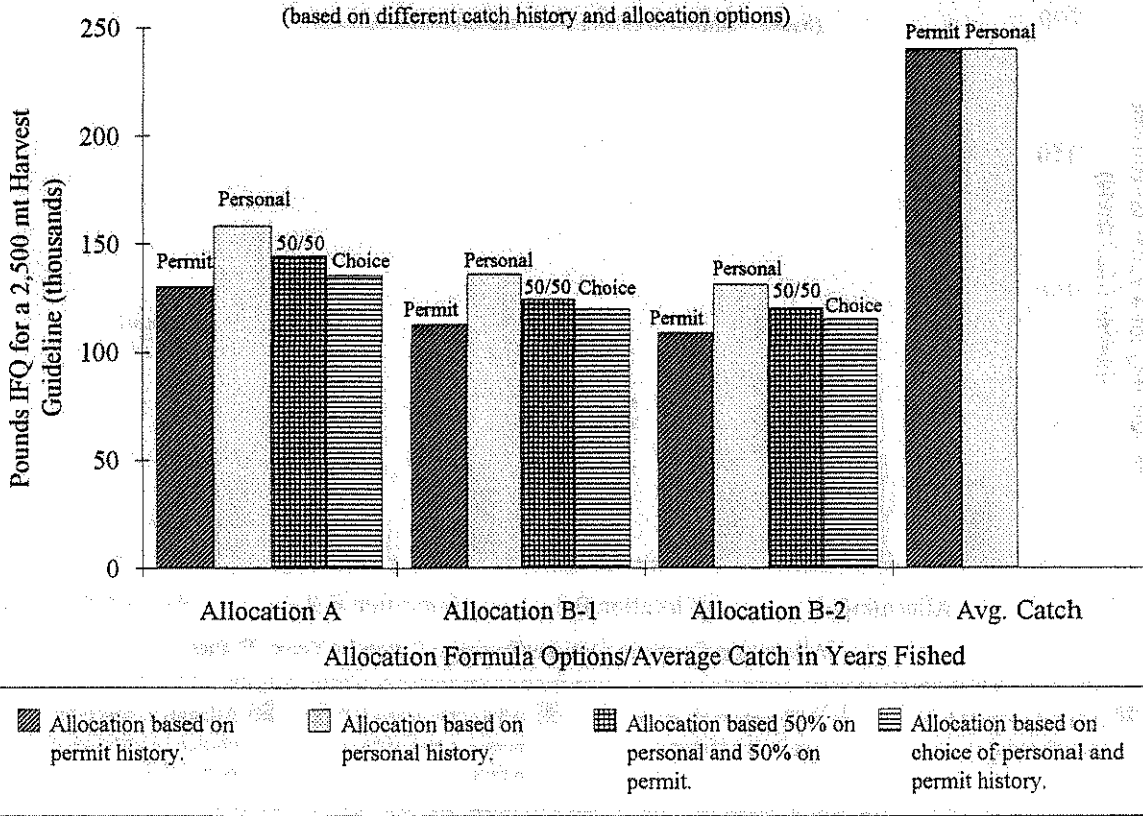
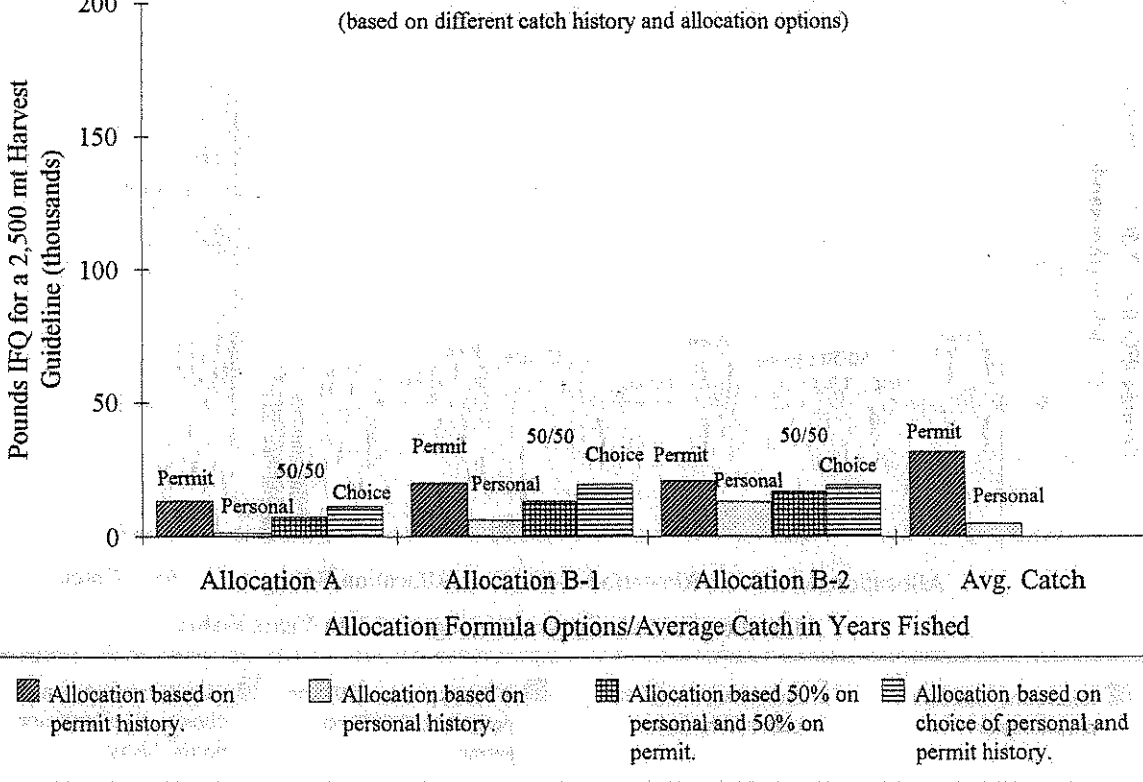


Figure E-4. IFQ Allocation to Person 5 from Table E-1



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would be the situation of anyone who had the same vessel throughout the allocation period and now holds the permit to that vessel (Figure E-3).

- the annual weighting factor and missing a years catch may have a significant effect on the size of allocation relative to catch history (Figure E-2, personal compared to permit average catch).
- if a person with no personal history has paid to acquire a permit with substantial sablefish history, but the personal history option is chosen by the Council, this person receives no QS (Table E-1, Person 4).
- by considering catch history to be transferred with the permit, permit history performs like personal history where a person has reserved permit rights or kept the permit when selling a vessel (Table E-1, Person 3).

Not illustrated by the examples is the situation of the person who may have purchased Vessel Q from Person 3 in Table E-1. If allocation is based on permit history, this individual would receive no allocation because (1) the catch history of Vessel Q prior to 1990 was transferred with the permit and (2) the catch history of Vessel Q in 1990 and 1991 cannot be claimed without a permit for the vessel. The catch history of any permit purchased for Vessel Q would replace the 1990 and 1991 catch history of Vessel Q.

Table E-2 shows the allocations which would result from a number of alternative catch histories without regard for how the catch histories were accumulated. The calculations of IFQ are based on the adjustment factors used in the personal history options. Using this table, one can compare total and average catches, to the IFQ which one might expect to be allocated on the basis of the QS, given a 2,500 mt harvest guideline. Total catches and averages using and not using the annual weighting factors provide a sense of how these weighting factors affect the allocations. In comparing weighted and unweighted catches, it is important to remember that if catches were not weighted the amount of QS issued per pound of catch would significantly decrease. The catch history in Column A was derived using the approximate performance of the 75th percentile vessel in each year of the allocation period (the vessel which in that year performed better than 75 percent of the other vessels in the sablefish fishery). The last three rows of the table show that under allocation Option A such a vessel might receive close to 60 percent of its average catch in its best 5 years and slightly more under the two equal allocation options (Options B-1 and B-2). One can compare the allocation results from Example B with those from Examples C and D to get a general understanding of the effects of missing 1 year of fishing and having catch earlier in the allocation period as opposed to later in the period. Comparing Option A and equal allocation option results for Examples D, E and F shows the increasing influence of the equal allocation options as actual catch history declines. Examples G and H illustrate the differences between Options B-1 and B-2. Under B-1, catch histories above 3,000 pounds receive less of a share than under Option B-2 where any catch history greater than 3,000 pounds entitles the applicant to one equal share. Under Option B-2, catch histories less than 3,000 pounds entitle the applicant to no QS where as the minimum QS under Option B-1 is the equivalent of 1,500 pounds of IFQ under a 2,500 mt harvest guideline.

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TABLE E-2. Examples of claimed catch history and the resulting allocations (allocations estimated based on adjustment factors applicable under a personal allocation).

Year	Example Catch Histories (thousands of pounds)							
	A	B	C	D	E	F	G	H
1984	95	160	160					
1985	95	160						
1986	75	160	160					
1987	75		160					
1988	60		160	160	80	40		
1989	50	160		160	80	40		
1990	25	160		160	80	40	10	5
1991	35			160	80	40	10	5
Catch History (Unweighted)	510	800	640	640	320	160	20	10
Catch History (Weighted)	308	517	349	493	246	123	19	9
Best 5 or 8 Years (Unweighted Average)	80	160	128	128	64	32	4	2
Best 5 of 8 Years (Weighted Average)	44	103	70	99	49	25	4	1.9
Average of Years Fished (Unweighted)	64	160	160	160	80	40	10	5
IFQ Based on 2,500 mt Quota and								
Option A	38	90	61	86	43	21	3	2
Option B-1	41	82	59	78	45	28	13	6
Option B-2	41	80	58	77	44	28	14	13

October 13, 1994

ERRATA TO

Supplement to Draft Amendment 8 (Fixed Gear Sablefish Individual Quotas) to the Pacific Coast
Groundfish Fishery Management Plan
Including Draft Supplemental Environmental Impact Statement, Regulatory Impact Review, and
Fishery Impact Statement
And
Regulatory Amendment Banning Hook Extractors in the
Fixed Gear Individual Quota Sablefish Fishery
Part I

Page I-26 **Table 5.**

The option referenced as Option (d) is Option d(1).
The option referenced as Options (d1) is Option d(2)

Page B-7 **Change allocation work sheet instructions to read as follows.**

4. Personal catch history to be used in evaluating your share based on best 5 of 8 years. Enter the 5 highest values from Column Z of Step 3. Total the result and divide by 5.

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Supplement to
Draft Amendment 8 (Fixed Gear Sablefish Individual Quotas) to the Pacific Coast Groundfish
Fishery Management Plan, Including Draft Supplemental Environmental Impact Statement,
Regulatory Impact Review, and Fishery Impact Statement

And

Regulatory Amendment Banning Hook Extractors in the
Fixed Gear Individual Quota Sablefish Fishery

Part I

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Part II

IMPACT ANALYSIS

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PURPOSE OF DOCUMENT

The purpose of this document is to update Draft Amendment 8 (Fixed Gear Sablefish Individual Quotas [IQ]) to the Pacific Coast Groundfish Fishery Management Plan (FMP), Including Draft Supplemental Environmental Impact Statement, Regulatory Impact Review, and Fishery Impact Statement. In the first three months of 1994, the Council distributed the draft amendment package, held public hearings and solicited public comments on the proposed amendment. At its April 1994 meeting, the Council selected a number of preferred options. At that time, final action was deferred to allow the development of new options in response to concerns identified by public comment.

This document is being provided in two parts. The first part reviews the decisions the Council has made to date and new options which are being considered. The second part contains an analysis of options modified or introduced since the publication of the draft amendment package last winter.

After the public review period, the Council expressed concerns regarding the fixed gear sablefish IQ program in three major areas: (1) windfall profits for initial recipients of quota shares (QS), (2) industry payment for administration and enforcement of the program and (3) the potential for geographic redistribution of harvest. Additional concern was expressed about conservation issues, such as discard mortality, and the enforcement effort required for the IQ program. A new issue has recently been identified having to do with who may qualify to receive QS at initial issuance when a permit is owned by more than one entity. Some of the policy options being considered to address these concerns involve changes to the groundfish plan and regulations beyond the specific chapter of the plan that sets out the IQ program. These options include:

1. A ban on participation in the open access sablefish fishery by participants in the IQ sablefish fishery, intended to establish consistency between license limitation and the IQ program amendments.^{1/}
2. A ban on freezing IQ sablefish at sea, intended to address concerns regarding a possible shift in the geographic distribution of landings.
3. A ban on the use of hook extractors intended to reduce any increase in hooking mortality which may result from increased highgrading.

There are now three areas of action contemplated in association with the development of a limited entry fixed gear sablefish IFQ program:

1. Incorporation of a new chapter into the groundfish FMP (Chapter 15: Fixed Gear Sablefish Individual Quota Program).

1/ This action is an option to address an inconsistency between the license limitation program and the IQ program created by a proposal to reduce enforcement costs by reducing the length of the IQ fishery.

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2. Modification of the license limitation program (Chapter 14: Groundfish Limited Entry) to
 - a. establish consistency between the license limitation and sablefish IQ programs by banning participation in the open access sablefish fishery by participants in the IQ sablefish fishery, and
 - b. ban freezing of IQ sablefish at sea and grandfather in existing freezing activity.
3. A regulatory amendment banning hook extractors. Revisions to the gear regulations are authorized under the current FMP (Appendix to Part 663, Groundfish Management Procedures, III.C.3)

The modifications to the license limitation program also require consideration of complementary changes to the IQ program. The following sections discuss the need for action in each of these areas and options which have been identified.

DESCRIPTION OF ISSUES AND OPTIONS

Fixed Gear Sablefish Individual Quota Program (Incorporation of Chapter 15)

Preferred Options Selected Based on January 1994 Amendment Package and Public Comment

Appendix A contains the current version of the sablefish IQ program (Chapter 15) with edits which indicate preferred options that have thus far been identified by the Council. The following summarizes the preferred options.

Catch history used for qualification of an initial allocation and to determine the amount initially allocated: personal (Section 15.6.2.1)

Recent participation requirement: one landing of sablefish between August 1, 1988 and November 13, 1991. (Section 15.6.1)

Minimum participation requirement: 3,000 pounds of sablefish during the allocation period (1/1/84 through 11/13/91). (Section 15.6.1)

While a preferred QS allocation formula has been selected, one element of that allocation formula (the amount to be subject to equal distribution) has yet to be settled on. Allocation formula: (*Option A: 25 percent or Option B: 40 percent*) of the QS would be divided by the number of "A" permits held by qualifying applicants to determine the equal allocation share; the remaining (*Option A: 75 percent or Option B: 60 percent*) would be distributed on the basis of the average of the best five calendar years of catch history from the eight-year allocation period. (Section 15.6.2.6)

In the initial QS allocation, all of the unclaimed catch history from a defunct partnership or corporation goes to those members of the partnership or corporation who qualify for QS, based on the proportional shares of ownership of the remaining members. (Section 15.6.2.1)

There would be no catch weighting factor: i.e., one pound of catch in any year counts the same as one pound of catch in any other year within the allocation period. (Section 15.6.2.4)

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Landings of setnet gear fished under an experimental fishing permit against the fixed gear quota would count toward the qualifying requirements and allocation formula along with landings by fishpot and longline gear. (Section 15.6.2.2) **The Council needs to clarify this option as there was no fixed gear allocation for most or all of the period during which experimental permits were issued for setnet gear.**

No cap on the amount of QS initially issued to a single person; a 3 percent cap on QS/IFQ^{2/} accumulation and on the amount of IFQ used on a single vessel (except that a person receiving more than this amount at initial issuance may use it on a single vessel). (Sections 15.6.2.5, 15.9.3.1, and 15.10.3)

While the preferred option is no area management, the area management issue has been raised again in response to Council concerns regarding the possibility for geographic redistribution of harvest. The Council has requested development of options which would create area specific QS, in case it is determined that they are needed. These options are included in Section 15.6.3 and further discussed and analyzed in sections of this document on geographic redistribution of harvest.

Corporations, partnerships and other non-individual entities which did not receive initial QS may not acquire QS/IFQ; i.e., the only new entrants allowed to own QS would be individuals. (Section 15.9.3.4)

No leasing. (Section 15.9.4)

Presence of the QS/IFQ owner required on board the vessel when the IFQ is used. (Section 15.10.2)

The IFQ monitoring and enforcement system will include elements of the following summary.

1. Advance notice of landings will be required.
2. Landings may be made only to registered buyers.
3. There will be limited landing/off-loading hours.
4. All quota fish must be off-loaded and reported to the buyer.
5. All landings must be reported to the tracking system and confirmation of the landing provided.
6. All shipments of quota fish by buyers must be reported.
7. Transshipments between vessels would be prohibited.
8. Vessels marketing their own fish would have to be registered buyers.
9. Vessel clearances would be required to land outside the Washington, Oregon and California area.

2/ QS (Quota Share): a percentage of the total harvest to which the holder of the QS is entitled each year.

IFQ (Individual Fishing Quota): the number of pounds which may be caught in a given year determined by the amount of QS held and total catch available for the year.

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The elements of the section on enforcement (Section 15.12) may continue to be modified as discussions continue on issues of enforcement cost and an inspector program. The paragraph on transshipments was modified at the August Council meeting and a new paragraph has been added on IFQ Inspectors. The paragraph on IFQ inspectors has not yet been endorsed as a preferred option. There are a number of recommended changes which are included as an appendix to the Ad Hoc Interagency Staff Report on the Individual Fishing Quota Inspector Program, Individual Quota Enforcement, and Other Implementation Issues.

New Issues and Options

Overview

The following overview contains options reviewed by the Council at its August meeting. Italicized text indicates options which were selected as preferred or designated for additional development.

1. Measures to Reduce Windfall and Collect Resource Rents

- a. *Broaden equal sharing from the "15 percent of the total allocation" selected as the preferred option in April 1994 to 25 or 40 percent of the total initial allocation. This would redistribute windfall from larger to smaller producers (Section 15.6.2.6, Options B2a and B2b). This issue is analyzed in Part II of this document under a section entitled "equal sharing options" because it also pertains to allocational issues such as equity which have been previously covered under the general topic of initial allocation.*
- b. *Only one-half of the QS held are transferable. When QS are sold, the seller surrenders a matching amount to the National Marine Fisheries Service (NMFS). This does not require a change in the MFCMA. QS would be redistributed (Options: (1) among all share holders in proportion to their holdings, (2) through a lottery (Council guidance is needed on who can participate in the lottery), and (3) through an auction, if the needed amendments are made to the MFCMA. (Section 15.9.2, Option 2) [Alternatively, 50 percent of the shares may be issued as nontransferable shares and expire in proportion to the amount of shares sold.]*
- c. *Specify that if more than 3 percent of the total QS is issued to a single person, the amount above 3 percent is not transferable (The Council has matched this with the 25 percent equal sharing options in "a" above.) (Section 15.9.2, Option 1)*
- d. *Increase direct or indirect costs of owning or using QS/IFQ thereby reducing their value. Assessment of direct fees would require an amendment to MFCMA. (See Fees, Section 15.15; and Inspector Program, Section 15.12)*

2. Measures to Address Industry Payment for the Program

- a. *Create a provision in the program stating that if and when allowed under the MFCMA, a fee will be assessed to cover administrative and enforcement costs. (Section 15.15)*
- b. *Adopt the program with implementation contingent on amendments to the MFCMA which allow recovery of administrative and enforcement costs through fees on program participants.*

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3. Options

- a. *Broaden equal sharing from the "15 percent of the total allocation" selected as the preferred option in April 1994 to 25 or 40 percent of the total initial allocation. This would redistribute windfall from larger to smaller producers (Section 15.6.2.6, Options B2a and B2b). This issue is analyzed in Part II of this document under a section entitled "equal sharing options" because it also pertains to allocational issues such as equity which have been previously covered under the general topic of initial allocation.*
- b. *Only one-half of the QS held are transferable. When QS are sold, the seller surrenders a matching amount to National Marine Fisheries Service (NMFS). This does not require a change in the MFCMA. QS would be redistributed (Options: (1) among all share holders in proportion to their holdings, (2) through a lottery (Council guidance is needed on who can participate in the lottery), and (3) through an auction, if the needed amendments are made to the MFCMA. (Section 15.9.2, Option 2) [Alternatively, 50 percent of the shares may be issued as nontransferable shares and expire in proportion to the amount of shares sold.]*
- c. *Specify that if more than 3 percent of the total QS is issued to a single person, the amount above 3 percent is not transferable (The Council has matched this with the 25 percent equal sharing options in "a" above.) (Section 15.9.2, Option 1)*
- d. *Increase direct or indirect costs of owning or using QS/IFQ thereby reducing their value. Assessment of direct fees would require an amendment to MFCMA. (Fees, Section 15.15; and Inspector Program, Section 15.12)*

All of these options are currently being considered by the Council. The last option is addressed in more detail in the following section on industry payment for the program. One possibility which has been identified is having industry pay for an IFQ inspector program. This would have an indirect effect in reducing the value of QS/IFQ.

Measures to Address Industry Payment for the Program

1. Problem

In general, fishery management programs are intended to maintain long-term resource productivity for the benefit of the fishery participants and the public, while program costs are paid by taxpayers. Under IQ management, the broader public may benefit in a diffuse manner from more efficient management of a segment of the economy, however, a relatively few fishers would derive new direct significant financial benefits from a program administered largely at taxpayer expense. Additionally, administrative and enforcement costs of the program may be significant and budgets for fishery management agencies are very tight. These factors raise questions as to whether those who benefit most from the program should pay the program costs.

2. Evaluation of Problem

The size of the windfall expected by initial QS recipients is discussed above. To the degree that a means is found to have program participants pay for administrative costs on an ongoing basis, the size of the windfall to private parties and the cost of purchasing QS/IFQ will be reduced. The administration and enforcement expenses (approximately \$750,000 for enforcement and less

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than \$100,00 annually for administration, see Ad Hoc Interagency Staff Report on the IFQ Inspector Program, IQ Enforcement, and Other Implementation Issues) amount to about 15 percent of the value of the 1993 nontrawl fishery. If the exvessel value of the program increases by 20 percent as a result of the IQ program, then administrative and enforcement costs would be expected to be about 13 percent of the total exvessel value. Administration proposed changes to the MFCMA last summer would have allowed the collection of a 3 percent fee on the value of the landings of IQ species, clearly not enough to cover the full costs of the program.

3. Options

- a. *Create a provision in the program stating that if and when allowed under the MFCMA, a fee will be assessed to cover administrative and enforcement costs. (Section 15.15)*
- b. Adopt the program with implementation contingent on amendments to the MFCMA which allow recovery of administrative and enforcement costs through fees on program participants.
- c. *Require IFQ owners to hire NMFS-certified IFQ inspectors to be present for landings greater than a given size, e.g., any landing over 1,000 pounds. (Section 15.12)*

The Council has identified Option "a" as a preferred option and has asked that additional work be done to develop Option "c".

If the delay which occurs under Option b is measured in years rather than months, problems may be encountered. It is likely that much of the program would have to be reconsidered. Based on the recent findings in the Interagency Staff Report on the Individual Fishing Quota Inspector Program, Individual Quota Enforcement, and Other Implementation Issues, it appears that an inspector program may not contribute significantly to enforcement and therefore may not provide a means for industry payment of some expenses.

Measures to Address Geographic Redistribution of Harvest

1. Problem

Transfer of QS/IFQ may result in a situation in which all or nearly all benefits from the sablefish resource go to one or a few ports and communities. Traditionally, benefits from the resource have been distributed among a large number of coastal communities as well as inland ports such as those in Puget Sound.

There is a social perception that communities adjacent to the waters from which a resource is derived have some right to expect a benefit from extraction of that resource. At the international level, such perceptions are the basis of the 200 mile limit.

2. Evaluation of Problem

Historic distribution of landings and expected distribution of QS are provided in Table 2. The effects of and potential for geographic redistribution of harvest and landings is discussed in Sections 3.3.3 and 4.5 of the draft Amendment 8 SEIS.

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- c. *Require IFQ owners to hire NMFS-certified IFQ inspectors to be present for landings greater than a given size, e.g., any landing over 1,000 pounds. (Section 15.12)*

3. Measures to Address Geographic Redistribution of Harvest

- a. *Issue catch-area specific QS/IFQ (options being developed for formulas to be used at future time if needed). (Section 15.6.3)*
- b. *Prohibit at-sea freezing of IQ sablefish with a grandfather clause for some ongoing freezing activity (preferred option is a vessel-based freezing prohibition). Or, limit trip length.*
- c. *Create exceptions which would allow communities to purchase QS/IFQ and hold the QS/IFQ for their local fisheries (current provisions restrict non-individuals that did not receive an initial allocation from holding QS/IFQ).*
- d. *Create community development quota (CDQ) type program.*

4. Measures to Address High-grading and Discard Mortality

- a. *Create size specific QS/IFQs.*
- b. *Designate minimum amounts of small and medium fish and/or maximum amounts of medium and large fish in a landing.*
- c. *Create prohibitions on high-grading.*
- d. *Ban hook extractors (see sections on regulatory amendment in this document, page I-11).*

5. Measures to Reduce Enforcement Costs

- a. *Implement a less than year-round fixed gear IQ fishery and complete closure of the fishery outside the IQ fishery (i.e., no 250-pound trip limit). (Section 15.8.4) An analysis is also provided of an option in which there would be a 250-pound daily trip limit or the equivalent of the open access trip limit for line gear (whichever is greater), when the IQ fishery is closed.*
- b. *Ban on at-sea transshipment. (Section 15.12)*
- c. *Create an IFQ inspector program (option designated for further development). (Section 15.12)*

6. Measures to Maintain Consistency with License Limitation Program Provisions for Open Access Fishing

- a. *Change the license limitation program to prevent all IQ fishery participants from participating in the open access sablefish fishery.^{3/}*
- b. *Change the license limitation program to prevent all vessels participating in the IQ fishery from participating in the open access sablefish fishery.^{3/}*

^{3/} Unless expanded to cover all fixed gear limited entry vessels or combined with options D1 or D2, this option would have to be expanded to apply to all fixed gear limited entry vessels in order to achieve consistency with the license limitation program.

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- c. Change the license limitation program to prevent all vessels participating in the IQ fishery from participating in the open access sablefish fishery with longline and fishpot gears (refer to footnote 3, previous page).
- d. (1) Limit the scope of the IQ fishery to the period when the IQ fishery is open, allowing licensed fixed gear vessels to harvest using all open access gears against the open access quota when the IQ fishery is closed. (While the IQ fishery is open, harvest by licensed fixed gear vessels using open access gears would be allowed and count against IFQ.)
- d. (2) Limit the scope of the IQ fishery to the period when the IQ fishery is open and to catch with longline and fishpot gear, allowing licensed fixed gear vessels to harvest using all open access gears against the open access quota when the IQ fishery is closed. (While the IQ fishery is open, harvest by licensed fixed gear vessels using exempt gears would be allowed and count against the open access quota.)

(For all options, see section in Part I of this document on IQ program scope, page 1-21.)

7. Measures for the Provision of Information

- a. *Provide that the amount of shares owned by a single person be public information. (Section 15.16)*
- b. *Require that the sale price of shares be reported to NMFS. (Section 15.9.1)*

8. Measures Addressing Quota Share Applications Involving Corporations, Partnerships, Etc.

- a. *Qualifying persons (persons means individuals, corporations, partnerships etc.) who are part of the ownership of a permit may either apply separately from the permit ownership or may file a single application along with the permit ownership. QS would be issued to the qualifying entity submitting the application. Regardless of how the applications are filed, only one equal share will be issued for each permit and that share will be issued in the name of the permit ownership. (e.g., if two individuals are in a partnership, the partnership may make one application and each individual a separate application, but each entity applying must qualify for an allocation based on its own merits.) (Section 15.6.2.1)*
- b. *Applications are filed by and QS issued to the current ownership of the "A" permit. The amount allocated would be based on the catch history of all the qualifying persons/entities that comprise the current ownership of the permit (e.g., if a two individuals are in a partnership, the partnership applies and includes the catch history of the partnership plus any qualifying catch history the individuals have prior to the time they entered the partnership, provided the individuals meet recent participation and other requirements necessary to qualify for an initial allocation).*

Measures to Reduce Windfall and Collect Resource Rents

1. Problem

Those receiving an initial allocation of QS will receive significant windfall profits. A windfall profit is often socially objectionable because it is viewed as an unearned benefit which is not shared by the broader community.

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The windfall profit created by the program will first be received when the shares are issued. These shares provide fishers with the opportunity to (1) participate in a fishery at a per pound level of profit higher than prior to the share issuance or (2) sell the shares. The capital value of the QS and higher profits resulting from lower amortized fixed costs may provide initial QS recipients with an advantage in acquisition of additional QS/IFQ or other fishing assets, as compared to those who buy their way into the fishery.

The IQ program will result in the capture of economic rents from a public resource. Those rents will go to private individuals who receive an initial allocation or purchase QS. In general, resource owners receive some direct payment for the use of the resource. Restrictions in the MFCMA on collection of fees make it difficult to extract rent for the public benefit.

2. Evaluation of Problem

While windfalls will be expected, windfall profits from the sale of QS may be less than perceived windfall profits because (1) these profits would be subject to federal income/capital gains taxes and state income/capital gains taxes in Oregon and California and (2) the IQ program would likely result in the reduction in the value of the QS recipient's limited entry permit and vessel. The portion of the permit value associated with the right it provides to participate in the limited entry sablefish fishery will transfer to the QS, thus, some of the value from the sale of the QS would go toward compensating for that loss. Vessels which are more efficient in the harvest of sablefish may also decline in value. Individuals with groundfish permits for fixed gear who do not receive an initial allocation will receive no compensation for the reduction in the value of their permit.

The size of the windfall profit will be reduced to the degree that program participants must pay for administration and enforcement of the program. Public objection to the profits might diminish to some extent if the program beneficiaries are paying for the bulk of the program costs.

Table 1 provides the estimated size of windfall for individuals receiving different amounts of QS. The number of individuals falling into each category is based on the 25 percent equal distribution option, between-year weighting and personal history. The currently preferred options do not include between-year weighting. The differences in the distribution are probably relatively minor, though to particular individuals the differences may be significant. These windfalls reflect the present value of an expected stream of rents from the resource under the IQ program. Extraction of these rents through a mechanism such as a landings tax would also reduce the size of the windfall going to QS recipients. The primary windfall will be received by those who receive an initial allocation at little additional cost. The only windfall received by subsequent owners will be that which may occur if there is an increase in expected future profits while they are holding the shares, e.g., if there is were to be a sablefish price increase which is expected to be long term or if there were a significant improvement in the efficiency of harvest methods or technology.

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TABLE 1. Estimate of windfall given distribution of QS based on preferred options.

Range of QS Initially Issued	Number of Persons	Average Shares Per Person	Average Pounds IFQ Per Person ^{a/}	Average Gross ^{b/} Windfall Per Person ^{c/}
.00- .10	0			
.10- .20	37	0.15	8,095	\$32,381
.20- .30	16	0.24	13,362	\$53,447
.30- .40	10	0.34	18,916	\$75,663
.40- .50	6	0.44	24,391	\$97,564
.50- .75	18	0.62	33,975	\$135,901
.75-1.00	12	0.89	48,800	\$195,201
1.00-1.50	9	1.18	64,963	\$259,852
1.50-2.00	3	1.74	95,947	\$383,790
2.00-3.00	6	2.40	132,185	\$528,740
3.00-4.00	4	3.57	196,900	\$787,599
4.00-5.00	4	4.59	252,675	\$1,010,699
5.00-7.00	0			
Total Persons	125		Total gross windfall from IQ program @ \$5/pounds and a 2,500 mt quota: \$27,550,000	

a/ Based on a 2,500 mt quota.

b/ Prior to taxes and not taking into account reduction in the value of other assets.

c/ Based on stable 2,500 mt quota and a QS value equivalent to \$5.00 per pound.

TABLE 2a. Fixed gear landings and expected distribution of QS by management area.

	Total mt fixed gear landings by region		Total mt fixed gear landings by region		Historic regional landings normalized to a 2,500 mt quota		Landings by region if initial IQ recipients retain the shares and land them according to their historical tendency	
	1984-1991 ^a		1992-1993		1984-1991		1992-1993	
	MT of Landings or Individual Fishing Quota							
Puget Sound	11,460.8	1,770.9	661	563	573	557		
Wash. Coast	3,300.4	1,104.2	190	351	156	152		
N. Oregon	8,887.3	1,873.8	513	596	501	491		
S. Oregon	7,899.4	1,310.2	456	417	602	586		
N. Calif.	3,773.9 (3,215.4)	892.2	218	284	190	219		
Mid. Calif.	6,323.1 (5,295.5)	481.7	365	153	405	422		
S. Calif.	1,680.7 (1,593.0)	427.6	97	136	73	74		
Coastwide	43,325.7	7,860.6	2,500	2,500	2,500	2,500		
			Percent of Total					
Puget Sound	26	23	26	23	23	22		
Wash. Coast	8	14	8	14	6	6		
N. Oregon	21	24	21	24	20	20		
S. Oregon	18	17	18	17	24	23		
N. Calif.	9	11	9	11	8	9		
Mid. Calif.	15	6	15	6	16	17		
S. Calif.	4	5	4	5	3	3		

a/ Numbers in parentheses are based on actual gear codes reported on the fish ticket. The larger number reported for each area is based on adjustments made to account for misreadings of gear as evidenced by catch composition.

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TABLE 2b. Geographic distribution of catch by International North Pacific Fishery Commission.

	1983-1984	1992-1993
	Average Catches (pounds)	
Vancouver	2,963,874	2,067,217
Columbia	6,109,419	4,054,776
Eureka	537,586	1,181,154
Monterey	1,083,803	883,141
Conception	2,861,805	474,651
Unidentified	301	1,705
Totals	13,556,787	8,662,642
	Average Share of Catch	
Vancouver	0.22	0.24
Columbia	0.45	0.47
Eureka	0.04	0.14
Monterey	0.08	0.10
Conception	0.21	0.05
Unidentified	0.00	0.00

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Requirements that the owner be on board, prohibitions on leasing and non-individual ownership of QS/IFQ, and caps on the amount of QS/IFQ which may be owned are expected to slow any tendency for redistribution and concentration of ownership. However, these measures do not create any pressure for QS/IFQ to disperse rather than concentrate. Ultimately, the possibility still exists that all shares could be concentrated in the hands of a few vessels operating out of a few ports, as few as 34 vessels given a 3 percent cap on the amount of IFQ landed by a single vessel and fewer vessels if the owners of some vessels receive more than 3 percent at the time of initial allocation.

Factors which may tend to cause concentration of landings include:

- Higher exvessel prices in ports closer to markets and distribution chains
- Concentration of QS/IFQ on fewer vessels (if larger vessels are more efficient at harvesting) or into the hands of fewer owners
- Lower IFQ inspector costs in areas where landings are more concentrated (applies primarily if industry must directly hire IFQ inspectors)
- Use of technologies which allow vessels to stay out longer and harvest more fish (freezing) thereby reducing the per pound costs of delivering fish to a more distant port in which price per pound may be higher

Factors which may tend to limit geographic redistribution and concentration of landings include:

- Less travel time and cost to areas with higher catch per unit of effort (CPUE) (assumes CPUE will decline around any ports in which sablefish vessels concentrate)
- Coastal processor and community incentive to consolidate and secure access to product (current provisions requiring an owner to be on board may raise significant barriers to processor and community acquisition of QS/IFQ)
- Processor pressure on a harvester for delivery of IQ sablefish as a condition for acceptance of other products the harvester would like to delivery

3. Options

- a. Issue catch-area specific QS/IFQ (options being developed for formulas to be used at future time if needed). (Section 15.6.3)*
- b. Prohibit at-sea freezing of IQ sablefish with a grandfather clause for some ongoing freezing activity (preferred option is a vessel-based freezing prohibition). Or, limit trip length.*
- c. Create exceptions which would allow communities to purchase QS/IFQ and hold the QS/IFQ for their local fisheries (current provisions restrict non-individuals that did not receive an initial allocation from holding QS/IFQ).*
- d. Create community development quota (CDQ) type program.*

The only solution that would guarantee maintenance of some semblance of the historic distribution of landings would be to require that QS/IFQs be landing-area specific, e.g., shares would be issued designating the state in which landings may be made. This alternative was initially abandoned because of concern about consistency with U.S. policy on North American

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Free Trade Agreement (NAFTA) and General Agreement on Trade and Tariffs (GATT) issues. However, it may be possible to implement such a measure if the option was provided to land either in the designated area or in another country. The other solutions proposed decrease the probability that landings will be concentrated in one area without providing any guarantee against this possible eventual outcome (with the exception of the CDQ option).

Measures to Address High-grading and Discard Mortality

1. Problem

As long as there is a price differential for different sized sablefish there will be an incentive to high-grade, i.e., discard small fish which have a lower value per pound in order to retain a higher proportion of large fish with a relatively higher value per pound. In this manner, the IFQ holder is able to generate more gross revenue per pound of IFQ. However, any excess mortality resulting from high-grading decreases the long term productivity of the stock.

2. Evaluation of Problem

High-grading is a problem only to the degree that discarded fish die. The magnitude of discard mortality may be much lower than the magnitude of high-grading. Little additional discard mortality may result from high-grading by use of a larger mesh size in the panels of pots; a fairly low mortality may result from high-grading by shaking small fish off hooks as the gear is brought on board; and very high percent mortality may result if small fish are discarded off the deck only as larger fish are acquired to replace them.

Unless there is sufficient economic incentive, high-grading will not occur. In general, high-grading is more likely when the net profits from high-grading are more than the net profits which may be made from other fisheries available to the vessel. Potential revenue from high-grading is illustrated in Table 3 for two catch composition mixes and two sets of exvessel prices. The high-grading scenario used in the examples is one in which a fisher high-grades until there are no extra small fish in a 1,000 pound catch.

The examples in the top half of the table are based on the average size composition of dressed fish as observed by Washington port samplers. In these examples, 1,167 pounds of sablefish would have to be caught and discarded in order to acquire enough small and larger fish to replace the 538 pounds of extra small fish in the initial 1,000 pounds of fish caught. Under the pricing mix, where there is a greater price difference between extra-small and larger size categories ("Higher Price Differential Example"), the value of the 1,167 pounds of discarded extra-small fish would be \$883 and the value of the 538 pounds of retained catch would be \$725. The net increase in the value of the 1,000 pounds of retained catch would be \$317, or \$0.27 for every additional pound (1,167 pounds) which must be caught in order to high-grade the extra-small fish out of the catch. In other words, high-grading under the example scenario would be like fishing for a species which brings \$0.27 per pound exvessel and has a CPUE similar to sablefish. It would be necessary to more than double the gear deployed in order to high-grade all the extra small fish from the catch. If the net revenue after fishing costs are deducted (including the costs of the fishing time) is less than the net revenue which may be generated from other fishing activities, then the incentive for high-grading will be low. The \$0.27 revenue per additional

TABLE 3. Net increase in revenue from a thousand pound landing under different price and catch composition assumptions (highgrading = fishing until all extra-small fish in 1,000 pounds of catch are replaced by larger fish)—prices based on data reported for Washington and Oregon landings for 1991 through 1993.

Size Categories	Pounds				Higher Price Differential Example		Lower Price Differential Example	
	Catch Composition (by weight)	Un-highgraded Catch	Highgraded Catch	Un-highgraded Catch	Highgraded Catch	Price (\$/lb)	Un-highgraded Revenue (\$)	Highgraded Revenue (\$)
		Examples Based on Average Catch Composition Off Washington (1986 through 1993)						
Extra-Small	0.54	538	0	408	0	1.07	578	0
Small	0.24	240	520	283	613	1.40	336	728
Medium	0.17	174	377	265	574	1.62	283	613
Large	0.05	48	103	73	158	1.66	79	172
Total		1,000	1,000	1,028	1,345		1,276	1,513
Total Pounds Discarded (Additional Catch)			1,167					
Total Pounds Replaced			538		883			1,252
Value of Discarded Catch					725			815
Value of Replacement Catch					317			237
Net Increase in Revenue						0.20		
Gross Revenue Per Pound of Additional						0.27		
		Examples Based on a 1/3 Reduction in the Proportion of Extra-small Fish						
Extra-Small	0.36	359	0	272	0	1.07	385	0
Small	0.33	333	519	393	612	1.40	467	728
Medium	0.24	242	377	368	574	1.62	393	613
Large	0.07	66	103	102	158	1.66	110	172
Total		1,000	1,000	1,134	1,345		1,355	1,513
Total Pounds Discarded (Additional Catch)			560					601
Total Pounds Replaced			359		424			543
Value of Discarded Catch					483			158
Value of Replacement Catch					211			
Net Increase in Revenue						0.28		
Gross Revenue Per Pound of Additional						0.38		

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pound caught applies whether the amount of extra gear deployed is sufficient to allow discard of all extra smalls or just a few. The second example in the top half of the table shows that a lower price differential between size categories reduces the gross revenue per additional pound of fish caught to \$0.20. The scenarios on the top half of the table are based on an average catch composition over an eight-year period. However, it is likely that some fishers are more skilled than others at catching larger fish and that with a slower pace of harvest and less competition for gear placement on the grounds some fishers may decrease the proportion of small fish in their initial catch. The examples in the bottom half of the table show the increase in high-grading revenue which might result if a fisher is able to reduce the proportion of smalls in the initial catch by one-third. The pricing mixes used are the same as those used in the top half of the table. These examples illustrate that a fisher with the ability to high-grade through a better fishing strategy may also have more of an incentive to high-grade fish caught.

3. Options

The Council considered the following possible means of addressing discard mortality.

1. Size specific QS/IFQs
2. Minimum amounts of small and medium fish and/or maximum amounts of medium and large fish in a landing
3. Prohibitions on high-grading
4. Ban on hook extractors

The Council's current preferred option is a ban on hook extractors. Because a ban on hook extractors would involve a regulatory amendment rather than a plan amendment, the specific options and language being considered for this ban are highlighted in a separate section on the issue at the end of this part (Page I-31).

Measures to Reduce Enforcement Costs

1. Problem

Initial estimates of enforcement costs (\$1 million annually) were about 20 percent of the annual value of the limited entry fixed gear sablefish fishery. Estimates of the benefits of the program vary greatly. Some estimates would result in significant benefits (\$15.4 million) even with a \$1 million annual enforcement cost and others resulted in significant losses (-\$8.4 million) with a \$1 million enforcement costs. Thus, there appeared to be substantial risk of a negative benefit-cost result. It was determined that if total administrative and enforcement costs could be held to around \$550,000, a neutral or positive economic benefit should result given the range of assumptions in the analysis (assuming that the worst case will not occur in every area in which assumptions were made). Annual administrative costs have been estimated at under \$100,000 per year leaving just over \$450,000 for the enforcement costs. The closer to this \$450,000 figure enforcement costs come, the lower the likelihood of a negative outcome and the smaller the negative outcome if one does occur. The most recent enforcement cost estimate is about \$750,000.

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2. Evaluation of the Problem

The primary reasons for implementing in IQ program are economic (increased efficiency) and social (e.g., increased safety). Therefore whether or not a program is expected to generate net benefits is an important factor in determining whether the program should be implemented. Enforcement costs have been identified as one of the key factors affecting the outcome of the benefit-cost analysis.

Estimation of enforcement costs is itself difficult and uncertain. First, unmet status quo needs must be separated from new needs for enforcement generated as a result of the IQ program. Second, there is no standard for what constitutes an adequate level of compliance. Third, there is little objective information about the level of fishery enforcement needed to achieve a given level of compliance in the fishery.

Enforcement benefits also are not completely included within the analysis. The presence of additional enforcement officers for the IQ fishery will increase the general level of compliance of the participants in all fisheries with which they come into contact. Similarly, enforcement officers present for enforcement in other fisheries benefit the IQ program by their presence.

3. Options

- a. *Implement a less than year-round fixed gear IQ fishery and complete closure of the fishery outside the IQ fishery (i.e., no 250-pound trip limit). (Section 15.8.4)* An analysis is also provided of an option in which there would be a 250-pound daily trip limit or the equivalent of the open access trip limit for line gear (whichever is greater), when the IQ fishery is closed.
- b. *Ban on at-sea transshipment. (Section 15.12)*
- c. *Create an IFQ Inspector Program (option designated for further development). (Section 15.12)*

a. Less than Year-Round Fixed Gear IQ Fishery

Restricting the IQ fishery to a less than year-round fishery was identified as one means by which a reduction in enforcement costs could be achieved. If the option of having a less than a year-round IQ fishery is adopted, either (1) the fixed gear limited entry fishery would be entirely closed to sablefish retention during the remainder of the year (Council's preferred option) or (2) there would be a small trip limit under which sablefish could be retained (250 pounds or the equivalent of the open access fishery line gear limit). The IQ program can be set up to allow annual decisions to implement either option, in part, by modifying the scope of the IQ program to limit it to the period during which the IQ fishery is open.

The shortened IQ season generates a conflict with the license limitation program (Amendment 6). Resolution of this conflict is discussed below in the section "Measures to Maintain Consistency with License Limitation Program Provisions for Open Access Fishing."

b. Ban on At-sea Transshipment

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At-sea transshipments are difficult to monitor. There are believed to be few, if any, at-sea transshipments of sablefish at the present time. A ban on these transshipments would reduce the enforcement effort required by the program.

c. IFQ Inspector Program

Enforcement and industry members met in November 1993 to work together to identify means by which enforcement costs might be reduced. The current slate of requirements listed in Section 15.12 of the IQ program represent restrictions on activity which industry was willing to accept to bring enforcement costs down to a reasonable level (e.g., restricted times of landing and advance call-in requirements). One of the other possibilities identified was an IFQ inspector program. Under this program, an observer would be present at every off-loading of a significant amount of sablefish to verify the amount landed.

Amendment language authorizing the inspector program is contained in paragraph "f" of Section 15.12 of the IQ program. An example inspector program is included as Appendix C to this document and a cost estimate is provided as Appendix D.

At the time of the industry/enforcement meeting, there was general agreement that an inspector program would reduce enforcement costs. (Since then, the IFQ inspector program has been identified as a mechanism through which industry might bear a portion of the program costs.) At a September 1994 ad hoc meeting of interagency staffs, there was consensus among those present that the IFQ inspector program would lend little to the enforcement effort. (See Interagency Staff Report on the Individual Fishing Quota Inspector Program, Individual Quota Enforcement, and Other Implementation Issues).

Measures to Maintain Consistency with License Limitation Program Provisions for Open Access Fishing

1. Problem

Under the license limitation program, catch by permitted vessels with any gear counts against the limited entry quota until the limited entry quota is filled. After the limited entry quota is filled, vessels are allowed to use open access gears to fish on the open access quota.

Under the scope currently proposed in the IQ program, all sablefish catch by vessels with a limited entry permit for a fixed gear would count against the limited entry quota. The scope was specified anticipating that since the IQ fishery would be year round, the fishery would never close and that the program would therefore be consistent with the license limitation program. However, if the IQ fishery is to be closed for part of the year, the current scope would not allow limited entry fixed gear vessels to use open access gears and land bycatches or directed catches of sablefish under open access regulations. To be consistent with license limitation, the scope of the IQ program should be restricted to the period of time when the limited entry fixed gear sablefish fishery is open.

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2. Evaluation of the Problem and Options

This problem and its resolution affect the license limitation program as well as the IQ program. A detailed evaluation of the problem and options will be found under the section on measures affecting the license limitation and IQ program (Page I-17).

Measures for the Provision of Information

1. Problem

Information useful in government and public evaluation of the performance of the program might be considered confidential if provisions are not made otherwise (e.g., amounts of QS held by individual persons and trading prices). Absent the availability of this information it will be difficult for the public to meaningfully comment on proposals to adjust the IQ program and in some cases difficult for the government to evaluate performance of the program. Dissemination of summarized information on share trading prices is also important to aid the functioning of the market (and hence help ensure that transactions occur at fair prices). This is particularly important if trades become relatively infrequent, as might be the case with some of the more restrictive options being considered to govern IQ transfers.

2. Evaluation of the Problem

In developing analytical documents in support of Council allocational decisions, analysts have encountered increasing problems with inability to provide information because of the current status of the data as confidential. Aggregation of the data is generally required, in which case important information may sometimes be lost.

If trades become relatively infrequent, as might be the case with some of the more restrictive options being considered to govern IQ transfers, there is a significant possibility that public knowledge of fair market prices will not be widespread. This increases the possibility of unfair transactions with inefficient outcomes.

3. Options

- a. *Provide that the amount of shares owned by a single person be public information. (Section 15.16)*
- b. *Require that the sale price of shares be reported to NMFS. (Section 15.9.1)*

Measures Addressing Who Qualifies for OS When More than One Entity Owns the Same Permit

1. The Problem

A new issue has recently been identified affecting situations where an entity such as a corporation or partnership owns an "A" permit and individuals or other businesses that participate in the ownership of that "A" permit have accrued catch history that qualifies for QS issuance.

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The issue has to do with whether the entity (such as a corporation or partnership) that owns the "A" permit will be issued the QS, or whether the entities (individuals, corporations or partnerships) that have ownership interest in the entity that owns the A permit, and that owned the vessels at the time they made the landings, may receive the QS.

If separate application is allowed, more than five or eight years of catch history may be claimed. For example, two individuals who have owned a vessel in a partnership since 1989 but previously owned vessels separately, could separately meet the requirements to qualify for QS and the partnership could qualify for QS. If three applications were filed, on the partnership application there would be a claim for best five out of eight years for 1989 through 1991 and each individual would claim his best five out of eight years for 1984-1988. Thus, the currently existing entity would claim all eight years in total between the three applications, whereas other qualifiers would only be able to claim 5 of 8 years. This becomes a potential question of arbitrariness unless a rationale can be provided for why one current permit holder should be able to claim all eight years and another only five, particularly if the total catch of each of the current owners is otherwise identical.

(Notes: (1) Ability of a current permit owner to structure its applications so as to claim all eight years would also diminish the shares of every other applicant, and (2) Provisions of the program are structured so that even if separate applications are allowed only one equal share will be issued for each permit and those shares will be issued in the name of the ownership of the permit.)

2. Evaluation of the Problem

There is no information at this time on how many potential qualifiers could be affected by this problem.

3. Options

The current specification allowing all the owners of a single permit who meet the qualifying requirements to apply and receive QS separately, if they so desire, is implicit within the language of the program. It can be explicitly stated as follows:

- a. *QS may be issued to anyone meeting the following qualifying requirements: permit ownership, recent participation, and minimum participation. Qualifying persons (persons means individuals, corporations, partnerships, etc.) who are part of the ownership of a permit may either apply separately from the permit ownership or may file a single application along with the permit ownership. QS would be issued to the qualifying entity submitting the application. Regardless of how the applications are filed, only one equal share will be issued for each permit and that share will be issued in the name of the permit ownership. (e.g., if two individuals are in a partnership, the partnership may make one application and each individual a separate application, but each entity applying must qualify for an allocation based on its own merits.) (Section 15.6.2.1)*
- b. QS may be issued to any entity owning a permit in its entirety (the "permit ownership") and meeting the following requirements (permit ownership, recent participation, and minimum participation). The QS may be issued on the basis of the catch history of any

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entity participating in the permit ownership who meets those requirements. Applications are filed by and QS issued to the current ownership of the "A" permit. The amount allocated would be based on the catch history of all the qualifying persons/entities which comprise the current ownership of the permit (e.g., if two individuals are in a partnership, the partnership applies and includes the catch history of the partnership plus any qualifying catch history the individuals have prior to the time they entered the partnership, provided the individuals meet recent participation and other requirements necessary to qualify for an initial allocation).

Measures Affecting the License Limitation and IO Programs

IO Program Scope: Effects on Open Access Participation and Non-IFO Limited Entry Vessels

A proposal to restrict the IQ fishery to four months creates a conflict with the license limitation program by preventing vessels with licenses from harvesting sablefish using open access gears.^{4/} The proposal to restrict the season to four months is intended to reduce administrative and enforcement costs. The current scope of the IQ program covers all sablefish landings by vessels with permits for fixed gear^{5/}. This scope would allow a vessel using shrimp gear to land its bycatch of sablefish using IFO. The IQ program scope combined with restriction of the IQ fishery to four months prevents sablefish landings by fixed gear limited entry vessels with open access gear outside the four month IQ fishery. Under the license limitation program, catch by limited entry vessels with open access gears counts against the limited entry allocation until the limited entry allocation is filled. After the limited entry allocation is filled, limited entry vessels are allowed to use open access gears to fish on the open access allocation.^{6/}

While this inconsistency needs to be resolved, the amount of harvest at issue is relatively small, judging from the 1993 catch of all current license holders. In 1993 less than 5 mt were caught while the IQ season was closed. This was just over one-fifth of 1 percent of the total revenue for limited entry vessels which caught sablefish in the open access fishery. (Table 4)

4/ In addition to gears exempted from the limited entry program, open access gears include longline and fishpot gears, as long as there is not a permit for the gear registered for use with the vessel.

5/ The scope of the program is currently defined as:

All nontreaty commercial harvest of sablefish in all Council-managed areas by persons using vessels with "A" permits for longline and fishpot gear, except for harvest by such vessels using groundfish trawl gear under an "A" permit for trawl gear.

6/ Because there is currently a small amount of quota set aside to allow the limited entry fixed gear sablefish fleet to land 250 pounds of sablefish per day, the fishery is never closed. Therefore, all catch by limited entry fixed gear vessels using open access gear continues to count against the limited entry quota.

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TABLE 4. Estimated 1993 harvest and value of sablefish caught outside the limited entry derby fishery by "A"-permit vessels using open access gear.

	During IQ Season (July- October)	During IQ Closure
Number of vessels making "Open Access" landings	128	104
Open Access sablefish round weight pounds	18,857	20,609
Open Access sablefish revenue	\$15,445	\$17,721
Total 1993 Revenue of Fixed Gear Licensed Vessels with Open Access Landings	\$9,532,861	\$8,138,984
Sablefish revenue divided by total revenue	0.16%	0.22%
Average of vessel percentages of annual revenue from Open Access sablefish	2%	3%
Average sablefish revenue per vessel	\$121	\$170
Average total revenue per vessel per year	\$74,475	\$78,259

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To resolve this contradiction, the Council's current preferred option is to modify the license limitation program to:

- a. Change the license limitation program to prevent all IQ fishery participants from participating in the open access sablefish fishery. This includes a prohibition, while the IQ fishery is closed, on the use of any open access gear to land sablefish by vessels, vessel owners, operators and crew owning or using IFQ.^{7/}

This provision achieves consistency for IFQ holders primarily by modifying the license limitation program. The stated rationale for the option is that participants in the IQ fishery should not also have the opportunity to benefit from harvest from the open access sablefish allocation. **This ban would have to be extended to cover all fixed gear licensed vessels in order to establish complete consistency between the programs.**

Other options primarily involving modification of the license limitation program include:

- b. Change the license limitation program to prevent all vessels participating in the IQ fishery from participating in the open access sablefish fishery.^{7/}

This is a narrower version of Option "a" in that it applies only to vessels. It would allow crew members or non-owner operators to incrementally acquire ownership in the fishery through the purchase of IQ without having to forego employment opportunities in the open access fishery (e.g., crewing or operating a shrimp trawler which retains sablefish bycatch). It also allows individuals who own an open access vessel and a limited entry vessel to continue to operate their open access vessels. **This ban would have to be extended to cover all fixed gear licensed vessels (including non-IFQ holders) in order to establish complete consistency between the programs.**

- c. Change the license limitation program to prevent all vessels participating in the IQ fishery from participating in the open access sablefish fishery with longline and fishpot gears.^{7/}

This option further narrows Options "a" and "b" in that it applies only to longline and fishpot gear when these gears are used as open access gears. For example, it prevents a fishpot vessel from fishing sablefish in the open access fishery with longline gear but does not prevent it from retaining sablefish bycatch taken in shrimp trawl or salmon trolling operations. **This ban would have to be extended to cover all fixed gear licensed vessels (including non-IFQ holders) in order to establish complete consistency between the programs.**

An option which involves changing only the scope of the IQ program would be to:

^{7/} Unless expanded to cover all fixed gear limited entry vessels or combined with options D1 or D2, this option would have to be expanded to apply to all fixed gear limited entry vessels in order to achieve consistency with the license limitation program.

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- d. (1) Limit the scope of the IQ fishery to the period when the IQ fishery is open, allowing licensed fixed gear vessels to harvest using all open access gears against the open access quota when the IQ fishery is closed. (While the IQ fishery is open, harvest by licensed fixed gear vessels using open access gears would be allowed and count against IFQ.)

This change would allow the rules established in the license limitation program to remain in place without modification. Under those rules, if the IQ fishery is closed, during the closure limited entry fixed gear vessels using any open access gear would be allowed to retain their sablefish catch and count it against the open access allocation.

This change would also be required to allow a small daily landing limit for licensed vessels during the period the IQ fishery is closed. Selection of this option does not preclude selection of Options "a", "b" or "c", but it does make selection of Options "a", "b" or "c" unnecessary for resolving the conflict between the license limitation and IQ programs.

For purposes of defining the prohibitions on participants in the sablefish IQ fishery, the attendants at the ad hoc meeting of agency staffs recommended that the prohibition extend from the time the IFQ is first held or used during the IQ season until the commencement of the following IQ season. In this way, temporary transfers could not be used to avoid the prohibition.^{8/}

A side issue related to scope is the effect of scope on open access participation by licensed vessels not participating in the IFQ program. At present, it appears that the owners of up to about 100 vessels may receive no QS at the time of initial allocation. The scope of the program requires these vessels to hold IFQ for any landings made with open access gear while the IQ fishery is open. Yet there is no provision for these vessels to receive an initial allocation of sablefish. These vessels will have to either begin discarding their sablefish bycatch with open access gear and limited entry gear or purchase the needed QS/IFQ.

One option to address this situation would be to provide every permit owner with a share from the equal allocation. Such an option may have little impact on the initial distribution as incentive already exists for nonqualifying permit holders to form new partnerships with qualifying individuals who have no permits in order to receive an initial allocation. This may result in the owners of most permits qualifying for some IFQ. Another option would be to limit the scope of the IQ program to catch taken with longline and fishpot gear as follows:

- d. (2) Limit the scope of the IQ fishery to the period when the IQ fishery is open and to catch with longline and fishpot gear, allowing licensed fixed gear vessels to harvest using all open access gears against the open access quota when the IQ fishery is closed. (While the IQ fishery is open, harvest by licensed fixed gear vessels using exempt gears would be allowed and count against the open access quota.)

8/ If there is a requirement for the surrender of a sizeable portion of QS with each transfer, concern over the significance of this means of circumventing the prohibition would be substantially reduced.

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This scope would allow all vessels, including any not receiving an initial allocation, to continue to use open access gears to catch sablefish without having to hold IFQ for the landing. Some harvest from the limited entry fixed gear allocation would have to be set aside to cover open access landings during the period the IQ fishery is open.

In the current management regime (license limitation), all sablefish harvest by fixed gear limited entry vessels using open access gears is counted against the limited entry quota. Under the current IQ program scope, or the scope outlined in options "d" and "d2", when the IQ fishery is closed, all sablefish harvest by open access gears would count against the open access allocation (unless there is a small trip limit provision which keeps the limited entry fixed gear sablefish fishery open). If options "a", "b", or "c" were adopted, then participation in the open access fishery by participants in the IQ fishery would be restricted. Table 5 shows the interaction of these options as they pertain to limited access participant participation in the open access fishery and the allocation against which any open access harvest would be counted.

Specific changes to the language of the license limitation program (Chapter 14 sections) and proposed fixed gear sablefish IQ program (Chapter 15 sections) required to implement options "a" through "d" are as follows.

14.2.1 Federal Limited Entry Permits Required Only for Gears Fishing on the Limited Access Quota

2. Vessels using exempted gears (all gears other than trawl, longline and fishpot) or using longline or fishpot gear without a permit endorsed for one of those gears may continue to catch groundfish under an open access system. (Exempted, longline and fishpot gears used by vessels without endorsements for those gears are termed open access gears.) *However, with the implementation of Chapter 15 on sablefish IQs, [OPTIONS:*
 - a. *no person or vessel owning or using sablefish QS/IFQ, may participate in the harvest of sablefish under the open access system.*
 - b. *no vessel from which IQ sablefish is harvested may harvest sablefish under the open access system (does not allow sablefish harvest with any open access gear while the IQ sablefish fishery is closed).*
 - c. *no vessel from which IQ sablefish is harvested may harvest sablefish with longline or fishpot gear under the open access system (allows exempted gear harvest of sablefish but not open access longline or fishpot harvest).*
 - d. *NO CHANGE TO CURRENT TEXT OF THIS SECTION REQUIRED]*

[FOR ALL OPTIONS] Note: When the sablefish IQ fishery is open, landings of sablefish with open access gear by vessels with limited entry permits will count against the limited entry quota and require sablefish IFQ. Therefore, these landings will be allowed as part of the fixed gear sablefish IQ program--which is part of the limited entry fishery.

4. Any groundfish catch by vessels with a limited entry permit will be counted against the quota for the limited entry gears while the fishery for the limited entry gear for which its permit is endorsed is open. A vessel may not carry or deploy limited entry gear for which its permit is endorsed when the limited entry fishery for that gear is closed. Once the limited entry fishery for the gear for which the permit is endorsed has closed, any

TABLE 5. Implication of options addressing inconsistency between the current IQ program scope and the license limitation program for participation in the open access fishery and the allocation from which open access harvest is deducted. Shaded boxes indicate the Council's preferred option.

Options for IQ Program Scope:		Option (d) IQ Program Covers All Sablefish Landings By Fixed Gear IE Vessels While the IQ Fishery Is Open			Option (d1) IQ Program Covers Sablefish Landings Made By Fixed Gear IE Vessels with Longline or Fishpot Gear While the IQ Fishery is Open		
Options for Change to License Limitation Program:	(a) Ban All IQ Participant Vessels from OA	(b) Ban All IQ Participant Vessels from OA	(c) Ban All IQ Participant Vessels from OA Longline and Fishpot Gear	(a) Ban All IQ Participants from OA	(b) Ban All IQ Participant Vessels from OA	(c) Ban All IQ Participant Vessels from OA Longline and Fishpot Gear	Allowed with exempt gear against IE allocation not allowed with OA longline or fishpot gear
Sablefish Harvest in the OA Fishery By Fixed Gear IE Vessels Without IFQ When	Not Allowed	Not Allowed	Not Allowed	Not Allowed	Not Allowed	Not Allowed	Allowed with all OA gear against IE allocation
Sablefish Harvest in the OA Fishery By Fixed Gear IE Vessels With IFQ When	Allowed with all OA gears. Counts against IFQ.	Not Allowed	Allowed with all OA gears. Counts against IFQ.	Allowed with all OA gears. Counts against OA allocation.	Allowed with all OA gears. Counts against IFQ.	Allowed with all OA gears except longline or fishpot. Counts against IE allocation.	Allowed with all OA gears except longline or fishpot. Counts against IE allocation.
Sablefish Harvest in the OA Fishery By Vessel Owners with IFQ, Non-owner Operators and Crew with IFQ When	Allowed on fixed gear IE vessels	Allowed on any vessel	Allowed on any vessel	Allowed on any vessel	Allowed on fixed gear IE vessels	Allowed on any vessel	Allowed on any vessel
	Not allowed on any vessel	Allowed on non-IE vessels	Allowed on non-IE vessels	Allowed on any vessel	Not allowed on any vessel	Allowed on non-IE vessels and on IE vessels using exempt gear	Allowed on non-IE vessels and on IE vessels using exempt gear

a/ Definitions:

OA: Pertaining to the Open Access Fishery

IE: Pertaining to the Limited Entry Fishery

Exempt gear: All gear except groundfish trawl, longline, and fishpot.

OA gear: Exempt gear and longline and fishpot gear used by vessels without a permit for those gears.

b/ This table assumes there would be no fixed gear limit entry harvest outside of the IQ season (e.g. no 250 pound daily landing limit). If there were a small ongoing limited entry sablefish fishery outside the IQ fishery then, contrary to what is shown in this table, any open access harvest by limited entry vessels while the IQ fishery was closed would still count against the limited entry fishery quota. This would require a set aside to cover such harvest.

c/ "No new limit on open access participation" is not an option which can be combined with the current scope as this would not resolve the current conflict between the license limitation program and the scope of the IQ program.

d/ This combination of options would not create consistency between the IQ program and the license limitation program.

e/ Example: A vessel with IFQ and a fishpot license may not harvest sablefish with longline gear in the OA fishery.

f/ IFQ would not be required to cover these landings because they are outside the scope of the program. An allocation would have to be set aside from the fixed gear limited entry fishery.

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groundfish landings by the vessel with exempted gear, or limited entry gears for which no endorsement is held, will count toward the open access quota. (OPTIONS "a", "b", OR "c", INSERT: *However, in some circumstances sablefish landings may be prohibited, as per paragraph 2 of this section.* The catch of vessels fishing without limited entry permits will count toward the open access quota regardless of what open access gear is used.

15.5 Scope of the Fixed Gear Sablefish Individual Quota Program

Fixed Gear Sablefish IQ Program Scope: All nontreaty commercial harvest of sablefish in all Council-managed areas by persons using vessels with "A" permits for longline and fishpot gear [OPTION "c" or "d", INSERT: *while the limited entry sablefish fishery is open,*] except for harvest by such vessels using groundfish trawl gear under an "A" permit for trawl gear.

15.14 Prohibitions on Retention

Retention of quota fish is prohibited by vessels holding a limited entry permit for longline or fishpot gear unless sufficient IFQ is held to allow for a legal landing of the catch retained.

UNDER OPTIONS "a", "b" OR "c" THE FOLLOWING WOULD BE ADDED TO THIS SECTION, UNDER OPTION (d) THERE WOULD BE NO ADDITION: When the sablefish IQ fishery is closed, [Options: (a) participants in the IQ program may not retain any open access sablefish; (b) vessels which have landed IQ sablefish may not retain any open access sablefish, (c) vessels which have landed IQ sablefish may not use open access fishpot or longline gear to land IQ sablefish. Note: The scope of the IQ program is defined so as to require the use of IFQ to cover any sablefish landing by vessels with limited entry permits, including those landings made with open access gear, as long as the IQ fishery is open.

Ban on New At-Sea Freezing of IQ Sablefish

The Council is considering a ban on new at-sea freezing of IQ sablefish as a preferred option to help address concerns about possible geographic redistribution of harvest. The options are analyzed in the analytical volume accompanying this document in a section on measures to control geographic redistribution of landings. The use of technologies such as freezing sablefish at sea was identified as one of the factors which may lead to a concentration of harvest. It is believed that freezer vessels are more likely than other vessels to land their catch outside of the area of harvest because freezer vessels are able to stay out longer and take on more product, thus reducing the per pound cost of delivering to a more distant centralized port which may provide the harvester with higher net profits.

The ban on at-sea freezing of limited entry fixed gear sablefish would be accompanied by provisions grandfathering in some amount of freezing activity. This activity can be grandfathered in either by (suboptions):

- a. issuing permit endorsements allowing vessels to freeze sablefish; or
- b. creating sablefish freezer IQ (quota which may but does not necessarily have to be landed frozen).

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Suboption "a" would be implemented through changes to the license limitation program. There are three primary questions to be resolved in specifying this suboption:

1. Should these endorsements be transferable with the permit?
2. What should be the criteria be for endorsement issuance?
3. How should the permit combination rules be applied to permits with sablefish freezer endorsements?

With respect to the endorsement issuance criteria, information on whether vessels have frozen sablefish is not generally available from fish tickets. One option may be to allocate based on the vessel having existing freezer capability and having made sablefish landings subsequent to the acquisition of that freezing capability. A stricter allocation criteria would require that in addition to demonstrating ability to have landed frozen sablefish the vessel owner provide evidence of actual landings of frozen sablefish.

Under Suboption "b" (the creation of freezer IQ), initial allocation based on historic activity would be nearly impossible because there is little if any landings information on whether sablefish has been landed frozen. A simple way to achieve the initial allocation would be to issue every applicant a certain percentage of the QS as freezer QS. Freezer QS could be used to land sablefish either frozen or unfrozen. A vessel that wished to freeze product could trade its nonfreezer quota for freezer quota issued to others. Such exchanges could be exempted from MFCMA provisions requiring transfer fees or the surrender of matching quota on transfer.

To implement the above two suboptions, the following specific changes would be required in the current language of the license limitation and fixed gear sablefish IQ program. (Status quo, no ban on freezing, requires no change to the current FMP and proposed amendment).

14.6 Fixed Gear Sablefish Freezer Vessel Endorsements

[Suboption "a". This section is part of the suboption which would allow for some at-sea freezing of sablefish through the issuance of freezer vessel endorsements].

No vessel landing sablefish within the scope of the IFQ program described in Chapter 15 may freeze sablefish at sea without a fixed gear sablefish freezer endorsement. (Note: Under the current scope of Chapter 15, this may require freezer endorsements for the freezing of sablefish with open access gears used by fixed gear limited entry vessels as well as with longline and fishpot gear for which a gear endorsement is held.)

Owners of vessels with limited entry permits may apply for freezer endorsements at the same times set forward for application for fixed gear sablefish QS.

To qualify for a freezer endorsement:

- a. Permit owners must demonstrate that the vessel with which the permit is currently associated as the capacity to freeze sablefish at sea.*
- b. Permit owners must demonstrate that between August 1, 1988 and November 13, 1991 they*

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1. owned a vessel which was capable of freezing sablefish at sea; and
2. landed sablefish; or
3. landed sablefish which was frozen at sea (the Council recognizes that information indicating whether or not sablefish was frozen at sea has not been recorded on fish tickets and that this requirement will place a burden on applicants to identify and locate other evidence that such landings were made.)

Freezer endorsements [Options: (1) will be transferable with the permit or (2) will expire with the transfer of the permit].

When permits are combined into larger permits, freezer endorsements [Options: (1) will not be transferred to the larger permit, unless every permit being combined includes a freezer endorsement, or (2) will be transferred to the larger permit even if not all the permits being combined include a freezer endorsement.]

15.6.4 Freezer Quota Shares

[Suboption "b"--This section is part of the suboption which would allow for some at-sea freezing of sablefish through the issuance of freezer QS.]

X percent of all QS initially issued will be designated as "Freezer QS." IFQ derived from these QS will be designated as "Freezer IFQ." Sablefish landed using freezer IFQ may be landed either frozen or unfrozen. Sablefish landed frozen must be landed using freezer IFQ. [The Council must select a value for "X".]

15.9.2 Measures to Reduce Windfall Profit

[Suboption "b": The following provisions of this section are part of the suboption which would allow for some at-sea freezing of sablefish through the issuance of freezer quota shares].

Option 1: [Option limiting transfer of QS initially issued in excess of 3 percent of total QS]

Option 2: On every sale of QS or IFQ, half of any QS or IFQ sold or otherwise transferred will be surrendered back to the federal government for redistribution . . . Exceptions may be made to this provision for . . . the exchange of freezer QS for nonfreezer QS. Such exceptions would be provided only under options creating . . . freezer QS.

15.10.7 Ban on At-Sea Freezing

(This section is part of the currently preferred option which would ban at-sea freezing of sablefish. It contains both suboptions "a" and "b".)

With the exception of [Options: (a) vessels using permits with fixed gear sablefish freezer endorsements, or (b) vessels with unused freezer IFQ sufficient to cover retained and frozen sablefish], no vessel harvesting IQ sablefish may freeze its catch at sea.

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Regulatory Amendment: Control of Discard Mortality through Ban on Hook Extractors

A ban on hook extractors in the sablefish IQ fishery is being considered in order to partially address concerns that discarding incentives created under an IQ program will increase fishing mortality rates. The problem, and all options considered to address the problem, are discussed above in the section on Measures to Address High-grading and Discard Mortality and in the analytical document under a similarly titled section. The issue is separated here to highlight it as a regulatory amendment under Appendix to Part 663, Groundfish Management Procedures, III.C.3 rather than an amendment to the FMP.

In summary: The discard incentive is created by the combination of price differences between different size fish and a limit on the poundage of fish taken by an individual. By discarding smaller, less valuable fish in favor of larger, more valuable fish, total revenue can be increased for the same amount of catch. Use of a hook extractor would be expected to result in greater mortality from high-grading than would be the case if fish were shaken from the hook.

The following draft language for the ban on hook extractors is adapted from the Pacific halibut fishery regulations which ban hook extractors in that fishery:

Definition: "Hook extractor" (commonly known as a "crucifier" or "automated hook stripper") means a device through which the groundline can be passed during gear retrieval which allows the groundline and hooks to pass freely, but does not allow fish to pass, thereby removing fish from the hooks.

No person shall fish for sablefish from a vessel that is equipped with, or that possesses on board, a hook extractor.

The Council may choose not to ban hook extractors. In the the analysis, this issue will be taken up in the general discussion on measures to address high-grading and discard mortality.

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APPENDIX A FIXED GEAR SABLEFISH INDIVIDUAL QUOTA PROGRAM

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SUMMARY

The fixed gear sablefish individual quota (IQ) program designed by the Council would allocate sablefish quota shares (QS) to persons based primarily on catch history. Each year, holders of QS would be allocated an amount of sablefish individual fishing quotas (IFQ) which could be taken anytime during the fishing season. The scope of the program would cover all sablefish harvested by vessels with a limited entry license for fixed gear (except for harvest by such vessels using groundfish trawl gear), though other options are being considered on this issue. The program would be incorporated as Chapter 15 of the groundfish fishery management plan (FMP).

Under the Council's preferred options, a recent participation requirement would require at least one landing of sablefish with longline or fishpot gear between August 1, 1988 and November 13, 1991 in order for a person to qualify for an initial allocation of QS (Section 15.6.1).^{1/} A minimum landing requirement would require that 3,000 pounds of fixed gear sablefish landings be made between January 1, 1984 and November 13, 1991 (Section 15.6.1). QS would be allocated to owners of "A" permits for longline or fishpot gear based on the catch history of the person as a vessel owner (Section 15.6.2.1). Catch history occurring between January 1, 1984 and November 13, 1991 would be counted in determining the amount of QS issued (Section 15.6.2.3). Either 25 or 40 percent of the QS would be allocated equally among all permits which had owners that qualify for some QS (Section 15.6.2.6). There would not be a cap on the amount of QS that could be initially issued to a single person (Section 15.6.2.5). A procedure may be established by which QS would be reallocated by area should the need arise (Section 15.6.3). The amount of QS held by a person would determine the amount of IFQ the person would receive for a year (Section 15.8). After QS is initially issued, acquisition of QS and IFQ would be restricted to corporations and partnerships receiving an initial allocation and any individual eligible to own a U.S. documented fishing vessel. No foreign-controlled entity could own QS or IFQ (Section 15.9.3.2). There would be caps on the amount of QS that could be controlled by a single person and the amount that may be used on a single vessel (Sections 15.9.3.1 and 15.10.3). There would be a requirement that the IFQ owner be on the vessel when the sablefish are caught and IFQ used (Section 15.10.2). Such a requirement, to be more effective, would be combined with options which prohibit leasing (Section 15.9.4) and prohibit new entry into the fixed gear sablefish fishery by anyone except individuals; i.e., corporations, partnerships, etc., which do not receive an initial allocation of QS would not be allowed to take part in the fishery (Section 15.9.3.4). A carry-over allowance would allow a small amount of unused IFQ to be carried over from one year to the next (Section 15.10.5). The IFQ monitoring and enforcement program may entail restrictions on where and when vessels may land IFQ fish, requirements for advanced notice of landings and other rules designed to ensure compliance with the program (Section 15.12). At some future time fees may be charged. A summary of other options being considered by the Council can be found in Part I of this document under the overview.

Conventions used in Appendix A:

- Options which are **not** currently the Council's preferred options are struck out.
- *Italicized* text indicates sections where options remain to be resolved or text has been modified to reflect the Council's current preferred options.

^{1/} This landing may be required of the permit, the person as a vessel owner or both, depending on the catch history used in determining the allocation.

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15.0 FIXED GEAR SABLEFISH INDIVIDUAL QUOTA PROGRAM

This is the Council's draft fixed gear sablefish IQ program as approved for public review at its November 1993 meeting. The IQ program amendment would be incorporated as Chapter 15 of the groundfish FMP.

15.1 Problem Statement

At present, the problems described in Amendment 6 (Limited Entry) to the FMP for Pacific Coast Groundfish still exist. With or without license limitation, allowable catches of groundfish stocks will remain stable or decline; fishing capacity is too high and will continue to increase (at a slower rate when license limitation [Amendment 6] is in effect); existing capacity utilized in other fisheries will try to expend more effort in groundfish as conditions in other fisheries get more restrictive; the efficiency and safety of vessel operations will be compromised by the struggle of each vessel to increase its share of the allowable catch (the race for fish); and regulations will get more complex as the Council simultaneously constrains effort through enforced inefficiency and attempts to distribute the impact of effort constraints as widely as possible.

Each of these problems is directly related to excess capital, which has been and continues to be invested in groundfish fishing vessels, groundfish gear and the training of groundfish fishers. Any solution to these problems will require a management regime under which additions to the capital stock (e.g., investments) remain below subtractions from the capital stock (e.g., depreciation and retirement) until the capital stock declines to an appropriate level.

Excess investment has been encouraged in the past by the open access institutional framework of the groundfish fishery and has resulted in a fishing fleet (physical capital) and trained fishers (human capital) which are too large for the fisheries involved. The economic waste which these excessive capital stocks represent cannot be reversed; to the extent that investment has produced capital which is specialized for the overcapitalized fisheries, it represents sunk costs. However, a change in the institutional structure which alters the rate of flow into stocks (investment) or out of stocks (depreciation and retirement), or which directs the use of existing multipurpose capital into those activities in which it produces the highest value may prevent further waste which would occur under common access among license holders.

The problems in some parts of the Pacific groundfish fishery are inextricably linked to fishery conditions in Alaska, caused by extensive participation in both areas by some segments of the fishing fleet. In particular, the longline sablefish fleets are dominated by vessels capable of fishing anywhere from Alaska to California. Thus, the proposed IQ plan for sablefish, if adopted, will have a direct impact on longline fisheries in the West Coast states. In the short run, it is anticipated that the Alaskan IQ plans will result in more longline effort in West Coast states not covered by the plans. This will occur partly because some vessels now fishing in Alaska will sell their Alaskan IQ and concentrate on the West Coast and partly because the IQ program will allow Alaskan participants to fish more efficiently, thus freeing up effort, some of which will be diverted to the

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West Coast. Therefore, problems described in the groundfish fisheries may be expected temporarily to grow worse for longliners in the event that the North Pacific Fishery Management Council (NPFMC) implements its proposed IQ programs. In the long run, however, the Alaskan IQ programs may be part of the solution for all fisheries in which the Alaskan longline fleet participates.

15.2 Goals and Objectives

The IQ program being considered by the Council is a form of limited entry. As such, it is measured against the Council's goals and objectives for limited entry, the groundfish FMP goals and objectives, Magnuson Fishery Conservation and Management Act (MFCMA) mandated considerations for limited access systems listed at 16 USC 1853 B(6) and the National Standards. Drawing from these sources, the following are goals and objectives for the West Coast sablefish IQ program.

15.2.1 Goals

Conservation. The Council's first priority for management of the groundfish fishery is conservation of the resource. The long-term productivity of the stock should not be jeopardized by any management system.

Economic. Reduce total cost of catching groundfish, increase price through increased quality, minimize management costs and increase consumer satisfaction.

15.2.2 Objectives

Conservation.

- a. *Minimize any tendency for the proposed management measures to increase discard mortality; and*
- b. *Preserve integrity of catch data by ensuring that catch information is properly recorded.*

Economic.

- a. *Reduce fishing costs through reduction of investment in harvest capacity, increase efficiency of vessel operations, increase adaptability of fleet size and operations to changing conditions, technology and markets, and increase efficiency of individual vessel operations;*
- b. *Promote economic stability of fisheries;*
- c. *Increase value of catch through better timing of catch, better quality of catch and elimination of discards;*
- d. *Minimize management and enforcement costs through decreased frequency of management changes and elimination of some management measures currently used;*

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- e. Reduce present and future needs for actions which are directly or indirectly allocative in nature;
- f. Increase consumer satisfaction from the consumption of groundfish at higher qualities and/or lower prices;
- g. Increase the value of processed fish through better timing of fish delivery; and
- h. Decrease processing costs through reduced peak capacity requirements.

Social.

- a. Recognize and accommodate historical participation of those investing their life and resources in the fishery;
- b. Increase safety; and
- c. Maintain a mechanism for fishery entrance/exit and flexibility for change in the fleet.

In addition to comparing alternative IQ programs, in terms of how well they promote the above goals and meet the listed objectives, the choice among alternatives must meet the requirements of the MFCMA and be consistent with the National Standards. The MFCMA stipulates that in developing any limited access system, the Council and the Secretary of Commerce (Secretary) must take into account the following:

- Present participation in the fishery
- Historical fishing practices in and dependence on the fishery
- Economics of the fishery
- Capability of fishing vessels used in the fishery to engage in other fisheries
- Cultural and social framework relevant to the fishery
- Any other relevant considerations

While all National Standards must be considered, the following are the National Standards most directly related to the consideration of an IQ program:

National Standard 4. Conservation and management measures shall not discriminate between residents of different states. If it becomes necessary to allocate or assign fishing privileges among various United States fishermen, such allocation shall be (A) fair and equitable to all such fishermen; (B) reasonably calculated to promote conservation; and, (C) carried out in such manner that no particular individual, corporation, or other entity acquires an excessive share of such privileges.

National Standard 5. Conservation and management measures shall, where practicable, promote efficiency in the utilization of fishery resources, except that no such measure shall have economic allocation as its sole purpose.

National Standard 7. Conservation and management measures shall, where practicable, minimize costs and avoid unnecessary duplication.

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15.3 Definitions

Definitions for terms used herein shall be the same as those contained in the MFCMA, except as follows:

- a. **"A" Permit:** A permit with an "A" endorsement issued pursuant to Amendment 6 to the groundfish FMP.
- b. **Currently Owned Vessel or Permit:** The vessel or permit owned at the time of application and initial issuance of QS.
- c. **Fixed Gear:** For the purpose of the fixed gear sablefish IQ program, fixed gears include only longline and fishpot gear.
- d. **Harvest Guideline:** Unless otherwise noted, the harvest guideline referenced in this chapter is the harvest guideline for the fixed gear sablefish IQ program. The harvest guideline will generally be the entire limited entry fixed gear sablefish allocation, however, an amount of this allocation may be set aside from the IQ program, if necessary, to account for overages.
- e. **Holdings of Quota Shares (QS) and Individual Fishing Quotas (IFQ):** A person's QS and IFQ "holdings" include QS and IFQ owned, leased, controlled or otherwise maintained for the benefit of the person.
- f. **Individual:** A natural person who is not a corporation, partnership, association or other entity.
- g. **Individual Fishing Quota (IFQ):** An amount of fish (round weight pounds) which a person may catch in a year derived by applying the person's QS to the annual harvest guideline under the IQ program.
- h. **Individual Fishing Quota Tracking System:** The method established by which IFQ landings will be recorded and reported to the National Marine Fisheries Service (NMFS).
- i. **Individual Quota Program:** The limited access program under which QS and IFQs are issued.
- ~~j. **Permit (Vessel) Catch History, Permit Catch History:** When an "A" permit or the rights to an "A" permit are transferred from the vessel on the basis of which the "A" permit was initially issued, the total sablefish catch history of the vessel (up to the time of the transfer) is considered to be transferred with the permit. The "A" permit rights accumulate the history of any vessel with which they are associated during the time they are associated with the vessel. (The intent of defining catch history as permit catch history would be to not separate the general privilege to harvest groundfish [an "A" permit] from the specific privilege to harvest sablefish under the IQ program.) *This definition would be deleted under the Council's preferred option.*~~
- k. **Quota Fish:** Fish falling within the scope of the IQ program.
- l. **Quota Share (QS):** The right to harvest a portion of the harvest guideline. The QS is used in annual determination of the amount of IFQ to be allotted to the QS holder.

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- m. **Registered Buyer:** A licensed fish buyer who has acquired the materials needed to take part in an IFQ tracking system and entered into an agreement with NMFS to open their financial records and inventories for IFQ audits.
- n. **Sablefish:** West coast sablefish managed by the Pacific Fishery Management Council.

15.4 Nature of the Interest Created

Sablefish QS and IFQs confer privileges to harvest sablefish within the scope of the IQ program as specified in this document or any future amendment to this document which may modify this IQ program. Conditions and restrictions on the exercise of these privileges may be changed or the privileges may be abolished by future amendments to this document. The sablefish QS and IFQs are also subject to sanctions, including revocation, as provided by the MFCMA, 16 USC at 1858(g) and 15 CFR Part 904, Subpart D.

15.5 Scope of the Fixed Gear Sablefish Individual Quota Program

Fixed Gear Sablefish IQ Program Scope: All nontreaty commercial harvest of sablefish in all Council-managed areas by persons using vessels with "A" permits for longline or fishpot gear, except for harvest by such vessels using groundfish trawl gear under an "A" permit for trawl gear. *Options which would modify this scope are discussed in the document to which this appendix is appended.*

15.6 Initial Allocation of Sablefish Quota Share

15.6.1 Qualifying to Receive an Initial Allocation

Option A: QS may be issued to anyone meeting the following qualifying requirements. (Implicit in current proposed language)

Option B: QS may be issued to any entity owning a permit in its entirety (the "permit ownership") and meeting the following requirements. The QS may be issued on the basis of the catch history of any entity participating in the permit ownership who meets the requirements of paragraphs A and B. (New option)

A. Ownership of an "A" permit required:

1. To qualify for an initial allocation of QS, a person must own an "A" permit for longline or fishpot gear.
2. To meet this requirement for allocation based on personal history as a vessel owner (*currently the preferred option*), a person must participate in the ownership of an "A" permit endorsed for longline or fishpot gear at the time QS is initially issued.

~~B. Recent participation by the permit (vessel) required to receive credit for permit (vessel) history (this paragraph will be deleted if no part of the final allocation formula is based on permit history):~~

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~~To qualify for an initial allocation based on the catch history of the permit (vessel) a person currently owns, the vessel associated with the permit rights must have had at least one landing (Option 1: of sablefish, Option 2: of groundfish) with longline or fishpot gear between August 1, 1988 and November 13, 1991. When an "A" permit or the rights to an "A" permit are transferred from the vessel on the basis of which the "A" permit was initially issued, the total sablefish catch history of the vessel (up to the time of the transfer) is considered to be transferred with the permit. The "A" permit rights accumulate the history of any vessel with which they are associated during the time they are associated with the vessel. (The intent of this transfer provision is to not separate the general privilege to harvest groundfish [an "A" permit] from the specific privilege to harvest sablefish under the IQ program.)~~

~~C.B. Recent participation by the person is required to receive credit for personal history as a vessel owner (this paragraph will be deleted if no part of the final allocation formula is based on personal history as a vessel owner):~~

~~To qualify for an initial allocation based on a person's history as a vessel owner, that person must have used a vessel under his/her/its ownership, in whole or in part, to make at least one landing (Option 1: of sablefish, Option 2: of groundfish) between August 1, 1988 and November 13, 1991. The landing must have been made with the fixed gear for which the person owns an "A" permit at the time QS is applied for and received or with setnet gear landed under an experimental fishing permit (EFP). The deletion in the previous sentence was made because of inconsistency with the plan.~~

~~D.C. Minimum participation: (this paragraph applies only if Option B-2 of Section 15.6.2.6 is adopted.) To qualify for an initial allocation, 3,000 pounds of sablefish must have been landed between January 1, 1984 and November 13, 1991. The landings must have been made by a vessel under the person's ownership and with fixed gear or with setnet gear landed under an EFP.~~

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15.6.2 General Formula for Initial Allocation to Those Qualifying

15.6.2.1 Catch History Considered in the General Allocation Formula

The catch history used in the general allocation formulas (and to determine who qualifies for an allocation; Section 15.6.1) will be ~~one of the following:~~

Option 1	Option 2	Option 3	Option 4
Catch history of the person as a vessel owner.	Catch history of the permit (vessel) currently owned.	Fifty percent on the catch history of the permit (vessel) currently owned and 50 percent on catch history of the person as a vessel owner.	Each applicant chooses between Option 1 and Option 2 as long as the applicant has not sold or purchased permit rights (or a vessel with permit rights) after November 13, 1991. In cases where such transactions have occurred, the catch history used will be Option 4a, catch history of the person as a vessel owner, or Option 4b, catch history of the permit (vessel) currently owned.

The catch history of a person as a vessel owner is the catch history of a corporation, partnership, individual, association or other entity. When entities other than individuals are involved and there is a change in the ownership or control of the entity, the catch history of the entity will remain with any successor in interest to the entity. If there is no successor in interest to the entity, the entities (including individuals) which comprised the dissolved entity will be entitled to claim a portion of the catch history, provided that the entity claiming catch history (1) currently participates in the ownership of an "A" permit endorsed for longline or fishpot gear and (2) participated in the ownership of a vessel during the time in which it met the recent participation requirements. A participant in a dissolved entity that meets the other qualifying requirements is entitled to the same percentage of the catch history from the vessel (during the period the vessel was owned by the dissolved entity) as the percentage ownership the participant had in the dissolved entity. However, if there is unclaimed catch history from defunct partnerships and corporations or other entities for which there is no successor in interest; ~~Option A~~ all catch history for the entity will be divided among the qualifying participants in the partnership or corporation who apply in proportion to the relative shares of ownership of the applying members. ~~Option B~~ some of the entity's catch history will go unclaimed if one of the partners or corporate members does not qualify and apply.

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15.6.2.2 Catch History Measured in Round Pounds Landed with Fishpot, Longline or Some Setnet Gear

Fixed gear catch history will be measured in round pounds landed or the round weight equivalent of pounds landed by vessels using fishpot or longline gear. *Additionally, catch by setnet gear fished under an EFP and against the fixed gear sablefish quota will count toward catch history for the purpose of qualifying and for the initial allocation under this program. (There was no fixed gear allocation during the period in which EFPs for setnet gear were issued. The Council should address this issue.)*

- A. Dressed pounds will be converted to round pounds by multiplying by 1.6 (the inverse of the recovery rate used by all three states). Landings with unspecified condition codes will be considered round pounds.
- B. Unspecified gear and California hook and line landings of sablefish will be considered longline landings if (1) an "A" permit was issued based on the vessel having met the Amendment 6 (Chapter 14) "A" endorsement minimum landing requirements for longline gear or provisional "A" upgrade provisions for longline gear and (2) shrimp and salmon were not included in the same landing. If no "A" permit has been issued for a vessel, NMFS may examine other evidence to determine gear used in the landings. Such evidence may include, but is not limited to, species composition in the catch, receipts for gear purchases around the time that the landing was made, and sworn affidavits by disinterested third parties. States will be asked to participate in developing decision rules to be used in evaluating this evidence.

15.6.2.3 Allocation Period

The allocation period for determining total catch history is January 1, 1984 through November 13, 1991.

15.6.2.4 Annual Catch History Weighting Factor

~~In applying the general allocation formula, each year of an applicant's catch history (in round weight or round weight equivalent) may be multiplied by an annual weighting factor before it is evaluated in the general allocation formula. The annual weighting factors are as follows:~~

Year	Weighting for 1 Pound of Catch
1984	0.71
1985	0.50
1986	0.48
1987	0.45
1988	0.54
1989	0.68
1990	0.86
1991	1.00

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~~The intent of the weighting factor is to measure pounds of catch in relation to catch opportunity in the year (hence, the heavier weights for more recent years when catch opportunity has been lower) and provide some additional credit for longer term history of participation and dependence on the fishery (hence, the heavier weighting for the earliest years relative to the middle years of the window period). The weighting factor for each year has been determined by taking the total 1991 fixed gear sablefish landings made by vessels expected to meet recent landing requirements and receive "A" permits for longline or fishpot gear (based on data available as of April 1993) and then dividing that number by the total fixed gear sablefish landings made by such vessels in each year. The weighting factors are considered to be adequate approximations which will not be adjusted as information on license limitation qualifying vessels and recent participation is refined. These adjustments will not be made because (1) the factors as specified meet the Council objectives, (2) the need for certainty is more important than making the adjustments, and (3) adjusting the factors over time would create administrative complexities and confusion in the industry.~~

15.6.2.5 Caps on Amount of Quota Share Initially Issued to a Single Person

~~Package A:~~ No limit on amount initially issued to a single person. *Depending on other provisions, (Section 15.9.2, 15.9.3.1), IQ initially issued in excess of the ownership cap may not be transferable.*

~~Package B:~~ At initial issuance, no person may receive more than 3 percent of the total QS issued.

15.6.2.6 Allocation Formula

~~Catch history will be evaluated using one of the following formulas:~~

~~Package A:~~ Qualifying applicants will receive QS based on their average catch history in the best five of eight calendar years during the allocation period (with catch history weighted as per Section 15.6.2.4). There may be some established minimum amount of QS a person must qualify for before any QS is allocated.

~~Package B:~~

Option B-1 (Modified "Equal Allocation").^{2/}

~~There is a two-step allocation process. In Step 1, the applicant receives QS on the basis of whichever formula will provide the most QS. Not more than 25 percent of the total QS allocated will be allocated in Step 1. Step 2 consists of a second allocation formula on the basis of which the applicant will also receive QS.~~

~~2/ Under another version of this option, everyone would receive some quota based on each of the three parts of this allocation option.~~

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~~1a. The qualifying applicant receives an amount of QS expected to be equivalent to 1,500 pounds of IFQ under a 2,500 mt fixed gear limited access quota;~~

~~OR~~

~~1b. The qualifying applicant receives QS based on the applicant's average annual landings for calendar years in the allocation period in which the applicant fished, but not more than XX shares will be allocated to a single applicant on this basis. XX shares would be expected to result in the issuance of about 9,000 to 10,000 pounds of IFQ under a 2,500 mt fixed gear limited access quota. [The exact value for the maximum equal share portion (XX) will depend on the number of permits held by qualifying applicants. The value will be set by dividing 25 percent of the QS by the number of "A" permits held by those eligible to receive QS. Only one "equal allocation" will be made per permit. QS available for equal allocation which is not allocated because the applicant does not qualify for the maximum XX shares will be reallocated among all QS recipients in proportion to the QS for which they qualify. Not more than 25 percent of the total shares will be allocated on the basis of Parts 1a and 1b];~~

~~AND~~

~~2. The qualifying applicant receives QS based on the average of the applicant's five best calendar years of the eight year allocation period (weighted as per Section 15.6.2.4), regardless of whether the applicant fished in five years (e.g., if an individual fished only in three years, then the five year average would include two years of no [zero] catch). At least 75 percent of the total shares would be allocated on this basis.~~

~~Option B-2. Straight "Equal Allocation".~~

In addition to meeting the requirements of Section 15.6.1 A, B and C, B, an applicant's catch history must include 3,000 pounds of fixed gear sablefish landings (Section 15.6.1 D). For applicants meeting these requirements, QS will be issued to qualifying applicants on the following basis:

- ~~1. (Option A: 25 percent or Option B: 40 percent) of the QS will be divided by the number of "A" permits held by qualifying applicants to determine the equal allocation share. One equal share will be distributed to the qualifying ownership of each of the "A" permits.~~
- ~~2. The remaining (Option A: 75 percent or Option B: 60 percent) of QS will be distributed on the basis of the average of the applicant's best five calendar years of catch history from the eight-year allocation period (weighted as per Section 15.6.2.3)~~

15.6.3 Area Specific Quota Shares

~~Option 1.~~ No area specific QS will be issued. If area specific harvest guidelines are established in the future, IFQ holders will compete for catch in the area. After the harvest guideline for an area is taken, remaining IFQ will have to be used in other areas.

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~~Option 2. Area specific QS will be issued if area specific harvest guidelines are established. Each person's QS will be reissued as area specific QS. The proportion of QS the person will receive for each area will be the same as the proportion of the overall harvest guideline designated for the area (e.g., if the harvest guideline is divided 0.2 for a southern area and 0.8 for a northern area, then everyone's QS would be reissued with those proportions of the person's total QS designated for southern and northern areas). After the QS has been divided by area, QS holders will have to exchange QS to acquire QS for the areas in which they would like to fish.~~

New Options for Consideration: While the Council's preferred option remains that there be "no area specific QS," the Council has requested that this issue be revisited and that options be developed which would create area specific QS in case it is determined that they are needed. The following options have been developed for creating area specific QS at initial allocation.

Option 1 (Same proportions of area QS for each quota share recipient)

If it is determined that area management is needed, each QS holder's QS will be reissued as area specific QS for each area in combinations which reflect the relative size of the allowable limited entry fixed gear catch for each area. For example, if the Columbia International North Pacific Fishery Commission (INPFC) area is a management area for the sablefish IQ program and if 20 percent of the allowable catch is to occur in the Columbia INPFC area, then 20 percent of the QS for every initial recipient would be for the Columbia INPFC area. QS recipients in different areas may then exchange shares to achieve their desired mix of area QS. An exemption from any transfer fees or surrender requirements will be provided for a period of time, as long as those transfers meet with Internal Revenue Service requirements which provide for the nontaxable exchange of similar assets. (Like Kind Exchanges, Internal Revenue Service Publication 594, Page 5)

Option 2 (Historic catch areas)

Each QS recipient will be allocated QS specific for each area according to the initial QS recipient's historic catch areas. Equal allocation will be divided among areas according to the distribution of shares based on catch history. The area designation will be for INPFC areas but will not be used to control harvest until such time that it is determined there is a need for area management.

Option 3 (Historic landing areas)

Each QS recipient will be allocated QS specific for each area according to the initial QS recipient's historic landing areas. Equal allocation will be divided among areas according to the distribution of shares based on catch history. The area designation will be for INPFC areas but will not be used to control harvest until such time that it is determined there is a need for area management.

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15.7 Issuance Appeal Process

Appeals will be made to the NMFS regional director. When appeals involve confidential information which may not be released to the appellant, records may be reviewed *in camera* (in private) by a hearings officer. Any dispute over how the issuing authority has applied provisions of the program may be appealed.

15.8 Annual Processes Under the Sablefish Individual Quota Program

15.8.1 Allocation to the Program

In the fall of each year, the allocation for the fixed gear sablefish IQ program will be determined by the Council and will be the fixed gear portion of the allocation of sablefish made to the limited entry fishery.^{3/}

15.8.2 Setting a Harvest Guideline

A harvest guideline for the fixed gear sablefish IQ program will be determined by the Council for the coming year based on the allocation to the IQ program. The Council may reduce the harvest guideline for the IQ fishery to a level below the allocation to the sablefish IQ program, as necessary, to meet conservation objectives *or to provide for any other fixed gear limited entry sablefish catch outside the scope of the IQ program*. The reduction *for conservation objectives* may be necessary because individual overages or detected cheating by program participants may otherwise result in harvests which exceed the harvest guideline. The fishery will not be closed until all issued IFQ has been harvested. Overages and detected cheating by program participants will count against the sablefish IQ program harvest guideline.

15.8.3 Specification of Individual Fishing Quotas

Prior to December 31 of each year, NMFS will (1) determine the amount of outstanding QS for the coming year; (2) based on the harvest guideline and, as necessary, the amount of outstanding QS, determine and announce the IFQ pounds to be allocated per QS; and (3) distribute and record materials necessary to allow participants to begin using their IFQ as of January 1 of the year for which it is allocated.

3/ Note that the allocation to the fixed gear fishery does not currently include the INFPC Conception area. However, according to the program scope, any fish caught by a vessel with an "A" permit for fixed gear (except trawl catch) is within the scope of the program. This includes vessels operating in the Conception area. This could result in the underharvest of the quota in areas north of the Conception area. Based on historic fishing practices, IFQ harvest in the Conception area is not expected to occur to any significant degree. If at some point it becomes desirable, the Council may set a Conception area harvest guideline or quota and allocate a portion of this to the fixed gear limited entry fishery. This would effectively expand the overall harvest guideline on the basis of which IFQ is allocated. Such an action would not require an amendment to this IQ program.

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15.8.4 The Individual Quota Sablefish Season

The IQ season may be less than year round. It may open and close as specified in implementing regulations. (NOTE: It is anticipated that the implementing regulations will provide for a four-month season beginning in July and ending in October. The purpose of the abbreviated season is to reduce enforcement costs while still achieving most of the expected benefits from the IQ program. The time period chosen for the season should provide reasonable weather conditions for all areas of the coast and has historically coincided with higher seasonal prices.)

15.9 Transfer of Quota Shares and Individual Fishing Quotas

15.9.1 Registration of Quota Share and Individual Fishing Quota Transfers

All sales, leases or other transfers of QS or IFQ must occur in a manner approved by NMFS. All QS and IFQ assignments and transfers will be administered by NMFS based on regulations established by NMFS. QS and IFQ transfers will not be official until processed and acknowledged by the NMFS limited entry office. *The price of any QS or IFQ sold must be reported to NMFS. QS or IFQ transferability may be restricted by other portions of this document.*

15.9.2 Measures to Reduce Windfall Profit

Option 1: Any QS issued to an initial recipient which is in excess of the accumulation cap (see 15.9.3) is nontransferable, including the IFQ which is derived from the QS, OR

Option 2: On every sale of QS or IFQ, half of any QS or IFQ sold or otherwise transferred will be surrendered back to the federal government for redistribution . . . OPTIONS: (1) among all share holders in proportion to their holdings, (2) through a lottery (Council guidance is needed on who can participate in the lottery), or (3) through an auction, if the needed amendments are made to the MFCMA. The purpose of this provision is to minimize windfall. Redistribution through an auction would allow recovery of administrative and enforcement costs, however, an amendment to the MFCMA would be required. (For analysis, this option is linked with an option which provides 25 percent equal sharing - Section 15.6.2.6.) Exceptions may be made to this provision for the exchange of like QS between areas or the exchange of freezer QS for nonfreezer QS. Such exceptions would be provided only options creating area QS or freezer QS.

15.9.3 Limitations on Ownership and Holding of Quota Shares and Individual Fishing Quotas

15.9.3.1 Accumulation Cap

~~Package A. There will be a 5 percent cap on the amount of QS and IFQ a person may hold.~~

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~~Package B.~~ There will be a 3 percent cap on the amount of QS and IFQ a person may hold.

Any person who receives an initial assignment of QS in excess of this cap shall be prohibited from acquiring additional holdings of QS or IFQ until that person's QS and IFQ holdings fall below the limit. Once a person's QS and IFQ holdings fall below the limit, holdings in excess of the limit by the person will no longer be allowed.

15.9.3.2 Restriction on Control by Foreign Interests

Only a person eligible to own a documented vessel under the terms of 46 U.S.C. 12102(a) may be issued or may hold (by ownership or otherwise) QS or IFQ. Under this provision, foreign ownership or holding of QS and IFQ will be limited to the degree that foreign ownership of a U.S. documented vessel is limited. (Note: Resident aliens in California may own fishing vessels through the year October 1, 2000.)

15.9.3.3 Limited Entry Permit Ownership

Ownership of a limited entry "A" permit is not required for a person to acquire ownership QS after initial allocation. A limited entry "A" permit for longline or fishpot gear is required to receive an initial allocation of QS (see Section 15.6.1) and IFQs may be used only on vessels for which such a limited entry permit is held (see Section 15.10.1).

15.9.3.4 Quota Share and Individual Fishing Quota Acquisition by Individuals, Partnerships and Corporations, Etc.

~~Option 1.~~ QS and IFQ may be transferred to any person meeting the other ownership criteria listed in Section 15.9.2. ~~If Option 2 of Section 15.10.2 is selected, corporations, partnerships and other non-individual entities will be allowed to hold but not use QS and IFQ.~~

~~Option 2.~~ QS and IFQ may be transferred only to (1) corporations, partnerships and other entities which received an initial allocation of QS and (2) individuals meeting other requirements of this section. (This provision is intended to increase the effectiveness of Option 2 of Section 15.10.2 which requires the QS/IFQ owner to be on board the vessel when the IFQ is used.)

15.9.4 Leasing

~~Option 1.~~ There would be no restriction on leasing.

~~Option 2.~~ QS and IFQ may not be leased. (This option is implied under Option 2 of Section 15.10.2. Specifying it as an option in this section makes the ban on leasing explicit.)

15.10 Use of Individual Fishing Quotas

15.10.1 "A" Permit Required to Use Individual Fishing Quotas on a Vessel

An "A" permit endorsed for longline or fishpot gear must be held for a vessel in order for the vessel to land quota fish.

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15.10.2 Presence of the Quota Share and Individual Fishing Quota Owner^{4/}

~~Option 1.~~ There are no requirements that the owner of the IFQ be on board the vessel when the IFQ is used.

~~Option 2.~~ In order to use IFQs, the owner must (1) own the QS on the basis of which the IFQ is issued, (2) be on board the vessel during fishing operations and (3) sign the fish ticket upon landing, except as follows: any persons who receive an initial allocation of QS may designate a skipper to use their IFQ provided the corporations, partnerships or individuals own the vessel on which the IFQ will be used. These recipients may purchase additional QS and IFQ to be used by a designated skipper, subject to accumulation caps (see Section 15.9.2, 15.9.3.1). Provision for use of a designated skipper will cease if and when there is any change in the identity of a corporation or partnership owning the QS as follows:

A change in the identity of any entity other than an individual will be deemed to occur with a change in the corporate or partner membership, except a change caused by the death of a member providing the death did not result in any new members. Additionally, membership is not deemed to change if a member becomes legally incapacitated and a trustee is appointed to act on his behalf, nor is membership deemed to have changed if the ownership of shares among existing members changes, nor is membership deemed to have changed if a member leaves the corporation or partnership. A change in the ownership of publicly held stock will not be deemed a change in ownership of the corporation.

NMFS may, by regulation, designate exceptions to these provisions to be employed in cases of extreme personal emergency which allows the transfer of QS/IFQ for limited periods of time.

Selection of Option 2 of Section 15.9.2.4 and Option 2 of Section 15.9.3 would be necessary to make this option reasonably effective. (Option 2 of Section 15.9.3 is implicitly incorporated in the language of this option.)

15.10.3 Cap on Amount of Individual Fishing Quotas Used With a Single Vessel

~~Package A.~~ There will be a 5 percent cap on the amount of IFQ used with a single vessel. If a person receives more than 5 percent of the total QS initially issued, all of the IFQ arising from the QS allocated to the individual may be harvested on a single vessel.

~~Package B.~~ There will be a 3 percent cap on the amount of IFQ used with a single vessel. If a person receives more than 3 percent of the total QS initially issued, all of the IFQ arising from the QS allocated to the individual may be harvested on a single vessel.

^{4/} Option 2 adopted from the NPFMC program.

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15.10.4 Individual Fishing Quota Possession Requirements

The vessel owner is responsible for securing sufficient IFQ for quota fish landings and maintaining documentation of the IFQs on board the vessel. Prior to take and retention of quota fish, the vessel owner must secure documentation that unused IFQ is held sufficient to cover the catch.

15.10.5 Carry-over Allowances

QS owners may use a carry-over allowance to adjust their IFQ in a subsequent year based on unused IFQ from the current year. Up to 5 percent of the total IFQ owned or 10,000 pounds of unused IFQ (whichever is less) may be carried over to the next fishing year.

15.10.6 Individual Fishing Quota Landing Procedures

All landings of quota fish must be reported to the IFQ tracking and accounting system and comply with the requirements of the IFQ monitoring and enforcement system.

15.11 Individual Fishing Quota Tracking and Accounting System

NMFS will develop an IFQ tracking and accounting system. This system may be based either on a manual paper system or on an electronic debit system. A central office will issue QS and IFQs, record the transfer of QS and IFQs, monitor the fulfillment of IFQs during the year and provide enforcement officers with information necessary for field enforcement.

15.12 Individual Fishing Quota Monitoring and Enforcement System

NMFS will promulgate additional regulations for monitoring and enforcement to assure compliance with this program. Persons holding QS or IFQs who are found to be in violation of groundfish management regulations, including this IQ program, will be subject to appropriate penalties, including revocation of their QS.

~~Option 1. No details for the monitoring and enforcement system will be developed as part of this amendment. The landings monitoring system may (but will not necessarily) entail notification prior to landing; limits on locations at which landings may be made; limits on the hours in which landings may be made; requirements for complete off-loading; requirements for reporting completed off-loadings; requirements for notification of the shipment or transshipment of product; a satellite-based vessel tracking system; and other appropriate restrictions.~~

~~Option 2. The IFQ monitoring and enforcement system will include the following elements:~~

- ~~A. Advance Notice of Landings. NMFS must be notified prior to off-loading. Notices might be made prior to departure by a vessel at sea or after a vessel's return to port.~~
- ~~B. Landings May Be Made Only To Registered Buyers.~~

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- C. Limited Landing/Off-loading Hours and Ports. Landings may be made only between 6 a.m. and 6 p.m. Off-loading that begins during the allotted window will be allowed to continue to completion. The ports in which landings may be made will be restricted. Alternate off-loading schedules may be authorized on a port-by-port basis at the discretion of the regional director.
- D. All Quota Fish On Board Must Be Off-loaded. All quota fish including any home pack and exceptional sales must be off-loaded and reported to the buyer along with all other IFQ fish sold to the buyer.
- E. Verification of Landings. Landings must be reported to the IFQ tracking system and a confirmation received within W hours of completion of off-loading (value for W to be determined in the implementing regulations). (For a paper script system, fish ticket numbers must be entered on the paper script at the time the fish ticket is filled out or within X hours of off-loading, whichever is less.) (Value for X to be determined in the implementing regulations.)
- F. *IFQ Inspectors. For an IQ program to succeed, compliance is imperative. The Secretary will require each vessel and receiving facility involved in the off-loading of IQ sablefish to accommodate the presence of an IFQ inspector certified by NMFS. The vessel owner will arrange for and pay the costs of an IFQ inspector's services. The primary goal of this provision is to decrease the occurrence of intentional underreporting of amounts of IFQ sablefish landed by participants in the limited entry fixed gear sablefish IQ program. The objective of requiring inspectors is to have 100 percent coverage by impartial inspectors of any significant landings of IFQ sablefish and to provide a means by which the industry benefiting from the program bears some of the costs. Regulations implementing this provision will, to the extent practicable, be designed to reduce any excessive burden which potentially could be placed on IQ program participants making small landings or landings in isolated ports.*

The inspector program is considered to be a type of observer program, in which the scope of the data collected is more limited and the activities occur shoreside.

- G. Shipping by Registered Buyers. All shipments of quota fish from the original landing site to any other site must be reported. Reporting will be similar to current reporting requirements. Registered buyers will be allowed to use their own bills of lading. A copy of the bill of lading will have to accompany the shipment to its first point of landing. For domestic shipments, bills of lading will have to be received by NMFS prior to shipment. Shipments in foreign commerce will have to be reported Y hours before transportation from the Washington, Oregon and California area. (Value for Y to be determined in the implementing regulations.)
- H. Transshipments. Transshipments from one vessel to another *at sea* would be *prohibited* restricted. *All transshipments between vessels would occur in domestic port areas. Only motherships and tenders operating as registered buyers may receive quota fish at sea. All processing vessels transshipping frozen or processed product vessel to vessel must give Z hours advance notice of any such transshipment. (Value for Z to be determined in the implementing regulations.)*

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- I. Dockside Sales. Vessels marketing their own catch must become registered buyers and meet all the requirements of a registered buyer including reporting of landings, receipt of confirmation and reporting of shipments. Reports would have to be made for all IFQ fish on board before any dockside sales, shipment or off-loading.
- J. Vessel Clearances. Harvesting vessels, catcher-processors, motherships and tenders landing catch outside the Washington, Oregon and California area will have to obtain a vessel clearance at a primary port (to be determined) before departure from the Washington, Oregon and California area.

15.13 Discards and Wastage

Discarding. This program will create no new provisions against discarding legal sized catch. Of particular concern are high-grading practices which cause excessive mortality. (High-grading is the practice of discarding the less valuable portion of a catch in order to increase the amount of higher value catch and increase the average revenue per pound landed.) The IQ plan is not intended to encourage the high-grading of legal sized fish. State antiwastage laws could be applied to mortality caused by wasteful high-grading.

15.14 Prohibitions on Retention

Retention of quota fish is prohibited by vessels holding a limited entry permit for longline or fishpot gear unless sufficient IFQ is held to allow for a legal landing of the catch retained.

UNDER OPTIONS (A), (B) OR (C) RELATING TO PARTICIPATION IN THE OPEN ACCESS FISHERY, THE FOLLOWING WOULD BE ADDED TO THIS SECTION; UNDER OPTION (D) THERE WOULD BE NO ADDITION: When the sablefish IQ fishery is closed, [Options: (a) participants in the IQ program may not retain any open access sablefish; (b) vessels which have landed IFQ sablefish may not retain any open access sablefish, (c) vessels which have landed IFQ sablefish may not use open access fishpot or longline gear to land IFQ sablefish. Note: The scope of the IQ program is defined so as to require the use of IFQ to cover any sablefish landing by vessels with limited entry permits, including those landings made with open access gear, as long as the IQ fishery is open.

15.15 Fees

Fees will be charged for the costs of initial issuance of QS and IFQ. Additionally, the Secretary will charge program participants to cover administrative and enforcement costs at such time that the MFCMA is amended to allow such charges.

15.16 Public Access to Information

The amount of QS and IFQ held by any person will be considered public information.

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PROVISIONS AFFECTING OTHER CHAPTERS OF THE GROUND FISH MANAGEMENT PLAN

At-sea freezing of sablefish caught in the IQ fishery is banned with the exception of freezing allowed through a grandfather clause.

Hook extractors are banned.

Holder of QS or IFQ may not participate in the open access fishery.

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APPENDIX B
ALLOCATION
WORK SHEET

This allocation work sheet is a combination of the Catch History and Allocation Work sheets contained in Appendix E of the January 1994 draft sablefish amendment package. The work sheets have been combined into a single work sheet and the steps have been modified to reflect the Council's currently preferred options. The currently preferred options are based on personal history with 25 percent of the quota share allocated equally (Work sheet Step 5a) or 40 percent of the quota share allocated equally (Work sheet Step 5b).

Who Should Fill Out The Work Sheet?

Only persons owning a longline or fishpot "A" permit, in whole or in part, may qualify for an initial allocation of quota shares (QS) and should fill out this work sheet. Additionally, to qualify for any allocation of QS a person will have to have owned a vessel, in whole or in part, between August 1, 1988 and November 13, 1991, which made at least one landing of sablefish with longline or fishpot gear during that period.

What Catch History Should Be Entered On The Work Sheet?

The landings entered in this work sheet should be landings of West Coast sablefish (excluding Puget Sound) made during the allocation period (January 1, 1984 through November 13, 1991) with longline or fishpot gear. Additional directions on the catch history to be used are included in the following sections.

A separate application should be filled out by each entity with a personal history that will apply for a permit. However, notes in the following examples indicate an alternative interpretation in which the current entity owning a permit would make a single application.

Example A

- Individual A owned a vessel from 1981-1988.
- Individual B owned a vessel from 1984-1988.
- In 1988, Individual B sold the vessel and joined in a partnership with Individual A.
- *Individual A fills out a work sheet using the history from 1984-1988.*
- *Individual B fills out a work sheet using the history from 1984-1988.*
- *The partnership fills out a work sheet using its history from 1988 through November 13, 1991.*
- *While three separate applications may be made under the partnership's "A" permit, portions of the allocation formula, based on equal sharing, would be claimed on only one of the applications.*

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Note: Under the allocation formula outlined in this example, eight years of catch history could be claimed rather than five of eight years. In this example, every year from 1984 through 1991 could be claimed by either the partnership or an individual. A change in the allocation formula which might be considered would allow only the entity that owns the permit to apply for QS. Under this rule, in this example, the partnership would use the work sheet and include in it the catch history as a vessel owner of all its partners back through the start of 1984. However, under such a rule any individual with catch history which is being claimed by the applicant would have had to meet the recent participation requirements individually before their catch history could be included in the partnership application. If it were decided that only the partnership needs to have met the recent participation requirement, then any person with a history between 1984 and 1987 could join a partnership today and qualify for an initial allocation. Thus, the recent participation requirement would lose much of its meaning.

Example B

- From 1984-1987, Individuals A and B own equal shares in a vessel.
- Their partnership breaks up in 1987.
- Individual B continues fishing with the same vessel.
- In 1988, Individual A enters into joint ownership of a vessel with Individual C.
- *Individual A fills out a work sheet, claiming 50 percent of the catch history of the vessel owned from 1984-1987.*
- *The partnership of Individuals A and C fills out a work sheet based on the catch history of their partnership.*
- *Individual B fills out a work sheet using complete personal history from 1988 through November 13, 1991, but claims only 50 percent of the history of the vessel owned from 1984-1987.*

Note: Under the possible change to the allocation formula discussed above, the partnership of Individuals A and C would include in its application the 50 percent of the catch history of the vessel owned by individual A from 1984-1987. Individual A would not fill out a separate work sheet.

Example C

- From 1984-1987, Individuals A and B own equal shares in a vessel.
- Their partnership breaks up in 1987.
- Individual B continues fishing with the same vessel.
- After the partnership breaks up, Individual A temporarily leaves the fishery.
- In 1993, Individual A joins a partnership owning a vessel and permit, and the partnership has recent participation.
- *Individual A cannot claim any catch history because he/she did not meet recent participation requirements. (He/she did not use a vessel under his/her ownership to catch sablefish between August 1, 1988 and November 13, 1991).*

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- *Individual B fills out a work sheet using complete personal history from 1988 through November 13, 1991. Additionally, because Individual A cannot claim any catch history, Individual B claims 100 percent of the history of the vessel owned in partnership from 1984-1988.*

Note: Under the possible change to the allocation formula discussed above, the partnership which Individual A joins would not be able to claim Individual A's catch history because Individual A did not meet the recent participation requirements.

Example D

- Individual A owned a vessel from 1980-1988.
- A family corporation has owned a vessel from 1988 to the present.
- Individual A joins the family corporation from 1988-1991, but leaves the corporation in 1992 and buys a different vessel with an "A" permit.
- *Individual A fills out a work sheet with Individual A's catch history for 1984-1988. Individual A has no claim to the 1988-1991 catch history of the corporation, because the modified corporation continues to exist as the successor in interest to the period of time during which Individual A was a part of it.*
- *The corporation fills out a worksheet with for 1988-1991.*

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1. Did you land West Coast sablefish using longline or fishpot gear between August 1, 1988 and November 13, 1991 using a vessel that was owned by you, in whole or in part, at the time of the landing? Under the possible change to the allocation formula discussed above, this question would read "Did the current owner of the "A" permit under which you are applying, or at least one entity that participates in the current ownership of the "A" permit, land West Coast sablefish using longline or fishpot gear between August 1, 1988 and November 13, 1991 and using a vessel that was owned by the qualifying person, in whole or in part, at the time of the landing?"

- You would qualify for some allocation based on your personal history as a vessel owner, provided you have a personal catch history as a vessel owner
- Yes. which includes at least 3,000 pounds of fixed gear sablefish between January 1, 1984 and November 13, 1991. Continue with Step 2 and complete the remainder of this work sheet.
 - No. You would not qualify for any allocation based on personal history as a vessel owner. Stop here.

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2. If you answered yes in Step 1, complete a separate copy of this page for each vessel you owned and for which you would claim some QS based on your catch of sablefish with longline and fishpot gear during the allocation period.

Enter the vessel identification number and dates you owned the vessel.

Enter your share in the ownership of the vessel in Column E. Two lines are provided for each year to facilitate mid-year changes in ownership shares. If there was more than one change in ownership shares within a year, you may wish to start a second copy of this sheet with the date of the second change in ownership for the year.

Enter the amount of sablefish landed dressed and round for each year (Columns A and C), calculate the round pound equivalent for dressed catch (Column A x 1.6), and total pounds of catch (Columns B + C).

Multiply the total pounds in Column D by your ownership share from Column E and determine your personal catch history for the vessel. Place the result in Column F.

Note: Under the the possible change to the allocation formulat discussed above, this step would be carried out by each person involved in the current ownership of the permit under which an application is made and who met the recent participation requirements. The results from all the work sheets filled out under this step would be added together in Step 3.

Vessel Identification Number: _____

Dates Owned: _____ to _____

	(A)		(B)		(C)		(D)		(E)		(F)
Year	Dressed Pounds		Round Pound Equivalent		Round Pounds		Total Pounds (B + C)		Ownership Share		Total (D x E)
1984	_____	x 1.6 =	_____	+	_____	=	_____	x	_____	=	_____
	_____	x 1.6 =	_____	+	_____	=	_____	x	_____	=	_____
1985	_____	x 1.6 =	_____	+	_____	=	_____	x	_____	=	_____
	_____	x 1.6 =	_____	+	_____	=	_____	x	_____	=	_____
1986	_____	x 1.6 =	_____	+	_____	=	_____	x	_____	=	_____
	_____	x 1.6 =	_____	+	_____	=	_____	x	_____	=	_____
1987	_____	x 1.6 =	_____	+	_____	=	_____	x	_____	=	_____
	_____	x 1.6 =	_____	+	_____	=	_____	x	_____	=	_____
1988	_____	x 1.6 =	_____	+	_____	=	_____	x	_____	=	_____
	_____	x 1.6 =	_____	+	_____	=	_____	x	_____	=	_____
1989	_____	x 1.6 =	_____	+	_____	=	_____	x	_____	=	_____
	_____	x 1.6 =	_____	+	_____	=	_____	x	_____	=	_____
1990	_____	x 1.6 =	_____	+	_____	=	_____	x	_____	=	_____
	_____	x 1.6 =	_____	+	_____	=	_____	x	_____	=	_____
1991	_____	x 1.6 =	_____	+	_____	=	_____	x	_____	=	_____
	_____	x 1.6 =	_____	+	_____	=	_____	x	_____	=	_____

(through 11/13/91)

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3. Enter the information from Column F of Step 2 for each copy of Step 2 you filled out. Total the catch for each year (Column Z) and total Column Z. (If necessary add more columns to the back side of this sheet.) Enter the Column Z total as Value A in Steps 5a and 5b.

	(A) Vessel 1 (Vessel Currently Owned)	(B) Vessel 2	(C) Vessel 3	(D) Vessel 4	(E) Vessel 5	(Z) Total
Vessel ID:	_____	_____	_____	_____	_____	_____
1984	_____	_____	_____	_____	_____	_____
1985	_____	_____	_____	_____	_____	_____
1986	_____	_____	_____	_____	_____	_____
1987	_____	_____	_____	_____	_____	_____
1988	_____	_____	_____	_____	_____	_____
1989	_____	_____	_____	_____	_____	_____
1990	_____	_____	_____	_____	_____	_____
1991	_____	_____	_____	_____	_____	_____

(through 11/13/91)

Column Z Total _____
Value A

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4. Personal catch history to be used in evaluating your share based on best 5 of 8 years.

Enter the 5 highest values from Column Z of Step 3. Total the result and divide by 5.

Year	Adjusted Catch History
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
Total	_____

This result will be entered as
Value B in Steps 5a and 5b.

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5a. Allocation Option 2b with 25 percent of the allocation divided equally among all qualified applicants

Under this formula, 25 percent of the QS allocated will be based on a "straight equal allocation" and 75 percent will be based on best 5 of 8 years.

<p>Enter Value A from the Step 3. _____</p> <p>If this value is less than 3,000 pounds, you would not qualify for any allocation of QS based on the Option B-2 formula. STOP HERE.</p> <p>If this value is 3,000 pounds or greater, you would qualify for an allocation.</p> <p>If you qualify for an allocation, your share, based on the straight equal allocation portion of the formula, would be derived by taking 25 percent of the total QS to be allocated and dividing that amount by the number of permits owned by persons receiving QS.</p> <p>However, only one "equal allocation" will be made per permit. If some other person is claiming an equal share, based on their part ownership of the same permit you own, you may not also claim an equal share. Only one equal allocation will be made per permit and will go to the entity that owns the permit.</p>	
<p>Enter the number of longline or fishpot "A" permits owned for which no one else is claiming an equal share and multiply by the estimated equal share value.==>></p> <p>(If you only own one permit and someone else is claiming an equal share allocation based on their part ownership of the permit, you would enter a 0 here for number of permits.)</p> <p>Choose a value from the range (0.1101 to 0.2232) to use as the estimated equal share and enter here. ==>></p> <p>The exact value from this range used in the final allocation will depend on the number of permits owned by QS applicants. The low end of the range (0.1101) is based on equal shares going to the ownership of 227 permits and the high end (0.2232) on equal shares going to the ownership of 112 permits. There is a small likelihood that the equal share value will fall outside the range shown here.</p>	<p>_____</p> <p>x _____</p> <p>= _____</p> <p>Equal allocation share.</p>

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5a. (Continued)

Your share of the 75 percent allocated based on best 5 of 8 years.

<p>Enter Value B from Step 4 ==>></p> <p>An adjustment factor is used to convert your historic catch from the best 5 of 8 years to a percentage of the total quota available. The adjustment factor will depend on the total catch history claimed by all applicants. It is impossible to know the exact amount of catch history that will be claimed. However, based on current estimate, the adjustment factor value is expected to be between 0.00000152 (if the amount of catch history claimed comes in at the high end of the expected range) and 0.00000168^{1/} (if the amount of catch history claimed comes in at the lower end of the expected range). If a greater or lesser amount of catch history is claimed than currently anticipated, the adjustment factor value may fall outside this range. Enter the adjustment factor you wish to use here ==>></p>	<p>_____</p> <p>x _____</p>
<p>Multiply adjustment factor by Value B and enter result here==>></p>	<p>_____</p> <p>Share based on your best 5 of 8 years</p>

Total your QS based on a 25 percent equal allocation and calculate the amount of IFQ which may be issued.

<p>Total your shares based on equal allocation and based on your best 5 of 8 years, as calculated in the two boxes above, to get your QS (if any) expressed as a percent of the total QS issued. For example, a QS of 0.01 equals 1/10,000 of the total QS issued. A result of 1 equals 1/100 of the total QS issued.</p>	<p>_____</p> <p>(Quota Share)</p>
<p>Multiply your QS by 55,100 to determine the poundage of IFQ which would be issued in a year in which the total quota available in the fixed gear sablefish IQ program is 2,500 mt.</p> <p style="text-align: center;">Enter resulting IFQ here ==>></p>	<p>x <u>55,100</u></p> <p>_____</p> <p>(IFQ under 2,500 mt quota)</p>

1/ If the total amount of catch history claimed by all applicants falls at the high end of the expected range, the adjustment factor will be approximately 0.00000152. If the total falls at the low end of the expected range, the adjustment factor will be approximately 0.00000168.

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5b. (Continued)

Your share of the 60 percent allocated based on best 5 of 8 years.

<p>Enter Value B from Step 4 ==>></p> <p>An adjustment factor is used to convert your historic catch from the best 5 of 8 years to a percentage of the total quota available. The adjustment factor will depend on the total catch history claimed by all applicants. It is impossible to know the exact amount of catch history that will be claimed. However, based on current estimates, the adjustment factor value is expected to be between 0.00000107 and 0.00000118^{2/}. If a greater or lesser amount of catch history is claimed than currently anticipated, the adjustment factor value may fall outside this range. Enter the adjustment factor you wish to use here ==>></p>	<p>_____</p> <p>x _____</p>
<p>Multiply adjustment factor by Value B and enter result here==>></p>	<p>_____</p> <p>Share based on your best 5 of 8 years</p>

Total your QS based on the 40 percent equal allocation option and calculate the amount of IFQ which may be issued.

<p>Total your shares based on equal allocation and based on your best 5 of 8 years, as calculated in the two boxes above, to get your QS (if any) expressed as a percent of the total QS issued. For example, a QS of 0.01 equals 1/10,000 of the total QS issued. A result of 1 equals 1/100 of the total QS issued.</p>	<p>_____</p> <p>(Quota Share)</p>
<p>Multiply your QS by 55,100 to determine the poundage of IFQ which would be issued in a year in which the total quota available in the fixed gear sablefish IQ program is 2,500 mt.</p>	<p>x <u>55,100</u></p>
<p style="text-align: center;">Enter resulting IFQ here ==>></p>	<p>_____</p> <p>(IFQ under 2,500 mt quota)</p>

^{2/} If the total amount of catch history claimed by all applicants falls at the high end of the expected range, the adjustment factor will be approximately 0.00000107. If the total falls at the low end of the expected range, the adjustment factor will be approximately 0.00000118.

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APPENDIX C
EXAMPLE IFQ Inspector Program

The requirements, organization and language of this example inspector program are adapted from the Alaska Observer Program dated May 1994. This program would differ from the current Alaska program in that the scope of information collected will be extremely narrow compared to the Alaska program and that all inspector activities will occur at shoreside locations.

The primary goal of the proposed inspector program would be to decrease the occurrence of intentional underreporting of amounts of individual fishing quota (IFQ) sablefish landed by participants in the limited entry fixed gear sablefish individual quota (IQ) program. The goal would be achieved by providing 100 percent coverage by inspectors of any significant landings of IFQ sablefish. The program also provides fishery participants with the opportunity to bear part of the costs of administering a program from which they are expected to receive substantial benefits.

Coverage Requirement

The vessel owner would be required to provide for an inspector certified by the National Marine Fisheries Service (NMFS) during the off-loading of the IQ sablefish if required to do so by the regional director. Notwithstanding these requirements, inspector presence would be required whenever a landing will exceed 1,000 pounds round weight equivalent. The inspector would have to be present from the beginning until the end of the off-loading of all fish taken on any trip in which the IQ sablefish landing exceeds 1,000 pounds.

Summary of Program Operation

Responsibilities

NMFS:

- overall administration
- inspector training/certification (or certification of training programs)
- contractor certification
- specification of coverage requirements
- coordination of inspector coverage and logistics
- data management

Fishing Industry:

- arranging for and paying direct costs for securing the presence of NMFS-certified inspectors at off-loadings through an independent inspector contractor certified by NMFS

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Certified Inspector Contractors:

- recruitment, deployment and logistics
- ensuring that inspectors are certified by NMFS
- insurance and employee benefits for inspectors
- timely delivery of inspector data to NMFS

Inspectors:

- monitoring amounts of sablefish landed and reporting information upon completion of landing (including verification that all fish have been off-loaded)

NMFS Responsibilities

1. **Program Administration.**

- establishing general program policy
- specifying inspector duties, data collection methods and data recording formats
- contractor certification and possibly inspector training program certification
- management of NMFS personnel and budgets
- development and implementation of fishery regulations pertaining to inspector work

2. **Inspector Training/Certification.** Individuals meeting NMFS qualification standards and hired by contractors would be required to complete a training certification program prior to their official observation of the off-loading of IFQ sablefish.

This training program would be offered by NMFS. *However, NMFS might certify state or Pacific States Marine Fisheries Commission personnel to administer the NMFS training program.*

Inspectors would act as agents of NMFS for purposes of the Paperwork Reduction Act.

Inspector certification would be revocable if the inspector fails to perform assigned duties satisfactorily or does not adhere to standards of conduct prescribed by NMFS.

3. **Contractor Certification.** Contractor certification should assure that contractors (1) do not have either a financial or personal conflict of interest with fishing vessel or shoreside processing facilities owners and (2) understand their responsibilities. NMFS would develop a set of responsibilities which must be performed by each contractor. Contractors would be required to submit technical proposals describing how they would perform their specified tasks to ensure they can adequately provide the required services.

The cost for providing inspectors would not be used in the evaluation. *FOR DISCUSSION: However, inspector contractors would be required to*

- (a) *provide any member of the fleet the same services for the same fee as all other members, regardless of the location of the landing (so as not to disadvantage vessels in more isolated ports); and*

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- (b) *base their services on poundage landed (so as not to substantially disadvantage vessels making smaller landings).*

An exception to (a) could be made for state or local governments or authorities that apply to act in the capacity of an inspector contractor, allowing these entities to restrict the services provided to the area of their jurisdiction.

Firms, governments (local or state), universities or others submitting proposals judged adequate to provide services and whose independent financial and personal nature had been verified would be included in a list of certified contractors from which industry members could obtain their required inspectors.

Contractors' certifications would be revocable if (1) they are found to have a financial or personal conflict of interest with vessel or processing facility owners, (2) they are deficient in the performance of their duties or (3) changes are made to the Inspector Program which no longer require NMFS-certified inspector contractors.

4. **Inspector Debriefing.** Inspectors would report their observation data to the NMFS limited entry office on a real time basis. On a periodic basis, NMFS would contact inspectors by telephone or in person to identify and solve problems encountered observing off-loadings and estimating quantities landed. Because there may be incentives for inspector corruption, enforcement officers would periodically monitor inspector activities. (This is substantially different from the debriefing process for the Alaska Observer program.)
5. **Coordination of Inspector Coverage and Logistics.** Inspector contractors would be responsible for all deployment logistics and the vessel owner/operator or IFQ holder would be responsible for ensuring that they have an inspector. Because 100 percent coverage would be required for all significant landings (landings over 1,000 pounds), there would be no need for NMFS to coordinate or monitor where and when observers are placed. (This is substantially different from the NMFS role in the Alaskan Observer Program.)
6. **Data Management.** NMFS would be responsible for the entry, editing and data base management of all data collected by inspectors. This task would be carried out by the NMFS office responsible for tracking and monitoring use of the IFQs.

Fishing Industry Responsibilities

The vessel owner would be responsible for the direct costs of placing inspectors at the off-loading. Any vessel owner would be responsible for obtaining a NMFS-certified inspector from the certified inspector contractor of choice. The cost of that inspector would be paid by the vessel owner directly to the contractor. Prior to the beginning of off-loading operations, the inspector would be required to notify NMFS and the contractor that he or she is on site and prepared to perform the inspector duties.

Vessel owners required to have NMFS-certified inspector coverage who do not have an inspector would be subject to enforcement action. This requirement places the burden on industry and the contractor to ensure they meet the inspector requirement.

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A vessel operator landing IQ sablefish and the receiving facility would be required to maintain safe conditions on the vessel and receiving facility. Access to any part of the vessel or receiving facility, vehicles, etc. in which fish may be stored would have to be provided to the inspector immediately upon request for access.

Certified Inspector Contractor Responsibilities

Contractors wishing to provide inspector services to the fishing industry would be certified to do so by NMFS. To obtain certification as an inspector contractor, a firm could not have either a financial or personal conflict of interest with the vessel owners to which they are providing inspectors; would have to submit a proposal to NMFS which details how they plan to carry out the required inspector contract service and which would be judged adequate by NMFS; and would have to agree to provide all data collected by inspectors directly to NMFS. Under this inspector plan, there would be no limit placed on the number of contractors that could participate in the program and a vessel owner could choose to work with the contractor(s) of personal choice.

As agents of NMFS for purposes of the Paper Work Reduction Act, inspector contractors would be responsible for the following tasks.

1. Recruiting, evaluating and hiring qualified candidates to serve as inspectors.
2. Ensuring that their inspectors have obtained the required NMFS certification through successful completion of a NMFS-certified training program.
3. Providing inspector salary, benefits and personnel services.
4. Providing basic worker's compensation and P&I insurance to cover and protect inspectors injured in the performance of their duties.
5. Providing deployment logistics necessary to place and maintain inspectors at the IFQ sablefish off-loading sites. This includes any necessary travel arrangements, hotels, per diem and any other services required to place the inspectors at the off-loading site.
6. Providing replacement or back-up inspectors in the event an inspector has to be removed from off-loading site for any reason.
7. Keeping NMFS informed of current inspector deployments and deployment plans.
8. Ensuring and coordinating inspector debriefings with NMFS.
9. In cooperation with the vessel owners and fish receivers, assuring that all required data transmissions between the inspector and NMFS are delivered to NMFS within the time specified by the northwest regional director.
10. Assuring that all other data and reports are delivered directly to NMFS within the period of time specified by NMFS.

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11. Assuring that any gear and equipment issued to their inspectors is returned upon the end of the inspectors' employment.

Contractors' certifications would be revocable if (1) they are found to have a financial or personal conflict of interest with the vessel owners or fish receivers, (2) they are deficient in the performance of their duties or (3) changes are made to the inspector program which no longer require NMFS certified inspector contractors.

Inspector Responsibilities

The primary inspector duties at any sablefish off-loading would be to

- a. notify NMFS and their contractor when they arrive at a landing site and are ready to perform their duties;
- b. determine the total weight and condition (round, dressed western cut, dressed eastern cut, etc.) of all IFQ sablefish offloaded;
- c. verify that all IFQ sablefish on board have been off-loaded; and
- d. upon completion of the off-loading, report the amount and condition of the fish to the NMFS office tracking the landing together with other relevant information about the landing (e.g., IFQ account numbers, delivering vessel, receiving facility).

Inspector training would include the following topics.

- Administrative information
- Background on the sablefish IQ program
- Identification of sablefish and product condition
- Estimation of quantities landed
- Access to vessel and receiving facility for purposes of gathering required data and confirming that all fish have been off-loaded (legal scope of access)
- Procedures for reporting data to NMFS and debriefing
- Procedures for reporting to inspector contractor
- Actions to take and not take if illegal activity is detected (IQ program violations or other)
- Workplace safety

Training would not likely be more than two days. If inspector duties are expanded (e.g., collection of biological data), training sessions may cover other topics and could last longer.

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APPENDIX D

COST ESTIMATES FOR IFQ INSPECTOR PROGRAM

Cost estimates for inspector programs are provided in Table D-1. The primary difference in the two cost estimates is in the payment of standby pay. Table D-2 shows number of sablefish landings in the unrestricted season for the last several years. Under an IQ program, number of landings should decrease if larger landings are more efficient and increase if smaller landings are more efficient.

Baseline Assumptions:

- 34 inspectors would be needed (as per enforcement alternative in the draft SEIS)
- 100 percent turn-over of inspectors every year
- 1,000 landings a year would be made under the IQ program
- If standby pay is used, all inspectors would travel to a central location to take part in a training program
- If individuals with complementary responsibility are hired, inspector training will be incorporated with other training activities and the contract monitor will travel to the site to administer training
- Pay level is commensurate with amounts paid port samplers and includes 42 percent in benefits
- Travel and hotel costs are based on averages

The costs of the option based on standby pay could be substantially reduced by restricting the season, thus reducing the standby pay. Table D-3 shows, for the baseline assumptions and modifications of those assumptions, total costs and implications of the assumptions in terms of trips monitored per inspector, trips per vessel and total costs per trip.

If port samplers are hired to inspect IQ trips, it may be possible for NMFS to endorse state employees as certified inspector trainers. These individuals could then administer port sampler training at the same time training is provided on other responsibilities. In this way, training costs may be minimized.

TABLE D-1. Possible Alternative IQ Inspection Programs based on 100 percent coverage of landings over 1,000 pounds by 34 inspectors.

	Using Standby Pay to Retain Inspectors	Hiring Individuals With Complementary Responsibilities	Cost (\$)	Cost (\$)
Standby Pay	125.00/wk x 18 weeks per inspector	No standby pay	2,250	0
	Total standby pay for 34 inspectors	Total standby pay	221,000	0
Per Landing Costs	Avg travel costs per landing	Avg travel cost per landing	50	50
	1 day pay (includes 42% benefits)	1 day pay (includes 42% benefits)	150	150
	Total per landing	Total per landing	200	200
	Total for 1,000 landings	Total for 1,000 landings	200,000	200,000
Inspector Training	2 days per diem per inspector		70	
	2 nights hotel per inspector		130	
	Round-trip airfare per inspector		300	
	Local transportation per inspector		60	
	2 days pay per inspector (includes 42% benefits)		300	
	Total per inspector	Assumed cost per inspector including cost of contract trainer	860	860
	Total for 34 inspectors	Total for 34 inspectors and inspector trainers	29,240	29,240
Training Administration	Contract monitor and administrator for inspector training program:	Contract monitor	75,000	37,500
	1 FTE (GS-11)	1/2 FTE (GS-11)		
	Travel and supplies	Travel and supplies	3,000	13,000
	Total for program	Total for program	78,000	50,500
	Contract Costs	Contract Costs	305,740	229,240
	Contract Overhead & Profit (15%)	Contract Overhead & Profit (15%)	48,861	34,386
	Total Contract Costs	Total Contract Costs	351,601	263,626
Totals	Government Costs	Government Costs	78,000	50,500
	TOTAL PROGRAM COST	TOTAL PROGRAM COST	\$ 429,601	\$ 314,126

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TABLE D-2. Number of landings for recent and historic periods.

	Number of Landings			Total Pounds Landed (millions)
	Hook and Line	Fishpot	Total	
1983				
Full Year	495	844	1,339	14.8
1984				
Full Year	354	462	816	12.3
1991				
Trip Limit Season	2,194	331	2,525	
Open Season	989	219	1,208	11.4
1991				
Trip Limit Season	5,229	711	5,940	
Open Season	648	132	780	9.5
1993				
Trip Limit Season	1,890	183	2,073	
Open Season	688	190	878	7.8

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TABLE D-3. Effects of baseline assumptions on cost estimate.

Assumptions		Using Standby Pay to Retain Inspectors (thousands of dollars)	Hiring Individuals With Complementary Responsibilities (thousands of dollars)
Assumptions from Table D-1	Total Cost	\$430	\$314
	Trips/Inspector	29.4	29.4
	Trips/Vessel ^{a/}	7.1	7.1
	Cost/Trip	\$430	\$314
Landings Increase to 2,000	Total Cost	\$660	\$544
	Trips/Inspector	58.8	58.8
	Trips/Vessel	14.3	14.3
	Cost/Trip	\$329.8	\$329.8
Landings Decrease to 500	Total Cost	\$315	\$199
	Trips/Inspector	14.7	14.7
	Trips/Vessel	3.6	3.6
	Cost/Trip	\$629	\$398
Increase Inspectors to 50 (15 each for Washington and Oregon and 20 for California)	Total Cost	\$487	\$330
	Trips/Inspector	20	20
	Trips/Vessel	7.1	7.1
	Cost/Trip	\$486.8	\$330
Season is Lengthened to 6 months	Total Cost	\$355	\$158
	Trips/Inspector	14.7	14.7
	Trips/Vessel	3.6	3.6
	Cost/Trip	\$706	\$332

a/ Assumes 140 vessels.

Note: The costs presented here represent a range of possible outcomes which will vary depending on how the inspector program is organized and degree of concentration which occurs in the fleet.

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Attachment F.6.a.
October 1994

Supplement to
Draft Amendment 8 (Fixed Gear Sablefish Individual Quotas) to the Pacific Coast Groundfish
Fishery Management Plan, Including Draft Supplemental Environmental Impact Statement,
Regulatory Impact Review, and Fishery Impact Statement

And

Regulatory Amendment Banning Hook Extractors in the
Fixed Gear Individual Quota Sablefish Fishery

Part II

Impact Analysis

October 1994

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PART II IMPACT ANALYSIS

Additional Analysis of Equal Sharing Options

While a preferred quota share (QS) allocation formula has been selected, one element of that allocation formula (the amount to be subject to equal distribution) has yet to be determined.

Allocation formula: (*Option A: 25 percent or Option B: 40 percent*) of the QS would be divided by the number of "A" permits held by qualifying applicants to determine the equal allocation share; the remaining (*Option A: 75 percent or Option B: 60 percent*) would be distributed on the basis of the average of the best five calendar years of catch history from the eight-year allocation period. (Section 15.6.2.6)

An additional issue is introduced in this section: the number of equal shares issued may be equivalent to the total number of permits^{1/} (227) rather than the number of permits whose owners currently qualify for an equal share. In response to this situation, options are presented which would

- a. establish a cut-off date for acquiring new permits to qualify for equal shares; and/or
- b. allocate an equal share to every permit without regard to recent participation or minimum participation requirements.

More Equal Shares May be Issued than Initially Anticipated

- Estimates based on current permit ownership indicate that there would be approximately 112 equal shares distributed under the preferred option
- There are significant incentives for permit purchases (in whole or in part, temporary or permanent) which may well result in an amount of equal shares being issued equivalent to the total number of permits (227).
- Substantial permit stacking may occur, particularly by those expecting to receive about 3 percent or more of the total QS.

Summary: If the Council desires to issue equal shares to only the 112 1989-1991 participants meeting the 3,000 pound window-landings criterion and does not want extensive stacking of equal shares to occur, serious consideration should be given to a cut-off date beyond which permit purchasers would not qualify for equal shares. Such a cut-off date is probably less necessary if all permits are awarded equal shares (rather than requiring recent and minimum participation), although there remains the possibility that some individuals who would be above or near the accumulation cap would still endeavor to secure additional equal shares through the stacking of permits. Also, it is likely that some individuals with qualifying

1/ All references to permits are references to groundfish limited entry permits with "A" gear endorsements, unless otherwise noted.

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landing histories who were not initially issued permits or have sold their permits will secure at least partial interest in permits and make QS claims that are not reflected in previous analysis. A cut-off date for qualifying for equal shares may discourage some of these people from re-entering the fishery, but those with large landing histories are likely to seek shares for their best five of eight years anyway.

Further review of the options under consideration by the Council has led to the conclusion that recent or future transfers of permit ownership, in whole or in part, may have a significant impact on the distribution of QS, relative to the estimated results in the analysis previously provided to the Council. The purposes of this section are two-fold: (1) to outline the incentives and opportunities in the present individual quota (IQ) package for vessel owners to gain benefits from securing interest in a permit or additional permits; and (2) to discuss possible means of limiting the impact of future permit transfers.

- Owners with qualifying catch histories will likely attempt to acquire part ownership in permits owned by non-qualifying persons in order to claim more equal shares.

One avenue through which the distribution of QS could change is the equal sharing provision. Unless a cut-off date is imposed for transfers which will qualify permit recipients for equal shares, it now appears likely that nearly all fixed gear permits will qualify for equal share allocations. Persons with permits meeting the initial QS allocation qualifying criteria will have considerable incentive to secure complete or partial ownership of currently non-qualifying permits. This incentive derives from the ability of program qualifiers to receive one equal share for each permit held. Because the permits currently held by non-qualifying owners would have no IQ value to those owners, there would be little reason for them not to transfer part interest in the permit (or whole interest for a few months^{2/}), from which they might stand to gain \$5,000 to \$20,000. On the other side, a qualifier executing a short-term purchase of another permit might stand to gain \$15,000 to \$60,000 worth of shares, depending on the number of permits held by qualifiers, the amount of quota subject to equal sharing, and the eventual price of shares. Owners expecting to receive allocations in excess of the accumulation cap would view this as their only opportunity to increase the scale of their operations, while qualifiers with little sablefish history during the window period would be motivated to secure enough shares through this discounted market to stay in business.

The other, less certain, avenue through which the distribution of shares will change is the acquisition of permits by persons lacking permits, but who have window catch histories and recent participation. It is not clear how many individuals with sizable sablefish histories and recent participation were not among those initially receiving permits. The current expectation is that 10 to 20 individuals not included in the previous analyses may acquire permits. And most or all of these permits will be purchased from individuals who would qualify for negligible, if any, QS.

2/ Note, the person transferring the permit would be able to continue to fish, because the permit could stay registered for the same vessel.

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- Estimate of maximum QS issued to a single person may be a lower bound estimate.

It should be recognized, however, that even with a generally even distribution of equal shares, some individuals may be successful in acquiring numerous permits for this allocation. And, if these individuals also had the largest historical production (best five of eight years), this would tend to increase the maximum QS issued, as well as the range of share values. The following example illustrates the manner in which a large purchase of permits by one person might affect the distribution of shares. If the owner with the highest five of eight years history did not obtain any additional permits, if 25 percent of shares were distributed equally and only 112 equal shares were issued, that individual would receive a share of roughly 4.44 percent. As mentioned above, this is the same result as if all qualifiers purchase one additional permit. However, if 227 equal shares are issued and the owner with the largest catch history purchases an extra 10 permits, that individual would receive a total QS of 5.43 percent.

- Option: cut-off date for transfers that can acquire the owners an equal share.

There do not appear to be many workable options available for limiting the number of equal shares for which a person can qualify by acquiring additional permits. The present program structure allows current qualifiers to establish new partnerships with non-qualifiers. These new partnerships can then utilize the qualifiers participation to acquire an equal allocation share. One option would be to establish a cut-off date, after which no new owner of a permit would be entitled to an equal share. This would discourage the transfer of permits for the purpose of gaining multiple equal shares, but it might also adversely impact individuals who would legitimately plan to enter the fishery by obtaining permits in the near future.

- Option: Do not require recent or minimum participation to qualify for equal shares.

Modifying the current program so that every permit holder would qualify for an equal share would greatly reduce the tendency for stacking of equal shares to occur. This follows from the fact that the permits would have essentially the same value (in terms of the revenue represented by the equal shares) to all permit holders. An owner without recent participation would not be willing to sell his permit for less than the full value of the equal share. The most efficient producers would retain some advantage in securing additional QS through the purchase of additional permits. However, with the exception of those over or just below the accumulation cap, their incentive would be no greater than would be the case following initial allocation. If each of the 227 permit holders qualified for and retained his equal share, the largest allocation would be 4.33 percent, compared with 4.44 percent if only 112 equal shares were issued. Given the expectation that most permits would qualify for an equal share, this option would have little effect on the size of the equal shares.^{3/}

3/ This option also partially addresses a concern that there are persons who have recently purchased permits to participate in the sablefish fishery but do not have a qualifying sablefish catch history. These individuals will receive no initial distribution but will experience a significant decrease in the value of their permit. Granting an equal share to all permits would provide some compensation.

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The bottom line on this issue is that there is considerable reason to expect that, under the current proposal, the number of equal shares will be roughly equal to the number of permits. The distribution of these equal shares will certainly not be the same as if all permits were allowed to qualify for them. But, of importance here is that 227 equal shares may be issued regardless of whether or not a recent participation and minimum participation requirement is applied to the equal sharing portion of the initial allocation and, therefore, the size of the shares will be the same. Previous analysis of the Council's preferred alternative from its April meeting was based on the assumption that 125 equal shares would be issued to the 125 current owners of "A" permits that have recent participation. (Please note that the 125 number did not include the requirement of 3,000 pounds of sablefish landings during the window period. With this added requirement, the correct number is 112.) If 227 permit owners eventually qualify for equal shares, the value of each equal share would then be reduced to roughly half of the original value estimated for the equal sharing options (see Tables II-1a and II-1b). Ironically, if every qualifier went out and purchased exactly one additional permit in the hopes of receiving more QS, the resulting distribution of shares would be precisely the same as if no one had purchased any additional shares. Despite the fact that all must pay out money in this scenario in order to wind up where they began, many qualifiers will be inclined to do so. From the standpoint of individuals who expect most of the non-qualifying permits to be transferred to qualifiers, it will be apparent that unless they secure an interest in at least one extra permit, their initial allocation will be lower than previously thought. From another perspective, an individual who does not wish to purchase additional permits is likely to receive roughly the same allocation whether all permit owners qualify for equal shares or not.

From the standpoint of the analysis, it is difficult to say which current qualifiers may have the greatest desire and success in acquiring additional permits/equal shares. Qualifiers throughout the range of QS recipients will be likely to recognize the rather unique opportunity to buy shares in this manner for less than full value. Despite the fact that owners who would receive more than 3 percent of the shares would face their only opportunity to increase their holdings, the geographic dispersion of permits/owners and the time available for setting up the temporary transfer agreements may limit an individual's ability to secure additional permits. Thus, there is some reason to think that the shares may be distributed rather evenly across the recent participant group.

Effects of Re-entry By Past Vessel Owners Who Sold or Did Not Apply for Permits

Another issue which has surfaced recently involves individuals with recent participation who would have qualified for permits, but who did not initially apply, or those who may have qualified but have sold their permits. The financial rewards of initial IQ allocation may motivate many owners in this category to secure permits, or become partners with existing permit owners and receive QS for their landing histories. However, due to the difficulty in tracking vessel ownership histories and the unpredictability of individual behavior, we cannot be sure how many such cases may emerge or how significant their catch histories will be. Some of these individuals probably have already purchased permits. For analytical purposes, 20 owners were added to the 125 presented in previous analyses. This may overstate the expected number of new permit

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owners with recent participation, but it is probably a safe estimate of an upper bound for such entry. The assumed landing-history distribution of these owners (best five of eight years tonnage) is shown below:

<u>Number of Owners</u>	<u>Best Five of Eight Years (mt)</u>
9	34
3	57
2	80
1	103
1	144
1	201
1	287
1	402
1	575

A cut-off date for qualifying for equal shares may discourage some of these owners from returning, but those with the larger histories will still have ample incentive to acquire permits. If all of these hypothetical owners secured permits, with one equal share per owner the highest allocation (with 25 percent equal sharing) would fall from 4.44 to 4.02 percent. Naturally, if none of these new owners bought permits before a permit acquisition cut-off date,⁴ fewer equal shares would be issued, and there would be a smaller reduction from the QS values estimated previously. In the case where equal shares totalling 25 percent are issued to all permit holders regardless of recent participation, the presence of these new owners would lower the maximum QS from 4.33 to 3.94 percent.

Distribution of OS Under Preferred Options

Additional analysis was undertaken to provide a comparison of the following equal sharing options.

- 15 percent shared among 112 qualifiers
- 25 percent shared among 112 qualifiers
- 40 percent shared among 112 qualifiers
- 25 percent shared among 227 qualifiers, while issuing the remaining "historical" shares to only the 112 permit owners recent and minimum participation.
- 40 percent shared among 227 qualifiers, while issuing the remaining "historical" shares to only the 112 permit owners recent and minimum participation.

4/ A date before which an individual meeting recent participation and minimum participation requirements would have to acquire a permit in order to qualify for an equal allocation.

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Table II-1a shows the QS percentage that would constitute an equal share, for the three levels of equal sharing under consideration, given a specified number of equal shares being issued. Table II-1b provides the poundage that would correspond to these QS percentages, given a 2,500 mt allocation. The scenarios shown with 112 equal shares assume the Council is able to institute an effective measure to limit the transfer of permits to persons with a qualifying catch history who would use the permits to generate additional equal shares. The scenarios with 132 equal shares represent an estimated upper bound on the number of total qualifiers, given the return of some individuals who did not apply for permits, but would meet the requirements of this program. The scenarios with 203 equal shares reflect all permit owners with sablefish landings from 1984-1994, while the scenarios with 227 include all permits.

Table II-2 shows the average QS percentages and associated annual poundages for ordered groupings of 10 permit owners from the present 112 qualifiers, along with the 115 permit holders not currently qualifying. These data are presented graphically in Figures II-1 and II-2. It is apparent that for individuals with large landings histories moving from 25 percent equal sharing with 112 equal shares to 227 equal shares represents a much smaller drop in QS received than does moving to the 40 percent scenario with 112 equal shares. Table II-3 compares the average QS and poundage in the four new options with the 15 percent equal sharing alternative.

TABLE II-1a. Equal QS percentage assigned to each qualifier, for three levels of equal sharing and four alternative numbers of equal shares.

Number of Equal Shares	Amount of Suota Equally Shared		
	15%	25%	40%
112	0.134%	0.223%	0.357%
132	0.114%	0.189%	0.303%
203	0.074%	0.123%	0.197%
227	0.066%	0.110%	0.176%

TABLE II-1b. Equal annual poundage assigned to each qualifier, for three levels of equal sharing and four alternative numbers of equal shares, given a 2,500 mt fixed gear allocation.

Number of Equal Shares	Amount of Quota Equally Shared		
	15%	25%	40%
112	7,381	12,302	19,684
132	6,263	10,438	16,702
227	3,642	6,070	9,712
203	4,073	6,788	10,860

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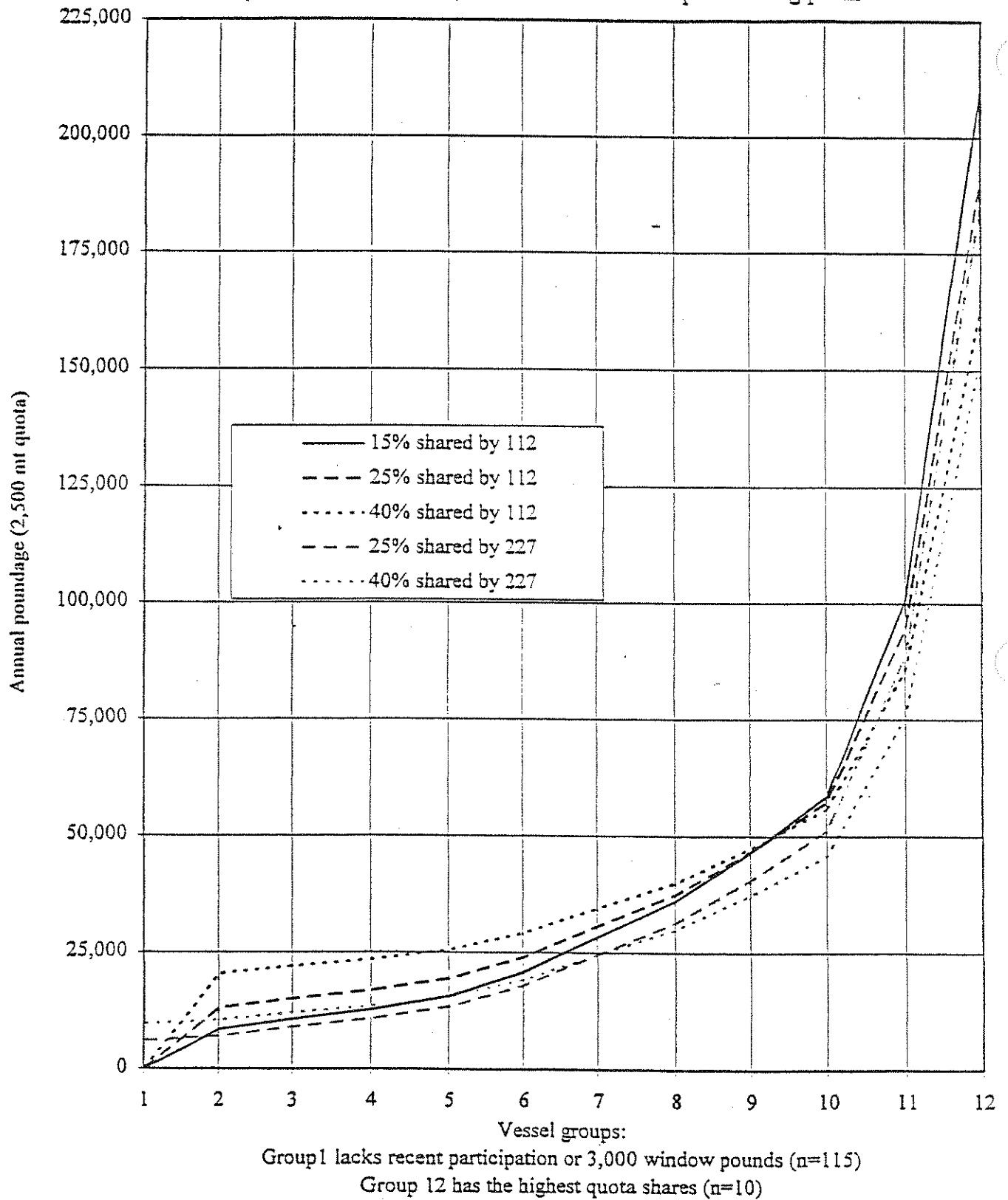
TABLE II-2. Effect of various levels and types of equal sharing on QS and annual poundage for 11 ordered groups of 10 permit owners, and the 115 other permit holders who do not have 1989-1991 sablefish landings and at least 3,000 sablefish pounds from 1984-1991.

Total Percentage Equally Shared	Group Average QS Percentages, Given:				
	One Equal Share for 112			Equal Shares Divided Among 227	
	15%	25%	40%	25%	40%
Equal share (QS%)	0.134	0.223	0.357	0.110	0.176
Bottom-115	0.000	0.00	0.00	0.123	0.197
11th-10	0.153	0.238	0.371	0.140	0.211
10th-10	0.195	0.274	0.400	0.177	0.240
9th-10	0.232	0.307	0.426	0.209	0.266
8th-10	0.285	0.354	0.464	0.257	0.304
7th-10	0.380	0.437	0.531	0.340	0.390
6th-10	0.517	0.558	0.627	0.461	0.467
5th-10	0.657	0.682	0.726	0.585	0.566
4th-10	0.845	0.848	0.859	0.751	0.699
3rd-10	1.062	1.039	1.012	0.942	0.852
2nd-10	1.833	1.719	1.556	1.622	1.396
Top-10	3.813	3.467	2.954	3.369	2.794

Total Percentage Equally Shared	Group Average Annual IFQ Poundage, Given:				
	One Equal Share Each For 112			Equal Shares Divided Among 227	
	15%	25%	40%	25%	40%
Equal share (lb)	7,381	12,302	19,684	6,070	9,712
Bottom-115	0	0	0	6,070	9,712
11th-10	8,460	13,090	20,445	7,020	10,472
10th-10	10,747	15,111	22,060	9,039	12,088
9th-10	12,771	16,897	23,489	10,823	13,516
8th-10	15,715	19,493	25,567	13,422	16,593
7th-10	20,923	24,087	29,243	18,013	20,200
6th-10	28,489	30,763	34,582	24,689	24,607
5th-10	36,207	37,575	40,032	31,498	30,055
4th-10	46,596	46,741	47,365	40,662	37,387
3rd-10	58,539	57,278	55,793	51,197	45,819
2nd-10	101,002	94,746	85,768	88,655	75,779
Top-10	210,167	191,069	162,826	184,953	152,819

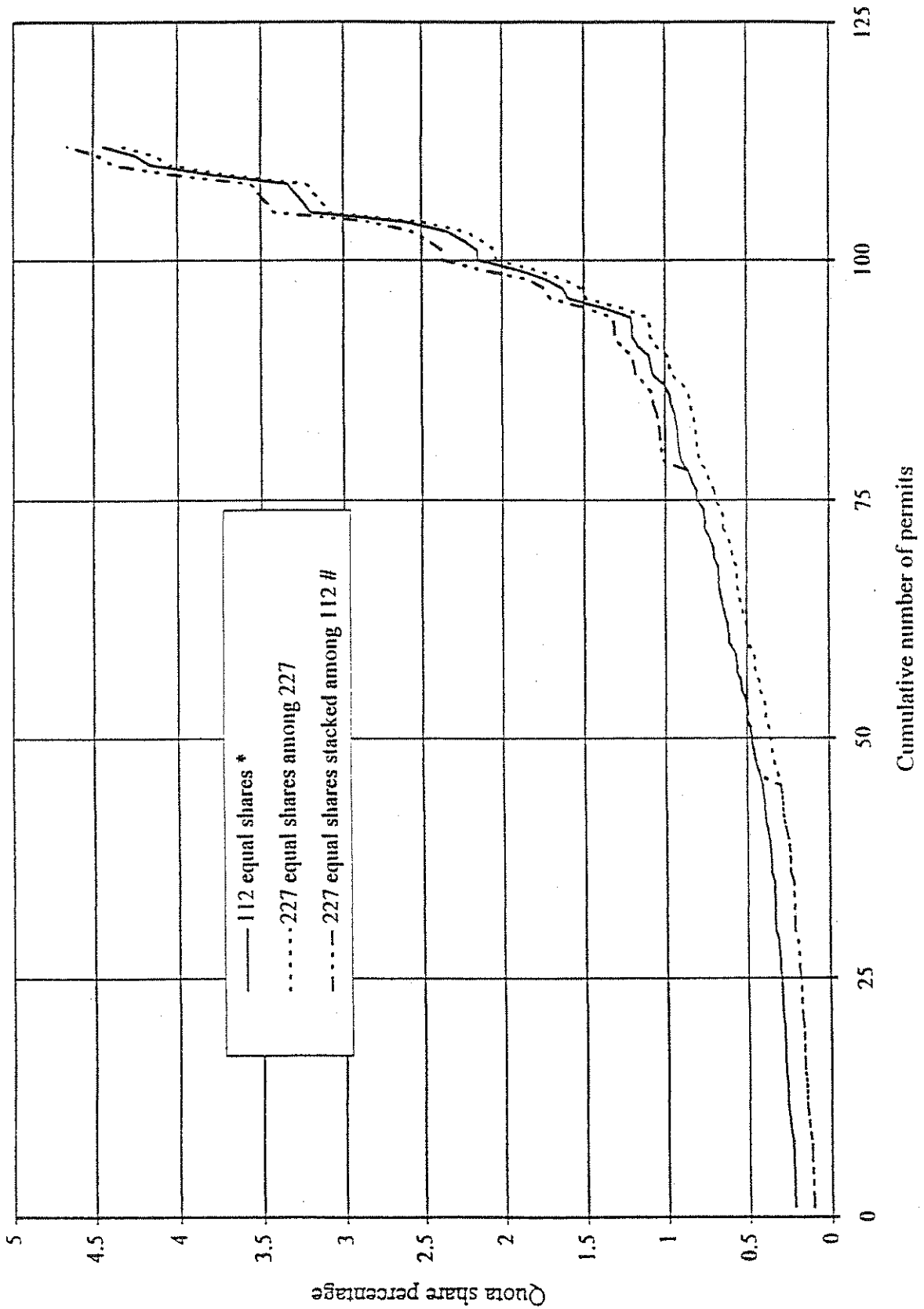
Note: Under the scenarios in which only 112 owners qualify, if each owner purchased one additional permit, receiving one additional equal share, the distribution would look exactly like those shown in the first 3 columns, but owners would incur the additional cost of buying the extra permits.

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 FIGURE II-1 Annual poundage per vessel, for 12 groups ordered by the amount of Quota Share received, under 5 alternative equal sharing plans



Note: In all scenarios, the quota shares not shared equally are distributed according to the best 5 of 8 years to only those license holders with 1989-91 landings. Groups 2-12 have 10 vessels each, while group 1 has 115.

FIGURE II-2. Cumulative distribution of initial Quota Share allocations among 112 permit owners with recent participation, in 3 scenarios using 25% equal sharing.



* This scenario is the same as where the 112 qualifiers each buy up one additional permit.
 # This scenario assumes that owners buy from 0-4 added permits, and those with the largest history buy more permits.

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TABLE II-3. Effect of various levels and types of equal sharing, compared to equally sharing 15 percent of shares among the 112 permit holder with 3,000 window pounds and recent participation; for ordered groups of 10 permit owners and for the 115 other permit holders not meeting these criteria.

Total Percentage Equally Shared	One Equal Share Each For 112			Equal Shares Divided Among 227	
	Group Avg. QS %	Change in Group Average QS From the First Option			
	15%	25%	40%	25%	40%
Equal share (QS%)	0.134	0.223	0.357	0.110	0.176
Bottom-115	0	0	0	0.123	0.197
11th-10	0.153	0.084	0.217	-0.013	0.057
10th-10	0.195	0.079	0.205	-0.018	0.045
9th-10	0.232	0.075	0.194	-0.022	0.034
8th-10	0.285	0.069	0.179	-0.029	0.019
7th-10	0.380	0.057	0.151	-0.040	-0.009
6th-10	0.517	0.041	0.111	-0.056	-0.050
5th-10	0.657	0.025	0.069	-0.072	-0.091
4th-10	0.845	0.003	0.014	-0.095	-0.146
3rd-10	1.062	-0.023	-0.050	-0.120	-0.210
2nd-10	1.833	-0.114	-0.276	-0.211	-0.437
Top-10	3.813	-0.347	-0.859	-0.444	-1.020

Total Percentage Equally Shared	One Equal Share Each For 112			Equal Shares Divided Among 227	
	Annual Pounds	Change in Pounds From the First Option			
	15%	25%	40%	25%	40%
Equal Share (lb)	7,381	12,302	19,684	6,070	9,712
Bottom-115	0	0	0	6,070	9,712
11th-10	8,460	4,630	11,985	-1,440	2,013
10th-10	10,747	4,363	11,313	-1,708	1,341
9th-10	12,771	4,126	10,718	-1,947	745
8th-10	15,715	3,778	9,852	-2,293	-122
7th-10	20,923	3,164	8,320	-2,910	-1,655
6th-10	28,489	2,274	6,094	-3,800	-3,882
5th-10	36,207	1,368	3,825	-4,709	-6,152
4th-10	46,596	144	769	-5,934	-9,210
3rd-10	58,539	-1,261	-2,745	-7,341	-12,726
2nd-10	101,002	-6,256	-15,233	-12,347	-25,222
Top-10	210,167	-19,098	-47,340	-25,214	-57,348

Note: Under the scenarios where only 112 owners qualify, if each owner purchased one additional permit, receiving one additional equal share, the distribution would look exactly like those shown in the first 3 columns, but owners would incur the additional cost of buying the extra permits.

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Measures to Reduce Windfall and Collect Resource Rents

Windfall profits arising from the initial IQ allocation have been identified as an area of concern. These concerns focus mainly on the opportunities for initial recipients (1) to operate at lower cost, as a result of having been given shares that must be bought by others; and (2) to realize large gains from the eventual sale of shares for which nothing was paid. Some of the concerns about windfall profits are also intertwined with the issue of recovering the cost of administering the program from the individuals who benefit from it and collecting rents for the owners of the resource (the public). Four options have been identified to address these concerns (preferred options are in italics).

- a. *Broaden equal sharing from the "15 percent of the total allocation" selected as the preferred option in April 1994 to 25 or 40 percent of the total initial allocation. This would redistribute windfall from larger to smaller producers (Section 15.6.2.6, Options B2a and B2b).*
- b. *Provide that only one-half of the QS held are transferable. When QS are sold, the seller surrenders a matching amount of nontransferable QS to NMFS. This does not require a change in the Magnuson Fishery Conservation and Management Act (MFCMA). QS would be redistributed (Options: (1) among all share holders in proportion to their holdings; (2) through a lottery (Council guidance is needed on who can participate in the lottery); or (3) through an auction, if the needed amendments are made to the MFCMA. (Section 15.9.2, Option 2) [Alternatively, 50 percent of the shares may be issued as nontransferable shares and expire in proportion to the amount of shares sold.]*
- c. *Specify that if more than 3 percent of the total QS is issued to a single person, the amount above 3 percent is not transferable (The Council has matched this with the 25 percent equal sharing options in "a" above.) (Section 15.9.2, Option 1)*
- d. *Increase direct or indirect costs of owning or using QS/IFQ thereby reducing their value. Assessment of direct fees would require an amendment to MFCMA. (See Fees, Section 15.15; and Inspector Program, Section 15.12)*

In addition to these options, objections to windfall might be reduced by helping the public understand that the size of the windfall may be less than its nominal value because of taxes which will be owed on the windfall and a reduction in the value of other assets owned by the QS recipient (value of the limited entry permit and vessel).

The option of increased equal sharing is discussed in the previous section on this topic. This option redistributes windfall rather than reducing it. Increasing the costs of owning QS through payment for an inspector program is discussed in the following section on industry payment for the program. Increasing costs of owning or using QS/IFQ through annual fees is discussed in this section.

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One method for reducing windfall would be the imposition of fees. Because of the uncertainty regarding whether reauthorization of the MFCMA will permit broader ability to collect fees, one method of imposing a de facto fee on sales of QS has been discussed. This approach calls for half the QS to be nontransferable and on each sale for there to be a surrender to NMFS of an amount of nontransferable shares equal to the amount of shares sold. On the surface, this may appear to be a relatively straightforward means of extracting some of the windfall from initial recipients. However, this approach would seriously undermine the opportunity to achieve some of the efficiency gains predicted for the program, might very well have little effect on the windfall received by initial recipients, and would provide uneven effects across the fleet, depending on how long initial recipients held onto their shares and how quickly others were able to buy shares.

One of the important sources of efficiency gain from an IQ program, particularly over the longer term, is the transfer of shares from less efficient to more efficient harvesters. The likelihood that sales will occur, thereby increasing the net returns from the fishery, is dependent upon the extent to which the sales price reflects the profitability to the seller of the shares. Because of this, there is a considerable difference in impact between a fee on ownership or use of shares and a fee (or required surrender) on the sale of shares.

In a free and competitive market situation, the price that an owner of an asset is willing to accept for sale of it is tied directly to the earning potential (in terms of money or satisfaction) of that asset. When a fee is placed at the point of sale, the amount an owner is willing to accept for selling shares exceeds what he or she stands to earn from future use of those shares by the amount of the fee which must be paid. If one share must be surrendered for each share that is sold, the price that the seller is willing to accept for selling one share is no longer the earning potential of one share, but of two shares. This means that the expected earning stream of the buyer must be twice that of the seller in order for a sale to occur. Thus, although the proposed surrender requirement would insure that transactions would lead to gains in efficiency, it would also insure that very few transactions would occur. Typically, transactions would be expected to occur only when the projected timelines of earnings were sufficiently different. An obvious example would be where the owner of shares planned to retire, ending the expected stream of earnings. However, retirement from active fishing would not always lead to the sale of shares. Initial recipients would not be constrained by any requirements that the owner of the shares be on board during fishing, and as a result, the earning timeframe for this group extends well past the age at which they might want to retire from active fishing. Therefore, it is within the realm of possibility that imposing such a significant fee at the point of sale could lead to very few sales of shares prior to the deaths of the initial recipients. Additionally, corporations and partnerships could continue indefinitely by taking on new members as old members leave. (Corporate and partnership ability to use a hired skipper would be lost with the first change in ownership of any part of the corporation or partnership.)

- Impact of measure intended to reduce windfall would be lessened by higher prices demanded by sellers.
- Those who receive no windfall would also be subject to nontransferability and surrender provisions.

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Two observations are made with respect to the ability of the surrender provisions to achieve the desired objective, i.e., reducing the windfall gained by QS recipients. First, if the market price of shares does, in fact, reflect the earning capacity of both the sold and surrendered shares to the seller, then the provision will have had little impact on the ability of initial recipients to realize a windfall gain. Second, in the option before the Council, all sales, not just the first sale of shares, are to be subject to the surrender provisions. This is not consistent with the fact that only the initial recipients would have received shares without paying for them, which is the source of the windfall. Furthermore, as outlined above, subsequent purchasers would likely have to compensate sellers for at least some portion of the additional earning potential of the surrendered shares, and yet they would still be subject to surrender of an equal amount of shares at some future time when they decide to sell. Thus, the problems previously noted are, in fact, compounded with each subsequent sale of shares.

- Those who hold shares longer will be less affected.

A final concern with regard to the surrender option is that if QS is redistributed to all remaining QS holders, all individuals would not be treated equally under the provisions. Consider two hypothetical persons, each of whom receives 1 percent of the shares issued during initial allocation. One of these persons sells all of his/her shares during the first year. This means that shares totalling 0.5 percent were actually sold and the remainder surrendered, for a sum that may reflect the earning potential of all 1 percent, perhaps \$400,000. Assume that by the time the other person sells out, 33 percent of the originally issued shares have been sold, with another 33 percent surrendered. The shares held by this person now represent 1.5 percent of the total shares, and so, if prices and the allocation remain unchanged, are now worth 50 percent more than at initial allocation. If this person is able to capitalize the entire value of his/her shares into the sales price, he or she would receive 50 percent more (an additional \$200,000) from selling off the same initial allocation as that received by a person who sold earlier. A similar situation exists for buyers. A person buying shares before a high-volume period of sales would see those shares appreciate, due to the surrender of some shares during sales. Other things being equal, individuals buying shares prior to extended periods without significant sales would not realize the same appreciation in the value of their shares.

- Rents would not be recovered and benefits reduced.

In addition to the fact that this option may not reduce the windfall received by any initial recipients, it should also be noted that this implicit fee does nothing to recover costs of the program. It slows the rate of transfer to more efficient harvesters, and when sales do occur, it may redistribute surrendered shares among all holders in a manner proportional to their holdings. If redistribution is viewed as an acceptable means of addressing the windfall issue, a more effective means of doing so would be to increase the amount of equal sharing included in the initial allocation. This avenue more effectively reduces the largest amounts of windfall gain while avoiding the market distortions inherent in the surrender option.

- If fees are allowed, a use fee would capture rents and reduce windfall without significantly jeopardizing the program benefits.

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If explicit fees and rent recovery become available as an option, a similar rationale can be put forward in favor of fees on ownership or use, as opposed to fees applied to the sale of shares. To many, a fee at the time of sale may seem a more direct means of capturing the windfall received by initial recipients, but transfers to more efficient users are, once again, discouraged, and, in all likelihood, the fee would not differentiate between sales of initially received shares and those that were purchased. As with the surrender provisions, there is the distinct likelihood that initial owners will simply add the value of the sales fee to the estimated present value of their earnings in order to set a sales price. A fee on ownership or use, on the other hand, will be incorporated into the profit expectations of buyers, and will therefore lower the sales price available to initial recipients. However, in this case, a wedge is not driven between the owner's profitability and the price he is willing to sell for, because his own profitability in continuing to use the shares is also affected by the fee. Also, if funds collected by the fee were being used to recover program costs, a fee on ownership or use would tend to provide a more predictable stream of revenue.

Another method of charging fees and recovering rents following program implementation would be to retire a specified percentage of each owner's holdings each year, and then redistribute the taxed shares through an auction or lottery. When an auction is the method of redistribution, the primary differences between this approach and a straight fee on ownership are that (1) the ease of levying a fee versus conducting an auction, and (2) the amount of the fee would in one case be determined by a formula and, in the other, by the bid on the shares. Redistribution through a lottery could be implemented under the current MFCMA. This would reduce windfalls but not recover rents for the public. A change in the MFCMA would be necessary to conduct an auction. Any such change will likely also allow the collection of fees. Compared to the charging of fees, there are not any readily apparent advantages to the auction approach that would compensate for the increased complexity and administrative burden involved in conducting the auction.

Option "c" which specifies that no more than 3 percent of the QS issued to any person would be transferable might place an upper limit on the maximum amount of windfall which might be received. While similar in some respect to the surrender provision of option "b", its scope is far more limited in that (1) it affects only initial recipients, and (2) it affects only the small percentage of shares which would be issued to any person in excess of the 3 percent limit. Therefore, the negative effects on the program will be much more limited. It is likely that persons holding QS in excess of a 3 percent limit will seek ways to transfer the QS without going through an actual sell, for example, changing partnership or corporate membership. Consideration should be given to specifying that for QS in excess of 3 percent a change in ownership will be deemed to occur when there is a change in the membership of any partnership, corporation or other entity owning the QS.

Measures to Address Industry Payment for the Program

Because there will be substantial private sector benefits from this program, the resource is owned by the public; the public pays taxes for management of the resource but receives few direct benefits from its ownership; and government budgets are very restricted, it has been suggested that the costs of administering the program should be recovered from industry. However, the MFCMA does not currently allow fees to be charged for access to the resource. The following options have been identified to address this issue.

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- a. *Create a provision in the program stating that, if and when allowed under the MFCMA, a fee will be assessed to cover administrative and enforcement costs. (Section 15.15)*
- b. *Adopt the program with implementation contingent on amendments to the MFCMA which allow recovery of administrative and enforcement costs through fees on program participants.*
- c. *Require IFQ owners to hire NMFS-certified IFQ inspectors to be present for landings greater than a given size, e.g., any landing over 1,000 pounds. (Section 15.12)*

The Council has identified the first option as a preferred option and asked that additional work be done to develop the last option.

The first option does nothing at present to recover fees but establishes provisions in the plan for charging fees if the necessary changes are made to the MFCMA. Through this provision, industry would be notified from the start of the Council's intent and in the event that the MFCMA is modified to allow fees to be charged, no additional plan amendments would be required. It is likely that the benefits to participants in the program will be larger than any fee charged (see benefit cost analysis). Advantages of charging fees on annual IQ holdings or use as opposed to sale of IQ are discussed in the previous section. Fees on holding or use would be likely to reduce sale prices of QS by reducing expected profits. This would also reduce windfall profit received by initial recipients to some degree, depending on the size of the fee (see previous section).

The second option reflects a position that the program should not be implemented unless rents can be recovered from industry. The ability to collect rents is a distributive issue; in general, it should not have a significant effect on the results of the benefit cost analysis. The primary effect of such provisions is on governmental budgets and the U.S. taxpayer (owners of the resource). However, if the delay is measured in years rather than months, problems may be encountered. During the delay, the fishery will have changed and fishers will have been placed in a continuing state of uncertainty. In order to adequately consider current participation in the fishery, as required by the MFCMA, a Council reevaluation of the program likely would be required prior to submission to the Secretary of Commerce. It is likely that much of the program would have to be redebated requiring another period of time for development of options, analyses and public comment.

The final option might result in immediate industry payment of the majority or near majority of the program costs. However, based on the recent findings in the Interagency Staff Report on the Individual Fishing Quota Inspector Program, Individual Quota Enforcement, and Other Implementation Issues, it appears that an inspector program may not contribute significantly to enforcement and therefore may not provide a means for industry payment of some expenses. Some details on this option are provided in Appendices C and D of Part I to this document. Additional discussion is provided in the section on measures to reduce administrative and enforcement costs.

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Measures to Address Geographic Redistribution of Harvest

The possible negative effects of a geographic concentration of QS are sociological and biological. The biological concern is that if QS/IFQ ownership becomes geographically concentrated, the heaviest harvest effort may occur around those areas of concentration and localized depletion may harm the stock. Of sociological concern is that communities may be deprived of the benefits of the resources from adjacent waters. The idea that a community may have some claim to benefits from the resources in adjacent waters is part of the basis for the exclusive economic zone which is exerted at a national level.

In 1993, there were 6 of 44 fixed gear sablefish port areas for which more than 5 percent of the ports' fishing revenue came from non-Indian, nontrawl sablefish: Newport Beach, Port Orford, Winchester Bay, Florence, La Push and Neah Bay. For one of these ports, the percentage of revenue was over 25 percent and for another it was under 10 percent. While the fixed gear sablefish harvest may be a substantial portion of fishing revenue for only a few communities, this program is being pursued, in part, as a pilot for other programs. If there is a significant probability that QS/IFQ will be redistributed geographically, such redistribution occurring in an incremental fashion with a number of species could have a significant cumulative adverse affect on local fishing communities. In general, with the advent of fishing technologies which allow offshore harvest, there is a chance that over time there will be a long-term erosion of local community access to fishing resources, whether such erosion occurs through individual transferable quota programs, such as that contemplated here, or the opportunities for geographic preemption such as that presented in the Olympic fishery for Pacific whiting.

The options under consideration for limiting geographic reallocation are as follows (preferred options are in italics).

- a. *Issue catch-area-specific QS/IFQ (options being developed for formulas to be used at future time if needed). (Section 15.6.3)*
- b. *Prohibit at-sea freezing of IQ sablefish with a grandfather clause for some ongoing freezing activity (preferred option is a vessel-based freezing prohibition). Or, limit trip length.*
- c. Create exceptions which would allow communities to purchase QS/IFQ and hold the QS/IFQ for their local fisheries (current provisions restrict non-individuals that did not receive an initial allocation from holding QS/IFQ).
- d. Create community development quota (CDQ) type program.

The only solution that would guarantee maintenance of some semblance of the historic distribution of landings would be to require that QS/IFQs be landing-area-specific rather than catch area specific, e.g., shares could be issued designating the state in which landings may be made. Landing-area-specific QS/IFQ would allow catch to be taken anywhere along the coast. Therefore, this option would not address biological concerns. However, it appears that for enforcement purposes, catch-area-specific QS/IFQ will likely entail a requirement that the sablefish be landed in the area of catch, unless they are being landed outside the country. Thus, the same end may be achieved with catch-area-specific QS. The other solutions proposed decrease the probability that landings will be concentrated in one area without providing any guarantee against this possible eventual outcome (with the exception of the CDQ option).

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The Need for Area Management

While the Council's preferred option remains that there be "no area-specific QS," the Council has requested that this issue be revisited and that options be developed which would create area-specific QS in case it is determined that they are needed. The following is an excerpt from Section 3.3.3 of the January 1994 draft Supplemental Environmental Impact Statement (SEIS), which discusses the biological need for area management.

The geographic distribution of QS may have adverse biological consequences, because concentration of fishing effort could cause some localized reduction in stock abundance. In an ideal world, fishing effort would be distributed in proportion to fish abundance and the resulting fishing mortality rate would be evenly spread throughout the stock. However, a variety of factors including interactions with other fisheries, location of major ports, variation in costs of fishing and variations in price of product will cause the distribution of effort to differ from the distribution of fish.

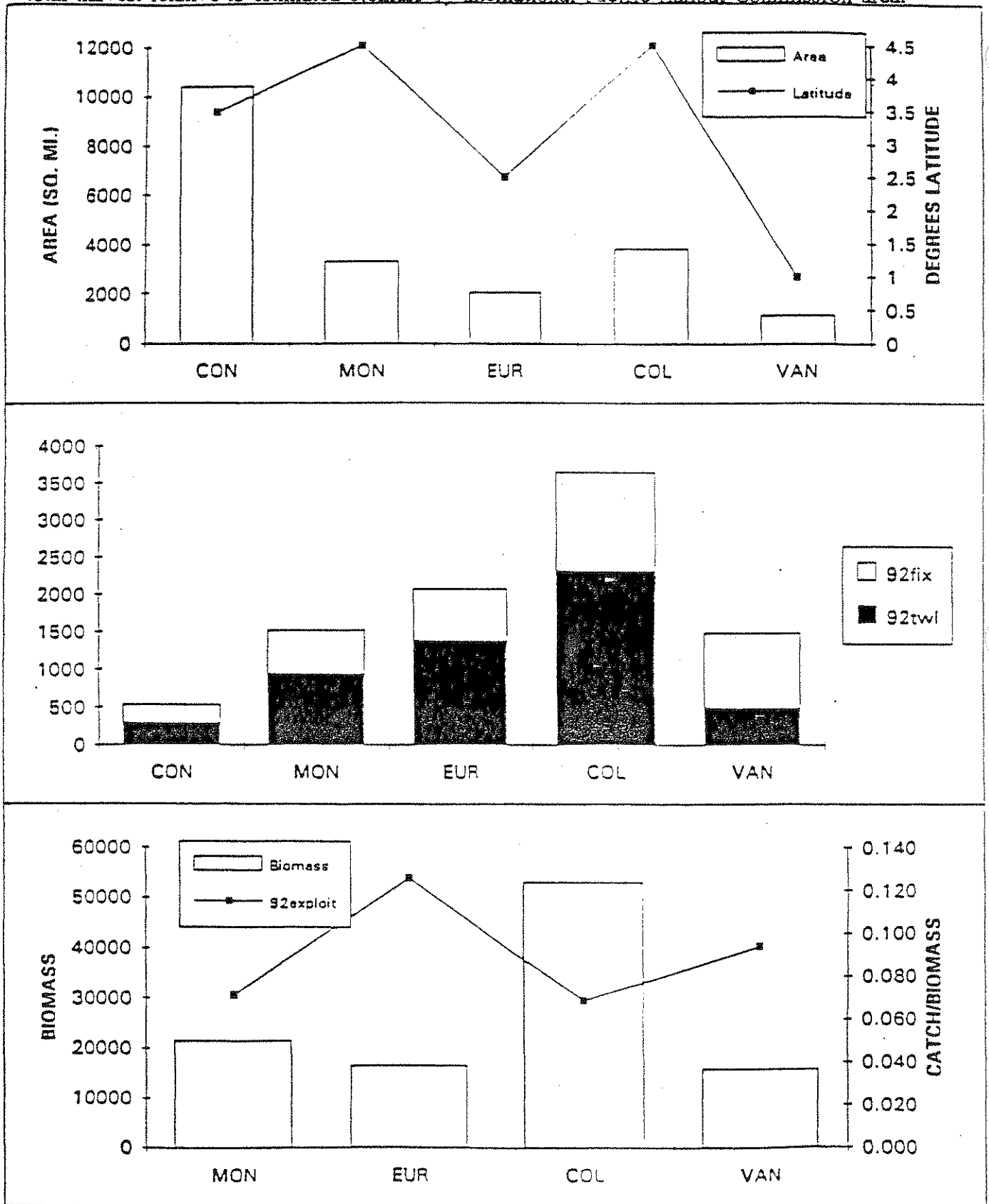
Whether or not localized reduction in abundance has a significant biological impact is difficult to ascertain and depends on the size of the depleted area, the rate of immigration from other areas and the degree to which local recruitment is dependent on the abundance of the local spawning stock. Tagging studies indicate that some sablefish, particularly smaller individuals, may move great distances, but many tagged sablefish are recaptured within the International North Pacific Fisheries Commission (INPFC) area in which they were tagged. In addition, persistent latitudinal patterns in size-at-age indicate that along-shore mixing of the West Coast sablefish adult stock is slow. Information on the degree of localized recruitment is completely unknown. Without this information, the safest course is to attempt to maintain a relatively uniform rate of exploitation over the distribution of the stock.

Area-specific QS may be needed because:

1. The harvest guideline is already split between the Conception area and northern areas and at least one fisher will want to fish in the Conception area.
2. The current distribution of sablefish abundance and of catch are similar, but not identical (see Figure 3-3 [Figure II-3 in this document]). In the future, further division of the coastwide harvest guideline into area-specific harvest guidelines may be necessary.
3. Under an IQ program, the distribution of shares may become further concentrated in certain areas. This may exacerbate (2) above.

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FIGURE II-3 (FIGURE 3-3 from draft Amendment 8). Trawl and non-trawl harvest shares and total harvest relative to estimated biomass by International Pacific Halibut Commission area.



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Table 3-14 [Table II-4] shows that the landings pattern may start out being similar to historic catch patterns with the largest changes being a decrease in Puget Sound landings and an increase in southern Oregon landings. This may change over time. . . .

If there is no geographic split in the harvest guideline, IFQs will be required to harvest sablefish in the Conception INPFC area as well as northern areas. There is currently no harvest guideline or quota for the Conception area, therefore these fish are not allocated between open access and limited entry fisheries, nor are they allocated between trawl and nontrawl vessels. Since the amount of IFQs issued would be based on the areas north of the Conception area, treating the Conception area in this way could result in the northern area harvest guideline not being fully taken. The amount of IFQs used in the Conception area is expected to be minimal. If harvest in the area expands at a later date, a harvest guideline may be created and included in the allocation to different groups including the sablefish IFQ program.

The biological need for area management should be put into the context of the overall harvest of the sablefish resource. Regardless of concentration which may occur if there is a transfer of QS to centralized ports, a majority of the sablefish harvest will be outside the IQ system, in the trawl fishery.

Catch-area-specific QS/IFQ

Catch-area-specific QS/IFQ would decrease the probability that catch would become concentrated in a single port by guaranteeing an advantage in travel cost and time for ports adjacent to the catch area for which the QS/IFQ is allocated. If vessels are not required to land their catch in the area of harvest, such provisions might be more effective in combination with a prohibition on freezer vessels. However, it should be recognized that many non-freezer vessels return Alaska sablefish catches to the West Coast for landing. Therefore, the longer travel time and costs to land in ports outside a catch area would be far from prohibitive. Catch-area-specific quotas would complicate the initial allocation, administration and enforcement of the program. Catch-area-specific quotas may address biological concerns about the potential for localized depletion of a stock.

Area management in the limited entry fixed gear sablefish fishery would ensure only that the fixed gear portion of the sablefish fishery would not be concentrated in one area. Because the pattern of the trawl fishery does not follow the biomass, a fixed gear sablefish allocation system would have to take into account the distribution of trawl effort in determining in which International North Pacific Fishery Commission (INPFC) areas the allocation should be harvested. If biomass alone were the basis for the determination of amount of fixed gear harvest to occur in an area, fixed gear area management could exacerbate area depletion rather than improve the situation. Decisions on the amount of harvest to be taken in each area will be highly political as these will have direct effects on the value of QS/IFQ in the areas.

TABLE II-4 [TABLE 3-14 (Replacement)]. Fixed gear landings and expected distribution of QS by area.

	Total mt Fixed Gear Landings by Region		Total mt Fixed Gear Landings by Region		Historic Regional Landings Normalized to a 2,500 mt Quota		Landings by Region if Initial IQ Recipients Retain the Shares and Land Them According to Their Historical Tendency	
	1984-1991 ^{a/}	1992-1993	1992-1993	1984-1991	1992-1993	certain	certain+unc.	
	MT of Landings or Individual Fishing Quota							
Puget Sound	11,460.8	1,770.9	1,770.9	661	563	573	557	
Wash. Coast	3,300.4	1,104.2	1,104.2	190	351	156	152	
N. Oregon	8,887.3	1,873.8	1,873.8	513	596	501	491	
S. Oregon	7,899.4	1,310.2	1,310.2	456	417	602	586	
N. Calif.	3,773.9 (3,215.4)	892.2	892.2	218	284	190	219	
Mid. Calif.	6,323.1 (5,295.5)	481.7	481.7	365	153	405	422	
S. Calif.	1,680.7 (1,593.0)	427.6	427.6	97	136	73	74	
Coastwide	43,325.7	7,860.6	7,860.6	2,500	2,500	2,500	2,500	
	Percent of Total							
Puget Sound	26	23	23	26	23	23	22	
Wash. Coast	8	14	14	8	14	6	6	
N. Oregon	21	24	24	21	24	20	20	
S. Oregon	18	17	17	18	17	24	23	
N. Calif.	9	11	11	9	11	8	9	
Mid. Calif.	15	6	6	15	6	16	17	
S. Calif.	4	5	5	4	5	3	3	

a/ Numbers in parentheses are based on actual gear codes reported on the fish ticket. The larger number reported for each area is based on adjustments made to account for misreadings of gear as evidenced by catch composition.

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Area QS/IFQ will be difficult to enforce. It is likely that most enforcement will be based on an assumption that the port of landing is adjacent to the area of catch. Area management also creates additional program complexity, increasing the cost of initial allocation and the IFQ tracking system. However, if area management were implemented and there are no area-specific QS/IFQ, the result may be a derby in some areas, as fishers race to use their QS/IFQ before being forced to fish in a different area of the coast.

The following options have been developed for creating area-specific QS after the program is implemented.

Option 1 (Same proportions of area QS for each QS recipient)

If it is determined that area management is needed, each QS holder's QS will be reissued as area-specific QS for each area in combinations which reflect the relative size of the allowable limited entry fixed gear catch for each area. For example, if the Columbia INPFC area is a management area for the sablefish IQ program and if 20 percent of the allowable catch is to occur in the Columbia INPFC area, then 20 percent of the QS for every QS holder would be for the Columbia INPFC area. QS holders in different areas may then exchange shares to achieve their desired mix of area QS. An exemption from any transfer fees or surrender requirements will be provided for a period of time, as long as those transfers meet with Internal Revenue Service requirements which provide for the nontaxable exchange of similar assets. (Like Kind Exchanges, Internal Revenue Service Publication 594, Page 5)

Option 2 (Historic catch areas)

Each QS recipient will be allocated QS specific for each area according to the initial QS recipient's historic catch areas. Equal allocation will be divided among areas according to the distribution of shares based on catch history. The area designation will be for INPFC areas but will not be used to control harvest until such time that it is determined there is a need for area management.

Option 3 (Historic landing areas)

Each QS recipient will be allocated QS specific for each area according to the initial QS recipient's historic landing areas. Equal allocation will be divided among areas according to the distribution of shares based on catch history. The area designation will be for INPFC areas but will not be used to control harvest until such time that it is determined there is a need for area management.

Other considerations related to area management:

If area management is combined with anti-windfall provisions requiring that half of all QS be nontransferable with matching surrender of nontransferable shares upon sale of transferable shares, then would surrendered shares for a particular area be redistributed to all share holders or just those share holders who have shares for that area?

Would the 3 percent cap apply to every area or to the coast as a whole?

What will happen to the IFQ of QS holders in an area if a tribal allocation is taken entirely from the quota for a particular area?

Table II-5 summarizes expected advantages and disadvantages of these allocation options in comparison to one another.

TABLE II-5. Advantages and disadvantages of area QS options.

Basis of Area Allocation		
Same Proportions of Area QS to Everyone (Option 1)	Historic Catch Areas (Option 2)	Historic Ports of Landing (Option 3)
Management Area Lines	Available data will only support management area lines which correspond to INPFC area lines. (See Table II-6.)	Port data will support management area lines set between any two adjacent port areas.
Simplicity	Requires calculation of separate QS for each area.	Same as Option 2.
Availability of Supporting Data	Unspecified and unspecified area of catch make initial allocation difficult in some cases. Often part of landing has been used a proxy for area of catch. For this reason, there may be little difference between Option 2 and Option 3.	Unspecified and unspecified port of landing make initial allocation difficult in some cases. (See Option 2)
Effect on Appeals	Will likely increase number of appeals because of data problems.	Same as Option 2.
Geographic Equivalency of Catch History and QS	The amount of QS received for a pound of catch in one area would be different from that received in another area.	Same as Option 2.
Interaction with Equal Allocation Formula	One QS in any area will result in different poundages of IFQ depending on the area.	Same as Option 2.
	Over time, one QS in one area will result in a different amount of poundage than a QS in other areas.	
	The equal allocation portion of the initial allocation would be split among areas in the same proportions as the allocation based on catch history.	
	The amounts of QS received on the basis of the equal allocation portion of the formula will depend on the number of applicants and their relative shares in each area. If a individual had 25 percent of his or her catch history in Area A and 75 percent in Area B then he or she would receive 1/4 of an equal share from area A and 3/4 of an equal share from area B. The amount of QS issued would depend on the total number of equal shares claimed for the area.	
	The poundage the QS represent will depend on the allowable catch for the area.	

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LE II-5. Advantages and disadvantages of area QS options.

Basis of Area Allocation

Same Proportions of Area QS to Everyone (Option 1)

Historic Catch Areas (Option 2)

Historic Ports of Landing (Option 3)

<p>Match Between Area Pattern of QS Received and Desired Pattern of Fishing Areas</p>	<p>It is likely that no one will receive QS that match their desired pattern of fishing. However, exchange of QS will be easier than under other options because (1) at the time of initial issuance QS in each area will be equivalent in that they represent the opportunity to catch identical amounts of sablefish regardless of the area to which the share applies; and (2) trading could be facilitated by providing initial exemption to transfer surrender provisions where those transfers involve a trade of QS between areas.</p>	<p>For many, the area for which QS is issued may match their desired fishing pattern. Some of the primary exceptions will be those whose desired fishing pattern has changed over the allocation period and those for whom area of catch information has not been accurately recorded.</p>	<p>Same as Option 2. Additionally, persons fishing multiple areas but landing in one port would only receive QS for one area. This may be a particular problem for those who fish out of ports near the boundary between management areas.</p>
<p>* Fishing Areas</p>	<p>Trading to match area QS to desired fishing pattern will be more difficult than under Option 1 because QS in one area will not be equivalent to QS in another area (in terms of total pounds issued for a given amount of QS).</p>	<p>Trading could be facilitated by providing initial exemption to transfer surrender provisions where those transfers involve a trade of QS between areas. This could occur at the time of initial allocation and/or at the time area management requires the use of area designator be activated.</p>	<p></p>

NOTES: Recent (e.g. 1988-1991) rather than historic data might be used to determine the mix of the QS under Options 2 and 3, as a way of reducing the data problems and increasing the likelihood that the mix of area QS allocated will match current activities.

Problems of a mismatch between desired pattern of fishing areas and the mix of QS received increase if permit catch history is used rather than personal catch history in the allocation formula (Section 15.6.2.1).

If the patterns of relative fixed gear catch to total biomass for 1992 hold for the entire allocation period (below in Figure 3-3, compare middle figure fixed gear catch to bottom figure total biomass) it appears that catch history off in the Columbia area will qualify an initial QS recipient for significantly more QS than catch history in the Vancouver area.

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TABLE II-6. Total hook-and-line and fishpot sablefish catch by area coded on the fishticket, 1984-1991.

INPFC Area/Other Area	Actual Code	Mt	Percent of Total
Vancouver	3B	11,972	28.2
Columbia	2B	4,379	10.3
Columbia	2C	7,028	16.6
Columbia	3A	2,611	6.2
Columbia	CL - (Columbia)	5,422	12.8
Eureka	1C	1,591	3.7
Eureka	2A	816	1.9
Monterey	1B	5,989	14.1
Conception	1A	1,466	3.5
Oregon Coast	OC	1,009	2.4
Pacific Council Areas	EK	114	0.3
Unidentified	UP	45	0.1
Total mt for West Coast		42,442	

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Prohibition on At-sea Freezing of IQ Sablefish or Limitation on Trip Length

Freezer vessels could harvest sablefish from a wide area and bring all product into a single port. While prohibition on at-sea freezing of IQ sablefish would tend to decrease the probability that harvest will be centralized in a few ports, significant opportunity for non-freezer vessels to land catch in high profit ports would remain. Additionally, if certain ports offer higher profit opportunities, over time QS/IFQ will be transferred to vessels operating out of these areas regardless of any limit on at-sea freezing.

Few freezer vessels have participated in the fishery over the last several years, likely due to the shortened season. Therefore, the provision would entail little change from recent practices. If freezing at sea provides a mode of harvest more efficient than others, the net benefits from the program would be reduced by this prohibition. Proposed options to ban substantial new at-sea freezing provide a mechanism to grandfather in existing processing or set a maximum level of at-sea freezing.

There is little information available as to whether sablefish has been landed fresh or frozen. Therefore, an initial allocation to grandfather in any existing activity is difficult. The options proposed are to either create a sablefish freezer vessel endorsement for limited entry permits or to issue all QS recipients a certain amount of QS which could be used as freezer QS or landed fresh (e.g., 5 percent). (See discussion on this topic in Part I of this document).

An alternative to the freezer ban which has been discussed would be to limit trip length. Limiting trip length to the maximum that might be possible for vessels that ice their fish would allow some freezing to occur but still limit the economies of scale and travel time opportunities which might encourage a vessel to travel to a more distant, higher profit port. However, like a ban on at-sea freezing, the provision would do little in the long run to prevent geographic concentration of QS/IFQ harvest and may encourage localized depletion.

Allow Local Communities to Purchase QS/IFQ

The program, as currently specified, would prohibit purchase of QS/IFQ by local communities. A community may benefit from the QS/IFQ program to the degree that local fishers have historically participated in the fishery. As these fishers decide to sell their IQ or locate their operations outside the communities, the communities could lose benefits from their adjacent coastal waters. Provisions which would allow communities to purchase QS/IFQ and assign it to individual fishers would allow the community to secure access to these resources.^{5/} Provision of the opportunity for community purchase is one measure which can be implemented which would have relatively little adverse affect on the benefits from the program and would not add much, if any, complexity.

5/ If changes are made to allow local communities to acquire IQ, the Council also may wish to consider whether the 3 percent ownership cap is an appropriate ownership limit for communities.

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Establish a CDO-type Program

Community development quotas (CDQ) have been established as part of the North Pacific Fishery Management Council (NPFMC) IQ program. The CDQ program is intended to provide stable, long-term employment in eligible communities by guaranteeing them a definite proportion of the IQ resource. The program is expected to diversify local economies and alleviate growing socioeconomic crises within the communities.

The following is a summary of elements of the western Alaska CDQ program:

1. For a community to qualify for CDQ it must have a Community Development Plan approved by the state governor and the Secretary of Commerce. The Secretary consults with the Council prior to giving the plan approval.
2. A percentage of the total allowable catch in designated management areas is set aside for CDQ. (20 percent for sablefish and between 20 to 100 percent for halibut. Trip limits are designated for halibut in one International North Pacific Halibut Commission area.)
3. No single qualified community may receive more than a fixed percent of the amount reserved for community development programs (12 percent).
4. Initial QS recipients who receive less QS because of the presence of a CDQ reserve in the management area in which they qualify will be compensated through the issuance to them of QS from areas where there is no CDQ. (Thus, all QS recipients share in the reduction of QS initially issued which results from the creation of the CDQ program.)
5. To qualify, communities must be in the coastal area, a native village, conduct over half their commercial or subsistence fishing effort in the waters surrounding the community, and not have previously developed harvesting or processing capability sufficient to support substantial groundfish fisheries, unless the community can show that the CDQ would be the only way to realize a return from previous investments.

Clearly, a CDQ-type program for the West Coast would have quite different provisions and criteria. Communities of concern on the West Coast are generally not native communities. CDQs might be justified on the basis of socioeconomic crises associated with timber and salmon industries. If the Council is interested in this option, further guidance should be provided on the direction of its development.

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Measures to Address High-grading and Discard Mortality

As long as there is a price differential for different sized sablefish there will be an incentive to high-grade, i.e., discard small fish which have a lower value per pound in order to retain a higher proportion of large fish with a relatively higher value per pound. As discussed in Part I, high-grading is only a problem to the degree that discarded fish die. The following options have been discussed to address this problem. (The Council's preferred option is italicized.)

- a. Create size-specific QS/IFQs.
- b. Designate minimum amounts of small and medium fish and/or maximum amounts of medium and large fish in a landing.
- c. Create prohibitions on high-grading.
- d. *Ban hook extractors.*

Size-specific QS/IFQ

This option would complicate fishing activities administration and enforcement of the program. This increased complexity has to be weighed against the benefits.

Size-specific QS/IFQs would be similar to a multispecies IQ program in terms of the complexities and incentives for discards that might be created. Size-specific QS/IFQs would likely be combined with provisions which specify the minimum and maximum proportions of IFQs for small and large sablefish which must be held and used on a trip. Without such a provision, a participant in the fishery might acquire a disproportionate combination of large and small fish IFQs and high-grade catch.

Variability in the size mix across trips, skill of the fisher, geographic areas and time will make it difficult for managers to establish size ratios which are appropriate for the mixes of catches taken by all program participants. The more skilled fishers with larger amounts of QS/IFQ and a desire not to high-grade might be able to vary their fishing practices over a number of trips to closely match the size mix for the year to the mix of IFQ held for the year. Others may be forced to discard to match the size mix of their catch with the size mix of the IFQ held. Some opportunity to trade quota may allow fishers to adjust the size mix of the quota to the size mix of the catches. However, provisions prohibiting leasing and requiring the surrender of QS on transfers will make such transfers unlikely. Fishers who would not otherwise high-grade would be forced to high-grade to use all their IFQ.

To implement this provision a means would have to be specified for adjusting over time the size mix of QS/IFQ issued in order to match the size mix of the fish caught in the fishery. Problems may also be encountered with variation in the size mixes and market categories between geographic areas. If market categories change, then the IQ system will have to change to match the change in market categories.

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Require Minimum or Maximum Catch Proportions for Different Size Categories

If it can be established that most trips fall within some bounds of proportions of large, medium, and small fish caught, such a provision may be successful in frustrating the most blatant cases of high-grading. Such requirements might be made gear specific (i.e., different requirements for pot and longline gear). The minimum and maximum limits established likely would be similar to those which might be established under a system with size-specific QS/IFQ, however the system would be simpler than a size specific IQ system and would provide greater flexibility for the fisher to adjust to actual size mix of fish caught without resorting to high-grading, and for the managers to adjust the program to changing stock and market conditions.

In general, stock productivity should increase if fishers are able to increase the proportion of large fish in their initial catch. Provisions which specify maximum amounts of large and minimum amounts of small fish penalize those fishers who through their skill are able to target larger fish.

Prohibitions on High-grading

Violations of high-grading prohibitions are extremely difficult to observe. It is generally thought to be a poor practice to enact unenforceable regulations because it penalizes honest fishers and may entice less honest fishers into disregarding regulations. The eventual success of the IQ program will depend largely on cooperation of participants. It may therefore be inadvisable to create as part of the program a regulation which may likely induce a noncooperative behavior ethic.

The NPFMC halibut and sablefish IQ programs contain provisions banning the discard of legal sized sablefish or halibut from any vessel with unused sablefish or halibut IFQ, respectively. The program also prohibits the discard of designated bycatch species. Designation as a bycatch species is based on the criteria that the discarded catch is "unlikely to survive" and that retention is "a benefit to the nation." However, the SEIS concludes, "The prohibitions on discard probably could not be enforced effectively on vessels without observers . . ." (March 27, 1992, Supplemental Analysis).

Ban Hook Extractors

Options of banning and not banning hook extractors in the IQ sablefish fishery are being considered. The purpose of a ban on hook extractors would be to reduce the discard mortality which results from any high-grading which may occur. It is believed that hook extractors increase the mortality of discarded fish. A hook extractor may rip through the jaw of a fish while hand shaking the fish is believed to result in less physical damage and therefore lower discard mortality. There are no studies available which document the effect of a hook extractor on sablefish discard mortality. There is an International Pacific Halibut Commission (IPHC) study currently underway on halibut hooking mortality associated with circle hooks of the size used in the sablefish and true cod fisheries. Preliminary results from this study indicate that there is significantly higher halibut mortality using small hooks with a hook extractor than those without a hook extractor. However the difference is not as great as when the comparison is made with large circle hooks (Steve Kaimer, IPHC, personal communication, October 4, 1994).

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There is some anecdotal information that not using hook extractors may increase fishing mortality. It has been reported that in California, blue sharks may congregate around a sablefish longline being retrieved. If the speed at which line is retrieved is reduced because a hook extractor is not used, a substantially larger portion of the catch will be damaged by the sharks.

A ban on hook extractors has previously been considered by the Council. The ban has not been enacted because of enforcement difficulties. For example, a hook extractor may be constructed from two pieces of wood nailed together, and thus easily disposed of upon the arrival of an enforcement presence. Additionally, vessels using autoline gear may have a difficult time complying with the letter of the law banning hook extractors. Autoline gear generally employs brushes to remove old bait and straighten the line. These brushes would also have the effect of removing fish and therefore be categorized as hook extractors. Some consideration needs to be given to the use and efficiency of autoline systems and whether they would be encompassed in the currently suggested language for the hook extractor ban.

There is currently a ban on hook extractors in the West Coast and Alaskan halibut fishery. While some cases have been made against violators, compliance with the ban is believed to be very low. Fines for violation have generally run at about one-half to one-third of the value of the fish on board. (Ken Hansen, Alaska Region Enforcement Office, personal communication, July 19, 1994)

The ban on hook extractors in the halibut fishery was expected to increase safety and provide a safer work environment (Kaimer 1994). Hook extractors allow vessels to harvest fish more rapidly. Speed of harvest may or may not be associated with efficiency of harvest. In a derby fishery situation, speed of harvest is an important means by which a vessel increases its total revenue. Under an IQ fishery, speed of harvest will not affect total harvest, therefore a ban on hook extractors will have no impact on total sablefish revenue. Net revenue may be reduced to the degree that a longer trip results in higher total costs (including any opportunity cost associated with not being able to participate in other fisheries because of the longer trip).

The primary effect of this ban on other fisheries will be to reduce discard mortality (e.g., halibut bycatch in the sablefish fishery).

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Measures to Reduce Enforcement Costs

Numerous measures have already been recommended to reduce enforcement costs (see Section 15.12 and Interagency Staff Report on the Individual Fishing Quota Inspector Program, Individual Quota Enforcement, and Other Implementation Issues). Table II-7 is intended begin to provide some perspective on the size of the task of monitoring legal trawl and open access landings as compared to the limited entry fixed gear fishery based on the data currently available for 1994. The following are new measures being considered to reduce enforcement costs (the Council's preferred options are italicized):

- a. *Implement a less than year-round fixed gear IQ fishery and complete closure of the fishery outside the IQ fishery (i.e., no 250-pound trip limit). (Section 15.8.4)* An analysis is also provided of an option in which there would be a 250-pound daily trip limit or the equivalent of the open access trip limit for line gear (whichever is greater), when the IQ fishery is closed.
- b. *Ban on at-sea transshipment. (Section 15.12)*
- c. *Create an IFQ inspector program (option designated for further development). (Section 15.12)*

TABLE II-7. Available information on total number of 1994 landings by gear type (groundfish and sablefish).

	<u>Washington</u>	<u>Oregon</u>	<u>California</u>
Trawl	804	3,607	1,086
Trawl Sablefish	375		491
Fixed Gear	325		632
Fixed Gear Sablefish Derby	137	320	54
Fixed Gear Sablefish Nonderby	147		181
Open Access	1,350	4,260	4,915
Open Access Sablefish	162		185
Total	3,300	8,187	7,544
Grand Total = 19,031			

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Less than Year-round Fishery

One of the benefits of an IQ program is that it allows fishers to time their harvest for the best mix of low opportunity cost, high sablefish prices, safe weather conditions and optimal rate of harvest. Each fishing operation's opportunity to optimize for its individual needs is restricted when the length of the fishery is restricted to less than year round. Thus, benefits from the program are reduced. The choice of the four-month season, which will be used when the program is initially implemented (July through October), is intended to cover a period during which, on average, prices are higher and weather is better for most of the coast (see Proposal to Change the Opening Date of the West Coast Fixed Gear Sablefish Unrestricted ("Derby") Fishery, Including Other Management Measures, Draft Environmental Assessment and Regulatory Impact Review). However, setting a season based on these averages prevents fishers from fully responding to the actual conditions which occur in the year. For some vessels, July through October is also a time when there may be a greater opportunity cost to harvesting sablefish as compared to other times of years (the vessels may have to forgo fishing opportunities in other fisheries in order to participate in the sablefish fishery). Regardless of the timing of the four-month period, the minimum rate of harvest mandated by a four-month season will not be optimal for some vessels' operating plans. For example, the Newport Beach Dory Fleet depends on the regular delivery of sablefish year round to provide direct sales to tourist and local consumers. It is not known how many other licensed vessels may operate in such a harvest mode.

The purpose of the four-month season is primarily to reduce enforcement costs. The current federal enforcement cost estimate calls for four federal plant auditors and three uniformed officers. The job of the auditors is not affected by the length of the season. According to the Council's Enforcement Consultants, these individuals will go into plants year round and audit records for the months of the IQ sablefish season. The three full-time uniformed officers would be assigned to monitor IQ landings (for which advance notice of landing would be required) and to try to detect landings totally outside the IQ program.

While much of the additional enforcement effort which has been estimated as necessary for the IQ program is required only because of the IQ program, the additional enforcement resources will have benefits beyond the program which are not included in the quantitative portion of the benefit cost analysis for the IQ program. The presence of the officers at off-loading facilities and in plant audits will have a deterrence affect and will likely result in the detection of violations in fisheries other than the sablefish IQ fishery.

Part of the decision regarding whether to limit the season to a four-month period involves whether or not to provide a small trip limit for the remainder of the year. Under the current derby fishery management regime, a year-round 250-pound daily trip limit is provided to allow the landing of small amounts of incidental and targeted sablefish harvest. The current preferred option is to not provide this opportunity when the IQ fishery is implemented. However, the Council has also requested an analysis of a daily trip limit of 250-pounds or the trip limit for the open access fishery, whichever is greater. Because there is not a full year of fishing under the license limitation regime, it is difficult to estimate how much limited entry sablefish will be caught under a 250-pound trip limit, and therefore how much will be subject to discard during the eight month total closure which is currently contemplated. Table II-7 indicates the most

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recent estimates for number of trips made under this trip limit for California and Washington so far in 1994 (based on data available at the end of September). A modification of the scope of the IQ program could be made to allow this decision to be deferred to a time when there is more information available about the current use of the 250-pound trip limit. This would be done by restricting the IQ program scope to the period of the IQ fishery, or making an exception in the scope for catch caught under any trip limits which may be set by the Council.

The other effect of the total closure is its possible impact on the open access fishery. If outside the four-month IQ season the fishery is totally closed (including no 250-pound daily trip limit) then any fishing by licensed vessel would count against the open access fishery quota, under the rules of the license limitation program. However, under the current scope of the IQ program, no such open access fishing would be allowed by licensed vessels. If the scope of the IQ program is restricted to the period during which the IQ fishery is open, then the decision as to whether or not to provide a 250-pound trip limit will determine how open access catch by limited entry vessels is counted. If a small trip limit is provided, any open access catch will count against the limited entry quota. If the limited entry fishery is closed it will count against the open access quota. This issue is discussed further in a section below on measures to maintain consistency with license limitation provisions for open access fishing.

Ban on At-sea Transshipment

It is not believed that there is currently any significant at-sea transshipment of sablefish. Therefore, this ban would not constrain current activities. If at-sea transshipments were part of a harvest strategy more efficient than strategies not relying on such activity, then the constraint could have a cost. It is difficult to know in advance whether at-sea transshipments would be a preferred mode of operation under an IQ fishery. At-sea transshipments pose enforcement problems because such transshipments are more difficult to locate and monitor. Tracking IQ sablefish will be easier and the expenses of enforcement will be less if no at-sea transshipments are allowed.

Creation of an IQO Inspector Program

Groups working on development of the IQ program initially believed an IQ inspector program would reduce enforcement costs. The current assessment is that such a program will contribute little to enforcement and therefore the costs of such a program are not warranted (see Interagency Staff Report on the Individual Fishing Quota Inspector Program, Individual Quota Enforcement, and Other Implementation Issues).

Measures to Maintain Consistency with License Limitation Program Provisions for Open Access Fishing

Depending on which of the following options is selected, there will be differing degrees of discard of open access gear sablefish catch by vessels with fixed gear limited entry licenses (Table 5 of Part I, reproduced here as Table II-8 with a correction to the scope option numbers listed for the scope options, contains a summary of the open access sablefish harvest allowed by licensed vessels with and without sablefish IQ)

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- a. Change the license limitation program to prevent all IQ fishery participants from participating in the open access sablefish fishery.^{6/}
- b. Change the license limitation program to prevent all vessels participating in the IQ fishery from participating in the open access sablefish fishery.^{6/}
- c. Change the license limitation program to prevent all vessels participating in the IQ fishery from participating in the open access sablefish fishery with longline and fishpot gears.^{6/}
- d. (1) Limit the scope of the IQ fishery to the period when the IQ fishery is open, allowing licensed fixed gear vessels to harvest using all open access gears against the open access quota when the IQ fishery is closed. (While the IQ fishery is open, harvest by licensed fixed gear vessels using open access gears would be allowed and count against IFQ.)
- d. (2) Limit the scope of the IQ fishery to the period when the IQ fishery is open and to catch with longline and fishpot gear, allowing licensed fixed gear vessels to harvest using all open access gears against the open access quota when the IQ fishery is closed. (While the IQ fishery is open, harvest by licensed fixed gear vessels using exempt gears would be allowed and count against the open access quota.)

The primary conclusion of the following analysis is that the amount of sablefish harvest affected by this decision is very small (likely less than 20 mt based on 1993 data). The simplest option would be Option d(1) combined with no new limit on open access participation. Option d(1) is considered the simplest resolution because it does not change Amendment 6 (the license limitation program) to treat sablefish differently from all other groundfish under the amendment. Such a differential treatment could add substantially to the complexity of future decisions the Council has to make and would also make understanding, enforcing, and complying with the program more difficult. In addition to being simple, Option d(1) also provides an opportunity to allow a small limited entry trip limit outside the IQ fishery, if the Council decides such a trip limit is desirable at some time in the future.

- The biological impact of forcing discard of open access gear sablefish harvest by limited entry vessels may be minimal.
- However, there is likely to be an associated social cost related to fishers' dislike of the waste which results from regulatory induced discards.

The biological concern related to this issue is the degree of discard mortality which may be caused if limited entry vessels are not allowed to retain sablefish caught with open access gear. Table 4 in Part I showed that, based on 1993 fishing activity, it might be expected that limited entry vessels (with and without IFQ) will take less than 20 mt of sablefish with open access gear or less than about 1/2 of 1 percent of the total sablefish allowable harvest. If every discarded fish dies, then this may be the maximum addition to fishing mortality. Actual fishing mortality may be smaller than this because licensed vessels with IFQ may be able to retain sablefish while the IQ season is open. While this increment of additional fishing mortality is small, there is always some social cost incurred when fishers are forced to waste marketable fish due to allocational regulations.

^{6/} Unless expanded to cover all fixed gear limited entry vessels or combined with options D1 or D2, this option would have to be expanded to apply to all fixed gear limited entry vessels in order to achieve consistency with the license limitation program.

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- If licensed vessel retention of open access gear sablefish is allowed while the limited entry fishery is closed, the catch will count against the open access quota.
- The size of the limited entry vessel open access gear sablefish catch during the IQ season closure is expected to be less than 10 mt (compared to an open access allocation of around 500 mt).
- Because some vessels which were expected to qualify for limited entry permits did not apply, the open access sablefish quota is substantially larger than was expected prior to the implementation of the license limitation program.

TABLE II-8 (Revised TABLE 5 from Part I) Implication of options addressing inconsistency between the current IQ program scope and the license limitation program for participation in the open access fishery and the allocation from which open access harvest is deducted. Shaded boxes indicate the Council's preferred option.

Sablefish Harvest in the Open Access (OA) Fishery by Combination of Options

Options for IQ Program Scope:	Current Scope: IQ Program Covers All Sablefish Landings Made by Fixed Gear Limited Entry (LE) Vessels ^{4a}		Option d(1) IQ Program Covers All Sablefish Landings By Fixed Gear LE: Vessels While the IQ Fishery Is Open			Option d(2) IQ Program Covers Sablefish Landings Made By Fixed Gear LE: Vessels with Longline or Fishpot Gear While the IQ Fishery is Open		
	(a) Ban All IQ Participants from OA	(b) Ban All IQ Participant Vessels from OA	(a) Ban All IQ Participants from OA	(b) Ban All IQ Participant Vessels from OA	(c) Ban All IQ Participant Vessels from OA Longline and Fishpot Gear	(a) Ban All IQ Participants from OA	(b) Ban All IQ Participant Vessels from OA	(c) Ban All IQ Participant Vessels from OA Longline and Fishpot Gear
Options for Change to License Limitation Program:								
IQ Fishery Is Open	Not Allowed	Not Allowed	Not Allowed	Not Allowed	Not Allowed	Allowed with exempt gear against LE allocation not allowed with OA longline or fishpot gear	Allowed with exempt gear against LE allocation	Allowed with exempt gear against LE allocation not allowed with OA longline or fishpot gear
IQ Fishery Is Closed	Not Allowed	Not Allowed	Allowed with all OA gears. Counts against IFQ.	Allowed with all OA gears. Counts against IFQ.	Allowed with all OA gears. Counts against IFQ.	Allowed with all OA gears except longline or fishpot. ⁵ Counts against LE allocation. ⁶	Allowed with all OA gear against OA allocation	Allowed with all OA gears except longline or fishpot. ⁵ Counts against LE allocation. ⁶
IQ Fishery Is Open	Allowed with all OA gears. Counts against IFQ.	Allowed with all OA gears. Counts against IFQ.	Allowed with all OA gears. Counts against IFQ.	Allowed with all OA gears. Counts against IFQ.	Allowed with all OA gears. Counts against IFQ.	Allowed with all OA gears. Counts against IFQ.	Allowed with all OA gear against OA allocation	Allowed with all OA gears except longline or fishpot. ⁵ Counts against LE allocation. ⁶
IQ Fishery Is Closed	Not Allowed	Not Allowed	Allowed with all OA gears. Counts against IFQ.	Allowed with all OA gears. Counts against IFQ.	Allowed with all OA gears. Counts against IFQ.	Allowed with all OA gears. Counts against IFQ.	Allowed with all OA gear against OA allocation	Allowed with all OA gears except longline or fishpot. ⁵ Counts against LE allocation. ⁶
IQ Fishery Is Open	Allowed on fixed gear LE vessels	Allowed on any vessel	Allowed on fixed gear LE vessels	Allowed on any vessel	Allowed on any vessel	Allowed on any vessel	Allowed on fixed gear LE vessels	Allowed on any vessel
IQ Fishery Is Closed	Not allowed on any vessel	Allowed on non-LE vessels	Allowed on fixed gear LE vessels	Allowed on any vessel	Allowed on non-LE vessels and on LE vessels using exempt gear	Allowed on any vessel	Not allowed	Allowed on non-LE vessels and on LE vessels using exempt gear

a/ Definitions:

OA: Pertaining to the Open Access Fishery

LE: Pertaining to the Limited Entry Fishery

Exempt gear: All gear except groundfish trawl, longline, and fishpot.

OA gear: Exempt gear and longline and fishpot gear used by vessels without a permit for those gears.

b/ This table assumes there would be no fixed gear limit entry harvest outside of the IQ season (e.g. no 250 pound daily landing limit). If there were a small ongoing limited entry sablefish fishery outside the IQ fishery then, contrary to what is shown in this table, any open access harvest by limited entry vessels while the IQ fishery was closed would still count against the limited entry fishery quota. This would require a set aside to cover such harvest.

c/ "No new limit on open access participation" is not an option which can be combined with the current scope as this would not resolve the current conflict between the license limitation program and the scope of the IQ program.

d/ This combination of options would not create consistency between the IQ program and the license limitation program.

e/ Example: A vessel with IFQ and a fishpot license may not harvest sablefish with longline gear in the OA fishery.

f/ IFQ would not be required to cover these landings because they are outside the scope of the program. An allocation would have to be set aside from the fixed gear limited entry fishery.

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Under the rules set out in the license limitation program, if limited entry vessels using open access gear are allowed to retain sablefish while the limited entry fishery is closed, this catch will count against the open access quota. If the limited entry fishery is open for a small trip limit, then the catch would count against the limited entry quota, as it did in 1994. In such a case, a set aside from the IQ program would be required to cover the sablefish catch of limited entry vessels using open access gear and vessels fishing under a small limited entry trip limit. This reduction in the scope of the program and imposition of trip limits may result in a small reduction in net benefits.

The current open access quota for sablefish is larger than was expected when the program was implemented because a number of qualified vessels with substantial catch histories failed to apply for permits. Under the allocation rules of the license limitation program, the size of the open access quota was based on vessels not receiving permits. Therefore, if a scope is specified such that limited entry vessels fish with open access gear on the open access quota, their harvest likely will not have an adverse impact on the open access quota relative to what was anticipated at the time the license limitation program was implemented.

The open access sablefish harvest of limited entry vessels using open access gear during the time the IQ fishery is closed is expected to be about 2 percent of the total open access allocation.

- An IQ program may increase the efficiency of the combined open access/limited entry sablefish harvest while the IQ fishery is open.

During the IQ fishery, requiring IFQ for limited entry vessels to retain sablefish caught with open access gear should increase efficiency. If the most efficient way to harvest sablefish is as by-catch with open access gear, then that is how the IFQ will be used. On the other hand, if the most efficient manner of harvest is with limited entry gear, then limited entry vessels will seek to minimize their sablefish bycatch with open access gear. A problem could arise if vessels discard open access caught sablefish in favor of catching it with limited entry gear. This would be expected if the net value of the sablefish when taken with limited entry fixed gear less the cost of discarding the sablefish taken with open access gear is greater than the net value of sablefish harvested with open access gear.

Measures for the Provision of Information

Two measures are being considered regarding the handling of information related to the sablefish IQ program. These measures address different issues and are not mutually exclusive.

- Provide that the amount of shares owned by a single person be public information. (Section 15.16)*
- Require that the sale price of shares be reported to NMFS. (Section 15.9.1)*

Option "a" is expected to resolve in advance any question or dispute which may arise as to whether or not data on amounts of QS/IFQ held by a person is confidential information. With that issue resolved, analysts will be able to provide better information to support decisions related to the achievement of optimum yields.

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With respect to Option "b," public knowledge of fair market value is important in ensuring that markets function properly to transfer the QS to efficient harvesters. When there are relatively few purchases of QS/IFQ occurring, it may be difficult for participants in markets to ascertain the fair market value for QS/IFQ. By making transaction price information available to the public in summarized form, the government will be performing a service which improves market function.

Measures to Address Who Qualifies for QS When More than One Entity Owns the Same Permit

The following are the options being considered.

- a. *Qualifying persons (persons means individuals, corporations, partnerships etc.) who are part of the ownership of a permit may either apply separately from the permit ownership or may file a single application along with the permit ownership. QS would be issued to the qualifying entity submitting the application. Regardless of how the applications are filed, only one equal share will be issued for each permit and that share will be issued in the name of the permit ownership (e.g., if two individuals are in a partnership, the partnership may make one application and each individual a separate application, but each entity applying must qualify for an allocation based on its own merits.) (Section 15.6.2.1)*
- b. Applications are filed by and QS issued to the current ownership of the "A" permit. The amount allocated would be based on the catch history of all the qualifying persons/entities that comprise the current ownership of the permit (e.g., if a two individuals are in a partnership, the partnership applies and includes the catch history of the partnership plus any qualifying catch history the individuals have prior to the time they entered the partnership, provided the individuals meet recent participation and other requirements necessary to qualify for an initial allocation).

The question of who qualifies for QS when more than one qualifying entity owns the same permit has more to do with questions of fairness and equity than it does the economic or biological effects of the program. As discussed in Part I, the current language of the program is such that partnerships, corporations or other such entities which have undergone changes in their ownership over the course of the allocation period may have an advantage over individuals or entities whose ownership has been stable since 1984. In situations where ownership has changed, current owners of the permit may be able to qualify and apply separately for allocations. In some cases more than five of eight years of catch history may be claimed by the group as a whole (see Example A in Appendix B⁷⁷). Thus, a permit ownership which has undergone no changes since 1984 may receive less QS than an ownership which has undergone changes since 1984 even though the aggregate catch history of the two ownerships are identical. This is the case under the currently preferred option (Option "a"). If this option is to remain the preferred option, a rationale should be provided for why this option is preferable over Option "b".

77 While individuals within an ownership group may be able to make separate applications, the program has been worded so that only one equal share will be issued per permit.

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Summary Review of Benefit Cost Analysis

The following is a summary of the IQ benefit cost analysis. Appendix D of the draft Amendment 8 SEIS provides additional information that may help the reader evaluate the likelihood of alternative sets of assumptions about benefits expected from the IQ fishery.

Increased Benefits Related to Price Increases

Price increases related to increased product value or reduced costs in marketing channels count as benefits. Exvessel price increases resulting from dressing at sea are a redistribution of revenue from processors to vessels, not necessarily an increase in the value of the product. An increase in exvessel prices related to an increase in the quality of the product or a reduction in storage costs through the timing of harvests closer to high demand periods would generally count as benefits. With IQ programs in place in Alaska and Canada, seasonal variation in prices would be expected to decline. The primary benefits from altering the timing of the harvest may be the reduction in storage costs and any increase in price from the availability of a fresher product. Table II-9 shows the expected benefits assuming four different levels of price increases.

Variable Harvest Costs

Variable cost savings under an IQ system will be realized in two ways. First, all vessels holding IQs will be able to immediately increase the efficiency of their sablefish harvest operations in the first year. Second, over time, more efficient vessels will purchase IQ from less efficient vessels. Table II-9 displays a separate row for each assumed increase in efficiency in the first year and a separate column for assumed annual increases in efficiency as IQ is transferred to more efficient vessels. The increase in efficiency in the first year includes both increased operational efficiencies of all vessels and increased efficiencies resulting from transfers in the first year.

Fixed Harvest Costs

Fixed cost savings will occur to the degree that the rate of investment in West Coast fisheries declines as a result of the IQ program. Individuals decide to invest and reinvest in the existing fleet of West Coast fishing vessels based on profit opportunities in the sablefish and a range of other fisheries. Even for some who have never participated in the sablefish fishery, the option to enter fisheries in which they have not participated may encourage their initial and continuing investment in their vessel. With the implementation of an IQ program, individuals wishing to enter the fishery will have to purchase IQ in order to acquire access, reducing the amount of profit available if they choose to enter the fishery. This should reduce the flow of investment into West Coast fishing vessels.

To assess the degree of benefit accruing from fixed cost savings one must first assess the rate of investment in West Coast fishing vessels and then assess the expected decline in that rate of investment. Annual investment in fixed costs includes maintenance, repair and improvement of existing vessels as well as the purchase of new vessels. The rows in the fixed cost section of Table II-9 represent different annual rates of investment. A 5 percent rate of investment implies that, on average, every vessel in the fleet is completely replaced every 20 years (either in a

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piecemeal fashion or by in-whole replacement). A 1 percent rate of reinvestment implies that, on average, every vessel in the fleet is completely replaced every 100 years. The columns of the table imply a rate of reduction in the annual reinvestment rate. An initial-year annual investment rate of 5 percent combined with a 1 percent rate of reduction in reinvestment implies that in Year 2 the rate of reinvestment would be 4.95 percent, in Year 3 the rate of reinvestment would be 4.9005, and so on. A 5 percent reinvestment rate combined with a 1 percent annual reduction in the investment rate for the first 15 years of a 25-year period would result in a fixed cost savings with a present value of \$14 million.

Administrative Costs

Table II-9 provides start up and annual administrative costs estimated in the draft Amendment 8 SEIS. Additionally, the present value of 25 years of administrative cost expenditures is provided.

Enforcement Costs

Table II-9 provides start up and annual enforcement costs estimated in the draft Amendment 8 SEIS and based on the inspector programs discussed in Appendices C and D to Part I of this document. However, based on the recent findings in the Interagency Staff Report on the Individual Fishing Quota Inspector Program, Individual Quota Enforcement, and Other Implementation Issues, it appears that an inspector program may not contribute significantly to enforcement and therefore may not provide a means for industry payment of some expenses. The current estimate of enforcement costs is about \$770,000 annually. The present value of such an expenditure over 25 years would be \$9.6 million. The enforcement cost estimate provided in the interagency staff report includes \$125,000 for the assignment of two additional uniformed officers to the coastal area. The report notes that this is an upperbound estimate of the actual costs for the IQ program. This is an upperbound estimate (1) because benefits from the presence of these officers will extend beyond the IQ fishery and (2) because they will be present year round while the IQ fishery will run only from July through October.

Qualitative Considerations

The following is an attempt to summarize some of the more substantial impacts of the IQ program which may be categorized as costs and benefits but to which it is difficult to assign a dollar value.

Other Benefits

Safety. Another major factor cited in support of the IQ program has been safety. It does not appear that a coastwide IQ season can be set that will include the safest weather for all parts of the coast.

Collateral Enforcement Benefits. The additional enforcement resources necessary for the IQ program will have benefits beyond the program which are not included in the quantitative portion of the benefit cost analysis for the IQ program. The presence of the officers at off-loading facilities and in plant audits will have a deterrence affect and will likely result in the detection of violations in fisheries other than the sablefish IQ fishery.

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Other Costs

Increased Discard Mortality. The program may increase discards caused by high-grading relative to the current derby fishery.

Geographic Reallocation. There is a potential that QS/IFQ will be redistributed geographically. There may be social concern for coastal communities which, over time, could lose access to the resource.

Windfall. Social concern has been expressed about the large windfall some individuals may gain from the program. Rents will be generated, but the owners of the resource (the public) will be unable to claim them without an amendment to the MFCMA.

TABLE II-9. IQ program monetary benefits and costs based on a 7 percent annual discount rate and changes from status quo over a 25-year period (bold values were used for midpoint estimate). Page 1 of 2

PROGRAM MONETARY BENEFITS (\$ Millions)	
	Increase in Revenue Given Assumed Price Per pound Increase ^{a/}
\$0.04 (5 percent)	\$0.08 (10 percent)
\$0.12 (15 percent)	\$0.20 (25 percent)
2.6	5.1
	7.7
	12.8
Net Reductions in Fleet Variable Costs ^{b/}	
Variable Cost Reduction in First Year (associated with increased operational efficiency of all vessels)	Annual Percent Reduction in Fleet Variable Costs (Years 2-15--associated with transfer of IQ to more efficient vessels)
	1 2 3 4
5 percent	0.5 1 2 3 4
10 percent	2.6 3.6 5.5 7.2 8.8
15 percent	4.1 5.1 6.9 8.5 10.0
	5.6 6.5 8.2 9.7 11.1
Net Reduction in Annual Fixed Costs Over 25 Years ^{c/}	
Rate of Reinvestment (1 percent implies complete fleet replacement every 100 years; 5 percent implies complete fleet replacement every 20 years)	Annual Percent Reduction in Fixed Cost Reinvestment Rate (Years 1-15)
	1 percent 2 percent 3 percent 4 percent
1 percent	0.3 0.5 0.8 1.1
2 percent	0.6 1.0 1.5 1.9
3 percent	0.8 1.6 2.3 2.9
4 percent	1.1 2.1 3.0 3.8
5 percent	1.4 2.6 3.8 4.8
Range of Benefits	Low: 5.5 Mid: 12.8 High: 28.7

TABLE II-9. IQ program monetary benefits and costs based on a 7 percent annual discount rate and changes from status quo over a 25-year period (bold values were used for midpoint estimate). Page 2 of 2

PROGRAM MONETARY COSTS						
Administrative Costs ^{a/}						
Administrative Costs	Electronic System	Hybrid Electronic/Paper	Paper Script	IFQ Checkbook		
Start-up Costs	0.500	0.400	0.425	0.425		
Annual Costs	0.079	0.054	0.094	0.083		
Present Value of 25 Years of Administrative Costs	2.3	1.9	2.5	2.3		
Enforcement Costs ^{a/}						
	Initial Estimate for Inspector Program from SEIS	New Estimate for Inspector Program (with standby pay)	New Estimate for Inspector Program (using inspectors with complementary responsibilities)	Fishery Technician Monitoring from SEIS	High Estimate of Enforcement Costs	
Start-up Costs ^{a/}	0.025	0.025	0.025	0.25		
Annual Costs	0.575	0.597	0.482	0.447	0.990	
Present Value of 25 Years of Administrative Costs	7.2	7.4	6.0	5.6	12.3	
Range of Costs	High: 14.8		Mid: 9.5		Low: 5.8	
Range of Net Benefits	Low: -9.3		Mid: 3.3		High: 20.8	

a/ From Table D-3 of draft Amendment 8 Supplemental Environmental Impact Statement (SEIS).

b/ From Table D-9b of draft Amendment 8 SEIS.

c/ From Table D-16 of draft Amendment 8 SEIS.

d/ From Appendix C of draft Amendment 8 SEIS.

e/ From Appendix B of draft Amendment 8 SEIS.

f/ These enforcement costs are the budgetary expenditures which agencies would have to make in order to bring status quo enforcement to a level necessary to support the IQ program. They represent an upper bound of the enforcement costs which should be counted as a cost of the IQ program in a benefit cost analysis.

g/ Most of the start-up costs for equipment, such as a call-in system, are included under administrative costs.

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REFERENCES

Kainer, Steve. 1994. "Halibut Injury and Mortality Associated with Manual and Automated Removal from Setline Hooks" Fisheries Research 20:165-179.