ANALYSIS OF COMPONENTS, ELEMENTS, AND OPTIONS FOR THE INDIVIDUAL FISHING QUOTA ALTERNATIVE TRAWL INDIVIDUAL QUOTA COMPONENTS

Appendix A

TO THE
RATIONALIZATION OF THE PACIFIC COAST
GROUNDFISH LIMITED ENTRY TRAWL FISHERY
FINAL ENVIRONMENTAL IMPACT STATEMENT

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Contents

List of Tables

List of Figures

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Acronyms and Abbreviations

Acronym	Definition
ABC	allowable biological catch. The ABC is a scientific calculation of the sustainable harvest level of a fishery and is used to set the upper limit of the annual TAC. It is calculated by applying the estimated (or proxy) harvest rate that produces maximum sustainable yield to the estimated exploitable stock biomass (the portion of the fish population that can be harvested).
ACL	annual catch limit
ACT	annual catch targets
AMP	Adaptive Management Program
ARID	allocations to permits using area identifiers
Bycatch EIS	The Pacific Coast Groundfish Fishery Management Plan Bycatch Mitigation Program Final Environmental Impact Statement
CFA	Community Fishing Association
Council	Pacific Fishery Management Council
CPS	coastal pelagic species
DEIS	draft environmental impact statement
DMR	discard mortality rate
DTS	Dover sole, thornyhead, and trawl-caught sablefish complex
EFH	essential fish habitat
EFP	exempted fishing permit
EPA	U.S. Environmental Protection Agency
ESA	Endangered Species Act
FEIS	final environmental impact statement
FERC	Federal Energy Regulatory Commission
FMP	fishery management plan
GAC	Groundfish Allocation Committee
GDA	Groundfish Development Authority
GDQ	groundfish development quota
H	halibut [bycatch]
HMS	highly migratory species
IFQ	individual fishing quota
IPHC	International Pacific Halibut Commission
ISA	Intersector Allocation
IVQ	individual vessel quota
LAP	limited access privilege

Acronym	Definition
LAPP	limited access privilege program
LE	limited entry
LEP	Limited Entry Permits
MSA	Magnuson-Stevens Fishery Conservation and Management Act
mt	metric ton
NMFS	National Marine Fisheries Service
NOAA	National Oceanic and Atmospheric Administration – the parent agency of National Marine Fisheries Service
NPFMC	North Pacific Fishery Management Council
NRC	National Research Council
NWFSC	Northwest Fisheries Science Center
OFL	overfishing levels
OFS	overfished species
OY	optimum yield
PacFIN	Pacific Coast Fisheries Information Network. Provides commercial fishery information for Washington, Oregon, and California. Maintained by the Pacific States Marine Fisheries Commission.
PCID	Allocations to permits using Port-based identifiers
PPA	preliminary preferred alternative
PSMFC	Pacific States Marine Fisheries Commission
QP	quota pound
QS	quota share
TAC	total allowable catch
TCEY	total constant exploitation yield
TIQ	trawl individual fishing quota
TIQC	Trawl Individual Quota Committee
VMS	vessel monitoring system
WCGOP	West Coast Groundfish Observer Program

Organization of Appendix A

Each section starts with a restatement if the provision and option being analyzed. A rationale is then provided, followed by an explanation of the interlinked elements and an analysis of the provision.

In the provisions a "►" indicates an option that is part of the Pacific Fishery Management Council's (Council's) preliminary preferred alternative (PPA).

Interlinked elements include the following measures:

- Directly dependent on one another (e.g., if quota pounds [QP] did not have to be placed into a vessel account in order to be used, we would have to change the way the use-or-lose provision is specified)
- Those that, if changed, would substantially alter the impact or decisions made on other provisions (for example, if only vessel owners are allowed to own quota shares [QS]/QP, we would have to rethink many of the provisions and rationales related to how we are addressing the needs of communities and crewmembers).

The following text outlines the individual fishing quota (IFQ) program. Table A-1 provides an overview of the organization of the sections of the program.

Table A-1. Organization of the IFQ alternative program elements and options from Appendix A.

A-1	***Trawl Sector Management Under IFQs***
A-1.1	Scope for IFQ Management (includes gear switching) **(Also see Section A-5)**
A-1.2	IFQ Management Units (includes latitudinal area management)
A-1.3	General Management and Trawl Sectors"
A-1.4	Management of Nonwhiting Trips
A-1.5	Management of Whiting Trips
A-1.6	Groundfish Permit Length Endorsements
A-2	***IFQ System Details***
A-2.1	Initial Allocation and Direct Reallocation
A-2.2	Permit/IFQ Holding Requirements and Acquisition (Includes Annual Issuance and Transfer Rules)
A-2.3	Program Administration (Includes tracking, data collection, costs, duration)
A-2.4	Additional Measures for Processors
A-3	***Adaptive Management (Option)***
A-4	***Pacific Halibut Individual Bycatch Quota (IBQ)— nonretention (Option)***
A-5	***Alternative Scope for IFQ Management (Option)***
A-6	***Alternative Duration: Fixed Term (and Auctions) (Option)***
A-7	***Gear Conversion (Option)***
A-8	***Regional Landing Zones (Option)***

In the detailed description below, where the Council chose an option as part of the preferred alternative, the choice is indicated by a "►" symbol. Program elements without options are adopted as described unless otherwise noted. Elements and options that are not relevant under the preferred alternative are so noted and provided in boxed text. For example, program elements relating to IFQs for the at-sea sector are not relevant under the preferred alternative. Appendix D is a detailed, stand-alone description of the entire program adopted by the Council.

A-1 TRAWL SECTOR MANAGEMENT UNDER IFQS

A-1.1 Scope for IFQ Management, Including Gear Switching

❖ *Provisions and Options*

QP will be required to cover catch of all groundfish (including all discards) by limited entry (LE) trawl vessels with certain gear and gear exceptions.

Gear Exceptions: For trips delivered **shoreside**

Option 1: QP is required for LE trawl vessels using any directed commercial groundfish gear0F[1] EXCEPT

LE fixed gear when the vessel also has an LE permit endorsed for fixed gear (longline or fish pot) AND has declared that they are fishing in the LE fixed-gear fishery.

► Option 2: QP is required for LE trawl vessels using any gears EXCEPT

exempted trawl,1F[2]	salmon troll
gear types defined in the coastal pelagic species (CPS) fishery management plan (FMP)	crab pot
gear types defined in the highly migratory species (HMS) FMP	LE fixed gear when the vessel also has an LE permit endorsed for fixed-gear (longline or fish pot) AND has declared that they are fishing in the LE fixed-gear fishery.

Species Exceptions:

For trips delivered **shoreside** QP is not required for

Option 1: No species exceptions.

► Option 2: For trips delivered shoreside QP is not required for

Longspine South of 34°27'	California Scorpionfish
Minor Nearshore Rockfish N	Cabezon
Minor Nearshore Rockfish S	Kelp Greenling
Black Rockfish (WA)	Shortbelly
Black Rockfish (OR-CA)	Other Rockfish
	Other Fish

[1] For the purpose of the trawl rationalization alternatives, "directed commercial groundfish gear" is defined as all legal commercial groundfish gear including limited entry gear and commercial vertical hook and line, troll, and dinglebar gear.

[2] California halibut gear of 7.5" or greater used in state waters would be exempted.

Option 3: Same as Option 2 but provide an exception for spiny dogfish and not for "Other Fish"

For trips delivered **at-sea** QP is not required for

Option 1 (similar to status quo):	any species other than whiting and widow, darkblotched, and canary rockfish
Option 2 (extended List)	same as Option 1 plus add slope rockfish, yellowtail rockfish shelf rockfish, lingcod, POP, and sablefish to the list of covered species.
Option 3 (all bycatch exception)	any species other than whiting.

See Section A-5 for an alternative specification of scope for whiting trips that would not require QP for any bycatch species (i.e., QP would be required only for whiting).

This definition of the scope allows a LE trawl vessel to switch between trawl and nontrawl groundfish gears, including fixed gear, for the purpose of catching their QP ("gear switching"). It also allows a nontrawl vessel to acquire a trawl permit, and thereby use trawl QP to catch the LE trawl allocation using nontrawl gear.

An option was added to allow "gear conversion" (the permanent switch from trawl to some other legal groundfish gear). **This option is described in Section A-7**.

❖ *Rationale and Policy Issues*

Coverage of Landings and Discards

Coverage of landings and discard is expected to be consistent with several aspects of the Magnuson-Stevens Fishery Conservation and Management Act (MSA), the Groundfish FMP, and the Council's goals and objectives for Amendment 20. Accountability for landings and discard is expected to increase the certainty managers have regarding fishing mortality, and this in turn is expected to foster the rebuilding of overfished species (consistent with MSA – 303A(c)(1)(A). Furthermore, the increased observation necessary to monitor landings and discard is expected to increase the information flow on the status of the fishery as the fishery occurs (consistent with the Groundfish FMP objective 1). Finally, responsibility of landings and discard – and the monitoring necessary for that type of management – is expected to increase accounting ability and result in changes to fishing behavior, which include a reduction in the bycatch rate of constraining stocks and an elimination, or reduction, in the need for regulatory discarding. These changes are expected meet Council objectives 1 and 3 of Amendment 20, which speak to total catch accounting, reducing bycatch, and reducing discard mortality. Coverage of total catch is also consistent with the bycatch mitigation program (Amendment 18).

The reduction in bycatch rates for constraining overfished species will allow harvesters to increase their harvest of currently underutilized target species and thereby increase the value of the groundfish fishery. Such an increase in value is consistent with the Groundfish FMP objective 6 (attempt to achieve the greatest net economic benefit to the nation), with Groundfish FMP objective 2 (maximize the value of the groundfish resources as a whole).

Species Coverage

The coverage of species with quota is intended to act as a catch control tool to ensure that management targets are adhered to, that other sectors are not affected by higher than expected catch levels in the trawl fishery, or both. One rationale is that the lack of IFQ coverage (or some other management tool) of some species may lead to a case where trawl vessels target uncovered species in unchecked quantities. However, this is not necessarily the case, especially for those species that may be inaccessible to groundfish gear, or for those species that are constrained by the catch of other species. Implicit in this concept is that not every species in the Pacific Ocean that may be encountered by commercial groundfish vessels has to have catch managed through a catch control tool in order to stay within management targets. Many species may be encountered in such small volumes that their management through IFQ could be unnecessary and lead to administrative costs that are not necessary for successful management of fishing mortality. Species where it may not be necessary to cover catch with quota include infrequently encountered nongroundfish species such as sardines, Ocean Sunfish, and Albacore tuna. However, it may also be unnecessary to cover many groundfish species with quota because the amount of those species encountered by trawl vessels is small relative to management targets.

In addition to the idea of whether it is necessary to cover such species with quota in order to stay within management targets is the idea that for some species, their coverage with quota may lead to a case where the market does not act in an efficient manner. This could be due to relatively infrequent encounters of such species and the relatively infrequent trades that occur on the market (often called thin market conditions). Infrequent trades make it difficult to effectively price transactions on the market because there is relatively little historic information on the trading price of those species. This means that prices may be determined more by negotiation skill than market conditions and the implications are an over-inflated, or deflated, price of the quota.

The species covered with IFQ (shown in the table above) would be different for the shoreside whiting sector depending on whether three versus four trawl sectors are established. If three sectors are established, the shoreside whiting and nonwhiting sectors would be combined, whereas if 4 sectors are established, the shoreside whiting sector would be responsible for the same species as found in the at-sea portion of the table. This is due to the fact that, if a three-sector option is established then shoreside whiting and nonwhiting would be able to trade quota with one another. In order for this to occur, both sectors would need to hold quota for the same species. If four sectors are established, the shoreside whiting and nonwhiting sectors would be separated, and it would not be necessary for them to hold quota of the same species. The four-sector option may make the shoreside whiting fishery responsible for the same species as the at sea sectors because the mix of species caught by shoreside whiting vessels is similar to that of vessels in the at sea fishery.

For the shoreside sector, the Council considered whether to include "other fish" within the IFQ program. There has been some substantial trawl harvest of some species within the "other fish" category in recent years, unlike most of the other species that are excluded from the IFQ program in Species Exceptions Option 3, however, some of these species are not targeted and historical catch data for them is sparse. As the Council is transitioning from its traditional method of setting harvest specifications (i.e., allowable biological catch [ABC] and optimum yield [OY]) to the new federal program using overfishing levels (OFL), annual catch limits (ACL) and, potentially, annual catch targets (ACT), it seemed appropriate to delay consideration of adding the "other fish" category to the IFQ program until after that process is complete. In addition, the Council explicitly excluded dogfish from the IFQ program, which is a component of the "other fish" category. Because dogfish are not assessed and are typically not retained in the fishery, it is difficult to determine the amount of dogfish to break out of the larger "other fish" category. Therefore, given that the other species in that category are taken

in relatively small quantities, the Council chose to treat the entire category based on its concerns with respect to dogfish. With respect to dogfish, the council was concerned that it is taken in practically every fishery—groundfish and nongroundfish—across all sectors, including recreational fisheries. While there is currently no assessment for this species, one is anticipated in the next assessment cycle (2011). This assessment will provide the Council with a better understanding of the status of the stock. Additionally, the Council also did not feel it had a good understanding of the amount of bycatch of dogfish in the trawl fishery or other fisheries. This makes it difficult to assess what the trawl fishery needs would be for the IFQ program and the potential effects to other fisheries if the trawl catch were accommodated. The Council's intent would be to collect that information through the IQ program with 100 percent observer coverage.

Gears and Fisheries Covered and Gear Switching

The IFQ program allows gear switching, meaning that vessels with a LE trawl permit can use gear other than trawl gear to prosecute their IFQ. Some complexities arise when a LE trawl endorsed vessel is participating in another fishery. In the current groundfish fishery, when trawl vessels use a nontrawl gear, their groundfish catch is attributed to the trawl sector. This does not constrain the harvest activity of vessels engaging in nongroundfish fisheries as those vessels can simply discard groundfish caught incidentally that may be in excess of trip limits and continue fishing in that nongroundfish fishery. Under an IFQ program where discards and landings are counted against IFQ, groundfish catch in nongroundfish activity could have the potential of constraining nongroundfish activity for LE trawl licensed vessels if that groundfish continues to count against the trawl sector. In light of this possibility, several gears were considered for exclusion from the trawl IFQ program, meaning that if a trawl licensed vessel were using one of these excluded gears, they would not be required to cover their incidental groundfish catch with IFQ. The reason for excluding certain gears from the IFQ program is that some gears are almost exclusively used in nongroundfish activity and the amount of groundfish catch occurring with these nongroundfish gears is minor.

The proposed scope implicitly allows gear switching and would not prevent a vessel from converting[3] to a nontrawl gear; however the vessel could reverse the gear switch or transfer IFQ back to a trawl vessel if conditions warranted it. There is also an option for permanent gear conversion (Section A-7.0). Under the gear conversion option, in certain circumstances, IFQ would be permanently converted away from trawl gear and restricted from switching back. In addition to resolving the management complexities mentioned in the previous paragraph, a scope that allows gear switching may generate some conservation benefits if the gears to which harvest is switched generate smaller habitat impacts or have selectivity that increases stock productivity (e.g., disproportionately remove from the biomass fish that are of a less productive age or size class). Gear switching also provides vessels with an increased amount of flexibility in determining the most efficient mix of harvest strategies (as compared to a scope that includes only catch taken with groundfish trawl gear).

Gears that are excluded under the program include exempted trawl (such as pink shrimp, ridgeback prawn, and California halibut gear in certain areas), gears defined in the CPS FMP, gears defined in the HMS FMP, salmon troll gear, crab pot gear, and LE fixed gear when the vessel also has a LE permit endorsed for fixed gear (longline or fish pot) and has declared that they are fishing in the LE fixed-gear fishery. These gears were excluded from the program because catch of groundfish in these fisheries and gears is small. Therefore, requiring that trawl licensed vessels using these gears fish under the requirements of the IFQ program (such as carrying observers) is unnecessary

[3] Converting means permanently switching harvest to a nontrawl gear. In contrast, gear switching implies the ability to switch back.

❖ Interlinked Elements

Alternative Scope – Section A.5 provides an alternative scope that allows QS for whiting only and no QS for bycatch species in the shoreside whiting sector. While this alternative scope would effectively change the species for which whiting vessels are individually responsible, and is, therefore, a replacement to much of the analysis in this section rather than an interlinked element, it is useful to consider this alternative program scope while considering the analysis in this section.

Gear switching/gear conversion – Based on the logic that the risk of yelloweye rockfish encounters should be minimized, and that hook and line gear encounters yelloweye much more frequently than trawl gear: "for trawl vessels fishing IFQ with longline gear, Rockfish Conservation Areas (RCAs) may need to be more conservative."

Gear conversion – In addition to gear switching, which is part of the scope of Amendment 20, a gear conversion provision (A-7) was added as an option for Council consideration. The gear conversion option would add to the scope of the trawl rationalization program, if adopted as part of the preferred alternative, and there may have to be some alteration of the gear-switching portion of the scope.

Fishing restriction while in deficit – The scope of Amendment 20 defines which gears and fisheries are participating in trawl rationalization, but Section A-2.2.1, lists which fisheries trawlers may or may not have access to when in violation (e.g., IFQ overage). This provision would further refine the scope of the program.

Tracking and Monitoring Program – Observer coverage is a necessary element for the trawl rationalization program, and Amendment 20 could not be implemented without the tracking and monitoring provision.

Although not a provision of Amendment 20, the inter-sector allocation process is necessary to define the trawl sector allocation, which in turn is necessary for issuance of individual and cooperative shares.

❖ Analysis

In general, imposing a rationalization program on the LE trawl sector is expected to result in some substantial changes to the fishery. Much of the expected effect of a rationalization program is discussed in Chapter 4 and is, therefore, only briefly summarized here where appropriate. The general effects of rationalization on the west coast trawl fleet include a variety of effects such as fleet consolidation; elimination of derby-style fishing in the whiting sectors; and increased landings of currently underutilized species, among others. The reader is referred to Chapter 4 for a more detailed description of generalized effects of rationalization.

Coverage of Landings and Discards

Requiring that vessels be held individually responsible for both catch and discard is a departure from the status quo approach of holding vessels individually accountable for landings but the fleet accountable for landings and discards. Holding vessels responsible for both landings and discard is expected to result in some substantial changes in behavior, especially in the case of overfished species encounters. Under status quo conditions, managers attempt to craft regulations that limit the amount of fishing effort occurring in areas where overfished species are relatively abundant. This is necessary because discard mortality is 100 percent in many cases, so holding vessels accountable for landings is not sufficient alone to control total mortality. Holding vessels accountable for both landings and discard shifts the

burden of catch control to those engaged in the harvesting of groundfish resources, and the expected outcome is one where vessel operators engage in techniques that avoid depleted species and/or fish in areas where they are less abundant.

Conservation

Key to the IFQ program is holding vessels accountable for their landings and discards. Because of the incentives to under-report and discard IFQ species in order conserve QP, 100 percent at-sea monitoring is required. A side benefit of the monitoring program will be the increased certainty that managers have about total fishing mortality. This will improve their control of total mortality as well as improve the information used in stock assessments. The improved information will help to sustainably manage all stocks and, in particular, assist in the successful implementation of rebuilding plans.

Individual vessel responsibility for total mortality is expected to encourage fishermen to reduce their incidental catch rates (and decrease their incentive to discard incidental catch). Empirical information suggests that the outcome of imposing responsibility for both landings and discard on vessels can result in substantial changes in the amount of bycatch of depleted species. As illustrated in Chapter 4, the Washington Arrowtooth Flounder Exempted Fishing Permit (EFP) was conducted in a manner that held vessels responsible for both landings and discard and the result was one where bycatch rates of constraining overfished species decreased substantially relative to status quo management. It is likely that the same result would occur in a rationalized trawl fishery.

The implication of reducing bycatch rates of constraining overfished species means that there is likely to be increased access to currently underutilized target species. In other words, many species are not accessed fully under status quo conditions because managers limit access to those stocks in order to rebuild depleted stocks. If harvesters reduce the encounter rate of such constraining species under rationalized fishery conditions, they will in turn be able to leverage more target species that were not being fully accessed under status quo. From a biological perspective, increased removals may mean a lower biomass level for those species that experience higher mortality levels. However, as shown in Chapter 4, the estimated increase in mortality levels is not expected to result in any species falling within the precautionary zone within the 20-year time period analyzed.

Economic Effects

A fishery rationalization program that holds individuals accountable for their discards will induce reductions in the bycatch rate of constraining overfished species. Since fishermen are then accountable for bycatch mortality, managers no longer have to impose regulatory constraints to control bycatch. For example, if an IFQ system were developed that covered landings only, managers would have to reduce the amount of QP issued for target species in anticipation of the average incidental catch rates for overfished species. As covered in the section on conservation, making fishermen responsible for their discards gives them the incentive to reduce unwanted incidental bycatch in order to increase the harvest of currently underutilized target species, thus increasing the value of the groundfish fishery. The result is an increase in economic activity associated with fishing through higher landings, higher ex-vessel revenues, and increased processing among other things. These impacts have positive effects on objectives related to net benefits, efficiency, sector health, labor, and communities.

Program Costs and Effectives

One of the main implications of the decision to require QP to cover discards is the need for 100 percent at-sea monitoring. The costs of this monitoring program are covered in Section A-3.1.

Species Covered

Three options exist for species coverage with IFQ. Option 1 would cover all species in the Council's ABC/OY table, while the second and third options would cover a sub-set of those, leaving a number of species that are rarely encountered by trawl vessels out of the program. Options 2 and 3 differ only in that Option 3 also excludes the "Other Fish" category of groundfish.

Requiring that all species be covered with IFQ introduces a factor of risk to harvesters engaged in IFQ activities with minimal conservation benefit. For those species that are rarely encountered, it is likely that there will be a small allocation made to the trawl sector. Two sources of risk exist from a species that is rarely encountered and with a small allocation. A rarely encountered species is likely to have IFQ that is "thinly" traded, meaning that IFQ for these species will be traded infrequently. The implication of infrequent trading is the lack of a clear price signal to both the buyer and the seller and the end result is a traded price that is often based more on personal relationships and negotiation skill than supply/demand conditions. Depending on the skill of the buyer, the buyer may end up paying a large cost for acquiring shares of these species. This potential means there is a possibility that harvesters in the trawl sector that need to acquire shares of those species will pay a large cost.

A second source of risk is derived from the small sector allocation. In many markets, supply will rise to meet demand. However, in a trawl IFQ program, the QP of each species are fixed, but it is entirely possible that harvesters could catch more than the total amount of QP available to the fishery. In cases where allocations made to the sector are relatively small and catch events are highly uncertain and variable, it is not unreasonable to expect that a single trawler could take a substantial portion of the sector allocation on one trip. If that amount is enough to put the total sector catch over the allocation, then that harvester will not be able to acquire additional QP, requiring that vessel be tied up for a period of time (the actual period of time, and the factors determining that time period, is to be determined, see Section A-2.2.1). This tie-up provision imposes risk to that harvester because he must forego some future fishing opportunity. However, the potential of exceeding the sector's allocation means that there is also a collective risk to the entire sector. If the sector allocation is exceeded, NMFS may respond by closing areas of the west coast where that species is found, and this is likely to prevent harvest of certain target species found in the same areas. This effectively eliminates future harvest opportunity for some target species for all harvesters, creating a risk that is collective to the entire sector. If the risk of this event occurring is great enough, and harvesters in the fishery know that risk is relatively great, then a gradual tendency toward a derby fishery may begin to develop as harvesters effectively "race for bycatch."

From an empirical basis, the trawl sector currently harvests relatively small amounts of some rarely encountered species (such as cabezon, kelp greenling, and nearshore rockfish). In 2005 and 2006, the trawl fishery harvested 1 mt and 5 mt of black rockfish respectively, relative to a 2008 OY of 1,262 mt. If, hypothetically, the trawl sector had been allocated 3 metric tons of black rockfish in 2006, the sector would have exceeded its allocation by 2 metric tons. If that occurred in an IFQ fishery, the economic implications to harvesters in the trawl sector could be fairly large, but the implications to the stock (and by extension, to other recreational and commercial fisheries) would be essentially unnoticeable. Instances like this suggest that the cost of covering rarely encountered species that are not overfished with IFQ may be large to the trawl sector, but with little or no benefit to management, to other fishery sectors, or to the status of the stock.

Table A-2. Catches of selected nearshore species by trawl sectors, 2005–06.

	2006		2005		2008 OY
	Nonwhiting Trawl	Whiting Trawl	Nonwhiting Trawl	Whiting Trawl	
Black rockfish	5	0	1	0	1,262
Other Nearshore rockfish N	3	0.1	1	0	142
Other Nearshore rockfish S	0	0	0	0	564
Cabezon	0	0	0	0	69
Kelp greenling	0	0	0	0	NA

The Councils final preferred alternative excludes: longspine south of 34°27', minor nearshore rockfish north and south, black rockfish, California scorpionfish, cabezon, kelp greenling, shortbelly, "other rockfish" and other fish. Many of these species are found in nearshore areas where trawlers do not, or cannot, operate and for the most part are managed through state-based regulations. Species affected by the state management described above include the following: cabezon, black rockfish, kelp greenling, California scorpionfish, and the various species making up the nearshore rockfish group (including deeper and shallow nearshore). Gear switching should be considered alongside the types of species covered in the program. While trawl vessels do not harvest many types of species under status quo measures, the ability for those vessels to switch gears may provide for some opportunities to harvest different species. As illustrated in Chapter 4, some species are not caught with trawl gear, but are caught with nontrawl gear. In particular, longspine 34 degrees 27 minutes North latitude are caught with nontrawl gear. However, based on information from industry representatives, fixed gear vessels do not actively target longspine thornyheads because the price is too low to justify targeting on that stock (Richter, 2008. Personal communication). Therefore, the fixed gear landings of these species are almost certainly incidental to efforts spent catching shortspine, sablefish, slope rockfish, or another deep water species. Longspine south of 34 degrees 27 minutes North latitude are found in areas not accessible to trawl gear. When combined with the fact that fixed gear vessels do not target longspine thornyheads, it may be reasonable to exclude longspine south of 34 degrees 27 minutes North latitude from the IQ program because the catch of that species is likely to be small. Shortbelly is similar in that markets are not available for this species and the OY is large relative to the amount of incidental catch. "Other rockfish" and other fish are somewhat different. The catch of "other rockfish" is small and is constrained by catch limits on other species. "Other fish" are also constrained to some degree by the catch of other species, though targeting does occur on species making up this complex such as skates and dogfish.

The "other fish" stock complex contains all the unassessed Groundfish FMP species that are neither rockfish (family *Scorpaenidae*) nor flatfish. It includes dogfish (Table A-3). While there have been proposals in the past to remove dogfish from the "other fish" category it remains part of that category. Dogfish is a major component of the "other fish" catch (Table A-4). Landings in the "other fish" category and landings of dogfish have been relatively stable across sectors with the exception of a recent increase in tribal fisheries (Table A-5 and Table A-6).

Table A-3. Groundfish species included under "Other Fish."

Big skate, California skate, Leopard shark, Soupfin shark, Spiny dogfish, Finescale codling,	Pacific rattail, Ratfish, Cabezon (north of the California-Oregon border at 42° N latitude), and Kelp greenling

Table A-4. "Other Fish" ABCs, OYs, and catch by sector for 2007.

	2007	
	MT	**% of OY**
ABC	14,600	200%
OY	7,300	100%
Total Estimated Catch (mt)	4,516	62%
Shoreside Trawl		
Kelp Greenling	-	0%
Dogfish	703	10%
Skates (including longnose)157F[i]	1,940	27%
Other	584	8%
Total	3,227	44%
All Other Commercial and Tribal		
Kelp Greenling	20	0%
Dogfish	782	11%
Skates (including longnose)	246	3%
Other	109	1%
Total	1,157	16%
Recreational		
Kelp Greenling	32	0%
Dogfish	5	0%
Skates (including longnose)	2	0%
Other	31	0%
Total	70	1%
Totals Including Research		
Kelp Greenling	52	1%
Dogfish	1,503	21%
Skates (including longnose)	2,194	30%
Other	765	10%
Total	**4,514**	**62%**

Table A-5. "Other Fish" groundfish landings in metric tons (including Spiny dogfish and longnose skate).

	2001	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**
WA	579	860	439	398	473	382	412	557
OR	237	261	254	119	104	110	94	142
CA	471	405	439	348	311	288	228	222
Total	**1,288**	**1,526**	**1,131**	**865**	**887**	**780**	**734**	**922**
LE Trawl	581	650	425	266	321	215	201	195
LE Fixed Gear	293	480	246	159	261	213	221	209
Other Gear	216	226	232	274	163	122	110	134
Recreational*	197	168	224	125	136	154	82	81
Tribal	0	1	4	40	6	77	119	302

* Recreational Fishery Information Network (RecFIN) type "A" landings only.

Table A-6. Spiny dogfish landings in metric tons.

	2001	2002	2003	2004	2005	2006	2007	2008
WA	544	850	429	386	457	370	404	551
OR	21	15	10	5	4	9	9	42
CA	12	25	29	30	12	18	15	47
Total	**578**	**890**	**469**	**421**	**473**	**398**	**428**	**640**
LE Trawl	346	466	201	155	222	119	108	128
LE Fixed Gear	216	404	193	131	230	191	195	180
Other Gear	4	5	53	91	11	7	2	27
Recreational	11	14	18	2	4	4	3	2
Tribal	0	1	4	40	6	77	119	302

* RecFIN type "A" landings only.

The choice of whether or not to include "other fish" under the IFQ program has a number of impacts. With respect to conservation objectives, protection for any species within the complex is somewhat limited because the "Other Fish" OY is under harvested and there is substantial potential to shift targeting among species within the category. If it is determined that an undesirable amount of shifting within the category is occurring, it might be possible to impose cumulative limits on the species experiencing excess targeting. This is true whether the group is managed with IFQs or under status quo. Currently, the Council's ability to impose trip limits requires identification of a conservation concern for a species for which there is an OY. The justification for the current landing limits that are in place for dogfish is based on the need to control incidental catch of overfished species, which occurs when dogfish are targeted. Ultimately, whether managed with IFQs or under status quo, with 100 percent monitoring on trawl vessels the fleet will be held fully accountable for its catch and conservation objectives will be achieved.

One or all species in this group could be brought under the IFQ program later. The possibility for this to occur could create a competition for harvest history if the group is left outside the IFQ program. The potential for that competition might be a conservation concern. To address this possibility the Council indicated that for this group it would likely use 1994-2003 permit landings history as the basis for its initial QS allocation should it become necessary. See Section A-2.1.6 for additional discussion and analysis of this provision.

Inclusion of "other fish" under the IFQ program could impose a major constraint on the fishery if the correct amount of dogfish is not allocated to the fishery. Because of the ubiquitous and variable nature of the occurrence of dogfish in bycatch, the Council was particularly concerned about the difficulty of setting the trawl allocation amount properly. Improper setting of the trawl allocation for this species could seriously constrain harvest, reduce net benefits, and adversely impact the harvesting and processing sectors, labor, and communities. Leaving the group under status quo management allows the Council more latitude for adjusting management measures to account for the needs of both trawl and nontrawl sectors.

The main disadvantage of leaving the "other fish" out of the IFQ program is that if markets do begin to develop and constraints have to be imposed, these constraints (two-month limits) could substantially reduce benefits from a developing fishery, as compared to the management options available under IFQ management. To address this possible negative impact, "other fish," or dogfish as a separate category, could be brought under the IFQ program later.

Coverage of species with IFQ is expected to be consistent with several aspects of the MSA, the Groundfish FMP, and the Council's goals and objectives for Amendment 20. Covering species with IFQ means that harvesters are responsible for the catch of those species. When combined with monitoring requirements envisioned to be necessary to support a total catch IFQ program, the coverage of overfished species with IFQ is expected to help foster the rebuilding of those stocks, which is consistent with MSA – 303A(c)(1)(A). This consistency exists because of increased catch certainty associated with IFQ coverage of those species. This increased catch certainty exists because of the type of monitoring associated with a total catch IFQ program (monitoring is expected to be more timely than status quo conditions) and the fact that vessels must stop fishing when reaching their quota. For these same reasons, the coverage of species with total catch IFQ promotes conservation of those stocks, which is consistent with MSA – 303A(c)(1)(C)(ii).

For some species that may be infrequently encountered, the conservation benefit associated with covering those stocks with quota may be minimal. However, the cost and risks associated with covering those stocks with quota could be quite large. When considering this effect next to MSA standards, FMP and Amendment 20 objectives, the coverage of infrequently encountered species with quota may be contrary to the Groundfish FMP objective 15, which states "avoid unnecessary adverse impacts on small entities." This could occur if a vessel falling under the definition of a small entity catches an unexpected quantity of a relatively infrequently encountered species. The cost of covering that catch with quota could be high because of the limited amount of quota available on the market. Additionally, that vessel may incur an enforcement action (if unable to cover that catch with quota) which could be costly. Relative to the OY of infrequently encountered nearshore stocks, the catch occurring in the trawl sector is small. This means that the possible cost to a vessel encountering an unexpected amount of catch of one of these species may be "unnecessary" for the successful management and conservation of the stock while also having an "adverse impact" on that vessel. Furthermore, for reasons outlined in paragraphs above, a catch event could be large enough to affect the entire trawl sector and trawl dependent communities while having little to no effect on the status of the stock or other fishery sectors.

Alternative Scope (A-5)

One option exists that would require whiting vessels to be individually responsible for whiting, but not be individually responsible for the catch of other species. Under this form of management, it is envisioned that bycatch limits would continue to be used for the three whiting sectors (either collectively or at a sector level). The effect of this type of management was discussed in Chapter 4, Section 4.6.2.4, therefore, the reader is referred to that section for additional discussion that may not be contained here.

This alternative scope has two principal effects. One effect deals with risk management by quota holders in an IFQ program. The other effect is related to management complexity. Under status quo measures, bycatch limits are used to manage the bycatch of select species in the whiting fishery. Beginning in 2009-2010, bycatch limit management is applied on a sector-specific basis. It is envisioned that this type of management would continue under the alternative scope, meaning that managing the bycatch of the three whiting sectors would not change from status quo if one or more sectors of the fishery were managed with IFQ. This means that management of bycatch in the whiting fishery is not likely to add to administrative complexity of the program of this alternative scope is adopted.

Harvesters under an IFQ program face a degree of risk based on the species for which those harvesters are responsible, and whether they are responsible for those species collectively or individually. As stated in Chapter 4, holding harvesters individually responsible for bycatch species may create a relatively high amount of risk to individuals, but a relatively low amount of collective risk. Individual

risk is defined as one where individuals face a relatively high cost of some form if they catch greater than expected amounts of bycatch species and are responsible for covering that catch with quota individually. This is a relatively high individual risk because, if a harvester incurs a "disaster tow," that harvester would be responsible for purchasing enough quota to cover that catch event by themselves and this may prove quite costly. A collective risk is one where the actions of one harvester can affect the opportunities to another harvester, potentially leading to a break down in rational fishing behavior and race for fish conditions via a race for bycatch even though the fishery may be "rationalized." Such an outcome could occur if a bycatch limit is applied at a sector or fishery level and participants in that sector or fishery do not believe that they can successfully manage that bycatch collectively. When participants stop believing that successful bycatch management is a possibility, the likely outcome is one where they begin to race to catch their target species before the bycatch limit is reached.

The alternative scope described in this section would effectively trade some individual responsibility for some collective responsibility, and decrease individual risk while potentially increasing collective risk. The degree to which individual risk is traded for collective risk depends on the level of bycatch management and whether bycatch is managed at a fishery level or a sector level.

Gears and Fisheries Covered and Gear Switching

Gears and Fisheries Covered

The Council's motion on gears and fisheries covered states the following:

> If a vessel has an LE trawl permit and groundfish is caught by any gear, IFQ must be used, with the following exceptions: exempted trawl, California halibut trawl (in California state waters), CPS gear, HMS gear, salmon troll, and crab pot.

The Council's decision to eliminate these gears from the program is based on the notion that such gears do not encounter volumes of groundfish that would justify the measures necessary to fold their use into the IFQ program. To help illustrate this point, the following information was developed. This information shows landings of groundfish by fishery, and this information is useful for illustrating the potential amount of groundfish catch that occurs in each of the fisheries. Based on this information, the California halibut, pink shrimp, fish pot, Pacific halibut, salmon and set net fisheries take the most groundfish (Table A-7.). However, the catch of groundfish in the pink shrimp fishery has declined dramatically since the introduction of fish excluder devices and that fishery now takes some of the smallest amount of groundfish relative to other nongroundfish fisheries. Of the previously listed fisheries it is primarily the California trawl and pink shrimp fisheries that have substantial crossover with the groundfish trawl fishery, and some participation in the California halibut fishery is considered part of the overall fishing strategy by vessels participating in the LE trawl fishery off Central California. Outside of the California halibut, fish pot and Pacific halibut fisheries, the ex-vessel revenue from groundfish contributed less than 3 percent of the value of the total catch in these open access fisheries (Table A-8).

Of these listed fisheries, California halibut trawl and sea cucumber trawl use gear defined as "legal groundfish gear." Pacific halibut uses anchored longline, fish pot uses anchored fish pot gear, and set net and California halibut hook and line use gear often described as groundfish gear. Gears used for pink shrimp, ridgeback prawn, spot prawn, CPS, crab pot, HMS, salmon, and sea urchin are not typically considered gears that are used to prosecute groundfish.

Table A-7. Federal groundfish landings in incidental fisheries, 1998-2006, including averages.

Fishery	1998	1999	2000	2001	2002	2003	2004	2005	2006	AVG
Nongroundfish trawl										
California halibut	56.6	47.3	22.5	21.7	14.3	10.6	28.1	31.6	22.7	28.4
Pink shrimp	186.5	220.8	153.0	94.2	47.0	1.3	1.8	0.1	0.0	78.3
Ridgeback prawn	1.9	4.1	8.0	9.1	3.8	3.4	0.9	1.2	3.4	4.0
Sea cucumber	3.1	1.6	1.2	1.4	0.9	1.1	0.3	0.1	0.0	1.1
Spot prawn 1/	28.8	16.0	6.0	3.4	2.0	0.2	0.0	0.0	0.0	6.3
subtotal	276.9	289.8	190.7	129.8	68.0	16.6	31.1	33.0	26.1	118.0
California halibut HL 2/	4.7	5.8	5.2	3.7	2.3	3.4	3.0	1.2	1.1	3.4
CPS	6.2	3.6	2.5	2.8	2.0	4.3	2.9	0.8	1.9	3.0
Crabpot	1.5	1.0	1.2	0.7	0.6	0.9	1.2	4.3	6.1	1.9
Fish pot 2/	3.7	3.1	6.8	9.0	3.1	3.9	4.5	2.3	1.2	4.2
HMS	3.8	2.7	2.9	3.4	4.1	1.9	2.1	1.7	1.7	2.7
Pacific halibut LL 2/	2.0	4.6	3.7	5.6	4.1	10.9	15.9	20.3	20.3	9.7
Salmon	37.8	22.5	18.0	13.4	9.3	8.7	13.1	11.5	4.1	15.4
Sea urchin	0.0	0.1	0.5	0.1	0.3	0.3	0.0	0.0	0.0	0.1
Set net 2/	31.9	57.7	46.3	38.8	29.2	25.8	16.8	22.3	14.4	31.5
subtotal	91.6	100.9	87.1	77.5	54.9	60.1	59.6	64.4	50.8	71.9
TOTAL	368.5	390.7	277.8	207.3	122.9	76.7	90.7	97.4	76.9	189.9
Fishery unknown	96.2	58.4	63.1	81.2	6.9	2.7	3.6	5.4	3.6	35.7
TOTAL (2)	464.7	449.1	340.9	288.5	129.8	79.4	94.3	102.8	80.5	225.6

1/ Prohibited in California starting April 2003. Incidental landings are allowed with ridgeback prawn landings

Table A-8. Summary of open access incidental fishery landings of federal groundfish, 1998-2006 annual averages.

	Target Species		Federal Groundfish		Federal Groundfish % based on	
Fishery	mt	K$$	mt	K$$	mt	K$$
Nongroundfish trawl						
California halibut	111.2	759.4	28.4	66.1	25.5%	8.7%
Pink shrimp	8,244.7	6,254.2	78.3	90.9	0.9%	1.5%
Ridgeback prawn	219.6	625.5	4.0	7.6	1.8%	1.2%
Sea cucumber	91.5	162.4	1.1	2.7	1.2%	1.6%
Spot prawn 1/	57.5	929.7	6.3	11.3	10.9%	1.2%
subtotal	8,724.6	8,731.1	118.0	178.5	1.4%	2.0%
California halibut HL 2/	66.1	467.6	3.4	15.3	5.1%	3.3%
CPS	149,012.7	31,799.8	3.0	5.3	0.0%	0.0%
Crabpot	15,428.1	60,653.2	1.9	7.2	0.0%	0.0%
Fish pot 2/	288.8	542.0	4.2	41.7	1.4%	7.7%
HMS	12,194.8	22,361.4	2.7	4.9	0.0%	0.0%
Pacific halibut LL 2/	62.0	308.3	9.7	31.8	15.6%	10.3%
Salmon	3,196.3	13,655.2	15.4	24.1	0.5%	0.2%
Sea urchin	5,618.8	9,336.6	0.1	1.0	0.0%	0.0%
Set net 2/	351.5	1,356.7	31.5	37.8	9.0%	2.8%
subtotal	186,219.0	140,480.8	71.9	169.1	0.0%	0.1%
TOTAL	194,943.6	149,212.0	189.9	347.6	0.1%	0.2%
Unknown	NA	NA	35.7	NA	NA	NA
Total (2)	194,943.5	149,211.9	225.6	NA	NA	NA

1/ spot prawn trawling prohibited in California starting April 2003. Incidental landings allowed with ridgeback prawn landings

Association with the Inter-Sector Allocation Process

Requiring that a vessel with a LE trawl permit cover groundfish catch in nongroundfish fisheries with quota is consistent with existing provisions that applies groundfish landings made by a vessel with a LE permit in a nontrawl sector to that vessel's trawl cumulative limit. This effectively limits groundfish catch by a trawl vessel to its cumulative limit regardless of which fishery that vessel may have harvested groundfish and expands the trawl sector allocation to participation in fisheries other than the trawl fishery. Exceptions do exist however, such as when a trawl vessel with a LE fixed gear permit participates in the sablefish tier fishery. Under this circumstance, the catch of a vessel with a trawl permit associated with it in the sablefish tier fishery is not applied to the trawl cumulative limit.

If groundfish catch made by LE trawl licensed vessels that are participating in a nontrawl fishery are not included under the scope of the trawl rationalization program, then the inter-sector allocation process may have to consider that decision. One method of dealing with this issue is to attribute groundfish catch in fisheries not covered under the scope of the rationalization program toward the nontrawl sector. This could be done by developing estimates of groundfish catch made by licensed trawl vessels participating in fisheries not covered under the scope of the program and applying that estimated catch to the allocation made to the nontrawl sectors. Another approach for some legal gears that take a very small amount of groundfish quota would be to estimate the expected mortality preseason and deduct it from the trawl allocation before allocating out the QP. Adjustments would be made from year to year if the actual take were greater or smaller than the estimates but given the low harvest levels, deviations from the estimates would be unlikely to have a significant conservation impact.

Gear Switching

Gear switching is an implied result of the definition of the program scope. Gear switching may be used to balance catch accounts (because different gears have relatively different catch rates), take advantage of differing market opportunities, or to respond to public relations issues. Although difficult to predict, some information suggests that there are harvesters located in different sections of the west coast that are more likely to engage in gear switching on a permanent basis. Harvesters located in the central and southern-central California coast have expressed a desire to switch from trawl gear to groundfish fixed gear (longline and pots) in recent years because of public relations issues and because consumers in central and southern California appear to prefer nontrawl caught fish. In addition, harvesters that have typically relied on areas with relatively high rates of constraining species bycatch may be more likely to switch to a nontrawl gear to avoid those constraining stocks since many types of fixed gear have lower bycatch rates of overfished stocks than trawl gear (though not always as is evidenced by the comparative bycatch rates of yelloweye rockfish). This may encompass harvesters located in northern Washington and some harvesters in southern Oregon ports. Other factors may cause harvesters temporarily to use nontrawl gear to prosecute fishing activities during certain times of the year. This may be due to market conditions where there is a noticeable differential in the prices paid for groundfish species caught with one gear versus another. This is particularly the case for sablefish. The figure below shows that there is a substantial price differential between fixed-gear-caught sablefish and trawl-caught sablefish. If the trawl sector harvests 10 percent of the trawl allocation with fixed gear, this would increase ex-vessel revenues by approximately $600,000. If 20 percent of the trawl allocation was caught with fixed gear, ex-vessel revenues may increase by $1.2 million.

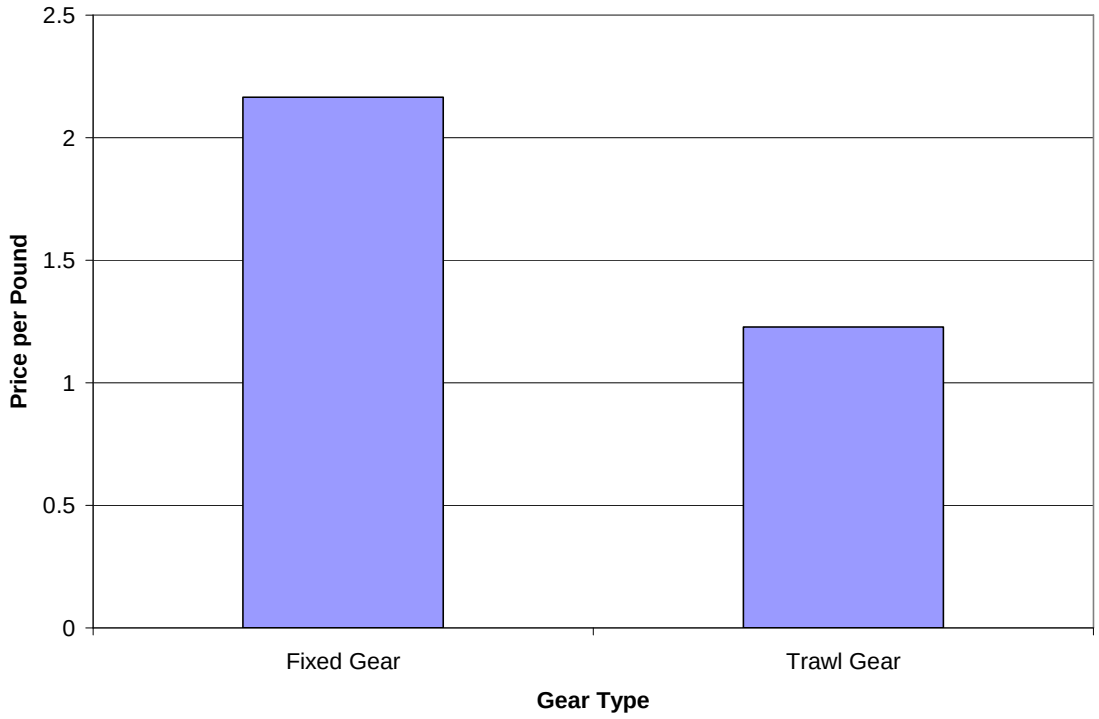

Figure A-1. Average price per pound for sablefish by gear type (2004 to 2007).

Another factor influencing gear switching, aside from the price differential, is the ability to harvest some types of groundfish with trawl gear that cannot be caught with nontrawl gear. Harvesters in many areas are not likely to abandon trawl gear completely because doing so would mean giving up the catch of many species of flatfish, which are not easily caught with nontrawl gears. In other words, in many areas of the coast, harvesters may use nontrawl gear to target species such as sablefish during certain times of the year and use trawl gear to prosecute Petrale sole, Dover sole, and other flatfish during other times of the year. The relative catch rate—under status quo conditions—for bottom trawl and fixed gear is shown in Table A-5. This information shows that fixed gear is successful at catching sablefish, shortspine thornyhead, and arrowtooth to some degree, but is not productive for catching many types of flatfish. Trawl gear on the other hand is capable of catching all of the species listed in the table. One reason these flatfish are not successfully caught with hook-and-line gear is because of their feeding patterns. While many longline fishermen may use herring with large hooks for example, several of the flatfish shown below feed on small prey, like worms, and have mouths too small to be caught with many of the hook sizes currently used. This information implies that large-scale gear switching may result in several species of flatfish being left unharvested.

Table A-9. Catch of select groundfish by gear type, mt (2006).

Species	Nonwhiting trawl	Fixed Gear
Sablefish	2,654.3	3,119.3
Shortspine	648.7	178.1
Longspine	821.3	21.2
Dover sole	7,475.5	4.6
Petrale sole	2,690.1	4.1
English sole	1,291.4	0.0
Arrowtooth flounder	2,817.6	78.8
Other Flatfish	1,854.9	4.1

Gear switching in an IFQ program addresses several aspects of guidance related to rationalization. Gear switching is related to conservation, net benefits, and sector health. The MSA at 303A(c)(1)(C)(ii) states that limited access privilege programs (LAPPs) shall promote fishery conservation and management, while the Groundfish FMP objective 5 specifies the objective of minimizing adverse impacts on essential fish habitat (EFH). Gear switching is expected to result in a wider use of gear types some of which may have a smaller impact on habitat than bottom trawl gear. However, this is not necessarily always the case, especially in cases where fixed gear can access high relief substrate and trawl gear cannot. If gear switching results in increased fishing pressure in areas where trawl gear currently cannot access, the result may be a greater impact on habitat than under status quo. In other areas (those that are accessible to trawl gear), the impact may be a reduction in the impact on habitat. A reduction in habitat impacts is expected to have an indirect effect on fish stocks and in this way influence fishery conservation.

[i] Longnose skate has since been moved out of the "Other Fish" category.

A-1.2 IFQ Management Units, Including Latitudinal Area Management

❖ *Provisions and Options*

QS will carry designations for the species/species group, area, and trawl sector to which it applies (see A-1.3 for the list of trawl sectors). The QP will have the same species/species group, area, and sector designations as the QS on the basis of which the QP was issued. QP will not be used in a trawl sector other than that for which it was issued, unless specifically allowed, and will not be used in a nontrawl sector (i.e., by vessels without trawl permits).[4] QP will not be used in a catch area or for a species/species group other than that for which it is designated.

For those species within the scope of the program, the, species groupings and area subdivisions will be those for which OYs are specified in ABC/OY table that is generated through the groundfish biennial specifications process.

Geographic Subdivision **Option 1:** Additionally, for species or species groups for which the OY is not geographically subdivided (i.e., there is only a coast wide OY), the QS will be subdivided geographically at the 40°10' N latitude line. Existing geographic lines for other species will be maintained. [If this option is not adopted, area divisions will be as specified for OYs in the biennial ABC/OY table, unless changed by the Council.]

► Geographic Subdivision **Option 2:** Additionally, there will be area subdivisions for those species for which there is an area specific harvest policy.

OR

See Section A-8 for an alternative approach to addressing concerns about geographic shifts: "regional landing zone restrictions." Regional landing zone restrictions would not alter the IFQ management units.

QS for remaining minor rockfish will be aggregated for the nearshore, shelf, and slope depth strata, as per Table A-82, Control and Vessel Limit Options.

After initial QS allocation the Council may alter the management units by changing the management areas or subdividing species groups. Section A-2.1.6 provides methods for reallocating QS when such changes are made after initial implementation of the program.[5] ***Hereafter, all references to species include species and species group, unless otherwise indicated.***

❖ *Rationale and Policy Issues*

The IFQ units would be matched to the ABC/OY table species and species complexes in order to allow managers to control trawl harvest with respect to the annual ABC/OY management targets.

The option to provide a further geographic subdivision of those categories is intended to spread out effort to decrease the likelihood of localized depletion of fish species/populations and to disperse landings to sustain a variety of coastal communities. Managers of both British Columbia groundfish and IPHC halibut employ area management.

[4] Not withstanding this provision, a vessel with a LE trawl permit may catch the trawl QP with a nontrawl gear, as per Section A-1.1.

[5] Such changes in latitudinal area management may occur as a result of changes in the management areas for species/species complexes in the ABC/OY table or as a result of separate Council action to change the trawl QS by area. In either case, specific Council action will be required to change the management areas, and such action will be accompanied by appropriate supporting analysis and public comment opportunity.

The GMT recommended in June 2007 that status quo area management measure be applied as a precautionary measure under both status quo and rationalization management systems.

> As evidenced by the March 2007 groundfish inseason action, increasingly complex spatial management measures may be necessary within the existing management framework. Intersector allocations (ISAs) and the implementation of trawl individual fishing quotas (TIQ) may further increase the need for spatial management, perhaps in a manner different than status quo….
>
> Spatially explicit management has proven to be critical to meeting conflicting management goals and objectives, such as maintaining fishing opportunities on healthy stocks while reducing incidental catches of rebuilding species, and meeting habitat protection requirements. Furthermore, there is a growing appreciation of the significance of heterogeneity in population structure for most marine organisms, as well as for the potential interaction between population structure and fishing behavior, that scientists and managers alike will find increasingly necessary to confront in population models and management measures….
>
> The GMT recommends incorporating current area management tools within the TIQ program, recognizing the limitations, and continuing to pursue research and data that may further inform spatial management. As data become available, area management within the TIQ program is expected to evolve and adapt.

A further explanation of how north-south trawl IFQ allocation would work is provided below.

1. Allocation of QS would be based on landings by area north and south of the 40° 10’ N latitude area management line. The area to the north sums to 100 percent, and the area to the south sums to 100 percent.
2. Division of trawl allocation between north and south areas could be based on average landings over a series of years (1994 to 2003 was suggested by the GMT; 2004 to 2006 is the status quo years used in the analysis). The Council has not selected a period of years.

Currently, and in the past, permits could be sold coast wide. There is a possibility that, if a permit was sold to a different part of the west coast, the permit would not get an initial allocation of QS that match the present-day location of the vessel, but rather match the history of the permit. For example, if someone in California wanted to sell their permit to someone fishing in Washington, that vessel might qualify, based on fishing history, for southern QS, but not northern. That vessel would have to acquire northern QSs to fish by a different means than initial allocation, such as buying or trading.

The goals and objectives addressed by the Area Management provision include the following: promote fishery conservation (MSA 303A(c)(1)(A)); consider biological stock structure and minimize localized concentrations of fishing effort (Amendment 20 Constraint 3); address concerns over excessive geographic consolidation in the harvesting or processing sectors (MSA 303A(c)(5)(B)(ii)); and promote sustained participation of fishing communities and address concerns over excessive geographic consolidation (MSA 303A(c)(5)(B)).

Conservation	Net Benefits	Disruption	Excessive Shares	Fairness and Equity	Sector Health	Labor	Communities	Small Entities and New Entrants	General Public	Program Performance
X			X				X			

A process option to form a group to address area management was considered but rejected. Furthermore, the Council adopted (as part of the PPA) area management and Regional Landing Zones as dual preferred alternatives. Both were not adopted as the Final Preferred Alternative. Some factors leading to the decision not to adopt area management as a Final Preferred Alternative include the fact that little scientific information was available to support the decision on where boundaries might be drawn to support such area subdivisions and whether implementing such measures would be necessary for conservation of groundfish resources given the life history characteristics of groundfish caught in the trawl fishery.

❖ *Interlinked Elements*

General Management and Trawl Sectors –The north-south division of coast wide OYs would not apply to the shoreside whiting fishery if managed by IFQs, as it occurs entirely to the north.

Stock distribution vs. distribution of trawl sector allocation – The north and south distribution of trawl sector allocation, if based on past landings amounts, may not match up with future groundfish locations and centers of abundance. The percentage of the north-south OY split is typically based on biological considerations, is part of the biennial specifications process, and would not necessarily be indicated under Amendment 20. IFQ area management units are related to decisions to be made under the ISA and/or 2011-12 groundfish harvest specifications EISs.

Reallocation with changes in management area – There are specific formulas proposed in the program provision alternatives that describe how reallocation would occur if there were an area subdivision, area recombination, area line movement, or species group subdivision.

❖ *Analysis*

Area management units would have both a biological effect and a socioeconomic effect. Under a rationalized fishery, it is anticipated that harvest privileges will be more fluid than under status quo. Under status quo, permit owners can sell their permit, or lease their permit to another individual that fishes that permit. However, IFQ is anticipated to be more fluid because it is divisible, and one individual's quota can be spread throughout several different active vessels or stacked on one vessel. Because of this envisioned fluidity, fishing effort is likely to be much more concentrated in areas where economic conditions (including catch per unit effort and species mix in the catch) are most favorable (assuming area management restrictions do not exist). This may have the effect of shifting fishing and delivery activity away from some areas and toward others, resulting in an overall shift in location in which fishing activity occurs.

Assuming area management units do not exist, from an economic standpoint, this shift can be viewed as favorable to some as quota owners are best able to capitalize on favorable economic conditions. In the case of coastal communities, the effect is largely distributional. Those communities that lose fishing

activity stand to be adversely affected while those communities that gain fishing activity stand to be positively affected.

From a biological standpoint the issue is somewhat mixed. On one hand, if short-term economic conditions dominate the decision of where fishing effort will be concentrated, then stocks present in areas with an increase in fishing effort may experience more mortality than under status quo. However, if those stocks become less abundant, harvesters may elect to move and fish in areas where stocks are more abundant, allowing stocks in the first area to recover while harvesters fish in the area of more abundant stocks. Even so, if costs are lower in a particular port or region of the coast, or the travel distance to the fishing grounds shorter, QP may tend to flow to vessels in those locations even though the CPUE is lower due to localized depletion.

If area management restrictions exist, this is likely to temper the geographic shift effect. In general, trawling effort has been becoming increasingly concentrated in areas off Oregon and northern California and less concentrated in areas off central and southern California. If an area management boundary is put in place at 40° 10' N latitude (just south of Cape Mendocino), it is expected that the shift in concentration of fishing to the north of that latitude line will be halted/reversed, and more fishing activity will take place to the south compared to a case where no area management restrictions exist. Implementing this area restriction may have the effect of spreading the distribution of fishing activity across a wider number of communities. However, quota owners may be less able to capitalize on favorable economic conditions and the fluidity of QS will be reduced.

In November 2007, the GMT proposed a north-south QS split based on average fleet harvest history in the two areas during the 1994 to 2003 period. In Table A-10 below, trawl caught average percentages north and south for 1994 to 2003 are compared to more recent years (2004 to 2006 averaged) for certain species.

Table A-10. Share of Trawl Landings North and South of 40° 10' N latitude Line averaged for the years 1994 to 2003 and 2004 to 2006.

	1994-2003		
	All Permits	**Nonbuyback**	**2004-2006**
Sablefish			
North of 40-10	82.34%	80.78%	86.96%
South of 40-10	17.66%	19.22%	13.04%
Shortspine Thornyheads			
North of 40-10	72.77%	68.26%	71.39%
South of 40-10	27.23%	31.74%	28.61%
Longspine Thornyheads			
North of 40-10	75.39%	71.10%	54.37%
South of 40-10	24.61%	28.90%	45.63%
Dover Sole			
North of 40-10	71.73%	66.82%	81.92%
South of 40-10	28.27%	33.18%	18.08%
Petrale Sole			
North of 40-10	81.99%	77.26%	86.08%
South of 40-10	18.01%	22.74%	13.92%
Other Flatfish			
North of 40-10	56.25%	44.66%	77.02%
South of 40-10	43.75%	55.34%	22.98%

For some species, such as other flatfish, Petrale sole, and Dover sole, the more recent years show the trawl catch is greater in the north. Using 1994 to 2003 would not reflect the current trawl effort as well as more recent years would, but using the older years would spread the effort out more between northern and southern areas. For other species, such as sablefish, there is less of a discrepancy between using an

older data set and more recent years. The Council may wish to split the north and south QS for shortspine and longspine thornyheads to disperse the trawl effort on those species. However, the provision as it is currently written would have to be changed to include the thornyheads, because the current provision only applies to species that have no OY management division. Thornyheads have a management division at the 34° 27' N latitude line, which has little application to the trawl fishery.

The status quo management of some species' OY currently divides fishing effort to the north and south of 40° 10' N latitude, such as minor nearshore, shelf and slope rockfish. Other species have an OY management division at a different line of latitude, such as shortspine and longspine thornyhead, and 34° 27' N latitude. Most groundfish species, such as whiting, Dover sole, Petrale sole, and widow rockfish, have a coast wide OY with no specified area management. Below is a table (Table A-11) that lists every west coast groundfish stock and stock complex with a specified OY and whether that OY is coast wide or has a division. Those species with no OY division would have the 40° 10' N latitude management line applied to them under rationalization.

Table A-11 furthers the analysis by commenting on the potential biological effect of creating a management division at 40° 10' N latitude. In general, species that are found further off-shore, e.g., on the continental slope, have a life history that involves broadcast spawning, a higher level of adult mobility, and a higher level of genetic mingling than species found on the continental shelf and nearshore. Adult nearshore species tend to have higher site fidelity, are less likely to colonize new habitats, have lower levels of genetic mixing, and, therefore, have higher levels of genetic specialization and diversity. Nearshore species are more vulnerable to intense and localized fishing effort because they tend to be more adapted to a specific area than slope species. If concentrated fishing effort occurred on slope species, there is a lower risk of localized population depletion because other individuals in the population are genetically similar and could migrate to repopulate the depleted area. Localized depletion would have a greater effect on species occurring on the shelf and nearshore, because in general their life history characteristics tend to include low larval dispersal, high geographic loyalty, and high genetic diversity.

In addition to the generalized differences in life characteristics of slope versus shelf species, there are other considerations that bear on whether or not the management division at 40°10'N latitude would apply in a useful way. For example, some species range entirely above or below 40°10'N latitude, are not caught in either the north or the south, and a management line at that location would not help spread out the catch effort (i.e., arrowtooth flounder, Pacific ocean perch, and Pacific cod, which all primarily occur in the northern area). Some species have an unknown distribution, and still other species are so rarely caught by the bottom trawl fishery that an area management line would have little biological implication.

Creation of a line for species that are abundant coast wide but present in relatively small quantities south of Cape Mendocino may risk problems similar to those described in Section A-.1.1 with respect to species that are generally caught in small quantities by the trawl fishery (e.g., cabezon and black rockfish). See Species Covered in Section A-1.1 for a discussion of the implications of requiring IFQ for species that are rarely encountered and for which the available QP is very limited.

Minor effects of the area management provision, would include additional tracking, monitoring, and enforcement of QS harvest location. North and South categories of QS would be created and tracked to make sure that QS are fished and traded/sold in the correct area. Likewise, if adaptive management QS are part of the rationalization program, those QSs would also be designated North and South.

In summary, an OY management division at 40° 10' N latitude would result in a more precautionary management measure for some of the species currently lacking north/south area management divisions, would be more effective for certain species than others depending on life history traits, would help ensure some communities retain some amount of historical fisheries commerce, and would restrict coast wide tradability of QS.

Table A-11. West coast groundfish stocks and stock complexes with harvest specifications (overfished stocks in CAPS.)

Stock	Geographic Extent of Specified Optimum Yields (OYs)	Potential Biological Benefit of Separate OYs N and S of 40°10' N lat. (if current OY is coast wide)?	Comments
Lingcod	Coast wide	Likely	Southern sub-population has different pop. dynamics and is more depleted
Pacific Cod	Coast wide	Unlikely	Rare S of 40°10' N lat.
Pacific Whiting (U.S.)	Coast wide	Unlikely	Highly migratory with majority of fishing pressure in the north
Sablefish	Separate OYs N and S of 36° N lat.	N/A[6]	
PACIFIC OCEAN PERCH	Coast wide	Unlikely	Rare S of 40°10' N lat.
Shortbelly Rockfish	Coast wide	Unlikely	Negligible exploitation
WIDOW ROCKFISH	Coast wide	Unknown	Stock differences along west coast unknown
CANARY ROCKFISH	Coast wide	Unknown	Stock differences along west coast unknown
Chilipepper Rockfish	S of 40°10' N lat.	N/A	Managed under the minor shelf rockfish complex in the north
BOCACCIO	S of 40°10' N lat.	N/A	Managed under the minor shelf rockfish complex in the north
Splitnose Rockfish	Coast wide	Unknown	Stock differences along west coast unknown
Yellowtail Rockfish	N of 40°10' N lat.	N/A	Managed under the minor shelf rockfish complex in the south
Shortspine Thornyhead	Separate OYs N and S of 34º27' N lat.	N/A	
Longspine Thornyhead	Separate OYs N and S of 34º27' N lat.	N/A	
COWCOD	S of 40°30' N lat. (Con. and Mon. areas)	N/A	
DARKBLOTCHED	Coast wide	Unlikely	Slope species: genetic diversity likely low along west coast due to broad larval dispersal
YELLOWEYE	Coast wide	Unknown	Stock differences along west coast unknown; sedentary life history may lead to stock differences
Black Rockfish	Separate OYs N and S of WA-OR border	N/A	
Minor Rockfish North	N of 40°10' N lat.	N/A	
Nearshore Species	N of 40°10' N lat.	N/A	
Shelf Species	N of 40°10' N lat.	N/A	
Slope Species	N of 40°10' N lat.	N/A	
Minor Rockfish South	S of 40°10' N lat.	N/A	
Nearshore Species	S of 40°10' N lat.	N/A	
Shelf Species	S of 40°10' N lat.	N/A	
Slope Species	S of 40°10' N lat.	N/A	
California scorpionfish	Coast wide	No	Ranges S of 37° N lat. and rare N of 34°27' N lat.
Cabezon	OY for CA only	N/A	

[6] Not Applicable (N/A). The 40°10' N lat. management line would not be applied to species with a previously specified management division.

Table A-12 cont. West coast groundfish stocks and stock complexes with harvest specifications (overfished stocks in CAPS.)

Stock	Geographic Extent of Specified Optimum Yields (OYs)	Potential Biological Benefit of Separate OYs N and S of 40°10' N lat. (if current OY is coast wide)?	Comments
Dover Sole	Coast wide	Unlikely	Stock differences along west coast unknown, but long larval period (2 yrs) and offshore larval transport prob. contribute to low genetic diversity
English Sole	Coast wide	Likely	Stock differences along west coast unknown, but inshore larval dispersal may contribute to higher genetic diversity
Petrale Sole	Coast wide	Likely	Stock differences along west coast unknown, but inshore larval dispersal may contribute to higher genetic diversity
Arrowtooth Flounder	Coast wide	Unknown	Stock differences along west coast unknown, but deeper shelf spawning and 4 week larval period may contribute to higher genetic diversity
Starry Flounder	Coast wide	Likely	Stock differences along west coast unknown, but nearshore distribution prob. contributes to higher genetic diversity
Other Flatfish	Coast wide	Likely	Mix of species including nearshore species with probable high genetic diversity
Other Fish	Coast wide	Unknown	Mix of species with disparate life histories; Though stock differences along west coast unknown there may be some trawl-caught species with higher genetic diversity
Kelp Greenling	HG for OR only	N/A	
Longnose Skate	Coast wide	Unlikely	Stock-specific OY specified starting in 2009; Highly migratory with prob. low genetic diversity

A-1.3 General Management and Trawl Sectors

❖ Provisions and Options

Unless otherwise specified, status quo regulations, other than trip limits for species within the scope of the IFQ program, will remain in place. If individual vessel overages (catch not covered by QP) make it necessary, area restrictions, season closures or other measures will be used to prevent the trawl sector (in aggregate or the individual trawl sectors listed here) from going over allocations.[7] The IFQ fishery may also be restricted or closed as a result of overages in other sectors. There will be:

►**Option 1:** three trawl sectors: shoreside, mothership, and catcher-processors.
Option 2: four trawl sectors: shoreside nonwhiting, shoreside whiting, mothership, and catcher-processors.

Allocation among trawl sectors to be determined in the intersector allocation process.[8]
Trawl vessels fishing IFQ with nontrawl gear will be required to comply with the RCA lines applicable for that gear. Such restrictions, as necessary, will be determined in a separate process.

❖ Rationale and Policy Issues

Within a rationalization program, the more transferability allowed among vessels the more efficient the use of the fishery resource and hence the greater the potential total economic benefits of the program. However, in an attempt to preserve certain characteristics of a fishery that may be considered desirable, limits on IFQ transfers among sectors may be adopted despite being less economically efficient overall.

The Council, at the recommendation of the Trawl Individual Quota Committee (TIQC), eliminated the one trawl sector option from further analysis. By not differentiating between trawl sectors, the single trawl sector option would maximize potential transferability among trawl fisheries. However, with one sector, the market may not fully capture all the important social and economic effects, particularly if some IFQ buyers in the market benefit from both harvesting and processing profits while others only harvest or only process. It is anticipated, therefore, that a single sector would lead to migration of quota to the more vertically integrated catcher-processor sector. Such expected consolidation would likely result in disruption of other sectors in the fishery and a change to its current landscape, including loss of small-boat/owner-operator businesses that could be out-competed in both the shoreside and mothership fleets. Such situations would conflict with the objective to minimize adverse effects on fishing

[7] The Council authority to establish or modify RCAs will not be changed by this alternative.

[8] The allocation among trawl sectors will be determined as part of the intersector allocation process. The TIQC recommended a number of options for determining the allocation among trawl sectors. One of these would have based the allocation on fleet history, but would not have included in the fleet history the history of any vessel not meeting the recent participation requirement. The Council rejected this application of a recent participation requirement to a determination of fleet history. The remaining TIQC options recommend that the division of allocation among trawl sectors be based on the fleet history over the same time periods used to allocate QS. The TIQC further recommends that if different periods are used for different trawl sectors, either (1) calculate the share for each sector based on its IFQ allocation period, then adjust all percentages proportionately such that they sum to 100 percent; OR (2) use the shortest period common to the allocation formula for all sectors.
If bycatch in the whiting sectors is not managed with IFQs and is pooled at the overall whiting fishery or sector level, allocations of bycatch will be determined through the intersector allocation process. The TIQC recommends allocation among the whiting sectors based on Option 1: pro rata in proportion to the whiting allocation, or Option 2: weighted historical catch formula (for example, in projecting bycatch in the whiting fisheries prior to the start of the season, the GMT uses a four-year weighted average starting with the most recent year: 40 percent, 30 percent, 20 percent, 10 percent).

communities to the extent practical and the MSA mandate to consider the basic cultural and social framework of the fishery (303A(c)(5)(B).

While less economically efficient in theory, the options of three sectors or four sectors would better protect communities and regions once the fishery was rationalized. Multiple sectors would allow the Council to make explicit decisions about how to allocate QS between the sectors in order to incorporate some of the socioeconomic values that might not be captured by a market driven allocation.

Four sectors represent the current groundfish fishery and its diversity.

Under a three sector fishery, the shore-based harvesting sector would share one pool of whiting and other groundfish, and this could allow for more flexibility to move harvest opportunity between shoreside whiting and nonwhiting trips to address the fishery's needs. This would relieve some of the Councils allocation tasks and result in more economically optimal distribution, particularly with respect to the consideration of the shoreside whiting and nonwhiting fisheries needs for bycatch, which would be addressed through market-based mechanisms rather than regulatory, administration-based mechanisms.

❖ *Interlinked Elements*

IFQ or cooperatives as the catch control tool: If the nonwhiting sector is managed with IFQ, and the shoreside whiting sector is managed with cooperatives, the fishery must be managed with four trawl sectors.

❖ *Analysis*

Number of Trawl Sectors

It has been hypothesized that if one sector of the fishery has more financial capability of purchasing quota than another sector, then establishing a single shoreside sector may tend to result in a flow of quota from one group of harvesters to another. If overfished species IFQ flows from one sector to another (because one sector has greater purchasing power), the sector that loses the overfished species IFQ may see their ability to access target species reduced (because of the constraining nature of overfished stocks). Alternatively, if there are four sectors, the separation would tend to preserve the amount of species available to each sector. It is important to note that this argument is theoretical. Available information suggests that both shoreside sectors will see profits improve under a well-designed rationalization program. However, having a single shoreside sector will tend to make it easier for trades to occur, while having two shoreside sectors will tend to maintain two fairly distinct sectors (though some vessels may participate in both).

The number of trawl sectors established will likely influence the flexibility that harvesters have in either sector. By creating three trawl sectors and bundling both shoreside sectors into a common allocation, the trading of quota can occur between both sectors in a manner that creates flexibility in harvesting activity because of the ability to acquire and sell quota as needed. The establishment of four trawl sectors imposes risks to harvesters because it reduces the amount of QP available to each sector and creates a firm set of allocations that could cause a sector to close if one or more of those allocations were met. For example, if the incidental catch of Pacific whiting in the nonwhiting sector is higher than anticipated, nonwhiting harvesters could end up being constrained by Pacific whiting and would not be able to purchase whiting quota from shoreside whiting harvesters to alleviate some of that constraint. This division of quota between the shoreside sectors could restrict the ability of nonwhiting harvesters to prosecute fishing activity if some species become unexpectedly constraining, because it establishes boundaries and restrictions on fishing activity without a mechanism for harvesters to work around those

restrictions. Alternatively, the establishment of four trawl sectors implies that a set-aside or allocation of non-target species will be necessary for the whiting fishery. Such a set-aside may be a target species for the nonwhiting fishery. Setting firm allocations for separate trawl shoreside sectors may mean a loss of economic opportunity in years where the whiting fishery does not need that entire set-aside, thus jeopardizing the ability of the trawl sectors to achieve their allocation. Sablefish is one example of a species where catch in the whiting fishery has varied from year to year and for which allocations necessary to establish four sectors may result in lost potential or produce a constraining species. In years where the catch of sablefish is low in the whiting fishery, that catch will reflect a lost economic opportunity to nonwhiting harvesters if that quota cannot be transferred to them. Figure A-2 shows sablefish catch in the whiting fishery over the past several years. This figure shows that the catch of sablefish has varied substantially. Interestingly, the largest source of variation is in the shoreside whiting fishery. In years where sablefish bycatch is low, the inability to transfer that catch to the nonwhiting sector (because of the establishment of four trawl sectors) represents a lost opportunity.

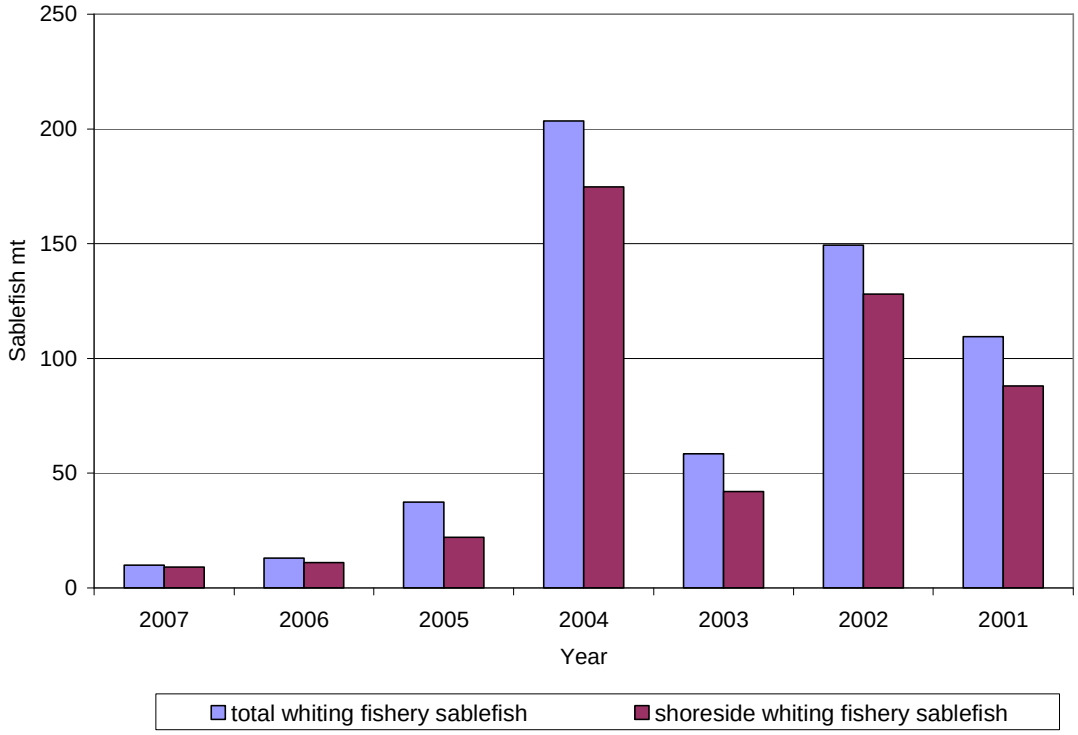

Figure A-2. Bycatch of sablefish in the Pacific whiting fishery (2001–2007).

Measures used to Prevent Exceedance of Allocations

Closing portions of the fishery through area restrictions, season closures, or some other measure to prevent the trawl sector from going over an allocation, or implementing those measures because another sector has exceeded its allocation, is likely to mean the preemption of some fishing opportunities to harvesters in the trawl sector. Many target species are only available in certain areas, such as shelf flatfish. If, hypothetically, an overage of yelloweye rockfish occurs in the trawl sector or another sector that requires depths less than 150 fathoms be closed to trawl activities, several species of flatfish will be inaccessible (such as sand sole, sanddabs, and English sole, among others). This area-based closure would mean that the sector would not be able to harvest these target species, and revenues in the fishery would be lower than expected. In other cases, some vessels may not have the capacity to fish deeper

than 150 fathoms even if target species are available at those deeper depths. However, because of the transferability provisions of a rationalization program, harvesters not able to fish in those other areas can transfer quota to a vessel that does operate in areas remaining open and in this way continue to participate in the fishery.

If measures were not used to prevent overages from the trawl sector or from other sectors, the outcome may mean the exceedance of a management target such as an OY. In the worst-case scenario, the belief that another sector or another harvester can affect the opportunities of trawlers in a rationalized fishery can lead to behavior that resembles race for fish behavior. This is most likely to occur for bycatch species or cases where catch potential is large relative to the management target. Not implementing a restriction, such as an area closure, in a case where a management target is met or exceeded may mean that rebuilding plans are jeopardized or over-fishing occurs. Area closures could also be used to slow the harvest of some species if the Council identifies the need for additional tools to achieve various goals for managing the fishery that are not being achieved by the rationalization program itself. Therefore, while implementing a restriction on the trawl sector to prevent an overage in the trawl sector, or as a result of an overage in a nontrawl sector, may restrict economic opportunity, it is likely to assist in the long-term health of groundfish stocks.

A-1.4 Management of Nonwhiting Trips

❖ *Provisions and Options*

> Nonwhiting trips are those with less than 50 percent whiting. No changes to management measures, other than those identified in Section A-1.3, have been identified at this time.[9]

Nonwhiting trips are those where whiting comprises less than 50 percent of the groundfish catch.

No management measures other than those identified in Section A-1.3 have been identified at this time.

A-1.5 Management of Whiting Trips

❖ *Provisions and Options*

> Whiting seasons will not be changed under the TIQ program, and so the current spring openings will be maintained to control impacts on Endangered Species Act (ESA)-listed salmon.[10]
>
> When the primary whiting season for a sector is closed (see section A-1.3 for options on the number of trawl sectors)
>
> - ► If there are 3 sectors: for shoreside deliveries, cumulative whiting catch limits will apply and shoreside QP will be required to cover whiting incidental catch. Deliveries will be prohibited for at-sea sectors during at-sea closures.
> - If there are 4 sectors: whiting sectors will be prohibited from delivering.

❖ *Rationale and Policy Issues*

Maintaining the existing season structure of the whiting fishery is intended to accomplish several objectives. One objective is to continue to minimize interactions with salmon and in this way continue to meet ESA requirements over salmon management. The reason for continuing to maintain different start dates for the at sea fishery and the shoreside fishery is that many mothership catcher vessels also deliver to shoreside processors. Having the fisheries timed differently is expected to minimize conflicts between the mothership sector and the shoreside sector over catcher vessel participation in both sectors. By maintaining different start dates for this fishery, catcher vessels can participate in the mothership sector in May and early June, and motherships can expect those vessels to deliver catch without concern that catcher vessels would unexpectedly move to the shoreside sector. The inverse is also true. By maintaining a different start date, shoreside processors do not have to have much concern that catcher vessels will unexpectedly move to the mothership sector.

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[9] For the nonwhiting fishery there is a potential that a vessel might make a targeted whiting trip by accumulating whiting QPs provided to cover whiting bycatch in the nonwhiting fishery. This could create a problem if it occurred during a time when the whiting fishery is closed to control for impacts on ESA-listed salmon. Other than that, whiting-targeted trips using whiting QP intended for whiting bycatch in the nonwhiting fishery might not create a problem. Restrictions might be imposed on whiting catch in the nonwhiting fishery as needed to address concerns ESA concerns.

[10] The current process for changing the whiting fishery opening dates involves a regulatory amendment developed under the FMP through a framework process. Implementation of an IFQ program should not change this process.

For a management system in which the various whiting sectors would be managed under separate IFQ systems, the Council considered an option that would allow unused whiting QP to be rolled from one sector to another. This option was rejected early on in favor of maintaining the separation among sectors or allowing the market to handle redistribution of whiting QP by managing the fishery as a single sector under IFQs. Under the final preferred alternative, rollover of QP was not a consideration because the at-sea sector is managed with co-ops.

❖ *Interlinked Elements*

Sector management (three versus four sectors) - Under the four-sector option, the directed whiting sectors would be prohibited from delivering whiting when the fishery is closed. Under the three-sector option, QP and cumulative limits would be used for managing shoreside whiting outside the whiting season.

❖ *Analysis*

The existing start date for the at sea portion of the Pacific whiting fishery was established as a mechanism to minimize the take of salmon. Historical information suggests that salmon bycatch is higher in months prior to May. It can be reasonably inferred that changing the start date of the fishery to an earlier period would, therefore, result in more salmon bycatch than would otherwise be the case.

The effect of the existing start date has economic implications in addition to biological implications. The existing timing of the fishery allows participants in the at sea fishery to engage in fishing opportunities before moving to the Bering Sea Pollock fishery or to the shoreside whiting fishery. This allows participants to engage in multiple fishing opportunities throughout the year and generate greater revenues compared to a case where no differentiation in the timing of fishing opportunities existed. While rationalization may make differential season start dates less necessary for those harvesters that desire to participate in multiple fisheries, it still has the effect of minimizing conflicts that may arise between various processors over catcher vessel deliveries and the timing of those deliveries. Since shoreside processors and motherships use many of the same catcher vessels, maintaining a differential start date minimizes the conflict shoreside processors and mothership may have over when those catcher vessels should engage in at sea activity or shoreside activity.

A-1.6 Groundfish Permit Length Endorsements

❖ *Provisions and Options*

Option 1: Length endorsement restrictions on limited entry permits (LEP) endorsed for groundfish gear will not apply for vessels using LE trawl gear. (This action will not change the application of length endorsement restrictions for vessels using LE longline or pot gear).

- ► **Option 2:** Length endorsement restrictions on LE permits endorsed for groundfish gear will be retained; however, the provision that requires that the size endorsements on trawl permits transferred to smaller vessels be reduced to the size of that smaller vessel will be eliminated (i.e., length endorsements will not change when a trawl-endorsed permit is transferred to a smaller vessel).

❖ *Rationale and Policy Issues*

Elimination of the groundfish permit length endorsement is being considered because rationalization of the fishery is expected to eliminate the incentives for "capital stuffing" and increasing capacity in the fishery beyond what is necessary to harvest the available catch. In a race for fish fishery where vessels compete with one another for catch, there is a large incentive to increase the capacity and

competitiveness of vessels by increasing speed, hold capacity, equipment capacity, etc., because increasing this type of capacity makes it more likely that a vessel will out-compete other vessels in a fishery and assume a large percentage of the available harvest.

Since rationalization eliminates the need for vessels to compete with one another, it also eliminates the incentive vessel owners and operators have for capital stuffing. The incentives created by rationalization lead toward capital that is able to maximize revenue given the opportunities in the fishery, but this can only be done if the market is able to indicate the correct incentives toward fishery participants. The elimination of the length endorsement is intended to allow fishery participants the ability to optimize their fishing capital relative to their fishing opportunity.

The option of retaining the length endorsement but not requiring that the length endorsement declines if it is transferred to another vessel is intended to accomplish a couple of different factors. Vessels in the trawl fishery are built to specifications that make them consistent with the length endorsement for the permit that is registered to that vessel. Since there are limited numbers of permits that fall under any given size category, the value of many vessels is artificially inflated to some degree. If the length endorsement were to be eliminated, it is possible that vessels that fall under a relatively inefficient size category would become less valuable as vessels of that size category are no longer needed to harvest the resource, and instead the fleet can instead become made up of efficient vessels. Inversely, if the length endorsement is retained, the fleet will continue to be made up of vessels of varying sizes according to the permit length endorsements and, therefore, the fleet must continue to be comprised of some relatively inefficient vessels. The requirement that the fleet continue to be made up of at least some relatively inefficient vessels means that some relatively inefficient vessels will continue to have value.

The option of not requiring that the length endorsement declines if the permit is transferred to a vessel of a smaller size recognizes that a reduction in fleet capacity is accomplished through fleet consolidation in a rationalized fishery rather than through a decline in the size of vessels in the fishery (which may tend to happen if the permit length endorsement declines if traded to a smaller vessel). In other words, the implementation of rationalization allows entities essentially to stack their fishing privileges on to fewer vessels, resulting in fleet consolidation. Under status quo that is not possible.

❖ Interlinked Elements

No provisions of Amendment 20 appear to be substantially interlinked with length endorsement.

❖ Analysis

Retaining a vessel length endorsement on a LEP is expected to result in some inefficiency. The effect of retaining the length endorsement may very well mean that vessels of an inefficient size category will remain in the fishery, increasing the aggregate cost of harvesting groundfish, and decreasing the economic efficiency of the fleet. If a length endorsement is retained, some permits and associated vessels may have a greater asset value if their associated length endorsement is of the size necessary to prosecute fishing activities efficiently.

However, before drawing conclusions about whether vessels and permits will retain value if the permit length endorsement is relaxed, it is important to view the count of permits in each size category and compare that to the expected amount of fleet consolidation. The following figure illustrates the existing count of LEPs by size category. From this figure it is apparent that nearly 80 permits exist that fall under the "efficient" size category identified by Lian, Weninger, and Singh (2009). When compared to the expected amount of fleet consolidation, it appears that there will be sufficient numbers of permits in the efficient category to handle the number of boats in the fishery. This means that, contrary to some

arguments made for retaining the endorsement, retaining the length endorsement is likely to do very little in terms of retaining the asset value of permits or associated vessels. However, as the number of permits in the efficient category is still somewhat limited, there may still be some small effect of retaining that endorsement. Furthermore, if the efficient vessel size changes over time through technological change, retaining the length endorsement would mean that vessels and permits would retain some additional asset value if the length endorsement is retained.

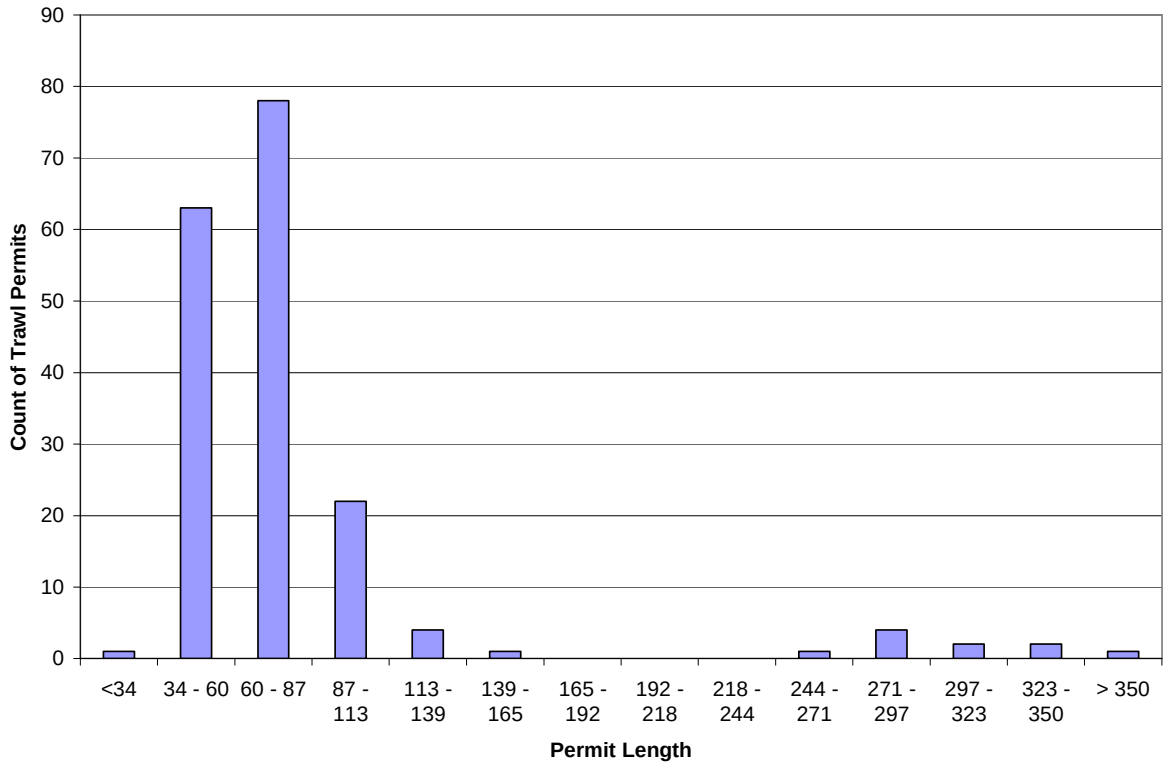


Figure A-3. Count of limited entry trawl permits by size category.

A-2 IFQ SYSTEM DETAILS

A-2.1 Initial Allocation and Direct Reallocation

The Council began its development of the IFQ alternatives under the guidance provided in the MSA as reauthorized by the Sustainable Fishery Act of 1996 and completed the design pursuant to the requirements of the 2006 reauthorization of the MSA. Under the Sustainable Fisheries Act, Councils developing IFQ programs were required to take into account an NRC study (NRC, 1999) on the topic. The NRC recommended that "the councils consider a wide range of initial allocation criteria and allocation mechanisms in designing IFQ program . . . and more broadly consider . . . (1) who should receive initial allocation, including crew, skippers, and other stakeholders (councils should define who are included as stakeholders); (2) how much they should receive; and (3) how much potential recipients should be required to pay for the receipt of initial quota (e.g., auctions, windfall taxes)" (NRC 1999) (pg. 203). Councils should "avoid taking for granted the option of 'gifting' QSs to the present participants in the fishery, just as they should avoid taking for granted that vessel owners should be the only recipients and historical participation the only measure of what each deserves. Councils should consider using auctions, lotteries, or a combination of mechanisms to allocate initial shares of quota" (NRC 1999) (pg. 207). This section covers most of the initial allocation topics raised by the NRC[11] as well as the requirements of the MSA, as reauthorized in 2006 (Table A-12). Specifically, this section covers the following issues related to initial allocation of IFQ as QS:

Eligible Groups

- What groups will be eligible to receive an initial allocation of QS (A-2.1.1.a)?
- How much of the initial allocation will go to each group (A-2.1.1.a)?
- What criteria must be met for membership in each group and how might the attributes that meet those criteria be passed on or accrue to successors in interest (A-2.1.1.b, c, and d)?

Recent Participation

- Should recent activity or membership in the group be required to receive an initial allocation? (A-2.1.2.a, b, and c)

Allocation Formula

- What amounts of QS should be allocated to each of those qualifying for an initial allocation? (A-2.1.3, a, b, c, and d) The following are considered in addressing this allocation question:
    - Should there be an equal allocation element in the allocation formula?
    - Should there be a landing history element in the allocation formula?
    - What time periods should be used for allocation?
    - Should the allocation formula take hardships into account?
    - Should the same credit be received for a given amount of catch, regardless of the year in which it is harvested?

Initial Recipients vs. Eligible to Own

The question "Who should be eligible to receive an initial allocation of IFQ?" is separate from a similar question "Who should be eligible to acquire IFQ after the initial allocation?" The latter question is covered in Section A.2.2.3. The initial allocation does not tell us which groups (permit owners, crew, processors communities or others) will come to hold the quota shares over the long run.

[11] The primary exception is the amount that initial recipients might pay to receive their initial IFQ allocation See Sections A-2.3.2 and A-6 for discussion of issues related to fees and auctions.

- Should overfished species be allocated on basis different from that used for other species?

Exceptional Situations

- With respect to the allocation formulas, how should various exceptional situations be addressed (e.g., credit for EFP landings in excess of trip limits)? (A-2.1.4)

Appeals

- What process should be provided to address disagreements about applications of the provisions and unusual situations that may arise that are not otherwise addressed? (A-2.1.5)

Direct Reallocation and Future Allocation after Initial Issuance

- If after QS is issued direct reallocation appears to be needed to address the redefinition of management units[12] or if there are substantial changes in the status of a species, how would those reallocations be achieved? How would an initial allocation be made for a groundfish species not currently within the scope of the IFQ program? (A-2.1.6)

Policy guidance on allocation actions is provided in the MSA (National Standards and 303A provisions pertaining to LAPPs), the goals and objectives of the Council's groundfish FMP, and those specified for this amendment. Guidance related to initial allocation has been grouped into categories in the summary shown in Table A-12. In the following sections, we will draw on this guidance to focus our evaluation of various initial allocation provisions.

[12] For the IFQ program, a management unit is defined by the species or species group, area, and trawl sector (e.g., shoreside, mothership, or catcher-processor) for which QS is issued.

Table A-13. Policy guidance on allocation decisions from the MSA, as reauthorized in 2007) and Council goals and objectives.

Guidance	Reference
Conservation	MSA - National Standard 4(b)
Allocations reasonably calculated to promote conservation.	
Net Benefits and Efficiency	
Consider efficiency	MSA - National Standard 5
Reduce capacity	MSA - 303A(c)(1)(B)
Attempt to achieve the greatest net economic benefit to the nation	GF FMP Obj 6
Provide for a[n] . . . efficient groundfish fishery.	A-20 Obj 2
Disruption (Efficiency and equity implications). Accomplish change with the least disruption of current domestic fishing practices, marketing procedures, and the environment (NOTE: this objective also has implications for efficiency and net benefits).	GF FMP Obj 15
Excessive Shares (Efficiency and equity implications). Control of excessive shares (including geographic concentration)	MSA - National Standard 4(c) MSA – 303A(c)(5)(B)(ii) MSA – 303A(c)(5)(D) A-20 Constraint 6
Fairness and Equity	MSA - National Standard 4(a) GF FMP Obj 13
Establish procedures to ensure **fair and equitable** initial allocations, including consideration of (i**) current and historical** harvests; (ii) **employment** in the harvesting and processing sectors; (iii) **investments** in, and dependence upon, the fishery; and (iv) the **current and historical participation** of fishing communities;	MSA – 303A(c)(5)(A)
Fishery Participation. Allocate IFQ to persons who **substantially participate** in the fishery	MSA – 303A(c)(5)(E)
Market Power. Avoid provisions where the primary intent is a change in marketing power balance between harvesting and processing sectors.	A-20 Constraint 5
Sector Health	
Provide for a viable, profitable . . . groundfish fishery.	A-20 Obj 2
Promote measurable economic . . . benefits through the seafood catching, processing, distribution elements, and support sectors of the industry.	A-20 Obj 6
Labor: Crew, Processing Plant Workers Etc.	
Include measures to assist, when necessary and appropriate, . . . captains, crew	MSA – 303A(c)(5)(C)
Promote measurable . . . employment benefits through the seafood catching, processing, distribution elements, and support sectors of the industry.	A-20 Obj 6
Communities	
Consider importance to communities (in order to provide sustained participation and to the extent practicable minimize adverse impacts).	MSA - National Standard 8
Consider promotion of sustained participation by fishery dependent communities.	MSA – 303A(c)(5)(B)(i)
Include measures to assist, when necessary and appropriate, entry level and small fishing communities.	MSA – 303A(c)(5)(C)
Consider the importance of groundfish resources to fishing communities, provide for the sustained participation of fishing communities, and minimize adverse economic impacts on fishing communities to the extent practicable.	GF FMP Obj 17
Minimize adverse effects from an IFQ program on fishing communities and other fisheries to the extent practical.	A-20 Obj 5
Small Vessels, Small Entities, and New Entrants	
Consider promotion of sustained participation by small owner operators.	MSA – 303A(c)(5)(B)(i)
Include measures to assist, when necessary and appropriate, entry level and small vessel owner-operators	MSA – 303A(c)(5)(C)
Avoid unnecessary adverse impacts on small entities.	GF FMP Obj 16
General Public: Auctions – must be considered	MSA – 303A(d)

A-2.1.1 Eligible Groups

A-2.1.1.a Groups and Initial Split of QS

Eligible Groups

- What groups will be eligible to receive an initial allocation of QS (A-2.1.1.a)?
- How much of the initial allocation will go to each group (A-2.1.1.a)?

❖ *Provisions and Options*

Eligible Groups The initial allocation of QS will be made either only to permit owners or to permit owners and processors. ***Some QS or QP may be set aside to support adaptive management.***

	Nonwhiting Sector QS		**Whiting Sector QS**	
	Amount to Permits	**Amount to Processors**	**Amount to Permits**	**Amount to Processors**
Option 1	100%	0%	100%	0%
Option 2	87.5%	12.5%	75%	25%
Option 3	75%	25%	50%	50%
Option 4 (10% ***QP*** for Adaptive Management)	100%	0%	100%	0%
Option 5 (10% ***QP*** for Adaptive Management)	75%	25%	50%	50%
Option 6a (10% ***QP*** for Adaptive Management)	80%	20%	80/20 split of whiting 100/0 split for all other species	
Option 6b (10% ***QP*** for Adaptive Management)	80%	20%	80%	20%
	Nonwhiting QS		**Whiting QS**	
	Amount to Permits	**Amount to Processors**	**Amount to Permits**	**Amount to Processors**
►**Option7** (10% ***QS*** for Adaptive Management)	← 90%	0%	80%	20%

Due to limitations on available documentation, fish "receivers" may be used as a proxy for the "processors" (see A-2.1.1.d). After initial allocation, trading will likely result in changes in the distribution of shares among permit owners and processors. Additionally, entities that are neither permit owners nor processors may acquire quota shares (see below: "IFQ/Permit Holding Requirements and IFQ Acquisition").

Rationale and Options Considered, but not Included

The NRC report on IFQ program design (NRC 1999) contained the following recommendations with respect to groups for which an initial allocation of QS might be considered.

NRC Recommendations for Allocation Groups (Other than Vessel Owners)	
Skippers and Crew Allocations	Consider where appropriate. Lack of detailed catch data are not a reason to forgo this option as equal allocation is an option. It may be less appropriate in industrial fisheries that do not involve crewmembers as co-venturers in the same sense as other fisheries.
Processor Allocation	No compelling reason to include or exclude processors from an initial allocation.
Communities	Consider initial allocations of IFQ to communities. Some communities may be heavily dependent on fishing for social, cultural, and economic values and/or are lacking in alternative economic opportunities.
Public	Consider auctions, lotteries or combinations of mechanisms to allocate initial shares. Avoid taking for granted the option of "gifting" IFQ.

With respect to vessel owners, the NRC report notes that they are usually the recipients of initial allocations. Initial allocation to "permit owners," as a group, was not considered in the NRC report. This may have been because the permit owner was considered analogous to the vessel owner. The permit owner generally tends to be the vessel owner, but not always. Since establishment of the groundfish license limitation system, permit owners (not vessel owners) have been the recipient of new LE allocations (the fixed gear sablefish endorsement and fixed gear tier system). Criteria often mentioned in connection with this issue include compensation for those whose asset values are most adversely affected by the new program and minimizing disruption (PFMC, 1998). During scoping, public comments also recommended consideration of allocations to crew and captains, vessel owners, communities, lottery entrants, and auction. Of these, the TIQC recommended that consideration be given to allocation to current owners of LE permits, vessel owners, processors, or combinations thereof, as well auctions. However, in the final set of program alternatives the TIQC recommended to the Council it included only options for allocating to holders of LE permits and processors.

- Consideration of Vessel Owners

The TIQC recommended against allocation to vessel owners rather than permit owners, because once the LEP system was established, everyone understood that the permit represented the access privileges for the fishery and much of the value of the fishery was capitalized into the value of the permit. Thus, permit values will be more directly affected by a change in the nature of the access rights. At the same time, it is recognized that the fleet consolidation will indirectly diminish the value of a vessel, to the degree alternative uses of surplus vessels generate less net revenue for the vessel owners. Splitting the allocation between vessel and permit owner was discussed but considered overly complex.

- Consideration Individual History as an Owner (Personal History)

The TIQC recommended not considering allocation to the owner of a vessel or permit at time of landing (i.e., personal history) because it could result in allocations going to individuals who no longer participated in the fishery and would inhibit entry and exit during the development of the program. Allocation to the current owner of assets in the fishery is a way in which current participation is taken into account.

- Consideration of Skippers Crew

Direct allocation to skippers and crewmembers was discussed and the costs and complexity of identifying vessel workers and determining whether they participated on vessels while those vessels

were fishing in the groundfish trawl fishery were noted. Complexities include the fact that crewmember-licensing requirements vary between states and in some cases crewmembers are not required to have permits. Multiple alternative sources of information would have to be considered in determining crewmember eligibility for an initial allocation.

With respect to relative impacts of an initial QS allocation on different classes of fishery participants, it was noted that for a crewmember dislocated because of the IFQ program there would likely be a greater number of economic alternatives available, as compared to a fishing permit or vessel. Additionally, since crewmembers move between fishing operations, an allocation to crew could reduce the initial allocation available to a harvester in comparison with its recent operation levels, leaving fixed capital assets without significant production opportunities. While harvesters receiving less than their needs would be able to acquire additional QS through purchase, the need to make such purchases would likely mean a greater disruption during initial implementation of the program.

● Consideration of Communities

In the fall of 2005, the Council received a report on potential measures to address community concerns. Included among the measures considered was direct allocation to communities. Among other issues, it was noted that it would be difficult to determine what body within the community might represent that community and receive the initial allocation. For most of the process, communities expressed little if in any interest in receiving an initial allocation; community leaders voiced concern over the administrative costs and political difficulties that would be entailed in managing an allocation of QS to communities and distributing it within the communities. As the Council reached its final decision, some public interest was expressed in creating criteria for community fishing associations (CFAs) and providing CFAs with an initial allocation. The Council is considering a trailing amendment that might create criteria for CFAs (see Section A-9) and provide them with some degree of an exemption from accumulation limits. However, the Council chose not to consider a direct initial allocation of QS to CFAs but instead to rely on the following:

- The QS set-aside for adaptive management as a potential source of quota to address adverse impacts on communities (Section A-3)
- A number of other provisions that are expected to benefit communities

Other measures in the program intended to address community needs (in addition to the QS set aside for adaptive management) include the following:

1. Maintenance of a split between the at-sea and shoreside trawl sectors (options for a single sector had been considered) (Section A-1.3)
2. Specification of a broad class those eligible to acquire QS, including communities (Section A-2.2.3.a)
3. Inclusion of a temporary moratorium on the transfer of QS to ease the adjustment period and allow for adaptive response (Section A-2.2.3.c)
4. Specification of vessel and control limits to spread QS among more owners and potentially more communities. (Section A-2.2.3.e)
5. Inclusion of a community advisory committee as a formal part of the program performance review process (Section A-2.3.4)

Additionally, any community that owns or acquires a permit prior to the initial allocation would be eligible to receive an initial allocation as a permit owner.

Consideration was also given to area management (Section A-1.2) and a landing zone requirement (Section A-8), both of which would have some effect in maintaining a distribution of landings along the coast, but the latter of which would be most directly targeted to maintaining a distribution of landings among communities. A number of other provisions to address community concerns were considered at the November 2005 Council meeting but rejected. Rejected measures included the right of first refusal before QS is transferred out of a community, an owner on board requirement, a partial prohibition on leasing, and redistribution of QS to new entrants, including nonprofit community organization. These rejected measures are discussed further in Section A-11.

- Consideration of Permits and Processors

Many reasons have been given for allocating to permits and allocating to processors. The following tables list some of the reasons that are contained within the records of the Council deliberations.

Table A-14. Some of the reasons given for allocating to permit holders.

Reasons to Allocate to Permit Holders	Reasons Given for Not Allocating All QS to Permit Holders
The management problem to be resolved with IFQs is the management of harvesting not processing.	The problem of managing the harvest is still resolved if some of the QS is given to processors.
It is the harvesters who have become overcapitalized as a result of the management system.	The processing sector is also overcapitalized either as a result of participating in the race for fish or as a result of reductions in harvest.
Compensation for reduced permit value and compensation to those who are squeezed out in the consolidation process.	Long-term compensation should not be given for a short term problem.
The language of the MSA strongly indicates an emphasis on the allocation to harvesters (e.g., National Standard 4). Permit holders are fishery participants that are invested and dependent on the fishery (303A) and have made contributions to the development of the fishery.	Permit holders may not be operating the harvesting business. They may be leasing to the vessels. Further, they are often owned by corporate entities, not the fishermen themselves.
Harvesters cannot operate without QS or QP to support their harvest.	Harvesters can acquire QS/QP through the market and by partnering with processors.
A harvesting operation not receiving an initial allocation of QS/QP will be in a position of greater financial risk than a processing operation without QS/QP.	Processors may be at financial risk if harvesters get all the QS, gain market power, and reduce processor profits.
The allocation of QS to harvesters will correct a current imbalance in market power between the two sectors.	If processors receive no QS as part of the initial allocation, a market power imbalance will be created in favor of harvesters.
There is a greater conservation benefit if the QS is in the hands of the fishermen, including the reduction of bycatch of overfished species. An allocation to fishermen clearly puts responsibility on them.	Permit holders will not necessarily be the fishermen and may lease the QP to harvesters. If the system allows processors to acquire QS then conservation concerns should not be a reason for not giving it to them as part of the initial allocation. Earlier analysis indicated there was not a difference between allocations to harvesters and processors with respect to conservation effects.
If QS is given to processors they will have less incentive to ensure that it is used optimally than if they have to buy it.	Regardless of how they receive it, they will still lose benefits if the QS/QP is not used optimally.
Processors will benefit in other ways and, therefore, do not need that additional compensation. For example, the total volume of product may increase.	Harvesters will also benefit from the increase in total product volume.
The history of development of this program encompasses the identification of a continued harvester overcapacity problem and conception of the buyback program in 1996, the groundfish strategic plan, and the bycatch reduction amendment. The success of this long-term effort requires protection for those established in the fishery in order to increase the economic stability for all.	For stability, harvesters need a stable processing sector to sell to.

Table A-15. Some of the reasons given for allocating to processors.

Reasons to Allocate to Processors	Reasons Given for Not Allocating to Processors
Compensation for stranded capital	Stranded capital will not occur for processors. Long-term compensation should not be given for a short term problem.
Processors are fishery participants that are invested and dependent on the fishery (303A) and have made contributions to the development of the fishery.	National Standard 4 says allocations, when necessary, should be to "fishermen." No precedence for allocating IFQ to processors
Keep balance of market power and flow of product to existing plants	Will create a market power imbalance.
Facilitate communication and coordination of fishing activity between plants and vessels, including management of total harvest, bycatch, and participation among co-ops.	Such communication and coordination occurs under status quo and processors do not need an initial allocation to continue. If processors do not receive an initial allocation they can still participate in co-ops by acquiring QS in the market place.
There is a conservation benefit whether you give QS to permit holders or processors.	Degrades conservation benefit.
Maintain diversity and competition in the processing sector.	The processing sector will be consolidated and new entry will become more difficult.
Processor buy-in is needed to move the program forward.	
Since processing plants are more tied to communities than vessels are, an allocation to processors will stabilize the distribution of harvest across communities.	The major processing companies are active in multiple ports and may move allocations between ports. It is not clear that an allocation to processors will address concerns about geographic redistribution.
If processors do not receive an initial allocation existing working relationships will be disrupted.	Long established relationships between processors and harvesters will continue to exist, there will not be widespread disintegration and relocation of these relationships.
	Consolidation among permit holders not associated with processors will increase, reducing the number of participants in the fishery that are not linked to processors.
	An allocation to processors does not take into account the permit owner's obligation to repay loans from the buyback program. Those loans bought up permits representing nearly 50% of the fleets landing history.
	There is not a large disadvantage to processors if they do not receive an initial allocation.
	An initial allocation to processors may lead to greater than desirable consolidation, particularly if there is a grandfather clause.
	The processing sector as a whole, will receive some allocation because they hold permits.

An option to allocate nonwhiting groundfish evenly between permit owners and processors (50 percent each) was rejected. The following is the rationale provided by the TIQC and Groundfish Allocation Committee (GAC) in its recommendations for removal of this option.

Rationale for removing the 50/50 option for nonwhiting groundfish:

- TIQC members raised concern that with a 50 percent allocation to processors, the quota initially allocated to a trawl permit may not be enough to allow for fishing. One TIQC member opposed to removal of the 50 percent allocation option noted that analysis of impacts has not been completed and so the suggested impacts are only assumed (2/2007 TIQC meeting).

- The majority of GAC members believed that a 50 percent initial allocation to processors would create an imbalance of power. They cited as examples the lack of power that vessel owners have had in negotiating crab prices and the potential for the number of alternative buyers to be more restricted within smaller geographic regions than it is coast wide. GAC members also noted concern that the initial allocation would only be the starting point with respect to the amount of shares controlled by processors and that they would expect processors to acquire additional shares, subject to accumulation limits. Some processor/permit owners may also receive shares for both their processing activity and permits they own. In general, there was a perception that there is a current imbalance in favor of the processors and that a 100 percent allocation to harvesters would not create an imbalance in favor of harvesters. On that basis, they recommended that the analyzed range be narrowed by reducing the maximum amount that might be allocated to processors while maintaining the option of a 100 percent allocation to permit holders. A minority of GAC members wanted to see the analysis of a 50/50 split before making a decision. It was noted that analysis has not yet been produced to demonstrate that an imbalance would result from a 50/50 initial allocation, though question arose as to the extent that a quantitative analysis could provide insight on this issue (12/2006 GAC meeting).
- During discussion, concern was also expressed that vessels fishing IFQ provided by processors might not have the same incentive to minimize bycatch as it would for its own IFQ. Others countered that the processor and vessel would both have incentive to minimize bycatch in order to maximize their ability to harvest and process target species (12/2006 GAC meeting).

Initial rationale for including a 50/50 option:

- Part of the original rationale for the 50/50 option, when the TIQC developed it, was that it was the closest legal alternative to a two-pie system.

Rationale for the Council's final decision on the allocation split between permit owners and processors:

During Council discussion it was noted that the MSA LAPP provisions in Section 303A(5) require that the Council ensure fair and equitable initial allocations, including consideration of (1) current and historic harvests, (2) employment in the harvesting and processing sectors, (3) investments in and dependence on the fishery, and (4) the current and historical participation of fishing communities. Congress specifically instructed that the Council fully analyze alternative program designs, including the allocation of limited access privileges (LAPs) to harvest fish to fishermen and processors. Much of the Council's discussion about an allocation to processors revolved around the impact of both status quo and trawl rationalization on market power. It was noted that the U.S. economy relies on competition and on individuals and businesses acting in their own self-interest for growth, innovation, price setting, and the allocation of resources. There was a sentiment that government should not interfere in business competition unless it is necessary for the public benefit. It was noted that the Council interferes with harvesting businesses because of problems identified relative to conservation and management both in the nonwhiting and whiting fishery. When the Council intervenes in harvesting, it cannot help but also interfere with the processing businesses by changing the basic bargaining dynamics in the raw fish product market. While ex-vessel price negotiations have to be left to the harvesters and processors, the Council felt it could not ignore how fishery management actions might influence those negotiations. Some Council members opposed any allocation to processors because they believed it would have an adverse effect on market power (increasing market power for processors) and that there were ways to address concerns about community stability, other than by allocating to processors. They noted that even if processors received no QS, after initial allocation processors would likely be in a position to acquire additional shares and achieve the balance of power they want. The real issue of concern in this

regard may be the control limits, to make sure the balance does not get out of hand. Others were concerned about small processors and expressed concern that not to allocate to processors might cause more consolidation and a further decline in the number of buyers, increasing the power of remaining processors. In its PPA, the Council recommended giving processors 20 percent of the shoreside allocation of QS for all species except bycatch taken in the shoreside whiting fishery. Council members noted the difficulty of determining the correct percentage for a possible QS allocation to processors. The option for a 50 percent allocation of whiting QS to processors seemed like far too much. When a 20 percent option was proposed, some Council members felt that when the 20 percent allocation to processors was combined with a 10 percent allocation for adaptive management, and considering that some processors would receive QS for the permits they hold, the amount remaining for harvesters would be insufficient. In selecting its PPA Council members noted that the case for providing QS to whiting processors seemed to be relatively clear but it was less clear for nonwhiting processors. For whiting processors, the switch from a derby fishery would immediately result in some of the processing capacity becoming surplus. The shift from two-month cumulative limits to IFQs would not affect the nonwhiting processors in the same way. However, with respect to nonwhiting processors there was concern for small processors' ability to compete with larger processors. The 20 percent approach chosen for the PPA was believed by some to be a fair middle ground for public review and comment.

In its final preferred alternative, after further review of the analysis and public testimony, the Council recommended giving processors 20 percent of the QS only for shoreside whiting and no QS for shoreside nonwhiting. In taking this action, Council members expressed their concern that an initial allocation of QS to nonwhiting processors would add too much to the market power of shoreside nonwhiting processors. They noted that there was already considerable consolidation among processors, particularly relative to the number of vessels operating in the fishery. Providing processors with an initial allocation would be expected to further increase consolidation and market power. Additionally, the argument that the larger processors also held vessel permits that would provide them with QS held more sway. At the same time, Council members continued to be concerned with the impact of the program on smaller processors. It was noted that if an allocation of nonwhiting QS to processors were to be made, that the appropriate amount might be 10 percent of the QS. Instead, the Council favored providing a 10 percent allocation for adaptive management. The adaptive management program (AMP) could be used not only to provide some amount of certainty and security to the larger processors, but also to provide flexibility to tailor a program that would provide some protection to smaller processors. In making its decision, the Council specified its intent that the AMP be constructed in a manner to ensure that the program accomplishes this as one of its objectives.

With respect to the decision to allocate 20 percent of the whiting QS to processors, differing conditions between the whiting and nonwhiting sectors were noted. In particular it was noted that the size of the shoreside whiting fleet was expected to be very small (only 20 vessels), providing the fleet with greater market power relative to the three major whiting buyers than would be experienced by the nonwhiting fleet relative to the major buyers of nonwhiting species. While the shoreside whiting fleet position would be strong, the analysis predicted that, with the move from a whiting derby fishery to an IFQ program, the amount of processing capital needed in the whiting fishery would decline by 30 to 50 percent,[13] and that competition among whiting processors would tend to increase in order to continue to attract deliveries to their facilities, leading to a decrease in their market power. In contrast to whiting, the nonwhiting trawl fishery is not a derby style system; it is managed with two-month cumulative trip limits. Therefore, the shift to IFQs will not create a sudden increase in the amount of excess processing capacity. Even with a 20 percent allocation of whiting QS to processors, the Council believed it may be uncertain whether the initial allocation of whiting QS to processors will offset whiting harvester gains in

[13] Processors invest in excess capacity to compete with other processors for deliveries by being able to handle peak volumes during the derby fishery. When the derby is over, much of the capital then remains idle. The move to an IFQ program will slow the pace of the fishery resulting in substantial unneeded processor capital.

market power, relative to status quo. An initial allocation of whiting QS to processors functions as a means of guaranteeing supply for processors, granting processors some leverage in bargaining power as they can "hold out" against harvesters, and providing an incentive to make necessary capital investments to increase product recovery yield.

- Option 6a and 7 (FPA) for Whiting

At its June 2008 meeting, the Council added an option that would allocate QS for whiting to processors but not QS for bycatch species in the whiting fishery. This option provides another variation on the initial allocation balance between harvesters and permits and provides a different result with respect to the distribution of wealth and control generated by the initial allocation. Because this variation was added late in the process, it is analyzed separately at the end of the analysis section (page A-107).

- Allocation of QS or QP for the Adaptive Management Program

At its November 2008 meeting, the Council decided that, rather making an allocation of IFQ for adaptive management by setting aside QP, it would set aside an amount of QS, thus creating Option 7 for the eligible groups provision. While QS is set aside for adaptive management, the associated QP for the program may distributed among those holding non-set-aside QS in proportion to their QS holdings (i.e., a pass-through). For at least the first two years of the program, all QP associated with the set-aside for adaptive management will be passed through to those holding non-set-aside QS. Allocating IFQ for adaptive management in the form of QS rather than QP was believed to provide more of an opportunity to make multi-year commitments of adaptive management quo and to increase the assurance that the use of the adaptive management quota will not be usurped for other purposes.

When the Council specified Option 7, it also indicated that the 10 percent set-aside would apply for all nonwhiting species. Since the shoreside nonwhiting and whiting sectors are to be managed as a single shoreside sector, this meant that 10 percent of the nonwhiting species that would otherwise go for bycatch for whiting vessels would be allocated for the AMP that is focused primarily on the nonwhiting fishery. The 10 percent reduction in the initial QS allocation to whiting vessels to cover their bycatch needs would likely be covered by the equal allocation component of the allocation formula (except with respect to overfished species).

❖ *Interlinked Elements*

The following elements of the IFQ program interact with the decision on groups to which an allocation will be made.

- Number of Trawl Sectors (Section A-1.3)

The Council's preferred alternative combines the shoreside whiting and nonwhiting harvest into a single sector. Creating a single shoreside sector has implications for the effects of Option 6a, which would not allocate bycatch species for whiting history to processors. With a single shoreside sector, processors receiving a whiting allocation will have a larger market to go to if they want to acquire QS for the bycatch species needed to harvest whiting.

- Moratorium on Trading (Section A-2.2.3.c)

At the start of the program, the Council's preferred alternative will include a two-year moratorium on QS trading. This moratorium will make it more difficult for processors receiving only whiting (Option 6a) to adjust by either acquiring the needed bycatch species QS or divesting themselves of whiting.

Until they are able to balance their whiting QS holdings with bycatch species, in years when bycatch species limit whiting harvest, they may find themselves with whiting QPs that have little value.

● Grandfather Clause Exemption for Everyone (Section A-2.2.3.e)

There are four options:

- To provide a full grandfather clause exemption, allowing those who would qualify for an initial allocation of QS in excess of the accumulation limits to keep that allocation (Grandfather Clause Option 1).
- To provide an grandfather exemption for up to twice the vessel accumulation limits. Any QS over twice the limit would be redistributed to the remainder of the initial recipients (Grandfather Clause Option 2).
- To provide no grandfather exemption. Any QS over twice the limit would be redistributed to the remainder of the initial recipients (Grandfather Clause Option 3).
- To provide no grandfather exemption but allow those qualifying for an initial allocation of QS in excess of accumulation limits a period to divest themselves of those QS (Grandfather Clause Option 4).

Depending on which of these grandfather clause options is implemented, the initial allocation results may be substantially altered. The balance of allocation between harvesters and processors will not be affected but the distribution between larger and smaller entities will be affected. In general, the amounts of QS allocated to larger producers will likely be less than the shares of harvest the larger producers have taken historically. If larger harvesters have been producing at levels above those facilitated by accumulation limits then their only opportunity to have a chance to stay close to those levels would be through the grandfather clause, such as that provided in Grandfather Clause Options 1 and 2 (and Option 4 on a temporary basis). As the amount of allocation that goes to processors increases, the initial allocations going to harvesters will decline reducing the effectiveness of the grandfather clause in allowing the continuation of larger harvest operations. The degree to which increasing the allocation to processors diminishes the effectiveness of the grandfather clause for harvesters will depend on where accumulation limits are set. For processors, the accumulation limits and initial allocations will not constrain production. Higher accumulation limits would reduce the impact of the presence or absence of a grandfather clause and the interaction with the decision on the initial QS split among groups.

● Additional Measures for Processors (Sections A-2.4 and A-3)

The key decision for eligible groups and initial split (A-2.1.1.a) is whether or not processors will receive an initial allocation of IFQ and if so how much. The following elements are contingent on initial allocation of QS to processors to address concerns about adverse impacts of IFQ program on processors. While addressing this impact, these options would issue QS to processors that differs in character or is for a different duration than the QS issued to LE permit holders.

A-2.4. Additional Measures for Processors. There are options in Section A-2.4, all of which are interlinked with the options of Section A-2.2.1. The options are not mutually exclusive.

Option 1 (Limited Duration QS): QS issued to processors based on buying history will expire after a certain period (to be determined as part of final Council action). When they expire, all remaining QS would be increased proportionally to sum to 100 percent. The rationale for this provision is based on the idea that, if an initial allocation to processors is intended to provide an adjustment period and compensate processors for potential harm, this intent can be fulfilled by issuing QS that has shorter duration than those issued based on harvesting history.

Option 2 (No Grandfather Clause for Processing History): Any QS issued for processing history would not be subject to the accumulation limit grandfather clause (i.e., processors would be

held to the accumulation limits except with respect to landing history issued for any LE permits held by the processor). The rationale for this provision is that processors need not be grandfathered in above accumulation limits in order to receive sufficient compensation for adverse impacts of the IFQ program.

Option 3 (Adaptive Management Program Modification): The AMP will be used to compensate processors for demonstrated harm by providing them witH QP. This provision provides processors relief one year at a time only after harm has been demonstrated.

A-3. Adaptive Management. Under the AMP (without the modification specified in A-2.4 Option 3), 10 percent of the QS would be eligible for use to benefit processor stability, among other objectives.

❖ *Analysis*

The following are the key questions to be covered in this section of the analysis.

1. How does the initial allocation affect who holds the QS over the long term?
2. How does who holds the QS at any point in time affect achievement of goals and objectives, including market power and equity effects related to who receives the initial financial benefit (wealth) from the initial allocation?

The answer to the first question determines the duration and timing of the effects covered under the second question. The sections in which each of the goals and objectives will be discussed are identified in the following table. The section on the effect of the QS allocation on the long-term distribution is extensive and covers topics of relative efficiency, vertical integration, market power, and access to capital. For that reason, a full analysis of that issue is provided in a separate appendix (Appendix E), and a summary is provided here.

		Related Category of Goals and Objectives									
Sections	**Summary (Page Ref)**	**Conservation**	**Net Benefits**	**Disruption**	**Excessive Shares**	**Fairness and Equity**	**Harvester and Processor Sector Health**	**Labor**	**Communities**	**Small Entities and New Entrants**	**General Public**
Impact of QS Allocation on Long Term Distribution	A-48 -A-56	X	X	X	X	X	X	X	X	X	
Impact on Conservation (Resource Stewardship)	A-57	X									
Impact on Sector Health											
Buyers/Processors	A-60			X			X			X	
Harvester Sector—Permits	A-74			X			X				
Harvester Sector—Vessels	A-92			X			X			X	
Labor—Harvester	A-93							X			
Labor—Processors	A-93							X			
Impact on Net Benefits	A-96		X								X
Impact on Equity	A-104				X	X					

Note: The general public is affected by many if not all of these impacts. For example, reduced net benefits have an effect on the general public, but indirectly though the effect on the economy. Here the emphasis is on the direct effect (e.g., paying for administrative costs related to allocation).

Table A-15 provides an explanation of some of the economic terms that are used in this analysis.

Table A-16. Explanation of Terminology: return on investment, profits, and rents.

General Term and Description of the Concept	Economic Term
Return on Investment: Profit that goes to compensation for capital investment (to compensate the owners of capital). For industries that involve greater risk, greater return is required to compensate or attract capital investment. If the industry profit level is not enough to compensate capital, there will not be new investment.	Quasi Rents
Relative Efficiency Profits: Profits earned by firms that are more efficient than others.	Intramarginal Rents
"Reasonable" Profit Level: Income necessary to pay for all labor, supplies, capital, and entrepreneurial expertise used by a firm at going market prices. This includes compensation for capital (quasi rents).	Normal Profits (Zero Economic Rent or Zero Economic Profit)
Extra Profits (Abnormal Profits): Any earnings above normal profits are considered "economic profits" or "economic rents." Economic profits or rents attract new entrants.	Economic Rents (Above Normal Profits)
Value/Cost of the Resource: Amount paid for the use of a raw resource. In open access fisheries management, no one pays for access to the resource; what might otherwise be paid for fishing privileges shows up as extra profit. The extra profit attracts new entrants until efficiency decreases to the point that only normal or less than normal profits are earned. What would have been paid for the resource goes instead to excess capacity.	Resource Rents

Key Findings

1. The initial allocation may have a substantial effect on how the QS is distributed over time (with initial recipients being more likely to accumulate additional QS, up to accumulation limits).
2. Market conditions under rationalization will vary from status quo thus changing the market power dynamics.

Under status quo, the following occur:

- Harvesters and processors negotiate with one another in an attempt to capture the profits that are associated with the resource (resource rents).
- Harvesters, and possibly processors, are overcapitalized, putting them in a position where they are willing to accept unsustainable prices over the shorter term, giving up some of their returns to capital in order to continue operation (operating at a long-term loss).

Under a rationalized system, the following occur:

- Profits that are associated with resource rents will be captured by whoever owns the QS/QP,
- Rationalization will result in more appropriate levels of capitalization and substantially reduce a business' willingness to accept unsustainable prices (operate at less than normal profit levels).
- Under such circumstances and assuming well functioning markets, holding the QS/QP does not give any additional leverage in determining price for the raw product. [If a harvester holds the QS/QP, it would be expected to receive a payment for its fish that reflects a normal profit level and may receive, as part of that transaction, an additional amount reflecting the value of the QS/QP. If a processor holds the QS/QP, the harvester would be expected to receive a payment for its fish that reflects a normal profit level and no more or less.]

However, the result for the rationalized system may change to the degree to which there are other nonrationalized fisheries with surplus capital that is readily adaptable to the West Coast groundfish trawl fishery. Under such circumstances, more of a status quo situation may hold, one in which harvesters (for example) are willing to deliver to a processor witH QP at a price that gives them lower than normal returns, giving up some of their returns to capital. The ability of the competing harvesters to enter depends on the surplus LEPs that are expected to be available after fleet consolidations.

Without such a surplus, there would not be an opportunity for surplus vessels from nonrationalized fisheries to enter the West Coast groundfish fishery.

Before discussing how the initial allocation affects distribution over the long term and the impacts resulting from allocation of QS to different groups, it is useful to have a brief discussion about the entities composing those groups.

● Who: Nature of the Entities and Group Membership

As we consider the groups to which allocations are made, we should take into account that some entities may qualify as members of a variety of groups. For example, when we talk about vessel owners or permit owners, they may also be processors. People have a variety of roles in the harvesting and buying sectors including the following.

- Permit ownerVessel owner
- Vessel operatorCrewmember
- Fish buyerFish buyer/processor
- Fish buyer/processor employee

Individual or business entities may combine a mix of roles to create a business or income earning strategy. As summarized below, these strategies vary in profit generation and risk exposure. Specific criteria for membership in the groups to which allocations might be made are described in Section A-2.1.1.b and c.

● Summary of the Impact of QS Allocation on Long-term QS Distribution

Appendix E contains a detailed analysis of the relationship between the initial and long-term distribution of QS among groups. The results are summarized here. The main dynamic driving the long-term distribution is that more profitable entities are more likely to acquire the QS than less profitable entities; and initial recipients of QS are likely to have a period of greater profitability than those who do not receive QS or receive less QS. This initial advantage may, to some degree, be self-perpetuating. In considering relative profitability, both the total financial profits and the level of risk must also be taken into account. This analysis examines a firm's financial profitability as it is affected by the following factors:

- The firms relative operating efficiency (what it costs to produce)
- The firms vertical integration (which affects both operating efficiency and market power)
- The firm's ability to exert market power to capture above normal profits (what it earns)
- the firms cost to access to capital (what it costs to acquire capital)

Market power is defined as the ability to influence prices in order to obtain above normal profits for a sustained period. Exerting market power requires the existence of barriers to entry. Within the framework of these considerations, Table A-16 on page A-56 provides this section's main conclusions on the following:

- Status quo conditions
- The influences of the IFQ program on QS distribution (regardless of the initial allocation)
- The effect of initial allocation on the long-term distribution of QS

♦ *Summary of the Analysis in Appendix E*

The main points made in each section of Appendix E that support the conclusions in Table A-16 are presented below.

RAW FISH MARKETS AND RESOURCE RENT DISSIPATION OR CAPTURE UNDER STATUS QUO

(Section E.2)

This section describes how prices and quantities produced are determined in a typical market. The main points are as follows:

1. The yield constraint in fisheries (usually an OY or allocation) results in a gap between the minimum price harvesters are willing to fish for and the maximum price that processors are willing to pay.
2. The gap between these two values is the potential resource rents (amounts that could be collected for use of the resource).
3. Both sides will try to use bargaining power to capture a portion of those rents.
4. Instead of being captured, the competition to harvest more fish increases costs; money that could have been paid for the resource is instead committed to the harvest operations (and in some cases the processor operations). However, this result requires that the raw fish market be competitive (both buyers and sellers accept a going market price with little deviation based on negotiations, such that neither side exerts market power).
5. If participants on one or both sides of the market are able to exert some market power,[14] competition is reduced, and some resource rents may be saved from dissipation and preserved as private profit.

QP MARKETS AND INTERACTION WITH RAW FISH MARKETS

(Section E3)

The following assume a competitively functioning market, except as noted:

1. Under an IFQ program, the QP will represent an additional key input. The need to hold QP becomes an additional cost of providing the raw fish.
2. Costs of production, excluding the cost of the QP, are expected to decline by an amount that will be offset by the price of the QP.
3. In most circumstances, the QP holder is expected to capture the difference between the minimum price for which harvesters are willing to fish (excluding the cost of the QP) and the maximum that processors are willing to pay, i.e., the resource rents.
4. The reported transaction price for raw fish costs (reported ex-vessel value) will depend on who provides the QP for the transaction and the terms under which they are provided (e.g., a processor might provide the QP to a vessel at no charge, and the reported price will be the minimum price for raw fish the vessel is willing to accept (its costs plus a normal return of profit), or the vessel might provide the QP, and the price will include an amount that covers the vessels costs, as well as normal profit for the vessel, and the cost of the QP.
5. With respect to the QP owner's ability to exert market power,

[14] Note that for item 3 the term "bargaining power" was used rather than market power. Bargaining power is a short term concept. It may enable a firm to establish an above normal price. Marketing power requires that the above normal price be sustainable. Unless there is a barrier to entry, the higher price established through bargaining power will be dissipated as high profits invite competition.

a. Assuming a fully rationalized fishery, the QP holder will only be able to exert market power to the degree that there are not enough independent harvesters and processors in the market to establish effective going market prices for raw fish (to the degree that markets are not sufficiently competitive). However, even if such prices are established, inevitably, there will be opportunity to express some market power due to transaction costs such as convenience and search times or the linkage of groundfish with other fisheries (i.e., because of costs associated with finding a new buyer or seller, even in a competitive situation there may be some room for price negotiation). Ability to use market power to leverage higher prices will be limited by the fluidity of the QP and raw fish markets.
b. It will likely be difficult for a QP holder to increase the profits associated with its QP holdings through the use of market power to achieve QP prices substantially above those that reflect the value of the resource (resource rents). This is because, in the absence of overcapitalization (for the sector as a whole or within a locally isolated market), harvesters and processors will be unwilling to take prices that do not allow them to cover costs and normal returns on investment. It is the prices the harvesters and processors are willing to accept that determine the value of the QP (the potential resource rents). For example, if harvesters hold all the QP, they collect all of the resource rents but are not in a strong position to extract additional profits from processors, except possibly during the transition period during which the processors are overcapitalized. The same would be true if the processors held all the QP, assuming that the harvesting side is rationalized and not overcapitalized. However, surplus LEPs and the potential for excess capital in nonrationalized fisheries to seek employment in the West Coast groundfish fishery may provide an opportunity for processors witH QP to exert market power due to the availability of alternative harvesters, forcing harvesters to accept lower than normal returns.
c. Once the QS have been bought and sold at prices based on expected profits then, like the harvesters and processors, the QS holders offering QP for sale will have a price they must receive to compensate them for their investment in the QS purchase. Under such circumstances and assuming no excess capacity and competitive markets, no party to the transaction should be able to exert more market power during negotiations than is seen in any other competitively functioning sector of the economy.

QS FLOW AMONG GROUPS (INDEPENDENT OF THE INITIAL ALLOCATION)

(Section E.4)

In this section, we look at dynamics affecting the flow of QS among groups independent of the initial distribution. These dynamics affect the flow of QS through their impact on willingness and ability to pay for the QS (the center box in Figure A-4.) Topics addressed are as follows:

- Relative efficiency
- Vertical integration
- Market power
- Access to capital

These topics are represented by the hexagons in Figure A-4. Factors to be considered for each of these topics are provided in the related squares, and each square is accompanied by a note box indicating the nature of the dynamic or affect.

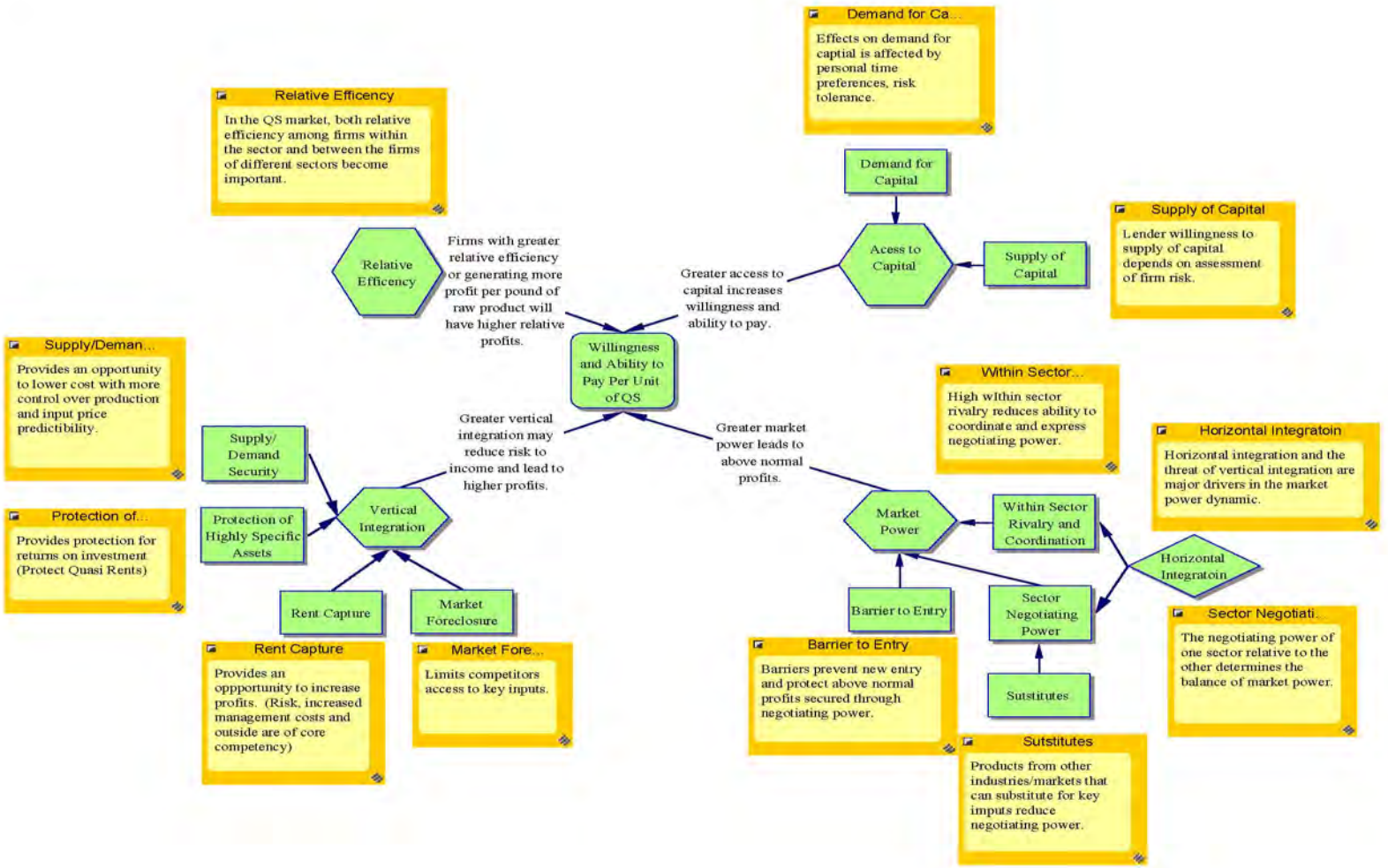


Figure A-4. Factors influencing QS flow among groups.

Relative Efficiency

(Section E.4.1)

This section of Appendix E explains the concept of relative efficiency within a sector with respect to profits per unit of raw product. Key points are as follows:

1. Those firms with greater relative efficiency are more likely to acquire QS over the long term.
2. There may be overcapitalization in both the harvesting and processing sectors, and the possibility that over the short term, IFQ management may provide more mechanisms for harvesters to increase efficiency than processors.
3. Firms with identical efficiency could have substantially different levels or profit per unit of raw product. A firm that generates more profit (including returns to capital) than another for the same amount of raw product will be more likely to accumulate QS. These differences may occur within a sector or across sectors. If harvesters tend to have the same efficiency per unit of raw product as processors but generate more profit per unit of raw fish, they will be willing to pay more for QS and will likely accumulate it over time, or vice versa.

Vertical Integration, Return on Investment (Quasi Rents), and Above Normal Profits (Economic Rents)

(Section E.4.2)

1. Under status quo, most vertical integration occurs through processor ownership of vessels and/or permits. There has been relatively little harvester participation in ownership of processors, though some has recently developed in the at-sea mothership fishery, and catcher-processing vessels are by definition vertically integrated.
2. The IFQ program provides processors a new opportunity to vertically integrate by acquiring QS, but acquisition of QS does not provide harvesters an opportunity to control processing operations. Therefore, vertical integration by harvesters is discussed under the section on market power.
3. There are a number of reasons to expect processor vertical integration, including supply security, profit protection, and capture and expansion of market share by preventing competitors from accessing a key input (raw fish), i.e., foreclosing competitor access.
4. Typically, vertical integration also involves certain management expenses and additional risks. QS provides an opportunity to exert control over harvesting operations at substantially less management expanse and risk than entailed in vessel ownership.
5. Firms that are already vertically integrated through ownership or control of vessels will have more profits per unit of raw product to protect with QS than firms that are not vertically integrated, and will, therefore, be more likely to accumulate QS over time.
6. Not applicable to the FPA (the FPA does not place a control limit on QP): If there were a control limit on QP, the opportunity for individual processors to vertically integrate would be limited by the control limits. If there is no grandfather clause provision for QP control limits, some processors could have found themselves in a position of needing to divest themselves of vessels in order to stay within the limits.
7. The opportunity for the sector as a whole to vertically integrate through acquisition of QS will depend on the total number of active processors and the accumulation limits. For example, with a 10 percent control limit on a particular species, if there were 10 large processors, all QS for that species could be controlled by processors (as would be the case if 10 harvesting companies controlled all the vessels).

Market Power, Horizontal Integration, and Consolidation

(Section E.4.3)

As a reminder, in this section of Appendix E we evaluate effects of the IFQ program on market power **independent of the effects of the initial QS allocation.** Using this approach we can then focus on the initial allocations incremental effect on market power separately from the effect of creating the IFQ program.

1. If a firm or sector is able to exert market power, it will be more willing and able to pay for QS. Exertion of market power implies markets are less competitive.
2. An adaptation of a widely used market power model (the Porter 5 Forces Model) specifies criteria for evaluating the following factors:
    a. Rivalry and coordination within a sector (Forces 1 and 2: situations for selling sector and buying sector)
    b. Relative bargaining power across sectors (between harvesters and processors, including the threat of substitutes)[15] (Forces 3 and 4: relative bargaining power and substitutes)
    c. Barriers to entry (Force 5)
3. Rivalry and coordination. The more rivalry there is within a sector, the more difficult it will be for members of the sector to exert market power. Ten criteria are used for this evaluation, including concentration of production within the sector and the presence of an active industry shakeout process.
    a. Under status quo, there are many reasons to expect high rivalry for both harvesters and processors. However, license limitation may constrain high rivalry among harvesters. For processors, previous industry shakeouts, the small number of firms handling most of the product, and the threat of the effects of another shakeout may reduce rivalry.
    b. Under IFQs, a shakeout among **harvesters** is expected, followed by a period of reduced rivalry with fewer total participants. The need to acquire QP may stimulate rivalry in the QS/QP market, but higher costs (e.g., observer costs) may stimulate cooperation among harvesters in their negotiations with processors over raw fish prices. Local markets will become more closely linked by the ease of transfer of QP across geographic distances. For **processors**, the low cost of moving QS/QP across geographic areas and the link between the QS/QP and raw fish markets will increase competition by decreasing the geographic isolation of local markets for raw fish. This will expand the number of processors that effectively have a role in competition for a particular harvest commitment (prior to catch). Rivalry may increase if processors attempt additional consolidation as a means of defending against the possible exercise of harvester market share. Rivalry will also increase because the expansion by any processor will require the direct and immediate contraction of processing by another processor (as compared to the current lag, which occurs as an expansion by a particular processor works itself out in the bimonthly trip limit based management system and marketplace).
4. Bargaining Power. Bargaining power of one sector with respect to another is an important element of market power. There are seven criteria for evaluating bargaining

[15] The 5 forces model separates the bargaining power of each side and the threat of substitutes into three separate market forces.

power (including ability to threaten vertical integration and ability to switch to a different processor or different harvester.

a. Under status quo, nearly all of the criteria favor processors.
b. Under IFQs, **harvester** bargaining power may increase. Harvesters with QS cooperate and use it to support their own processing facility or encourage a new entrant. Consolidation will leave fewer harvesters for processors to deal with. **Processor** bargaining power may increase or decrease. Processors may be able to vertically integrate at a lower cost than under status quo.[16] Liquidity of QP will expand the geographic area from which buyers with an interest in a potential QP/raw-fish sale may be drawn. This will increase the number of potential participants in the transaction, encouraging development of a market that functions well enough to establish "going prices," thereby reducing bargaining power. However, it may also increase pressure for further consolidation. This within-sector consolidation may be hampered by QS control limits, but pressures for consolidation may be strong enough for it to occur in spite of the control limits.

5. Barriers to entry are necessary to preserve any market power advantage that is achieved. Five criteria were used to evaluate barriers to entry, including government regulation and economies of scale.
    a. Under status quo, license limitation provides the barrier for harvesters and economies of scale may create barriers for processors.
    b. Under IFQs, the entry barrier for **harvesters** will be greater because of greater fixed costs related to compliance with program regulations and the need to acquire QS or access to QP to reach efficient scales of production. There may also be an increase in the entry barriers for **processors.** The increase in compliance costs for processors is likely to be relatively small compared to harvesters. If some processors experience higher profitability through receipt of an initial allocation of QS, their costs will be lower than later entrants who would have to buy QS to attain a similar level vertical integration and the associated advantages.

Access to Capital (Demand) – Discount Rates

(Section E.4.4)

1. The price of QS represents the present value of a stream of current profits.
2. Individuals who place a relatively high value on current income (as compared to future income) have what is called "high time preferences" and will not be willing to pay as much for QS as those with "low time preferences" (those who are relatively indifferent between receiving income now or in some future period).
    a. There are indications that fishermen may have high time preferences relative to others.
    b. Those with relatively low incomes also tend to have high time preferences. Crewmembers may fall into this category.

    If those in the harvest sector have higher time preferences than processors, then this factor may influence the flow of QS toward processors, regardless of the initial allocation.

[16] Under an option in which control limits apply to QP (not the FPA), vertical integration for larger processors would be limited by accumulation limits. Some larger firms may have had to reduce existing levels of vertical integration (depending on accumulation limit rules).

Access to Capital (Demand – Planning Horizon and Investment Recovery)

(Section E.4.5)

The length of time over which one anticipates receiving a benefit will also affect how much one is willing to pay for QS. However, the opportunity to sell the QS and fish-related businesses at the end of a personal planning horizon diminishes the importance of the planning horizon, with certain exceptions; for example, the QS owner who has special skills enabling him/her to generate levels of profit that subsequent owners are unlikely to anticipate will find it difficult to capture the profits associated with those special skills when he/she sells his/her QS. On this basis, we would expect QS to flow toward those with higher than normally expected skills or profitability and a longer planning horizon than similar individuals with shorter planning horizons. At the same time, those with higher skill levels may be tempted to remain in the fishery longer because of their inability to sell the QS for an amount that reflects their potential earnings over a longer period.

Access to Capital (Supply)

(Section E.4.6)

1. In determining risk, lender considerations include size of the firm, its diversification, assets that may be used as security, and the value of those assets outside the industry in which the firm participates. The cost of loans is lower for entities with lower risk profiles.
2. Harvesting firms tend to be smaller than processing firms, and less of the capital may be useful in other sectors, making it more expensive for harvesters to access capital as compared to processors (on average).
3. The IFQ program will decrease the risk profile for harvesters that remain after consolidation.
4. If it is anticipated that harvesters will be able to exert market power, there may be a perceived increase in risk to processor profits. There also may be a transition period during which processor profits are reduced prior to the exit of excess processing capital from the industry.
5. Harvesters and processors that acquire QS are likely to reduce risk and the cost of their access to capital as compared to firms that do not have QS.
6. A harvester without QS will be viewed as a substantially greater financial risk than a processor without QS because harvesters without QS cannot catch fish, while processors without QS are still able to buy.

SUMMARY AND EFFECT OF THE INITIAL ALLOCATION

(Section E.5)

Table A-16 summarizes the conditions for the harvesting and processing sectors with respect to each of the four major influences on willingness and ability to pay for QS. The first column provides the conditions under status quo and the second the expected influence of the IFQ program, as described above. The third column summarizes the effect of the initial allocation on the long-term

Table A-17. Summary of influences of the IFQ program and the initial allocation on the flow of QS with a focus on the harvesting and processing sectors.

	Status Quo	IFQ Program	Initial Allocation
Relative Efficiency: If there is an efficiency differential between the sectors, IFQ will flow to the more efficient sector (See Section E.4.1)			
	Given the nature of fishery management and imperfections in the function of markets, one sector may have greater relative efficiency than the other.	• If there is an efficiency differential between the sectors, IFQ will flow to the more efficient sector. Even the efficiency of the sectors is identical, profits per pound may vary and product will be an important driver of IFQ flow. • Over the short term, there are more mechanisms by which harvester sector efficiency may be enhanced than for the nonwhiting-processing sector.	The capital infusion represented by the initial allocation will provide an opportunity for harvesters and processors that receive an initial allocation to increase their efficiency. Increased efficiency will increase ability to accumulate QS.
Vertical Integration: Firms integrate vertically for market security, asset protection, rent capture, and market foreclosure. IFQs will increase vertical integration incentive (See Section E.4.2)).			
	Processors tend to be more vertically integrated than harvesters.	• Harvesters' vertical integration (acquisition of processing capacity) will not be constrained by accumulation limits. • As harvesters become more profitable, they could become more of a target for vertical integration by smaller processors (rent capture). • QS provides processors a less expensive way to vertically integrate harvesting activities and a new way to foreclose market opportunities of competitors. • Processor vertical integration could be constrained by control limits if such control limits are applied to both QS and QP.	• Initial allocations will enhance the recipient's resources for vertical integration. • If control limits are applied to QP, processor vertical integration would be constrained, and those processors grandfathered in at levels above the control limits would have a long-term advantage over those receiving less than those limits.
Market Power: QS will likely flow toward those with more market power because of their higher profits (See Section E.4.3))			
	Incentives for processor and harvester rivalry may each be constrained. There are more indicators that processors are likely to be able to exert bargaining power than there are for harvesters (this is not a statement as to whether or not either sector has in fact exerted market power) Barriers are necessary for long term-preservation of market power. Indicators of potential bargaining power favor processors and indicators of entry barriers may favor harvesters.	For harvesters • Rivalry is expected to decrease after an initial shakeout, • Bargaining power increase through consolidation and opportunity to vertically integrate, and • Entry barrier increase For processors • Rivalry is expected to increase, • Possible bargaining power decrease because QP liquidity increases the distance from which potential buyers may be drawn, • The result for entry barriers is more uncertain.	***As amount allocated to processors increases*** For harvesters: • Increased rivalry in QP and raw fish market including increased strategic stakes in the outcome • Latent permits may become active to handle processor QP • Fewer assets to support using the threat of vertical integration as a lever during price negotiations For processors: • Reduced exit barrier would tend to decrease rivalry • Increased assets to support vertical and horizontal integration • Processor-held QP can be used to activate latent permits, increasing processor bargaining power • A greater entry barrier (including a temporary scale advantage by larger processors) will help protect any negotiating advantages that are established.
Access to Capital: QS will flow to those with greater demand for and cheaper access to capital. (See Sections E.4.4–.4.6)			
	Harvesters may be less willing to pay for capital because of their high time preference. Processors may have access to cheaper capital because of they present a lower investment risks.	• Industry stability is expected to increase (particularly for harvesters), potentially decreasing the cost of capital. • QS may be of tenuous value as an asset for securing a loan. • Firms with cheap access to capital are more likely to acquire QS and grow. • The risk of lending to processors may increase, if the IFQ program increases harvester opportunity to exert market power.	• Initial recipients will receive an infusion of wealth that may give them cheaper access to capital (lower interest rates). • Harvesters not receiving enough QS to support their business plan will have a less secure income flow and, if financially distressed, may have a hard time securing loans for QS/QP acquisition or other capital investments. • For processors, QS/QP is not needed for operation, but an initial allocation will increase the security of their access to raw product, reducing risk and, therefore, lowering capital costs.

● Impact on Conservation (Resource Stewardship Effect)

Resource stewardship is a term often used to describe actions that are taken to benefit conservation of the resource. It has been proposed that IFQ programs generate a "resource stewardship effect" as a result of privatization of the opportunity to harvest fish. A recent study of IFQ systems worldwide showed that, even after taking into account factors such as the intensity of management, fisheries under IFQs appear less likely to be overfished (Costello, *et al.* 2008). We will look at four factors related to the degree to which an IFQ program might generate a resource stewardship effect and examine influence of the initial allocation on the likelihood that a resource stewardship effect is realized:

1. Degree of exclusivity of access
2. Discounted value for future benefits (i.e., delayed gratification)
3. Ethical action
4. Control over what happens on the vessel

♦ *Exclusivity*

Ownership of QS gives individuals a direct interest in the productivity of the resource as a whole, a portion of which cannot be impinged upon by others. However, it does not give them control or access to specific fish. Therefore, any action that a QS owner undertakes that either benefits or harms the resource is still shared proportionally with all other QS owners (NRC 1999, pg 36), as well as those sectors relying on the resource which are not under IFQ management. Nevertheless, the approximation of sole ownership is greater under IFQs than under license limitation or open access management. Under license limitation and open access, a fisherman is not even certain of receiving a share of the available harvest.

It may be that collective stewardship action (e.g., fishermen's associations working to benefit the resource) is encouraged by IFQs more than individual stewardship action. For example, Nova Scotia fishermen worked with managers to develop stronger conservation measures. At the same time, there were anecdotal reports that individual actions for personal benefit continued, even though they adversely affected the resource (high grading and under-reporting catch) (NRC 1999) (pg 106).[17] Collective actions (or collective restrictions) ensure that all participants are contributing to a particular outcome and make it more likely that the individual will receive a benefit commensurate with his or her contribution. Collective actions where the commitments are made up front will be most easily enforced (for example, an association of fishermen might invest in research to support a stock assessment). Other types of collective actions motivated by economic incentive require participants to trust one another to contribute to the collective good, resting on the belief that violators will be detected and penalized.

Sole ownership (i.e., exclusivity) may be a necessary condition for "stewardship" motivated by economic incentives alone; however, it does not guarantee a stewardship result. For example, economically driven stewardship may require that the returns available from harvesting all the fish and putting the net proceeds in the bank be less than the growth rate of the fish stock. This issue is addressed in the following section.

[17] Highgrading problems have appeared to have escalated in the Icelandic ITQ fishery where there is not full observer coverage. For other programs, such as those in New Zealand and the Alaska halibut fishery, it is reported that under reporting of catch appears to be minimal. There are some questions as to whether or not there may have been problems in the Alaska sablefish fishery (NRC 1999). Highgrading also occurred in the Alaska red king crab fishery after rationalization.

♦ *Discount Rates*

Assuming that someone is relatively certain of gaining the return from their investment in stewardship, one must still ask whether the return they will receive is enough to compensate them for incurring a cost and waiting for that return. The term associated with this concept of "delayed gratification" is discount rates. Discount rates are discussed more fully above and in Appendix E. If the stock growth/improvement rate is greater than the individual's discount rate, then it will make sense for the individual to make an investment in anticipation of the greater return. If it is difficult for humans to take into account returns that take longer than a generation to be realized (e.g., longer than 30 years), or longer than the remaining span of their lifetime, then economically driven stewardship incentives for some of the slowest growing west coast rockfish species may be limited. Thus, if QS holder discount rates are high and resource condition improvement rates are slow, even if a fishermen were relatively certain of reaping the benefits from his conservation action, there may not be sufficient incentive for fishermen to make the investment that stewardship actions require, purely based on economic incentives. An additional factor to consider is that the trawl sector is not the only sector reliant on the resource. So for example, assume that trawlers (collectively or individually) take some kind of extra action to help conserve the resource and other sectors take no extra actions. If that action results in improved stock productivity, the trawler would likely have to share that benefit with all the other sectors that rely on those species for which improvement is achieved. This reduces the future return from any present action.

♦ *Ethical Action*

Stewardship based on ethical action may occur even if the action does not make "economic sense" when we consider only exclusivity and discount rates. There is much research showing that fairness and reciprocity are strong determinants of human behavior (Falk, ***et al.*** 2002) Under the models in this body of research, individuals value an outcome both for its effect on themselves and on others. Game theory experiments developed by Falk, et al. classified participants into those strongly motivated by reciprocity and those motivated primarily by personal economic gain. They observed that institutional rules determined the observed outcome, i.e., determined whether the outcome in the human system is driven by reciprocity or solely by economic self-interest. If there is not an institutional rule that either externally forces cooperation or provides the possibility that participants will find ways to sanction one another, a non-cooperative outcome is more likely to result. Falk, et al. (Falk, ***et al.*** 2002) state "In a sense, institutions select the type of player that shapes the final result." The following section identifies some ways in which the structure of the institutions (i.e., rules on who is allowed to hold QS) may affect the opportunity for development of informal sanctions for non-cooperation.

Falk, et al. (2002) also identify other theories for outcomes that are not solely economically driven, including "moral norm activation" (Stern, ***et al.*** 1999). Under this theory, if people accept a value (e.g., fishery conservation), believe that things important to that value are threatened (e.g., that excess harvest could damage the status and productivity of a stock), and that they can take actions which will help alleviate the threat, they will take those actions.

♦ *Control over Activities on the Vessel*

If we assume that through economic or noneconomic values there is a potential for sufficient incentive to encourage stewardship behavior, then the question is who is in the best position to control such behaviors. In this discussion, we will assume that the QS holder has the greatest incentive for stewardship, due to combined economic and noneconomic values. Dawson reviews the issue of control over production from the perspective of transaction costs associated with contract formation and

contract enforcement (Dawson 2003). He identifies that specifying the exact behavioral deliverables in a contract, monitoring that behavior, and enforcing the contract become more difficult as the relational distance between the parties to the contract increases. For example, establishing standards, monitoring, and control are much easier with an employee than with a contractor. Following this line of thought, it appears that in terms of vessel operations the following would be a reasonable ranking of those with greatest control over stewardship behavior to those with the least such control.

- Crewmembers (most control if stewardship actions have to do with how individual fish are handled on deck)
- Vessel operator (most control for stewardship actions having to do with where the vessel fishes, length of tow, etc)
- Vessel owner/lessee (most control for stewardship actions having to do with gear and vessel equipment)
- Processor/permit owner
- Other entities

On this basis, if the Council wants to place maximum emphasis on the likelihood that the IFQ program will lead to stewardship behavior (possibly diminishing achievement of other objectives), the program should be designed to encourage ownership consistent with the priorities in the above list. Moreover, the decision on which groups will be allowed or encouraged to own QS could be part of the design of an institutional framework that supports a stewardship ethic, as discussed in the Ethical Action section (page A-58). This design may include consideration of the ability of QS holders to observe other QS/QP holders and harvesters and ability to impose sanctions. Those with the greatest ability to impose sanctions within a harvesting operation may be the owners of such operations. Those with the greatest ability to monitor the activities may be vessel operators and crewmembers.

♦ *Summary*

The initial allocation among groups is just that, an initial distribution. It does not determine where the QS will end up over time. However, those receiving an initial allocation will receive a leg up by the capital infusion represented by the allocations and will be in a better position to maintain their QS and acquire additional QS in the future.[18] Table A-17 summarizes the results with respect to each of the above sections. With respect to the potential stewardship effect, those present on the vessel will be able to most effectively act on the stewardship incentive (i.e., be able to implement stewardship actions at the least cost). This is consistent with Clark's finding that fishermen who lease will have little incentive to conserve because they do not have long-term access (Francis, ***et al.*** 2007).

[18] Up to QS control limits.

Table A-18. Summary of analysis of stewardship effect.

Exclusivity	QS owners have limited exclusivity because the benefit/cost of any action they take individually may be shared by all other QS owners as well as other sectors that rely on the same resource. Yet there is more exclusivity than under open access or license limitation.
Discount Rates	Even if individuals have some exclusivity, if they have a high discount rate, the increase in benefits over time may not be sufficient to compensate them for the near-term sacrifices. Fishermen have been reported to have relatively high discount rates.
Ethical Action	Ethical action may override (or act in concert with) action based solely on economic incentives. Therefore, lack of complete exclusivity or discount rates higher than benefit return rates does not mean there will not be a stewardship effect. Institutional design can affect whether or not ethical considerations dominate behavior. External sanctions or ability for participants to sanction one another may enhance the expression of a stewardship ethic. Buy-in on the problem and potential for individual action to help alter the outcome are important.
Control	Crewmembers and vessel operators may be in the best position (have the lowest cost) to monitor and control stewardship behavior.

- Impact on Sector Health

  - *Buyers/Processors*

There is an overlap between buyers and processors in that some businesses act only as buyers, some buyers act as processors (buying only for themselves), and some buyers act as processors but also buy raw fish for other processors. The set of all businesses functioning as buyers is of concern because it is they who interact with harvesters in the raw fish market. Those buyers acting as processors are of concern because of their larger capital investment in the fishery and the over investment that may have been caused by the regulatory regime. In Section A-2.1.1.d, we will discuss whether the Council allocation to "processors" would be to actual processors or to buyers (as a proxy for processors) and the implications of that choice on the results of the analysis. In order to minimize confusion between the terms used in the analysis and those used in the alternatives (e.g., allocation to processors), in the following discussion we will use the term "processors" to refer to both buyers and processors, unless otherwise noted.

COMPETITIVENESS

There are a number of aspects of sector competitiveness to consider:

1. Competition in negotiations with harvesters
2. Competitiveness within the sector (smaller processors vs. large processors)
3. Competitiveness in wholesale markets

Negotiations with Harvesters. In Appendix E, on market power, one of the focuses was on competitiveness within the sector in the context of the processing sector's interactions with harvesters in the raw fish market. There we found the following indicators:

- Processors are in a strong position to exert market power under status quo (whether they do or not) and may have cheaper access to capital than harvesters.
- An IFQ program under which processors do not receive an initial allocation would weaken that position.
- Even if weakened, processors could regain some strength through the acquisition of QS, but only up to accumulation limits (see Appendix E for a list of indicators of factors affecting the flow of QS among groups independent of the initial allocation).
- An initial allocation of QS would give them a stronger bargaining position than if they did not receive an initial allocation.

- If there are well-established market prices for QP and raw fish, it is then implied that strength of bargaining position will be less important in establishing market prices. To the degree that there are transaction costs associated with moving between one buyer and another (or from one seller to another), however, it will still be possible to use bargaining power to influence the price away from average market prices.

Specifically, an initial allocation of QS would do the following:

1. Provide a capital infusion that may allow processors to employ one of a number of different strategies to grow and increase their efficiency (e.g., acquisition of additional QS, horizontal integration, etc.).
2. Diminish the exit barrier (liquidation of QS would allow a firm to exit the industry with less debt or greater gains).
3. Initially provide processors with greater bargaining power (as compared to their initial situation under IFQs if they did not receive an initial allocation), useful mainly if the market is not competitive enough to strongly establish going market prices.
4. Create a greater barrier to new entry.
5. Create an even greater barrier to entry if there is a control limit grandfather clause (not part of the FPA).
6. Decrease the cost of processor access to capital.

The initial capital infusion may have a long-term affect on the distribution of wealth in the industry. The effect of the IFQ program on processors' ability to remain in business is discussed below in the section on investments (page A-62).

Effect on Smaller Processors. If there is not an initial allocation to processors, smaller processors may be at a disadvantage relative to larger processors. At this time, most of the LEPs that are owned by processors are owned by larger processors. Therefore, smaller processors would have to acquire QS or operate at a lower profit level (processors owning trawl permits will earn levels of returns for the QS granted to them that will not be available to those who purchase later). Either way, whether they choose to acquire QS or not, compared to those granted QS because they own permits, those without permits would be at a competitive disadvantage within the sector. Anecdotal information has indicated that those processors in the IFQ system in British Columbia who did not own vessels or were not closely partnered with vessels had a financially difficult time competing because of their need to make payments on capital borrowed for their QS acquisitions. This is consistent with reports from New Zealand that indicate lower economic satisfaction for later entrants who have to buy QS to enter the fishery (as compared to those receiving an initial allocation) (Dewees 2006). An initial allocation of QS would give smaller processors some QS to work with, and, if there is no QS control limit grandfather clause, it could substantially even the distribution of QS among processors. If there is a QS control limit grandfather clause, an initial allocation of QS would probably still leave smaller processors at a significant disadvantage in QS holdings as compared to the larger processors.

Effect on Larger Processors. If there is an initial allocation to processors, some larger processors will likely be at the control limits. If they are at the IFQ control limits, and the limits apply to both QS and QP, they would have no ability to extend their vertical integration (expanding their harvesting activities). If there is no grandfather clause, they may have to reduce their level of vertical integration. However, the FPA applies control limits only to QS and not QP. Once processors reach QS control limits, expansion of their shares of the market would have to occur without the support of QS. Whether large processors are more likely than small processors to expand their market share would depend on the relative profitability of adding an increment of production to a large-scale processor without the support of QS, as compared to adding the same increment of production to a small-scale processor with the support of QS.

Competition in the Wholesale Market. One factor to be considered is how the IFQ program may affect the competitiveness of west coast seafood processors in the wholesale market. While west coast processors may participate and have an advantage in local niche markets, many of the fish products currently produced in the west coast groundfish fishery are sold into a wholesale market in which there is global competition.

It has been argued that processors need to receive an initial allocation of QS and be able to accumulate larger volumes of QS in order to be competitive in the world market. However, processors do not need QS to process fish, and, if they cannot sell the available product, then fishermen or QP holders will be forced to lower their prices to move the available product. If fishermen are already accepting their minimum price (covering costs including normal profit), then the value of the QP will diminish. If the fishermen are at their minimum prices, and marginal QP values near zero, then it is likely that some fish would go unharvested. However, overall, the IFQ program will likely reduce operation costs and make west coast products more competitive on the global market thus increasing the volume of what processors are able to sell at a normal profit level even if processors do not receive an initial allocation.

An initial allocation to processors would improve individual processor marketing flexibility and profits. Individual processors would have more direct control over the price they pay for the quota (what they pay themselves for QP) and more immediate flexibility to respond to marketing opportunities with price adjustments rather than having to wait for the changing price signals to work their way through the QS and raw fish markets.

INVESTMENT, DEPENDENCE, AND DISRUPTION

Dependence on the groundfish trawl fishery is a function of the degree of investment in the fishery and the ability to employ the assets representing those investments in activities outside the groundfish trawl fishery. Thus, dependence on the groundfish trawl fishery implies that, absent an opportunity to earn income from this fishery, there would not be sufficient returns to compensate those making the original investments. The investments we will focus on in this section are primarily investments in physical capital, but there may also be investments in human capital (e.g., specialized knowledge or labor skills). The IFQ program will change the management system and markets, potentially disrupting a firm's ability to recover returns on fishery dependent investments and affecting a firm's ability to sustain participation in the industry. In this section, we will assess the conditions and mechanisms under which a firm's ability to recover returns on fishery-dependent investments and sustain participation will be adversely affected. We will also look at some qualitative indicators of the degree of that effect.

When the IFQ Program is implemented, those holding QSs are expected to capture the difference between the maximum price for raw fish processors are willing to pay and the minimum price at which vessel owners are willing to harvest, as resource rents. In question is whether QS/QP holders (whether they be harvesters or independent QS/QP holders) might also capture a portion of the processor's earnings needed to cover capital investments (their quasi rents).

Under status quo, if there is no processor overcapitalization, we would expect that the market would allow processors to cover their average total costs (i.e., earn enough to pay for their variable operating costs and earn a normal return for their fixed/capital costs). However, if there is more capital than is necessary to utilize the available raw product, some processors will produce at less than their optimal output, until the excess capital leaves the fishery. In Section 4.9, we identify that the nonwhiting processing sector could be overcapitalized due to the recent contraction in the fishery and that processors in the shoreside and mothership sectors may be overcapitalized due to their need to compete for vessel deliveries during the Olympic-style whiting seasons.

- Given an overcapitalized situation, processors will compete with one another to reach, as close as possible, their optimal level of output. In that competition, processors may bid away some of the profit that would otherwise go to return on their capital investment.

The following text box provides a technical explanation of this point.

Text Box: Technical Explanation of Dissipation of Returns to Capital when the Processing Sector is Overcapitalized

Figure A-5 illustrate the economic choices. The diagrams show a price or dollar cost per unit on the vertical axis and a quantity on the horizontal axis. The curves shown are supply curves for a single firm. Three curves are shown in each figure: the top curve shows average total cost (including capital investments), the lower curve shows average variable costs, and the curve crossing the other two shows marginal costs. The amount paid for raw fish is an input that affects the height of the curves. As the price of raw fish increases, all three curves move up. The difference between the left figure and the right figure is that the right-hand figure reflects a higher price for the raw product.

In order to achieve a normal profit, a firm must cover its variable and fixed costs (total costs). In the left-hand figure, a price of P1 for processed product would allow the firm to achieve a normal profit with the production of about 25 units. Twenty-five units represents optimum capacity for this firm; however, if the industry is overcapitalized, not all firms will be able to achieve optimum capacity. Assuming that wholesale prices are fixed (that the wholesale market is competitive), as a firm's production decreases, it can be seen that it will no longer achieve normal profits (in the left-hand figure the revenue line, P1, is below the total cost line when production is less than 25 units). At around 5 units of production, the firm would no longer cover variable costs and would cease production over the short term. Between 5 units and 25 units, the firm will continue to produce over the short run but over the long run it will not be able to replace capital as it wears out. Excess capacity in the sector means that some processors will face producing at levels at which they cannot cover total costs and will compete to reach as close to their optimal production levels as possible. In this example, assume there are only 50 units of harvest available and five companies, each with a cost structure identical to that described here. Each company will strive to maintain as close to 25 units of production as possible, using whatever leverage it has available to acquire product. For example, a company might vertically integrate, link its willingness to accept deliveries to other products for which there is not a surplus in processing capacity, guarantee its ability to receive a vessel's product during an Olympic fishery, or offer higher ex-vessel prices. If a processor must attract product by raising the ex-vessel price it offers, the company raises its cost curves. A $15 per unit increase results in the cost curves shown on the right. If this increase is enough for the company to win 22+ units of production, it will stay in business over the short term (i.e., cover its variable costs), but will not cover much if any of its fixed costs (i.e., its return on investment, quasi rents, will have been dissipated).

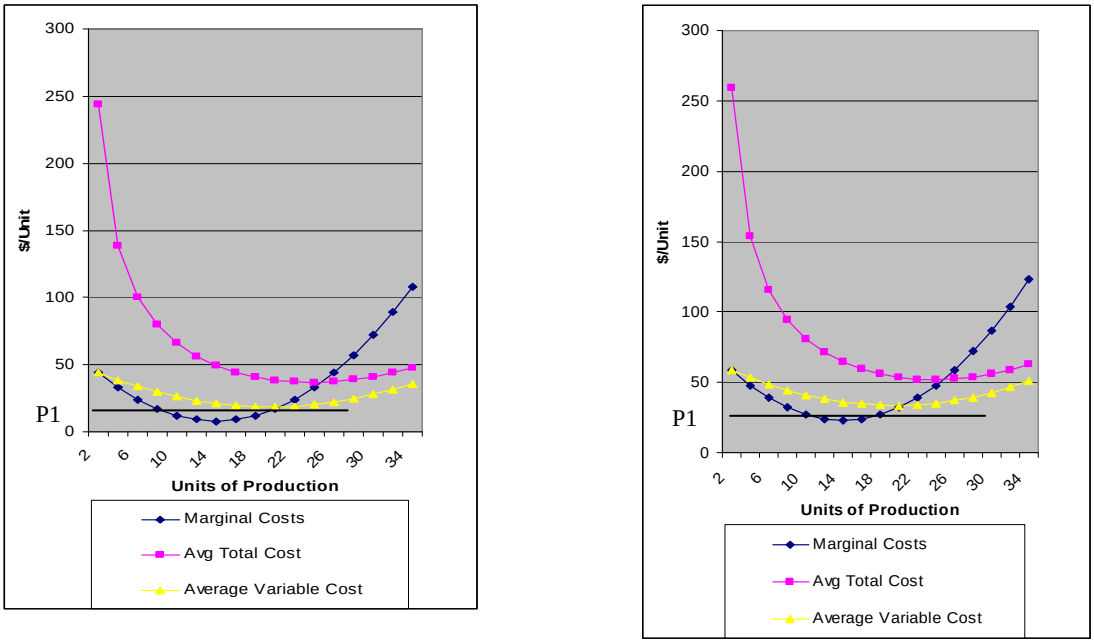


Figure A-5. Comparison of cost curves before (left) and after (right) an increase in the cost of a key input.

If there is overcapitalization in the processing sector, and the sector is fully competitive under status quo, processors will already be bidding away some of their rents in the competition for the limited amount of raw product available. The IFQ program will reduce flexibility to turn to alternative harvesters, which might further increase the competition and hence price for raw product. These processors may find their situation somewhat improved if the IFQ program results in an increase in total landings (through bycatch avoidance), provides processors an opportunity to reduce costs (most likely in the whiting fishery), or provides processors an opportunity to seek higher wholesale prices. Even so, until excess capital is dissipated, they may bid away any improvement as part of the competition for landings,[19] similar to their situation under status quo.[20] Capital will leave the fishery either as it wears out or as other markets are found for it. If a processor is covering its variable costs, but can get a higher return on investment from liquidation of its capital assets than it can from continuing to produce, it may choose to liquidate rather than remain in the fishery.

If processors are overcapitalized but able to compete for deliveries at least partially through their ability to handle volume (i.e., not solely based on prices offered for raw product), then they might be earning some return on their capital investments that may, after the transition to an IFQ program, be bid away in the competition for raw fish deliveries. This may be the situation for processors in the catcher vessel sectors of the whiting fishery.

If the processing sector does exert market power, then so long as they are able to continue to do so after implementation of the IFQ Program, QS holders will not be able to capture the processors' investment return-related profits. If the processing becomes competitive after implementation of the IFQ program, then it is possible that the QS holders will be able to capture some of the investment return-related profits so long as the sector remains overcapitalized. If the processing sector is not overcapitalized, it is less likely that the QS holders will be able to capture investment-related profits from the processing sector. Table A-18 provides a summary of the effects on processor return on investment as it varies by the degree of competitiveness in the sector under status quo.

[19] Unless there are means other than by offering to pay higher prices through which buyers ensure they have access to sufficient raw product.

[20] Since the nonwhiting fishery is already run at a slower pace, the opportunity for processing cost reduction or revenue increases may be relatively limited compared to the whiting fishery.

Table A-19. Effects on processor returns to investment resulting from the transition from status quo to an IFQ program.

Processing Sector Capitalization	Processing Sector Competitiveness		
	Market Power Exerted	**Processors Compete for Product Based on Price**	**Processors Compete for Product Based on Ability to Handle Capacity**
Fully Capitalized	Normal or above normal returns under status quo. QS holders will, at most, be able to capture resource rents (will not be able to capture processor profits that would go to return on investment).		
Overcapitalized	In a situation where market power is exerted overcapitalization would not normally be expected. However, under status quo, there could be processor market power and overcapitalization as a result of historic conditions (e.g., the contraction in the available harvest). Under IFQs, processors would maintain their previous profit levels unless the sector becomes competitive after the IFQ program is implemented (i.e., their market power is overcome).	Under status quo, returns to capital dissipated. This continues under the IFQ program until no longer overcapitalized (unless the IFQ program allows processors to exert market power, i.e., transition to a less competitive situation)	Under status quo, processors may be earning some returns to capital. Under IFQs, processors would no longer compete based on their capacity to handle product. If they then compete based on price offered for raw product, QS holders may be able to capture the profits associated with the processor assets (unless the IFQ program allows processors to exert market power, i.e., transition to a less competitive situation).

Note: Market power in the harvester sector is not considered in this table. If that sector is able to exert market power, they would capture some of the rent that QS holders would otherwise capture.

Under an IFQ program, in a situation where some profits that would otherwise go to capital might be lost by processors offering higher prices in the competition for raw product, it is important to consider the degree and duration of that loss. We do not necessarily expect that every firm will bid away all or even most of its returns to capital in the transition. Whether a particular firm is affected and the degree of impact depend on the cost structure and debt positions of other firms in the industry. In particular, the position of the weakest firms will have a significant bearing on the amount of profit that other firms dissipate in bidding for raw product to serve an overcapitalized industry. Firms with higher average variable costs and firms for which a significant portion of the difference between average total cost and average variable cost is dedicated to payments on a loan will have less flexibility to weather price competition. If these firms drop out quickly in the price competition, there will not be so much of a need for remaining firms to bid away a portion of their profits. Some of the capacity within a firm may also drop out of production to the degree that it goes unused. Ultimately, the price that processors will bid for raw product will be just below the average variable costs of the most efficient of the excess units of capital. (The units of capital that are in excess are considered to be those that are less efficient. On this basis, the price paid will be slightly below the average costs of the most efficient of the set of lesser efficiency capital units.) Each unit of capacity remaining active will be able to capture the profit that corresponds to the amount by which the efficiency of that unit exceeds the efficiency of the most efficient unit of dropped out capacity. A visual example of this concept is illustrated in the two diagrams in Figure A-6 of the following text box.

The above discussion indicates that the following:

- Under status quo, if the processing sector is overcapitalized and unable to exert market power, it will likely already be bidding away returns to capital, unless it is able to compete for raw product through nonprice competition (e.g., to handle a large volume of product during a derby fishery).
- If the processing sector is overcapitalized and unable to exert market power under an IFQ program, it may bid away some of its returns to capital as increased prices offered raw product

- The price that must be paid for raw produce will only increase until enough capacity is left idle such that the remaining active capacity is just able to process the available product.
- When that price is reached, the financial return for units of capital remaining active may be diminished, however, it is unlikely that there will be a complete loss of returns to investment
- Once excess capacity has left the fishery, normal returns to capital will be restored.

Text Box: Visual Illustration of Elimination of Capacity and Retention of Some Returns to Capital

Five hypothetical firms are represented with different average total costs (top end of each bar), average variable costs (bottom end of each bar) and debt service (difference between the bottom of the bar and the circle in the middle of each bar). With a price of wholesale price of P1 on the left hand side, the following occurs:

Firm A:Covers average total costs, average variable costs, and makes payments on debt.

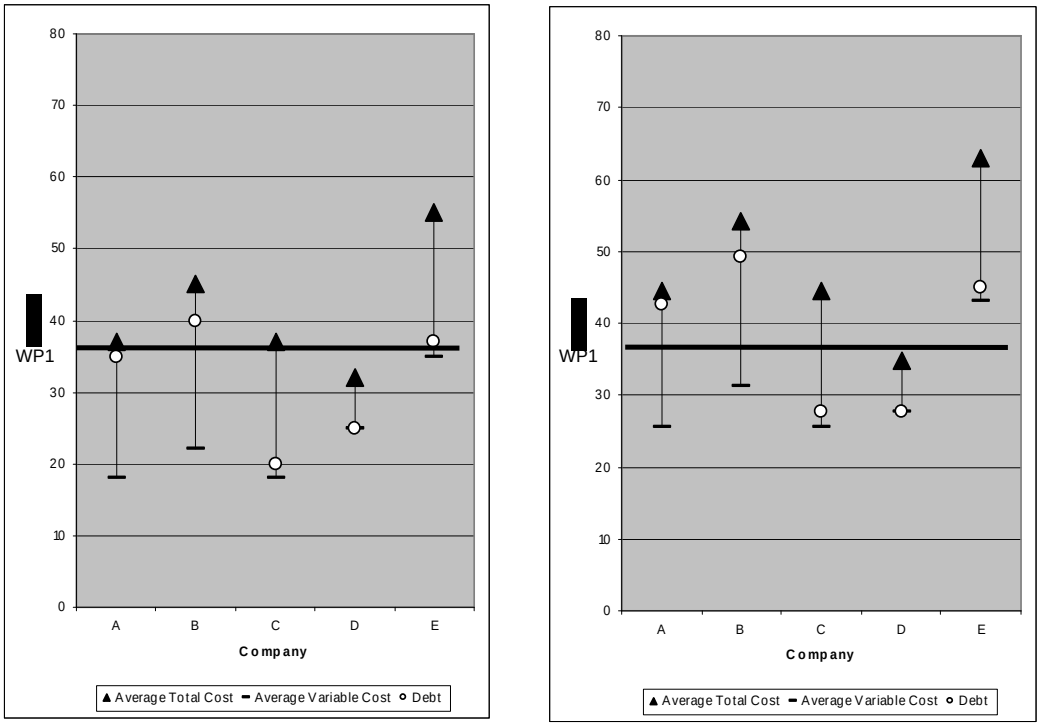
Firm B: Cannot cover average total costs but covers average variable costs (stays in business over the short run). Cannot make complete payments on debt.

Firm C: Covers average total costs, covers average variable costs, covers debt, and has some cash flow representing returns to capital (difference between total costs and debt payment plus variable costs).

Firm D: Covers average total costs, average variable costs, makes payments on debt, and has some earnings above total costs (above normal or economic profit)

Firm E: Cannot cover average total costs but covers average variable costs (stays in business over the short run and makes payments on debt).

If these firms now compete for raw product by raising ex-vessel prices, hence raising their average variable costs while revenues (P1) remain constant (figure on the right), firm E will drop out as soon as its average costs exceed P1. Firms A and B may also drop out if they cannot make arrangements for payments on their debt, and Firm C will remain for the short run, collecting some returns on capital investment, but if raw product prices do not drop back down, it will eventually have to exit as its capital wears out and has to be replaced. Firm D remains, covering its total costs. This figure illustrates the dynamics that may occur if firms have dissimilar cost structures and debts. If, instead, all firms have similar cost structures and debt, it would be more likely that production will be scaled back across the entire industry, with individual firms cutting out their least efficient units of production first. However, the same general rule would apply, with each unit of capacity remaining active capturing the profit that corresponds to the amount by which the efficiency of that unit exceeds the efficiency of the most efficient unit of capacity that drops out.



The right hand side figure assumes an increase in variable costs due to price competition for raw product deliveries.

Figure A-6. Hypothetical cost structures and debt positions for 5 firms at a set level of production.

Reduced Value of Processor Assets. Relative to status quo, processors are not expected to lose returns on their investment to QS holders unless processors are overcapitalized and either have been competing for raw fish deliveries based at least partially on something other than price (e.g., competition based on ability to handle volume), or have been able to exert market power to protect their returns to assets and lose that ability under an IFQ program (likely only under special circumstances, such as a somewhat recent contraction in supply). If processors are overcapitalized and under IFQs are unable to influence prices substantially away from a natural equilibrium (i.e., not able to exert market power), it does not necessarily mean that they will lose all of their returns to capital. They will still earn a return that is related to the difference in efficiency between their capital and the most efficient units of capital that drop out of production. Inability to exert market power does not necessarily mean that harvesters have exerted market power; it could also mean that both sides accept going market prices and are unable to use negotiating leverage to gain major deviations from those prices. To the extent that processor returns on irretrievable investment are diminished under IFQs, the allocation of QS to processors may provide them with an asset to compensate them for some of the loss. If processors are given an initial allocation of QS, one scenario is that the allocation may encourage more rapid rationalization of the processing sector by reducing the barrier to exit (making it easier for processors to recover capital losses).

SUMMARY

Compared to an IFQ program with no initial allocation of QS to processors, an initial allocation to processors may accomplish the following:

- Strengthen their bargaining position vis-à-vis harvesters in the raw fish market (to the degree that prices are influenced by negotiations rather than going market prices).
    - Over the short run (via the initial grant of an asset and via their ability to hold QS in excess of control limits)[21]
    - Over the long run, if they would not otherwise accumulate QS through purchase
- Under certain circumstances, compensate for partial losses of returns on investment.[22] [23]
- Possibly strengthen large producers relative to small producers (if there is a grandfather clause);
- strengthen small producers relative to large producers (if there is no grandfather clause and depending on relative efficiencies).
- *Not likely* affect competitiveness of west coast product in the wholesale markets but may allow individual firms to be more responsive to changes in marketing opportunities (to the degree that processors would not otherwise acquire the QS through purchase).
- Reduce exit barriers by providing compensation for capital losses by those who might seek to leave the fishery.

[21] Under FPA, however, this ability is limited to the first four years of the IFQ program, by the end of which time they must have divested themselves of their excess shares.

[22] If the processing sector is overcapitalized under status quo and unable to exert market power under an IFQ program, then it may experience a loss in the value of its capital if either (1) market power was being exerted under status quo, or (2) market power was not exerted under status quo, but at least some of the competition for raw product was on a basis other than price (e.g., the ability to handle a large volume of product in a timely manner). Note that under the latter condition the processors were likely already losing some of their return on investment under status quo (to the degree that price was a factor in the competition for raw product).

[23] Under IFQs, if processors are not able to exert market power, the amount of profit they bid away in the price competition is unlikely to be the full amount of profit related to return on investment.

♦ *Harvester Sector—Permits*

In this section, we will focus on the permit owner and the permit as an asset independent of harvesting activities.

INVESTMENT DEPENDENCE AND DISRUPTION

Dependence on the groundfish trawl fishery is a function of the degree of investment in the fishery and ability to employ the assets representing those investments in activities outside the groundfish trawl fishery. This is described more fully in the corresponding section above on processors (page A-62).

Under an IFQ Program, the LEP values are expected to decline substantially because of the following:

- The fleet is expected to consolidate down to a number of vessels that is less than half the current number of permits (Section 4.6).
- The permit by itself will not offer access to any amount of the groundfish trawl allocation.
- The permit has no alternative use (its value is entirely dependent on the access to groundfish that it allows).

While these permits were issued to qualified vessel owners at relatively low cost (a cost sufficient to cover administrative costs of issuing the permits) up to 65 percent of these permits have changed ownership since the implementation of the license limitation program (based on an examination of ownership information from the LEP office). Many of the exchanges are believed to have occurred at prices of several hundreds of thousands of dollars. Therefore, there are many owners who have made a substantial financial investment in the permits.

Table A-20. Estimated Catcher Vessel Permit values in March 2004 (Based on Dockstreet Broker Report on $/point).

Permit Length Category	Number in Category	Permit Length Endorsement	Points For Indicated Length	Permit Values Based on	
				$6,000/point	$10,000/point
Less than 40 feet	22	40 feet	6	$36,000	$60,000
40-50 feet	14	50 feet	10	$60,000	$100,000
50-60 feet	31	60 feet	16	$96,000	$150,000
60-70 feet	27	70 feet	23	$138,000	$230,000
70-80 feet	32	80 feet	32	$192,000	$320,000
80-90 feet	20	90 feet	43	$258,000	$430,000
90-100 feet	7	100 feet	56	$336,000	$560,000
>100	14				
Total	167*				

* Data on number of permits from summer 2009. Two permits were combined in 2008 and 2009, reducing the total number of catcher vessel permits from 169 to 167.

All of those who hold the permits, regardless of whether they purchased them or received them as part of the initial allocation, will experience a decrease in the value of that asset. Under status quo, all permits of a similar size class are of similar value in terms of the access they provide to the fishery (note: in the current climate, permits with similar size endorsements may trade at values related to their landing history because of speculation that QS will be given to permit owners). How a particular permit owner fares as a result of the IFQ program will depend on the amount of QS given to permit holders in aggregate (as opposed to the amounts provided to processors or for adaptive management), the formula for allocating among permits, and the amount of landing history associated with that particular owners

permit. It was estimated that annual resource rents for the nonwhiting fishery (the value of the QP) might run about $18 million per year (after subtracting $350/day for observer costs). QSs have been reported to trade for between 3.5 and 10 times the QP price. On this basis, the QS value might be expected to run between $63 million and $180 million. There are up to 169 permits that may qualify for nonwhiting sector QS. Therefore, on average these permit holders would receive between about $0.4 million and $1.0 million of QS per permit.

Table A-21. Estimated value of nonwhiting QS to be issued.

	3.5:1 QS:QP Ratio	10:1 QS:QP Ratio
Annual Value of Nonwhiting QP	$18,000,000	$18,000,000
Estimated Value of QS	$63,000,000	$180,000,000
Average QS per Permit	$387,000	$1,065,000

Note: A ratio of 3.5:1 has the same result as a discount rate of about 40 percent applied over 30 years. A ratio of 10:1 has the same result as a discount rate of about 10.5 percent applied over 30 years.

However, the owners of a permits which have relatively low landing history may experience a decrease in the value of their combined permit/QS assets (as compared to value of the permits before adding speculation about the IFQ program effects), even if 100 percent of the QS is given to permit holders (depending on other aspects of the allocation formula). For purposes of illustration, assume an average permit price of $200,000. Under the FPA, with 90 percent of the QS going to permits and an equal allocation component, if we assume a QS value of $180 million, no permits would be expected to receive QS in an amount worth less than $200,000 (Table A-21).[24] If a QS value of $63 million is assumed, then 44 permits (26 percent of all permits) would be expected to receive QS valued at between $100,000 and $200,000. Allocations that maximize amounts to any one permit (100 percent to permits with no equal sharing) are provided in Table A-22. Under such an allocation, there would be 38 permits (22 percent) receiving less than $200,000 worth of QS (assuming $180,000 as the value for all QS) (Table A-22). On the other hand, if only 75 percent of the QS goes to permits, and the QS is valued at $63 million, then 69 permits (41 percent) would receive less than $200,000 of QS (Table A-23). In Table A-24 and Table A-25, similar information is shown for 100 percent and 75 percent allocations, but with equal sharing. Comparing Table A-21 (the FPA—90 percent allocation to permits and equal sharing) to Table A-24 (100 percent allocation to permits and equal sharing) shows the effect of the 10 percent QS allocation for adaptive management. For example, if a $63 million value is assumed for QS, the 10 percent reduction increases the number of permits receiving less than $200,000 of QS from 36 to 44.

It is likely that some of those permits that would receive smaller amounts of nonwhiting QS would receive larger amounts of whiting QS or a co-op permit. Of the permits with nonwhiting history from 1994 to 2003, 58 also have some history in the shoreside or mothership whiting fisheries during that period. Unfortunately, we do not have a model available to estimate the increased efficiency and hence value of the QS that may be expected in the whiting fishery.

However, Table A-26 and Table A-27 provide the estimated ex-vessel value that might be taken witH QP issued for the shoreside whiting. It can be seen in Table A-27 that there are 110 permits with no shoreside whiting history. With equal allocation (and 80 percent allocation to permits), all permits would receive some amount of whiting QS, and half the ex-vessel value equivalent of the whiting QS would go to 22 permits that receive QS that might generate between $200,000 and $500,000 in annual ex-vessel value. With 100 percent of the allocation going to permits and no equal allocation, half the

[24] The calculation is based on applying the vessels share of all nonwhiting QS to the estimated value of the nonwhiting QS.

ex-vessel value equivalent of the whiting QS would go to 12 permits that receive QS that might generate between $500,000 and $1,000,000 in annual ex-vessel value. Because only 7 percent of the shoreside whiting QS is allocated equally among permits, most of the effect is probably the result of the 20 percent allocation to processors.

Table A-28 provides similar information for the mothership whiting fisheries. IFQs for the mothership sector are not part of the final preferred alternative.

Table A-22. Estimated nonwhiting QS value per permit, based on permit landing history, assuming the FPA (90 percent allocation to permits and with equal sharing of buyback history).

QS Value Per Permit	# Permits	% of Permits	% of QS Value
Assuming an Aggregate QS Value of $63 million			
0	-	-	-
1-1,000	-	-	-
1,000 - 50,000	-	-	-
50,000 - 100,000	-	-	-
100,000 - 200,000	44	26.0%	11.5%
200,000 - 500,000	105	62.1%	57.0%
500,000 - 1,000,000	20	11.8%	21.5%
> 1,000,000	-	-	-
Total	169	100%	90%
Total > 0	169	100%	90%
Assuming an Aggregate QS Value of $180 million			
0	-	-	-
1-1,000	-	-	-
1,000 - 50,000	-	-	-
50,000 - 100,000	-	-	-
100,000 - 200,000	-	-	-
200,000 - 500,000	33	19.5%	8.3%
500,000 - 1,000,000	72	42.6%	30.6%
1,000,000 - 2,000,000	55	32.5%	39.6%
>2,000,000	9	5.3%	11.5%
Total	169	100%	90%
Total > 0	169	100%	90%

Table A-23. Estimated nonwhiting QS value per permit, based on permit landing history, assuming 100 percent allocation to permits and no equal sharing of buyback history.

QS Value Per Permit	# Permits	% of Permits	% of QS Value
Assuming an Aggregate QS Value of $63 million			
0	6	3.6%	0.0%
1-1,000	9	5.3%	0.0%
1,000 - 50,000	19	11.2%	0.6%
50,000 - 100,000	11	6.5%	1.3%
100,000 - 200,000	11	6.5%	2.5%
200,000 - 500,000	55	32.5%	31.1%
500,000 - 1,000,000	53	31.4%	56.1%
> 1,000,000	5	3.0%	8.5%
Total	169	100.0%	100.0%
Total>0	163	96.4%	100.0%
Assuming an Aggregate QS Value of $180 million			
0	6	3.6%	0.0%
1-1,000	6	3.6%	0.0%
1,000 - 50,000	13	7.7%	0.1%
50,000 - 100,000	7	4.1%	0.3%
100,000 - 200,000	6	3.6%	0.5%
200,000 - 500,000	16	9.5%	2.8%
500,000 - 1,000,000	28	16.6%	12.2%
1,000,000 - 2,000,000	64	37.9%	52.1%
>2,000,000	23	13.6%	31.9%
Total	169	100.0%	100.0%
Total>0	163	96.4%	100.0%

Table A-24. Estimated nonwhiting QS value per permit, based on permit landing history, assuming 75 percent allocation to permits and no equal sharing of buyback history.

QS Value Per Permit	# Permits	% of Permits	% of QS Value
Assuming an Aggregate QS Value of $63 million			
0	6	3.6%	0.0%
1-1,000	9	5.3%	0.0%
1,000 - 50,000	23	13.6%	0.7%
50,000 - 100,000	12	7.1%	1.4%
100,000 - 200,000	19	11.2%	4.9%
200,000 - 500,000	73	43.2%	40.8%
500,000 - 1,000,000	27	16.0%	27.2%
> 1,000,000	0	0.0%	0.0%
Total	169	100.0%	75.0%
Total>0	163	96.4%	75.0%
Assuming an Aggregate QS Value of $180 million			
0	6	3.6%	0.0%
1-1,000	7	4.1%	0.0%
1,000 - 50,000	13	7.7%	0.1%
50,000 - 100,000	8	4.7%	0.3%
100,000 - 200,000	10	5.9%	0.8%
200,000 - 500,000	14	8.3%	2.5%
500,000 - 1,000,000	48	28.4%	20.0%
1,000,000 – 2,000,000	57	33.7%	43.7%
>2,000,000	6	3.6%	7.5.%
Total	169	100.0%	75.0%
Total>0	163	96.4%	75.0%

Table A-25. Estimated nonwhiting QS value per permit, based on permit landing history, assuming 100 percent allocation to permits with equal sharing of buyback history.

QS Value Per Permit	# Permits	% of Permits	% of QS Value
Assuming an Aggregate QS Value of $63 million			
0	0	0.0%	0.0%
1-1,000	0	0.0%	0.0%
1,000 - 50,000	0	0.0%	0.0%
50,000 - 100,000	0	0.0%	0.0%
100,000 - 200,000	36	21.3%	10.2%
200,000 - 500,000	98	58.0%	56.4%
500,000 - 1,000,000	35	20.7%	33.5%
> 1,000,000	0	0.0%	0.0%
TOTAL	169	100.0%	100.0%
Assuming an Aggregate QS Value of $180 million			
0	0	0.0%	0.0%
1-1,000	0	0.0%	0.0%
1,000 - 50,000	0	0.0%	0.0%
50,000 - 100,000	0	0.0%	0.0%
100,000 - 200,000	0	0.0%	0.0%
200,000 - 500,000	19	11.2%	5.2%
500,000 - 1,000,000	58	34.3%	23.0%
1,000,000 – 2,000,000	88	52.1%	67.1%
> 2,000,000	4	2.4%	4.8%
TOTAL	169	100.0%	100.0%

Table A-26. Estimated nonwhiting QS value per permit, based on permit landing history, assuming 75 perc ent allocation to permits with equal sharing of buyback history.

QS Value Per Permit	# Permits	% of Permits	% of QS Value
Assuming an Aggregate QS Value of $63 million			
0	0	0.0%	0.0%
1-1,000	0	0.0%	0.0%
1,000 - 50,000	0	0.0%	0.0%
50,000 - 100,000	0	0.0%	0.0%
100,000 - 200,000	54	32.0%	12.5%
200,000 - 500,000	109	64.5%	57.3%
500,000 - 1,000,000	6	3.6%	5.2%
> 1,000,000	0	0.0%	0.0%
Total	169	100.0%	75.0%
Total>0	169	100.0%	75.0%
Assuming an Aggregate QS Value of $180 million			
0	0	0.0%	0.0%
1-1,000	0	0.0%	0.0%
1,000 - 50,000	0	0.0%	0.0%
50,000 - 100,000	0	0.0%	0.0%
100,000 - 200,000	0	0.0%	0.0%
200,000 - 500,000	47	27.8%	10.5%
500,000 - 1,000,000	73	43.2%	31.5%
1,000,000 – 2,000,000	49	29.0%	33.0%
>2,000,000	0.0%	0.0%	7.5.%
Total	169	100.0%	75.0%
Total>0	169	100.0%	75.0%

Table A-27. Estimated ex-vessel value of shoreside whiting per permit for the FPA (80 percent to permits and equal sharing), based on QP issued for permit landing history (does not take into account net profits or expected future revenue that would be reflected in QS value) (total annual QP value is assumed to be $13.7 million).

Ex-vessel Value Per Permit	# Permits	% of Permits	% of QP Ex-vessel Value
80% Allocation to Permits, No Equal Sharing of Buyback History*			
0	-	-	-
1-1,000	-	-	-
1,000 - 50,000	129	1	0
50,000 - 100,000	6	0	0
100,000 - 200,000	10	5.9%	10.2%
200,000 - 500,000	22	13.0%	53.5%
500,000 - 1,000,000	2	1.2%	7.4%
> 1,000,000	-	-	-
Total	169	100%	80%
Total>0	169	100%	80%

*The amount of whiting that would be distributed under equal sharing is relatively small. See Section A-2.1.3.a (about 7 percent of the shoreside whiting allocation and 2 percent of the mothership sector whiting allocation.)

Table A-28. Estimated ex-vessel value of shoreside whiting per permit, based on QP issued for permit landing history (does not take into account net profits or expected future revenue that would be reflected in QS value) (total annual ex-vessel value associated witH QP is assumed to be $13.7 million).

Ex-vessel Value Per Permit	# Permits	% of Permits	% of QP Ex-vessel Value
100% Allocation to Permits, No Equal Sharing of Buyback History*			
0	110	65.1%	0.0%
1-1,000	8	4.7%	0.0%
1,000 - 50,000	11	6.5%	1.4%
50,000 - 100,000	5	3.0%	3.2%
100,000 - 200,000	7	4.1%	7.5%
200,000 - 500,000	16	9.5%	36.5%
500,000 - 1,000,000	12	7.1%	51.4%
> 1,000,000	0	0.0%	0.0%
Total	169	100.0%	100.0%
Total>0	59	34.9%	100.0%
50% Allocation to Permits, No Equal Sharing of Buyback History			
0	110	65.1%	0.0%
1-1,000	11	6.5%	0.0%
1,000 - 50,000	13	7.7%	2.2%
50,000 - 100,000	7	4.1%	3.8%
100,000 - 200,000	14	8.3%	15.1%
200,000 - 500,000	14	8.3%	28.9%
500,000 - 1,000,000	0	0.0%	0.0%
> 1,000,000	0	0.0%	0.0%
Total	169	100.0%	50.0%
Total>0	59	34.9%	50.0%

*The amount of whiting that would be distributed under equal sharing is relatively small. See Section A-2.1.3.a (about 7 percent of the shoreside whiting allocation and 2 percent of the mothership sector whiting allocation.)

Table A-29. Estimated ex-vessel value of mothership whiting per permit, based on QP issued for permit landing history (does not take into account net profits or expected future revenue that would be reflected in QS value) (total annual ex-vessel value associated witH QP is assumed to be $6.9 million).

Ex-vessel Value Per Permit	# Permits	% of Permits	% of QP Ex-vessel Value
100% Allocation to Permits, No Equal Sharing of Buyback History			
0	137	81.1%	0.0%
1-1,000	0	0.0%	0.0%
1,000 - 50,000	4	2.4%	1.1%
50,000 - 100,000	6	3.6%	6.6%
100,000 - 200,000	6	3.6%	14.2%
200,000 - 500,000	15	8.9%	67.9%
500,000 - 1,000,000	1	0.6%	10.2%
> 1,000,000	0	0.0%	0.0%
Total	169	100.0%	100.0%
Total>0	32	18.9%	100.0%
50% Allocation to Permits, No Equal Sharing of Buyback History			
0	137	81.1%	0.0%
1-1,000	0	0.0%	0.0%
1,000 - 50,000	10	5.9%	3.9%
50,000 - 100,000	6	3.6%	7.1%
100,000 - 200,000	15	8.9%	33.9%
200,000 - 500,000	1	0.6%	5.1%
500,000 - 1,000,000	0	0.0%	0.0%
> 1,000,000	0	0.0%	0.0%
Total	169	100.0%	50.0%
Total>0	32	18.9%	50.0%

SUMMARY

- LEPs are highly specific assets, the value of which is likely to decline substantially with the implementation of an IFQ program.
- Owners of permits without much history may experience a decline in the value of their permits that is not fully offset by the value of the QS they receive.
- At most, 65 percent of the permits have changed ownership since the implementation of the program. The remainder of the permits continues to be owned by entities that received them at little cost as part of an initial grant.

♦ *Harvest Sector Vessels*

We will focus on vessels as the main unit around which the harvesting operation is organized. The permit owner and the vessel owner are believed to be the same about 87 percent of the time (based on a matching of permit owner and vessel owner addresses).

Table A-30. Indications of vessels leasing permits.

	Name of Vessel Owner and Permit Holder	Address of Vessel Owner and Permit Holder
Same	136 Permits (76%)	155 Permits (87%)
Different	42 Permits (0.24%)	23 Permits (0.13%)
Total	178 Permits*	178 Permits*

* When the initial data sets were drawn, there were 179 permits (including 10 catcher-processor permits). More recently, one permit has been combined with another. This table was developed from a more recent data draw.

Anecdotal information indicates that, in some cases where a vessel owner and permit owner information do not match, the permit is being purchased by the vessel owner, and transfer is scheduled to be completed when the final payment is made.

COMPETITIVENESS

Negotiations with Processors. In the sections of Appendix E on market power (summarized starting on page A-49),we focused on the harvesting sector's interactions with processors in the raw fish market. There we found the following indicators:

- Harvesters are in a weaker position than processors to exert market power under status quo.
- Access to capital may be more expensive for harvesters than processors because of the smaller size of their businesses and most of their primary assets have fewer alternative uses.
- There are more mechanisms through which harvesters may gain efficiency under an IFQ program than processors (over the long-term, both sectors will rationalize).
- If harvesters receive all the QS at the time of initial allocation, their bargaining position will be significantly strengthened; competition among harvesters initially will be isolated to the QS/QP market (processors may acquire QS over time), and there will be incentive for harvesters to cooperate in the raw fish market. Bargaining power is important to the degree that prices are influenced by negotiations rather than going market prices.[25] [26]
- See Table A-16 for a list of indicators of factors affecting the flow of QS among groups independent of the initial allocation).

Specifically, as the allocation of QS to processors increases as follows:

- The capital infusion to harvesters decreases.
- The exit barriers increase lengthening the IFQ program transition period.
- Harvester competition in the raw fish market will increase reducing their bargaining power.
- The cost of harvester access to capital would increase.
- The likelihood of harvester bankruptcies would increase.

The initial capital infusion may have a long-term effect on the distribution of wealth in the industry.

Competition within the Sector. Those vessels that have the advantage of receiving QS as part of the initial allocation will be better able than new entrants to compete in the raw fish market for the opportunity to deliver on processor held QP. As the amount allocated to processors increases, that advantage will be diminished due to the reduction in the initial allocation of QS going to vessels. If the QS control limits had been set lower than they were under the FPA and if there were a grandfather clause, the vessels qualifying for larger amounts of QS would have had an ongoing advantage over those receiving less than the control limits (the advantage of operating at a scale larger than allowed for those not grandfather in at levels above the control limits). An increase in the amount allocated to processors would have reduced this differential in the advantage for those receiving the most QS, by reducing the amount by which their initial allocation was in excess of control limits. Information on

[25] If there are enough participants acting independently on both sides of a local market then the sellers and buyers will tend to be price takers, and whoever holds the QS will receive the profits related to resource rents.

[26] Under the FPA, there is no grandfather clause, and QS control limits are generally set well above initial allocation levels. If there had been a grandfather clause and control limits were lower, providing processors with an initial allocation would have resulted in lower grandfathering levels for those individual harvesters that would have received QS in excess of accumulation limits. They would not be able to achieve the same harvest scale that they would have with a 100 percent allocation to harvesters.

amounts that will be allocated to permits, relative to accumulation limits, and under different permit/processor splits is provided in Section A-2.2.3.e on accumulation limits. If there were a grandfather clause, over time, as the grandfather clause expires, holdings of the largest QS owners would diminish to within control limits. There may be some advantage for those receiving QS in excess of control limits, but that advantage will not extend beyond year four, by which time divestiture is required.

INVESTMENT DEPENDENCE AND DISRUPTION

Dependence on the groundfish trawl fishery is a function of the degree of investment in the fishery and ability to employ the assets representing those investments in activities outside the groundfish trawl fishery. This is described more fully in the corresponding section above on processors (page A-62). The situation for vessels, vis-à-vis QS holders, is similar to the situation of processors, i.e., to the degree that there is overcapitalization and price competition, vessel owners will likely give up some (not all) of their return on capital by way of accepting lower prices for raw fish or paying more for QP (until the point is reached at which there is no longer surplus capacity in the fishery). If, over the short term (until excess capital is dissipated), harvesters give up returns on capital to QP holders, it is not expected that the amount given up will be substantially greater under IFQs than what is given up or dissipated under status quo.

As with processors, the effect of the imposition of the IFQ program on returns to capital for vessel owners will depend on the degree to which those returns are already being given up or dissipated under status quo and the cost structure and debt positions of all firms in the sector. However, the new flexibility provided by the IFQ program may afford harvesters with more opportunity/necessity than processors to modify their operations rapidly, decreasing their total and average costs, particularly as compared to nonwhiting processors. If excess capacity leaves the harvesting sector more rapidly (the sector becomes rationalized), the period over which returns on investment are dissipated in bidding for QS could be shorter than that for processors. The illustrations provided above for processors (Figure A-5 and Figure A-6) can also be applied to harvesting operations in the nonwhiting and whiting fishery. The difference is that rather than bidding up the price of raw fish, the harvesters will increase their costs by bidding up the price of a different key input, the QP. A similar dynamic will ensue in which there will be opportunities for harvesters to reduce costs under an IFQ program as compared to status quo management, and relative cost structures and debt positions will determine how much of the potential profits are bid away to QP owners. The process by which vessels increase their economic efficiency as QS is consolidated and transferred from less efficient to more efficient producers. The process by which less efficient vessels leave the fishery is described in Section 4.6.2.1.

Harvesters must acquire QS or QP in order to harvest. The more of the QS that is given to harvesters as part of the initial allocation, the less they will continue to dissipate their returns on investment in bidding for a market for their raw fish or for QS/QP.

If 100 percent of the QS is given to permit holders, the need for harvesters to give up returns on capital in order to bid more for QS would depend on how the initial allocation matches up with their existing and optimal production levels. As the amount given to processors increases a harvester's need to acquire QS (or access to QP) in order to continue its operations increases.[27] The top half of Figure A-7 provides a scattergram showing how entities fare under the FPA as compared to the PPA. The left-hand side of the figure shows results for entities that only harvest (hold permits) and the right-hand side shows results for entities that process, some of which also hold permits. From this figure, it can be seen that, despite less total QS going to harvesters under the PPA, most harvesters (63) may have fared slightly

[27] Processors do not need QS in order to maintain their existing operations.

better with the PPA than under the FPA (58 fared better under the FPA). The reason for this is likely the effect of the grandfather clause provision, and this result may be somewhat misleading. First, the reason the PPA appears to perform better for many individual entities is that the initial allocations to any one entity are capped at 1.5 percent[28] of the nonwhiting QS. Looking along the horizontal axis, it can be seen that a number of entities are expected to receive well more than 1.5 percent of the QS (one at about 7 percent and several at between 1.5 and 2.5 percent). The amount of QS that these entities would not receive because of the assumed accumulation limit approaches 10 percent, and that amount has been redistributed to permit holders with initial allocations below the limits. Additionally, a number of other permit holders while not restricted by the aggregate limits were restricted by the individual species limits. Under the PPA, their allocations are reduced and redistributed to those who are under the control limits. Thus, for many, the increase in the amount of the initial allocation going to harvesters under the FPA is not enough to offset what they might have expected to gain under the PPA, which has no grandfather clause and no opportunity to divest.[29] These results may be misleading because there is a high likelihood that those entities expecting to exceed the control limits because of their ownership of multiple permits would divest themselves of some of their permits prior to the initial allocation in order to capitalize on the value of the QS represented by those permits prior to the time the QS is actually issued. Therefore, many of those who appear to gain under the PPA would not gain nearly as much, or might have a worse outcome under the PPA. The bottom half of Figure A-7 compares the revenue that permits might expect from their initial allocation of QS under the FPA to their recent revenue (2004 to 2006 average). Figure A-8 provides a similar comparison for the PPA. Figure A-9 through Figure A-14 compare the Council's PPA to other allocation formulas, varying various central elements.

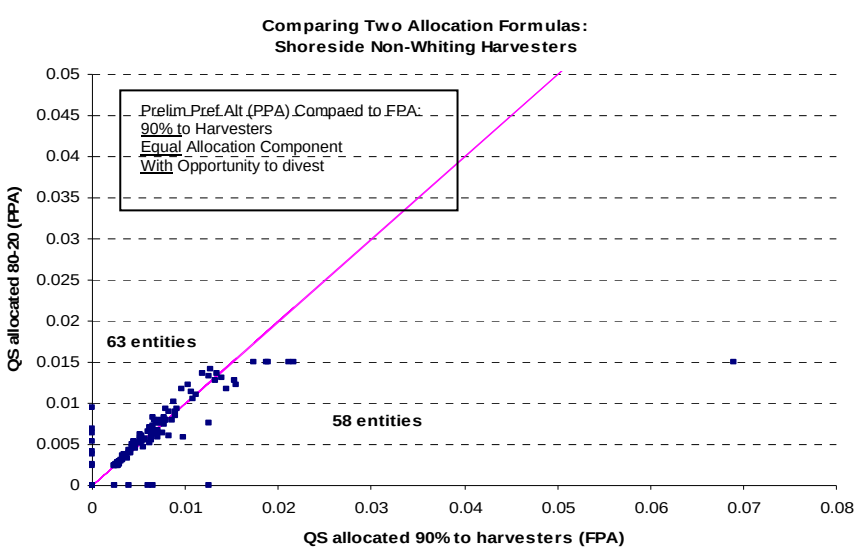
With respect to shoreside whiting, the PPA and FPA are virtually identical because both allocate 80 percent to harvesters and 20 percent to processors. The QS control limits are not constraining, so the presence or absence of a grandfather clause does not have an impact on the initial distribution (Figure A-16). The largest producing harvesters would receive the most with a 100 percent allocation to harvesters and no equal sharing. A comparison of this option to the PPA is provided in Figure A-17. Under the FPA, 25 harvesters would receive less QS than they need to achieve their recent average (Figure A-16) as compared to 21 entities that would receive less under a 100 percent allocation to harvesters (Figure A-17).

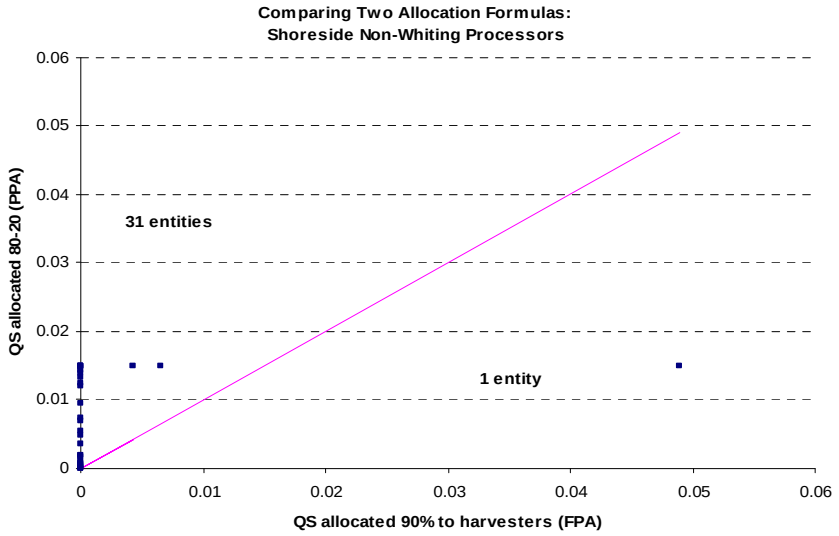
Additional comparisons are provided in Figure A-18 and Figure A-19. Figure A-18 compares the PPA to an allocation formula with 50/50 split between harvesters and processors. Figure A-19 compares the PPA to an allocation formula with no equal sharing. Both alternative allocation formulas also include a grandfather clause; however, because the QS control limit is not limiting for whiting, the presence or absence of the grandfather clause does not affect the results.

Similar information is provided for the mothership whiting fishery in Figure A-20 and Figure A-21. Under the FPA, the mothership sector would be managed with co-ops rather than IFQs.

[28] The 1.5 percent aggregate control limit was the most restrictive of the options considered by the Council and was selected for the analysis to illustrate the maximum effect of the grandfather clause provision.

[29] The FPA also does not have a grandfather clause, but, under the FPA, those over the control limits are allowed to receive their initial allocation and then sell it to others.





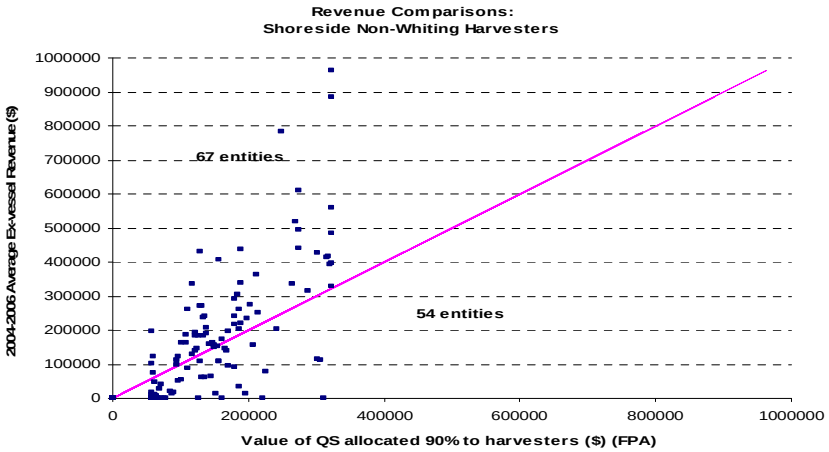


Figure A-7. QS allocations for FPA (90 percent initial allocation of QS to harvesters, 10 percent to adaptive management, with equal allocation of buyback shares, and with opportunity to divest) (QS amounts are entire initial allocation) compared to QS allocations for PPA (80 percent of initial allocation for harvesters, 20 percent for processors, with equal allocation of buyback shares and no grandfather clause) and converted to ex-vessel revenue and compared to average 2004 to 2006 ex-vessel revenue of landings for each entity (bottom)—entities that only harvest (left) and those that process (right)—any QS for processor-held permits is on the right.

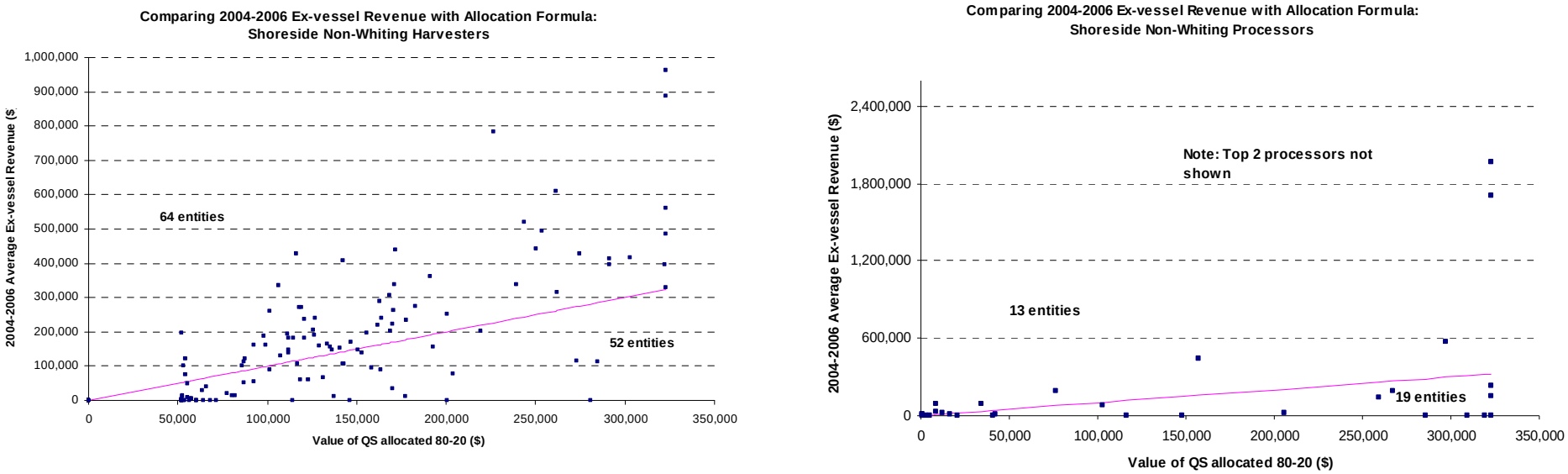


Figure A-8. Annual ex-vessel value estimated for QSs allocated to entities that only harvester (left) and those that process (right) in the shoreside nonwhiting sector under the PPA allocation formula (PPA: 80 percent harvester – 20 percent processor initial allocation of QSs, equal allocation of buyback shares, and no grandfathering for initial allocations over the accumulation limits) compared to average 2004 to 2006 ex-vessel revenue of landings for each entity.

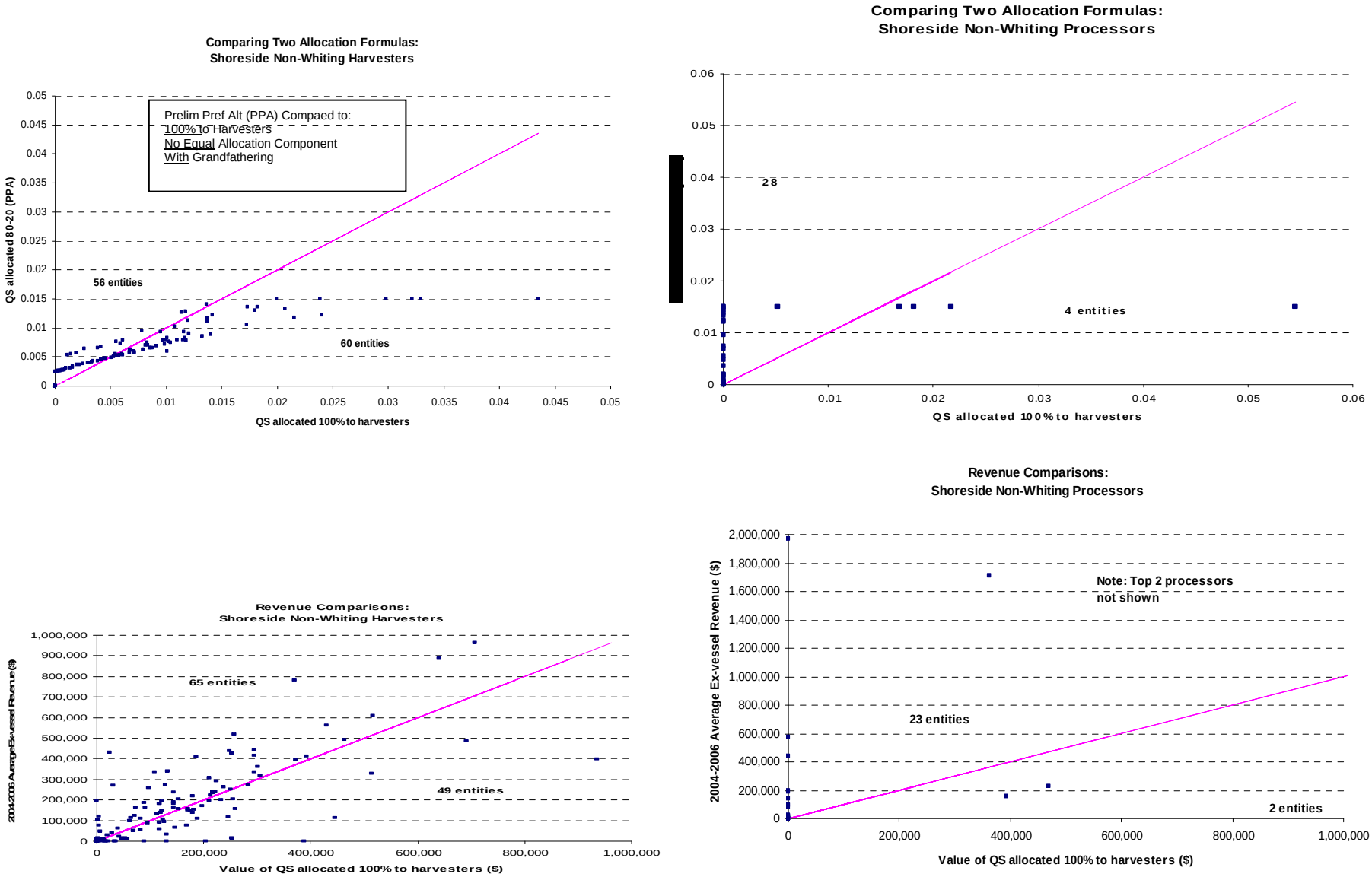
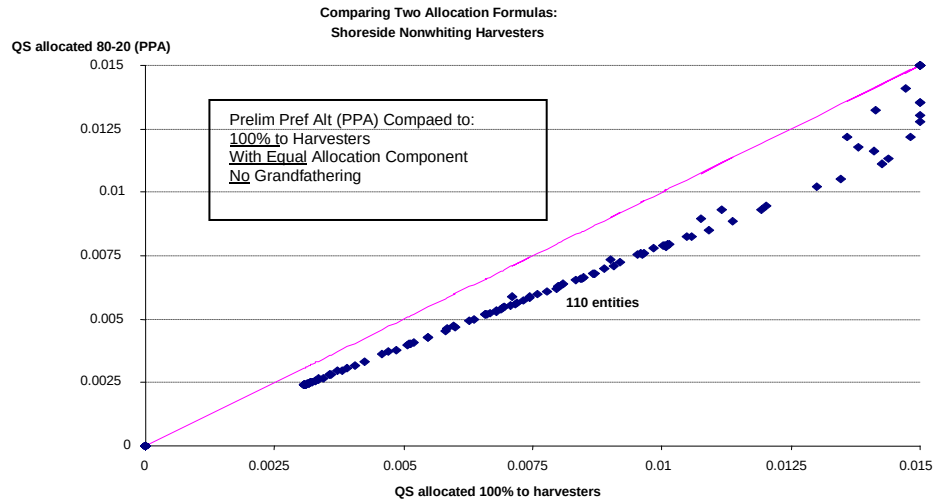
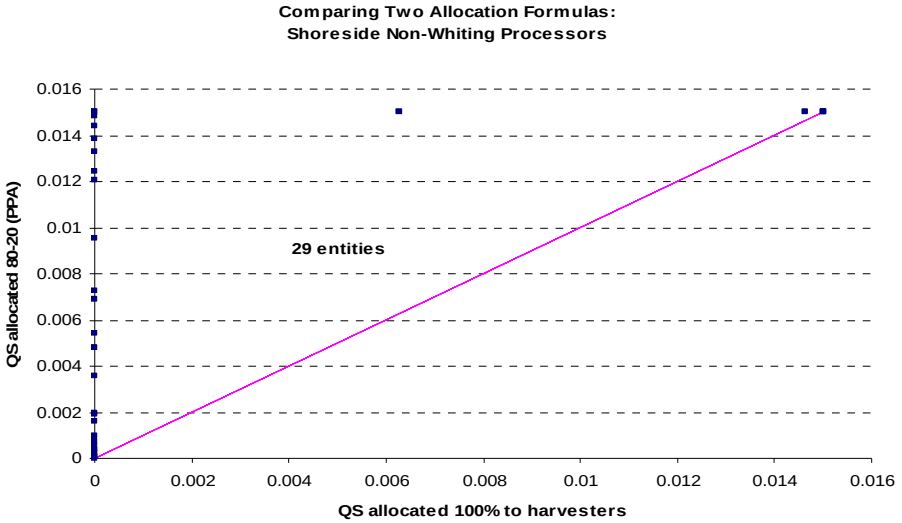
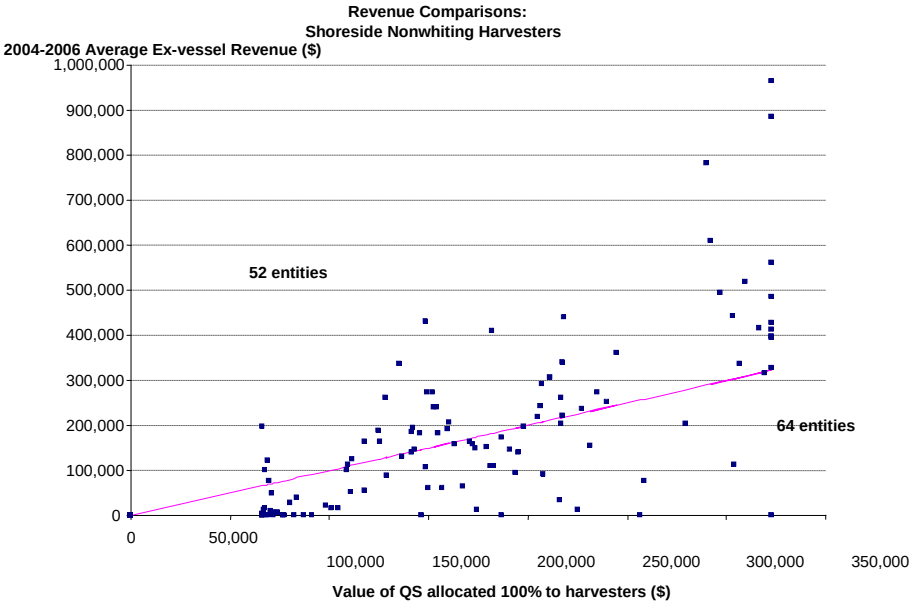


Figure A-9. QS allocations for formula with 100 percent initial allocation of QSs to harvesters, no equal allocation of buyback shares, and with a grandfather clause for QS allocations over the accumulation limits compared to QS allocations for PPA (top) and converted to ex-vessel revenue and compared to average 2004 to 2006 ex-vessel revenue of landings for each entity (bottom)—entities that only harvest (left) and those that process (right)—any QS for processor-held permits is on the right.







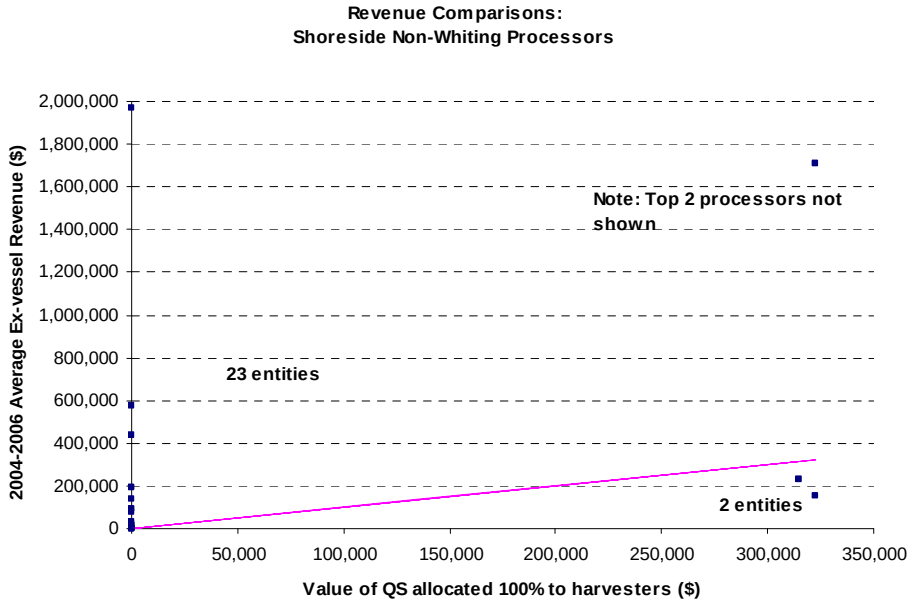


Figure A-10. QS allocations for formula with 100 percent initial allocation of QSs to harvesters, equal allocation of buyback shares, and no grandfather clause for initial allocations over the accumulation limits compared to QS allocations for PPA (top) and converted to ex-vessel revenue and compared to average 2004 to 2006 ex-vessel revenue of landings for each entity (bottom)—entities that only harvest (left) and those that process (right)—any QS for processor-held permits is on the right.

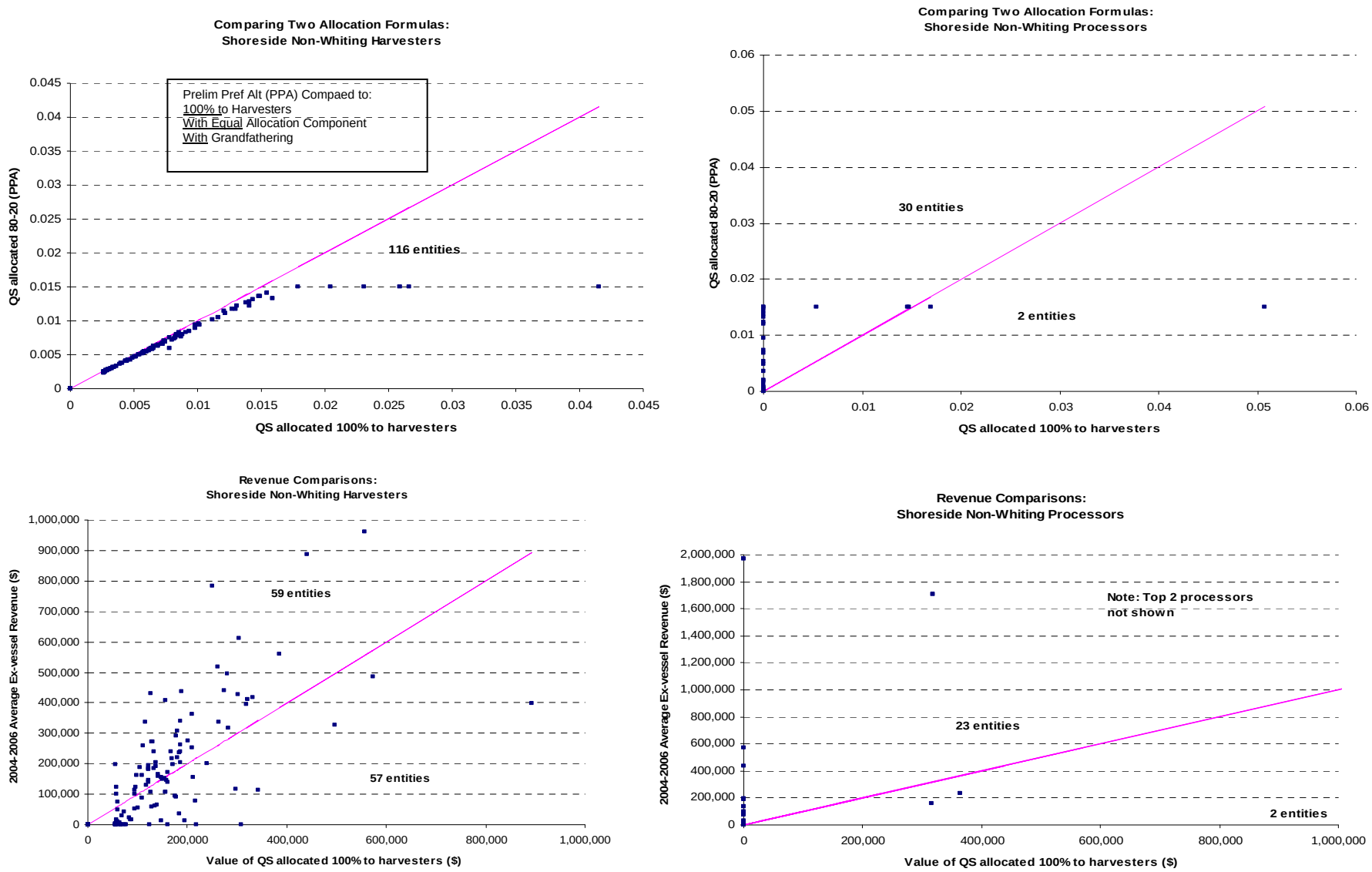


Figure A-11. QS allocations for formula with 100 percent initial allocation of QSs to harvesters, equal allocation of buyback shares, and a grandfather clause for initial allocations over the accumulation limits compared to QS allocations for PPA (top) and converted to ex-vessel revenue and compared to average 2004 to 2006 ex-vessel revenue of landings for each entity (bottom)—entities that only harvest (left) and those that process (right)—any QS for processor-held permits is on the right.

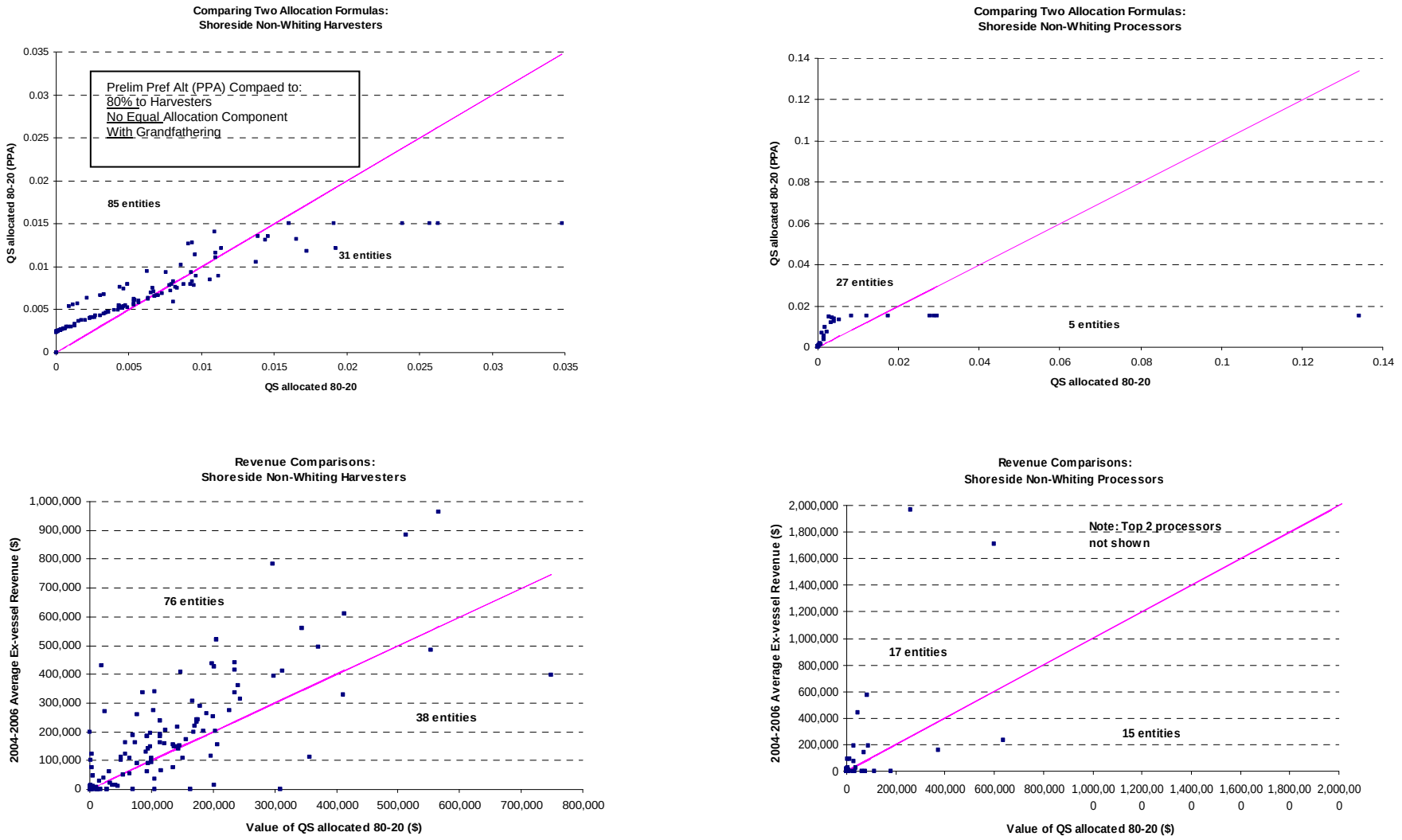
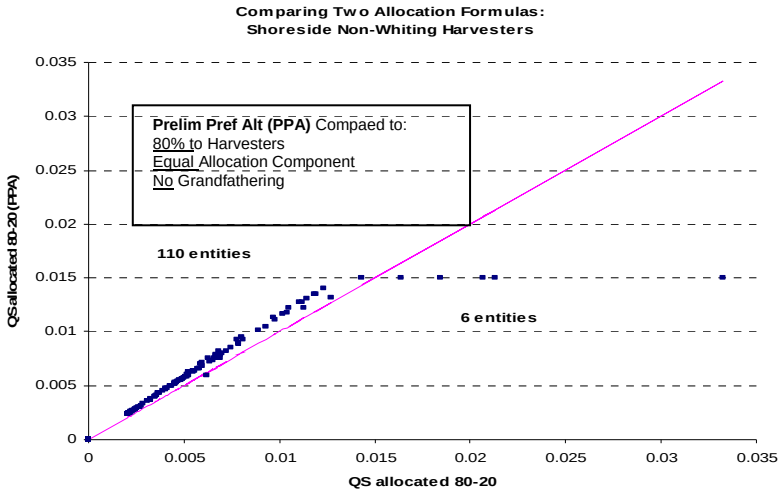
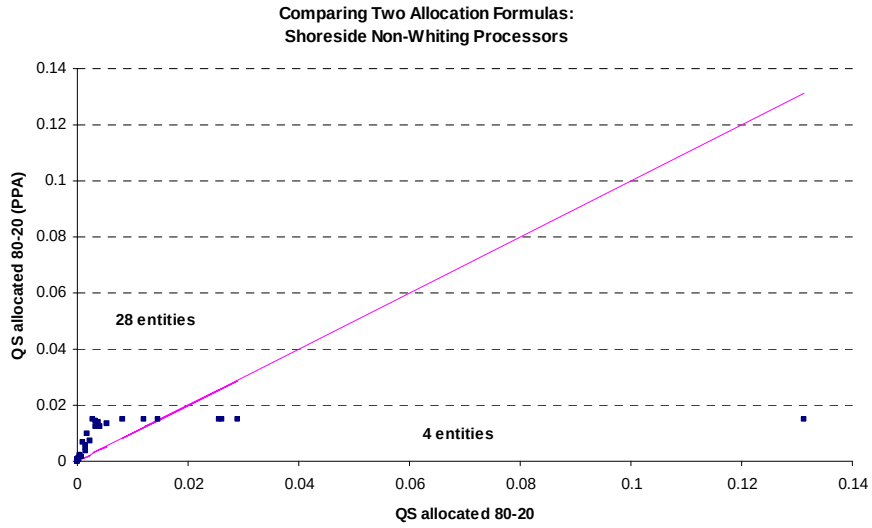
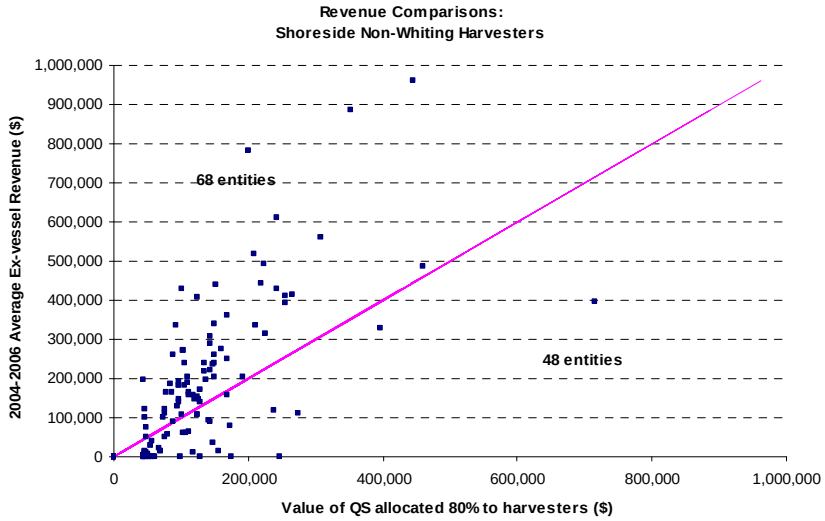


Figure A-12. QS allocations for formula with an 80 percent initial allocation of QSs to harvesters, no equal allocation of buyback shares, and with a grandfather clause for initial allocations over the accumulation limits compared to QS allocations for PPA (top) and converted to ex-vessel revenue and compared to average 2004 to 2006 ex-vessel revenue of landings for each entity (bottom)—entities that only harvest (left) and those that process (right)—any QS for processor-held permits is on the right.







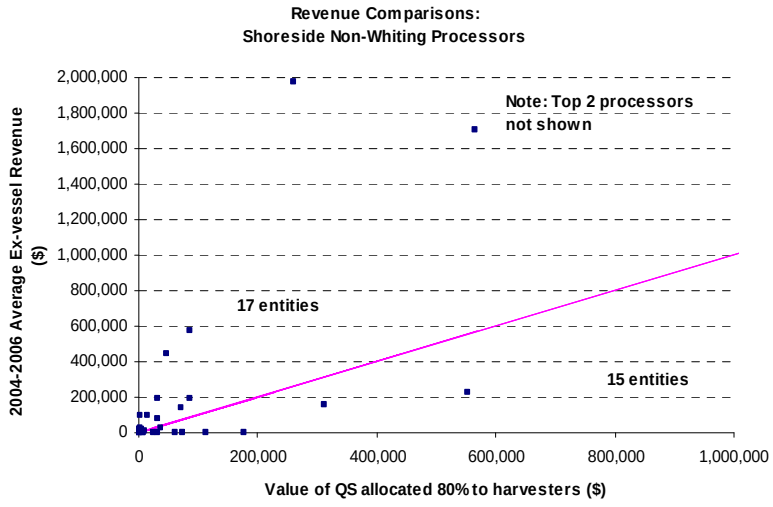
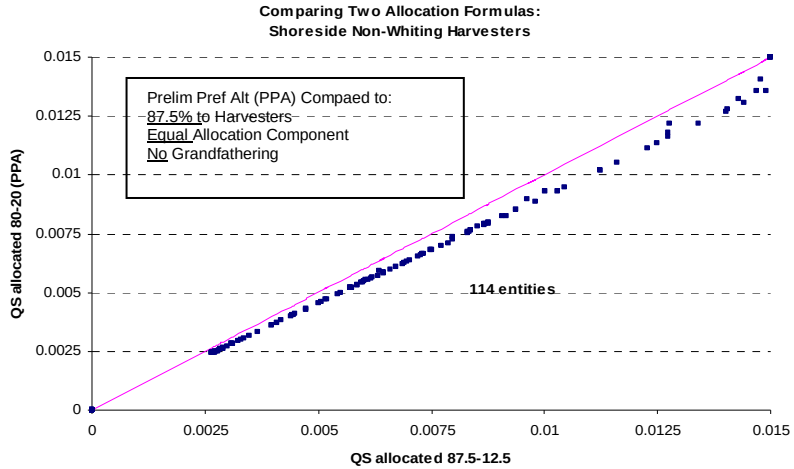


Figure A-13. QS allocations for formula with an 80 percent initial allocation of QSs to harvesters, equal allocation of buyback shares, and with a grandfather clause for initial allocations over the accumulation limits compared to QS allocations for PPA (top) and converted to ex-vessel revenue and compared to average 2004 to 2006 ex-vessel revenue of landings for each entity (bottom)—entities that only harvest (left) and those that process (right)—any QS for processor-held permits is on the right.



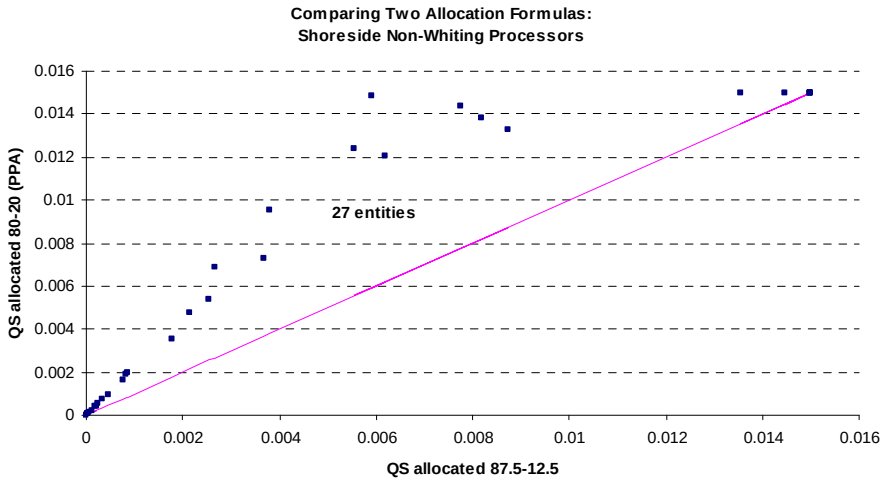
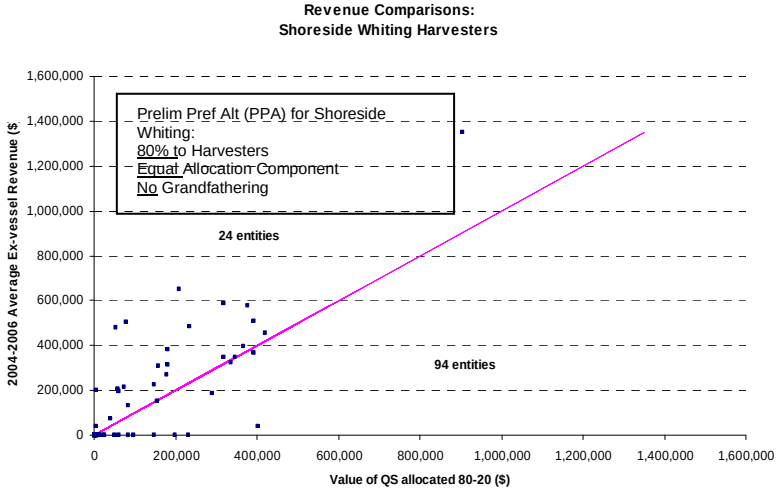


Figure A-14. QS allocations for formula an 87.5 percent initial allocation of QSs to harvesters, equal allocation of buyback shares, and no grandfather clause for initial allocations over the accumulation limits compared to the PPA.



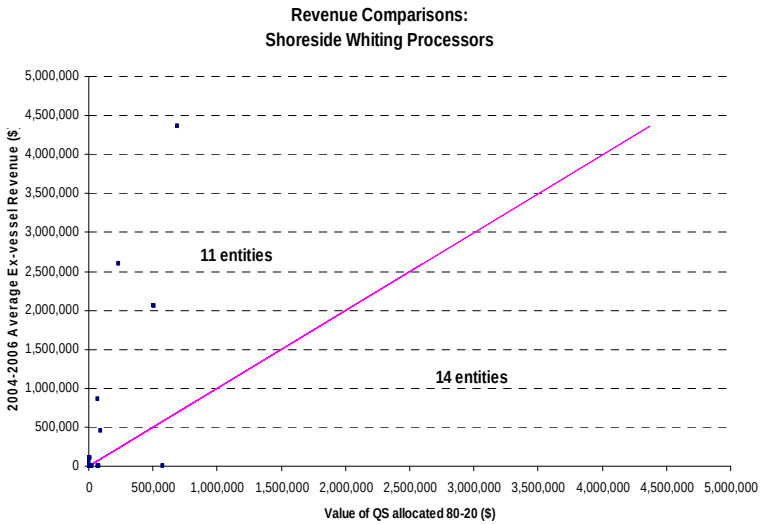
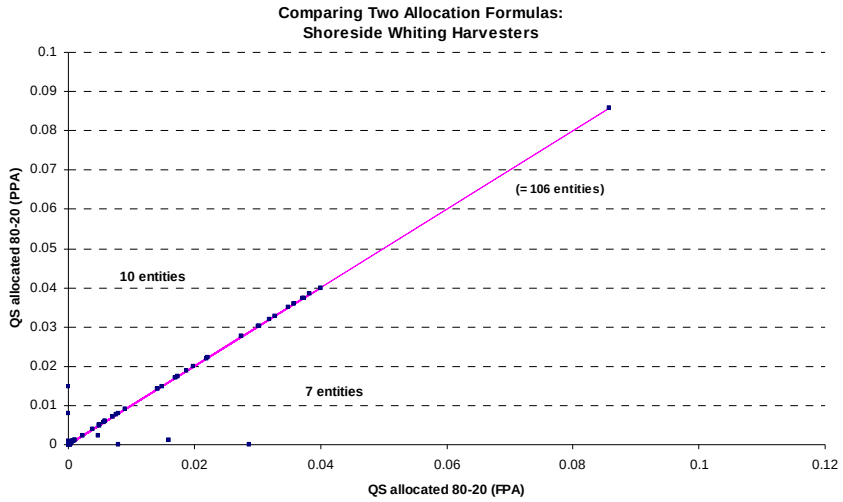
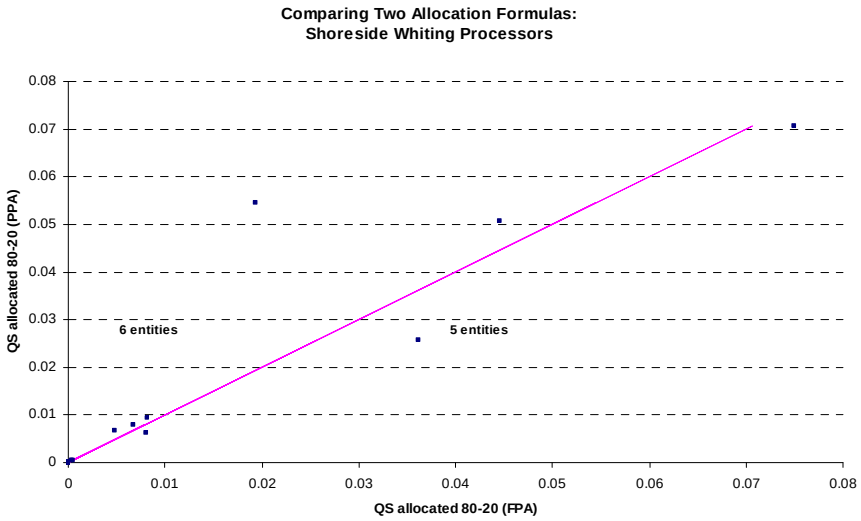
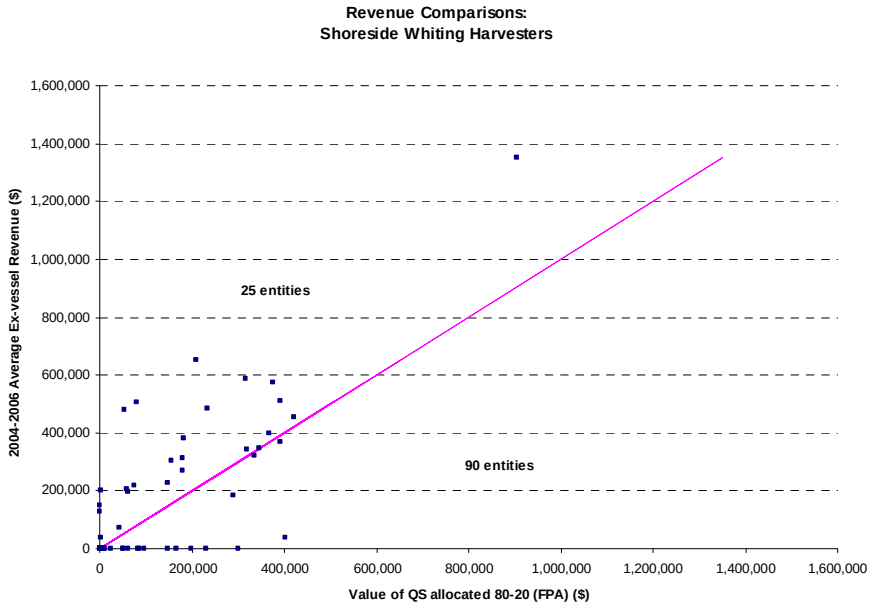


Figure A-15. For whiting, the annual ex-vessel value of QSs allocated to entities that only harvester (right) and entities that processors (left) in the shoreside whiting fishery under the PPA allocation formula (PPA: 80 percent harvester – 20 percent processor initial allocation of QSs, equal allocation of buyback shares, and no grandfathering for initial allocations over the accumulation limits) compared to average 2004 to 2006 ex-vessel revenue of landings for each entity.







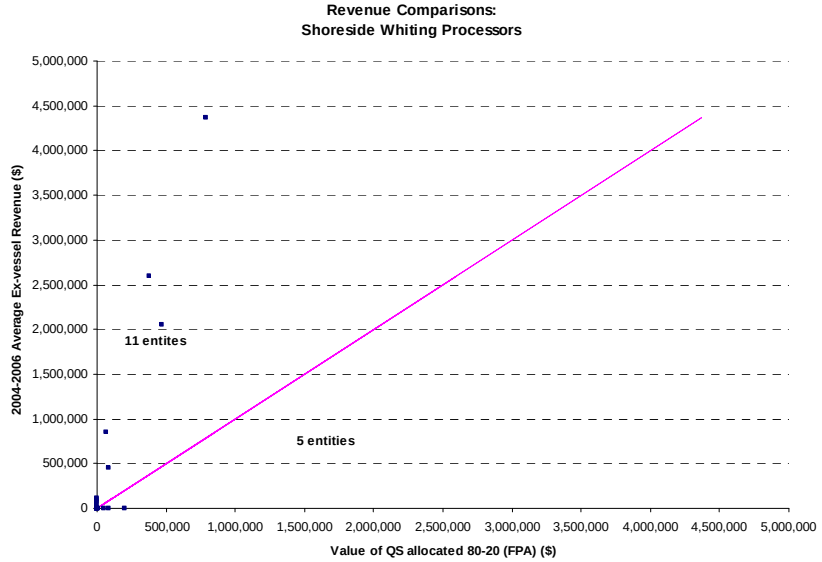
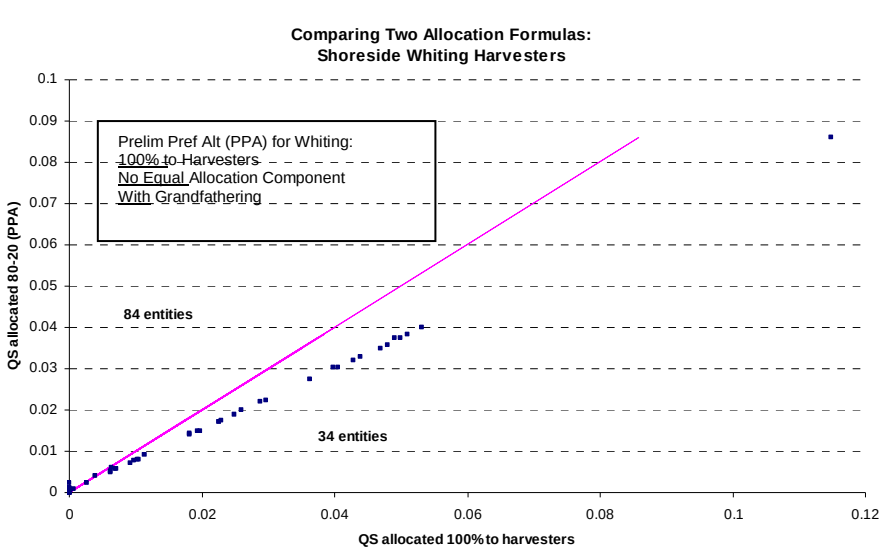
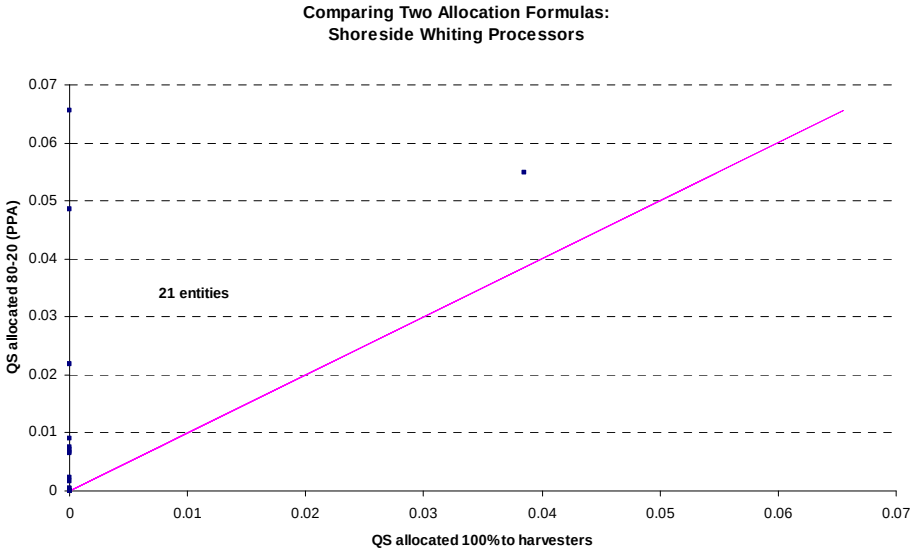
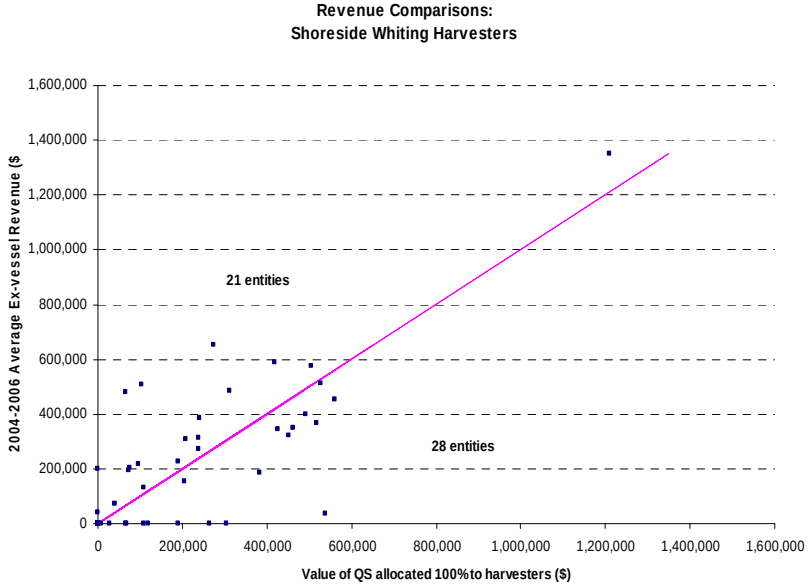


Figure A-16. For shoreside whiting, comparison of the FPA to the PPA, and converted to ex-vessel revenue and compared to average 2004 to 2006 ex-vessel revenue of landings for each entity (bottom)—entities that only harvest (left) and those that process (right)—any QS for processor-held permits is on the right.







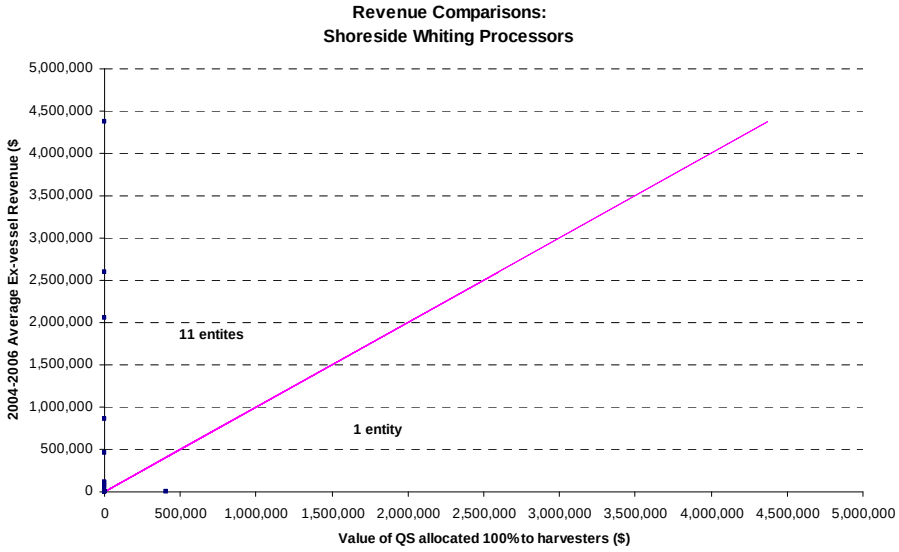


Figure A-17. For shoreside whiting, comparison of the PPA allocation formula to one with 100 percent initial allocation of QSs to harvesters, no equal allocation of buyback shares, and with a grandfather clause for initial allocations over the accumulation limits.

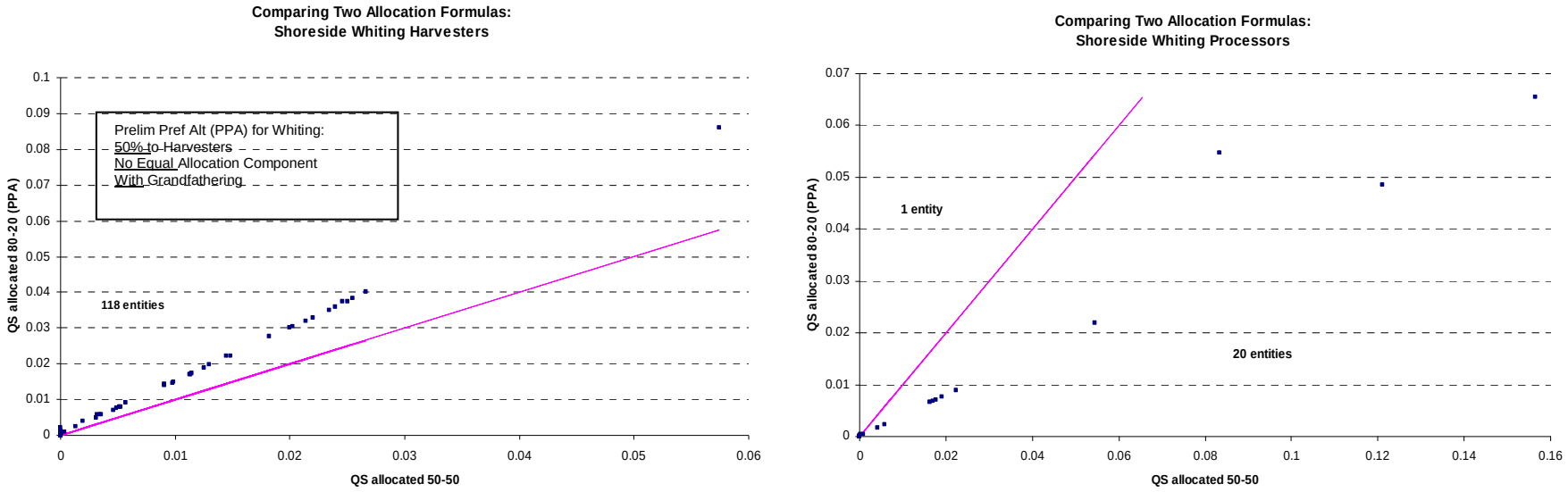


Figure A-18. For shoreside whiting, comparison of the PPA allocation formula to one with 50 percent initial allocation of QSs to harvesters, 50 percent initial allocation of QSs to processors, equal allocation of buyback shares, and with a grandfather clause for initial allocations over the accumulation limits.

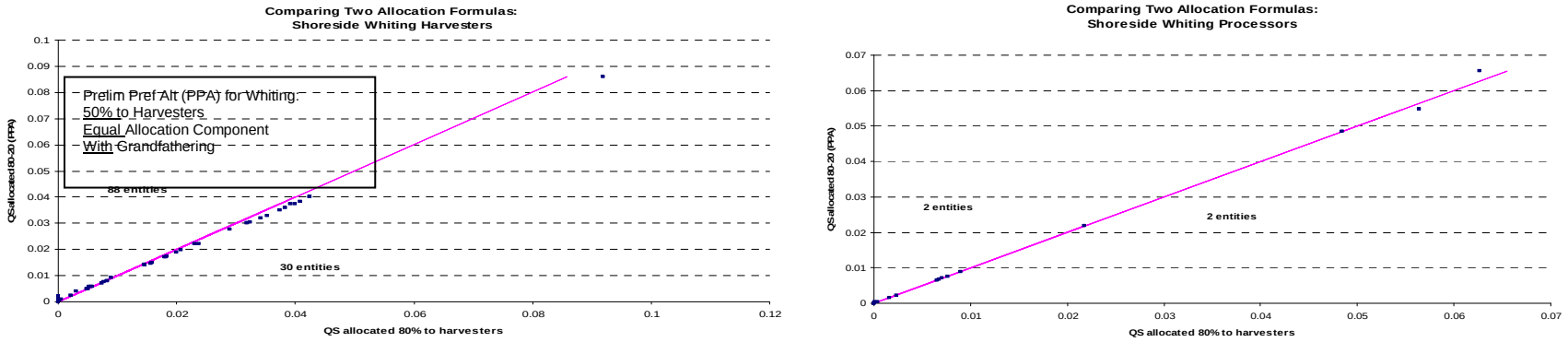


Figure A-19. For shoreside whiting, comparison of the PPA allocation formula to one with an 80 percent initial allocation of QSs to harvesters, no equal allocation of buyback shares, and with a grandfather clause for initial allocations over the accumulation limits.

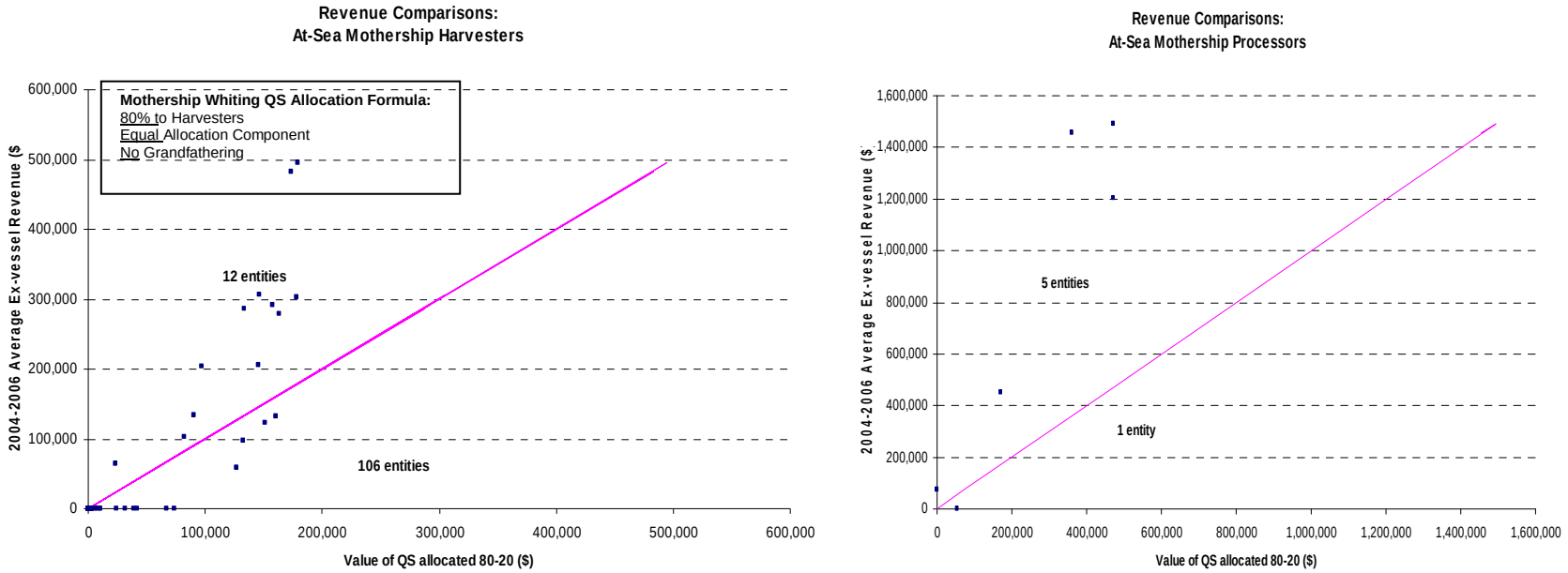


Figure A-20. For mothership sector whiting, the annual ex-vessel value of QSs allocated to harvesters and processors in the at sea mothership whiting fishery (under an allocation formula using 80 percent harvester – 20 percent processor initial allocation of QSs, equal allocation of buyback shares, and no grandfathering for initial allocations over the accumulation limits) compared to average 2004 to 2006 ex-vessel revenue of landings for each entity.

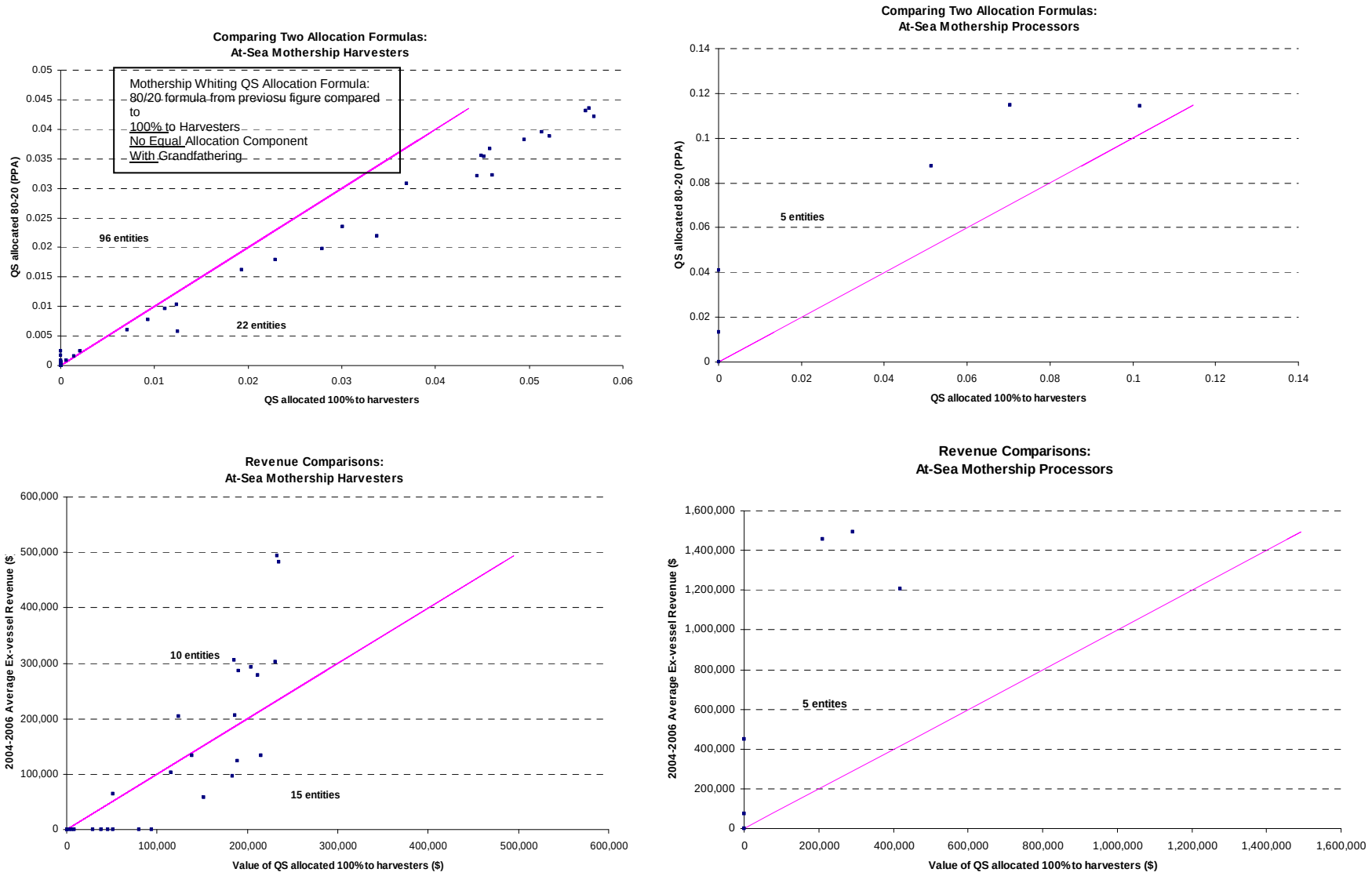


Figure A-21. For mothership sector whiting, comparison of the PPA allocation formula to one with a 100 percent initial allocation of QSs to harvesters, no equal allocation of buyback shares, and with a grandfather clause for initial allocations over the accumulation limits.

Vessel owners that are not permit owners (i.e., do not receive an initial allocation of QS) will be in a particularly difficult position with respect acquiring QS in terms of both their need and their ability to borrow money for QS acquisition. However, they will essentially be in the same position as a new entrant (Francis, *et al.* 2007) (except they will have already made substantial capital investments and have some expertise in the fishery). For harvesters already under some financial stress (in particular those which do not have much equity in their capital assets), the need to acquire QS or access to QP, combined with limited assets to provide as collateral for QS purchase will put them at a greater risk for bankruptcy or exiting the fishery, as compared to a processor in a similar financial situation that does not receive QS. Harvesters leaving the fishery are part of the rationalization process. To the degree that harvesters do not receive the QS they need for their operations, firms may leave the fishery more rapidly when the program is first implemented.

a. The relative position of harvesters receiving QS compared to those not receiving an initial allocation will be affected by the price of QS and whether or not the firm has recovered its previous capital investments or is still making payments (Table A-30). When the fishery is fully rationalized the price of the QS will represent the profits associated with resource rent. When it is overcapitalized, the price of the QS may also include some profits that would otherwise have gone to returns for capital investments. A firm may receive the QS free as part of an initial allocation, may be able to purchase QS at a price that represents the rent to the resource, or may have to pay a higher QS price (one that represents rent to the resource and some additional amount associated with the degree of overcapitalization in the fishery). Each of these situations are represented in the rows of Table A-30. The firm may come into this situation from one of two positions with respect to its capital investment, either at a time when it has fully recovered the cost of the capital investment (having repaid any loans taken to make the investment) or at a time when it is still making payments on the original investment (the columns of Table A-30). A firm that has existing debt and has to acquire QS (or access to QP) before the fishery is completely rationalized, may find it difficult to remain in the fishery (lower right hand cell of Table A-30).

Table A-31. Effect of the IFQ program on a firm's economic status with respect to capital investment, depending on QS price (rows) and whether or not it is still making payments on existing capital investments (columns).

	Status the Firm's of Capital Investment	
Cost of IFQs	**Recovered Capital Investment (Little Outstanding Debt)**	**Still Paying for Capital Investment (Outstanding Debt)**
Endowment Received at Minimal Cost, as Part of Initial Allocation	Excellent position for growth and competition. Endowment plus cash flow associated with already paid for capital and greater efficiency.	Increased ability to pay for capital with better efficiency under IFQs.
Purchase: QS Price Represents Resource Rent	Should be able to recover QS cost through profits, plus have some additional cash flow associated with already paid for capital.	Should be able to recover QS cost through profits.
Purchase: QS Price Represents Resource Rents and Some Profits That Would Otherwise Go to Returns to Capital Investment	Should be able to recover QS cost through profits and some of the cash flow associated with already paid for capital.	May have to exit fishery if the increase profits are not enough to compensate for the cost of the QS and make payments on capital investment.

In the section below on Current and Historic Harvests (page A-98), the effect of an allocation of QS to processors on existing permit-processor associations (based on 2004 to 2006 patterns) is evaluated. In that section, it shows that, assuming these associations would otherwise remain stable, an allocation of

QS to processors would increase disruption to these associations, in part because some processors would receive allocations that did not receive trawl landings from 2004 to 2006.

SUMMARY

Greater amounts of QS given to harvesters as part of the initial allocation will achieve the following:

- Strengthen their bargaining position compared to processors in the raw fish market (to the degree that prices are influenced by negotiations rather than "going" market prices).
- Provide more harvesters with amounts of QS that provide at least as much future harvest opportunity as they have taken in recent years.
- Reduce disruption that might result from the immediate departure of firms that receive substantially less than what they need to stay in business and that are unable to finance additional purchases.
- Result in lower exit barriers by providing compensation for capital losses by those who seek to leave the fishery.
- Decrease borrowing costs by providing harvesters security of an asset that can be used to demonstrate that they have a viable business model when seeking financing for further capital investment (there are indicators under status quo that harvesters are in a weaker position than shoreside processors to acquire access to capital).

♦ *Labor—Harvester*

The following summarizes the findings of Section 4.4.2 on the impacts of the IFQ program on crewmembers.

> In the harvesting sector, the number of crew and captain jobs are expected to decline, but more of the jobs are expected to be full time. Additionally, crew shares may decline but that decline may be offset by an overall increase in vessel earnings such that total earnings per remaining crew member increases. The nature of compensation may also change. Traditionally, crewmembers have taken part in the risk and reward of the harvest operations by taking their income as a share of the vessel revenue, and the share earned by a crewmember varies with their skill level. Under IFQs, there is sometimes a change from share-based compensation to wage-based compensation.

An initial allocation of QS to crewmembers would not necessarily prevent a shift from share-based to wage-based compensation, but would provide crewmembers who have some record of participation a more certain opportunity to maintain a larger share of the harvesting profits. This form of compensation would provide them an award in perpetuity (for the duration of the IFQ program or for as long as they decide to hold the QS, regardless of whether they continue to work as a crew member).

As with physical assets, labor also earns a return that will be affected by the creation of an IFQ program. Crewmembers who earn above average shares because of their development of particular skills may lose the advantage of those skills if they are forced to move into another occupation. However, humans are more malleable than physical capital in terms of their ability to take on different tasks.

The main source of new entrants to the fishery is captains and crewmembers. During Council deliberations on the effect of the program on crewmembers, it has been noted that new entry by crewmembers will be facilitated by the liberal eligibility requirements for owning QS (A-2.2.3.a) and the high degree of QS divisibility, which allows crewmembers incrementally to acquire capital and speed their accumulation of wealth. The IFQ program will make it more expensive to enter the fishery, but will provide a more stable industry for new entrants.

The balance of the allocation of QS among harvesters and processors will affect harvester labor through the speed of adjustment required, the geographic distribution of harvest operations, and the distribution of activity among vessels. As described for harvesters, as the allocation to processors increases, the speed of rationalization in the fishery is likely to increase. More rapid rationalization of capital will require a more rapid adjustment by labor. In addition to the duration and timing of jobs, the initial allocation will affect the locations and vessels on which there are opportunities. While over time, QS is expected to flow to ports that are able to support the most efficient complex of harvesting and processing operations,[30] due to transaction costs and other ways in which the economic system does not function in the ideal, the initial distribution will likely affect the short- and long-term geographic distribution of activities (and hence employment opportunities). The more QS that goes to processors, the more the location of harvest/landing activity will be initially directed by factors related to processing operation costs; and the more likely it is that jobs will be on processor owned vessels as opposed to vessels of independent harvesters.

SUMMARY

1. There is some reason to expect that compensation rates for crewmembers will decline. An initial allocation of QS to crewmembers would provide them with an opportunity to maintain a larger share of the vessel profits.
2. As allocation to processors increases, the speed of rationalization in the harvesting sector is likely to increase requiring more rapid adjustment by crewmembers.
3. Geographic distribution is likely to be affected by the initial allocation. The more allocated to processors, the more harvest/landing activities will be initially directed by factors relating to processing operation preferences and the more likely it is that jobs will be on processor-owned vessels as opposed to independent harvesting vessels.

♦ *Labor—Processor*

The main effect of the initial allocation of QS to processors is likely to be the geographic distribution of processing jobs. The types and numbers of jobs may also be affected by the relative size of the processing operations in the industry. The effect on size of processor operations is discussed in the section above on allocation to the processor sector. The effects on labor are discussed in Section 4.12 on processor labor.

● Impact on Net Benefits

The impacts considered in this section are closely related to the overall economic efficiency outcome (i.e., net benefits or social welfare).

We will look the impact of the initial allocation of QS among groups on net benefits as it is affected by the following:

- Price setting in markets
- Transaction costs
- Implementation costs

[30] Taking into account both travel costs to and from the fishing grounds and to distribution centers for wholesale products

♦ *Price Setting in Markets*

In an efficiently functioning market, neither buyers nor sellers are able to influence price because of the existence of competing buyers and sellers. Everyone in the market is a "price taker," accepting the "going" price. Bargaining power is, by definition, limited. Under certain circumstances, such as when there is a limited number of competitors (see Appendix E for additional discussion), the potential for participants in the market to exert market power increases.

If one side or the other in a market is able to influence price away from the market equilibrium, (i.e., exerts market power) there are generally two effects on economic welfare: (1) it redistributes income toward the side of the market with market power and (2) it reduces overall production in the economy (reduces net benefits). Here the concern is net benefits.

The discussion of the effects of the allocation on market power is summarized very generally as follows:

- Under status quo, there are more indicators that processors may be able to exert market power than harvesters.
- The creation of an IFQ program will likely increase to some degree the potential for harvesters to exert market power or resist processor market power independent of the amount of QS they are initially granted, to the degree that the fleet is rationalized and excess capacity removed. However, even with the main trawl fleet rationalized, there may be some excess capacity that remains, to the degree that vessels in nonrationalized fisheries can be adapted to participation in the groundfish trawl fishery. This opportunity to adapt capacity from other fisheries could adversely affect the fleet's ability to exert market power or resist processor market power.
- If market power, as defined here, exists under status quo, whoever receives an initial allocation of QS is likely to be in a better position to exert market power and accumulate additional QS, unless the creation of the IFQ program changes the system enough that all entities become price takers, for the most part accept the going price.

The IFQ program could potentially break down some of the local market isolation that may currently be limiting the number of effective participants in the market and providing them opportunity to exert market power. It could also both encourage consolidation among processors and encourage or discourage the entrance of new processors with an uncertain net effect on price competition among processors. Local market isolation and other factors that may change the nature of price setting as compared to status quo are discussed in Appendix E. If the markets change such that there are many more players on each side, everyone will become price takers and holding QS will not enhance one's negotiating power.

However, even if the IFQ program and initial allocation allows an entity to exert market power, the effect on net benefits is less clear than under standard economic theory. Under standard economic theory when there are a limited number or buyers or sellers, the exertion of market power can lead to a reduction in total production, reducing net benefits. [31] [32]However, in fisheries production, market power is constrained by government regulation of a key input (the amount of fish caught). Based on current production levels and demand, and the fact that the only costs for a QS holder to produce QP (release QP onto the market additional QP) are transaction costs, it does not appear likely that total annual production will be diminished, even if one side or the other is able to control market prices that total annual production will be diminished. Therefore, market inefficiencies related to reduced production would not be expected. Given that it is not likely that production will be affected by the exertion of monopolistic/monopsonistic (single seller/buyer) power or oligopolistic/oligopsonistic (very limited number of sellers/buyers) power, any market power established as one outcome of the IFQ program or initial allocation will affect the distribution of total net benefits rather than the amount of total net benefits.

♦ *Transaction Costs*

In order for QS to be used, the QP issued to the QS holders will have to be transferred to a vessel account. Transaction costs are those costs associated with the search for an input, the bidding and negotiation process, monitoring performance on the transaction contract, and transaction contract enforcement. The greater the distance in ownership between the QS holder and the vessel, and the more dispersed the ownership of the QS, the greater will be the transaction costs. The entity most certainly connected with the vessel is the vessel owner. Allocations to vessel owners are not being considered. The next entity that is most probably linked to the ownership of a particular vessel is the permit owner (about 87 percent of the permits appear to be owned by the vessel owner). Crewmembers are also associated with vessels but are probably more mobile between vessels and there are more crewmembers than vessels. Therefore, an allocation to crewmembers would involve the negotiation of more transactions and greater transactions costs than an allocation to vessels. Processors also have close connections to vessels (7 percent of permits, or 17 permits in total, are owned by processors). An allocation to processors would require fewer transactions, and would likely result in lower total transaction costs, than an allocation to crewmembers. However, except for processor owned vessels there would still have to be transfer of QP each year from QS owners to the vessel owners/operators.

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[31] NMFS guidelines on LAPPs suggest that excessive control of QS might result in an individual operating as a monopsonist or monopolist in the QS market and that this would lead to a less efficient fleet (NMFS 2007).

[32] Exerting monopoly like control over prices in a QP market has some particular challenges.

- If a dominant QS holder releases QP in a manner that reduces fleet efficiency, the amount individuals would be willing to pay for QP would be reduced by the reduction in efficiency.
- QPs are nonperishable and highly liquid
- Any QP released may be held by the buyer, reducing the QS holder's market power.
- While there is an opportunity cost for not using QP, the production cost of QP is almost zero, and any QP not released to a vessel by the end of the year expires; therefore, it is likely that all will be released.

The main profits available through the exertion of market power are those that would otherwise go to the QP holder, unless the following occurs:

- Profits that would otherwise go to return on investment are captured (i.e., there is some excess capital in the fishery or within a local area),
- The power is used to affect prices in a transaction that does not include the QPs being used to establish the market power.
- The dominant QS holder is able to achieve price discrimination (charge each potential buyer the maximum he/she is willing to pay rather than a market price based on the release of a reduced quantity of QS, the more typical way a monopolist would extract additional rents).

On this basis, it appears that transaction costs will be lower with an allocation to permits than with an allocation to processors, with the exception of those processors that may operate their own vessels.

Another factor affecting transaction costs is how the QS are distributed compared to the recent distribution of catch among fishery participants. The greater the difference, the more transactions required to get the QS/QP into the hands of those who need it to continue their operations. If these transactions do not occur, higher costs will emerge as dislocation costs since those who have been recently catching the fish will no longer be able to do so, and those receiving the QS may ramp up to higher levels of production than they have experienced in the recent past. In the section below on equity, a quantitative assessment is provided of the difference between the distribution of QS among participants and the recent participation history of those participants (Current and Historic Harvests on page A-98). That section (Figure A-22) shows how QS would be distributed among associations of processors and harvesters (based on 2004 to 2006 landings activities). This figure shows that, there is a greater mismatch between recent production by processors-permit associations and the QS distribution to those processor-permit associations with a 25 percent allocation to processors.

♦ *Administrative Costs*

Each group to which an initial allocation is given will add to the administrative start-up costs of the program. The least expensive way to make an initial allocation would likely be through an auction that is open to all comers; however, such an option is not among those that have been identified for full analysis. Permit owners are a defined group; therefore, an allocation or auction to permit holders would likely be relatively in expensive, as compared to an allocation to crewmembers. While an allocation to crewmembers is not impossible, it would be difficult because crew licensing varies by state and data are not kept on the crewmembers working on each boat. Such an approach could require the development of complex rules for evaluating crewmember qualifications or simple rules that either do not allocate to the intended crewmembers, or allocate to substantially more people than the intended crewmembers. In either case, the costs of the initial allocation would increase substantially. An allocation to crewmembers is not being considered at this time. The other group for which the Council is considering an allocation is processors. The costs of allocating to processors will depend on the rules developed for the allocation. Information about buyers is included on every fish ticket, but there is no information on the ticket about whether the buyer (1) is a processor and (2) processed the fish documented on the fish ticket. The Council's intent is to allocate to processors, but an allocation to buyers was considered as a lower cost proxy for the allocation to processors. This is discussed in more detail in Section A-2.1.1.d. The administrative costs of the initial allocation will somewhat affect total net benefits, particularly at the start of the program, but the start-up costs will likely have negligible effects on net program benefits over the long run. Direct costs of the initial allocation will be covered by fees collected from the applicants.

♦ *Summary*

- Even if the initial distribution of QS results in some parties being able to exert market power, the effects are more likely to be distributional than to have an adverse impact on net benefits.
- As the amount of QS issued to processors increases, transaction costs will increase as QP issued to processors holding QS will have to transferred to vessels each year in order to be used (unless processors acquire vessels).
- As the amount of QS issued to processors increases, there is a greater mismatch between recent production by processors-permit associations and the QS distribution to those processor-permit associations.
- Program administrative costs increase with each additional group to which an allocation is made and costs will likely be higher for an allocation to those groups that are less well defined.

● Impact on Equity

Equity has various definitions, including "freedom from bias or favoritism" (Merriam-Webster dictionary) and conformity with rules or standards. Unlike net economic benefits, we do not have measures of equity that are commonly accepted standards against which we can evaluate the effects of an action. The best we can do is provide information on effects that are generally believed to have equity implications and rely on decision makers to balance the equity considerations with conservation and efficiency objectives for which there are more commonly accepted standards. With respect to equity considerations and initial allocation, the MSA directs that consideration be given to (i) current and historical harvests; (ii) employment in the harvesting and processing sectors; (iii) investments in and dependence upon the fishery; and (iv) the current and historical participation of fishing communities (Section 303A(c)(5)). Items (ii) and (iii) are explicitly covered above. Items (i) and (iv) will be covered under topics of this section. This section is organized around the following topics:

- Compensation for harm
- Excessive shares
- Current and historic harvests.

♦ *Compensation for Harm*

"Compensation for harm" is an equity rationale that has been proposed for guiding the initial distribution of QS. The potential adverse impacts of the IFQ program on capital assets and labor assets are discussed in the above section on "Sector Health." Potential adverse affects on communities is discussed in Section 4.14. These sections relate to the consideration of current and historical harvests for participants and communities in the context of the initial allocation.

♦ *Excessive Shares*

What constitutes **"excessive shares"** may be socially determined or economically determined. On an economic basis, an excessive share would be one that would be expected to result in a sector with market power. This concern is addressed above in the section on net benefit related effects. From a social policy perspective, concentration of ownership affects the social and community structure and the sense of equity that may, in part, be grounded in the history of fishery management, which has largely been based on common property concepts. In general, excessive shares will be controlled directly through QS control limits. The choice of the amounts of the initial allocation that goes to harvesters and processors affects whether there may be excessive shares only to the degree that there is a grandfather clause to the QS control limits. In the section on sector health, graphs are provided that show the expected concentration of QS in comparison to recent harvest levels for permits and processors for various permit/processor splits and for the presence or absence of a grandfather clause. As an example of the nature of the effect, with a 100 percent allocation to permits, no equal sharing, and no grandfather clause, the most QS that goes to a single entity that only harvests is about 4.3 percent, and the most that goes to a processor is close to about 5.5 percent (Figure A-9). If, instead, there is an 80 percent allocation to permits and a 20 percent allocation to harvesters, the most that goes to a permit is about 3.5 percent, and the most that goes to a processor is about 13.5 percent (Figure A-12). If there is not grandfather clause, then the allocation between permits and processors will not affect excessive shares because no one will be grandfathered in above the accumulation limits that any entity would be eligible to achieve through the acquisition of additional QS. The allocations illustrated in Figure A-9 and Figure A-12 would be capped at the amount of the initial allocation. Section A-2.2.3.e on accumulation limits (including QS control limits) and the grandfather clause includes tables that show the amounts of QS that would be allocated in excess of the accumulation limits, depending on the split of the allocation among harvesters and processors. Under the FPA, there will not be a grandfather clause, but individuals

will be allowed to receive QS in excess of limits and then given a period to divest of them (up to four years). Thus, while an entity would not be able to maintain an allocation above the QS control limit, it would still be able to benefit from selling that allocation. Because some processors also own permits (qualifying for both permit and processor history), the decision not to allocate nonwhiting QS to processors will likely result in a lower maximum initial allocation to any single entity than would result if an allocation were made to processors.

♦ *Current and Historic Harvests*

EFFECT ON QS AVAILABLE FOR RECENT TRADING RELATIONSHIPS

With respect to the question of the distribution of initial allocation between permits and processors, it is apparent that the distribution of more or less to permits and processors will proportionally affect the difference between what they receive and what they need to continue at production levels of the recent past. In the section on sector health, we compared the QS permits would receive to their 2004 to 2006 landings and the QS that processors would receive to their 2004 to 2006 landings (with the caveat that processors do not "need" QS to maintain their production levels). Here we will examine the effect of this decision on trading relationships.

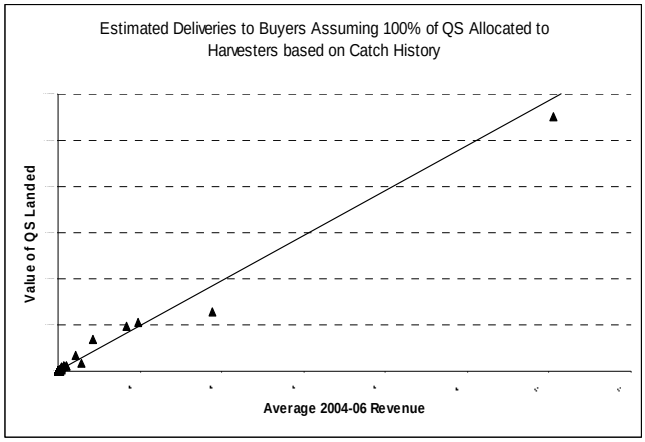
The question to be evaluated is, "If permits and processors wish to maintain their historic practices with respect to the amounts of fish each permit delivers to each processor, how will the decision on the split of QS between these groups affect their ability to do so?" For the purpose of this evaluation, we looked at the pattern of deliveries among vessels and processors for 2004 through 2006. In Figure A-22 though Figure A-25, we plot amounts of landings and amounts of QS allocated to these trading relationships from the processor's perspective (i.e., summarize for each processor the amount of QS it received, together with that received by permits delivering to that processor.)[33] These figures show that when the amount of QS initially allocated to combinations of permits and processors is considered, the greater the direct allocation to processors, the more divergence occurs between the amount of QS going to participants in these relationships and the amount of recent landings that occurred within those relationships.

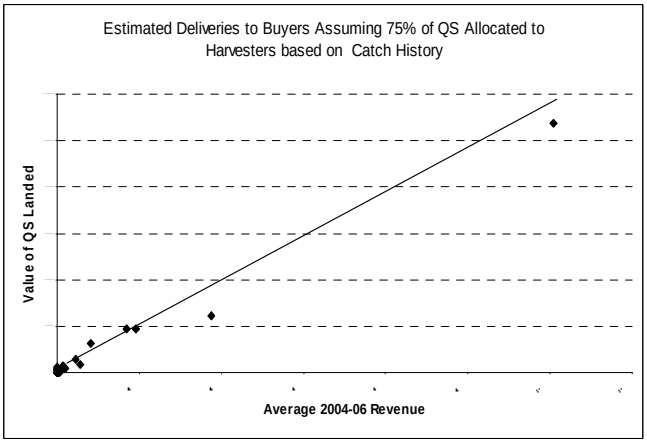
In Figure A-22, the QS allocations to each set of relationships are contrasted to the average 2004 to 2006 landings within each relationship (the amount of groundfish trawlers delivered to a particular processor). The figure on the left shows the results if 100 percent of the nonwhiting QS allocation goes to permits, and the figure on the right shows the results if 75 percent of the nonwhiting allocation goes to permits and 25 percent to processors. The top figures show the general distribution without showing the units. Points along the diagonal line from the origin are those at which the trading relationship (the harvesters and processors together) will receive an amount of QS that is comparable to its 2004 to 2006 deliveries. The bottom figures show the distribution among those trading relationships with less than $200,000 of QS and less than $200,000 of 2004 to 2006 landings history. The left-hand panel shows that with a 100 percent allocation to permits, there are some processor-permit associations that will receive little or no QS history relative to their 2004 to 2006 activities. For example, for a QS allocation based 100 percent on permit history there are five processor-permit associations (the top and bottom left hand panel combined) with more than $20,000 of history for 2004 to 2006 that will receive QS less than what would be needed to maintain their 2004 to 2006 average. If a 25 percent allocation is given to processors, the right-hand panel shows six or seven trading relationships in this category. The right-hand panel also shows that, if there is a 25 percent allocation to processors, seven trading relationships

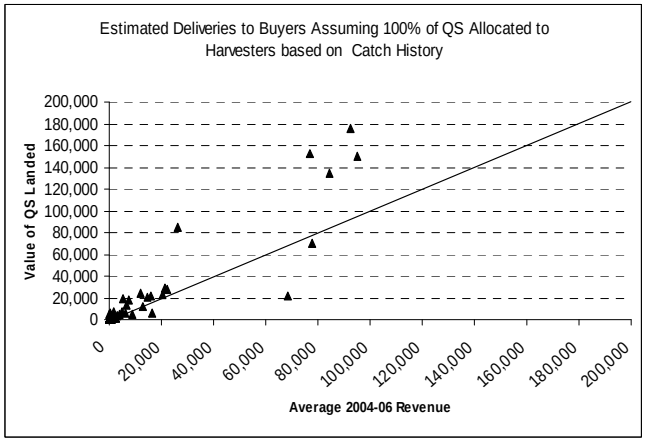
[33] For a permit delivering to more than one processor, QS for the permit was distributed between processors in proportion to the 2004 to 2006 deliveries to those processors. The objective of the analysis is not to say whether these delivery patterns will be maintained, but rather will QS go directly to the entities that could maintain them if they choose to negotiate to maintain previous delivery patterns.

that had less than about $25,000 of 2004 to 2006 history will receive more than about $60,000 of QS. Figure A-23 shows a direct comparison of results with 75 percent going to harvesters (vertical axis) and 100 percent going to harvesters (horizontal axis). In this figure, it is seen that trading partnerships that involved more than $40,000 in ex-vessel value fared better under the 100 percent allocation to permits. To understand these results better, Table A-31 is provided. This table displays the number of permits delivering to processors based on the 2004 to 2006 deliveries. Most processors with less than $20,000 of 2004 to 2006 history received deliveries from only one or two permits. Of the 42 processors falling into this category, six received from between three and five permits and two from seven or eight permits and the remainder from on permit. Some permits deliver to more than one processor and so will be counted more than once in the table.

Figure A-24 compares the amount of QS trading relationships receive under the FPA to their 2004 to 2006 average. Thirty-nine trading relationships will receive QS that represents more QP than their 2004 to 2006 average revenue, and 27 would receive less QS. Figure A-25 shows that 40 trading relationships were better off under the PPA than under the FPA. However, the relationships that receive the most QS either do better under the FPA than under the PPA, or are relatively unaffected by the choice between the two.







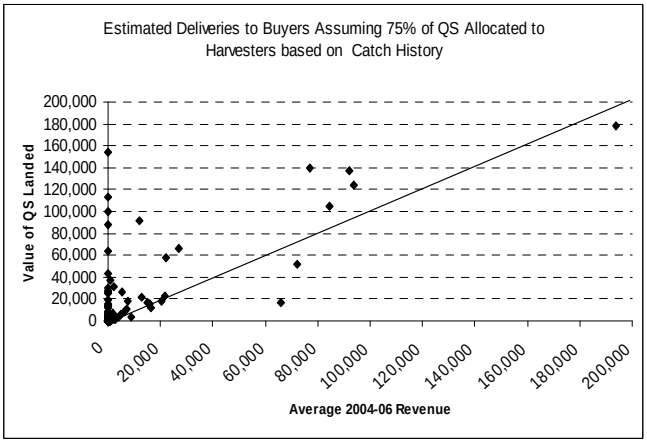


Figure A-22. The ex-vessel value of nonwhiting QP going to processor-permit relationships under two allocation formulas as compared to 2004 to 2006 ex-vessel revenue for those relationship (notes: each point represents a processor and the permits delivering to it; lower panels are a magnification of the upper panels; these formulas include a grandfather clause, but no equal sharing).

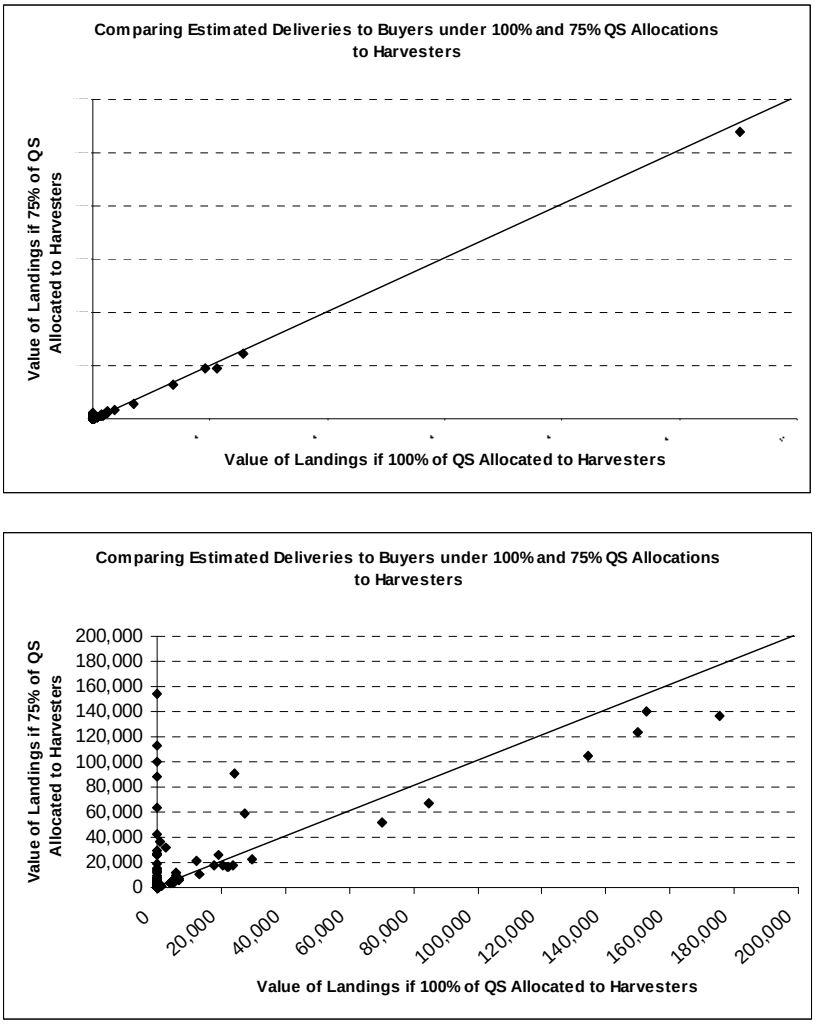


Figure A-23. Comparing a 100 percent allocation to permits to a 75 percent allocation to permits: ex-vessel value of nonwhiting QP going to processor-permit relationships (notes: each point represents a processor and the permits delivering to it; lower panels are a magnification of the upper panels; these formulas include a grandfather clause but no equal sharing).

Table A-32. Number of processors categorized by number of permits delivering to different classes of processors based on average annual 2004 to 2006 ex-vessel value of deliveries received by the processor.

Number of Permits Delivering	2004–06 average buyer purchases ($ ex-vessel payments)						Total
	<10,000	10,000-20,000	20,000-100,000	100,000-250,000	240,000–1 Million	>1 Million	
1	22	1	2	1	0	0	26
2	11	0	1	0	1	0	13
3	1	1	3	1	0	0	6
4-5	2	2	2	0	1	0	7
6-8	1	1	2	1	0	0	5
9-20	0	0	0	1	1	1	3
21-100	0	0	0	0	0	3	3
Total	**37**	**5**	**10**	**4**	**3**	**4**	**63**

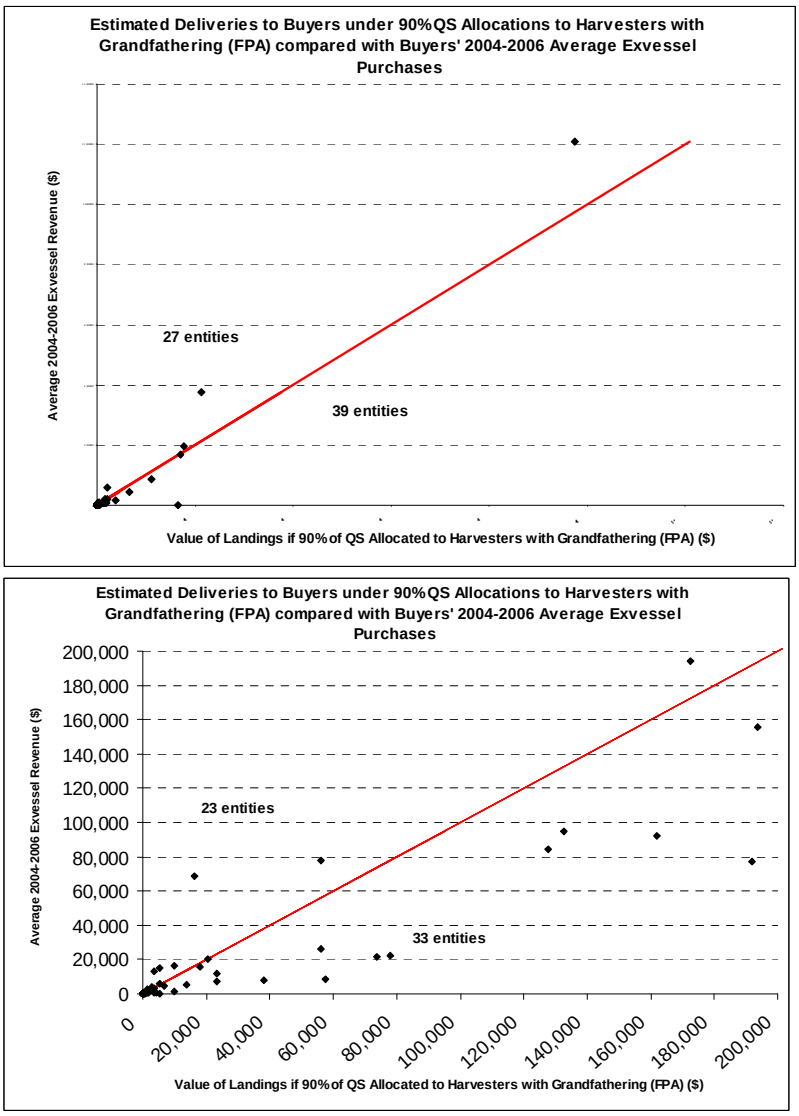


Figure A-24. The ex-vessel value of nonwhiting QP going to processor-permit relationships under the FPA as compared to 2004 to 2006 ex-vessel revenue for those relationship (notes: each point represents a processor and the permits delivering to it; lower panel is a magnification of upper panel; the FPA formulas include equal sharing and no grandfather clause, but a divestiture opportunity).

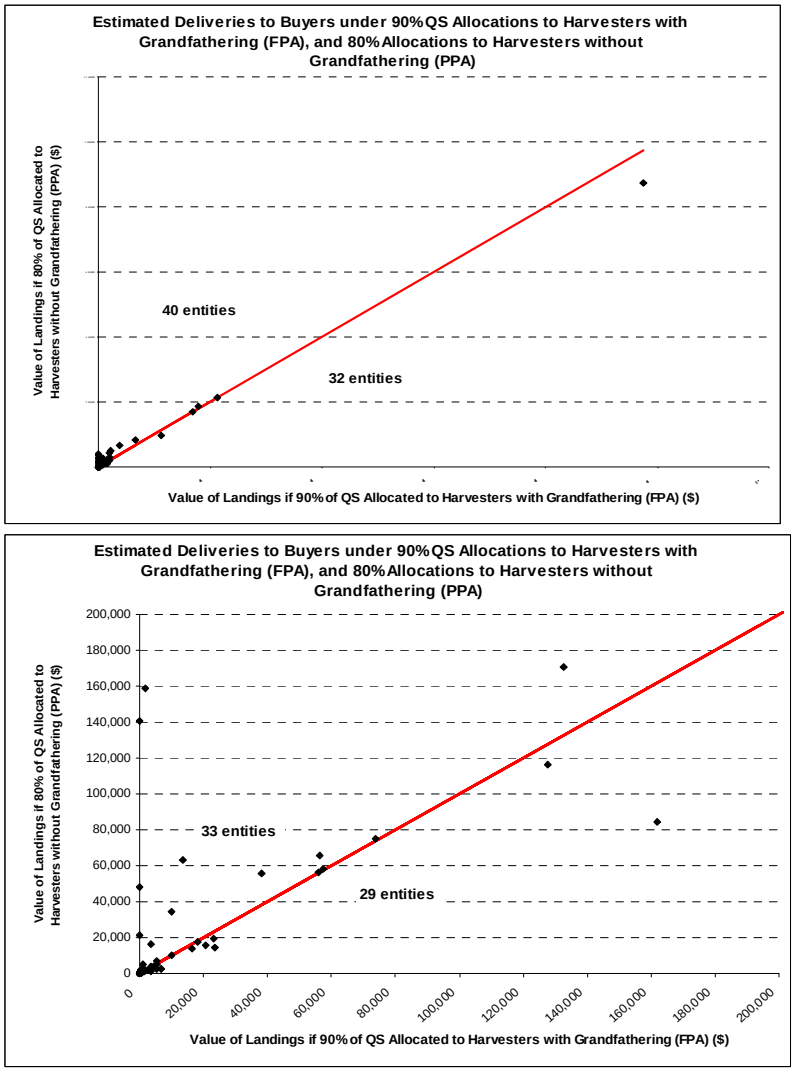


Figure A-25. Comparing the PPA to the FPA: ex-vessel value of nonwhiting QP associated with the QS going to processor-permit relationships at time of initial issuance (notes: each point represents a processor and the permits delivering to it; lower panel is a magnification of the upper panel; these formulas both include equal sharing, and neither has a grandfather clause, but the FPA allows QS to be issued in excess of control limits and then divested).

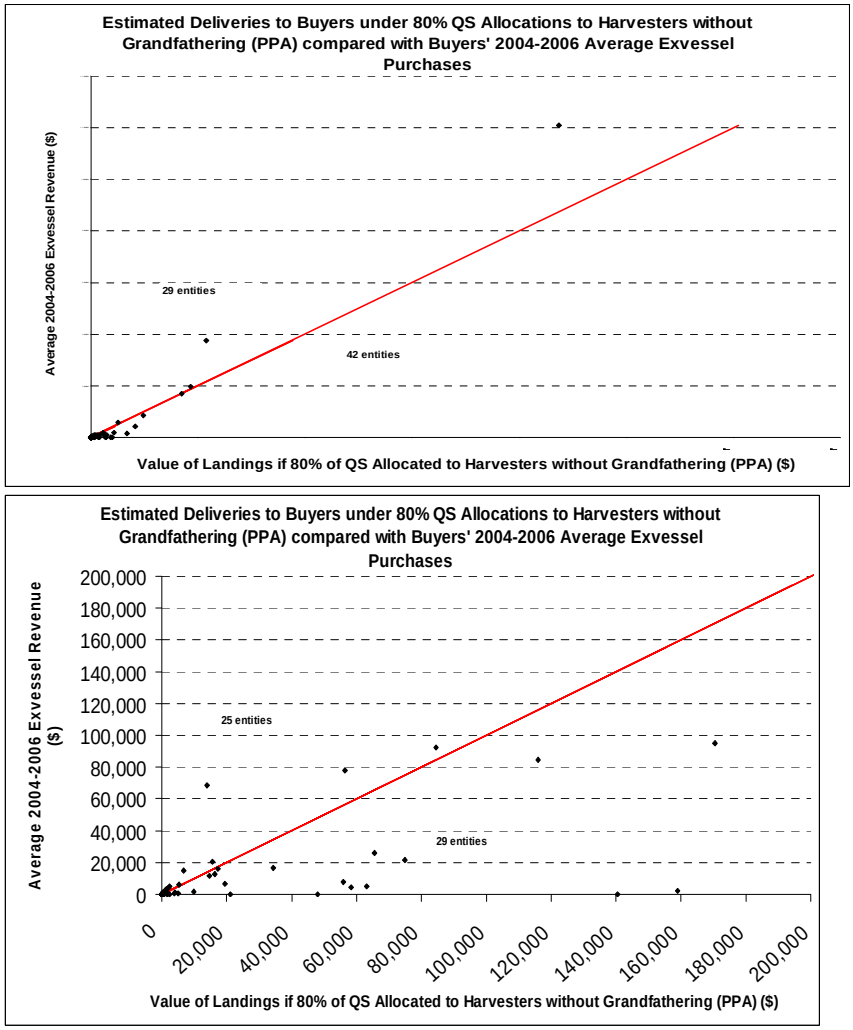


Figure A-26. The ex-vessel value of nonwhiting QP going to processor-permit relationships under the PPA as compared to 2004 to 2006 ex-vessel revenue for those relationships (notes: each point represents a processor and the permits delivering to it; lower panel is a magnification of upper panel; the PPA formulas include equal sharing and no grandfather clause).

Allocation Basis as a Means of Accounting for Current Participation

One way to take into account current harvests up to the date of the allocation is to attach the allocation criteria to an asset that is transferable as participants enter and exit the fishery (as opposed, for example, to attaching the allocation criteria to a person who may no longer be a participant in the fishery at the time of initial allocation). On the harvester side, the vessel (under Amendment 6) and the permits (under Amendment 8 [which was tabled], Amendment 9, and the sablefish tier system) have been used as the asset against which qualification criteria are measured. Anecdotal information suggests that fishermen have been relying on the permit to be the most likely vehicle that the Council would use for the allocation of QS. Allocation based on criteria related to other assets, such as the vessel or a processing facility, would be viewed as a change from past practices. For processors, it has not been necessary up until now to identify such a key asset (there have been no allocations to processors). In

Section A-2.1.1.d, consideration will be given to how historic participation criteria might be specified to take into account exit and new entry during the period that this program has been under deliberation.

SUMMARY

- **Compensation for Harm:** QS may be issued to those with assets that will be adversely affected by the IFQ program (see sections above on sector health). Rather than allocating QS to communities, the Council has ensured that communities can purchase QS if they desire and are included an AMP to address impacts on communities (Section A-3).
- **Excessive Shares**. If there is a grandfather clause (or no grandfather clause, but an opportunity to divest, as under the FPA), the maximum amount of QS initially allocated to those who receive the most increases as the allocation to processors increases. The effect of excessive shares on efficiency is discussed in the net benefits section. With respect to equity issues, determination of what constitutes an excessive share is a value judgment made by the Council.
- **Current and Historic Harvests.** Figures are provided comparing how processor-permit trading partnerships fare with and without an allocation to processors. In general, processor-permit trading partnerships to which more than $40,000 would be allocated (QS translated to QP using 2004 to 2006 landings and prices) fare better with a 100 percent allocation to harvesters than with a 75/25 permit/processor split.

● Impact on Communities

This issue of allocating to communities is discussed above in the section providing a rationale for not allocating to communities and the section on equity and compensation for harm. Here we focus on the effect of the choice of allocating among permits and processors on communities.

Recognizing the QS can easily be moved between communities, we can look at the locations of the home offices for permits and processors receiving an initial allocation and how the distributions among these locations would vary depending on choices made with respect to the amount allocated to processors and harvesters. This also tells us where the owners of QS most likely reside and the individuals who will be collecting and spending the profits from QS ownership. Table A-32 provides information on how nonwhiting QS shifts among communities as the balance of the initial allocation shifts between processors and permits. In this table, it can be seen that certain communities serve as the home office for buyers, but not for harvesters (they go to -100 percent with a 100 percent allocation to harvesters). Most towns with residents that in aggregate are expected to receive in excess of about one half million dollars' worth of QS (based on ex-vessel value of one year's QP) receive more QS as the amount allocated to processors go down (8 of 13 towns). In the north (Washington and Oregon), the aggregate holdings of the residents of six of eight of these towns increase, but in the south (California), the aggregate holdings of the residents of only two of five of these towns increase. In terms of where initial QS holders reside, increasing the allocation to harvesters appears to increase the dispersion of QS among the towns with major QS holdings (those for which associated QP would be worth in excess of one-half million dollars in ex-vessel value). Those towns with less quota than that, and which lose QS as amounts to harvesters increase, represent only 2 percent of the total QS holdings (assuming a 75 percent allocation to harvesters).

Table A-33. Distribution of nonwhiting QS allocations and estimated value of associated QP, by QS owners' residence and/or head office (note the allocation formulas provided as examples here do not include a processor recent participation screen, the recent participation screen would substantially reduce the number of communities listed).

	Landing history-Based Allocation + No Equal Sharing and Grandfather Clause			Landing history-Based Allocation + Equal Sharing of Buyback History and Grandfather Clause			Effect of Eliminating Equal Sharing (Difference Between Landing history-Based Allocation and Equal Sharing (% change)		
	75% Allocation to Harvesters	Difference Relative to 75% Allocation to Harvesters (% change)		75% Allocation to Harvesters	Difference Relative to 75% Allocation to Harvesters (% change)				
QS Owner's Home Office	Annual Value of Nonwhiting QP Allocation ($ thousands ex-vessel)	87.5% Allocation to Harvesters	100% Allocation to Harvesters	Annual Value of Nonwhiting QP Allocation ($ thousands ex-vessel)	87.5% Allocation to Harvesters	100% Allocation to Harvesters	75% Allocation to Harvesters	87.5% Allocation to Harvesters	100% Allocation to Harvesters
Blaine	$84	-0.50	-1.00	$83	-0.50	-1.00	0.01	0.01	
Bellingham	$971	-0.19	-0.39	$843	-0.25	-0.49	0.15	0.23	0.40
ANACORTES	$212	0.17	0.33	$211	0.17	0.33	0.01	0.01	0.01
Seattle	$2,020	0.05	0.09	$2,128	0.05	0.11	-0.05	-0.06	-0.06
Port Townsend	$0	-0.50	-1.00	$0	-0.50	-1.00	0.00	0.00	
Port Angeles	$63	-0.50	-1.00	$63	-0.50	-1.00	0.00	0.00	
Neah Bay	$1	-0.50	-1.00	$49	0.15	0.30	-0.98	-0.99	-1.00
La Push	$2	-0.50	-1.00	$2	-0.50	-1.00	0.00	0.00	
Aberdeen	$287	0.17	0.33	$297	0.17	0.33	-0.03	-0.03	-0.03
WESTPORT	$4	-0.50	-1.00	$4	-0.50	-1.00	0.00	0.00	
Willapa Bay	$315	0.11	0.23	$367	0.12	0.24	-0.14	-0.15	-0.15
Illwaco	$38	-0.50	-1.00	$86	-0.13	-0.26	-0.56	-0.75	-1.00
Astoria	$2,472	0.16	0.31	$2,165	0.16	0.31	0.14	0.14	0.14
Garibaldi	$532	0.13	0.26	$489	0.13	0.26	0.09	0.09	0.09
Newport	$1,561	0.15	0.31	$2,002	0.16	0.31	-0.22	-0.22	-0.22
Waldport	$0	-0.50	-1.00	$0	-0.50	-1.00	0.07	0.07	
Florence	$94	0.13	0.25	$101	0.13	0.26	-0.07	-0.07	-0.07
Winchester Bay	$0	-0.50	-1.00	$0	-0.50	-1.00	0.00	0.00	
Charleston	$2,107	0.16	0.32	$1,872	0.16	0.32	0.13	0.13	0.13
BANDON	$153	0.17	0.33	$179	0.17	0.33	-0.14	-0.14	-0.14
PORT ORFORD	$150	0.17	0.33	$129	0.17	0.33	0.16	0.16	0.16
Brookings	$978	0.16	0.33	$956	0.16	0.33	0.02	0.02	0.02
Gold Beach	$0	-0.50	-1.00	$0	-0.50	-1.00	0.00	0.00	
Crescent City	$477	0.12	0.24	$466	0.12	0.24	0.02	0.02	0.02
Trinidad	$0	-0.50	-1.00	$0	-0.50	-1.00	0.00	0.00	
Eureka	$202	0.13	0.25	$355	0.14	0.29	-0.43	-0.44	-0.45
Fields Landing	$630	-0.09	-0.19	$597	-0.11	-0.22	0.06	0.07	0.10

Table A-33 cont. Distribution of nonwhiting QS allocations and estimated value of associated QP, by QS owners' residence and/or head office (note that the allocation formulas provided as examples here do not include a processor recent participation screen, the recent participation screen would substantially reduce the number of communities listed).

	Landing history-Based Allocation + No Equal Sharing and Grandfather Clause			Landing history-Based Allocation + Equal Sharing of Buyback History and Grandfather Clause			Effect of Eliminating Equal Sharing (Difference Between Landing history-Based Allocation and Equal Sharing (% change)		
	75% Allocation to Harvesters	Difference Relative to 75% Allocation to Harvesters (% change)		75% Allocation to Harvesters	Difference Relative to 75% Allocation to Harvesters (% change)				
QS Owner's Home Office	Annual Value of Nonwhiting QP Allocation ($ thousands ex-vessel)	87.5% Allocation to Harvesters	100% Allocation to Harvesters	Annual Value of Nonwhiting QP Allocation ($ thousands ex-vessel)	87.5% Allocation to Harvesters	100% Allocation to Harvesters	75% Allocation to Harvesters	87.5% Allocation to Harvesters	100% Allocation to Harvesters
Ukiah	$1,606	0.03	0.06	$1,415	0.01	0.02	0.14	0.16	0.18
Bodega Bay	$196	-0.10	-0.20	$333	0.01	0.02	-0.41	-0.47	-0.54
San Francisco	$1,881	-0.06	-0.11	$1,802	-0.07	-0.13	0.04	0.05	0.07
Half Moon Bay	$636	0.07	0.13	$792	0.09	0.17	-0.20	-0.21	-0.22
Oakland	$1	-0.50	-1.00	$1	-0.50	-1.00	0.00	0.00	
Alameda	$0	-0.50	-1.00	$0	-0.50	-1.00	0.00	0.00	
Gilroy	$11	-0.50	-1.00	$11	-0.50	-1.00	0.00	0.00	
Santa Cruz	$137	0.16	0.32	$175	0.16	0.32	-0.22	-0.22	-0.22
Moss Landing	$293	0.13	0.26	$271	0.13	0.26	0.08	0.08	0.09
MONTEREY	$1,053	-0.09	-0.18	$963	-0.12	-0.23	0.09	0.12	0.16
Morro Bay	$213	-0.24	-0.47	$224	-0.22	-0.43	-0.05	-0.07	-0.11
Avila Beach	$20	-0.50	-1.00	$20	-0.50	-1.00	0.00	0.00	
Goleta	$0	-0.51	-1.00	$0	-0.51	-1.00	0.00	0.00	
Ventura	$0	-0.50	-1.00	$0	-0.50	-1.00	0.00	0.00	
Port Hueneme	$0	-0.50	-1.00	$0	-0.50	-1.00	0.00	0.00	
Camarillo	$0	-0.50	-1.00	$0	-0.50	-1.00	0.00	0.00	
Los Angeles area	$11	-0.50	-1.00	$11	-0.50	-1.00	0.00	0.00	
San Pedro	$0	-0.49	-1.00	$0	-0.49	-1.00	0.00	0.00	
San Diego	$0	-0.50	-1.00	$0	-0.50	-1.00	-0.02	-0.02	
Bakersfield	$0	-0.50	-1.00	$0	-0.50	-1.00	0.00	0.00	
Clackamas	$3,663	-0.30	-0.60	$3,578	-0.31	-0.62	0.02	0.04	0.08
OREGON CITY	$96	0.17	0.33	$100	0.17	0.33	-0.04	-0.04	-0.04
CENTRALIA	$175	0.17	0.33	$140	0.17	0.33	0.25	0.25	0.25
DALLAS, OR	$66	0.17	0.33	$83	0.17	0.33	-0.21	-0.21	-0.21
Arizona	$0	-0.50	-1.00	$0	-0.50	-1.00	0.00	0.00	
Hawaii	$0	0.16	0.32	$48	0.17	0.33	-1.00	-1.00	-1.00
Unknown	$61	-0.50	-1.00	$61	-0.50	-1.00	0.00	0.00	
TOTAL	**$23,471**			**$23,471**					

- Options 6a and 7 (FPA) for Whiting

Options 6a and 7 (the FPA) would allocation 20 percent of the whiting QS to processors but none of the QS for bycatch species associated with whiting. While the allocation of QS without bycatch species would create some initial disadvantages, the impact of this option is primarily one of wealth distribution. After the program is implemented, QS will be traded, and processors or harvesters will be free to acquire more QS or divest themselves of their initial allocation. Processors wanting the QS for bycatch species will be able to acquire it through QS trading. Any business that does not receive an initial allocation will be in a situation similar to any other entity that enters the fishery later; they can access more QS by purchasing them.

The effect of this option will likely depend on whether the bycatch species is constraining and whether there is a single shoreside sector or separate shoreside whiting sector.

If bycatch species QP are constraining, then a major portion of the resource rents that would otherwise be associated with the whiting QS would be expected to flow to the bycatch species. Assume the processors stayed at their initial allocation level and held no more than 20 percent of the whiting QS and none of the bycatch species QS. If the bycatch rates were such that taking 80 percent of the whiting QS used up all of the available bycatch species QP, then the remaining whiting QP held by processors would have little, if any, value.[34] The market place would not distinguish between whiting QS issued to processors and whiting QS issued to harvesters, so there would not be a direct impact on the value of the processor-held whiting QS. There are, however, a number of ways the situation could play itself out in the market. One possibility that illustrates the situation is that whiting QS might tend to be traded in bundles with bycatch species. Under such circumstances, processors might find that they would not be able to sell their 20 percent of the whiting QS for an amount that was proportional to 20 percent of the value of the whiting fishery unless they first acquired and bundled it with bycatch species QS. If the bycatch species do not tend to be constraining, then the value of the whiting QS issued processors would likely be close to proportional to the value of the whiting that the QS represents.

The bycatch species are more likely to be constraining if there are two shoreside sectors. Under the single sector approach (the FPA,) the QS needed to cover bycatch for a whiting trip would be the same as that needed to cover catch of the same species taken on a nonwhiting trip. With a larger pool available, the QS for species taken as bycatch in the whiting fishery would be less likely to be limiting than if there is are separate shoreside sectors. However, bycatch could still be substantially constraining for certain overfished species.

With the two-year moratorium on QS trading included under the FPA (Section A-2.2.3.c), processors wishing to balance their whiting QS with bycatch species QS or divest themselves of whiting QS will not be able to do so until the moratorium is over. This enforced imbalance in the species mix held by processors may create increased uncertainty and greater transaction costs during the moratorium.

- Allocation of QS or QP for the Adaptive Management Program

The allocation for the AMP is specified as an allocation of QS with an option for the Council to pass the associated QP through to holders of non-AMP QS in proportion to their holdings of that QS (if the QP is not needed for the AMP program). The other option considered was to allocation 100 percent of QS to permit holders (and possibly processors), but to hold back a portion of the QP each year for adaptive management, on an as needed basis. Holding back QS rather than QP will make it more difficult to

[34] To avoid this situation, processors might try to negotiate preseason agreements with vessels to harvest all of the processor-held QP first or in proportion to the amount of whiting delivered under vessel-held QP.

adjust the base amount of quota held back for the AMP. For example, if the Council decides explicitly to end the AMP, an adjustment would be needed to the holdings of QS by all other entities. Similarly, an expansion of the quota for AMPs would require reduction of QS holdings by all other entities. If instead the AMP program had been funded with quota simply by withholding QP, long-term adjustments to the QS dedicated to AMP program would be less burdensome. The decision would be made to reallocate the AMP QP to QS holders.[35]

[35] During the development of this program, for simplicity and clarity in the analysis, it has been assumed the total amount of QS will sum to 100 percent. In implementing the program, NMFS could choose to abandon that approach and let the total amount of QS range. This approach would change the amount of QP issued each year for any particular amount of QS. Allowing the amount of QS to float (not sum to 100 percent) might be particularly useful during the early phases of the program when appeals are being resolved. However, if such an approach is taken, adjustments to the AMP QS will be needed as additional QS is issued or revoked. The adjustments to the amount of AMP QS would be needed to ensure that the amount stays at 10 percent of the total.

A-2.1.1.b Permits

❖ *Provisions and Options*

Landing[36] history will accrue to the permit under which the landing was made. The owner of a groundfish LEP at the time of initial allocation will receive the QS issued based on the permit. (See section A-2.1.4 on permit combinations and other exceptional situations.)

❖ *Rationale and Options Considered, But Not Included*

Allocating to entities other than the current groundfish permit owner is considered under Section A-2.1.1.a. The provision of this section (A-2.1.1.b) specifies that the landings history over the entire life of the permit will accrue to the permit, including history prior to the time it was held by the current owner, and it explicitly states that the current owner will receive the allocation. An alternative approach, assigning permit history to the owner of the permit at the time the landing was made, would be akin to assigning the landings to a specific person. As mentioned in the previous section, assignment of landing history to a person has been avoided in the Council's groundfish LE system to facilitate entry and exit during deliberations on the program and to consider current participation and dependence in the fishery rather than historic activity. Another approach might be only to count the history of the permit while it is owned by the person who holds it at the time of implementation. While this would consider take current participation, it would not account for the investment and dependence on the fishery that is represented by the current owner's investment in the acquisition of the permit.

❖ *Interlinked Elements*

Assignment of the entire landing history of the permit to the permit's current owner is a key provision of this program. Change in this provision would require substantial reevaluation of many other provisions of the program.

❖ *Analysis*

Assignment of all of a permit's landing history to the current owner results in less disruption of capital investment and dependence than if, for example, the only landing history that counted was that of the current owner during the time he/she owned the permit. Allocation based only on recent history would put new entrants at a disadvantage and substantially redistribute current fishing activities affecting vessels, processors, workers, and communities. Thus this provision addresses both the Council objective of achieving change with minimum disruption (Objective 14 of the groundfish FMP) and section 303A(c)(5)(A) of the MSA, which requires that the Council establish procedures to ensure fair and equitable initial allocations, including consideration of (i) current and historical harvests, and (iii) investments in, and dependence upon, the fishery. Indirectly, the approach provides business stability that supports existing employment and community involvement in the fisheries (items (ii) and (iv) of MSA 303A(c)(5)(A)). Stability for investment also promotes objectives related to net benefits and efficiency.

[36] The term "landing," as defined in the regulations, includes both shoreside and at-sea deliveries.

A-2.1.1.c Processors and Processing Definition

❖ *Provisions and Options*

A special definition of "processor" and "processing" will be used for initial QS allocation. A main intent of the definition is to specify that, if QS is issued for processing, only the first processor of the fish receives an initial allocation of QS. See footnote for definition. ***However, due to limitations on available documentation, fish "receivers" may be used as a proxy for "processors," as per the following section.***

Definition from footnote:

"**Processors"**

At-sea processors are those vessels that operate as motherships in the at-sea whiting fishery and those permitted vessels operating as catcher-processors in the at-sea whiting fishery.

A shoreside processor is an operation, working on U.S. soil, that takes delivery of trawl-caught groundfish that has not been "processed at-sea" and that has not been "processed shoreside"; and that thereafter engages that particular fish in "shoreside processing." Entities that received fish that have not undergone "at-sea processing" or "shoreside processing" (as defined in this paragraph) and sell that fish directly to consumers shall not be considered a "processor" for purposes of QS allocations.

"Shoreside Processing" is defined as either of the following:

1. Any activity that takes place shoreside; and that involves:
   - cutting groundfish into smaller portions; OR
   - freezing, cooking, smoking, drying groundfish; OR
   - packaging that groundfish for resale into 100 pound units or smaller for sale or distribution into a wholesale or retail market.

   OR
2. The purchase and redistribution into a wholesale or retail market of live groundfish from a harvesting vessel.

❖ *Rationale and Options Considered, But Not Included*

This section defines the types of activities that will be considered processing and part of the criteria used to identify entities that are eligible for a portion of the initial allocation of QS going to processors (Section A-2.1.1.d). A special definition of processor and processing will be used for initial QS allocation. For the purpose of applying the initial allocation formula for processing, only the first processing counts as processing. If processors are affected by the rationalization of the fleet it is likely that those effects fall on only the first processor of the groundfish, the processing entity most likely to have excess capital after fleet rationalization. This definition is designed, in part, to focus the initial allocation on first processors. Differences in impacts between buyers and processors will be discussed in the following section.

Under the groundfish FMP, the definition of "processor" is as follows:

> The "processor" is a "person, vessel, or facility that engages in processing, or receives live groundfish directly from a fishing vessel for retail sale without further processing.

The special definition used for initial allocation of shoreside sector QS eliminates the following processors from consideration:

- Those who do not take delivery (e.g., a harvesting company that does some processing but is not listed as the fish receiver on the fish ticket)
- Those who have only received groundfish caught with gears other than trawl or have not received any groundfish

- Those who have only received groundfish that has already undergone some processing
- Those who have only received and sold raw unprocessed groundfish

However, the definition of processing is broadened in some areas and more restricted in others. This definition has important implications for who qualifies as a processor.

Under the groundfish FMP, the definition of "processing" is as follows

> "Processing" means the preparation or packaging of groundfish to render it suitable for human consumption, retail sale, industrial uses, or long-term storage, including, but not limited to, cooking, canning, smoking, salting, drying, filleting, freezing, or rendering into meal or oil, but does not mean heading or gutting unless additional preparation is done.

The FMP definition excludes heading and gutting alone, while the special definition used for initial allocation criteria includes heading and gutting (cutting groundfish into smaller portions). The FMP definition is open-ended in that the possible methods of handling the fish are not limited to those on the list. The key part of the FMP definition is that the fish are prepared or packaged for human consumption, retail sale (which might include uses other than eating, e.g., fertilizer), industrial use, or long-term storage (which could go to any other use, e.g., meal for feedlots). Thus the restrictive parts of the FMP definition that are not included in this definition appear to be the words "preparation or packaging," and the exclusion of heading and gutting alone.

The special definition is not open-ended. It does not mention canning, salting, or rendering into meal or oil; therefore, these might be excluded, unless they fall under the category of "packaging that groundfish for resale into 100-pound units or smaller for sale or distribution into a wholesale or retail market." Canning may well come under this definition, as might the production of meal or oil, depending on how it is packaged. The "100-pound units or smaller" implies that any resale of raw fish, regardless of what is done to it, qualifies as processing so long as the unit of sale is less than 100 pounds. This brings into question what might be considered the "unit of sale." For example, if there is a business that buys groundfish and does nothing to it other than transport it and sell it to a processor, and the invoice lists out a number of species, some of which are in quantities of less than 100 pounds, would those transferred in quantities of 100-pound units or smaller count toward history for the selling or buying entity? This question would be most important for Options 2 and 3 of A-2.1.1.d.

❖ Interlinked Elements

The definition of processing and processor has important implications in determining who qualifies as a processor for the initial allocation and who processed the fish coming in on a particular delivery. The definitions come into play for initial allocation in Section A-2.1.1.d, where they are used to determine whether an entity is a shoreside processor (Option 2) and whether the history of a particular landing should be attributed to a particular shoreside processor (Option 3). Under Option 1, the entity registered as the receiver of the fish is used as a proxy for shoreside processing and receives credit for all deliveries shown on its tickets; therefore, the special definitions of processor do not come into play if this option is selected. These definitions and the choices made in Section A-2.1.1.d will in turn affect the types and difficulty of issues that may have to be dealt with in the appeals process (Section A-2.1.5).

If an allocation is not given to processors (Section A-2.1.1.a), then the provisions of Sections A-2.1.1.c and A-2.1.1.d will not be needed.

❖ Analysis

The primary objectives affected by this definition relate to questions of fairness and equity and administrative costs.

With respect to fairness and equity, there may be an issue of comparable treatment. Conditions under which a processor may qualify for QS based on harvesting history are determined by whether or not the processor has a permit with landing history; the criteria are the same for processors, for entities that only harvest, or any other entity that owns a LEP. However, the conditions under which a harvester may qualify for an allocation based on processing history are contingent not just on the nature of the activity on its face but also on the nature of the economic transactions which have led to that activity (i.e., whether it purchased the fish). Some of the criteria for processing specify that the product must be for resale (implying an initial purchase, third item in the first criteria for shoreside processing), or that the product must have been purchased and redistributed (second criteria for shoreside processing). Other criteria are not phrased to require an initial purchase. Harvesters in the shoreside nonwhiting fishery that are also listed as fish receivers receive credit as processors if their processing was done shoreside and it includes the cutting of groundfish into smaller portions or the freezing, cooking, smoking, and drying groundfish. These criteria apply equally to an entity that only processes or one that also harvests regardless of the nature of the economic transaction that led to that activity. For those criteria phrased to require purchase, if the permit owner is acting as its own processor, i.e., shows up as the purchaser on the fish ticket and subsequently caries out the activities specified in these criteria, it appears that it might not qualify for processing history. Traditional processors receiving fish from their own vessels might also be affected by this wording. We do not have information to tell us the degree to which trawl harvesters that acted as fish receivers may have repackaged fish or sold live fish, therefore, we cannot estimate the magnitude of this issue. The exact impact will depend on how this provision is implemented in regulation by NMFS, and the process of drafting the regulations will provide an opportunity for clarification of intent with respect to these provisions.

The possible need for some additional guidance with respect to the intent of the provision that defines processing as the resale of groundfish in “100 pound units or smaller” is identified in the section on rationale. If disputes arise between the first buyer and second buyer about who was actually the first processor of a particular landing, an argument with respect to some of the landing history may hinge on whether the fish was in units that are smaller than 100 pounds. To the degree that there is uncertainty about this or other criteria, administrative decisions will be more difficult, there may be more appeals, and more call for Council involvement in the appeals process. All of these would elevate the administrative costs of the program.

A-2.1.1.d Attributing and Accruing Processing History

❖ *Provisions and Options*

Use at-sea fishery observer data and weekly processing reports to document history for allocations to **at-sea processors**. [37]

For an allocation to **catcher-processors**, see A-2.1.1-b.

For an allocation to **mothership processors,** history accrues to the vessel on which the at-sea processing occurs.

MS Option 1: The owner of the vessel at the time of the initial allocation will receive the initial allocation.
MS Option 2: If a bareboat charter exists, the bareboat charterer will receive the initial allocation.

For an allocation for **shoreside processors:**

Option 1: attribute history to the receiver reported on the landing receipt (i.e. the entity responsible for filling out the state fish ticket). ***The fish receiver would serve as a proxy for processor because of limited availability of official documentation on actual processing history.***

Option 2: attribute history to the receiver reported on the landing receipt, if that entity meets the definition of a processor with respect to trawl-caught groundfish. ***The option is similar to Option 1 except that the fish receiver would have to demonstrate at least some processing of trawl-caught groundfish.***

►**Option 3:** same as Option 1, except history may be reassigned to an entity not on the landings receipt, if parties agree or through ***an agency*** appeals process. ***The intent of this option is to provide an opportunity for landing history to be assigned to the entity that actually processed the fish.***

For shoreside processors, allocations go to the processing business. For all three of the options for accruing history, successor-in-interest will be recognized. NMFS will develop criteria for use in determining the successor in interest with respect to the entities listed on the landings receipts or otherwise covered in one of these options.[38]

❖ *Rationale and Options Considered, But Not Included*

The focus of this section is on identification of the entities to which processing activities will be attributed and identifying rules for the accrual of that history. For the allocation to harvesters, landing history is attributed to the permit, and it accrues to the permit and whoever owns the permit at time of initial allocation.

For catcher-processors, the entities identified as catcher-processors are well defined based on their ownership of LEPs and no issues have been raised indicating that there is any difference between those who own those permits and vessels and those who operate them. Because this fleet operates under the

[37] Note: The Council's preliminary preferred alternative does not include IFQs for the at-sea sectors (catcher-processors and motherships). Options related to those sectors will only be relevant if the Council changes the management approach as part of final action.

[38] Transfer of physical assets alone should not be considered a basis for successor in interest. Business relationships such as transfer of the company name and customer base might be reasonable evidence of successor in interest.

trawl license limitation program, the same rules used for the catcher vessel history are used for the catcher-processors.

To apply a QS initial allocation formula to processors other than catcher-processors, the allocation formula is applied to the processing business rather than any particular physical asset. For the mothership sector, the mothership vessel is the primary unit for which data are available. Therefore, in the mothership allocation, we first determine the vessel history and then attribute that history to a processing business. For mothership processors, there is at least one vessel for which there is a difference between the business that runs the processing operation and the one that owns the vessel. On that basis, two options have been identified. These options capture the range between allocating all of the QS to the vessel owner and allocating all of it to the vessel charterer.

If the Council makes an allocation to shoreside processors, the stated intent is that the allocation go to the entities that first process the fishery. In some cases, the first buyer may not be the first processor. It has been the Council view that it is the first processors that have the greatest amount of capital assets that may be affected by the IFQ program. The focus on processors rather than first buyers may also be supported by MSA section 303A(c)(5)(A) which identifies the need to consider processing labor in the development of the initial allocation but makes no mention of fish buyers. However, the Council's ability to carry out the intent to allocate to first processors is affected by the quality of the data available. Government databases that track landings to entities at the needed species and species group level (the fish tickets database) provide information only for the first receivers (buyer-only or buyer-processor) and not for subsequent purchasers. While an allocation to the first processors might possibly be carried out using information not in government databases, it may substantially increase administrative burden and cost. The difficulty of developing standardized criteria for evidence of processing (particularly at the species level), the costs of data collection, and the likely need for extensive dispute resolution led the Council to develop a set of options that, to varying degrees, approximates the ideal result.

The first option allocates only to those entities that are on the fish ticket, no attempt is made to differentiate between those buyers that transfer the fish to first processors and those buyers that process themselves. This option relies solely on information in the fish ticket database. It is generally believed that the large majority of the trawl groundfish landings are delivered to buyers that process their own fish.

The second option allocates to the same set of entities but requires that they demonstrate engagement in at least some processing of trawl-caught groundfish. Once that threshold is met, all LE trawl landings received by that entity would qualify. This may screen out those entities that never acted as a processor, but would not attempt to differentiate between the fish those entities received and processed and the fish those entities received and transferred on to another for first processing. It would require some additional administrative costs but a relatively small amount in comparison to the task of determining of processing history for every landing. If the second had been selected, the Council may have added a timeframe. As currently worded, an entity that does not presently qualify could qualify by arranging to process some trawl-caught groundfish between now and when the applications for an initial allocation are due.

The third option provides an opportunity to base the entire allocation to processors on the history of the entity that first carries out that processing. The default position would be the same as Option 1, that the history goes to the buying entity. However, that landing history could be reassigned to a second receiver of the fish either if both companies came forward and agreed to the reassignment, or if an appeal were granted resolving a dispute between two claimants. If it is correct that the large majority of the catch is in fact processed by the first receiver, the number of potential disputes may be small relative to the total number of landings in the landing history database.

The Council selection Option 3 for its FPA. While there was concern about the lack of documentation available to implement Option 3 and the potential appeals that could result, it was noted

Another issue that had to be decided for shoreside processors is which entity associated with any shoreside activity should be considered the business entitled to the allocation. For the license limitation program, it was decided that the initial permit allocation would follow the hull and go to the current owner of the fishing vessel because the vessel was the primary asset needed to operate a fishing business and the value of that asset would be affected by the initial allocation. Allocating to the owner of the vessel at the time of initial allocation allowed for entry and exit during the deliberations. In that program, a provision was also made to allow for the substitution of one vessel for another due to certain hardship conditions.

For the at-sea processing allocation, following the vessel works as the primary basis for the allocation though there is some question about it with respect to the motherships, as discussed above. For shoreside processors, the physical assets associated with the shoreside business are varied and it is difficult to identify one asset that might be said to define a processing operation. For example, a processor could own its land and all its buildings and equipment or it may lease some or all of its primary assets. If an allocation were based on the current ownership of a key physical asset, fisheries managers might have to choose between owners of a number of primary assets (land, building, processing equipment). Furthermore, over time, some of these assets may have been moved between fishery and nonfishery-related activities. On this basis, the Council decided that with respect to processing history the allocation should go to the processing business itself (the entity running the processing operation) and, hence, not necessarily to the owner of the physical assets used in processing. However, this raises questions about the means by which historic and recent participation are considered. For harvesters, by following the vessels (the Amendment 6 license limitation program) or the permit (the IFQ program allocation to harvesters), changes during the Council deliberations process and historic dependence and involvement are accommodated. If current and historic participation for processors are to be tracked in a manner similar to what is done for harvesters, then some means is needed for the determining the successor in interest for shoreside processing operations. Consistent with the determination of which business entity associated with a processing operation should receive the initial allocation (i.e., the operator of the processing business, rather than the owner of the processing capital), the Council determined that transfer of physical assets alone should not be considered a basis for determining successor in interest. The Council identified that the transfer of business relationships, such as transfer of the company name and customer base, might be the most important evidence of successor in interest. Further development of the provisions will be left to NMFS, both for the criteria to identify successor in interest and the application of those criteria.

Consideration was given to an option that would give processing history to the first entity to receive the groundfish, but only for that groundfish which was processed. This option would have entailed most of the administrative costs of Option 3, but not have provided an opportunity for the first processor to qualify for history associated with fish acquired from a fish buyer. This option lies within the range between Options 1 and 3.

An option proposed by the TIQC, tying the transfer of processing history to the transfer of a facility, was rejected from further analysis. Initially, GAC members noted that the TIQC approach to accrual might be supported based on the numerous changes in ownership that have occurred in recent years within the processing industry. The underlying concepts are that if one company acquires another, it acquires both its assets and liabilities, and, with respect to the leasing provision, it the leaseholder really operates the processing business. This option would attribute the history to the current owner rather than past owners, reducing the dislocation that would occur through the allocation of IFQ to business entities no longer associated with the facility. However, during later deliberations it was decided that customer lists and the business name are more closely associated with the processing company and,

therefore, should be a primary consideration if a determination is required with respect to successor in interest to a shoreside processing operation.

❖ Interlinked Elements

Shoreside processing Option 1 would generate fewer reasons for appeal relative to Options 2 and 3. This may influence whether the Council believes there is a need for its involvement in the appeals process (Section A-2.1.5).

The recent participation requirements for shoreside processors (Section A-2.1.2.c) will determine the degree to which there is a significant difference between the allocation results and potential number of appeals for Options 1 and 2, but not with respect to Option 3.

❖ Analysis

Objectives related to fairness and equity will likely be affected as well as maximizing net benefits. The effect on net benefits will be primarily through the effect of this choice on the costs of program administration.

● Mothership Entity Options

The issue of whether to give an initial allocation to the owners of motherships or the charterer (where there is a charter) comes up in both the IFQ program and the co-op program. The implications of this decision for the IFQ program are quite different than for the co-op program. For the co-op program, the entity who receives the mothership permit will control whether the vessel is able to participate in the fishery. For the IFQ program, the mothership would not need QS to operate. If the charterer is given the initial allocation of QS, it will be in a stronger position to negotiate prices with the vessel owner. If the mothership owner is given the initial allocation, it can negotiate for some additional compensation from the charterer in return for the QS, or can sell the QS or QP elsewhere, in which case, the charterer can acquire that QS on the market if needed.

An allocation of QS is a distribution of new wealth, and one rationale for its allocation may be to offset losses that might be anticipated to result from the IFQ program. Since program performance will not be affected by the choice of whether to allocate to the vessel owner or charterer, the issue is primarily one of fairness and equity. To the degree that the mothership processors have been engaged in a race-for-fish and, therefore, there have been more participants than necessary, the value of the vessel owner's assets may decline with implementation of an IFQ program. An allocation of QS might then offset some of that reduced asset value. On the other hand, the market value of the charterer's business may change, depending on the effect of the IFQ program on projected profits for the mothership operation and whether the assets of the company include QS. The mothership charterer's profits may increase if it is able to reduce costs in a rationalized fishery, but may decrease if it has to pay higher ex-vessel prices. The net effect is uncertain, but a reduction or increase in the charterer's profits will also change what is available to pay the vessel owner. However, assuming there is a surplus of mothership vessels, the charterer may be less likely to use additional profits to increase what it actually pays for the charter.

● Shoreside Processing Entity Options

The allocation to the first entities that process is premised on the idea that these shoreside entities have more capital at risk than those who just operate buying stations. Implementation of the IFQ program may put returns to capital at risk, primarily to the degree that there is processor overcapitalization. If there is not processor overcapitalization, then processors are expected to earn normal returns on the

investments (technically termed "zero economic profit") under an IFQ program, regardless of whether they receive an initial allocation of QS (see Appendix E). One of the primary arguments given for allocating to processors is the need to maintain a balance of negotiating power between processors and harvesters. While the Council's desire to allocate QS to the first processor may not be fully realized through an allocation to buyers (Option 1), it is presumably the buyers who are in negotiation with the harvesters rather than the processors acquiring fish from the buyers. On that basis, the allocation to buyers (Option 1), while rough in its attempt to compensate those who may experience the most loss in capital value, may be more precise with respect to allocation objectives related to the effective balance of market power between harvesters and those to whom they sell. Option 1 is also the option with the lowest administrative cost because the allocation would be based entirely on information already in a government database.

In some transactions, a processor that normally buys and processes may serve as a buyer for some other business that first processes the fish (i.e., processing businesses are known to buy and process some fish while other fish they buy and pass on to another company). Option 2 would screen out all of those entities that only act as buyers and never process (those entities that only fall in Category 2 of Table A-33). There would be some additional administrative costs associated with determining whether a threshold processing criteria is met and that cost would likely be higher to the degree that there are uncertainties about the measures of those criteria (see Section A-2.1.1.c). This evaluation would be required for every applicant, though the determination would likely be relatively simple for many. As a result of applying this screen, a greater portion of the processor allocation of harvesting QS would go to those entities in Category 1 (there would be some deliveries for which no entity receives processing credit: those delivered to entities that have never processed groundfish). We do not have information available to tell us in advance the amount of QS that would be redistributed as a result of applying the screening criteria, nor do we know the number of entities that might apply. We do know that if the recent participation criteria (Section A-2.1.2.c) of the Council's PPA are applied, out of 208 buying companies with some buying history from 1994 to 2003, only about 42 would be eligible for an initial allocation of QS. It is likely that most of these did some processing of LE trawl groundfish and would have substantial evidence of that; therefore, the number of cases that might require more difficult individual evaluation would be small. If, instead of the preliminary preferred recent participation alternative (6 mt of LE trawl-caught groundfish in each of three years from 1998 to 2003), only one delivery is required, then there would be 124 potential qualifiers. This may result in a greater administrative burden.

Table A-34. Description of categories of buying and processing activities and, for each option for attributing history, whether the fish handled in those activities would be included or excluded in the allocation formula calculations.

Category of Activity	Description of Activity and Risk	Use of the History In the Allocation Formula		
		Option 1	Option 2	Option 3
1. Buy and Process	All purchases from harvesters that an entity bought and processed (activity which may be associated with the need to negotiate prices with harvesters and having the most capital at risk)	Included	Included	Included
2. Buy Only	All purchases from harvesters that an entity bought whether or not they processed (activity which may be associated with the need to negotiate prices with harvesters but may or may not have the most capital at risk)	Included	Included only if at some time the receiving entity processed some trawl caught groundfish	Excluded
3. Process Only (1st Processing)	All purchases from fish buyers made by those who only processed (activity which may be associated with entities not involved with negotiating price with harvesters but having only capital at risk)	Excluded	Excluded	Included

Under Option 3, every landing would be initially assumed to have been delivered to a processor, but every landing would also be open to question. Option 3 provides the opportunity to limit the allocation so that it only goes to those that fall under either category 1 or 3, identified in Table A-33. It most closely matches the stated intent of an allocation to processors and would match it exactly if every landing that falls in the third category is identified and any disputes resolved. For the large majority of the landings, it is likely that there would be no difference between the first receiver and the processor; however, because of the many landings occurring from 1994 to 2003, there is a potential for landings to be split in the processing plant, with some of the fish being processed by the buyer and others being passed on to another entity for first processing. For this analysis, it is not possible to know the number of landings that were not processed by the buyer, and, even if we have this information, it would not be possible to know the number for which a dispute might arise. Unlike for Option 2, the recent participation requirement will have little effect on the potential administrative costs. As with Option 2, clarity of the definition of processing activity will help reduce administrative costs.

The provisions related to successor in interest affects objectives related to fairness, equity, and net benefits. These provisions were developed with the intent of allocating to the entity that is currently active in the processing sector and most closely associated with the historic buying and/or processing activity. To the degree that the history reflects ongoing dependence and business activity, this approach is expected to minimize the number of transactions needed to get the QS into the hands of those who can use it. Processors can use the QS/QP on their own vessels or as leverage in negotiations with vessels delivering to them. Disputes, fairness, and equity concerns are most likely to arise in situations where some assets of one processing entity have been transferred to another, but both remain active in the industry. For example, a portion of the customer base was transferred, or one trademark or name under which a business operates was conferred but not another. Resolution of these issues in a fair and equitable manner that also minimizes disruption will depend in part on criteria that are being left to NMFS to develop.

A-2.1.2 Recent Participation

The recent participation requirement is evaluated in the following sections. Refer to Section A-2.1.3.a, "Allocation Periods" for additional discussion of the rationale for the periods used for the recent participation requirements.

A-2.1.2.a Permits (including catcher-processor permits)

❖ *Provisions and Options*

Recent participation is not required in order for a permit to qualify for an initial allocation of QS.

❖ *Rationale and Options Considered, But Not Included*

By allocating to permits, the Council ensures that the allocation will go to those that currently own assets in the fishery (the permit). A recent participation requirement would screen out permits that have been latent in recent years. A number of recent participation options were considered. Most looked at using 1998-2003 as the recent participation qualifying period, but no specifics were determined before this option was rejected. After reviewing the preliminary data, it was determined that the harvest history of the vessels that would be screened out by a recent participation requirement was not significant enough to warrant the costs of developing and implementing the provision and the resistance likely to be encountered by those screened out.

When the recent participation requirement was being considered, an option was proposed under which the requirement could be met for all catcher vessel sectors with participation in any one sector. Thus a permit that participated in the nonwhiting fishery in the early 1990s but only the mothership fishery during the recent participation period would be eligible for an allocation related to its nonwhiting history by virtue of its recent participation in the mothership sector.

❖ *Interlinked Elements*

The main provisions with which a recent participation requirement would interact are the initial allocation formulas of Section A-2.1.3.

❖ *Analysis*

The choice to have or not have a recent participation requirement primarily affects objectives related to fairness and equity and program costs. While a recent participation requirement might be considered reasonable and responsive to the MSA direction to consider current and historic participation and to consider investment and dependence, the likely impacts on the initial QS allocation appeared to be minimal with respect to their impact on the landing history based portion of the allocation. However, the impacts of a recent participation requirement may be somewhat more substantial if a portion of the QS is equally divided (Section A-2.1.3.a).

The following sections identify the effects of potential recent participation criteria for each catcher vessel sector. Table A-34 provides an overview of the cross participation among sectors by permits from 1994 through 2003.

Table A-35. Count of permits participating in each catcher vessel sector, by sector combinations for 1994 to 2003 participation.

	Number of Permits by Sector		
	Mothership	**Shoreside Whiting**	**Shoreside Nonwhiting**
Mothership Sector History Only	2	-	-
Mothership Sector and Shoreside Whiting (no shoreside nonwhiting participation)	3	3	-
Mothership and Shoreside Nonwhiting (no shoreside whiting)	2	-	2
Participation in All Three Sectors	25	25	25
Shoreside Whiting Only Catcher Vessels	-	-	0
Shoreside Whiting and Nonwhiting Catcher Vessels (no mothership whiting)	-	31	31
Nonwhiting Only Catcher Vessels	-	-	105
Sector Totals	32	59	163
None (no qualifying whiting or nonwhiting history)	1		
Total Catcher Vessels Permits (All Sectors)	**169***		

* As of the summer of 2008, there are 168 permits: Two permits were combined together.

● Shoreside Nonwhiting Catcher Vessels

Depending on the recent participation requirement, between 12 percent and 48 percent of the permits would be excluded from the shoreside nonwhiting by a requirement that a permit participate for a certain number of years in a recent period in order to qualify for an initial allocation (Table A-35 and Table A-36). A moderately stringent recent participation requirement (requiring participation in three out of six years from 1998 through 2003) would exclude permits with only 8 percent of the landings (Table A-37). Levels of minimum participation more likely to be selected would exclude even fewer landings from the initial allocation. A level which would exclude less than 25 permits would raise the allocation of everyone remaining by about no more than 5 percent, assuming the allocation is based entirely on landings history (i.e., if there is no equal allocation component).

If recent participation is combined with the equal allocation of buyback permit-related QS history (Section A-2.1.3.a), recent participation might have somewhat more of an impact. First we will look at the effect of the recent participation requirement on the 56 percent of the QS allocated based on permit landings history and then on the 44 percent that would be allocated equally. To illustrate, a requirement of a minimum of two years with shoreside nonwhiting landings from 1998 through 2003 will be considered in the context of an 80 percent allocation to permits. This recent participation requirement screens out 26 permits. As a result, the amount of QS an average permit receives based on its landing history would increase by about 2.9 percent and the average amount a permit receives based on equal allocation would increase by 8.4 percent (Table A-38). On average, the total allocation to each permit would increase by 11.3 percent (the actual amount of the increase for a particular permit varies by species and permit specific history). If a vessel could qualify with recent participation through catcher vessel landings in any sector, only 10 vessels would be screened out, and the amount of increase associated with equal allocation would decline from 8.4 percent to 2.8 percent (Table A-38). The effect on the history-based portion of the allocation would be four-tenths of one percent (Table A-39) and if only 56 percent of the allocation is based on history, then the recent participation requirement for the nonwhiting QS would increase the history-based allocation for all permits by about two-tenths of a percent, on average. So the combined effect of a recent participation requirement (two years of

participation from 1998 to 2003) that could be met with landings in any catcher vessel sector would be about a 3.0 percent increase for remaining participants, on average.

Table A-36. Number of permits not meeting recent participation requirements for a variety minimum participation periods and numbers of years of participation required during the participation period (buyback permits not included).

Shoreside Nonwhiting Minimum Participation Requirement						
Recent Participation Period	Number of Years For Which Deliveries Could be Required to Meet Recent Participation Requirement					
	1 year	2 years	3 years	4 years	5 years	6 years
2000-2003	34	42	55	75		
1999-2003	23	35	45	57	76	
1998-2003	19	25	39	48	61	79

Table A-37. Percent of permits with some shoreside nonwhiting landings during 1994 to 2003 (N=163) not meeting recent participation requirements for a variety minimum participation periods and numbers of years of participation required during the participation period (buyback permits not included).

Shoreside Nonwhiting Minimum Participation Requirement						
Recent Participation Period	Number of Years For Which Deliveries Could be Required to Meet Recent Participation Requirement					
	1 year	2 years	3 years	4 years	5 years	6 years
2000-2003	21%	26%	34%	46%		
1999-2003	14%	21%	28%	35%	47%	
1998-2003	12%	15%	24%	29%	37%	48%

Table A-38. Percent of 1994 to 2003 shoreside nonwhiting landings by permits that did not meet the indicated minimum participation requirements.

Shoreside Nonwhiting Minimum Participation Requirement						
Recent Participation Period	Number of Years For Which Deliveries Could be Required to Meet Recent Participation Requirement					
	1 year	2 years	3 years	4 years	5 years	6 years
2000-2003	7%	11%	15%	23%		
1999-2003	4%	7%	11%	15%	23%	
1998-2003	1%	5%	8%	12%	15%	24%

Table A-39. Effect of a recent participation requirement on the amount of equal share-based QS allocation a permit receives (assuming on average 44 percent of the QS is allocated equally among permits and 80 percent of the QS goes to permits).

Requirement : 2 Years of Activity in 1998-2003 **Sectors of Activity**	**Permits in the Sector(s)**	**Permits Screened Out**	**Permits Remaining**	**Permit Share of Equal Allocation of Permits are Screened Out**	**Percent Change in the Equal Allocation Portion for Each Permit**	**Change in Allocation as a Percent of Permit's Total QS Allocation (On Average)**
Nonwhiting	163	26	137	0.26%	19%	8.4%
Nonwhiting or Shoreside Whiting	166	18	148	0.24%	12%	5.4%
Nonwhiting, Shoreside or Mothership Whiting	168*	10	158	0.22%	6%	2.8%

* Of the 169 total permits one permit does not have any history from 1994 to 2003.

Table A-40. Number of permits and amount of landing history screened out by not meeting a 1998 to 2003 recent participation requirement with nonwhiting or shoreside whiting or mothership whiting deliveries.

All Sector Minimum Participation Requirement for Catcher Vessel Permits						
	Number of Years For Which Deliveries Could be Required to Meet Recent Participation Requirement					
Screened Out	**1 Year**	**2 Years**	**3 Years**	**4 Years**	**5 Years**	**6 Years**
Number of Permits	7	10	18	29	42	62
Percent of All Permits (169)	4%	6%	11%	17%	25%	4%
Sector of Deliveries	Percent of 1994-2003 the Sector's Deliveries Screened Out					
NonWhiting	0.3%	0.4%	2.0%	5.9%	10.3%	20.0%
Shoreside	0.0%	0.0%	0.0%	10.1%	14.3%	25.1%
Mothership	0.0%	0.6%	0.6%	4.3%	12.8%	16.7%

● Shoreside Whiting Catcher Permits

As with the shoreside nonwhiting permits, the impact from screening shoreside whiting with a recent participation requirement would do little to shift the landing history-based portion of the allocation. For the permits with some shoreside whiting landings (59), the proportion affected by recent participation requirements would be somewhat higher than for the nonwhiting vessels, 31 percent (18 permits) for a requirement of two years in 1998 to 2003 (Table A-40 and Table A-41), as compared to 15 percent (25 permits) for the same requirement for nonwhiting. As compared to the nonwhiting vessels, the amount of landing history affected by recent participation would be somewhat higher: 6 percent of the landings for a requirement of two years in 1998 to 2003 (Table A-42), as compared to 5 percent for a similar requirement the nonwhiting fleet. If the shoreside whiting and nonwhiting requirements are combined into a single recent participation requirement, as was proposed early on, the impacts would be even less (8 percent of the shoreside whiting permits and 2 percent of the shoreside whiting landings would be affected by a requirement of two years in 1998 to 2003; Table A-43). The amount of whiting affected by the equal allocation portion of the formula is very small (about 7 percent of all of the shoreside whiting QS would be equally allocated, as compared to 44 percent of the nonwhiting QS). Therefore, the effect of the recent participation requirement decision has a minimal effect on each individual permit's total allocation with respect to the equally shared portion of the shoreside whiting allocation.

Table A-41. Number of permits with some shoreside whiting landings during 1994 to 2003 that did not have shoreside whiting landings during the 1998 to 2003 qualifying period in the indicated number of years (buyback permits not included).

Shoreside Whiting Minimum Participation Requirement						
	Number of Years For Which Deliveries Could be Required to Meet Recent Participation Requirement					
Recent Participation Period	**1 year**	**2 years**	**3 years**	**4 years**	**5 years**	**6 years**
2000-2003	15	27	35	39		
1999-2003	13	22	30	38	42	
1998-2003	9	18	26	34	38	42

Table A-42. Percent of permits with some shoreside whiting landings during 1994 to 2003 (N=59) that did not have shoreside whiting landings during the 1998-2003 qualifying period in the indicated number of years.

Shoreside Whiting Minimum Participation Requirement						
	Number of Years For Which Deliveries Could be Required to Meet Recent Participation Requirement					
Recent Participation Period	1 year	2 years	3 years	4 years	5 years	6 years
2000-2003	25%	46%	59%	66%		
1999-2003	22%	37%	51%	64%	71%	
1998-2003	15%	31%	44%	58%	64%	71%

Table A-43. Percent of 1994 to 2003 shoreside whiting landings by vessels that did not have landings during the 1998 to 2003 qualifying period in the indicated number of years.

Shoreside Whiting Minimum Participation Requirement						
	Number of Years For Which Deliveries Could be Required to Meet Recent Participation Requirement					
Recent Participation Period	1 year	2 years	3 years	4 years	5 years	6 years
2000-2003	6%	19%	27%	33%		
1999-2003	3%	6%	11%	23%	31%	
1998-2003	3%	6%	11%	23%	31%	38%

Table A-44. Shoreside whiting permits and history screened out by not meeting a 1998 to 2003 recent participation requirement with nonwhiting or shoreside whiting deliveries.

Shoreside and Nonwhiting Whiting Minimum Participation Requirement						
	Number of Years For Which Deliveries Could be Required to Meet Recent Participation Requirement					
Screened Out	1 Year	2 Years	3 Years	4 Years	5 Years	6 Years
Number of Permits	3	5	6	13	18	22
Percent of Shoreside Whiting Permits (n = 59)	5%	8%	10%	22%	27%	37%
	Percent of 1994-2003 Landings					
Shoreside Whiting	0%	2%	2%	15%	19%	29%

Note: In March 2010, an error was discovered in one of the vessel identifier files that led to the misassignment of catch for six permits. For three of these permits, less than 1 percent of the catch history was affected; for one permit, 4 percent was affected. For the remaining two permits, 100 percent of the catch history was assigned to the wrong permit (i.e., the catch history was swapped between these two permits), and the distribution of harvest among years was off. The error does not have any effect on Table through Table .

- Mothership Whiting Catcher Vessels

A recent participation screen of two years from 1998 to 2003 would screen out fewer permits (8) and a somewhat smaller proportion of the mothership catcher vessel fleet (25 percent), as compared to the 18 permits (31 percent) that would be affected by a similar requirement for the shoreside whiting fishery

(Table A-42 and Table A-45). The amount of landing history screened out would be comparable to the nonwhiting fishery (6 percent, Table A-48). If the recent participation requirement could be met through any catcher vessel sector, the impacts would be even less with only six-tenths of a percent of the mothership whiting landings affected, Table A-39. Only 1 vessel delivering to the mothership sector would be screened out. The amount of mothership whiting affected by the equal allocation portion of the formula is very small (about 3 percent of all of the mothership whiting QS would be equally allocated, as compared to 44 percent of the nonwhiting QS). Therefore, the effect of the recent participation requirement decision will have minimal effect on each individual permits total allocation with respect to the equally shared portion.

Table A-45. Number of permits with some mothership whiting landings during 1994 to 2003 that did not have mothership whiting landings during the 1998 to 2003 qualifying period in the indicated number of years (buyback permits not included).

Mothership Whiting Minimum Participation Requirement						
Recent Participation Period	Number of Years For Which Deliveries Could be Required to Meet Recent Participation Requirement					
	1 year	2 years	3 years	4 years	5 years	6 years
2000-2003	9	14	20	22		
1999-2003	5	8	11	14	21	
1998-2003	5	8	11	14	21	23

Table A-46. Percent of permits with some mothership whiting landings during 1994 to 2003 (N=32) that did not have mothership whiting landings during the 1998 to 2003 qualifying period in the indicated number of years.

Mothership Whiting Minimum Participation Requirement						
Recent Participation Period	Number of Years For Which Deliveries Could be Required to Meet Recent Participation Requirement					
	1 year	2 years	3 years	4 years	5 years	6 years
2000-2003	28%	44%	63%	69%		
1999-2003	16%	25%	34%	44%	66%	
1998-2003	16%	25%	34%	44%	66%	72%

Table A-47. Percent of 1994 to 2003 mothership whiting landings by vessels that did not have landings during the 1998 to 2003 qualifying period in the indicated number of years.

Mothership Whiting Minimum Participation Requirement						
Recent Participation Period	Number of Years For Which Deliveries Could be Required to Meet Recent Participation Requirement					
	1 year	2 years	3 years	4 years	5 years	6 years
2000-2003	7%	19%	39%	48%		
1999-2003	2%	6%	11%	19%	43%	
1998-2003	2%	6%	11%	19%	43%	51%

- Catcher-Processor Vessels

A recent participation criterion for catcher-processors would not be applicable to the preferred alternative because the final Council recommendation did not include IFQs for this sector (see Appendix B).

Beginning in 1998, the catcher-processors operated under a voluntary co-op. Under the co-op structure, costs were reduced as fewer vessels participated (Table A-47), but revenues were shared among permit holders. Because of this voluntary agreement under which some vessels sat out of the fishery, it would be unfair at this point to impose a recent participation requirement. The voluntary co-op has been beneficial for the fishery and the economy. Imposition of a recent participation requirement would discourage the future formation of such voluntary co-ops if similar opportunities were to arrive in other sectors or fisheries.

Table A-48. Catcher–processor permits with some activity during 1994-2006.

	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
CP01	■	■	■	■	■	■	■	■	■	■	■	■	■
CP02	■	■	■	■	■	■	■	■	■	■	■	■	■
CP03	■	■	■	■	■	■	⊠	⊠	⊠	⊠	⊠	⊠	■
CP04	■	■	■	■	⊠	■	⊠	■	⊠	■	■	■	■
CP05	■	■	■	■	■	⊠	■	■	■	■	■	■	■
CP06	■	■	■	■	■	■	■	■	■	■	■	■	■
CP07	■	■	■	■	■	⊠	■	■	■	■	■	■	■
CP08	■	■	■	■	■	■	■	⊠	⊠	⊠	⊠	⊠	■
CP09	■	■	■	■	⊠	⊠	■	■	⊠	⊠	⊠	⊠	■
CP10	■	■	■	■	⊠	⊠	⊠	⊠	⊠	⊠	⊠	⊠	⊠
Total number active in the period	10	10	10	10	7	6	7	7	5	6	6	6	9
Minimum annual mt for the period	2,087	1,932	4,577	3,459	4,618	3,815	673	1,510	3,626	3,471	5,288	6,492	4,028

A-2.1.2.b Processors (Mothership) (N/A)

❖ *Provisions and Options*

This provision is not applicable to the preferred alternative because the final Council recommendation did not include IFQs for motherships (see Appendix B). The section header is maintained to provide continuity of numbering and cross referencing in various documents generated during this process.

Recent participation is required to qualify for QS:
1,000 mt or more of groundfish in each of any two years from 1997-2003.

❖ *Rationale and Options Considered, But Not Included*

Recent participation was considered for mothership processors for the same reasons identified for catcher vessels. IFQs for the mothership sector was not part of the final preferred alternative; therefore, the Council made no determination as to whether or not recent participation would be part of the program if IFQs were adopted for the mothership sector and an allocation give to processors. During deliberations on a recent participation criterion for this sector, in addition to the 1997 to 2003 option included for analysis, 1998 to 2003 and 1998 to 2004 were also considered. A period ending in 2004 was rejected because it went beyond the November 6, 2003, control date. A starting date of 1997 was used because it was the first year in which there was a three-way allocation between the whiting sectors.

❖ *Interlinked Elements*

Initial allocation is the main provision with which recent participation would interact. For recent participation requirements set at what would likely be considered reasonable levels, the effects of having or not having the requirement would be minimal.

❖ *Analysis*

The choice to have or not have a recent participation requirement primarily affects objectives related to fairness and equity and program costs. While recent participation might be considered reasonable and responsive to the MSA direction to consider both current and historic participation and investment and dependence, reasonable levels for such requirements would have little effect.

The recent participation period option selected for analysis of IFQs for the mothership sector coincided with the allocation period (Section A-2.1.4.c). This would make the recent participation criterion more of a minimum threshold than a screen that increases the emphasis on more recent years of the allocation period. Most mothership companies have consistent participation in the fishery (Table A-48). Four have not participated since 1995, and they would not receive an initial allocation for an allocation period that runs from 1997 to 2003. One company only entered the fishery after the allocation period. There is only one company that was absent for a number of years during the allocation period and might, therefore, be affected by requirement for a certain number of years of activity. To screen out any companies, the minimum participation requirement would have to require more than four years of activity; to screen out more than one company, the amount of landings required in each of those years would have to exceed 7,000 mt. The mothership recent participation option (1,000 mt in 2 years from 1997 to 2003) would not screen out any companies that would be eligible for an initial allocation. The option, therefore, would impose some minor administrative costs with respect to promulgation of the regulations with no effect on the allocation.

Table A-49. Mothership companies with some activity during 1994-2006.

	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
MS Company 1	■	■	■	■	■	■	■	■	■	■	■	■	■
MS Company 2	■	■	■	■	■	■	■	■	■	■	■	■	■
MS Company 3	■	■	⊠	⊠	⊠	⊠	⊠	⊠	⊠	⊠	⊠	⊠	⊠
MS Company 4	⊠	⊠	⊠	⊠	⊠	⊠	⊠	⊠	⊠	⊠	⊠	⊠	■
MS Company 5	■	■	■	■	■	■	■	■	⊠	⊠	⊠	■	■
MS Company 6	■	⊠	⊠	⊠	⊠	⊠	⊠	⊠	⊠	⊠	⊠	⊠	⊠
MS Company 7	■	■	■	■	■	■	■	■	■	■	■	■	■
MS Company 8	⊠	■	⊠	⊠	⊠	⊠	⊠	⊠	⊠	⊠	⊠	⊠	⊠
MS Company 9	⊠	■	⊠	⊠	⊠	⊠	⊠	⊠	⊠	⊠	⊠	⊠	⊠
Total number active in the period	6	7	4	4	4	4	4	4	3	3e	3	4	5
Minimum annual mt for the period	2,817	3,451	5,451	6,884	7,794	6,552	6,028	6,405	7,935	7,068	7,230	5,569	1,749
Average annual mt for the period	9,577	12,786	11,539	12,219	11,994 e	11,791	10,354	8,897	8,864	8,674	8,034	12,135	11,071
			■	= Active			⊠	= Not Active					

Note: Table updated, May 11, 2010

A-2.1.2.c Processors (Shoreside)

❖ *Provisions and Options*

No allocation was made to processors for nonwhiting trips; therefore, Nonwhiting Options 1 and 2 are not applicable to the Council's final preferred alternative.

Nonwhiting Option 1: 1 nonwhiting groundfish trip delivery from 1998-2003.
Nonwhiting Option 2: 6 mt or more of deliveries from nonwhiting groundfish trips in each of any three years from 1998-2003.

Recent participation is required to qualify for an initial allocation of QS:
Whiting Option 1:1 whiting trip delivery from 1998 to 2003.
Whiting Option 2: 1 mt or more of deliveries from whiting trips in each of any two years from 1998-2003.
►**Whiting Option 3:** 1 mt or more of deliveries from whiting trips in each of any two years from 1998-2004.

❖ *Rationale and Options Considered, But Not Included*

There is more transient participation in the shoreside processing sector than among trawl permits. The shoreside receipt of a trawl delivery from a vessel requires substantially less long-term commitment to the groundfish trawl fishery. Because of these issues related to dependency and involvement, the Council is considered a recent participation requirement for the shoreside processing sector. Initial information indicated that a recent participation requirement might substantially reduce the number of applicants, reducing administrative costs with a relatively minor effect on the allocation to those remaining eligible.

❖ *Interlinked Elements*

This provision most strongly interacts with the initial allocation formula, affecting the distribution of the initial allocation of QS. The fewer the buyers receiving allocations, the more QS exists for those receiving an initial allocation. If there were no QS control-limit grandfather clause and no opportunity to divest, the distribution of the initial allocation among processors would be strongly affected by the accumulation limit, causing a significant portion of the allocation to be redistributed away from those that would otherwise receive shares in excess of the accumulation limit. With the imposition of a recent participation requirement, the number of entities sharing the redistribution declines substantially, increasing the amount of the redistribution received by any one entity. However, while the Council's FPA does not include a grandfather clause, it does include a divestiture provision. Divestiture allows entities to receive an initial allocation in excess of QS control limits and provides them a period to divest themselves of excess shares.

❖ *Analysis*

As with harvesters and at-sea processors, the choice to have or not have a recent participation requirement primarily affects objectives related to fairness and equity and program costs.

A recent participation requirement will screen out some buyers and their associated history. The percent of landing history screened out affects the amount by which all other allocations would increase. For example, screening out 4 percent of the landing history would increase the allocation of all those

remaining by about 4 percent (given that there is not an equal allocation component to the processor allocation formula). The value of QS for which those who are screened out by a recent participation criterion might otherwise qualify could be comparable to the application fees (or substantially offset by the application fees). Under such circumstances, the loss from being screened out might be relatively minor. For example, if, for shoreside nonwhiting processors, a recent participation requirement were adopted of at least 1 mt in one year from 1998 to 2003, 124 firms with 3.7 percent of the 1994 to 2003 landing history would be screened out of the initial allocation (top row middle column of Table A-49). Assuming a total nonwhiting ex-vessel revenue of $24 million, a processor share of 20 percent and that 124 firms were screened out, the average ex-vessel revenue associated with the QP that might be issued annually to the firms eliminated by the recent participation requirement would average about $1,700. If the total Federal cost of the initial issuance of the QS is $500,000, and it is anticipated that about 300 entities will apply (the 121 entities owning permits and the 208 entities with some processing history), the application fees would be about $1,700. If the QS were to trade at a value equal to the annual ex-vessel revenue associated with the QP, then, on average, those screened out would not experience a substantial economic loss compared to their net gain from applying for and receiving QS (i.e., on average their application fee would have been close to value of the QS they received). However, QSs often trade at multiples of the expected ex-vessel revenue and lease QP price, such that the hypothesized application cost would only partially offset the loss a firm would experience from being screened out of the initial allocation.[39] Nevertheless, for those screened out by a recent participation requirement, it would be likely that a substantial portion of the lost opportunity to qualify for QS would be offset by their avoidance of the application fees. Section A-2.3.3 includes estimates of the expected program costs that can be compared to the values hypothesized here.

Using the hypothetical assumption that the processing cost associated with each application is $1,500, a recent participation requirement that screens out 124 companies would save the economy $211,000 and reallocate about 4 percent of the QS among the remaining 84 processors (an amount with an annual ex-vessel revenue equivalent of about $200,000).

The following sections contain information for each shoreside sector on the effect of the recent participation requirements on the number of buyers that would be potentially eligible for an initial allocation and the amount of landing history that would be screened out by application of the criteria.

- Nonwhiting

For the nonwhiting buyers, we consider the Council's two recent requirement participation options and an option included for analytical purposes (at least 1 mt of landings in at least one year from 1998 to 2003). As shown in Table A-49, 124 companies received at least one delivery of nonwhiting groundfish and 84 did not from 1998 to 2003 (Option 1). The deliveries to companies with some 1998 to 2003 participation represents 96.2 percent of the 1994 to 2003 deliveries. Requiring participation of 1 mt in a year would result in 84 qualifying companies and 124 excluded (middle column in Table A-49); however, the change in the 1994 to 2003 share of harvest by those meeting the standard is nearly imperceptible (96.2 percent compared to 96.1 percent). This small change reflects that many companies received very small amounts of groundfish, often in just one year during the 1994 to 2003 allocation period.

[39] QS often trade at a price that is between 3 and 10 times the QP lease price (Asche 2001). The QP lease price will be less than the annual ex-vessel revenue generated by the QP because the lease price will reflect profits related to the resource, after deducting for harvest costs. In 2004, total costs equaled revenue, including 5 percent return on capital (Lian, et. al, 2008). Under IFQs, a cost savings is expected of 50 percent to 60 percent. If QP prices are based on average vessel profits, they might be one half of ex-vessel revenue such that QS for $1,500 worth of fish might be expected to trade for about $3,750 (assuming a 5:1 QP:QP ratio).

Table A-50. Number of shoreside nonwhiting buying firms by maximum number of years of participation from 1998 through 2003 at indicated annual participation levels and those firms' share of the total 1994 to 2003 history (gray cells indicate firms do not meet the criteria of recent participation options).

Maximum Number of Years of 1998-2003 Participation	Annual Participation Level					
	1 delivery (>0 MT) (Option 1 requires 1 year >0 MT)		At Least 1 MT (Analytical Option requires 1 year >0 MT)		At Least 6 MT (Option 2 requires 3 years >6 MT each)	
	Number of Firms	Share of '94-'03	Number of Firms	Share of '94-'03	Number of Firms	Share of '94-'03
No Participation Greater than the Indicated Amount	70	3.7%	110	3.7%	125	4.0%
1	41	4.8%	26	4.9%	25	4.9%
2	31	2.3%	16	2.3%	12	3.7%
3	17	6.8%	15	8.3%	12	6.8%
4	6	3.6%	5	3.6%	5	4.2%
5	8	3.6%	7	2.0%	2	1.4%
6	21	75.1%	15	75.0%	13	75.0%
Total Meeting Standard (total of unshaded cells)	124	96.20%	84	96.10%	32	87.40%

The third column in Table A-49 is most restrictive, requiring an annual minimum participation of at least 6 mt to be counted as a participant in a particular year. Recent participation Option 2 requires such participation in each of three years during 1998 to 2003. As shown above in Table A-49, although fewer companies qualify (just 32 participated in three or more years with at least 6 mt), these companies received 87.4 percent of the groundfish during the 1994 to 2003 allocation period.

Geographic impacts by state are summarized in Table A-50. The number of companies that would not qualify under a given recent participation criteria is displayed above the dotted line (criteria not met), and those that would qualify are displayed below the dotted line (criteria met). Most of the companies receiving nonwhiting are located in California and the impact on California is proportionally greater than for the other states.

Table A-51. Number of shoreside nonwhiting buyers operating within each state and active during the indicated periods (1998 to 2003 and 1994 to 2003) and either meeting or not meeting the indicated criteria.

Recent Participation Options	Number of Firms					
	California		Oregon		Washington	
	1994-2003	1998- 2003	1994-2003	1998- 2003	1994- 2003	1998- 2003
Criteria from Council Option 1 (>0 MT in any year)						
Criteria Not Met	0	48	0	10	0	8
Criteria Met	134	86	38	28	28	20
Criteria from Analytical Option (>1 MT in 1 yr)						
Criteria Not Met	54	77	12	19	3	11
Criteria Met	80	57	26	19	25	17
Criteria from Council Option 2 (>6 MT in each of at least 3 years)						
Criteria Not Met	107	114	22	28	14	19
Criteria Met	27	20	16	10	14	9

The differences in the level of impacts between states are less dramatic when the proportional changes are considered rather than the totals. This is illustrated in Table A-51, which summarizes the effects on number of entities and quantity and raw product cost of the three options. The three options are compared for illustration purposes to the totals of quantity and raw product cost for all companies receiving nonwhiting within the allocation period. For the Option 1 requirement, there is less difference in the proportion of the impacts between Oregon and Washington than there is between either of those states and California. As the recent participation requirement is increased, the proportion of the number of entities affected within the state increases more for California and Oregon than it does for Washington, but the amount of landing history affected for Washington increases more than for California or Oregon,

Table A-52. Number of buyers and deliveries screened out by recent participation requirement options, by state.

Recent Participation Requirement	California		Oregon		Washington	
	Number of Companies Not Meeting the Indicated Recent Participation Requirement, Their 1994-2003 Purchases (weight and ex-vessel value), and Each Expressed as Percent of the State Total					
Option 1 Any Activity (>0 MT)	48 companies 37% of Total		10 companies 26% of Total		8 companies 29% of Total	
	7,062.9 mt 5%	$7.83 (mil) 5%	4,538.4 mt 3%	$4.35 (mil) 2%	1,904.0 mt 3%	$1.63(mil) 3%
Analytical Option >1 MT in any year	77 companies 57% of Total		19 companies 50% of Total		11 companies 39% of Total	
	7,080.5 mt 5%	$7.87 (mil) 5%	4,542.6 mt 3%	$4.36 (mil) 2%	1,910.0 mt 3%	$1.64(mil) 3%
Option 2 > 6 MT in three years	114 companies 85% of Total		28 companies 74% of Total		19 companies 68% of Total	
	17,639.3 mt 13%	$19.64 (mil) 14%	17,894.5 mt 10%	$17.26 (mil) 10%	10,225.5 mt 17%	$9.17 (mil) 19%
	Data for All Companies Active from 1994-2003					
ALL COMPANIES	134 companies		38 companies		28 companies	
	133,998.6 mt	$144.78 (mil)	170,424.8 mt	$178.31 (mil)	61,366.1 mt	$49.44 (mil)

- Whiting

For the nonwhiting buyers, the Council initially considered two recent participation options and added a third option when it took final action. The first two options the Council considered focused on a 1998 to 2003 recent participation period. The third option extended the recent participation period and the allocation period to 2004. We will analyze the Council's first two options and then provide a separate discussion of the impact of the Council's final recommendation. As shown in Table A-52, 17 companies received at least one delivery of whiting and 9 did not, from 1998 to 2003 (Option 1). The deliveries to companies with some 1998 to 2003 participation represent 94.3 percent of the 1994 to 2003 deliveries. Requiring participation of 1 mt in any two years would result in 9 qualifying companies and 17 excluded; however, the change in the 1994 to 2003 share of harvest by those meeting the standard is imperceptible.

Table A-53. Number of shoreside whiting buying firms by maximum number of years of participation from 1998 through 2003 at the indicated annual participation levels and those firms' share of the total 1994 to 2003 history (gray cells indicate firms that do not meet the criteria of recent participation options).

Maximum Number of Years of 1998-2003 Participation	Annual Participation Levels			
	1 delivery (>0 mt) (Option 1 requires 1 year >0 MT)		At Least 1 mt (Option 2 requires 2 year >1 MT)	
	Number of Firms	Share of '94-'03	Number of Firms	Share of '94-'03
No Participation Greater than the Indicated Amount	4	5.7%	6	5.7%
1	8	0.0%	6	0.0%
2	0	0.0%	0	0.0%
3	1	3.5%	1	3.5%
4	2	3.8%	2	3.8%
5	1	4.5%	1	4.5%
6	5	82.5%	5	82.5%
Total Meeting the Criteria (total of unshaded cells)	17	94.3%	9	94.3%

Note: The values in the zero row indicate the number of entities active only before or after 1998 to 2003.

The geographic distribution of companies that received whiting are shown in Table A-53 and Table A-54 (for a requirement of at least one landing in a year) and Table A-55 and Table A-56 (for a requirement of at least 1 mt in each of two years). On a state-by-state basis, the share of landings eliminated through the recent participation criteria is much greater for California than Oregon or Washington (in part, because the amount of total landings in California is so much smaller).

Table A-54. Number of shoreside whiting buyers in each state active during the indicated periods (1994 to 2003 and 1998 to 2003) and having a maximum of the indicated number of years of participation during that period (note: Option 1 requires at least 1 year >0).

Maximum Number of Years of Participation	Number of Firms with 1 Delivery For the Indicated Number of Years					
	California		Oregon		Washington	
	1994-2003	1998- 2003	1994-2003	1998- 2003	1994- 2003	1998- 2003
No Participation	0	1	0	2	0	1
1	4	4	2	1	4	3
2	0	0	0	0	0	0
3	0	0	1	1	0	0
4	1	2	1	1	0	0
5	0	0	0	1	0	0
6 or more	3	1	5	3	3	3
Total Meeting the Criteria		7		7		6

Table A-55. Quantity (in mt) by state and share of state total, 1994 to 2003 receipts, for shoreside whiting buyers screened out by whether or not they whiting during a 1998 to 2003 recent participation period recent participation criteria.

Years With More than 1 Delivery Received:	MT and Share of 1994-2003 History (1998-2003 participation period)							
	California		Oregon		Washington		Total	
	MT	Share	MT	Share	MT	Share	MT	Share
None	8,601	24.2%	27,265	4.5%	6,552	6.5%	42,418	5.7%
1 or More	26,927	75.8%	584,306	95.5%	94,032	93.5%	705,266	94.3%
TOTAL MT	35,528		611,571		100,585		747,684	

Table A-56. Number of shoreside whiting buyers in each state active during the indicated periods (1994 to 2003 and 1998 to 2003) and having a maximum of the indicated number of years of receiving at least 1 mt in the year (note: Option 2 requires at least 2 years >1 mt each).

Maximum Number of Years of Participation	Number of Firms with 1 mt In Each Year For the Indicated Number of Years					
	California		Oregon		Washington	
	1994-2003	1998- 2003	1994-2003	1998- 2003	1994- 2003	1998- 2003
No Participation	2	7	0	5	0	1
1	2	2	2	1	4	3
2	0	0	0	0	0	0
3	0	0	1	1	0	0
4	1	2	1	1	0	0
5	0	0	0	1	0	0
6 or more	3	1	5	3	3	3
Total Meeting the Criteria		3		4		3

Table A-57. Quantity (in mt) by state and share (%) of state total buying history (1994 to 2003) for shoreside whiting buyers screened by the number of years they received at least 1 mt of whiting during the 1998 to 2003 recent participation period.

Years With More than 1 MT Received:	MT and Share of 1994-2003 History (1998-2003 participation period)							
	California		Oregon		Washington		Total	
	MT	Share	MT	Share	MT	Share	MT	Share
0	8,601	24.2%	27,265	4.5%	6,552	6.5%	42,419	5.7%
1	55	0.2%	5	0.0%	191	0.2%	251	0.0%
2 or More	26,871	75.6%	584,301	95.5%	93,842	93.3%	705,014	94.3%
TOTAL MT	35,528		611,571		100,585		747,684	

When the Council took final action, it shortened the front end of the allocation period, changing it from 1994 to 1998 and extended the allocation and recent participation periods, changing them from 2003 to 2004. The extension of the recent participation and allocation periods did not allow any more buyers to qualify for an initial allocation. One new buyer first became active in 2004 (a buyer in California). Because the recent participation requirement requires two years of participation, that buyer will not be eligible for an initial allocation. Additionally, there were no buyers with only one year of participation from 1998 through 2003 who picked up a second year of activity with the extension of the recent participation period to 2004. Thus, the effect of extending the recent participation an additional year and modifying the allocation period will be to redistribute QS among those who were already qualified to receive an initial allocation.

A-2.1.3 Allocation Formula

A-2.1.3.a Permits with Catcher Vessel History

❖ *Provisions and Options*

QS will be issued for all fish management units within the scope of the program (see Section A-1.2) based on equal division and permit history, as follows:[40]

Equal Division:

Option 1: All QS allocated based on permit history (see following formulas).

- **Option 2**: An equal division of the buy-back permits' pool of QS among all qualifying permits plus allocation of the remaining QS based on each permit's history (see following formulas). (The QS pool associated with the buyback permits will be the buyback permit history as a percent of the total fleet history for the allocation period. The calculation will be based on total absolute pounds with no other adjustments and no dropped years.)

Permit History: The remaining QS will be allocated based on each permit's history (see following formulas).

For **nonwhiting** trips, permit history used for QS allocation will be calculated:

For nonoverfished species: using an allocation period of 1994-2003. Within that period use relative history and drop the three worst years.[41]

For overfished species taken incidentally:[42]

Overfished Species Option 1: as it is calculated for nonoverfished species.

- **Overfished Species Option 2:** use target species QS as a proxy based on the following approach: Apply fleet average bycatch rates to each permit's depth and latitude distributions and target species QS allocations. Fleet average

[40] Due to the divestiture provision of Section A-2.3.2.e, it is relatively unlikely that accumulation limits will constrain the amount of QS an entity receives in the initial allocation. However, if an entity qualifies for QS in excess of accumulation limits, and is does not qualify to receive that QS under the divestiture provision, the initial allocation will be constrained by first applying the aggregate limits and then, if necessary, the individual species limits. In using this approach, the entity's QS allocation should not be scaled back more than necessary to stay within limits and any QS not allocated will be reallocated to other QS recipients.

[41] State landings receipts (fish tickets) will be used to assess landings history for shoreside deliveries, and observer data will be used for deliveries to motherships. State landings receipts (fish tickets) will be used to assess landings history for shoreside deliveries. In some cases, fish ticket records do not identify species to the same level of detail used for the IFQ management units (e.g., reports "unspecified rockfish"). Under such circumstances, standard species composition routines usually used at the port level have been applied to vessel level data to estimate the species composition of such landings. In some instances, even after applying species composition information, there may be some fish ticket records that have a groundfish species categorization that does not match with one of the IFQ management units. Under such circumstances, when the initial allocations are made information other than that on the landings records and in logbooks might be used to assign the landing to its most probable species category.

[42] The intent is to provide an allocation method for QS for overfished species that addresses the vessel's need to have the QS to cover incidental catch in fisheries that target healthy stocks. The method would attempt to allocate the species to those who will be receiving QS for related target species. By allocating overfished species QS to those most in need of it, such an allocation would be expected to reduce disruption and transition costs. Currently, the list of overfished species that fall into this category is as follows: bocaccio, canary rockfish, cowcod, darkblotched rockfish, Pacific Ocean perch, widow rockfish, and yelloweye rockfish. This list may change by the time the program is ready to be implemented. If a major target species became overfished, it would not be intended that such a species would be allocated this alternative method (for example species such as Dover sole, sablefish, or Pacific whiting).

bycatch rates for latitudinal areas[43] divided shoreward and seaward of the RCA will be developed from West Coast Observer Program data for 2003-06. For the purposes of the allocation, a permit's QS for each target species will be distributed shoreward and seaward of the RCA and latitudinally based on the permit's logbook information for 2003-06. If a permit does not have any logbooks for 2003-06, fleetwide averages will be used.[44]

For **whiting** trips, permit history used for QS allocation will be calculated as follows:

For whiting, use an allocation period of 1994-2003. Within that period, use relative history and drop the two worst years. If a permit participated in both the shoreside and mothership whiting sectors, the same two years must be dropped for calculation of the permit's QS for each sector.[45]

For bycatch species (if IFQ is used for bycatch species):

Bycatch Option 1: use history for that species, as it is calculated for whiting

► **Bycatch Option 2:** use the whiting history as a proxy (i.e., allocation will be pro rata based on the whiting allocation).

Area Assignments: Landings history will be assigned to catch areas based on port of landing.[46]

Relative history (percent). For each sector, the permit history for each year is measured as a percent of the sector's total for the year.

In some situations the initial allocations may be constrained by accumulation limits. See Section A-2.2.3.e for a discussion of the limits and divestiture requirements.

Organization of the Analysis

The analysis will evaluate each of the elements of the allocation formula for permits, then the allocation formula as a whole in the following sections:

- Equal Allocation
- Allocation Period for History Based Allocation
- Drop Years Provision
- Incidental Catch Species Allocation
- Area Assignments
- Relative History
- Allocation Formula Results

The allocation formula results will be strongly influenced by the grandfather clause option selected in Section A-2.2.3.e. Not having a grandfather clause or divestiture would result in the reallocation of QS away from those who would have otherwise qualified for the shares, expanding the shares of all other recipients in proportion to their allocations. The Council's FPA adds a divestiture provision to the grandfather clause, substantially reducing, if not eliminating, any reallocation that might occur as a result of the application of accumulation limits (QS control limits).

[43] The four areas are as follows: (1) north of 47°40 N Lat; (2) between 47°40 N Lat and 43°55 N Lat; (3) between 43°55 N Lat and 40°10 N Lat; and (4) south of 40°10 N Lat.

[44] In order to determine an amount of aggregate target species to which bycatch rates will be applied, each vessel's QS will be multiplied by the trawl allocation at the time of implementation.

[45] State landings receipts (fish tickets) will be used to assess landings history for shoreside deliveries and observer data will be used for deliveries to motherships.

[46] Catch area data on fish tickets are not considered appropriate for this purpose. It is often filled out by fish receivers that assume the vessel has been fishing in nearby ocean areas. Therefore, it will be assumed that all catch comes from ocean areas near the port of landing.

The allocation of catcher vessel QS is intended for permits that are used for catcher vessels (permits other than those associated with catcher-processors). The first decision point in the allocation formula is whether a portion of the QS will be equally divided among permits. The portion that is not allocated equally will be allocated based on permit history. All other options for the initial allocation formula relate to the method used to allocate the portion of the QS that will be allocated based on history.

Early in the program, the quality of the vessel landings data set (fish tickets) was evaluated, and the amount of fish landed in species groups was compared to the current allocation categories. Landings are sometimes reported in nominal categories and species composition proportions developed from port sampler data are applied to those categories to estimate the actual catch composition. Estimation of catch composition in this manner provides statistically valid results for the fleet as a whole, but may not reflect the actual catch composition of a particular vessel on a particular day (for a particular landing). Despite this, it was decided that the species composition proportions applied to individual landings would be used for the initial allocation because it would yield a QS allocation that more closely parallels the actual catch composition than an approach that used landings information aggregated at a higher level to allocate individual QS for each species category.

Even after the application of the species composition information for some years and species, there were substantial amounts of unspecified rockfish that remained unclassified. Because there are sorting requirements for rockfish species for which there are specific management targets (OYs) it is assumed that the unclassified rockfish belong in the remaining rockfish category. "Shelf Rockfish" is the most likely single category to which the unspecified rockfish would likely belong; therefore, all unspecified rockfish were assigned to this category for purpose of analysis. During the initial allocation process there may be other evidence available, such as logbook information and the other species taken on the trip, which could indicate that a particular delivery would best be assigned to an alternative remaining rockfish category (either nearshore or slope rockfish). For 1994 to 2003, rockfish that was unspecified after application of species composition data composed 10 percent of all remaining rockfish in the north and 1 percent of all remaining rockfish in the south. However, for particular states and years, the proportion remaining in the unspecified is substantially greater (Table A-59).

Table A-58. Unspecified rockfish as percent of all remaining rockfish by year and state.

		1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	1994-2003
Unspecified rockfish north as a percent of minor rockfish north												
CA		1%	1%	2%	2%	0%	4%	1%	3%	0%	0%	2%
OR		3%	11%	11%	17%	29%	24%	0%	0%	0%	0%	12%
WA		2%	6%	20%	12%	11%	14%	1%	0%	0%	0%	10%
Total		2%	8%	11%	14%	21%	18%	0%	0%	0%	0%	10%
Unspecified rockfish south as a percent of minor rockfish south												
CA		0%	1%	0%	1%	3%	1%	0%	0%	0%	0%	1%
OR		0%	-	-	100%	43%	100%	0%	0%	-	0%	40%
Total		0%	1%	0%	1%	4%	1%	0%	0%	0%	0%	1%

While on a percentage basis, the amount of rockfish involved may be relatively small, the potential number of fish tickets with some unspecified rockfish remaining after application of species composition information may be substantial (Table A-57).

Table A-59. Number of fish tickets with unspecified rockfish by year and state (1994-1999).

	1994	1995	1996	1997	1998	1999	Grand Total
California	1,873	981	1,085	821	998	696	6,454
Oregon	1,081	1,332	1,913	2,073	1,658	1,459	9,516
Washington	1,259	2,011	1,845	1,551	1,045	1,147	8,858
Total	4,213	4,324	4,843	4,445	3,701	3,302	24,828

Equal Allocation

- Rationale and Options Considered, But Not Included

Equal allocation among all catcher vessel permits is intended to address equity concerns. During deliberations on allocation, it is often argued that past harvest does not create a prior right to future harvest; those with the history have "already been paid for those fish" and, therefore, their history should not entitle them to a greater allocation. Lotteries and equal allocation are two ways in which this concern can be addressed (NRC, 1999). Lotteries might be used if the amount to be equally allocated among all qualified recipients would be too little.

Under the equal allocation provision, all catcher vessel permits would receive an equal share of the allocation attributable to the buyback permit-related history, including history related to participation in the nonwhiting, shoreside whiting, and mothership whiting sectors. Development of the IFQ program started just as the LEP buyback program was being completed. The removal of permits representing approximately 44 percent of the landing history was used to provide a pool of QS that could be allocated equally without substantially reducing the amounts that a permit would receive if there had not been a buyback program, and QS had been allocated through a formula based completely on permit landing history.

The QS in the buyback permit pool will be tied to the sector that generated the landing history. For example, shoreside-landing history will generate QS tied to the shoreside sector. A catcher vessel permit that delivers to motherships will receive some shoreside nonwhiting QS from the buyback permit pool but those QS can only be used to cover catch delivered shoreside. The vessel receiving that shoreside QS might either decide to sell the QS or start making some shoreside deliveries, but it could not use the shoreside QS to cover deliveries to motherships.

The equal allocation element of the allocation formula has particular importance with respect to the allocation of overfished species because it is expected that some overfished species will substantially constrain the harvest of target species. Equal allocation with respect to overfished species is considered below in the section on overfished species allocation.

The Council's final preferred alternative would use co-ops to rationalize the mothership whiting fishery; however, because mothership catcher vessels are subject to the buyback program fees they would still receive a share of the equal allocation distribution of QS. Only two permits that participate in the mothership whiting fishery have not participated in the shoreside trawl fishery (Table A-34). While the shoreside sector will not gain the benefit of an equal share of the mothership sector allocation, the share of mothership history that would be equally allocated is relatively small, 2.3 percent of the mothership sector whiting compared to an average of about 44 percent for shoreside nonwhiting species.

● Interlinked Elements

Number of Trawl Sectors (Section A-1.3). Under the final preferred alternative, there is a single shoreside sector. Vessels making whiting deliveries will be able to cover nonwhiting bycatch using nonwhiting QS received as part of their initial QS allocation under the equal sharing provision.

Transfer Moratorium (Section A-2.2.3.c). Equal allocation redistributes QS to smaller harvesters in quantities in excess of what they have taken historically. If smaller harvesters wish to divest themselves of that QS, rather than using it themselves, the two-year moratorium on the transfer of QS will prevent them from making a permanent transfer, however, during that period they will be able to transfer their QP.

Accumulation Limit Grandfather Clause (Section A-2.2.3.e). If Council had selected an accumulation limit (QS control limit) and grandfather clause without a divestiture provision, incorporation of an equal allocation provision would change the impacts of the accumulation limit grandfather clause. Under such circumstances, those permit holders with the most history would be grandfathered in at lower levels with an equal allocation provision as compared to without an equal allocation provision. If there were no equal allocation and a grandfather clause, those receiving QS in excess of limits would be able to harvest at levels closer to their historic shares.

Overfished Species. In terms of impacts of the allocation formula, there is a strong interaction between the choice of allocation approaches for overfished species (an approach based on bycatch rates applied to targets species or one based on direct catch history) and the decision on whether to apply equal allocation to overfished species. Because of this interaction, equal allocation of overfished species is covered in the section below on the allocation approach used for overfished species.

● Analysis

The following are the categories of goals and objectives most affected by the equal allocation decision.

	Related Category of Goals and Objectives										
Section	**Conservation**	**Net Benefits**	**Disruption**	**Excessive Shares**	**Fairness and Equity**	**Harvester and Processor Sector Health**	**Labor**	**Communities**	**Small Entities and New Entrants**	**General Public**	**Program Performance**
Fairness and Equity and Disruption			X	X	X						
Net Benefits and Sector Health		X				X			X		
Communities								X			

♦ *Fairness, Equity and Disruption*

One of the rationales for the initial allocation relates to the compensation of the holders of physical assets for the loss in value of assets they have purchased. LEPs are one asset the value of which will be substantially diminished after implementation of an IFQ Program. Under status quo, permits of similar size are of similar value (assuming there is no speculation on permit value based on the associated landings history and the anticipation of an IFQ program). Comparable value of permits tends to support emphasis on equal distribution of QS among permits, since holders of permits of similar size would be similarly affected. On the other hand, long-term landing history relates to a harvester's overall investment and dependence on the fishery, a factor identified by Congress as important in considering the fairness and equity of the initial distribution (MSA 303A(c)(5)(A)(ii)). Allocation to those most invested and dependent on the fishery tends to reduce disruption. These factors support a landings emphasis on history-based allocation.

Part of the original rationale for the equal allocation of the buyback portion of the landing history was that since those permits were removed from the fishery no one would miss the QS that might be associated with that landing history; therefore, it could be equally distributed among all participants with little expected objection. However, the removal of those permits allowed fishing opportunities to improve starting in 2004. Harvesters have now had a number of years to adapt to their new harvest levels and will have had a number of additional fishing years before the program is implemented. This makes it more likely that an initial allocation that includes an equal allocation component will disrupt recent practices in the fishery and be perceived as less equitable.[47] At the same time during that period, harvesters were on notice that landings occurring after the control date would not count toward the initial allocation.

Table A-59 shows the share of 1994 to 2003 landing history by permits that were bought back in December 2003. The table shows that 91 buyback permits participating in the nonwhiting sector landed 43.62 percent of total groundfish round-weight during 1994 to 2003. This total includes more than half of certain groundfish species, such as arrowtooth flounder, spiny dogfish, and chilipepper. By contrast, the 20 buyback permits participating in the shoreside whiting fishery landed only about 7 percent of total groundfish in that sector, and the three at-sea catcher vessel buyback permits accounted for only about 2 percent of total groundfish delivered in that sector. Table A-60 shows aggregate landing history (mt) during 1994 to 2003 of OY species recorded by all non-CP LE trawl permits (i.e., permits that were bought back in December 2003, plus remaining permits). Table A-60 provides amounts that would be distributed equally per permit, assuming 169 permits.[48]

The initial allocation of QS will provide some compensation to owners of permits, the value of which is expected to decline substantially if an IFQ program is put in place. As was mentioned, under status quo permit values vary based on length. A 70-foot permit may have been worth about $200,000 in 2004 (Table A-19). Just over half the permits are 70 feet or less in length and, therefore, of equal or lesser value. Assessing the value of the QS that will be issued for permits is difficult because of uncertainties about trading prices for QS. There will be some relationship to the ex-vessel value, after subtracting harvesting costs and taking into account the multiyear stream of revenue that a QS holder might expect. While not a very precise or unbiased estimate of QS value, the ex-vessel value that might be associated with the amount of QS to be allocated equally provides a sense for the order of magnitude of the compensation that the equal allocation might provide to permit holders. An average ex-vessel value per

[47] This assumes that the vessels with permits that have the greatest amount of 1994 to 2003 history are the vessels most likely to have expanded their harvest with the increased opportunity occurring after implementation of the buyback program.

[48] As of the summer of 2009, the number of catcher vessel permits has declined to 167.

permit of $63,000 may be attributable to the equal shared portion of the nonwhiting QS allocation (Table A-61). Another approach to provide an order of magnitude estimate is to look at the estimated total value of nonwhiting QS that would be issued ($68 million to $180 million, Table A-20) and assume that the quantity of the QS allocated equally is proportional to the value of the QS allocated equally.[49] On this basis, the total value of the amount allocated equally would run between about $28 million and $79 million. Divided equally among 169 permits, this comes to between around $160,000 to $470,000 per permit (excluding whiting). These revenue and QS estimates should be reduced by 10 percent to account for the amount of nonwhiting QS that will be allocated for use in the AMP. There will be some marginal additional amount of value from equal allocation attributable to the equally shared whiting; however, this amount is likely to be relatively small (about $4,600 per permit before reducing by 20 percent to account for the amount to be allocated to processors).

A closely related issue is excessive shares. Accumulation limits are intended to prevent individuals from acquiring excessive shares; however, a grandfather clause was considered that would allow those with history qualifying them for initial allocations in excess of accumulation limits to receive allocations greater than the accumulation limit (QS control limit) and to retain that allocation indefinitely (divestiture not required). For those entities, a grandfather clause would provide a long-term advantage over those who receive an initial allocation below the limits. This advantage is viewed by some as an inequity. When combined with a grandfather clause, an equal allocation component would reduce the level at which entities were grandfathered in, thus reducing that long-term advantage. The Council's final preferred alternative allows entities to receive a full initial allocation (unrestricted by accumulation limits), but requires them to divest of their allocation within the first four years. This reduces the duration of the advantage of the allocation in excess of control limits and diminishes the importance of equal sharing in reducing the size of that advantage.

[49] Since the 44 percent that will be allocated equally is an average across a number of species and the value varies across species, the value of the equally allocated QS may be more or less than 44 percent of the value of all QS allocated. Using 44 percent of the value of the QS provides only a rough estimate for the value of the amount to be equally allocated.

Table A-60. 1994 to 2003 Aggregate Landing history Shares (percent) for *Buyback Permits*.

Species Group	Shoreside Nonwhiting	Shoreside Whiting	At-Sea (Mothership) Whiting CVs	Total nonCP Groundfish CVs
Lingcod - coast wide	44.16%	5.74%	0.14%	44.11%
N. of 42° (OR & WA)	45.93%	3.99%	0.14%	45.87%
S. of 42° (CA)	39.27%	28.53%	-	39.27%
Pacific Cod	51.06%	7.23%	2.70%	51.03%
Pacific Whiting (Coast wide)	64.48%	7.20%	2.28%	5.51%
Sablefish (Coast wide)	45.87%	4.51%	1.32%	45.29%
N. of 36° (Monterey north)	46.23%	4.51%	1.32%	45.62%
S. of 36° (Conception area)	36.77%	-	-	36.77%
PACIFIC OCEAN PERCH	44.40%	2.59%	1.71%	43.08%
Shortbelly Rockfish	46.92%	12.02%	0.00%	39.77%
WIDOW ROCKFISH	36.03%	7.54%	3.43%	33.92%
CANARY ROCKFISH	44.61%	5.59%	2.54%	44.46%
Chilipepper Rockfish	19.98%	-	-	19.98%
BOCACCIO	18.30%	-	-	18.30%
Splitnose Rockfish	24.90%	-	-	24.90%
Yellowtail Rockfish	42.77%	11.36%	4.39%	36.48%
Shortspine Thornyhead - coast wide	45.00%	27.62%	0.00%	44.99%
N. of 34°27'	49.71%	27.62%	0.00%	49.70%
S. of 34°27'	33.61%	-	-	33.61%
Longspine Thornyhead - coast wide	46.23%	69.91%	0.00%	46.24%
N. of 34°27'	46.23%	69.91%	0.00%	46.24%
S. of 34°27'	35.64%	-	-	35.64%
COWCOD	55.88%	-	-	55.88%
DARKBLOTCHED	48.44%	30.10%	1.82%	48.06%
YELLOWEYE	34.13%	0.21%	0.00%	34.06%
Black Rockfish - coast wide	21.40%	0.33%	0.00%	21.27%
Black Rockfish (WA)	59.88%	0.00%	-	57.87%
Black Rockfish (OR-CA)	16.00%	1.18%	0.00%	15.98%
Minor Rockfish North	45.51%	11.79%	2.12%	44.47%
Nearshore Species	59.46%	0.00%	0.00%	58.78%
Shelf Species	45.64%	3.34%	0.65%	44.17%
Slope Species	45.31%	38.31%	4.36%	44.84%
Minor Rockfish South	31.29%	-	-	31.29%
Nearshore Species	28.69%	-	-	28.69%
Shelf Species	24.95%	-	-	24.95%
Slope Species	33.27%	-	-	33.27%
California scorpionfish	3.74%	-	-	3.74%
Cabezon (off CA only)	4.11%	-	-	4.11%
Dover sole (total)	45.85%	56.27%	0.00%	45.85%
English Sole	38.79%	37.19%	0.07%	38.79%
Petrale Sole (coast wide)	47.51%	47.35%	0.00%	47.51%
Arrowtooth Flounder	53.41%	17.24%	1.06%	53.38%
Starry Flounder	12.36%	0.00%	-	12.35%
Other Flatfish	33.52%	62.08%	0.02%	33.53%
Kelp Greenling	10.13%	-	-	10.13%
Spiny Dogfish	69.43%	8.04%	3.73%	58.82%
Other Fish	40.98%	81.01%	0.00%	41.02%
Nearshore species	41.39%	4.72%	0.13%	41.35%
Shelf species	44.40%	10.98%	4.16%	42.89%
Slope species	43.71%	8.60%	3.22%	42.99%
Dover Sole, Thornyhead, Sablefish (DTS)	45.83%	7.27%	1.21%	45.73%
Total Groundfish	43.62%	7.22%	2.29%	14.39%
Number of Buyback Permits	91	20	3	91

Table A-61. 1994 to 2003 Aggregate Landing history (mt) for *All non-CP Limited Entry Trawl Permits (Buyback + Remaining)*.

Species Group	Shoreside Nonwhiting	Shoreside Whiting	At-Sea Whiting CVs	Total non-CP Groundfish CVs
Lingcod - coast wide	5,534.7	4.9	1.4	5,540.9
N. of 42° (OR & WA)	4,062.2	4.5	1.4	4,068.1
S. of 42° (CA)	1,472.4	0.3	0.0	1,472.8
Pacific Cod	5,341.2	2.9	0.2	5,344.2
Pacific Whiting (Coast wide)	922.2	745,047.3	408,768.2	1,154,737.6
Sablefish (Coast wide)	29,327.6	408.9	6.8	29,743.3
N. of 36° (Monterey north)	28,212.0	408.9	6.8	28,627.7
S. of 36° (Conception area)	1,115.6	0.0	0.0	1,115.6
PACIFIC OCEAN PERCH	4,936.9	105.0	54.2	5,096.1
Shortbelly Rockfish	221.9	9.9	33.0	264.8
WIDOW ROCKFISH	36,264.4	1,901.2	863.2	39,028.8
CANARY ROCKFISH	4,806.3	9.4	8.3	4,824.0
Chilipepper Rockfish	8,188.1	0.0	0.0	8,188.1
BOCACCIO	1,428.0	0.0	0.0	1,428.0
Splitnose Rockfish	3,286.3	0.0	0.0	3,286.3
Yellowtail Rockfish	21,897.9	2,616.1	2,244.6	26,758.5
Shortspine Thornyhead - coast wide	12,228.5	6.0	0.6	12,235.1
N. of 34°27'	8,647.5	6.0	0.6	8,654.1
S. of 34°27'	3,581.1	0.0	0.0	3,581.1
Longspine Thornyhead - coast wide	27,992.6	7.2	0.0	27,999.8
N. of 34°27'	27,992.2	7.2	0.0	27,999.4
S. of 34°27'	0.5	0.0	0.0	0.5
COWCOD	0.0	0.0	0.0	0.0
DARKBLOTCHED	4,847.5	21.3	31.0	4,899.8
YELLOWEYE	462.6	0.6	0.3	463.4
Black Rockfish - coast wide	187.8	1.1	0.0	188.9
Black Rockfish (WA)	23.1	0.8	0.0	23.9
Black Rockfish (OR-CA)	164.7	0.3	0.0	165.0
Minor Rockfish North	10,261.5	184.4	110.4	10,556.4
Nearshore Species	8.2	0.0	0.1	8.3
Shelf Species	5,840.7	139.8	66.3	6,046.9
Slope Species	4,412.5	44.6	44.0	4,501.1
Minor Rockfish South	5,123.0	0.0	0.0	5,123.0
Nearshore Species	60.5	0.0	0.0	60.5
Shelf Species	1,186.7	0.0	0.0	1,186.7
Slope Species	3,875.8	0.0	0.0	3,875.8
California scorpionfish	6.1	0.0	0.0	6.1
Cabezon (off CA only)	2.9	0.0	0.0	2.9
Dover sole	87,944.2	11.3	0.0	87,955.5
English Sole	10,435.8	6.3	0.2	10,442.3
Petrale Sole	16,836.0	5.4	0.0	16,841.4
Arrowtooth Flounder (total)	28,536.5	10.1	7.5	28,554.1
Starry Flounder	362.9	0.0	0.0	363.0
Other Flatfish	17,839.8	12.1	2.7	17,854.6
Kelp Greenling	1.8	0.0	0.0	1.8
Spiny Dogfish	4,006.2	191.7	594.8	4,792.6
Other Fish	4,847.0	5.9	0.9	4,853.8
Nearshore species	6,164.9	6.0	1.5	6,172.3
Shelf species	138,670.5	2,988.9	2,920.6	144,580.0
Slope species	156,870.8	2,099.9	1,027.6	159,998.3
DTS species	158,057.5	433.4	7.4	158,498.4
Total Groundfish	354,642.8	750,569.0	412,728.2	1,517,940.0
Number of Buyback Permits	91	20	3	91

Table A-62. Annual ex-vessel revenue equivalent per permit for QP which could be received through equal allocation (assuming 2004 to 2006 average prices and landing levels and 169 permits receiving an initial allocation).*

Species Group	Shoreside Nonwhiting	Shoreside Whiting	At-Sea Whiting CVs	Nonwhiting	
				Pounds/ Permit	Dollars/ Permit
Lingcod - coast wide					
N. of 42° (OR & WA)	45,161			435	267
S. of 42° (CA)	14,641			114	87
Pacific Cod	391,058			4,828	2,314
Pacific Whiting (Coast wide)	1,020	782,207	106,674	101	6
Sablefish (Coast wide)					
N. of 36° (Monterey north)	2,935,361			15,037	17,369
S. of 36° (Conception area)	34,453			237	204
PACIFIC OCEAN PERCH	39,514			503	234
Shortbelly Rockfish	83			29	0
WIDOW ROCKFISH	44,638			615	264
CANARY ROCKFISH	5,530			65	33
Chilipepper Rockfish	7,664			81	45
BOCACCIO	842			8	5
Splitnose Rockfish	20,817			385	123
Yellowtail Rockfish	92,698			1,283	549
Shortspine Thornyhead - coast wide					
N. of 34°27'	347,822			2,714	2,058
S. of 34°27'	117,416			719	695
Longspine Thornyhead - coast wide					
N. of 34°27'	361,400			4,189	2,138
S. of 34°27'					
COWCOD					
DARKBLOTCHED	63,468			824	376
YELLOWEYE	166			2	1
Black Rockfish - coast wide					
Black Rockfish (WA)	18			0	0
Black Rockfish (OR-CA)	320			4	2
Minor Rockfish North					
Nearshore Species	478			6	3
Shelf Species	14,557			219	86
Slope Species	69,029			878	408
Minor Rockfish South					
Nearshore Species	140			0	1
Shelf Species	1,538			14	9
Slope Species	55,624			647	329
California scorpionfish					
Cabezon (off CA only)	0			0	0
Dover sole (total)	2,528,160			40,000	14,960
English Sole	258,162			4,502	1,528
Petrale Sole (coast wide)	2,496,597			15,093	14,773
Arrowtooth Flounder	271,719			14,701	1,608
Starry Flounder	8,717			124	52
Other Flatfish	370,650			5,184	2,193
Kelp Greenling				0	
Spiny Dogfish	55,856			1,821	331
Other Fish	13,349			553	79
Total	**10,668,668**	**782,207**	**106,674**	**115,915**	**63,128**
Average Per Vessel	63,128	4,628	631		68,388

* Estimates do not include a reduction of 10% for nonwhiting species allocated to the AMP and do not include a reduction of 20% for whiting allocated to processors; at-sea whiting catcher vessel QS would not be available for equal allocation since this sector will be managed with co-ops.

♦ *Net Benefits and Sector Health*

Equal allocation may result in some misalignment between recent harvest patterns and the initial allocation, requiring the redistribution of either capital assets or the QS following the initial allocation. The need for the redistribution would depend on the desire and ability of those receiving QS in excess of their typical usage to use the QS themselves on their existing vessels (assuming the vessels have adequate capacity) and efficiency of their harvest operations relative to other harvesters that will be looking to acquire additional QS to increase production. Equal allocation may result in more transfers after initial implementation, increasing both private transaction costs and administrative costs. Additionally, if there is a correlation between historic size of harvest operations and efficiency (with smaller operations being less efficient) then QS will be initially allocated to less efficient operations. Transaction costs will always present a hurdle slowing the transfer of QS to more efficient operators. Thus, benefits early in the program will be somewhat greater whenever the initial allocation can be made to those who will use the QS most efficiently.

Often when there is an initial allocation of IFQ, few harvesters receive shares in amounts that are sufficient for them to pursue what they may view as their normal landings levels for recent years, [50] particularly the average and larger harvesters. One of the reasons for this is that allocations are often made based on averages. Under status quo, every year some vessels experience lower than their normal harvests or are absent from the fishery for the year. This creates greater opportunity for the remaining vessels but makes it impossible to allocate all vessels an amount of QS that might reflect their operating level for what they view as normal years. This dynamic leads to lower average allocations for the largest producers, however, the same kind of dynamic also diminishes the amounts the smaller producers receive relative to their landing history. After the initial allocation, there will be an opportunity for a harvester to purchase quota and restore its opportunity to harvest at its normal level. However, in bidding for the purchase of quota, even if a particular smaller operator has efficiency that is comparable to a larger operator, if smaller operators are less well capitalized, they may have a lesser ability to compete to purchase the additional QS needed to restore their operations to normal harvest levels. Under such circumstance, equal allocation may help preserve the economic health of smaller operators while larger operators are able to weather the additional capital demands on their own. On the other hand, if there is no difference between smaller and larger operators in their ability to access capital, or if for some reason larger operators tend to have more debt (or less equity) when the program goes into place, the equal allocation component could diminish overall sector health.

Figure A-27 illustrates expected shares of nonwhiting harvest allocated to each permit (vertical axis) as compared to the 2004 to 2006 average share of nonwhiting harvest for each permit (horizontal axis) assuming 100 percent of the allocation goes to harvesters. The top graph shows this comparison using a QS allocation formula based entirely on landing history, and the bottom graph shows the comparison using a QS allocation formula that includes equal sharing of the landing history related to buyback permits. Permits along the diagonal line would be expected to receive an allocation comparable to their 2004-2006 catch. The graphs show that with an allocation formula based only on landing history 93 permits would receive more than their 2004 to 2006 average, but with a formula that includes an equal allocation

[50] For example, if, over a four-year period, every vessel in a fleet had a pattern in which it harvested 100 mt for three of those years and 60 mt in another (with that pattern rotating randomly through the fleet) then when a harvest history based allocation is made, each vessel would only receive 90 mt, not enough to sustain its "normal" harvest level. Additionally, other factors in allocation formulas tend to reduce the peak amounts of harvest, for example being able to drop worst years. Using the previous numeric example, if every vessel drops its 60 mt year and takes credit for the three 100 mt years, the result is the same, 90 mt, because everyone's harvest history would increase by the same amount (i.e., their share of harvest history would be constant).

component 103 permits would receive more than their 2004 to 2006 average. Under either allocation formula, nearly all permits with more than about 1.0 percent of the 2004-2006 harvest receive less QS than their recent history. However, without equal allocation there were a number of permits with more than about 1.0 percent of the 2004-2006 harvest that received amounts of QS much closer to their 2004-2006 history. With equal allocation, the minimum share would be about 0.2 percent and all the permits with less than about 0.4 percent of the 2004-2006 harvest receive more QS than their recent history. With an allocation formula based on landing history the maximum share of total annual ex-vessel revenue for QS attributed to any permit would be about 2.5 percent while with an equal allocation the maximum share would be about 1.6 percent.

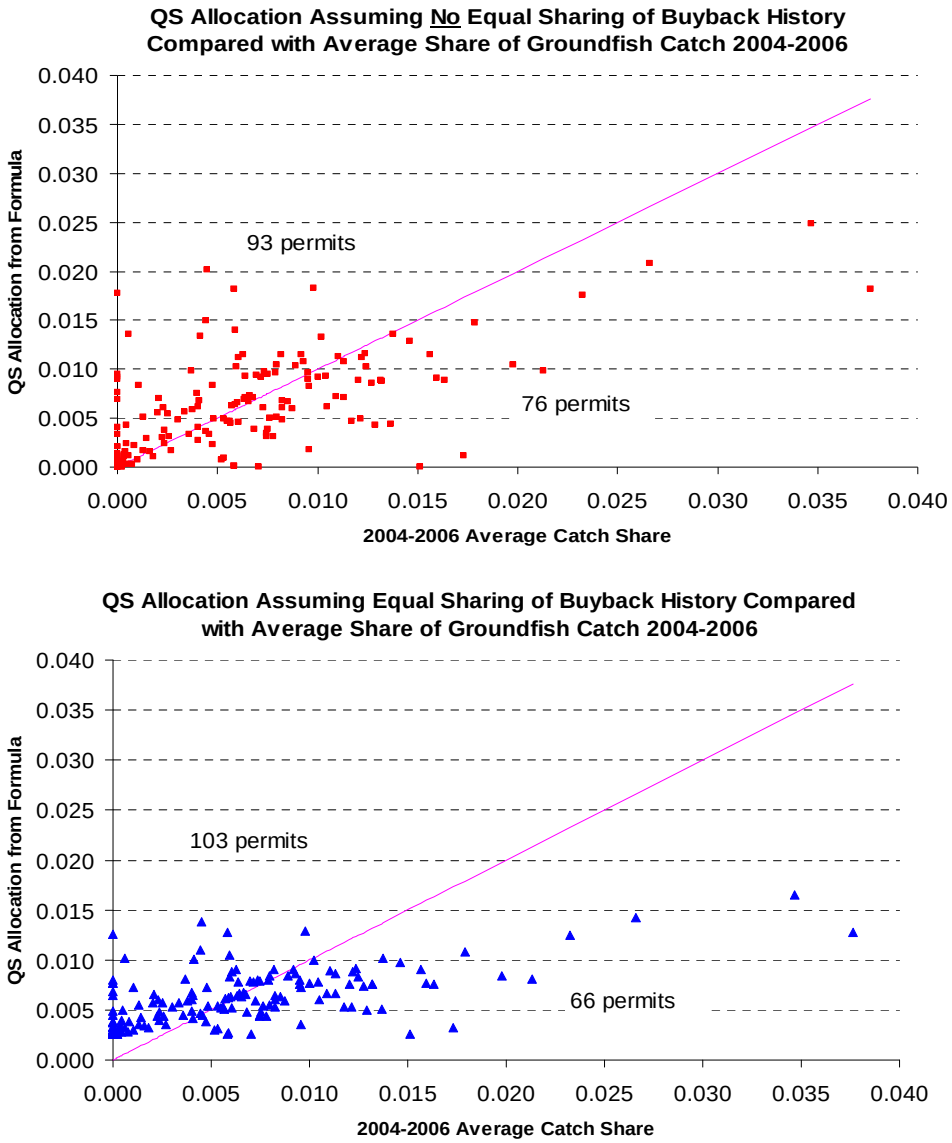


Figure A-27. Effects of equal sharing on the nonwhiting QS allocation given to permits depending on whether or not there is an equal allocation component and relative to the 2004-2006 catch share for each permit (assumes a grandfather clause and 100 percent allocation to permits).

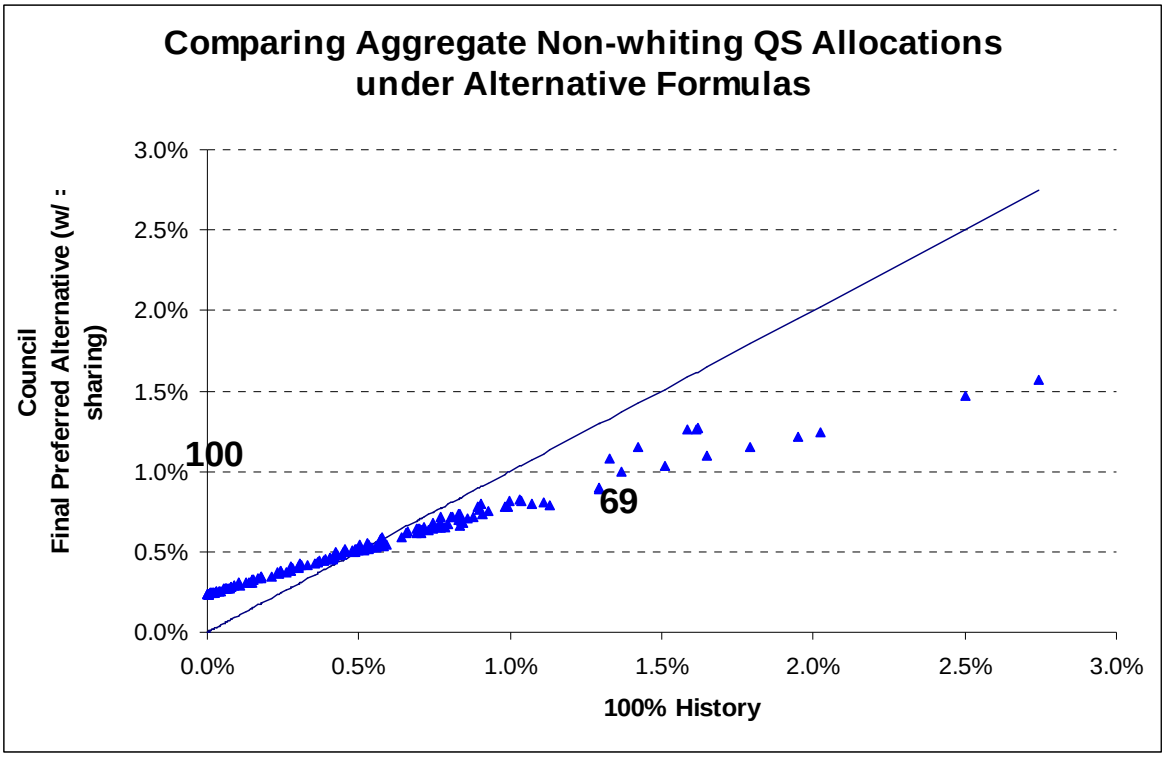


Figure A-28. Comparison of the QS allocation to permits using a formula based 100 percent on landing history to the QS allocation to the same permits using a formula that includes an equal sharing element.

♦ *Communities*

Assuming that past patterns are maintained after the initial allocation, equal allocation would cause a geographic redistribution among communities, primarily benefiting Newport, Brookings, Eureka, and Princeton/Half Moon Bay, as compared to an allocation based entirely on landing history (Section 4.14.5.4).

Allocation Periods

- Rationale and Options Considered But Not Included

The Council's final preferred alternative specifies 1994 to 2003 as the period for allocating QS based on landings history for processors (1994 to 2004 for shoreside whiting processors). This allocation period for permits runs from the inception of the license limitation program (1994) through the year of the Council's control date (2003). The 10-year span for the IFQ allocation is similar in length to the fixed gear sablefish tier program that used 1984 to1994, an 11-year period. When adopting its final preferred alternative for shoreside whiting processors, based on a compromise arrived at during industry negotiations, the Council extended the allocation period to 2004.

The allocation period that would most likely minimize dislocation and the attendant costs would be the few years just prior to the initial allocation. That period is not used, in part, because of issues related to the need to establish credible control dates to effectively manage the fishery while deliberations on new LE programs are underway.

A number of different periods were considered for different parts of the trawl rationalization program and different sectors (Table A-62). At its November 2007 meeting, the Council narrowed the options and standardized the periods to end in 2003. However, as noted above, the Council extended the period used for the shoreside whiting processors to 2004. The periods are detailed in Table A-63. For many sectors, there is a qualifying period to determine eligibility and a period on which the amount of the allocation is based. The primary purpose of this section is to focus on the periods used for the trawl IFQ program, however, the section also covers the rationale for each year considered as a start date or end date for all of the periods considered for both IFQ and co-op management.

Table A-63. Rationale for periods considered for various qualifying and allocation period provisions during development of the IFQ and co-op alternatives.

Time Period	Sector and Provisions (permit qualification/recent participation and allocation)	Summary of Rationale
1994-1999	IFQ – QS allocation, all sectors.	Emphasizes status of fishery prior to constraints to protect overfished species.
1994-2003	IFQ - QS allocation, all sectors. Co-op – Shoreside and mothership CV permits and allocations.	From the beginning of L (1994) to the control date (2003).
1994-2004	IFQ – Shoreside processor QS allocations. Co-op – Shoreside CV permits and allocations. Mothership CV allocations.	From the beginning of LE (1994) to a year that includes more recent participation, as compared to a period ending in 2003. For shoreside processors 2004 was included as a compromise that developed during negotiations leading to an industry consensus.
1997-2003	IFQ – Mothership processor recent participation and QS allocation. Co-op – Shoreside and mothership CV permits and allocations. Mothership processor permits. Catcher-processor endorsements.	A block of years that starts with the period in which there was a 3-way split of the whiting allocation and ends with the control date.
1997-2004	Co-op – C/P endorsement.	A block of years that starts with the period in which there was a 3-way split of the whiting allocation and adds a year beyond the control date to include more recent participation.
1998-2003	IFQ – Recent participation, all sectors. Co-op – Shoreside CV permits and allocations. Mothership CV allocations.	A block of years that reflects the fishery before and the disaster declaration in 2000, and acknowledges the control date (2003).
1998-2004	IFQ – Mothership recent participation qualification. Shoreside processor recent participation and allocation. Co-op – Shoreside and mothership CV permits and allocations. And Mothership processor permits. Shoreside processor permits.	A block of years that reflects the fishery before and after the disaster declaration in 2000, and adds a year beyond the control date (to include more recent participation). For shoreside processors 2004 was included as a compromise that developed during negotiations leading to an industry consensus.
1999-2004	IFQ – Recent participation, all sectors.	A block of years that includes one year just before the disaster declaration and an end date that includes more recent participation (increases emphasis on post disaster conditions relative to periods with earlier start dates)
2000-2003	IFQ – Recent participation, all sectors. QS allocation, all sectors.	A block of years starting with the year of the groundfish disaster declaration and covering four years (a period length similar to LEP allocation period).
2001-2003	IFQ – Allocation period, all sectors. Co-op – Shoreside CV permit.	A block of years that most closely reflects the current conditions for the fishery and at the same time acknowledges the control date (2003).

CV = Catcher Vessel.

Table A-64. Periods used in various qualifying and allocation provisions that remain as options in the trawl rationalization program alternatives.

Sector	Qualifying for Participation		Allocation	
	IFQ Recent Participation	Co-op Alt Endorsement/ Permit	IFQ Allocation	Co-op Landing history
Catcher Vessel Permit Owners				
o Nonwhiting Shoreside Catcher Vessels	None	N/A	'94-'03 (drop 3 worst years)	N/A
o Whiting Shoreside Catcher Vessels	None	'97-'03 (>500 mt)	'94-'03 (drop 2 worst years)	97-'03 (drop worst year)
o Whiting Mothership Catcher Vessels	None	Options: 1) 94-'03 (>500 mt) (FPA) 2) 97-'03 (>500 mt)	'94-'03 (drop 2 worst years)	Options: 1) 97-'03 (drop worst year) 2) 94-'03 (FPA) (drop 2 worst years)
Catcher-Processor Permit Owners	None	97-'03 (at least 1 delivery)	'94-'03 (drop no years)	N/A
Mothership	'97-'03 (>1,000 mt in 2 yrs)	97-'03 (more than 1,000 mt in each of 2 years)	97-'03 (drop no years)	N/A
Shoreside Processing Companies	Qualifying Period Options: 1) '98-'03 2) '98-'04 (FPA) Options for shoreside nonwhiting: 1) 1 delivery option, and 2) 6 mt in each of 3 years, Options for shoreside whiting 1) 1 delivery of any size 2) 1 mt of whiting in any 2 of years (FPA).	98-'03 (more than 1,000 mt in each of 2 years)	Allocation Period Options: 1) '94-'03 2) '98-'04 (FPA) (drop 2 worst years)	N/A

N/A = Not applicable
FPA = Council final preferred alternative.

1994. The earliest year for the allocation period options was set at 1994 because this was the first year of the license limitation program, which substantially changed participation in the fishery and altered delivery patterns. If the program is to allocate based on permit history, there would be no permit history before 1994 unless it is determined that permit history includes vessel history prior to that time. However, given the complexities of the qualification requirements for the original license limitation program, history prior to 1994 may be difficult to track and treat in an equitable fashion.[51] An initial year of 1994 implies a long allocation period. An allocation period from 1994 to 2003, 10 years, would not be unprecedented. The fixed-gear sablefish tier program used 1984 to 1994 as the allocation period, an 11-year period. An initial allocation covering this long period may give more weight to those who have long-term investment and participation in the fishery (and their successors in interest) as compared to those who may have made their investment in more recent years.

1997. The first year in which there was a fixed allocation among the three whiting sectors was 1997. The co-op portion of the rationalization program initially used 1997 to 2004 as the qualifying allocation period for catcher-processors, but using a start date of 1999. For the nonwhiting vessels, the choice of

[51] For example, LE permits were issued to vessels that replaced qualifying vessels prior to the start of the license limitation program. Additionally, for vessels under construction or conversion LE permits were granted on a par with vessels that qualified based on 1984 to 1988 landings history. The use of vessel landings history prior to 1994 may be viewed as inequitable for those that qualified for permits in 1994 based on having a vessel construction or conversion, as compared to those that qualified for permits based on 1984 to 1988 landings history, the former having had no opportunity to establish landings history prior to the completion of work on their vessels.

1997 as the start of an allocation period would decrease the emphasis on conditions prior to the declaration of a groundfish disaster in 2000, as compared to an allocation period that started in 1994. A start date of 1997 and an end date of 2003 would include three years prior to declaration of disaster conditions in the groundfish fishery and four years after that declaration.

1998. This year is used to start an allocation period that would run from 1998 to 2003 or 2004. In considering 1998 as the start for an allocation period, the Council would have to determine whether six or seven years is a period of sufficient length to allow vessels to demonstrate their level of activity and landings mix without needing to include special hardship provisions. Excluding 1994 to 1997 puts more emphasis on more recent participation patterns. A six-year period starting in 1998 would include landings history two years prior to the 2000 disaster declaration and four years from 2000 and after. Using 1998 as a start date for the allocation period covers a greater variety of fishing strategy opportunities than a period that starts in 1999, but not as much as one going back to 1997 or earlier.

1999. While a disaster was not declared until 2000, the first reductions in response to the discovery that some groundfish species were overfished began in 1999. An allocation period starting in 1999 would include the period after the disaster declaration as well as the one-year prelude to those more severe restrictions.

2000. In response to the discovery that a number of groundfish species were overfished, a disaster was declared for the 2000 fishery, and a number of severely constraining management measures were imposed. Using 2000 as the start of an allocation period would base the allocation entirely on fishermen's opportunities and choices under conditions present after the disaster declaration. Regulations prior to 2000 allowed extensive use of large footropes on trawl gear. In 2000, restrictions on the use of large footropes were used to shift trawl effort away from reef and rocky bottom substrates. Additionally, large closures on the shelf (rockfish conservation area closures) were imposed at that time. This substantially changed fishing opportunities and the mix of species landed. The year 2000 was used to start a four-year allocation period option that was considered (2000-2003). Four years is the period used to qualify vessels for the license limitation program. The use of the shorter qualifying period puts more emphasis on more recent conditions in the fishery but also increases the need to take into account short-term hardships.

2003. In order to prevent speculative effort and the consequent exacerbated management problems, a control date of November 6, 2003 was announced. This announcement put fishery participants on notice that fishing after 2003 would not be counted toward qualifying for IFQ. Since there was little fishing opportunity in the last two months of 2003, all of 2003 is being included in the allocation period.

2004. Using 2004 instead of 2003 as the final year for the qualification period would allow entities with more recent participation and less longevity in the fishery to have one additional qualifying year. It would include in the allocation period one year of fishing after the buyback program implementation, a year in which all remaining vessels had greater fishing opportunity. It would also violate the Council's 2003 control date and may adversely affect the Council's future ability to credibly use control dates to prevent vessels from racing for participation status.

● Interlinked Elements

This element does not directly interact with provisions other than the allocation formula (it is not dependent on nor is it depended on by provisions outside of the allocation formula). While it may somewhat modify the impacts of other provisions, the indirect interactions are not believed to be strong enough to make a substantial change to the analytical results for other provisions.

- Analysis

The following are the categories of goals and objectives affected by the decision on the time periods to use for qualification and allocation.

Section	Related Category of Goals and Objectives										
	Conservation	Net Benefits	Disruption	Excessive Shares	Fairness and Equity	Harvester and Processor Sector Health	Labor	Communities	Small Entities and New Entrants	General Public	Program Performance
Fairness, Equity, and Disruption			X	X	X		X	X			
Net Benefits and Sector Health		X	X			X			X		

♦ *Fairness, Equity, and Disruption*

This section will focus on the relevance of history during the allocation period to the current needs of participants in the fishery and customary standards for establishing resource allocations. To the degree that the QS allocation deviates from the current needs of participants, there is likely to be more disruption, which may also affect the distribution of job opportunities on vessels and possibly the distribution of activity among communities. Greater disruption decreases the likelihood that the allocation will be considered fair and equitable. At the same time, longtime participants in the fishery may view it as appropriately fair and equitable that they should receive recognition for the seniority of their participation and thus claim the privilege to use the resource. Seniority of use is often a factor considered in deliberation over who should have claim to future use of a resource (e.g., issues of "beneficial use" and "first-in-time" related to how surface and ground water use rights are assigned) (NRC 1999).[52] Additionally, the MSA requires consideration of both current and historic harvests in determining the initial allocation of QS (MSA 303A(c)(5)(A)(i) and (iv).

Longer allocation periods take more account of seniority and reduce the need for consideration of hardship provisions. At the same time, use of a longer allocation period implies reliance on long-term averages. If there has been a trend in the change from the start to the end of the allocation period, then the average will not reflect recent conditions in the fishery as well as would a shorter period of more recent years. Additionally, in a changing fishery, the amount of change that the initial allocation will induce will increase as the time between the allocation period and the actual allocation increases. Certain features of the IFQ program will mitigate some of these concerns. They include dropping worst years to address hardship (Section A-2.1.3.a, "Drop Years Provision"), using relative history to address changing fishery conditions across time (Section A-2.1.3.a, Relative History"), and the attribution of

[52] The allocation period may also affect communities if there have been geographic shifts in harvests while the distribution of vessels and permits have remained in the fishery. To the degree that permits have not moved out of an area, an allocation that includes older years may at least temporarily reverse a previous geographic trend that has shifted harvest from north to south (see Section A-1.2).

landing history to a permit to facilitate entry and exit and reduce the disruption that might otherwise occur through the initial allocation (Section A-2.1.1.b).

Longer allocation periods help to address hardships. Temporary circumstances may interfere with a particular vessel's operations such that its harvests over a certain period do not reflect its level of investment and dependence on the fishery. There are number of ways to deal with such hardship circumstances. One is to provide hardship exceptions and an appeals process, another is to allow vessels to drop their worst years, and a third is to provide a longer period of time over which level of involvement and dependence is determined. The Council's PPA relies on a combination of the latter two mechanisms (the opportunity to drop worst performance years and a long period across which to demonstrate performance).

In the context of a longer allocation period, relative history helps adjust for the variation in fishing opportunity among years. When a longer allocation period is used, it is more likely that it will encompass changes in the fishery such that conditions at the end of the period may vary substantially from those at the start as well as from the average over the period. The use of "relative history" is intended to adjust for changes in the fleet harvest opportunity by measuring each year's landing history for a permit as a percent or share of the total for the fleet rather than in pounds caught (also termed "catch over catch"). This compensates for changing opportunity across time but does not address changes in participants.

The long allocation period and associating the allocation with the permit provides for "seniority" of use, while at the same time new entrants receive an allocation that helps protect their more recent investment. By attributing and accruing landing history to a permit, those who have made investments to enter the fishery more recently do not necessarily lose out to those who made their investments earlier in time. This also allows longtime participants to receive more value for the business that they have built, if they choose to leave the fishery before a privilege system such as IFQs has been developed.

A shorter allocation period would provide less credit for seniority in use while still allocating to those who have invested more recently, according to their level of participation. A shorter period would potentially raise more issues of hardship by making it more difficult to allow an entity to drop enough years to cover hardship issues. Some may experience no hardships during the allocation period while others may have circumstances that affect production for a number of years. Allowing permits to drop any more than their one worst year from a four year allocation period would substantially dampen the amount of QS received by those with a consistent participation history (evening out the allocation). On the other hand dropping the worst 2 or 3 years from an 11-year allocation period can be done with much less impact on the allocation to those with consistent participation.

One of the major factors that will result in differences between the pattern of initial QS allocation and the patterns of fishery harvest in more recent years will be the effects of the buyback program. The buyback program occurred just after the 2003 control date. It substantially expanded fishing opportunity for all vessels, as reflected by higher trip limits, and initially resulted in a change in the proportional distribution of permits along the coast. The most effective way to address these changes would be to include years after 2003 in the allocation period. However, doing so would reward those who disregarded the control date announcement, create perceptions of inequity, and encourage fishermen to ignore such dates in the future, negatively affecting the Council's ability to credibly use control dates.

To indicate the degree to which certain conditions in the fishery have changed of the course of an allocation period beginning in 1994 we will look at three pieces of quantitative information. The first is the length of time a vessel has been associated with its current permit, the second is the length of time

the permit has been under the same ownership, and the third is the expected distribution of QS among communities in comparison to the recent distribution of harvest.

The longer the permit and vessel have been together, the more likely it is that the initial allocation of QS will reflect the needs of the current operation. If many permits and vessels have been together a relatively short period, it is more likely that a shorter allocation period would better reflect the level of involvement and dependence on the fishery. Fifty-seven percent of all permits are with the vessel for which they were originally issued (in 1994).

The longer the permit and owner have been together, the more likely it is that a longer allocation period will reflect a seniority or first-in-time allocation approach. At least 35 percent of the permits have not changed ownership since the implementation of the license limitation program.[53]

The expected initial redistribution among communities resulting from the initial allocation, as compared to the 2004 to 2006 harvest patterns are shown in Table A-71 on page A-209. For this table it is assumed that all individuals receiving QS will distribute their activity proportionally to their 2004 to 2006 averages. Additional shifts that may occur as a result of the move to the new IFQ program are not estimated due to the lack of needed data for geographically differentiated harvest cost and revenue models. There has been a northward shift in the groundfish harvest in more recent years (see Section A-1.2 discussion of area management). A more recent allocation might result in an initial geographic allocation more reflective of the current fishery. For example, a 2000 to 2003 allocation period would encompass years during which the fishery has been severely constrained to rebuild overfished species. The fishing opportunities during this period are probably more similar to the opportunities present in the 1990s and, therefore, might be more reflective of the current distribution of harvest. Since an allocation formula was not developed based on a shorter more recent period, we do not have any quantitative results to show whether a more recent but pre-2003 period might come closer to the 2004 to 2006 geographic distribution.

♦ *Net Benefits and Sector Health*

Where there is not a good match between the initial QS allocation and the distribution of capital and labor, dislocation and transaction costs could be incurred as a result of the need for realignment, adversely affecting net benefits and sector health. Under a situation in which ownership and harvest patterns are relatively stable, an allocation based on a long period that ends a number of years before the initial allocation would likely generate a good match between investment in the fishery and result in relatively low dislocation and transactions costs. In general, under a situation with changing conditions, an allocation period of shorter but adequate length[54] puts more emphasis on recent years and may result in a better match between the initial allocation and harvest distribution under current conditions. However, when the changing conditions involve a contraction of fishing opportunity (as for the groundfish trawl fishery), the distribution of capital in the fishery may be reflected more by the longer term fishing patterns than the pattern observed in the most recent years.

[53] The 35 percent estimate is based on an examination of name and address changes. It is possible that even more permits have remained under the same ownership if changes in name and address occurred without there being a true ownership change.

[54] Adequacy of the length used for a history-based allocation is dependent on the length of time needed to demonstrate the fishing levels and patterns on which a business relies relative to other participants.

Drop Years Provision

- Rationale and Options Considered But Not Included

Temporary circumstances outside of the control of the harvester may interfere with a particular vessel's operations, raising fairness and equity questions with respect to history-based allocation formulas and often leading to calls for special consideration of hardships and the need for an appeals process. Allowing permits to drop their worst years is intended as an alternative means of addressing hardship that will reduce program costs. At the same time, the general effect will be that those with a consistent history will lose QS to those who had at least some years of harvest significantly lower than other years. The use of a long allocation period complements the drop year provision in terms of reducing the need for hardship considerations and an appeals process.

- Interlinked Elements

This element reduces the need for hardship provisions and Council involvement in an appeals process (see Section A-2.1.5).

- Analysis

If a drop year provision can be substituted for hardship consideration and an appeals process, administrative costs will be reduced. While possibly an adequate substitute for a hardship consideration, it is imperfect in certain ways. First, the number of years dropped may not be adequate for some special circumstances (i.e., a longer-term hardship situation or a few shorter-term hardships during the 11 year allocation period). Second, dropping years may benefit some who have no claim to a hardship provision, to the detriment of those with larger more consistent landings history. Thus while creating a lower administrative cost method for providing fairness and equity to those who have experienced a hardship, the drop year provision may detract some from perceptions of fairness and equity for the more consistent harvesters. As an example of the effects on those who gain and lose from a drop year provision, the aggregate effect for Dover sole, thornyhead and sablefish shows that if landing history is measured in relative pounds (as it would be under the Council's final preferred alternative), the number of gainers from a drop year provision is between 118 and 132, while the number of losers is between 39 and 53, depending on the number of years a permit is allowed to drop (Table A-64). As the number of drop years increases from one to three, the number of gainers diminishes somewhat, from 132 to 118 permits, but the average amount gained by each permit increases over threefold from $732 to $2,565 (annual ex-vessel revenue assuming 2005 ex-vessel prices and levels of harvest). Results are shown for a number of other species, all of which show similar trends. At the top of the table, a comparison is provided for the effect of combining the drop year provision with absolute pounds instead of relative history (the choice between absolute and relative history is discussed in a following section). The effect is to slightly diminish both the number of gainers and the amount of their gain. While not displayed in this table, the difference in impacts between drop years using relative history and using absolute pounds was consistent across species. Table A-64 also shows the number of permits for which a particular year was the lowest. Years after the fishery disaster was declared (2000) have the most permits showing those as their lowest years. The first two years of the program also tended to have higher counts for low years with the middle years, 1996 to 1999, tending to show up less often as low years for permits. When absolute pounds are counted rather than relative history, the fishery disaster years show up even more frequently as the lowest years.

Table A-65. Shoreside nonwhiting sector: comparison of 2005 ex-vessel revenue from selected groundfish species under different drop year allocation options using allocation based on relative history (Council's final preferred alternative) and absolute pounds).

					Number of permits that recorded relatively low landing history each year									
	Drop 1 yr	**Drop 2 yrs**	**Drop 3 yrs**		**1994**	**1995**	**1996**	**1997**	**1998**	**1999**	**2000**	**2001**	**2002**	**2003**
				Absolute pounds analysis										
Species: Dover sole thornyhead and sablefish (DTS)		**$39,859**	starting avg per permit											
Permits gaining	130	125	117	Lowest *	24	13	5	9	20	13	20	37	43	31
$ average gain	+ $600	+ $1,320	+ $2,216	2nd Lowest	8	5	3	4	9	7	12	15	15	8
Percent change	+1.5%	+3.3%	+5.6%	3rd Lowest	7	5	4	4	9	8	12	22	10	14
Permits losing	41	46	54											
$ average loss	- $1,903	- $3,587	- $4,801											
Percent change	-4.8%	-9.0%	-12.0%											
				Relative history analysis										
Species: DTS														
Permits gaining	132	125	118	Lowest *	25	17	8	13	19	12	19	33	30	30
$ average gain	+$ 732	+ $1,551	+ $2,565	2nd Lowest	12	10	11	9	7	9	7	3	11	7
Percent change	+1.8%	+3.9%	+6.4%	3rd Lowest	10	11	10	10	11	9	14	10	8	2
Permits losing	39	46	53											
$ average loss	- $2,479	- $4,216	- $5,710											
Percent change	-6.2%	-10.6%	-14.3%											
Species: Petrale		**$17,184**	starting avg per permit											
Permits gaining	139	133	132	Lowest *	26	18	15	13	14	21	33	36	40	38
$ average gain	+ $141	+ $371	+ $668	2nd Lowest	11	9	8	5	10	6	4	9	9	10
Percent change	+0.8%	+2.2%	+3.9%	3rd Lowest	8	13	8	10	10	10	5	8	8	11
Permits losing	33	39	40											
$ average loss	- $593	- $1,267	- $2,204											
Percent change	-3.4%	-7.4%	-12.8%											

Table A-65. Shoreside nonwhiting sector: comparison of 2005 ex-vessel revenue from selected groundfish species under different drop year allocation options using allocation based on relative history (Council's final preferred alternative) and absolute pounds).

					Number of permits that recorded relatively low landing history each year									
	Drop 1 yr	**Drop 2 yrs**	**Drop 3 yrs**		**1994**	**1995**	**1996**	**1997**	**1998**	**1999**	**2000**	**2001**	**2002**	**2003**
Species: Arrowtooth		**$1,657**	starting avg per permit											
Permits gaining	125	121	115	Lowest *	17	16	15	12	19	15	17	17	23	28
$ average gain	+ $13	+ $29	+ $52	2nd Lowest	6	4	2	1	2	2	6	1	8	3
Percent change	+0.8%	+1.7%	+3.1%	3rd Lowest	3	5	6	5	5	3	2	5	6	2
Permits losing	16	20	26											
$ average loss	- $102	- $175	- $230											
Percent change	-6.1%	-10.6%	-13.9%											
Species: Other Flatfish		**$3,932**	starting avg per permit											
Permits gaining	132	136	130	Lowest *	31	18	10	7	16	15	23	23	34	31
$ average gain	+ $36	+ $78	+ $149	2nd Lowest	7	13	2	8	9	4	9	14	12	4
Percent change	+0.9%	+2.0%	+3.8%	3rd Lowest	11	8	9	8	7	9	14	12	7	8
Permits losing	40	36	42											
$ average loss	- $120	- $294	- $460											
Percent change	-3.1%	-7.5%	-11.7%											
Species: Lingcod		**$361**	starting avg per permit											
Permits gaining	148	144	137	Lowest *	19	14	16	16	18	19	40	54	49	62
$ average gain	+$1	+ $5	+ $9	2nd Lowest	14	4	8	11	2	1	3	5	9	3
Percent change	+0.4%	+1.3%	+2.6%	3rd Lowest	5	15	11	13	8	3	5	7	5	5
Permits losing	$24	$28	$35											
$ average loss	- 9	- 24	- 36											
Percent change	-2.5%	-6.7%	-10.1%											

* Permits with more than one zero year are counted multiple times in the lowest row. When this occurs they do not show up in the 3rd lowest or 2nd lowest rows (depending on whether they had two or three zero years).

Allocation of Incidentally Caught Overfished Species

- Rationale and Options Considered, But Not Included

♦ *Equal Allocation and Methods of Allocating Based on Harvest History for Overfished Species*

As with other species, incidentally caught overfished species would be allocated either entirely based on history (A-2.1.3.a, Option 1) or based on an equal sharing of the portion of the QS associated with the buyback permits and the remainder based on a formula relying on some variation on permit specific harvest history (A-2.1.3.a, Option 2). With respect to the portion of the overfished species QS allocated based on a method related to harvest history for nonwhiting trips, the formula may either directly assess overfished species harvest history using the 1994 to 2003 allocation period (Overfished Species Option 1), or it may take harvest history into account indirectly by assessing a permit's target species QS allocations and applying its recent harvest pattern (as measured by logbooks) and fleet average bycatch rates from the West Coast Groundfish Observer Program (Overfished Species Option 2). For whiting trips, a similar set of options is provided for allocation of the portion of the bycatch species QS that is to be allocated using a method related to harvest history: assessing history using 1994 to 2003 harvest information (Bycatch Option 1); or allocating overfished species in proportion to the whiting QS allocation (Bycatch Option 2).

In the Council's PPA (from June 2008), QS associated with the permit history of buyback permits (including QS for overfished species) was to be allocated equally among all nonbuyback permits (A-2.1.3.a Option 2). The equal allocation component of the PPA ensured that every permit would have some overfished species QS to go along with its target species QS. The remainder of the QS for overfished species was to be allocated on a basis that was expected to closely reflect a permit's need for overfished species bycatch (Overfished Species Option 2 and whiting trip Bycatch Option 2). However, when the Council took final action, it eliminated the equal allocation of the overfished species (with the exception of canary rockfish) QS associated with the buyback permits so that overfished species would be allocated entirely based on the portions of the allocation formula which the Council believed would most reflect the permit's need for overfished species QS to accommodated its target species. Thus, the Council's final preferred alternative for noncanary overfished species QS allocated for nonwhiting trips is to allocate it entirely based on the application of bycatch rate and logbook information to target species QS allocations (A-2.1.3.a Option 1 combined with Overfished Species Option 2). For whiting, all noncanary overfished species QS would be allocated in proportion to the whiting allocation (A-2.1.3.a Option 1 combined with Bycatch Species Option 2).[55] [56] For canary, the Council found that absent an equal allocation element there would be a geographically disproportionate impact on permits in areas such as Fort Bragg, California. On this basis, the Council at its November 2009 meeting revised its final preferred alternative from November 2008, deciding that the initial allocation of canary rockfish QS should be based on the PPA (i.e., the final preferred alternative for canary rockfish should include the equal allocation of QS associated with buyback permits).

[55] The Council's final preferred alternative is to manage the shoreside nonwhiting and whiting sectors as a single combined shoreside sector. Therefore, after determining the amount of overfished species QS to be allocated to a permit based on its past nonwhiting and whiting trips, the QS types would be merged so that only one type of QS would be issued, shoreside QS.

[56] All non-overfished bycatch species would be allocated equally based on the buyback permit history with the remainder being allocated to each permit holder in proportion to its whiting allocation.

The other main, overfished species, allocation option considered was to base the allocation directly on landings history (Overfished Species Option 1 and Bycatch Species Option 1). This approach would allocate overfished species to those who in the 1990s targeted the species that have since become overfished or who caught overfished species incidentally after they were declared overfished, rather than to those who need overfished species QS to prosecute current target fisheries. This approach was rejected on the basis of the desire not to reward bycatch during the rebuilding period and in order to provide QS to those who would need it to cover incidental catch taken with their target species QS allocation.

Numerous other methods were considered that are not reflected in the current options. One of these was the use of a constant fixed ratio applied to target species QS to determine the amount of bycatch species QS that would be issued for each permit. This approach, while better at meeting current needs than an allocation based on harvest history, would not be as precise in meeting current need (as measured by amounts of target species QS a permit receives) as an approach which uses each individual permit's logbooks and allocation of target species QS (the final preferred alternative). However, constant fixed overfished species to target species QS ratios based on fleet averages will be used for those permits that do not have logbook records for 2003 to 2006.

♦ *Specification of the Bycatch Method for Allocating Overfished Species*

Initially, the Council approved consideration of an option for allocating overfished stocks based on a bycatch rate that would be applied equally to all permits (a constant fixed ratio). The initial bycatch rate option would have used logbook data for the fleet as a whole, aggregated on a species-by-species basis. In other words, if 90 percent of the trawl caught Pacific cod occurred north of Cape Mendocino, and shoreward of the trawl RCA, each permit with Pacific cod catch history would be estimated to take 90 percent of its Pacific cod from that same area. However, it is unlikely that any single permit's distribution of fishing activity would be reflected by the fleet average; and the bycatch rate of overfished stocks can vary widely from one area to another. Therefore, a more detailed method was developed to estimate where permits might be fished under rationalization and assess the associated bycatch rates. Under the final preferred alternative, the bycatch rate method for allocating overfished species uses four latitudinal strata, two depth strata, and a permit's fishery patterns evaluated over the strata using 2003 to 2006 logbooks.

A complete description of the bycatch method for allocating overfished species is provided in Appendix C. This section of Appendix A documents some of the choices made by the Council in developing that method and related impacts.

LATITUDINAL STRATIFICATION

For the bycatch rate approach, the main design element that required additional Council deliberation was the question of the latitudinal strata to use for application of this approach. The bycatch rate approach can be applied on a coast wide basis or refined by stratifying into areas, which might result in allocations that better match the needs of permits that would most likely be fishing in a particular area. Available data indicate that bycatch rates can differ substantially by latitudinal area and by seaward or shoreward of the RCA. During its deliberations, the Council considered three latitudinal stratifications to apply the bycatch rate methodology Table A-65.

Table A-66. Latitudinal strata considered for the allocation of overfished species.

Number of Strata	Latitudinal Area Stratifications (North Lat)
2 Areas	North of 40°10' South of 40° 10'
4 Areas (preferred)	North of 47° 40' Between 47° 40' and 43° 55' Between 43° 55' and 40° 10' South of 40° 10'
5 Areas	North of 47° 40' Between 47° 40' and 43° 55' Between 43° 55 and 40° 10' Between 38° 0'and 40° 10' South of 38° 0'

The number of and dividing lines used for the stratifications were limited because the bycatch rates developed for the strata are based on samples and for smaller areas insufficient sample sizes exist to estimate a bycatch rate. The bycatch rates for eight latitudinal subareas that were used to compose the approaches for these area stratifications are provided in Figure A-29 though Figure A-35. For the above options, the entire area south of 38 ° north latitude is combined because several sub-areas do not appear to have sufficient observations for calculating an independent bycatch rate. The bycatch rates used for the Council's final preferred alternative are provided in Table A-66.

At its June 2008 meeting, the Council's PPA used the two-area approach for allocating overfished species for nonwhiting trips based on bycatch rates. When it took action after the public comment period on the preliminary DEIS (in November 2008), the Council indicated it would prefer to use an approach based on finer levels of stratification (either four or five strata). The Council reviewed these two finer area stratifications in March of 2009 and chose the four-area stratification over the five-area stratification. The Council selected the four-area stratification over the five-area stratification because observer program bycatch rates indicated that if the area south of 40° 10' north latitude were subdivided some permits would receive substantially reduced QS for some overfished species. Even with a four-area approach, at a later point in the process the Council found that there were some permits would receive very minimal amounts of QS for overfished species, for canary rockfish in particular. At that time (November 2009), the Council addressed this problem by deciding to equally allocation among all permits the QS associated with the permits that were bought back in the 2003 buyback program.

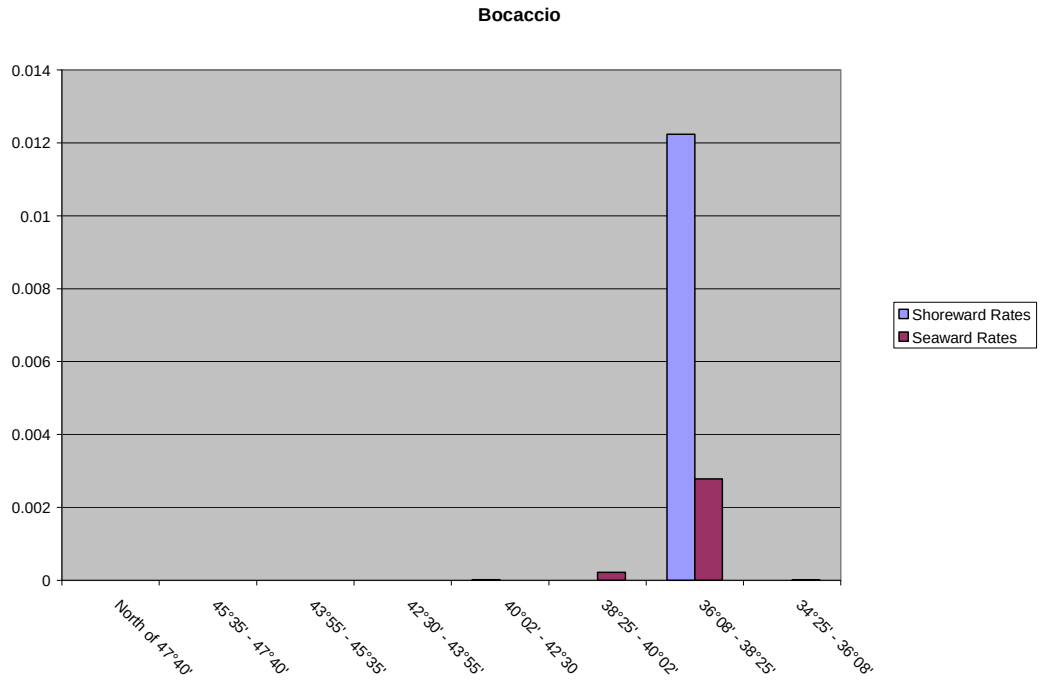


Figure A-29. Bocaccio, trawl bycatch rates for latitudinal areas off the west coast (also divided by depth, shoreward and seaward, first column in each pair is the shoreward bycatch rate).

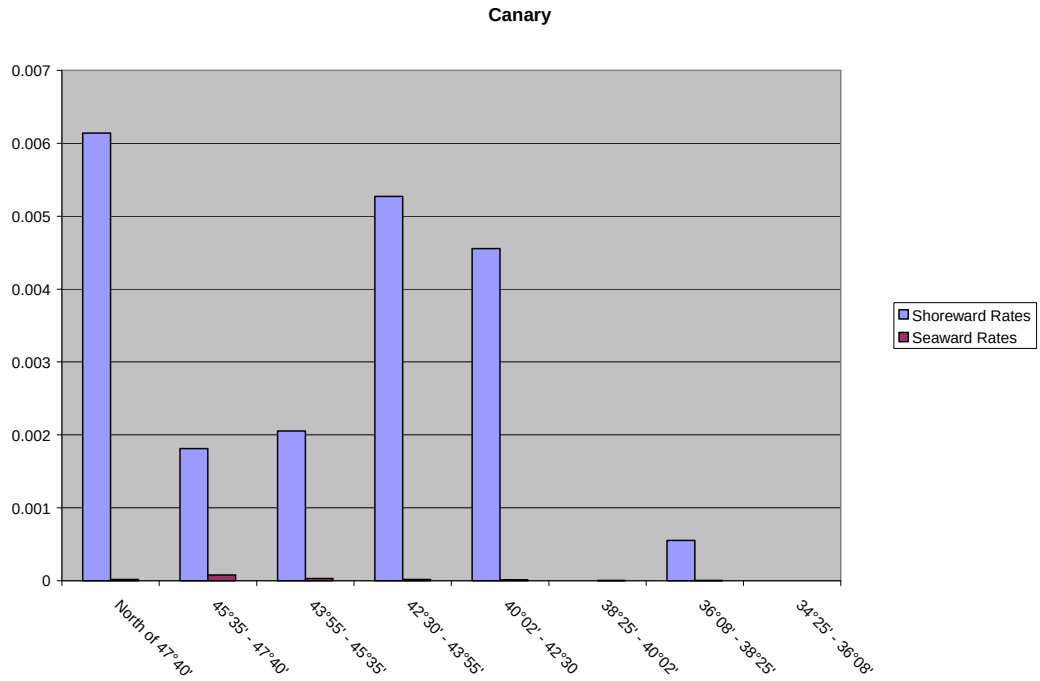


Figure A-30. Canary, trawl bycatch rates for latitudinal areas off the west coast (also divided by depth, shoreward and seaward, first column in each pair is the shoreward bycatch rate).

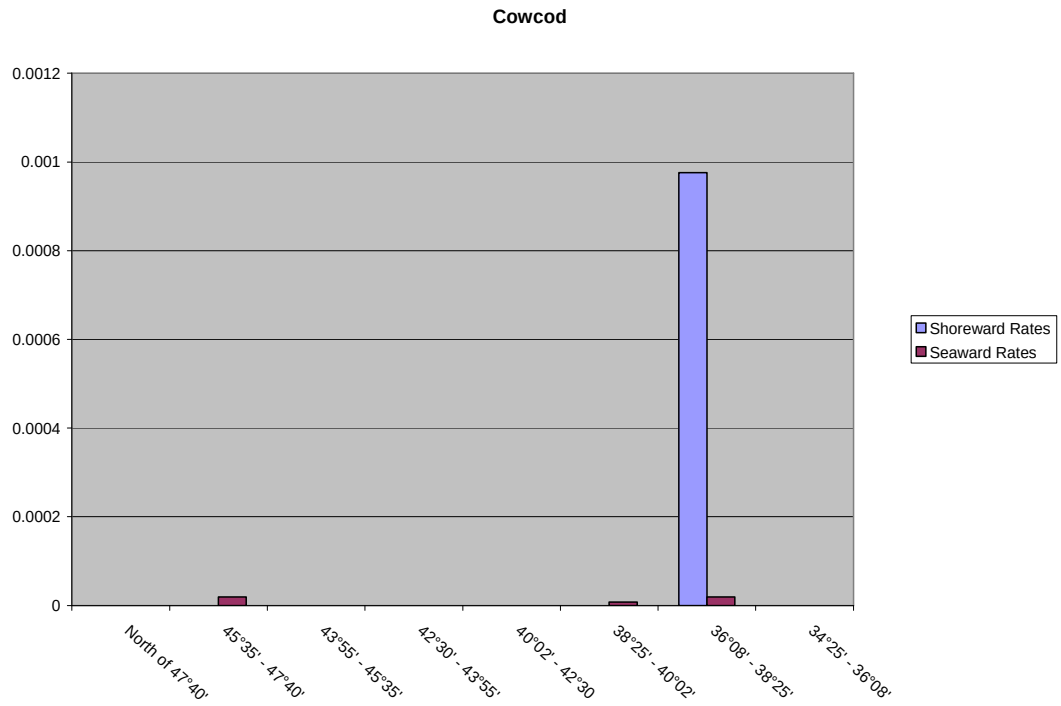


Figure A-31. Cowcod, trawl bycatch rates for latitudinal areas off the west coast (also divided by depth, shoreward and seaward, first column in each pair is the shoreward bycatch rate).

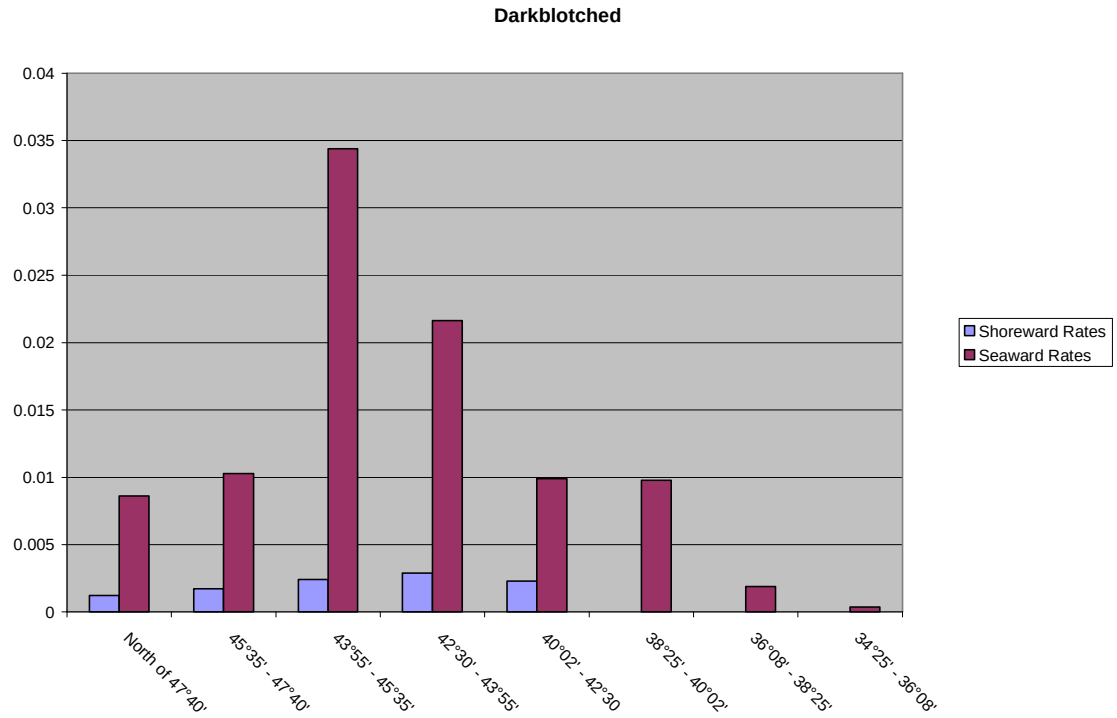


Figure A-32. Darkblotched, trawl bycatch rates for latitudinal areas off the west coast (also divided by depth, shoreward and seaward, first column in each pair is the shoreward bycatch rate).

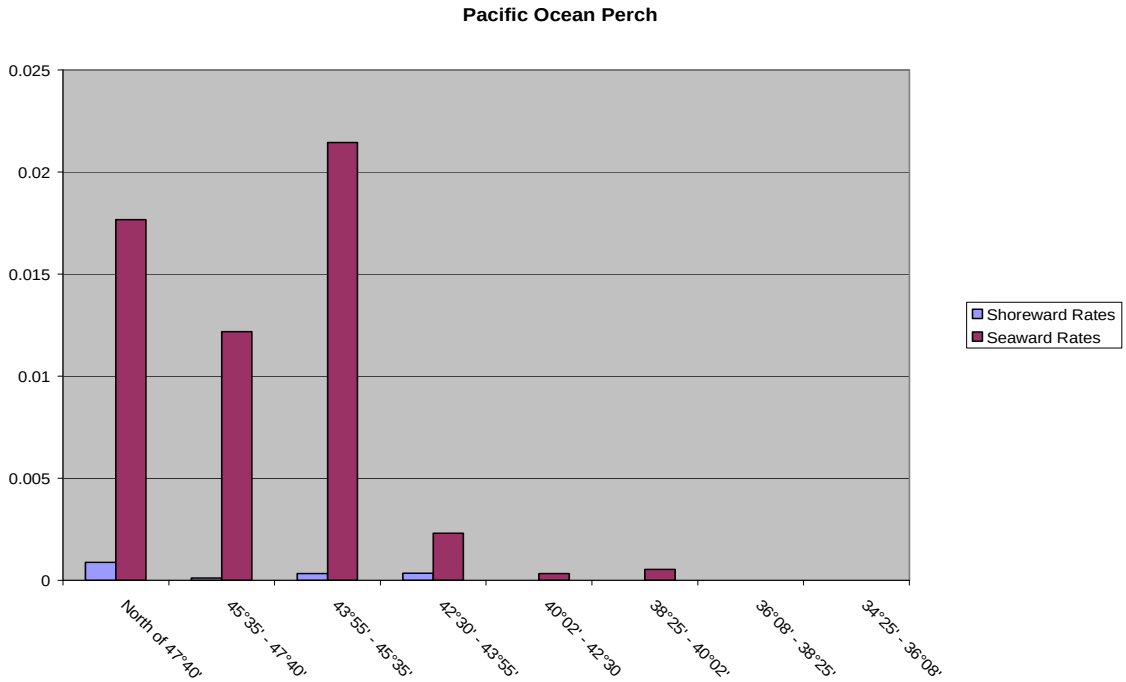


Figure A-33. Pacific ocean perch, trawl bycatch rates for latitudinal areas off the west coast (also divided by depth, shoreward and seaward, first column in each pair is the shoreward bycatch rate).

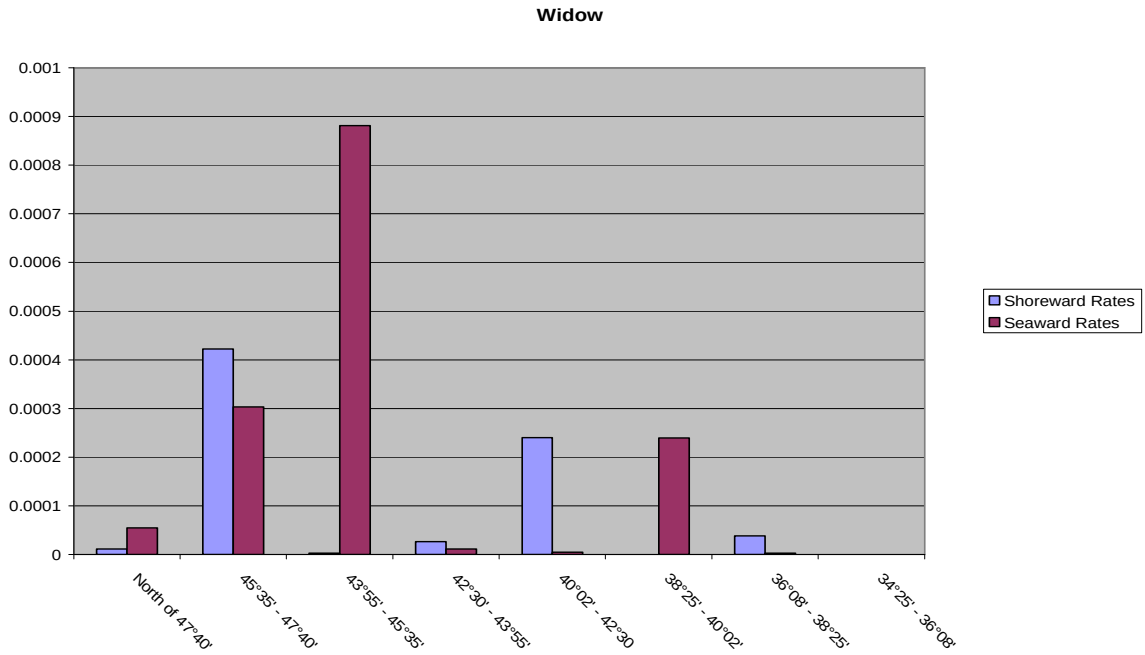


Figure A-34. Widow, trawl bycatch rates for latitudinal areas off the west coast (also divided by depth, shoreward and seaward, first column in each pair is the shoreward bycatch rate).

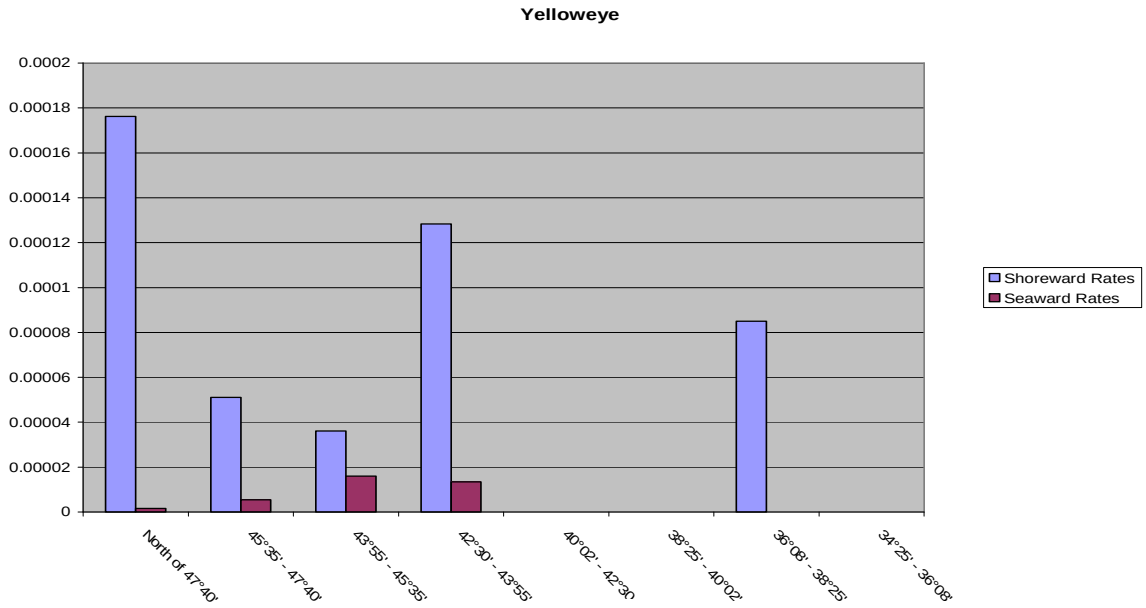


Figure A-35. Yelloweye, trawl bycatch rates for latitudinal areas off the west coast (also divided by depth, shoreward and seaward, first column in each pair is the shoreward bycatch rate).

Table A-67. Bycatch rates used for the allocation of overfished species, by latitudinal area and shoreward and seaward dept stratifications.

	S of 40°10'		40°10' to 43°55'		43°55' to 47°40'		N 47°40'	
Species	**Seawrd**	**Shorewrd**	**Seawrd**	**Shorewrd**	**Seawrd**	**Shorewrd**	**Seawrd**	**Shorewrd**
Bocaccio	0.00120	0.01115	-	-	-	-	-	-
Canary	0.00000	0.00050	0.00001	0.00485	0.00006	0.00186	0.00002	0.00614
Cowcod	0.00001	0.00089	-	-	-	-	-	-
Darkblotched	0.00480	0.000003	0.01476	0.00253	0.01837	0.00185	0.00860	0.00122
Pacific Ocean Perch	0.00022	-	0.00115	0.00014	0.01529	0.00016	0.01766	0.00088
Widow	0.00010	0.00004	0.00001	0.00015	0.00050	0.00034	0.00005	0.00001
Yelloweye	-	0.00008	0.00001	0.00005	0.00001	0.00005	0.00000	0.00018

LOGBOOK PERIOD

The bycatch rate approach to the allocation of overfished species relies on each permit's logbooks to determine the depth and latitudinal strata associated with the permit. The proportion of catch associated with each strata is used to distribute a permit's initial allocation of target species QS by strata. The bycatch rates are then applied to the permit's initial target species allocation associated within each strata. There were two periods considered for evaluation of a permit's logbook records: 1994 to 2003 and 2003 to 2006.

At its meeting, the GAC recommended that for the overfished species bycatch allocation formula the distribution of catch for each individual permit be determined based on 2003 to 2006 logbooks, as the best estimate for where the permit was most likely to fish after rationalization. The TIQC disagreed with this recommendation. Initially the TIQC believed that fleet average logbook data would be more

appropriate than individual permit logbook history during 2003 to 2006 because in more recent years vessels were forced to choose between fishing shoreward or seaward of the trawl RCA in the north. Since the catch history formula is based on the years 1994 to 2003, permits will receive QS for species that are found both shoreward and seaward of the RCA. Therefore, the TIQC initially favored the application of fleet average logbook data to each permit's QS allocation, so that each permit would be assigned both shoreward and seaward catch history. However, after further deliberations, the TIQC recommended the use of 1994 to 2003 logbooks as superior to the use of either fleet averages or the 2004 to 2006 permit specific logbooks. The TIQC viewed 1994 to 2003 permit specific logbooks as a better choice because it accounted for variation in the geographic distribution of each permit's harvest strategy and would better match with both the target species QS allocations (which were allocated based on 1994-2003 history) and the strategies that would have to be pursued to take those target species allocations. However, the GAC recommended that each permit's 2004 to 2006 logbooks be used. The Council concurred with the GAC and recommended use of 2004 to 2006 logbooks. It may be better to use a period when the RCAs were in place to estimate a permit's most likely pattern of activity, since the RCAs will remain in place after the trawl rationalization system is put into place. The RCAs were not in place for most of the 1994 to 2003 period but were in place for 2003 to 2006. Thus, use of 2004 to 2006 logbooks may better mirror the opportunities present with the RCA closures and other efforts to avoid overfished species.

● Interlinked Elements

An approach that allocates incidentally caught overfished species by transforming target species QS allocations using bycatch rates eliminates some of the problems that would result from application of the relative weights approach to measuring landing history. For example, using a relative weights approach a pound of canary caught in 2003 gives the same credit toward QP as would 100 pounds caught in 1998 (rewarding the retention of overfished species during rebuilding).

The equal allocation element of the allocation formula interacts with the allocation approach used for overfished species, significantly affecting the resulting allocation impacts.

● Analysis

The following are the categories of goals and objectives affected by the decision on how to allocate incidentally caught species.

	Related Category of Goals and Objectives										
	Conservation	**Net Benefits**	**Disruption**	**Excessive Shares**	**Fairness and Equity**	**Harvester and Processor Sector Health**	**Labor**	**Communities**	**Small Entities and New Entrants**	**General Public**	**Program Performance**
Overview		X	X		X	X	X	X			X
Direct Harvest History vs. Bycatch Rate Approach											
Latitudinal Strata for the Bycatch Rate Approach		X	X		X	X	X	X			X
Logbook Periods for the Bycatch Rate Approach		X	X		X	X	X	X			X
Impact of Equal Allocation on the Bycatch Rate Approach		X	X		X	X	X	X			X

♦ *Overview*

Empirical evidence from other quota programs throughout the world has shown that initial allocations of IFQ that differ substantially from current or recent fishing practices result in some negative consequences during the initial years of the program (dislocation of fishermen and high discard rates) (Branch, *et al.* 2006). Over time, these consequences would be reduced through QS trading and adjustments by capital and labor, but a more refined initial allocation, one that better matches expected needs, may still be able to avoid such negative consequence, reducing costs associated with the transactions necessary to realign the QS allocation and fishery participation patterns. Additionally, while the market is likely to end up making necessary adjustments to the ownership of quota, overfished species quota is likely to be extremely costly because it will constrain access to target species. An allocation that provides target species QS without the overfished species QS needed to cover bycatch may be economically disruptive to those already in the fishery that receive an initial allocation and must then choose between making the expenditures to acquire additional overfished species QS/QP or selling off their target species QS/QP and perhaps leaving the fishery.

For the foreseeable future, overfished species will be a constraint to the access of target species. In addition to potential efficiency benefits and reduction of disruption, an initial allocation of overfished species QS that is well matched to allocations of target species QS may be viewed as being more equitable.

The general categories of impacts described here are associated with each of the specific choices described in the following sections. For the purpose of the first section of this portion of the analysis, the focus is on comparing an allocation based on landings history to one based on bycatch rates, logbooks, and target species allocations. In order to isolate and highlight this difference, figures are provided that compare a scenario under which all overfished species QS is allocated based on landings history to one in which all overfished species QS is allocated based on the bycatch rate approach (there is no equal allocation component for either the target species or the bycatch species). After reviewing these results, we will look at the effect of the decisions on the strata to be used for the bycatch rate approach, the choice of time periods over which to assess individual permit logbooks, and the equal allocation element of the overfished species allocation formula (the Council's PPA) in comparison to the same formula without the equal allocation element (the Council's final preferred alternative).

♦ *Direct Harvest History vs. Bycatch Rate Approach*

In general, if allocations of overfished species are made based on landings history, the distribution of overfished species quota would be more heavily weighted toward a fewer permits. This is because recent incidental landings are proportionally more evenly distributed among permits than landings occurring when the now overfished species could be targeted. The permits that would receive the most are those were that had previously targeted overfished species when they were abundant and under more recent regulations catch of overfished species in the shoreside nonwhiting fishery has been largely discarded rather than landed. In Figure A-36 through Figure A-42, it can be seen that for all species more permits will receive a greater allocation under the bycatch rate approach than under a history approach for allocating QS. These data are summarized in Table A-67. By definition, the allocations using the bycatch rate approach would be in closer proportion to the target species QS than with a direct history approach. With the exception of canary rockfish, the amount of QS going to the recipient who would receive the most of a particular overfished species QS is greater with the landing history approach than with the bycatch rate approach. Additionally, with the exception of bocaccio, there are more recipients receiving in excess of 2 percent (20 percent for cowcod) for the direct history approach than with the bycatch approach (Table A-67). For cowcod the extreme is greatest. One permit would receive all of the cowcod using a landing history approach (assuming there is a grandfather clause).

Table A-68. Number of permits receiving more under the indicated method as compared to the alternative method (data summarized from Figure A-36 through Figure A-42).

	Allocation Method	
	Bycatch Rate Approach	**History Approach**
	Bocaccio	
Permits Favored by the Approach	51	45
Permits with More Than 2%	12	11
	Canary	
Permits Favored by the Approach	92	77
Permits with More Than 2%	7	8
	Cowcod	
Permits Favored by the Approach	72	1
Permits with More Than **20**%	0	1
	Darkblotched	
Permits Favored by the Approach	116	53
Permits with More Than 2%	0	10
	Pacific Ocean Perch	
Permits Favored by the Approach	120	44
Permits with More Than 2%	4	16
	Widow Rockfish	
Permits Favored by the Approach	112	57
Permits with More Than 2%	2	13
	Yelloweye Rockfish	
Permits Favored by the Approach	100	68
Permits with More Than 2%	6	11

Note: the allocation amounts shown in Figure A-36 through Figure A-42 and Table A-67 are based on an assumption that 100 percent of the initial QS allocation would go to permits. In the Council's final preferred alternative only 90 percent of the QS is allocated to permits, reducing all of the allocations under either approach by 10 percent. The general conclusions about the relative impacts of these two approaches to overfished species allocations would not be affected by an across the board reduction of 10 percent.

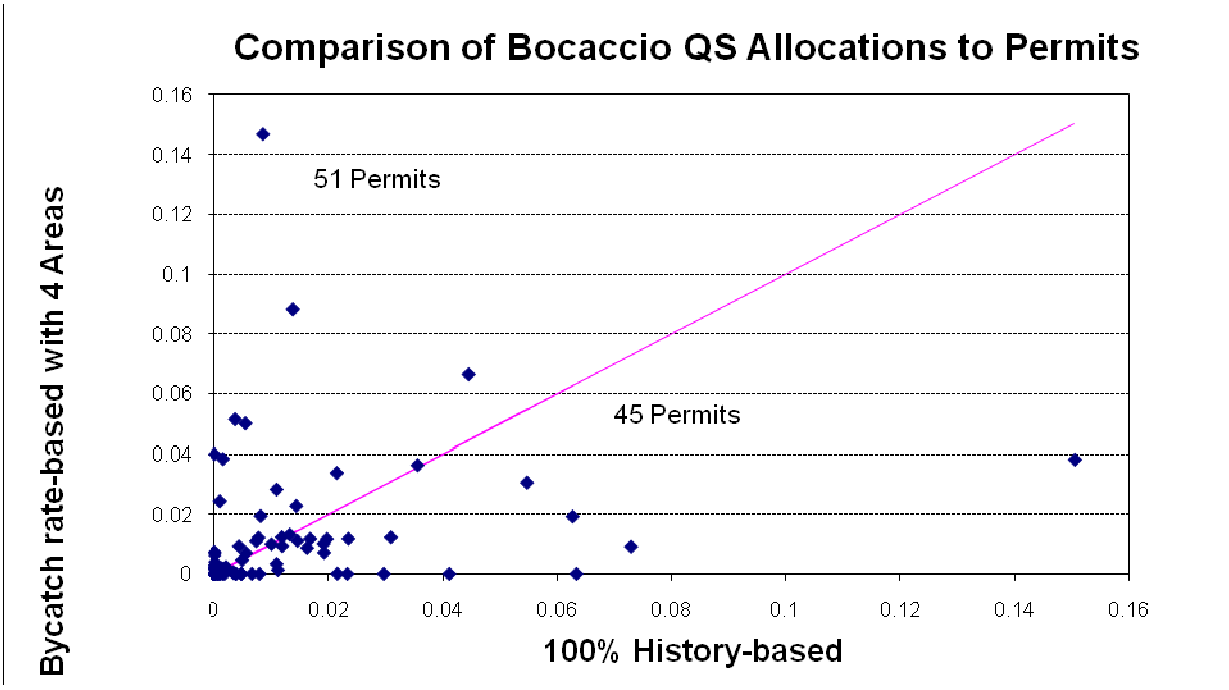


Figure A-36. Allocation of bocaccio QS for the nonwhiting fishery to permits based on landing history as compared to allocation based on individual permit logbook information on area strata and fleet average bycatch rates applied to target species QS (equal sharing is not included in either approach).

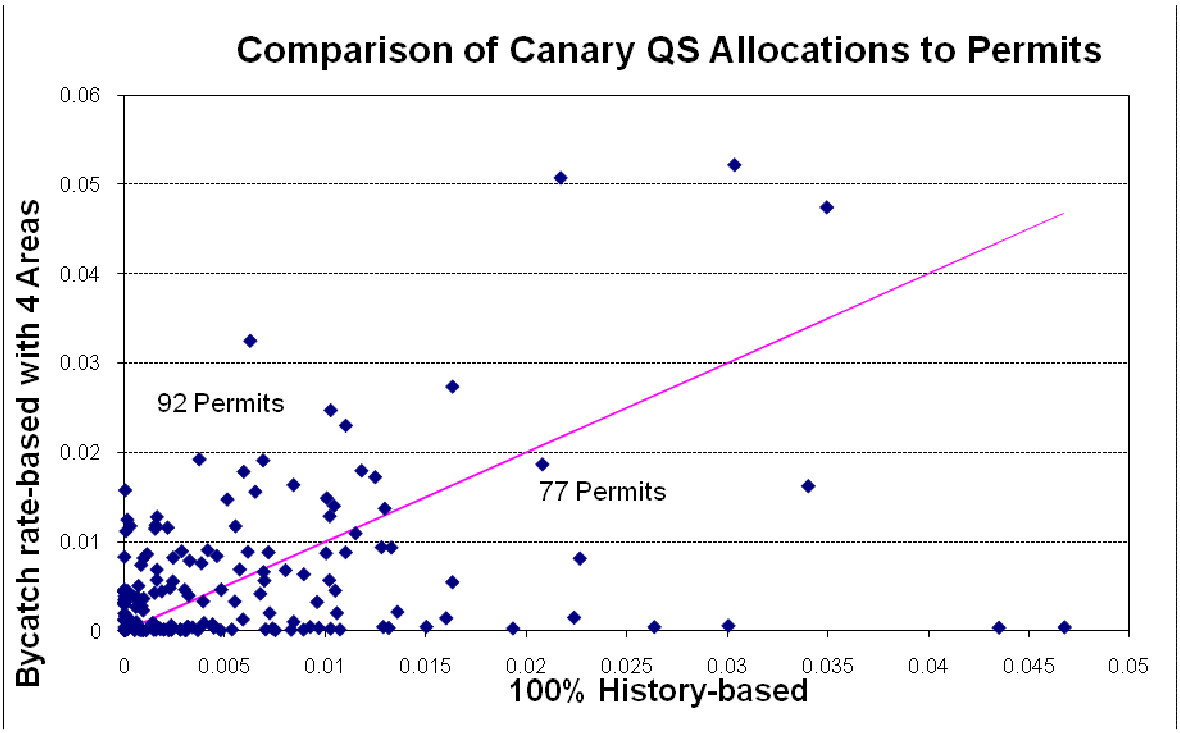


Figure A-37. Allocation of canary rockfish QS for the nonwhiting fishery to entities based on landing history as compared to allocation based on individual permit logbook information on area strata and fleet average bycatch rates applied to target species QS (equal sharing is not included in either approach).

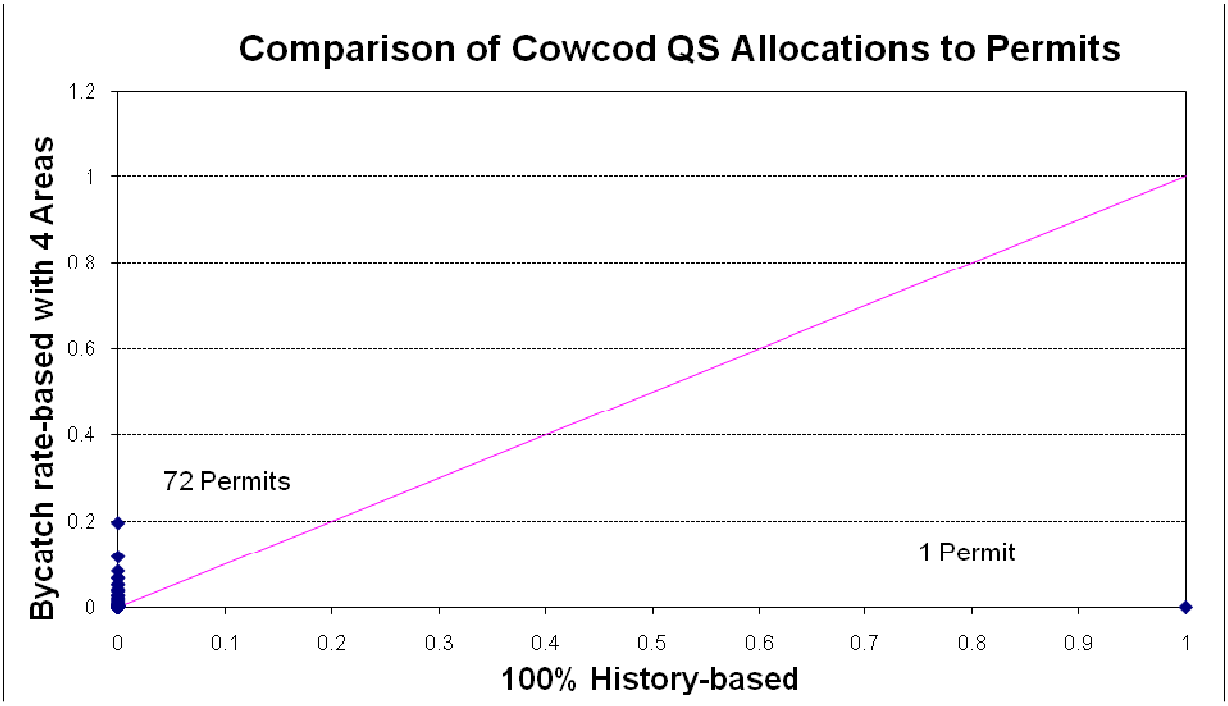


Figure A-38. Allocation of cowcod QS for the nonwhiting fishery to entities based on landing history as compared to allocation based on individual permit logbook information on area strata and fleet average bycatch rates applied to target species QS (equal sharing is not included in either approach).

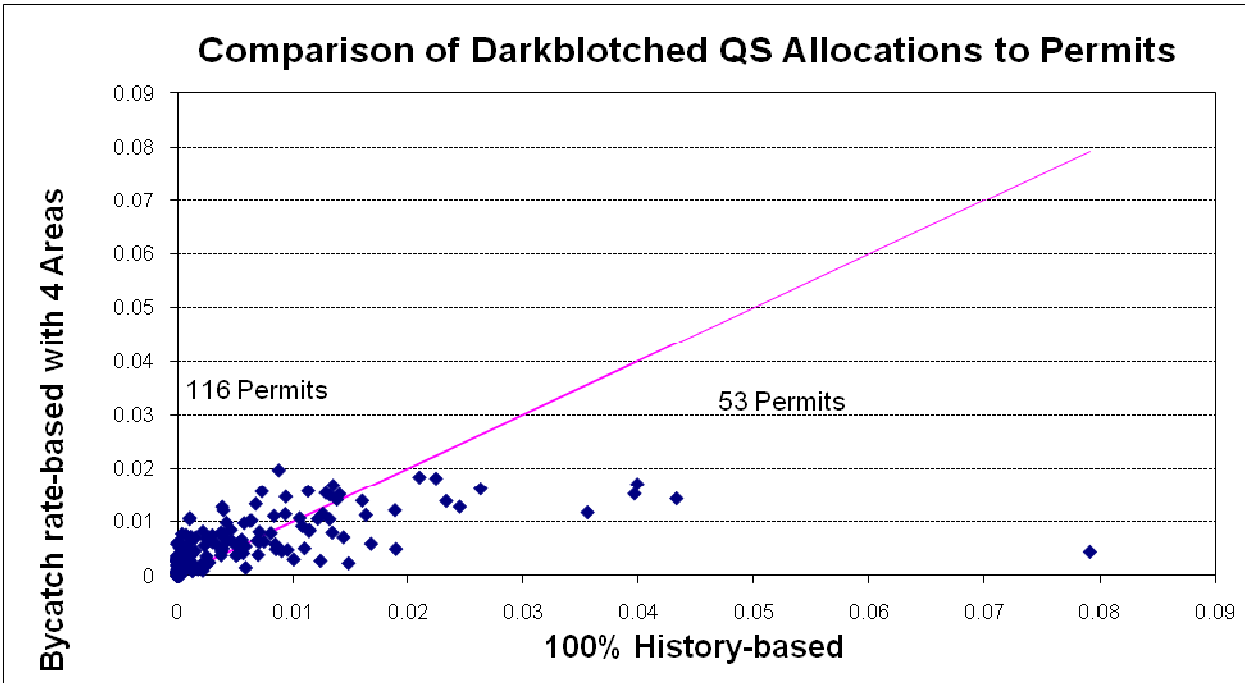


Figure A-39. Allocation of darkblotched QS for the nonwhiting fishery to entities based on landing history as compared to allocation based on individual permit logbook information on area strata and fleet average bycatch rates applied to target species QS (equal sharing is not included in either approach).

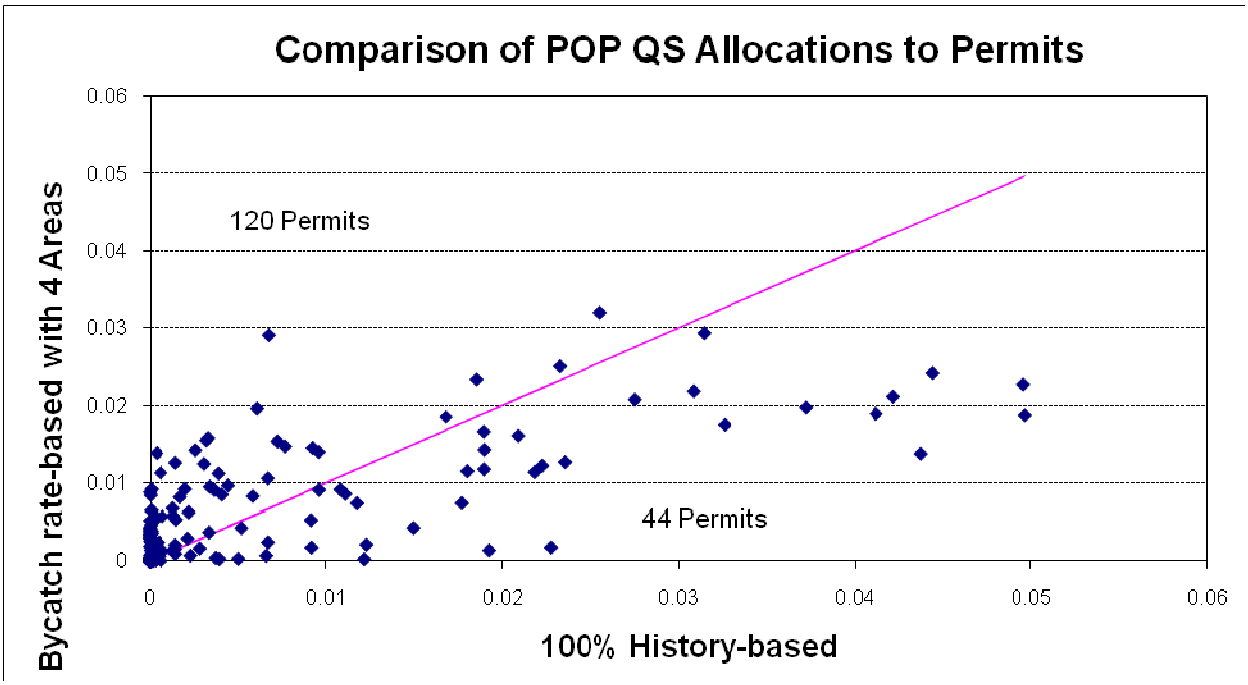


Figure A-40. Allocation of Pacific ocean perch QS for the nonwhiting fishery to entities based on landing history as compared to allocation based on individual permit logbook information on area strata and fleet average bycatch rates applied to target species QS (equal sharing is not included in either approach).

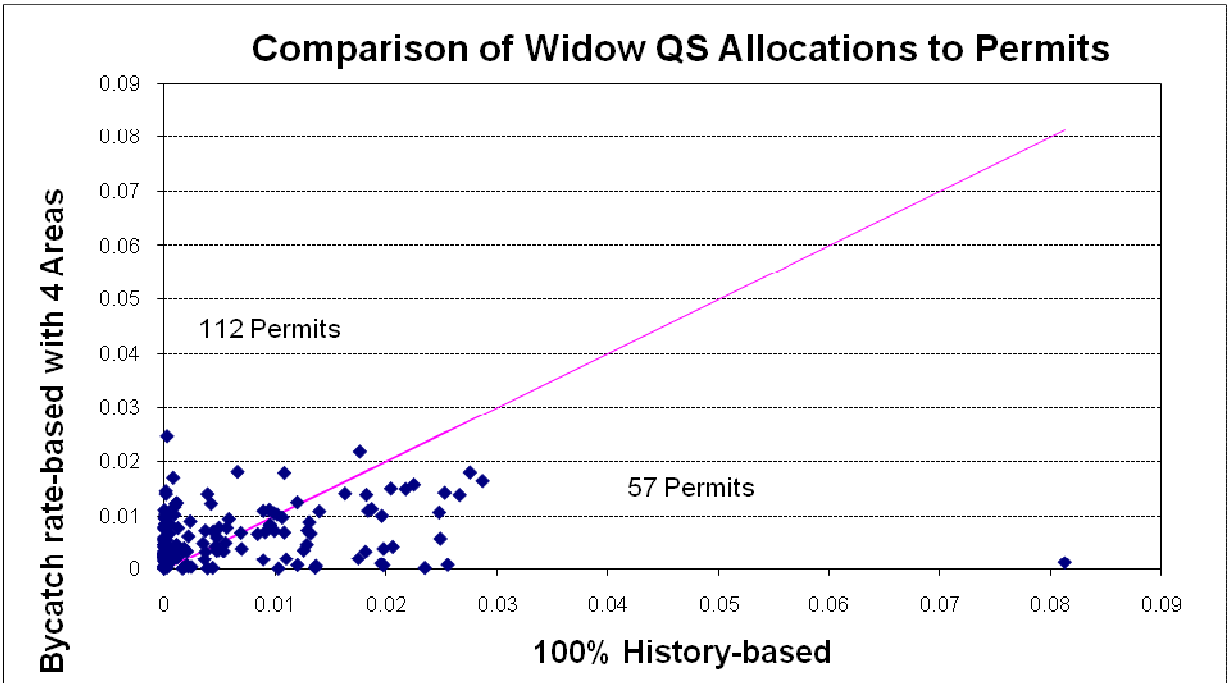


Figure A-41. Allocation of widow rockfish QS for the nonwhiting fishery to entities based on landing history as compared to allocation based on individual permit logbook information on area strata and fleet average bycatch rates applied to target species QS (equal sharing is not included in either approach).

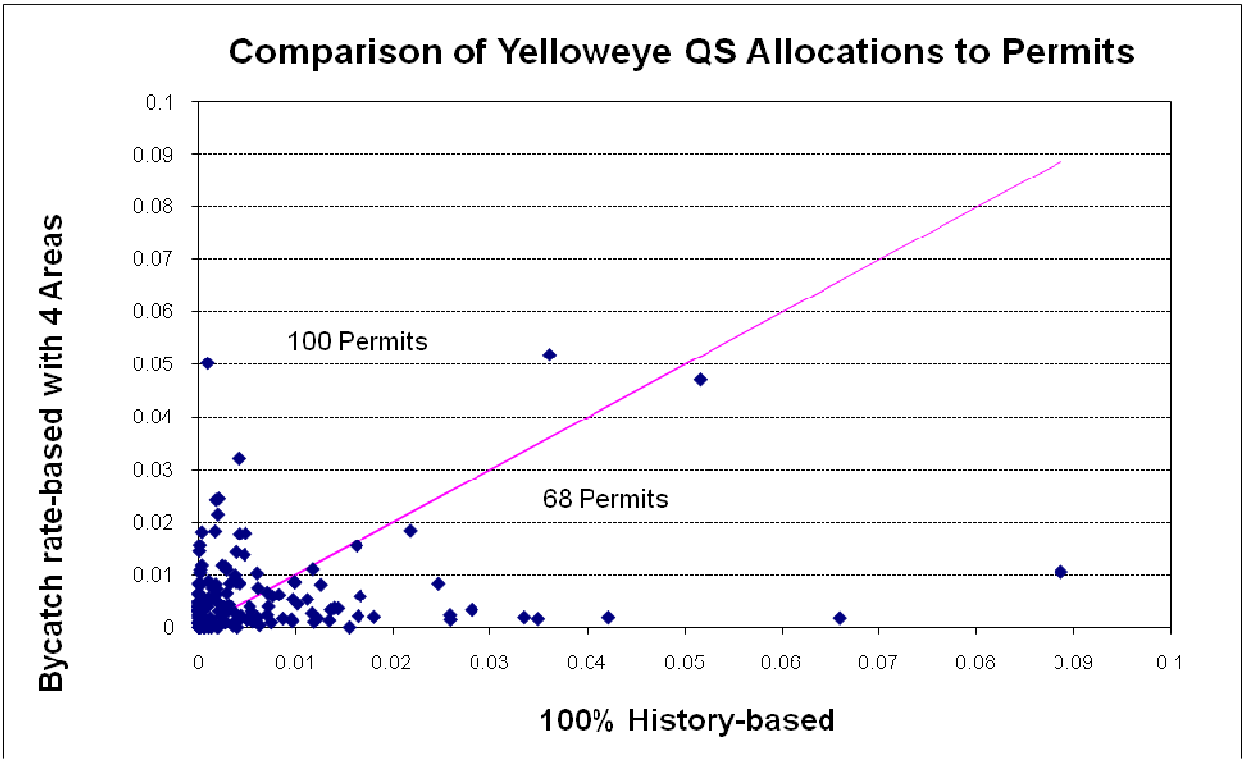


Figure A-42. Allocation of yelloweye rockfsh QS for the nonwhiting fishery to entities based on landing history as compared to allocation based on individual permit logbook information on area strata and fleet average bycatch rates applied to target species QS (equal sharing is not included in either approach).

Using the bycatch rate approach, there are 24 permits that do not have logbooks for 2004 to 2006 but would receive 10 percent of the nonwhiting QS. For these permits, logbook information would not be available to determine the appropriate bycatch rates to apply to their target species QS. Fleet average effort distributions would be used in the overfished species allocation formulas for those permits. Additional information on these permits is provided when the preliminary preferred and final preferred alternatives are compared, below.

Program costs will be increased by the need to determine the allocation for each permit based on that permit's 2004 to 2006 logbooks. Not all logbook data can be matched to fish ticket data and vice versa. The use of both of these data sets in the allocation formula could increase the likelihood of appeals. However, many of the details in the logbook data will not affect the results of the allocation formula. The overfished species allocation formula that relies on logbooks (see Appendix C for a more extensive description) uses the proportion of each permit's target species catch by depth and area strata. The allocation is affected by the ratios of the permit's effort in each of these areas, aggregated across all the target species harvested; therefore, the amount of any particular target species is less important than the proportion of the catch taken in each latitudinal and depth area strata. Use of a fleet wide average for all permits, instead of permit specific logbooks, would lower administrative costs. Administrative costs would also likely be higher if 1994 to 2003 logbooks were used, simply because the data are older and covers more years, increasing the amount of data processing needed, the potential data quality issues, and the potential number of appeals.

♦ *Latitudinal Strata for the Bycatch Rate Approach*

The Council considered assessing permit specific logbooks over two, four, and five latitudinal strata (Table A-65). Using a finer area approach (four or five areas) will tailor the overfished species allocations more specifically to a particular area. A finer area approach might result in less disruption for permits that continue to be used in a manner that is reflected by the period used for assessment of the permit's logbooks but might result in more disruption for permits that have been moved to different areas of the coast since the time period for which the logbooks were assessed. Figure A-43 through Figure A-49 illustrate the effect of the difference between the two-area and four-area approaches. In general, for most species more permits would receive a higher initial allocation using only two areas as compared to four areas, with those receiving the highest allocations generally receiving greater amounts of QS with the four-area approach than they would with the two-area approach. The exceptions are bocaccio and cowcod. For these species, more permits receive greater allocations with the four-area approach than with the two-area approach; and the result for those permits receiving larger amounts is relatively neutral with respect to the difference between the two-area and four-area approaches. However, there is one permit that would receive in the neighborhood of 10 percent of the bocaccio and cowcod under the two-area approach and that would receive substantially less under the four-area approach. For canary and darkblotched rockfish, the results are generally similar whether the two-area or four-area approaches are used (most permits are relatively close to the diagonal line that indicates the points at which there is no difference between the two alternatives). For Pacific Ocean perch and widow rockfish, there are groups of permits that receive substantially less under the four-area approach (less than one quarter of a percent under the four-area approach) which would receive substantially more under the two-area approach. However, even for these species, the pattern is maintained under which those receiving the highest amounts of QS do better under the four-area approach. This pattern, of those receiving the greatest allocations doing the best under the four-area approach, reflects the manner in which the allocations using four-area strata are more tailored to permit needs based on specific areas of activity rather than broader averages that come using the two-area approach.

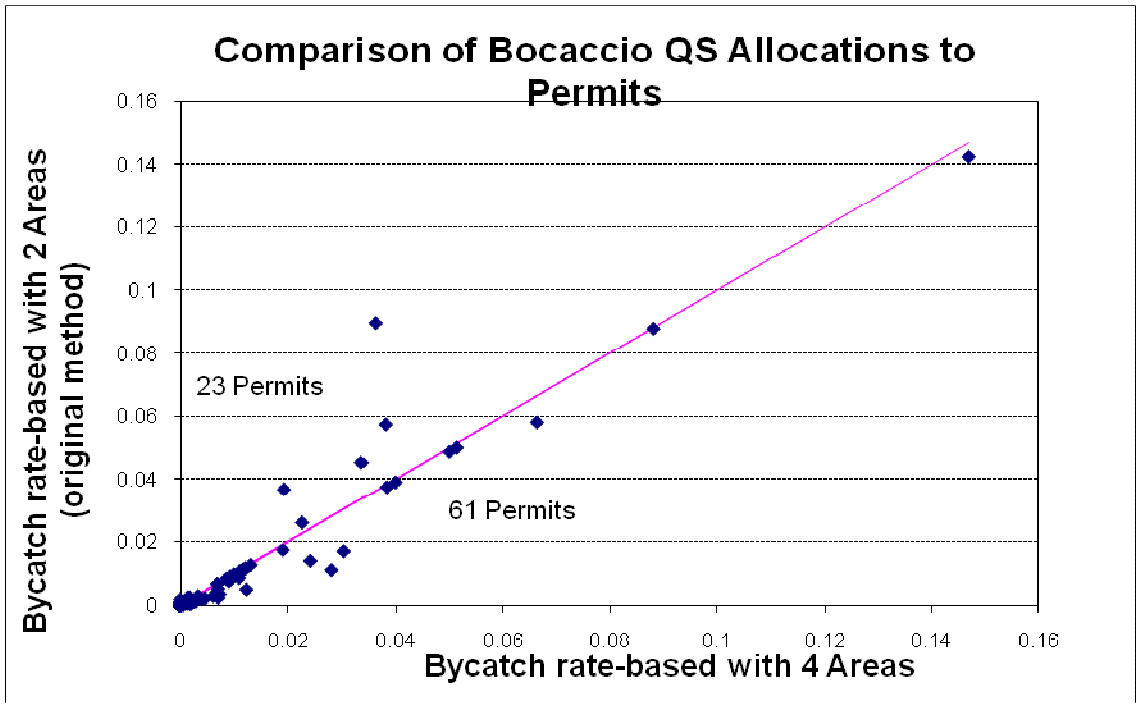


Figure A-43. Bocaccio allocations to permits under the two-area approach (north and south of 40°10'N Lat) and four-area approach (final preferred alternative) (includes allocations for nonwhiting trips only).

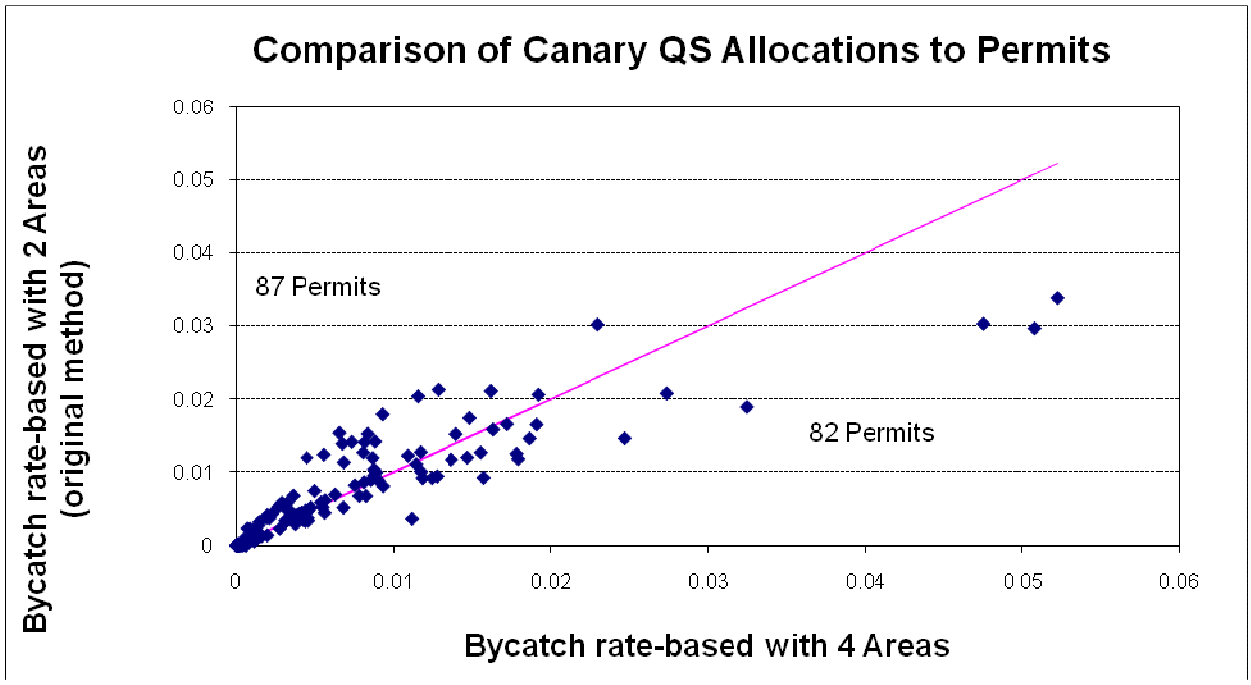


Figure A-44. Canary allocations to permits under the two-area approach (north and south of 40°10'N Lat) and four-area approach (final preferred alternative, but does not use the equal allocation element which is part of the Council's final preferred alternative for canary) (includes allocations for nonwhiting trips only).

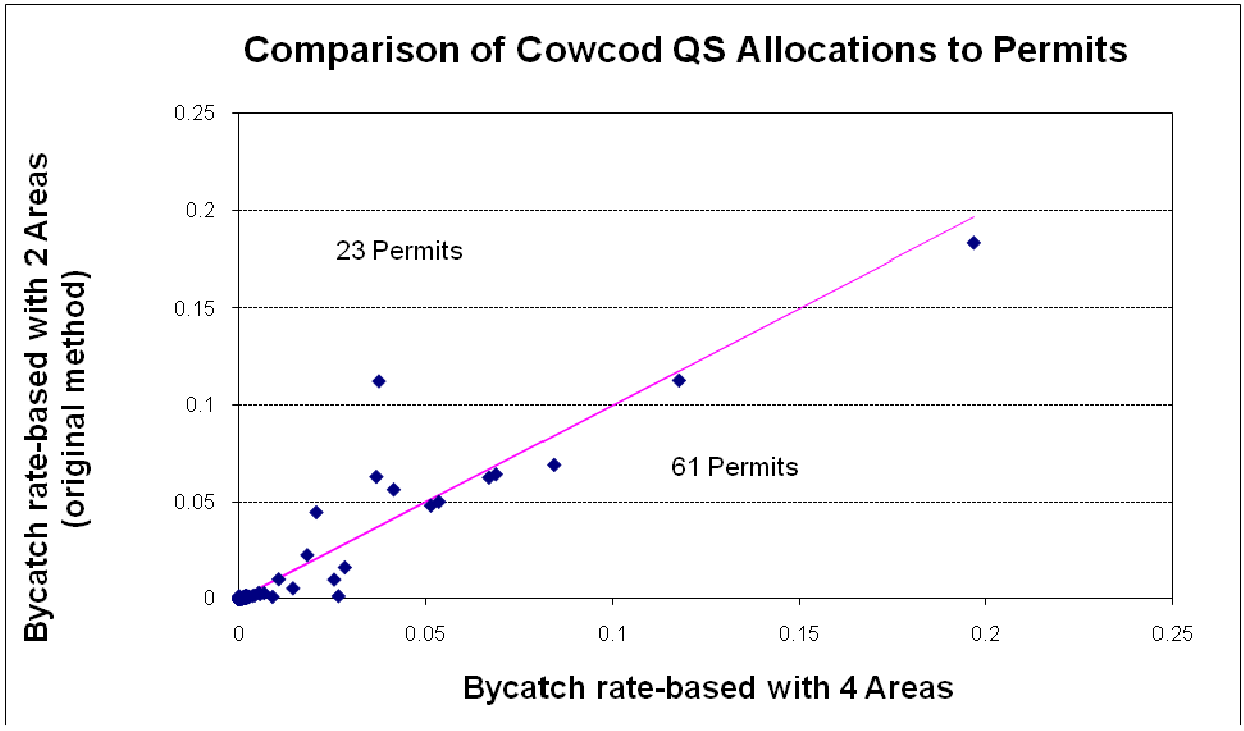


Figure A-45. Cowcod allocations to permits under the two-area approach (north and south of 40°10'N Lat) and four-area approach (final preferred alternative) (includes allocations for nonwhiting trips only).

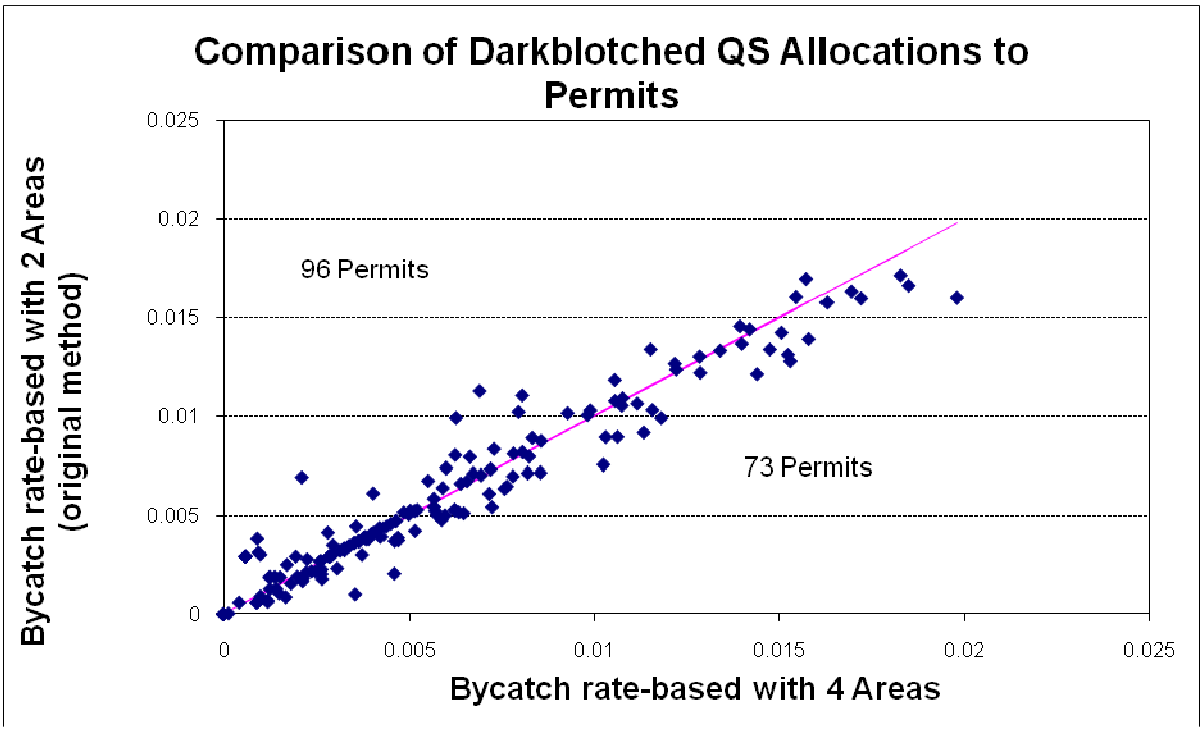


Figure A-46. Darkblotched allocations to permits under the two-area approach (north and south of 40°10'N Lat) and four-area approach (final preferred alternative) (includes allocations for nonwhiting trips only).

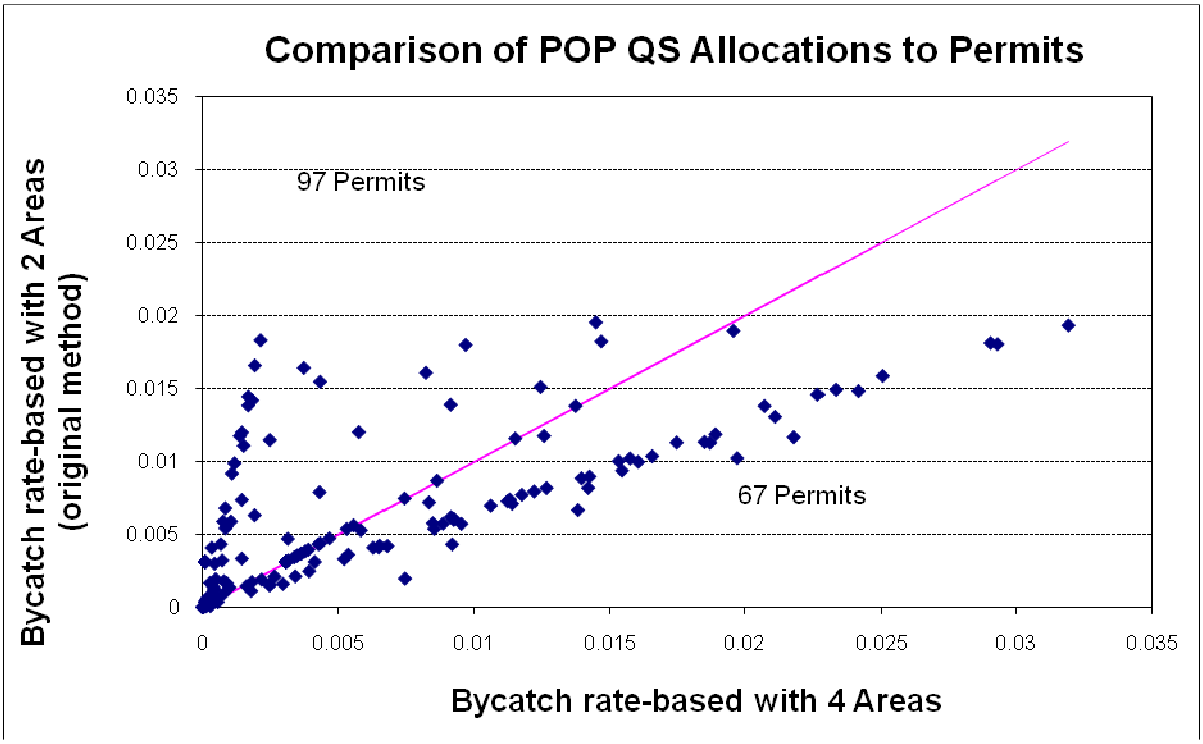


Figure A-47. Pacific Ocean perch allocations to permits under the two-area approach (north and south of 40°10'N Lat) and four-area approach (final preferred alternative) (includes allocations for nonwhiting trips only).

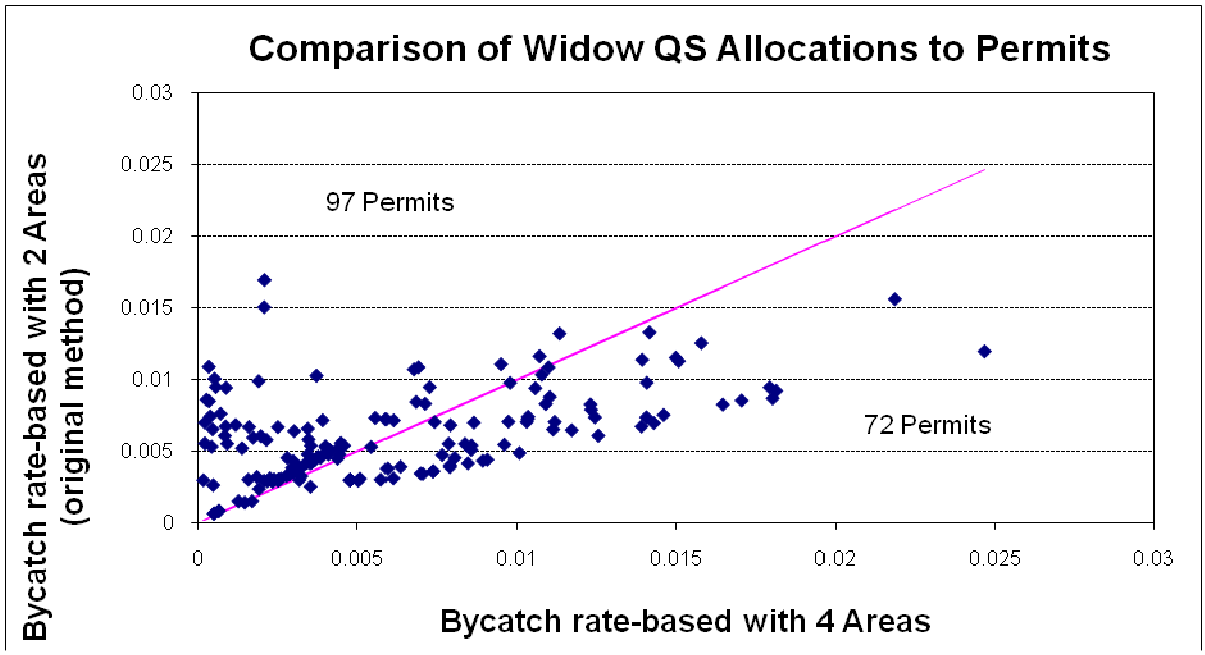


Figure A-48. Widow allocations to permits under the two-area approach (north and south of 40°10'N Lat) and four-area approach (final preferred alternative) (includes allocations for nonwhiting trips only).

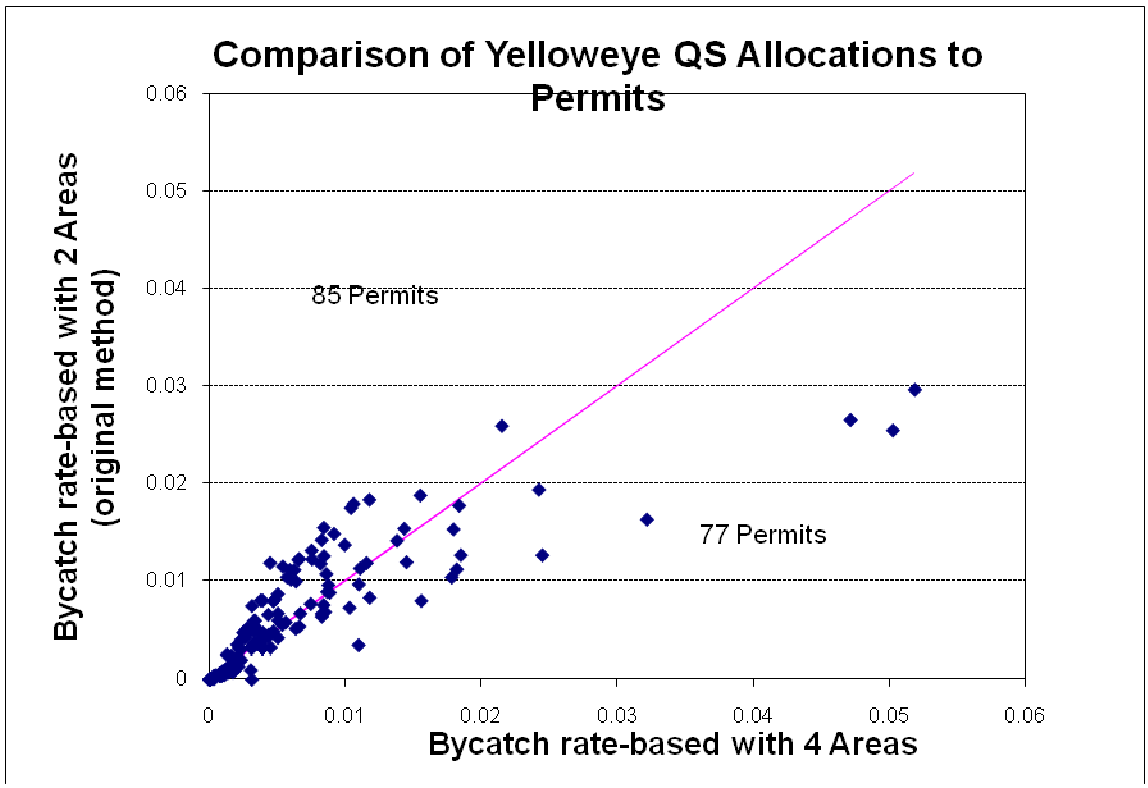


Figure A-49. Yelloweye allocations to permits under the two-area approach (north and south of 40°10'N Lat) and four-area approach (final preferred alternative) (includes allocations for nonwhiting trips only).

Figure A-50 though Figure A-56 illustrate the effect of the difference between the four area and five area approaches. From these figures, it is evident that the initial allocation of bocaccio, darkblotched, and widow are the species most highly affected by differences in the initial allocation formula. These results are different only for those entities with some 2003 to 2006 logbook history south of 40° 10' north latitude. The effect of applying the finest scale bycatch rate area, the five-area approach that splits the area south of 40° 10' north latitude into two regions, is that those entities with history in areas where darkblotched, bocaccio, and widow are most abundant would tend to receive relatively greater amounts of QS for those species. Inversely, the effect of applying the four-area approach is to more evenly spread out the initial allocations of darkblotched, widow, and bocaccio to entities with history south of 40° 10' north latitude.

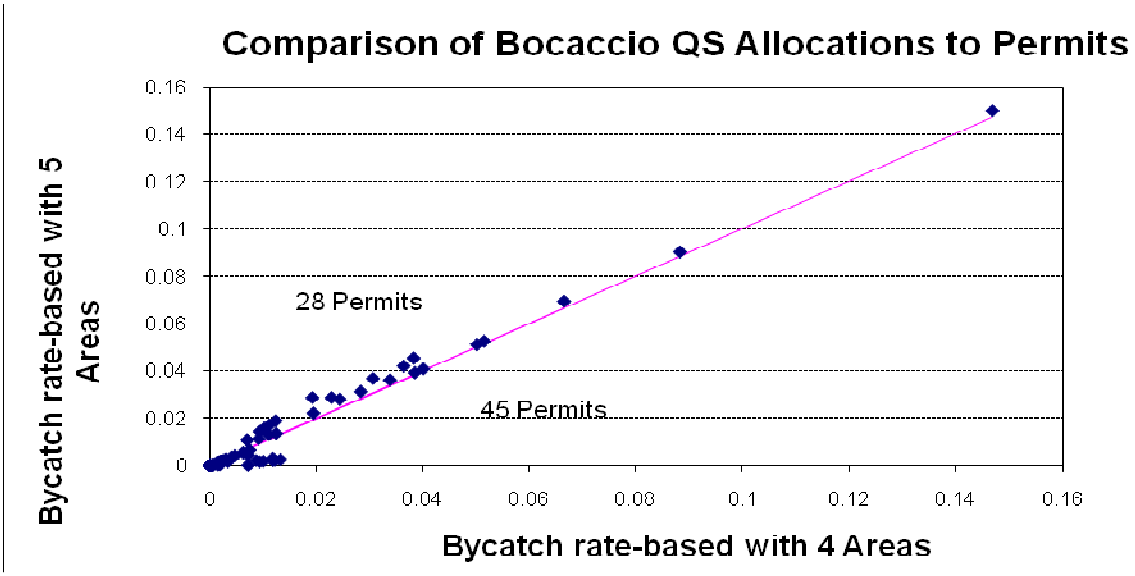


Figure A-50. Bocaccio allocations to permits under the four-area approach (moderately fine area) and five-area approach (finest area) (includes allocations only for nonwhiting trips).

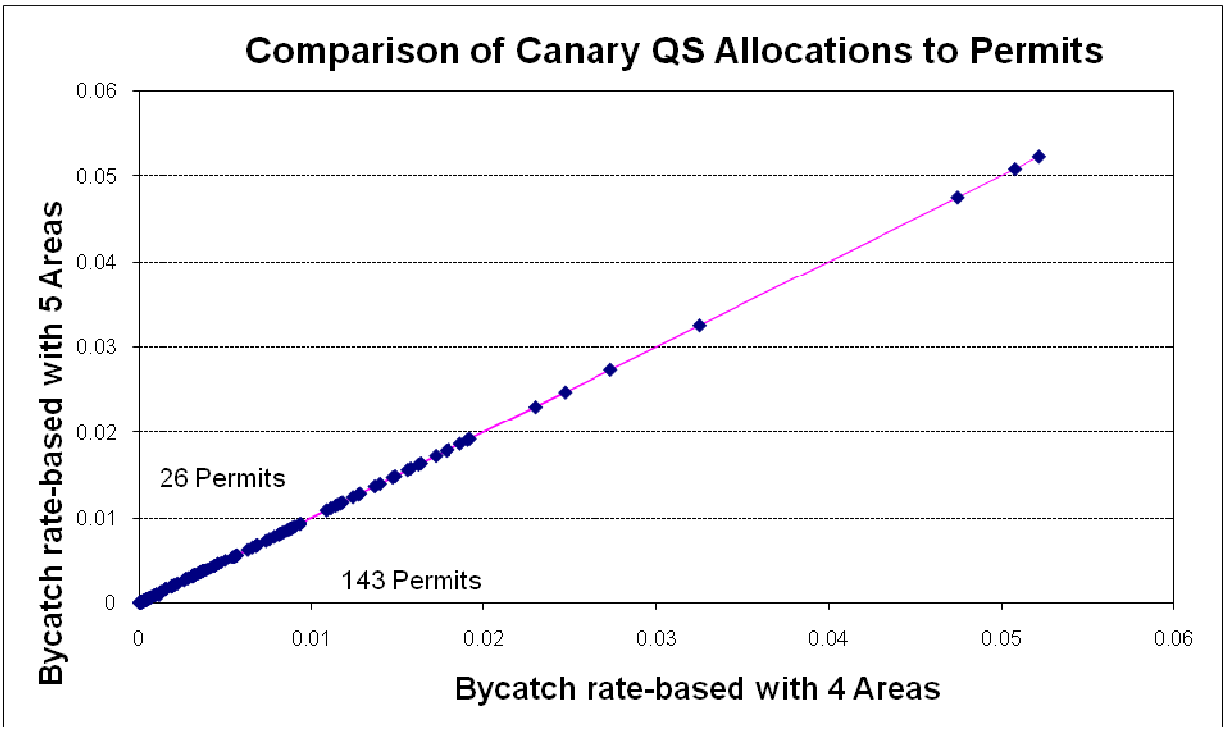


Figure A-51. Canary allocations to permits under the four-area approach (moderately fine area) and five-area approach (finest area) (includes allocations only for nonwhiting trips and does not use the equal allocation element which is part of the Council's final preferred alternative for canary).

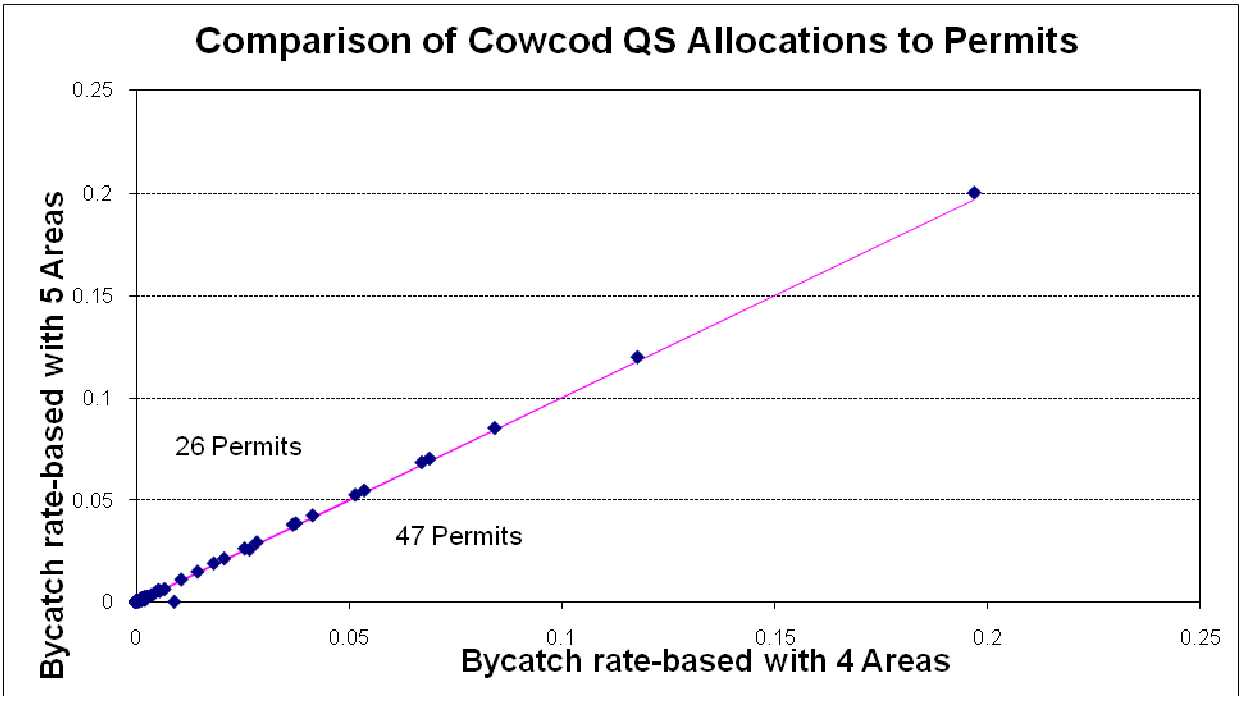


Figure A-52. Cowcod allocations to permits under the fou- area approach (moderately fine area) and five-area approach (finest area) (includes allocations only for nonwhiting trips).

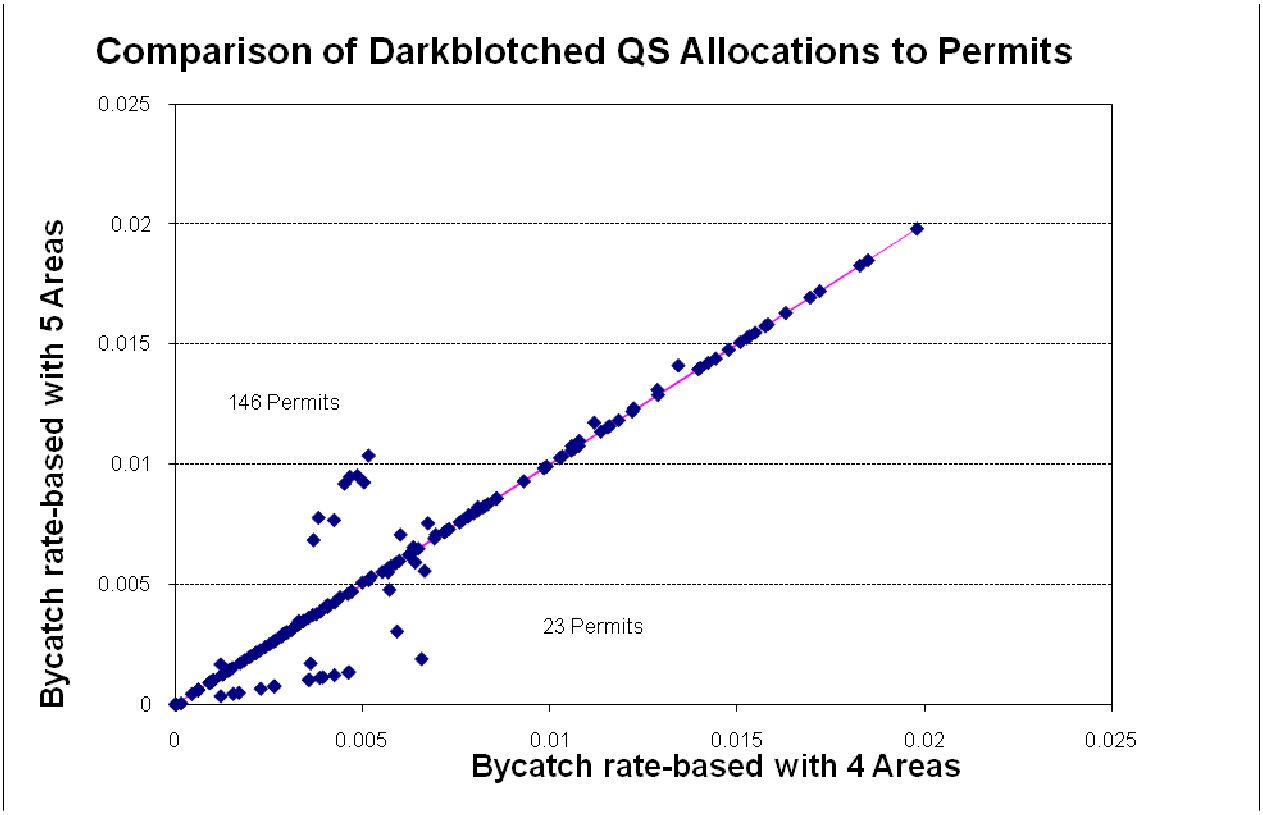


Figure A-53. Darkblotched allocations to permits under the four-area approach (moderately fine area) and five-area approach (finest area) (includes allocations only for nonwhiting trips).

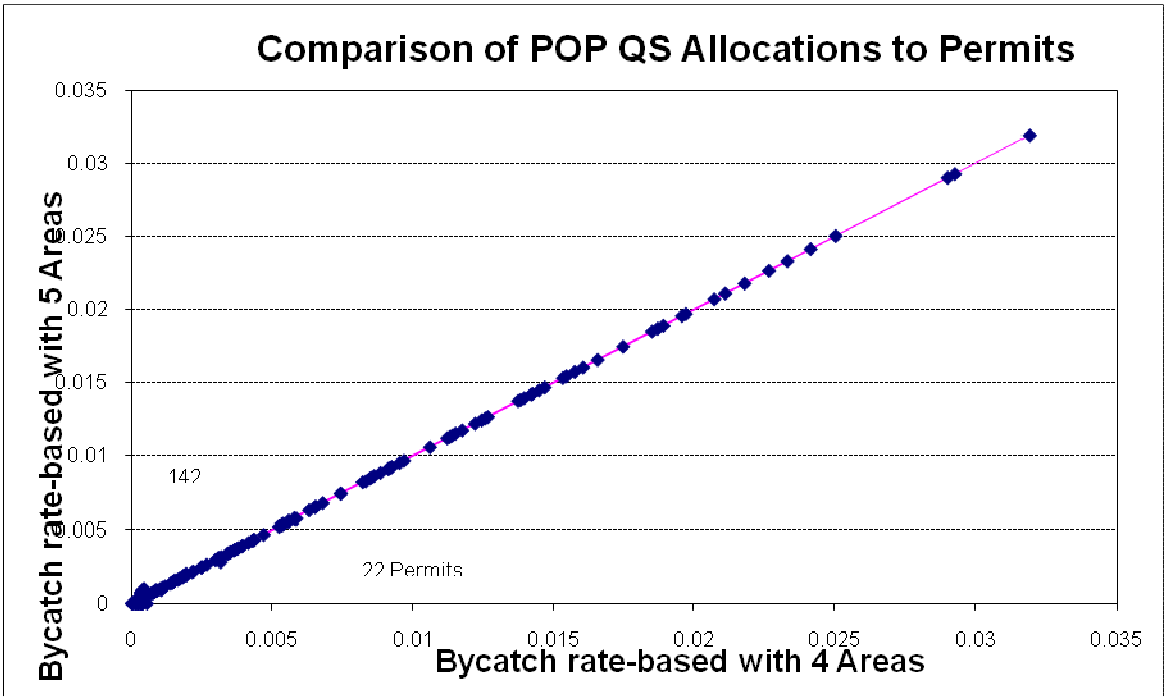


Figure A-54. Pacific Ocean perch allocations to permits under the four-area approach (moderately fine area) and five-area approach (finest area) (includes allocations only for nonwhiting trips).

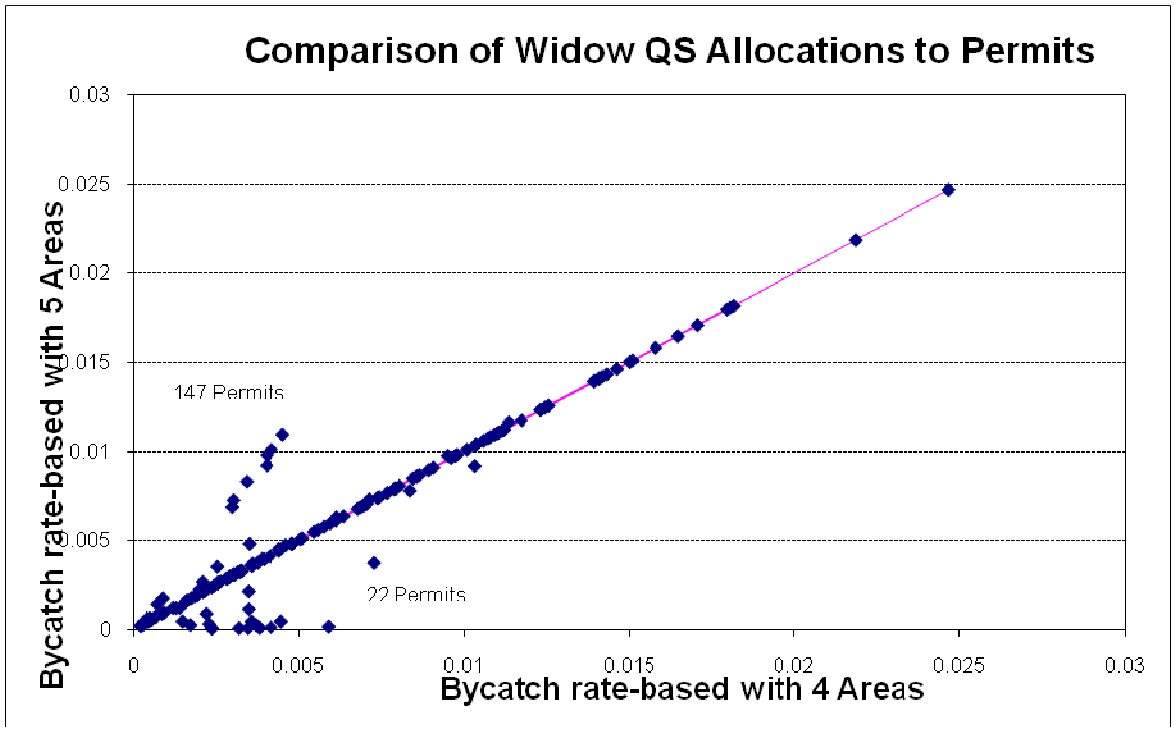


Figure A-55. Widow allocations to permits under the four area approach (moderately fine area) and five-area approach (finest area) (includes allocations only for nonwhiting trips).

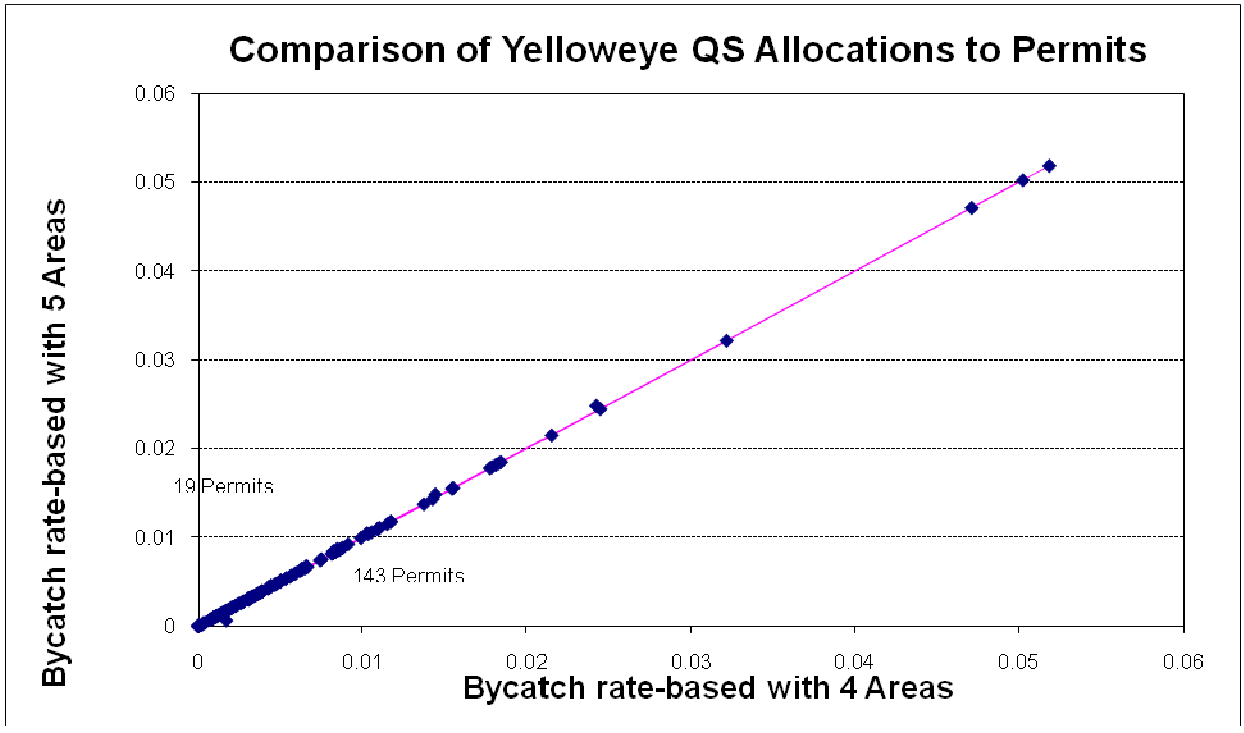


Figure A-56. Yelloweye allocations to permits under the four-area approach (moderately fine area) and five-area approach (finest area) (includes allocations only for nonwhiting trips).

♦ *Logbook Period for the Bycatch Rate Approach*

The choice of logbook periods has distributional implications for individual permits and geographically. For example, use of more recent logbook periods substantially increases the amount of bocaccio and cowcod going to permits associated with ports from San Francisco south (Figure A-57 and Figure A-58). Part of the reason for this is that some permits that were used to fish off California in the 1990s have moved and now fish in more northern ports. Thus, an allocation using 1994 to 2003 logbooks may not reflect current need for bycatch, not only because of the changes in fishing patterns within an area caused by changes in stock availability and area closures put in place to protect overfished species, but also because permits have been transferred to entirely different regions of the coast.

One concern about the use of more recent logbooks for the Council's final preferred alternative was been the impact on the canary QS allocations for permits in the Fort Bragg area. These Fort Bragg permits would receive very small amounts of canary QS (amounts that translate to only a few QP based on 2010 expected allocations). While, on a percentage basis, use of 1994 to 2004 logbooks would substantially increase the allocations to Fort Bragg permits because their allocations are so small to start with, and the observed bycatch rates are so low for the Fort Bragg area, the difference in allocation that results from using 1994 to 2003 logbooks, as opposed to using 2003 to 2006 logbooks, is not perceptible in Figure A-57 and Figure A-58. The Council revised its final preferred alternative to include an equal allocation element in order to provide some canary to permits that were receive close to none.

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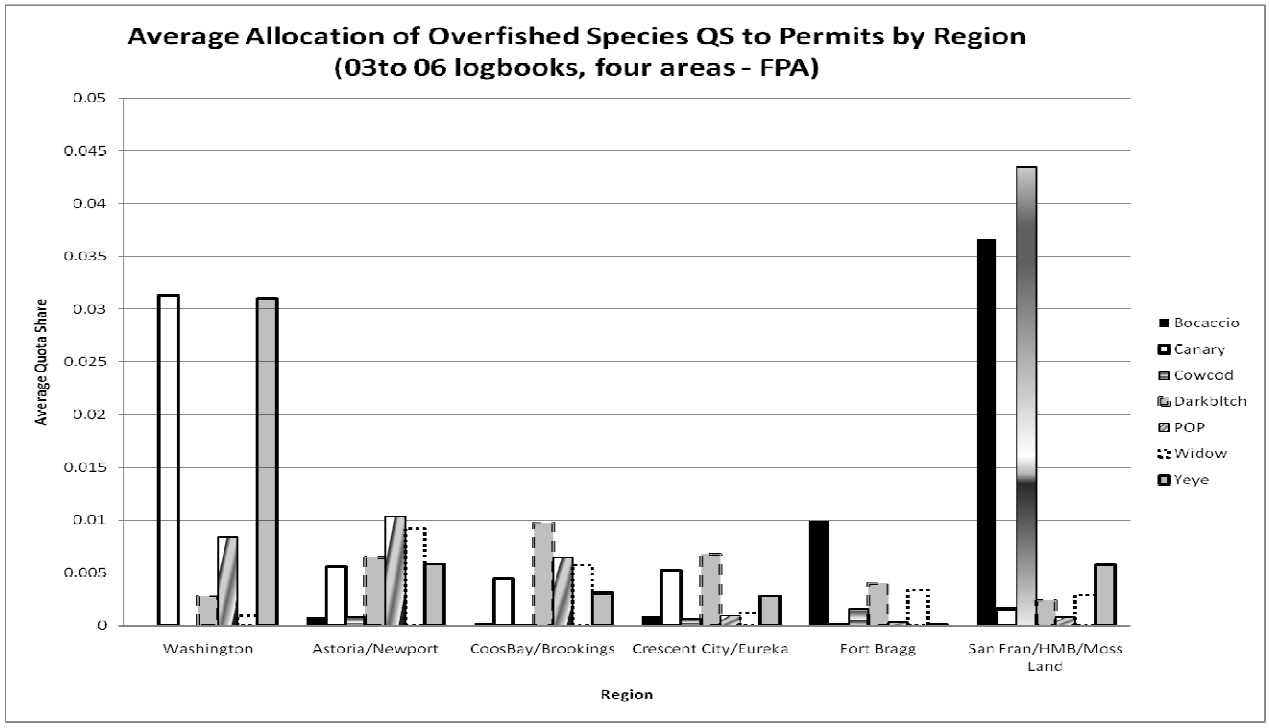

Figure A-57. Amount of QS allocated by region when the 2003-2006 permit logbooks are used to allocation overfished species QS (data in this graph reflect the Council's final preferred alternative, with the exception of canary [which does not include the equal allocation element of the Council's final preferred alternative]).

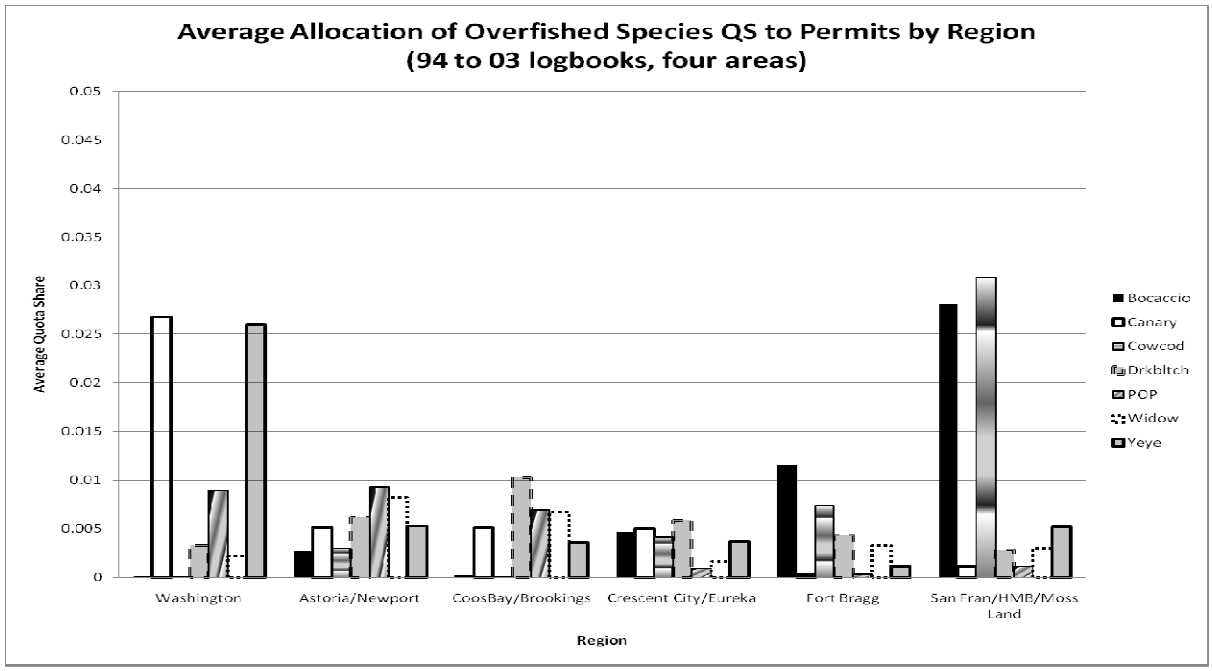

Figure A-58. Amount of QS allocated by region when the 1994 to 2003 permit logbooks are used to allocate overfished species QS (data in this graph reflect the Council's final preferred alternative, except that 1994 to 2003 logbooks are used instead of 2003 to 2006 logbooks and for canary the equal allocation element of the Council's final preferred alternative is not used).

♦ *Impacts of Equal Allocation Choice on the Bycatch Rate Approach*

We will now turn to a comparison of the PPA and the final preferred alternative with respect to the bycatch method for allocating overfished species and its interplay with the equal allocation component of the allocation formula. As discussed above, for overfished species, the equal allocation component of the allocation formula was included in the PPA but not in the final preferred alternative, except with respect to canary. Initially (November 2008), the Council specified there would be no equal allocation component for any overfished species, including canary. However, in November 2009, after reviewing the regionalized effects of the allocation formula and the minimal allocations of canary QS provided to vessels operating in ports such as Fort Bragg California, the Council decided to revise its final preferred alternative and include an equal allocation element for canary rockfish. On the following pages, we provide three sets of graphs for each overfished species (Figure A-59 through Figure A-80). The first graph in each set provides information for the Council's final preferred alternative (except for canary). For canary, the November 2008 final preferred alternative is displayed in the first graph of the group. That alternative was later revised. In the first graph in each group, permits are first assigned to an area based on the port in which they made the most landings from 2004 through 2006. Within each area, the permits are displayed in order from those with the least nonwhiting groundfisH QP allocation to those with the most.[57] For each permit, points are provided indicating the amount of its nonwhiting target QP allocation and the amount of its QP allocation for an overfished species. The set of nonwhiting target species displayed in the graph is the same as the set used in the overfished species allocation formula (the same as the set used by the WCGOP to calculate bycatch rates). Since the permit order within a graph does not change, the amount of nonwhiting QP and overfished species QP going to a particular permit will show up as points above/below one another. The units in which the QP are displayed are noted in the legend and vary among the graphs (e.g., metric tons, pounds, tens of pounds, hundreds of

[57] QS was converted to QP using the 2010 OYs and the Council's Amendment 21 allocation decisions.

pounds). Some permits will receive an initial allocation of overfished species in proportion to their allocation of whiting. In order to isolate the permits with some whiting history from the permits with no whiting history, the overfished species QP for permits with no whiting history are indicated using a triangle and the overfished species QP for permits with some whiting history are represented using a solid circle. Additionally, there are some permits with no 2003 to 2006 history. These permits have no recent logbooks and so they are allocated QP based on distribution of effort among areas for the fleet as a whole. The overfished species QP for these permits are identified with an open circle. The ports for these vessels were assigned using whiting delivery history or permit owner residence. The second graph in each set provides the same information using the PPA (i.e., the overfished species allocation formula does not include an equal allocation component). For the canary, group the second graph in the group is both the PPA and the revised (November 2009) final preferred alternative. To isolate the effect of the equal allocation of overfished species, the amount of the target species allocation to permit holders was kept constant between these two figures (i.e., 90 percent of the allocation for target species was allocated to permit holders[58]), and the bycatch rate method was held constant.[59] The final graph in each set shows for each permit the amount of overfished species allocated to the permit under the final preferred alternative as compared to the PPA. The permits are placed in order based on the results for the final preferred alternative, such that the estimates for each permit are above/below one another.

To illustrate how to read the graphs, we will look at the results for Pacific ocean perch (POP). In Figure A-72, it can be seen that for the area north of Westport and from the Columbia River to Newport there are a few permits that will receive almost no POP under the final preferred alternative, some of which have some relatively large nonwhiting quota allocations. The number of permits not receiving POP increases to the south, where POP encounter rates are lower. The nonwhiting QP amounts are displayed in metric tons, and the POP amounts are displayed in tens of pounds. The maximum amount of POP QP any single permit would get is just over 10,000 pounds (1,000 x 10 pound units), by a permit with at least some whiting history. The second and third highest amounts would be slightly less than 9,000 pounds each for two permits that do not have any whiting history. Under the PPA, the maximum amount of QP any single permit would receive is between 6,000 and 7,000 pounds and no permit would receive less than about 800 pounds (Figure A-73). Under the final preferred alternative, most of those permits in the south (south of Fort Bragg) which receive significant amounts of QP are those which had no logbooks from 2003 through 2006 and so are provided POP based on fleet averages. Approximately 110 permits would receive more POP under the PPA, with the remainder receiving more POP under the final preferred alternative (Figure A-74).

For canary, the maximum QP allocation to a single permit under the November 2008 final preferred alternative is just over 1,600 pounds and the minimums are very close to zero (Figure A-63). Under the PPA, which is also the November 2009 revised final preferred alternative, the maximum initial allocation to a single permit is just under 1,000 pounds and the minimums are just under 100 pounds (Figure A-64).

[58] The target species allocation formula was the same in the preliminary preferred and final preferred alternative. The only difference was that in the preliminary preferred alternative 80 percent of the QS for all species went to the permits and in the final preferred alternative 90 percent of the QS for all species went to the permits. Two isolate the effect of the equal allocation element, 90 percent allocation to permits was used for both figures.

[59] In the spring of 2009, the Council revised the bycatch rate method, specifying that four latitudinal subareas be used instead of two. For purposes of isolating the most important difference between the preliminary and final preferred alternative (the presence and absence of the equal sharing part of the allocation formula), the four-latitudinal-area bycatch method has been used in both the preliminary and final preferred alternatives for the overfished species allocations.

Under the final preferred alternative for darkblotched, five permits would receive only about 10 pounds of darkblotched rockfish Figure A-69. All of these are located from Fort Bragg south, and one of the permits has more nonwhiting groundfish than any other permit in the area.

In general, one of the patterns that shows up in the figures is that permits receiving larger amounts of QS for overfished species tend to be better off without equal allocation than with equal allocations. Two exceptions stand out: canary rockfish (Figure A-65) and widow rockfish (Figure A-77). For these two species, some of the permits receiving larger allocations receive even more with an equal allocation element. The permits in these situations appear to be permits with significant whiting history but lesser amounts of nonwhiting fishery relative to the rest of the nonwhiting fleet. Therefore, their allocation of overfished species QS for their nonwhiting trips increases with the equal allocation of QS related to buyback permit history. The amounts of overfished species associated with whiting trips that would be equally allocated is quite small because only 7 percent of the shoreside whiting was taken by permits that were bought back and the amount of nonwhiting species allocated to the shoreside whiting fishery is small for most species.

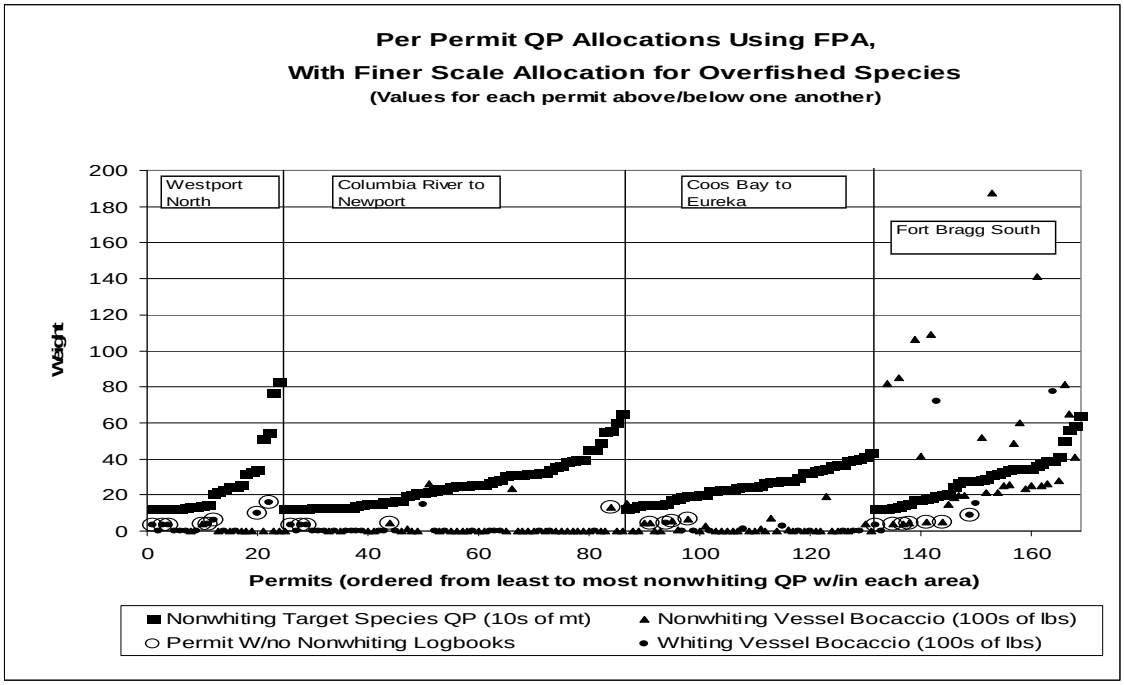

Figure A-59. Per permit allocations of nonwhiting target species and bocaccio QP using 2010 allocations under the Council's final preferred alternative (any permit with some shoreside whiting trips was classified as a whiting permit, permit locations assigned based on primary port from 2004 to 2006).

Notes: Assumes half the OY projected to go unused in 2010 is allocated to the trawl fishery.
Last permit in series has a value of 31,100 pounds for bocaccio (off the graph).

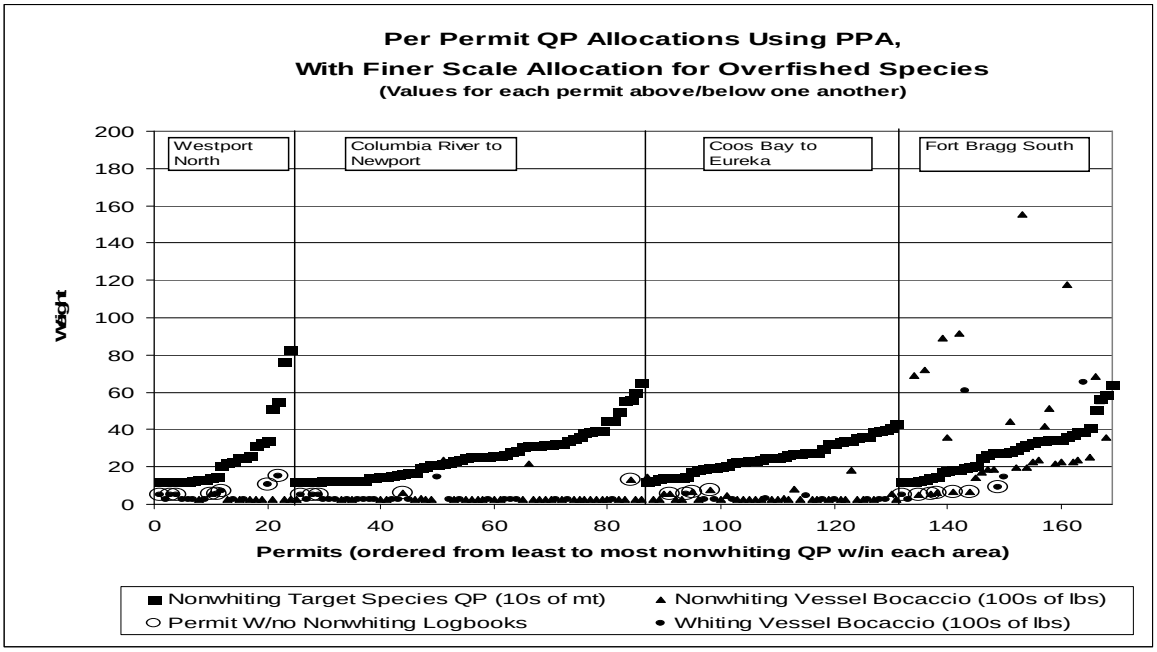

Figure A-60. Per permit allocations of nonwhiting target species and bocaccio QP using 2010 allocations under the Council's PPA (any permit with some shoreside whiting trips was classified as a whiting permit, permit locations assigned based on primary port from 2004 to 2006).

Notes: Assumes half the OY projected to go unused in 2010 is allocated to the trawl fishery.
Last permit in series has a value of 25,700 pounds for nocaccio (off the graph).

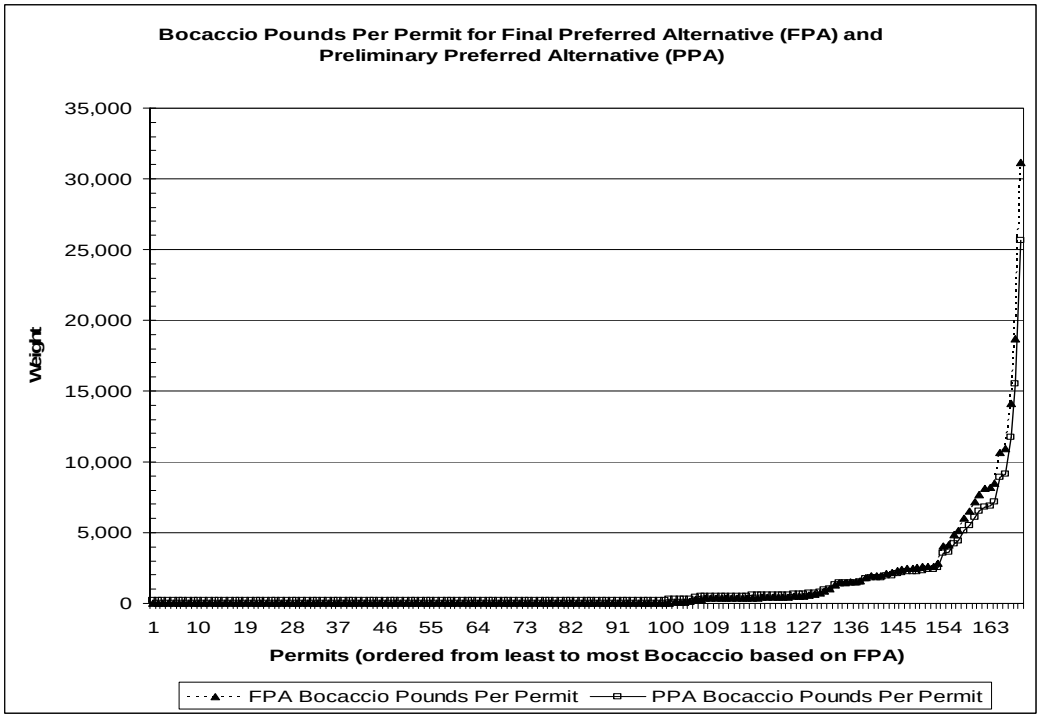

Figure A-61. Per permit allocations of bocaccio QP under the Council's final and PPA (permits are arrayed in the same order for both alternatives).

Notes: Assumes half the OY projected to go unused in 2010 is allocated to the trawl fishery.

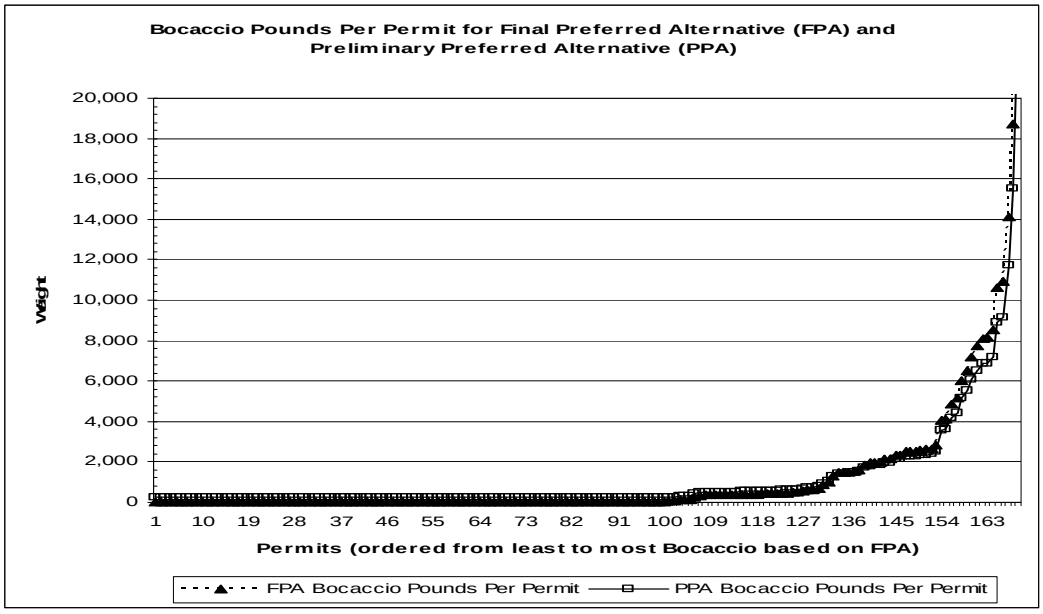

Figure A-62. Per permit allocations of bocaccio QP under the Council's final and PPA (permits are arrayed in the same order for both alternatives) - magnification.

Notes: Assumes half the OY projected to go unused in 2010 is allocated to the trawl fishery.

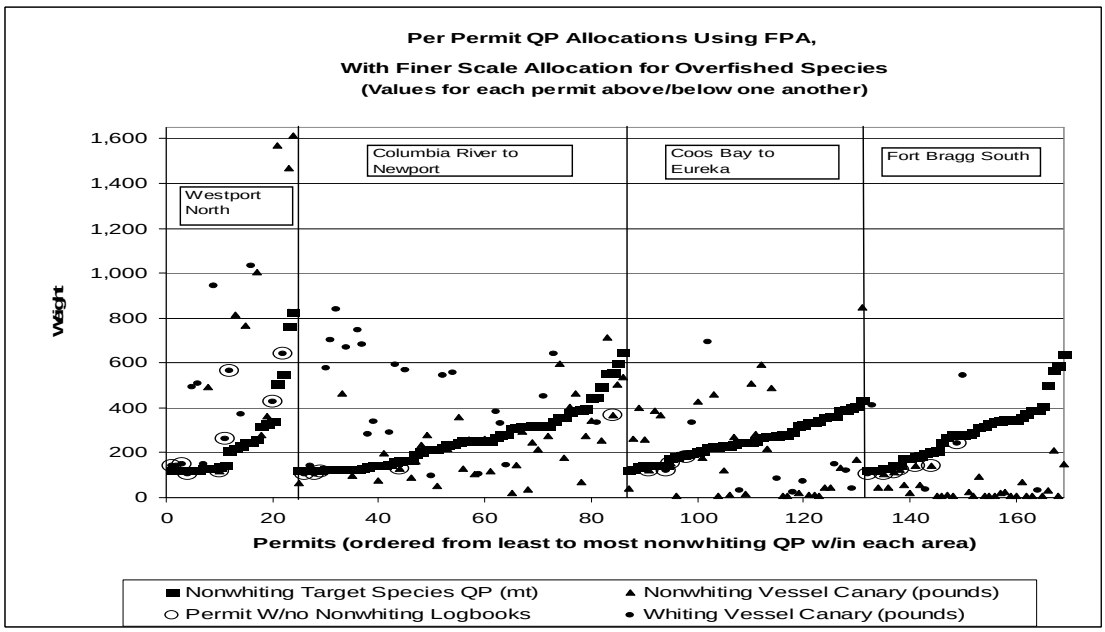

Figure A-63. Per permit allocations of nonwhiting target species and canary QP using 2010 allocations under the Council's Nov 2008 final preferred alternative (any permit with some shoreside whiting trips was classified as a whiting permit, permit locations assigned based on primary port from 2004 to 2006).

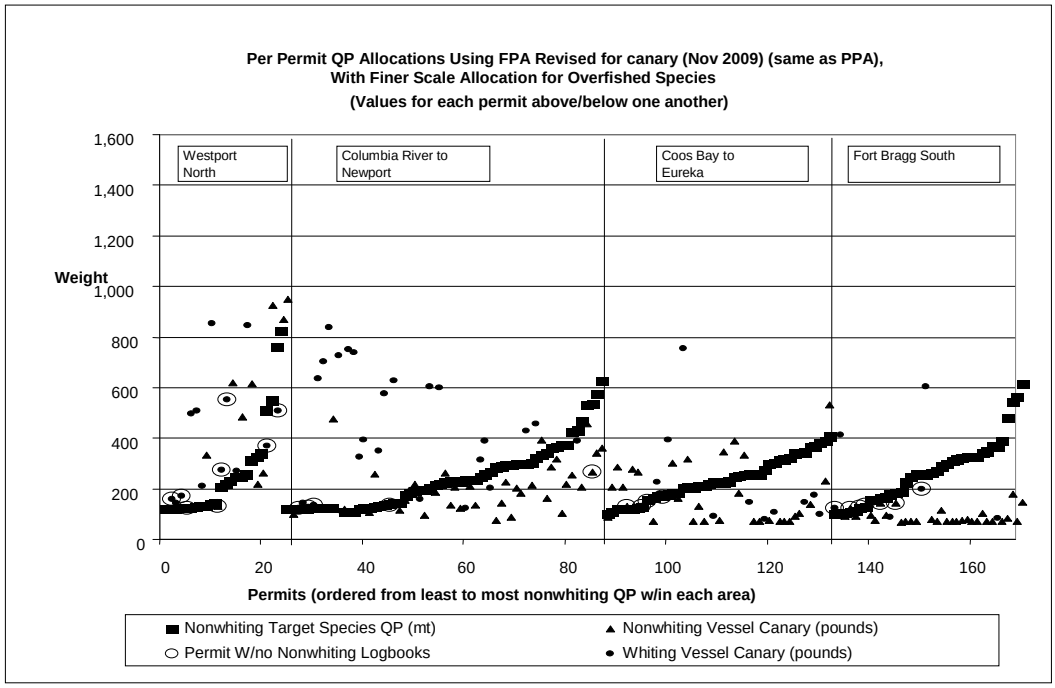

Figure A-64. Per permit allocations of nonwhiting target species and canary QP using 2010 allocations under the Council's revised final (Nov 2009) preferred alternative, revised for canary, (any permit with some shoreside whiting trips was classified as a whiting permit, permit locations assigned based on primary port from 2004 to 2006).

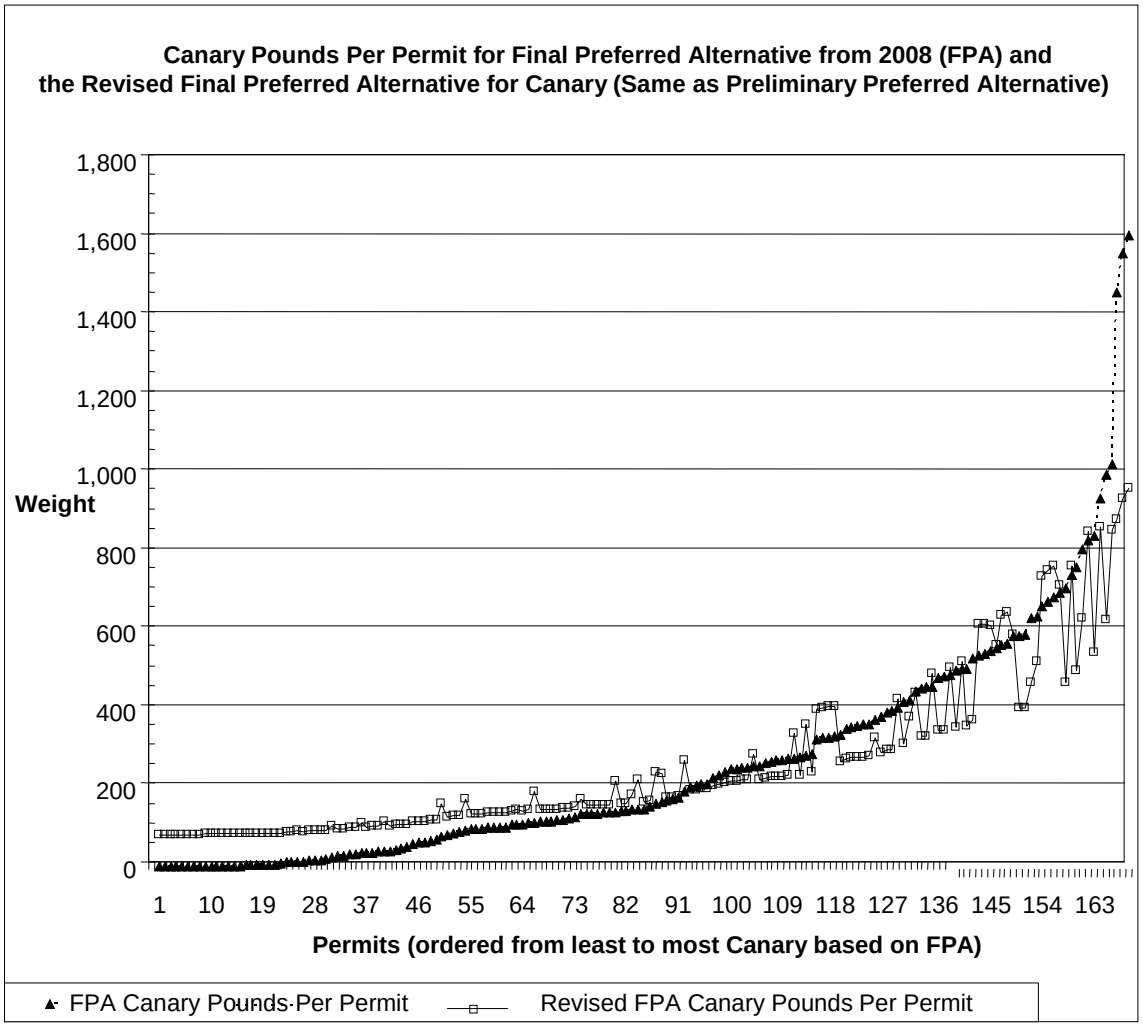

Figure A-65. Per permit allocations of canary QP under the Council's final (Nov 2008) preferred alternative and its revised final (Nov 2009)/PPA (permits are arrayed in the same order for both alternatives).

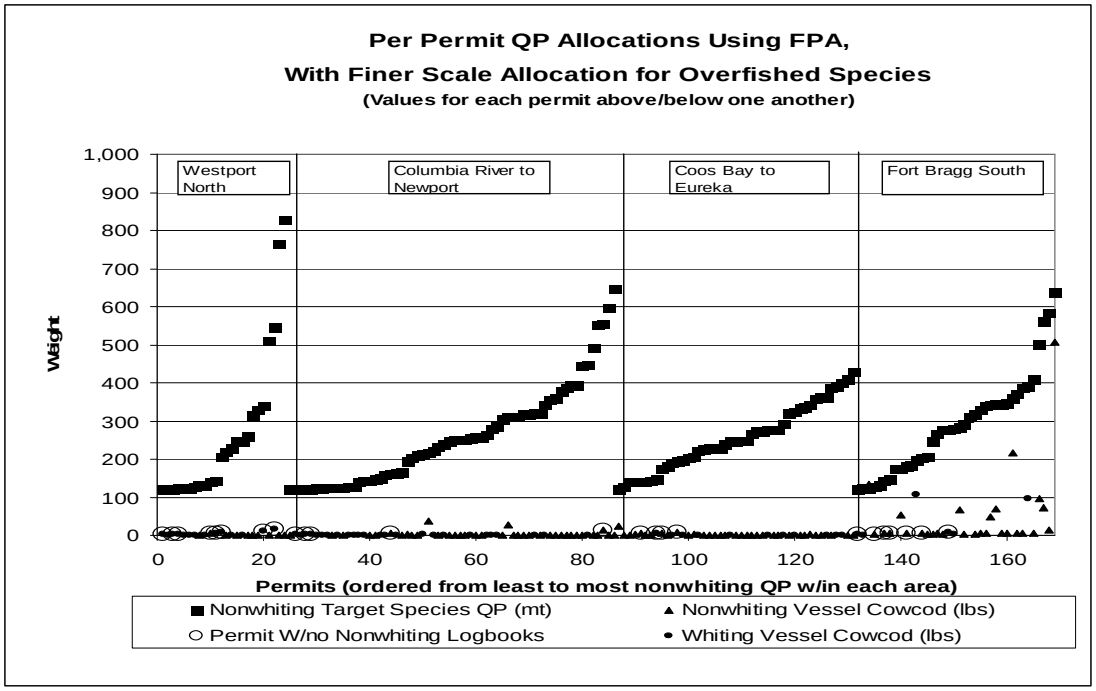

Figure A-66. Per permit allocations of nonwhiting target species and cowcod QP using 2010 allocations under the Council's final preferred alternative (any permit with some shoreside whiting trips was classified as a whiting permit, permit locations assigned based on primary port from 2004 to 2006).

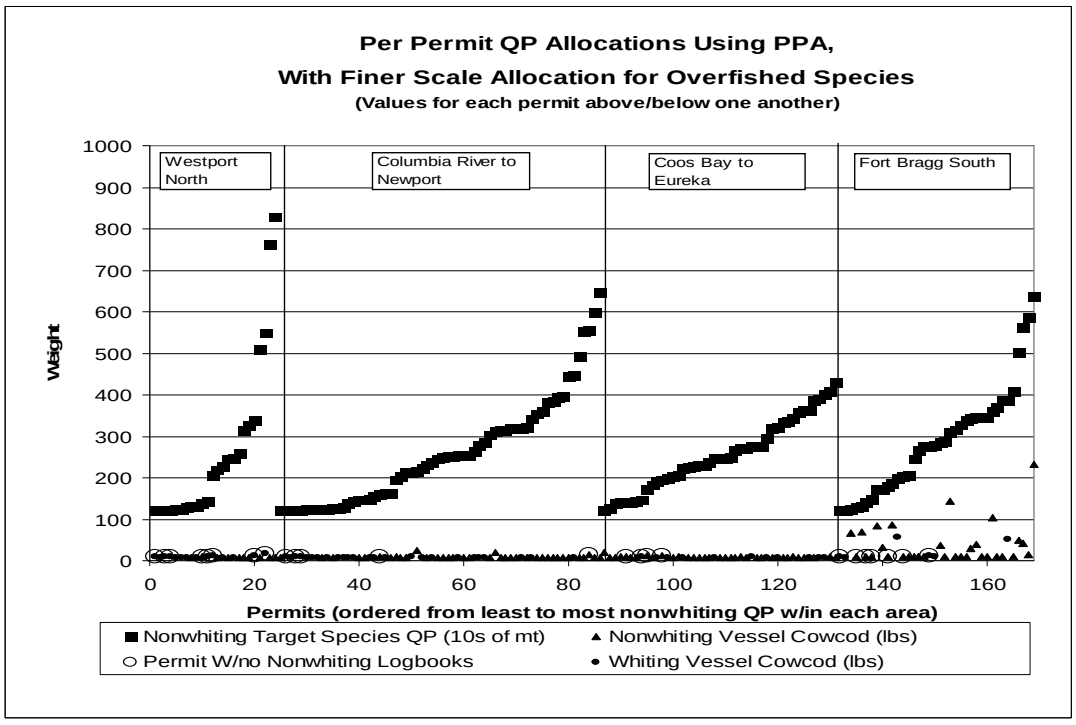

Figure A-67. Per permit allocations of nonwhiting target species and cowcod QP using 2010 allocations under the Council's PPA (any permit with some shoreside whiting trips was classified as a whiting permit, permit locations assigned based on primary port from 2004 to 2006).

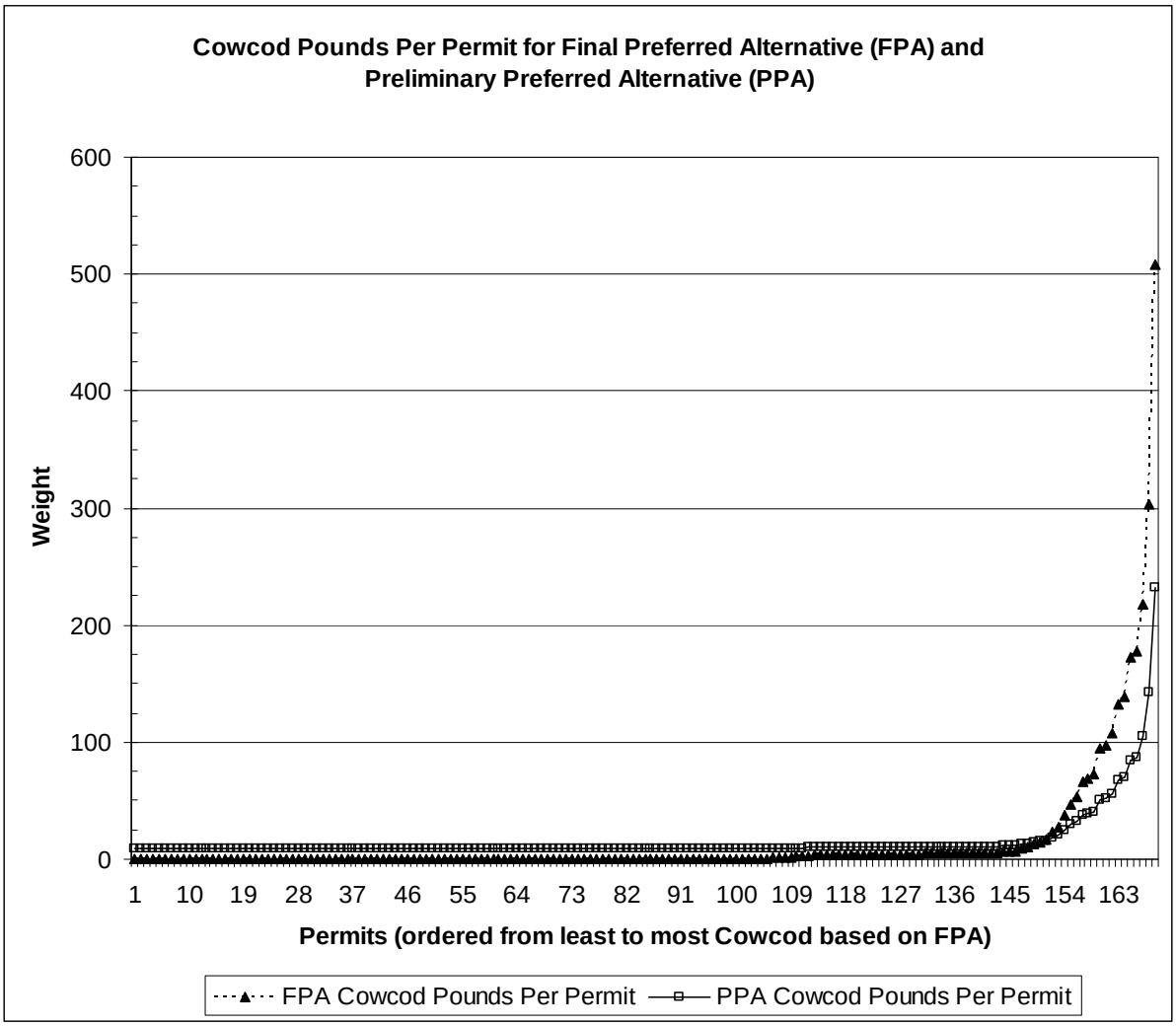

Figure A-68. Per permit allocations of cowcod QP under the Council's final and PPA (permits are arrayed in the same order for both alternatives).

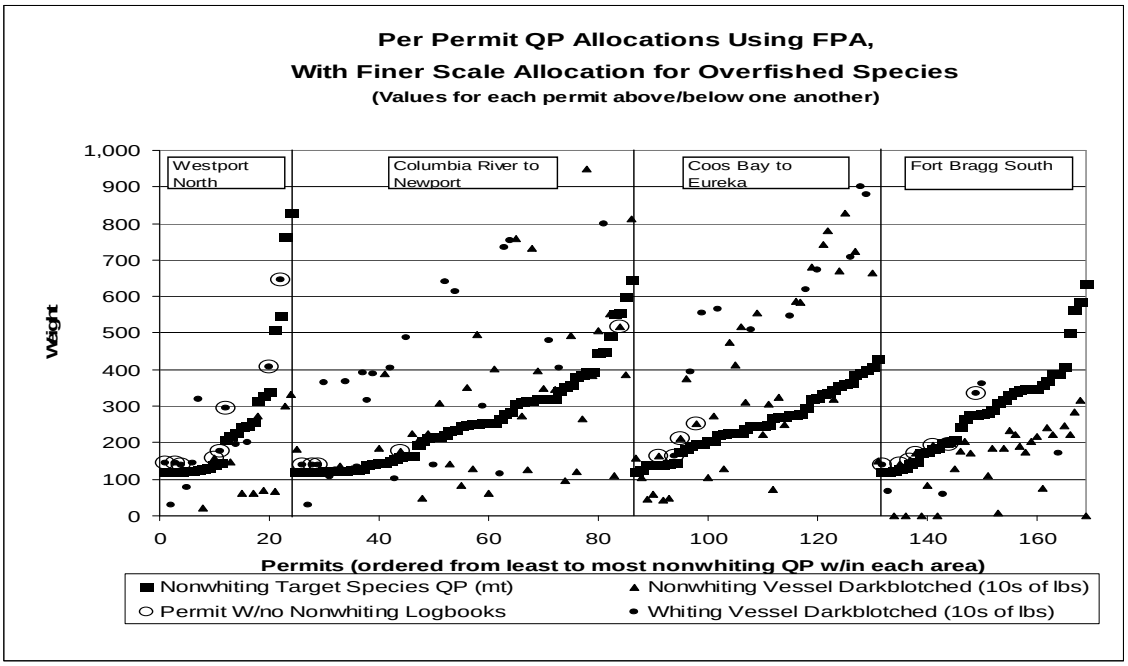

Figure A-69. Per permit allocations of nonwhiting target species and darkblotched QP using 2010 allocations under the Council's final preferred alternative (any permit with some shoreside whiting trips was classified as a whiting permit, permit locations assigned based on primary port from 2004 to 2006).

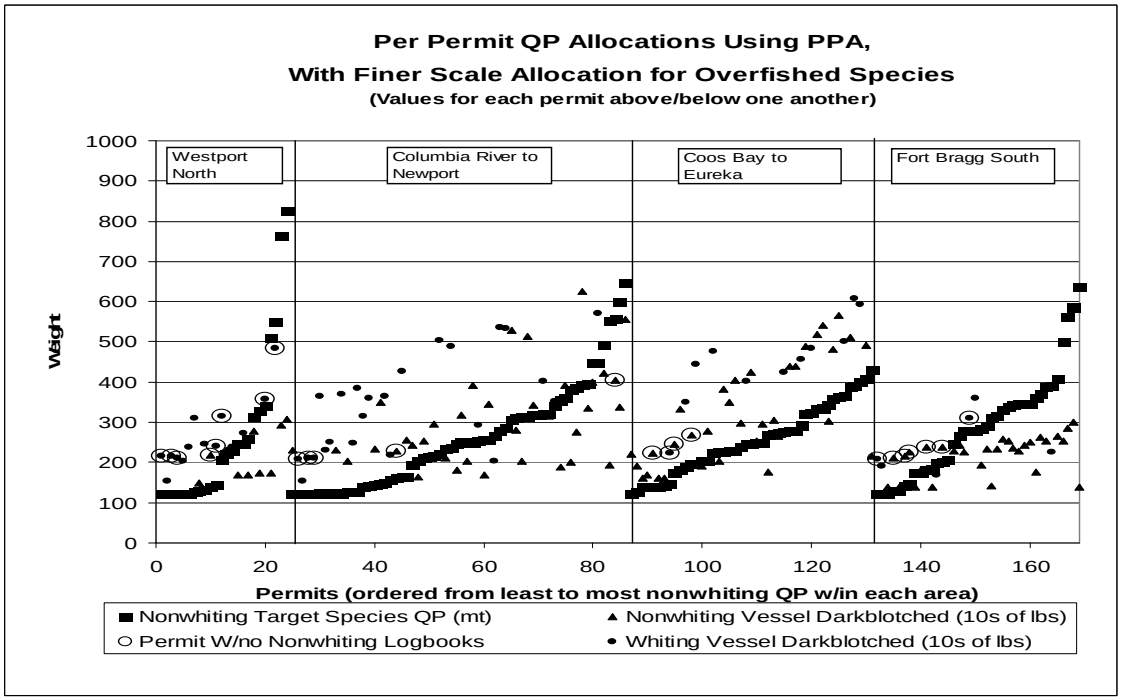

Figure A-70. Per permit allocations of nonwhiting target species and darkblotched QP using 2010 allocations under the Council's PPA (any permit with some shoreside whiting trips was classified as a whiting permit, permit locations assigned based on primary port from 2004 to 2006).

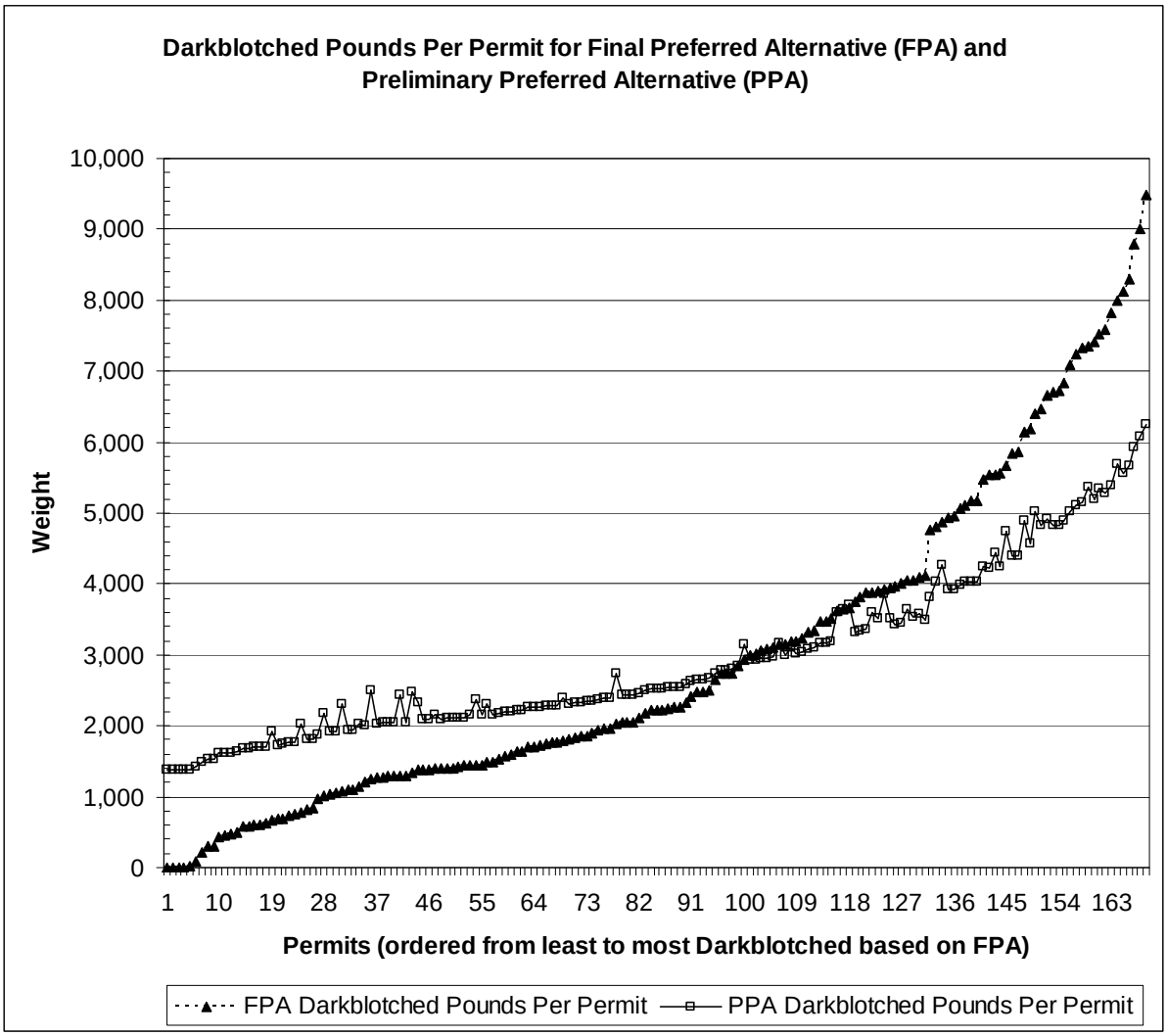

Figure A-71. Per permit allocations of darkblotched QP under the Council's final and PPA (permits are arrayed in the same order for both alternatives).

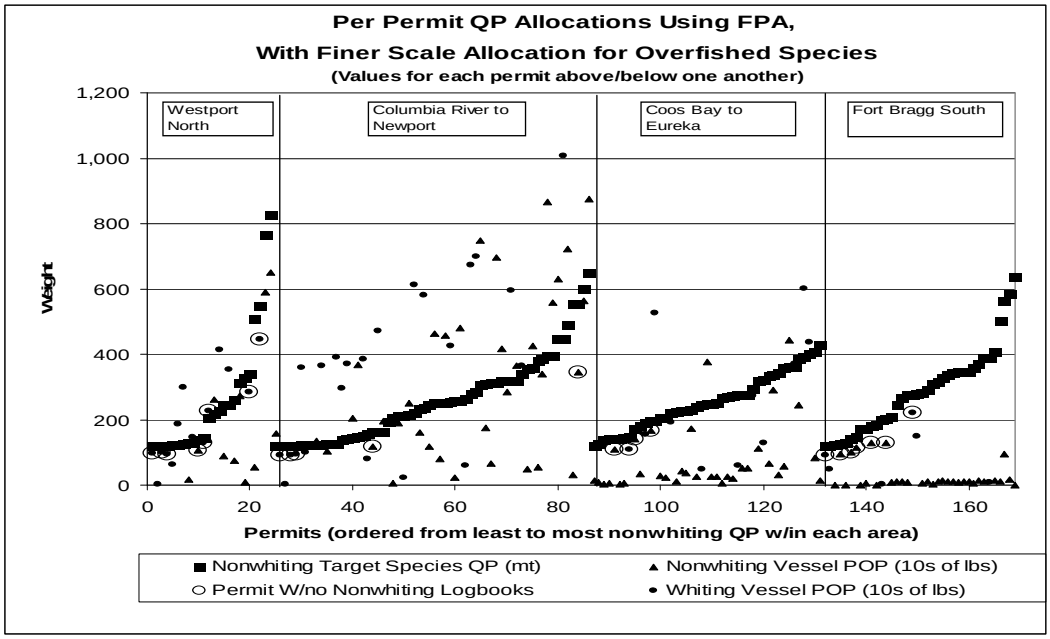

Figure A-72. Per permit allocations of nonwhiting target species and POP QP using 2010 allocations under the Council's final preferred alternative (any permit with some shoreside whiting trips was classified as a whiting permit, permit locations assigned based on primary port from 2004 to 2006).

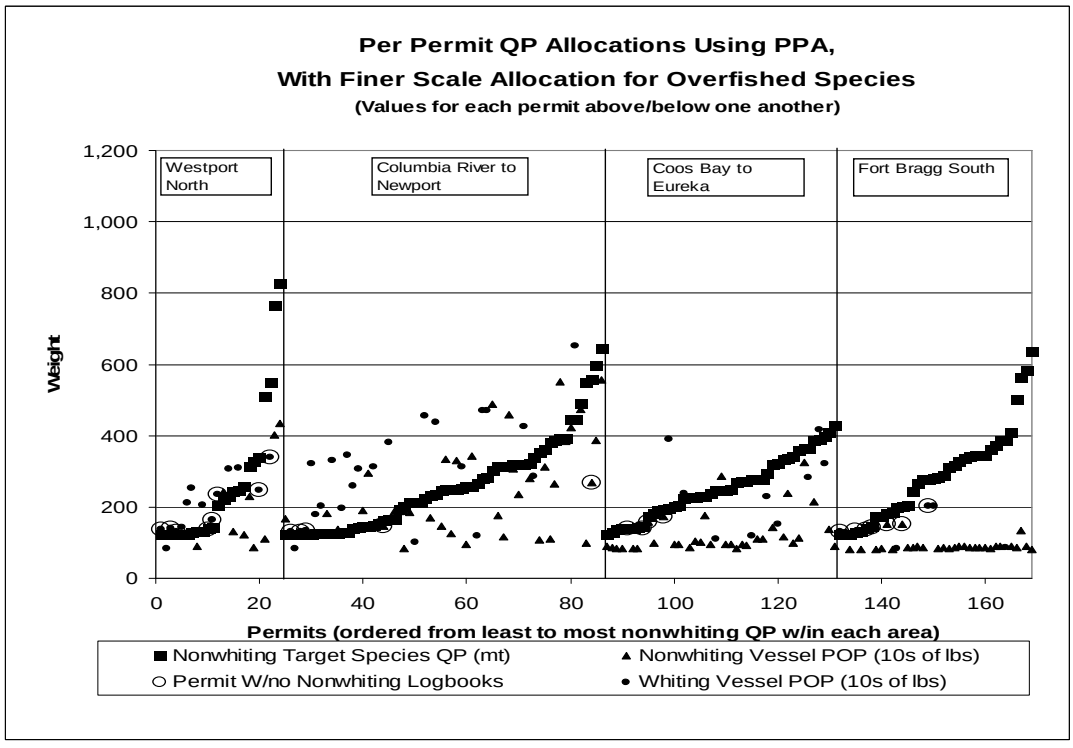

Figure A-73. Per permit allocations of nonwhiting target species and POP QP using 2010 allocations under the Council's PPA (any permit with some shoreside whiting trips was classified as a whiting permit, permit locations assigned based on primary port from 2004 to 2006).

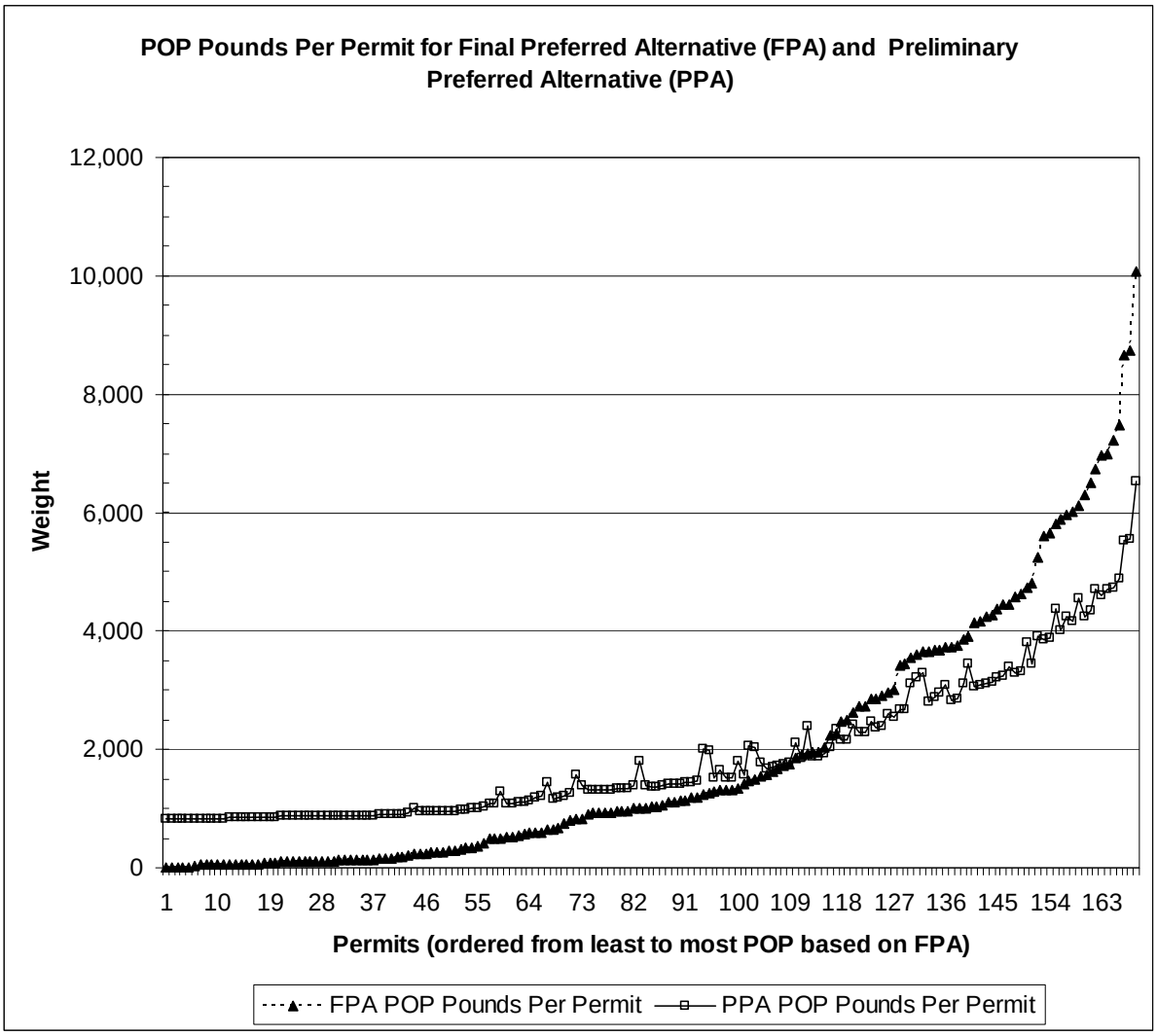

Figure A-74. Per permit allocations of POP QP under the Council's final and PPA (permits are arrayed in the same order for both alternatives).

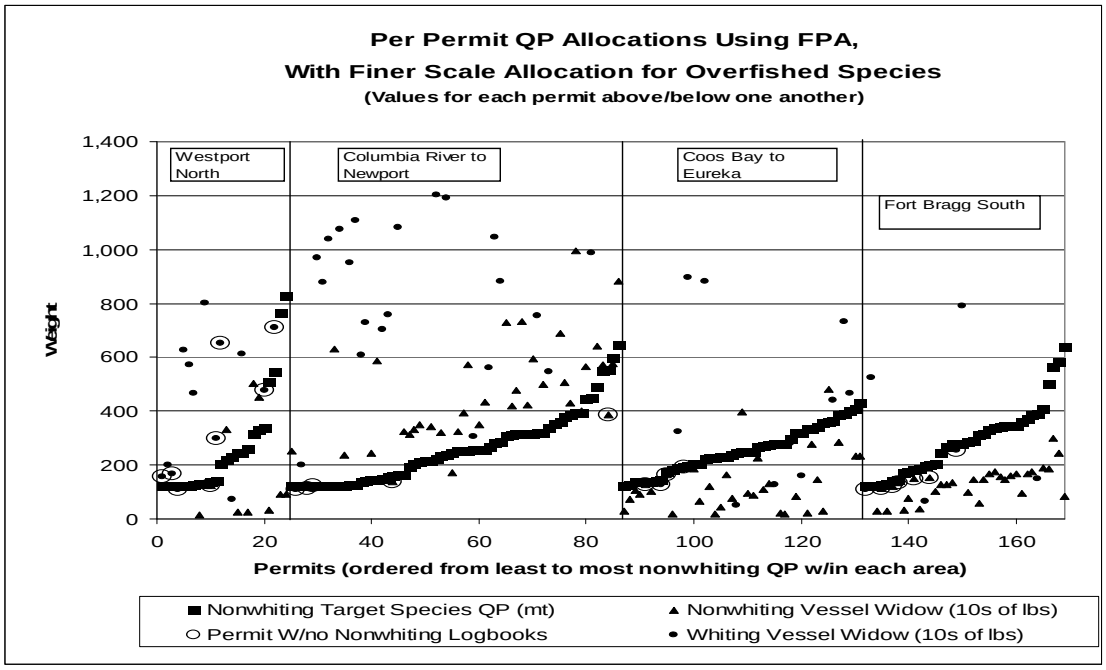

Figure A-75. Per permit allocations of nonwhiting target species and widow QP using 2010 allocations under the Council's final preferred alternative (any permit with some shoreside whiting trips was classified as a whiting permit, permit locations assigned based on primary port from 2004 to 2006).

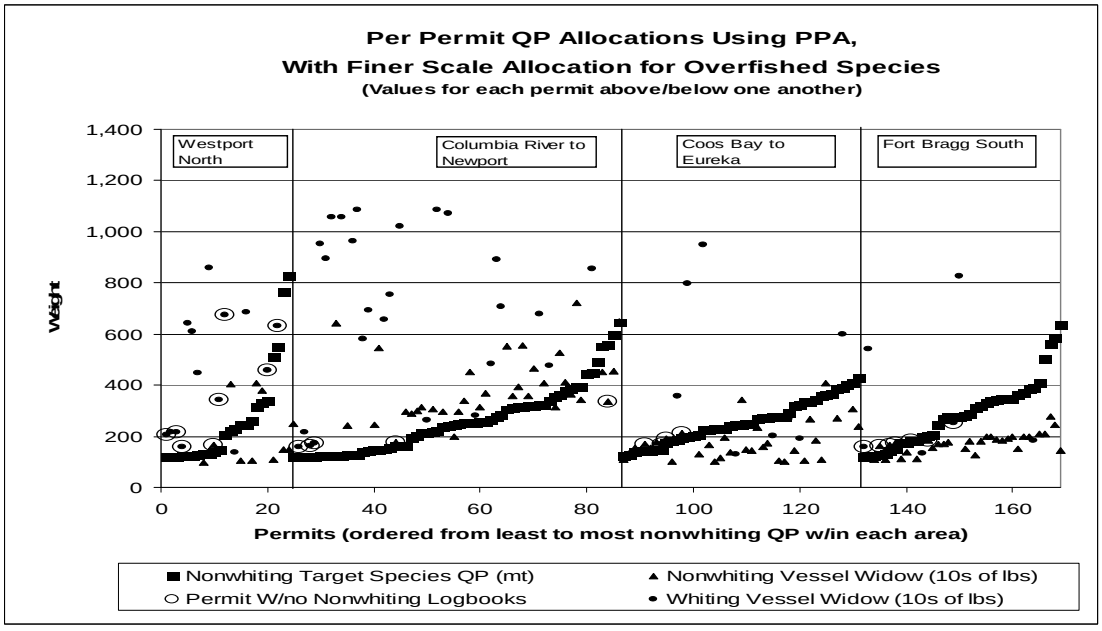

Figure A-76. Per permit allocations of nonwhiting target species and widow QP using 2010 allocations under the Council's PPA (any permit with some shoreside whiting trips was classified as a whiting permit, permit locations assigned based on primary port from 2004 to 2006).

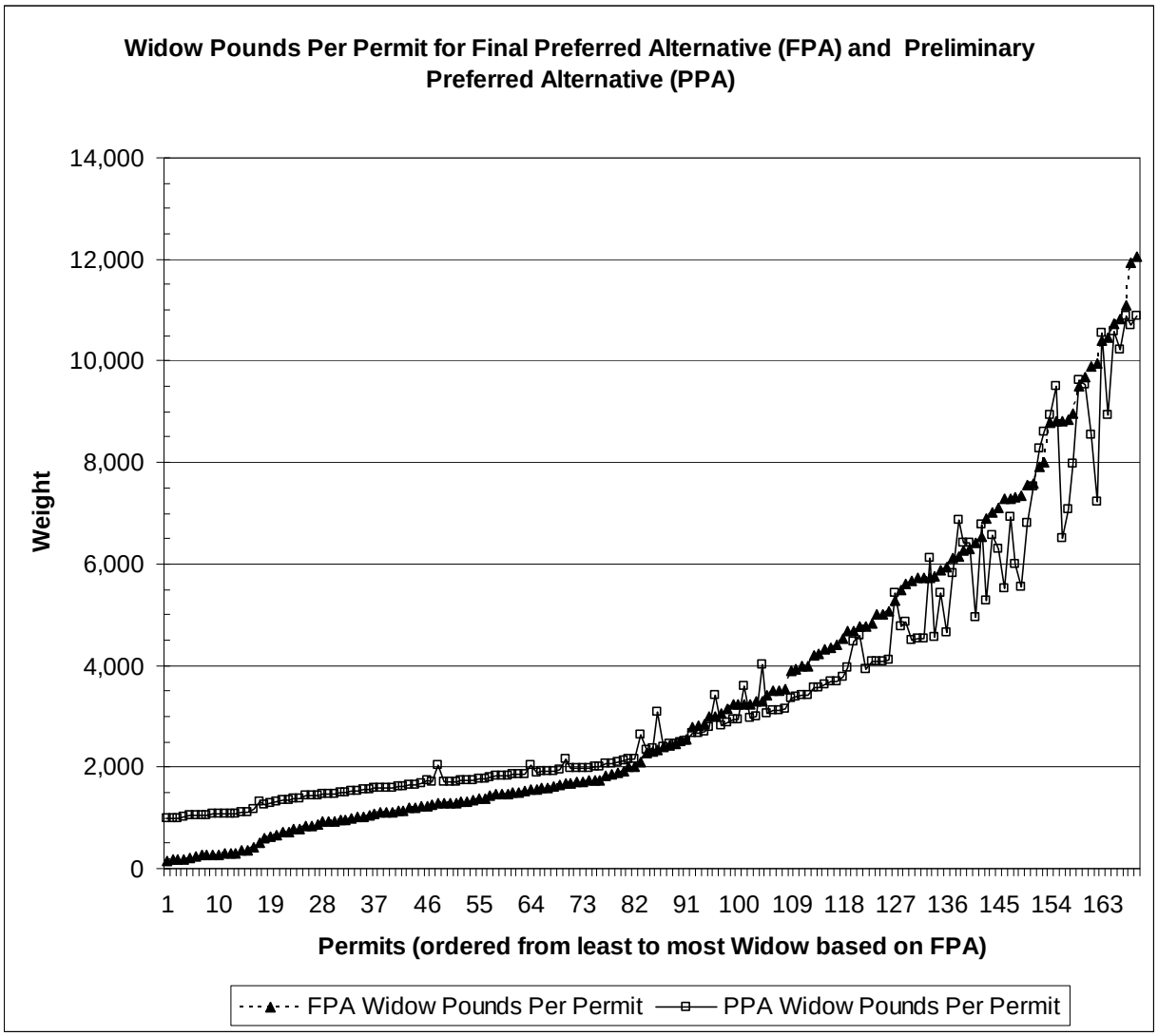

Figure A-77. Per permit allocations of widow QP under the Council's final and PPA (permits are arrayed in the same order for both alternatives).

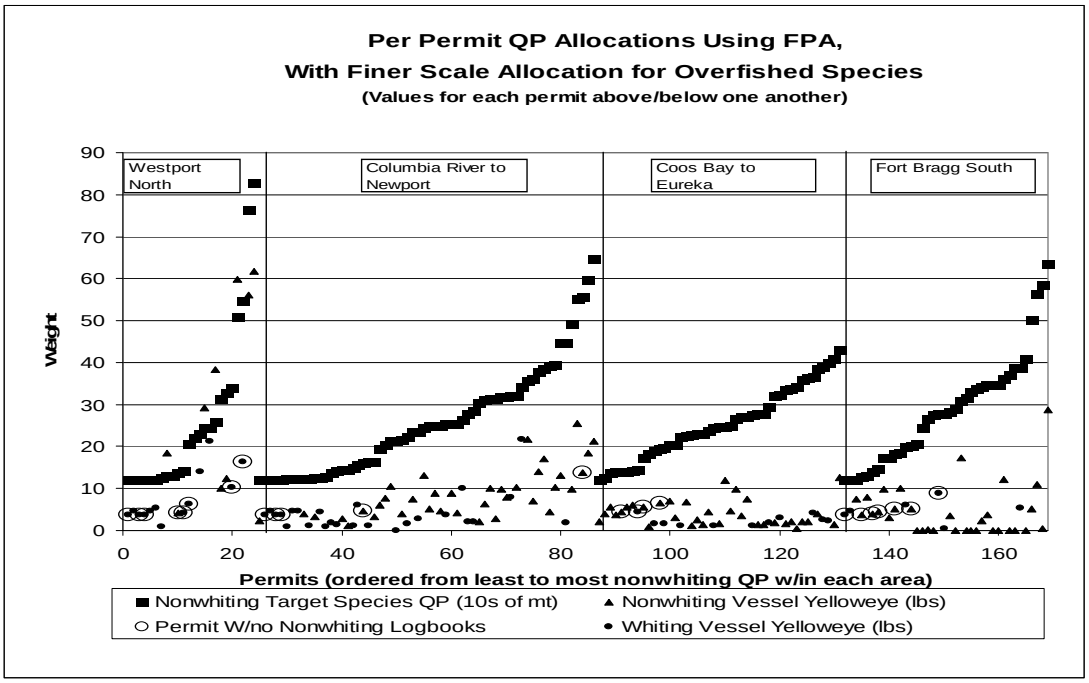

Figure A-78. Per permit allocations of nonwhiting target species and yelloweye QP using 2010 allocations under the Council's final preferred alternative (any permit with some shoreside whiting trips was classified as a whiting permit, permit locations assigned based on primary port from 2004 to 2006).

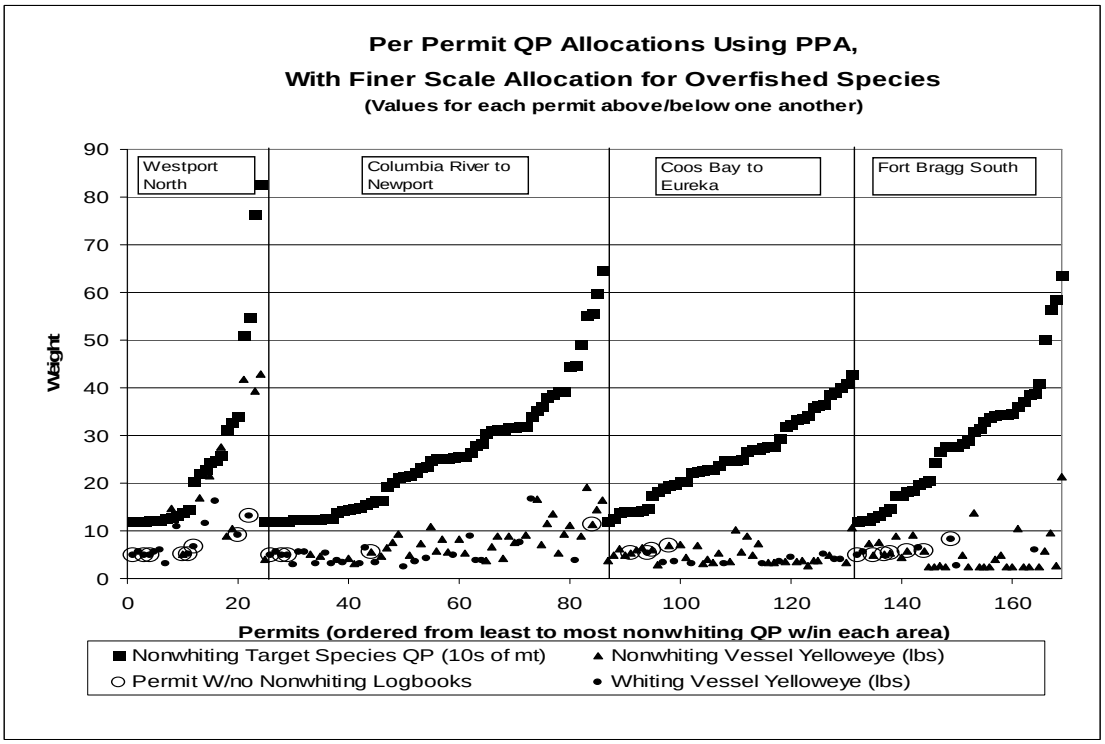

Figure A-79. Per permit allocations of nonwhiting target species and yelloweye QP using 2010 allocations under the Council's PPA (any permit with some shoreside whiting trips was classified as a whiting permit, permit locations assigned based on primary port from 2004 to 2006).

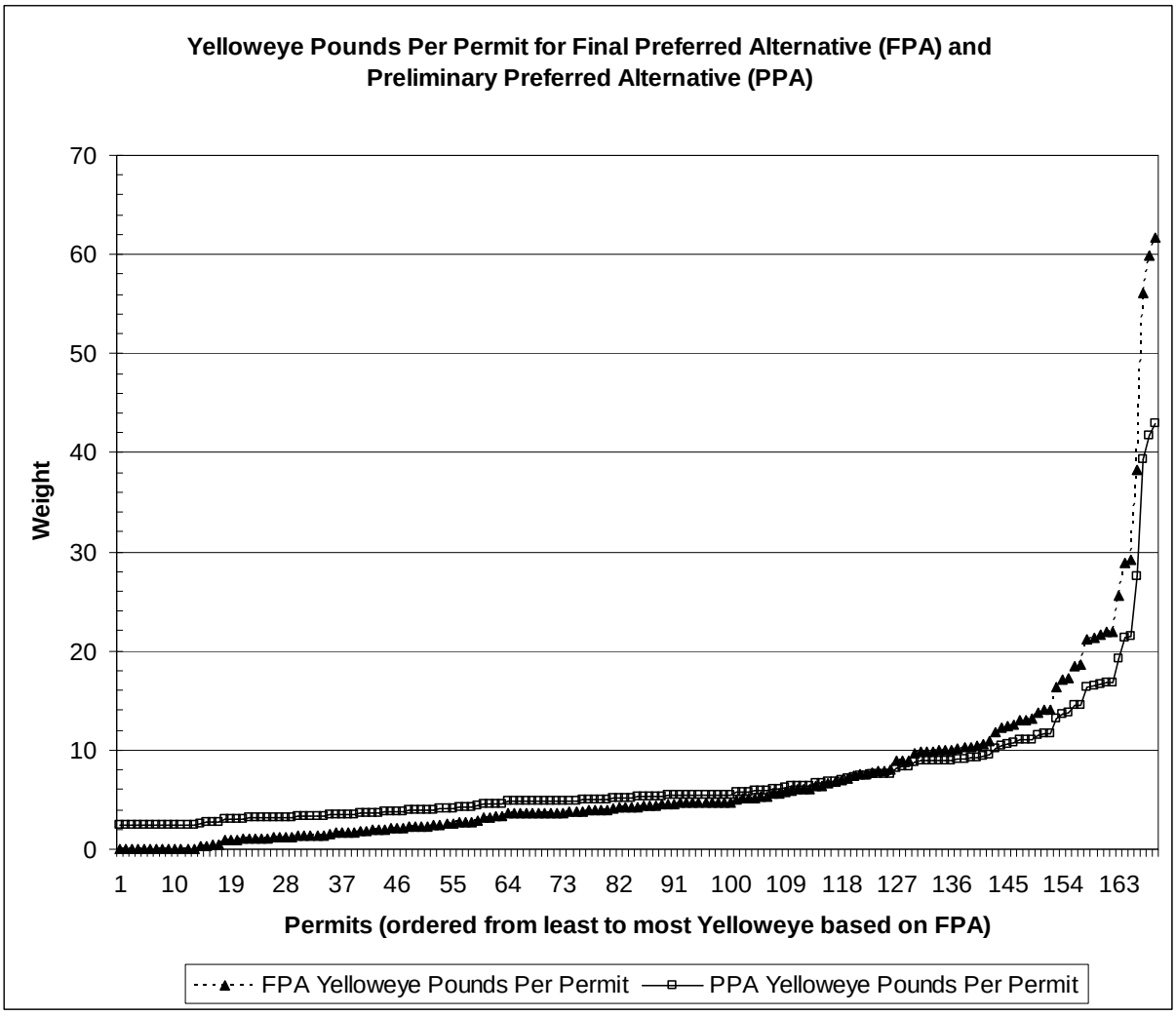

Figure A-80. Per permit allocations of yelloweye QP under the Council's final and PPA (permits are arrayed in the same order for both alternatives).

Area Assignments

● Rationale and Options Considered But Not Included

The assignment of catch area for landings recorded on fish tickets affects the allocation of QS for management units that have geographic subdivisions. Under the final preferred alternative, catch area would be assumed to be the same as the area of landing. This approach is used because, in the past, the catch area has often not been filed out, or when it is filled out, is not believed to have been filled out reliably. The catch area is filled out by the buyer rather than vessel and it is believed that they often assume that the catch area is the same as the area off the port. Catch area data quality will be a concern on tickets going back as far as 1994, the start of the allocation period.

● Interlinked Elements

The area assignment decisions would be most important if all management units have geographic subdivisions. Providing geographic subdivisions for all species was an option in Section A-1.2 that was

not selected as part of the Council's FPA. The FPA provides geographic subdivisions of the IFQ management units only for those species with an existing geographic subdivision in the ABC/OY.

- Analysis

There is unevenness in the data quality for area of catch information across geographic areas, across time, and between buyers. On one hand, landing area provides a reasonable approximation to catch area, resolves missing data aresues, and ensures that everyone is treated the same in the assignment of their landing history to an area. On the other hand, if some vessels have travelled outside of their local area to fish, by not using the area of catch information available, a greater mismatch between the permit's initial allocation and its actual fishing pattern is created than necessary. Use of ports as a proxy for catch areas could also be a complicating factor if logbook data are used to allocate overfished species and the area information from the logbooks does not match the catch area assumed based on the port of landing.

The degree to which the quality of the area of catch data are of concern depends on the species for which there are geographic subdivisions and the degree to which permits cross between areas. The final preferred alternative would create north and south QS for those species for which a north-south subdivision already exists in the ABC/OY table. Table A-68 provides the species that are either subdivided geographically, or managed as parts of different management units depending on the geographic region (e.g., bocaccio is managed separately in the south but managed as part of minor shelf rockfish in the north).

Table A-69. Species for which the OY varies by geographic area.

Species	Geographic Division/Differences in OY
Species with Geographic Subdivisions of OY	
Sablefish	OY split north and south of 36° N
Shortspine Thornyhead	OY split north and south of 34°27' N
Longspine Thornyhead (longspine south is not an IFQ species)	OY split north and south of 34°27' N
Black Rockfish (not an IFQ species)	OY split between WA and OR-CA
Minor Rockfish	.
Nearshore (not an IFQ species group)	OY split north and south of 40°10' N
Shelf	OY split north and south of 40°10' N
Slope	OY split north and south of 40°10' N
Species Managed W/Different Species Groupings North and South	
Bocaccio	Separate OY south of 40°10' N. Part of Minor Shelf Rockfish in the north.
Chilipepper	Separate OY south of 40°10' N. Part of Minor Shelf Rockfish in the north.
Cowcod	Separate OY south of 40°10' N. Part of Minor Shelf Rockfish in the north.
Splitnose	Separate OY south of 40°10' N. Part of Minor Slope Rockfish in the north.
Yellowtail	Separate OY north of 40°10' N. Part of Minor Shelf Rockfish in the south.
Pacific Ocean Perch	Separate OY north of 40°10' N. Part of Minor Slope Rockfish in the south.
Cabezon (not an IFQ species)	Separate OY in California. Part of Other Fish in Oregon and Washington.

Logbook data show that while vessels tend to center their activity around their port of landing they will sometimes travel moderate distances to fishing grounds. Appendix C provides maps showing the distances that vessels tend to travel from their ports of landing. For example, vessels out of Astoria will sometimes fish as far north as Neah Bay. Based on the Appendix C maps and with respect to a latitudinal division at 40°10' north latitude, catch area assignments based on port of landing would not appear to create a substantial deviation from catch area assignments based on ports. There is very little overlap of fishing grounds for vessels coming out of ports to the north and south of 40°10' north latitude. The greatest areas of overlap are between vessels based out of Astoria and Washington catch areas and at the Oregon-California border. For these areas, there are no geographic subdivisions for any

species managed under the scope of the IFQ program). Further south, assigning catch area based on landing port may create some problems for permits of vessels that fished out of Moss Landing (36° 49' north latitude) or Morro Bay 35° 20' north latitude but took their catch south of 36° north latitude (sablefish) or 34° 27' north latitude (thornyheads). If an assignment is made based on port area, catch that actually occurred to south of these lines would be counted to the north.

For those species for which the approach to area of catch will make a difference for some permits, we have displayed the results from the initial allocation using ports to determine area of catch and using area as reported on fish tickets to determine area of catch (Figure A-103 through Figure A-112). For shortspine thornyheads south, the coding used in the catch area field does not allow us to determine whether catch occurred north or south of the dividing line. For this species, port is used to identify area of catch in both methods. For overfished species with area divisions (bocaccio, cowcod, and POP) the allocations are driven by amounts of target species QS and effort distribution, as recorded in logbooks, not the assignment of catch areas as recorded on fish tickets. Only a few of the numerous target species have an area component, and the effect on those species is minor. Therefore, the impact of this decision on the distribution of overfished species QS is nearly imperceptible. For all other species in Table A-68, the approach used makes a relatively minor difference in the permit allocations for most species, the exception being for sablefish south of 34°27 north. However, a single entity owns permits with 60 percent of the relative pounds catch history in the sablefish south area, and another entity accounts for an additional third. Therefore, at the entity level, the difference between these two approaches is relatively minor for all affected species categories. Most of the analysis in the EIS uses the area identifier rather than the port identifier to evaluate catch history. However, based on the results provided here the difference between the two approaches would be of little consequence for policy level decisions.

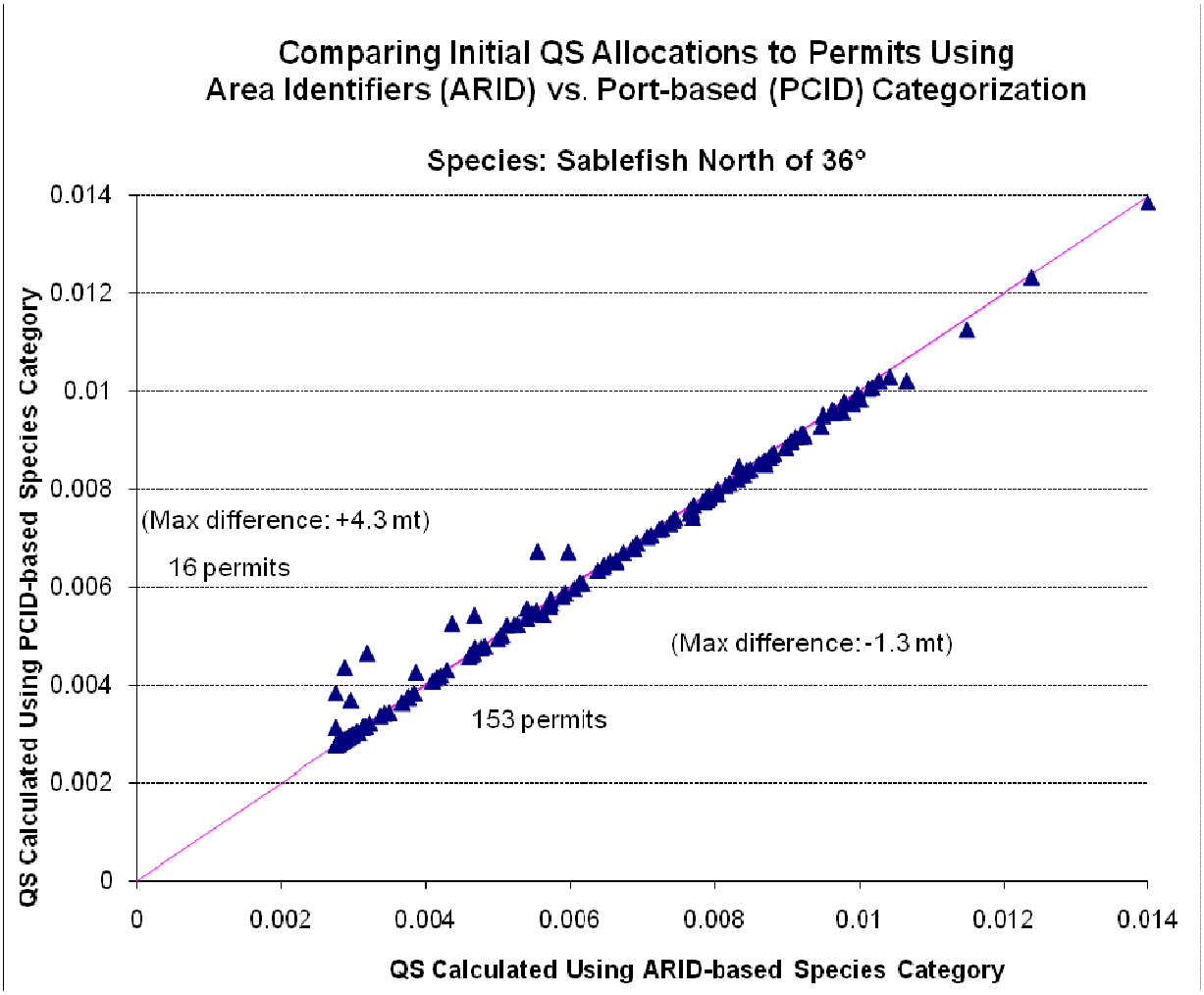

Figure A-81. Comparison of initial allocations of sablefish north QS using port (PCID) to determine area as compared to using area of catch as coded on fish tickets (ARID) to determine area.

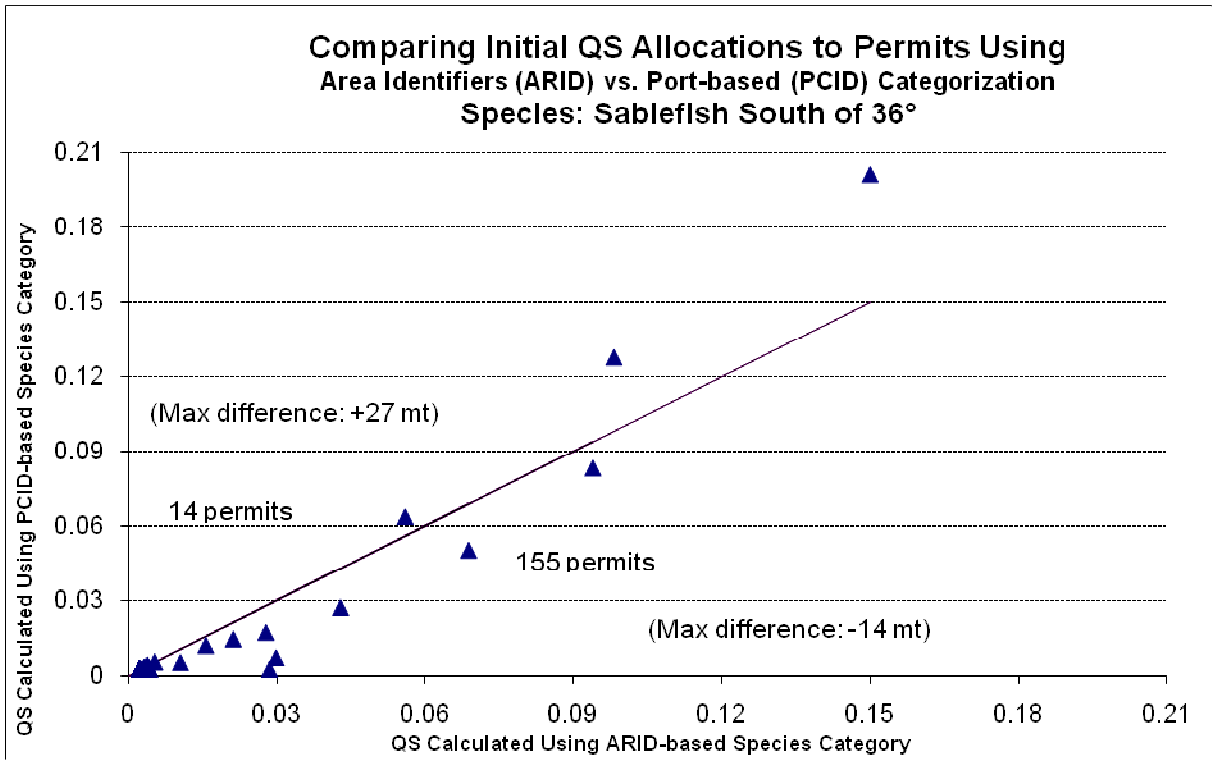

Figure A-82. Comparison of initial allocations of sablefish south QS using port (PCID) to determine area as compared to using area of catch as coded on fish tickets (ARID) to determine area.

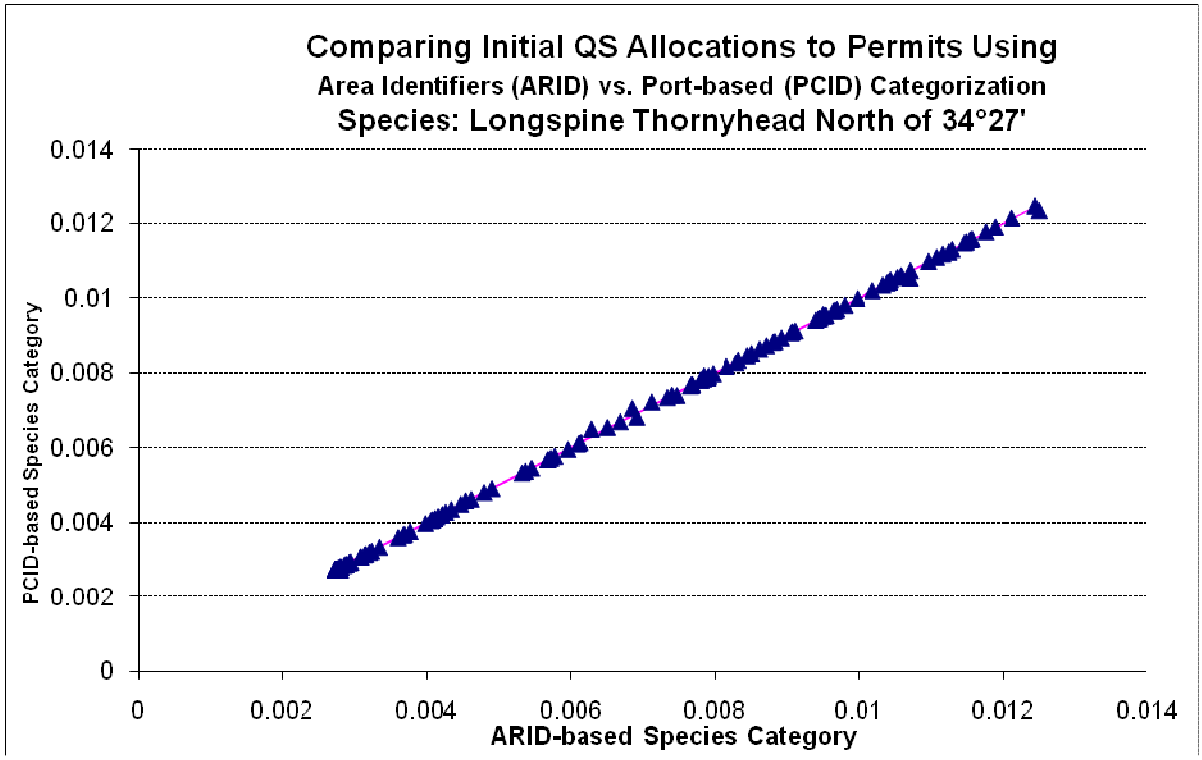

Figure A-83. Comparison of initial allocations of longspine thornyhead north QS using port (PCID) to determine area as compared to using area of catch as coded on fish tickets (ARID) to determine area.

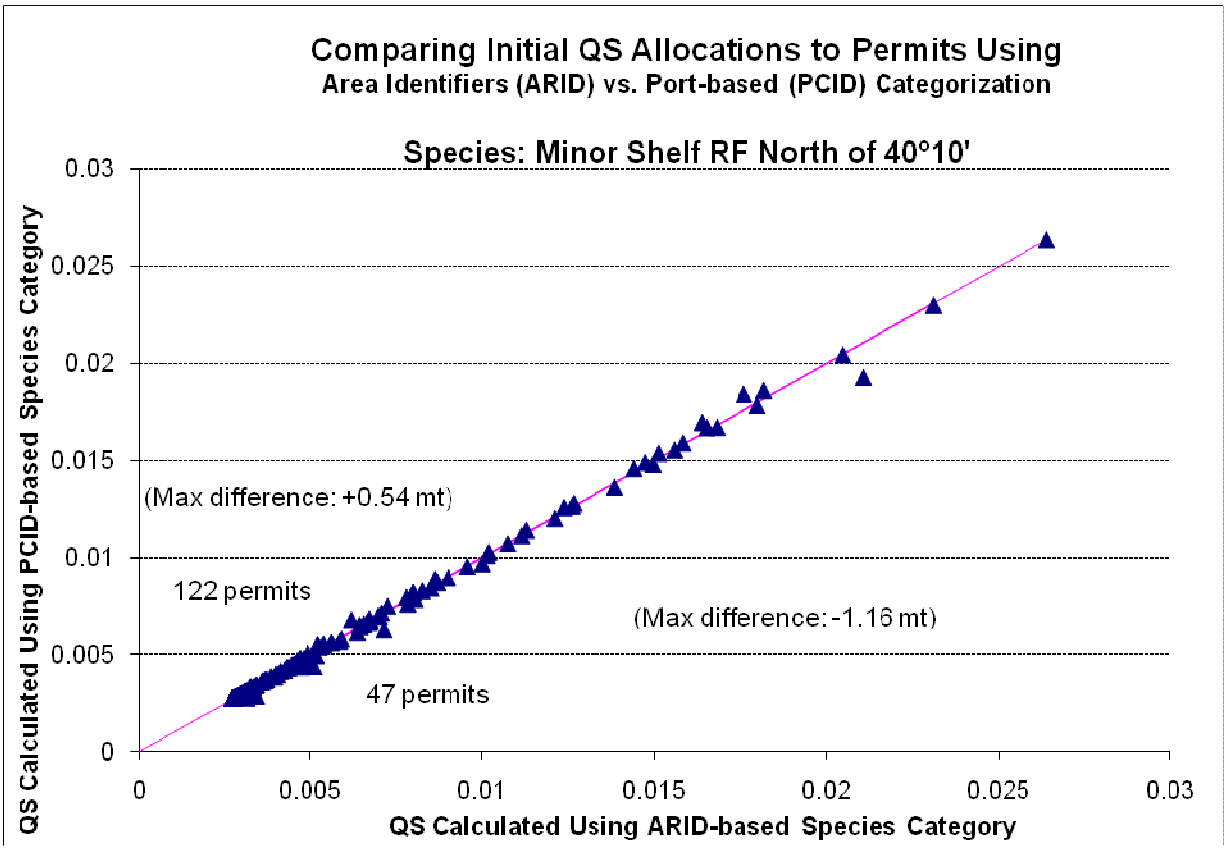

Figure A-84. Comparison of initial allocations of minor shelf rockfish north QS using port (PCID) to determine area as compared to using area of catch as coded on fish tickets (ARID) to determine area.

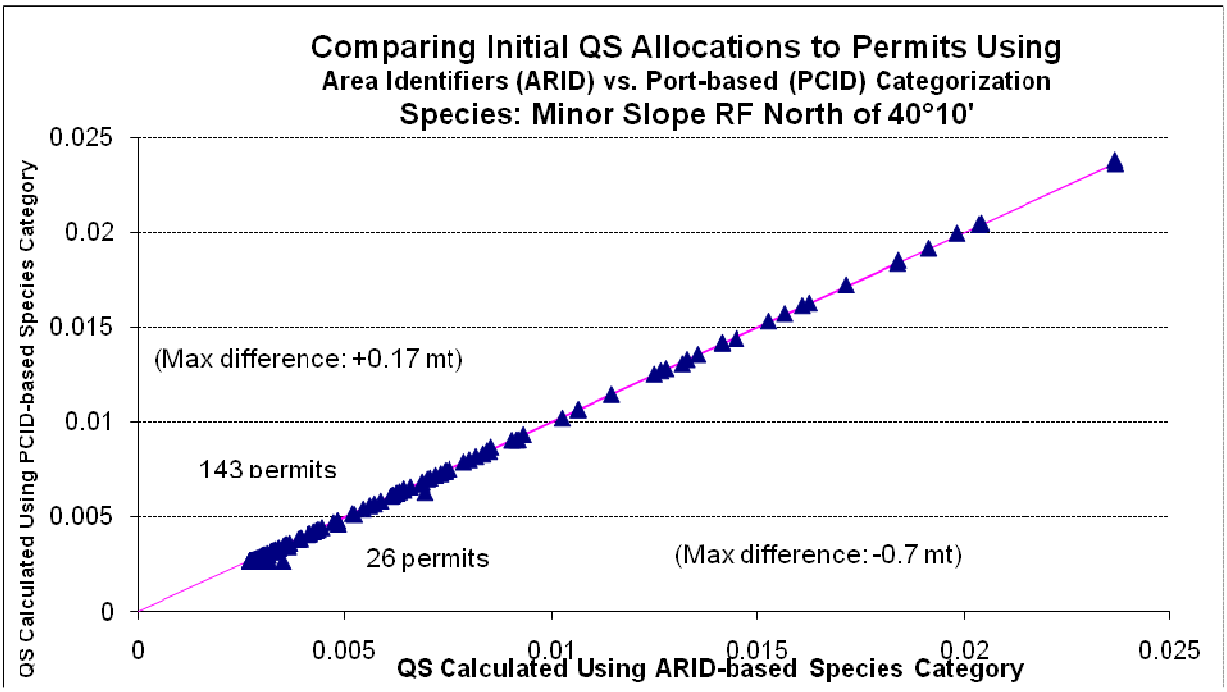

Figure A-85. Comparison of initial allocations of minor slope rockfish north QS using port (PCID) to determine area as compared to using area of catch as coded on fish tickets (ARID) to determine area.

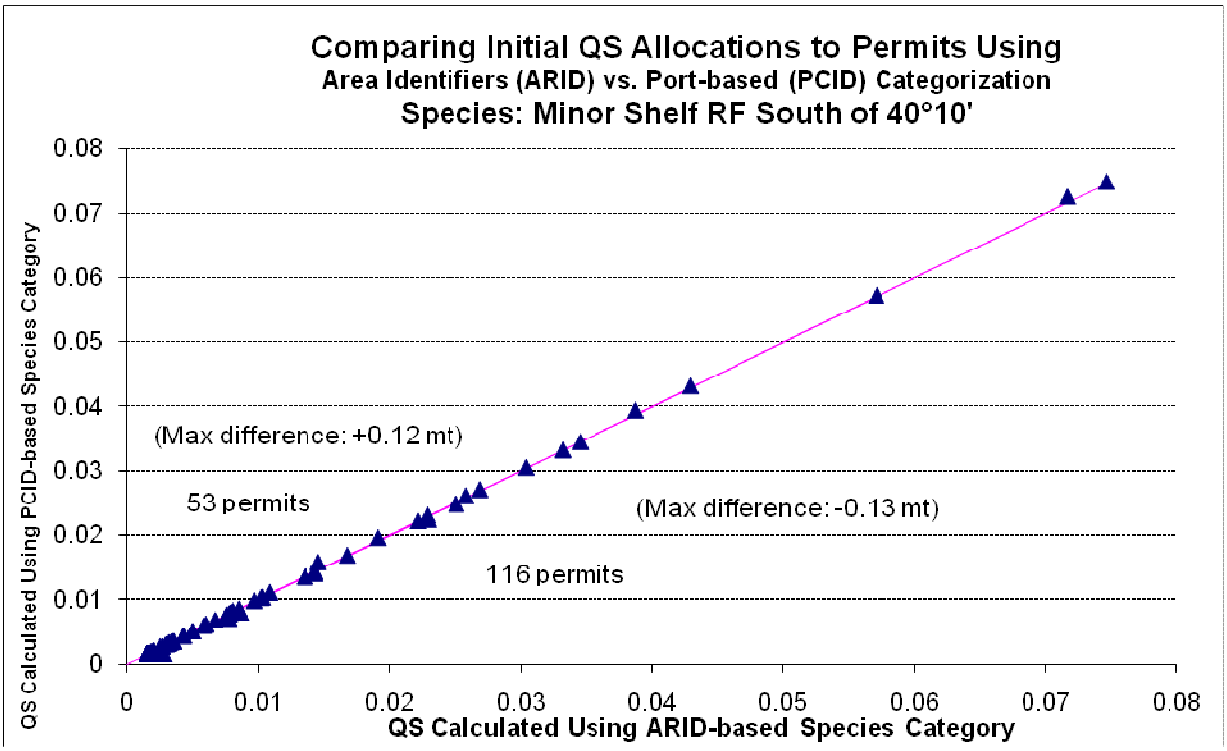

Figure A-86. Comparison of initial allocations of minor shelf rockfish south QS using port (PCID) to determine area as compared to using area of catch as coded on fish tickets (ARID) to determine area.

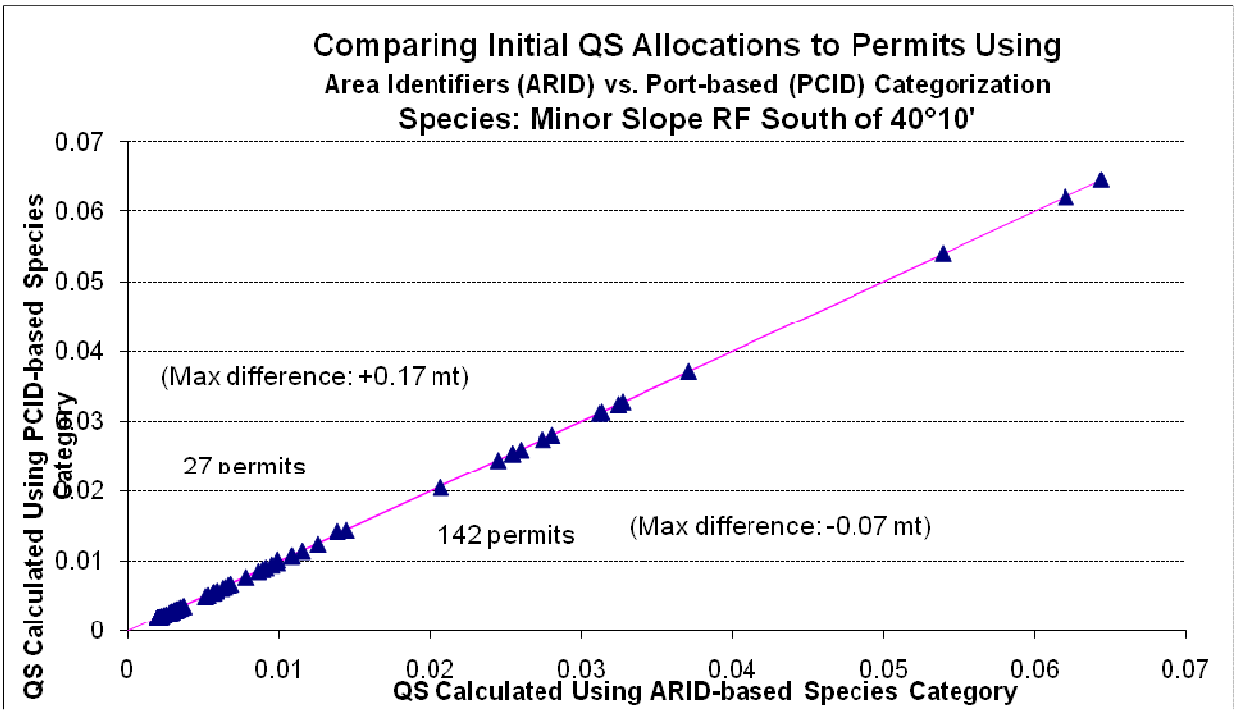

Figure A-87. Comparison of initial allocations of minor slope rockfish south QS using port (PCID) to determine area as compared to using area of catch as coded on fish tickets (ARID) to determine area.

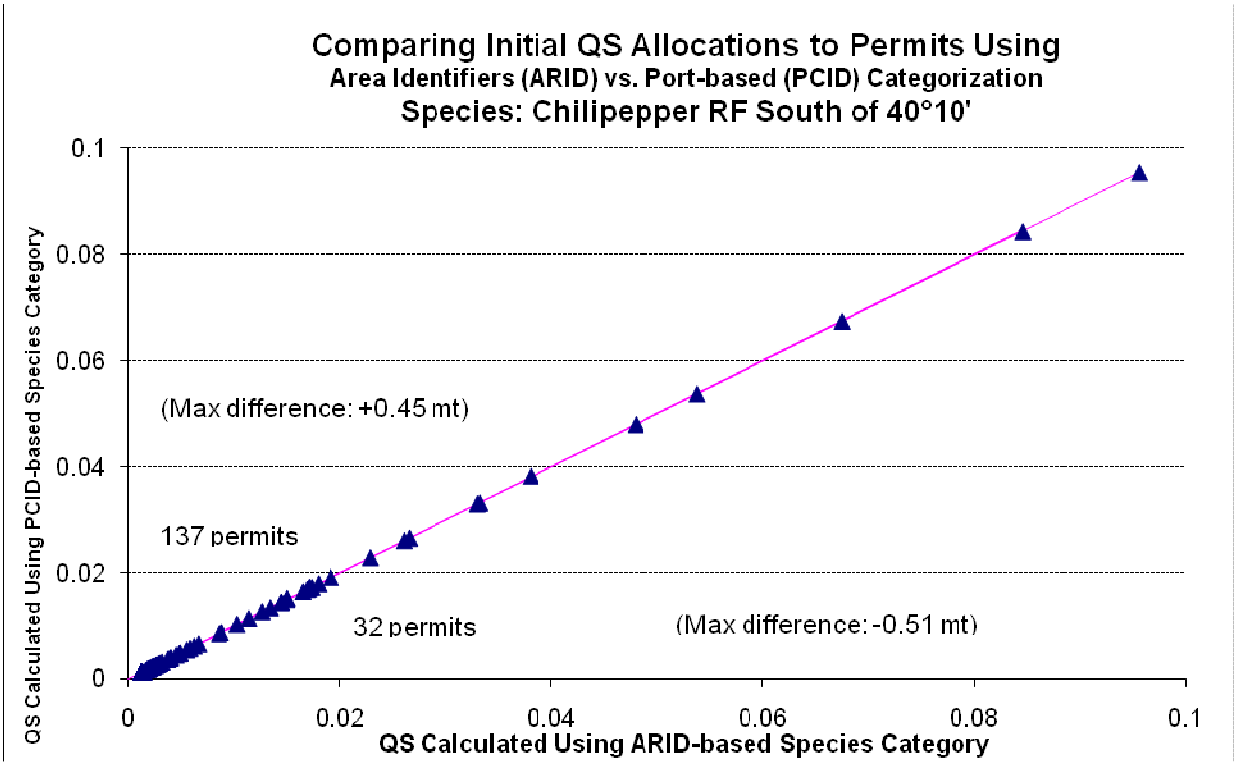

Figure A-88. Comparison of initial allocations of chilipepper QS using port (PCID) to determine area as compared to using area of catch as coded on fish tickets (ARID) to determine area.

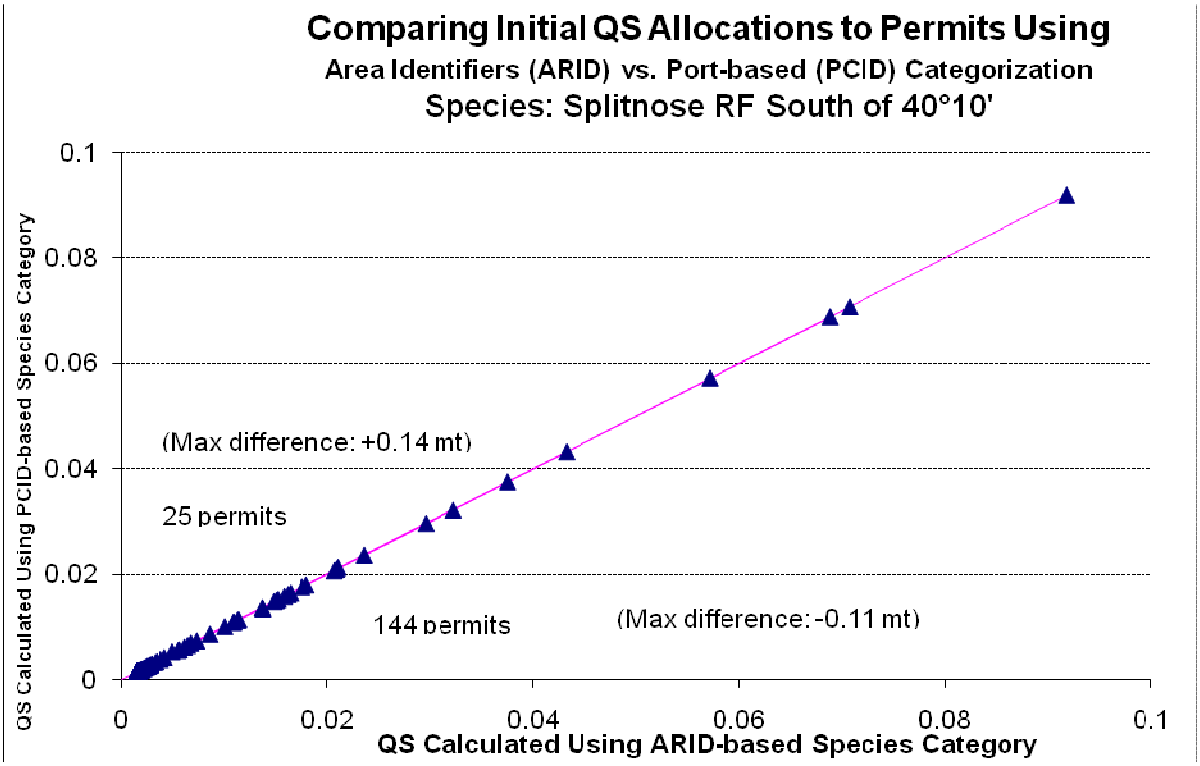

Figure A-89. Comparison of initial allocations of splitnose rockfish QS using port (PCID) to determine area as compared to using area of catch as coded on fish tickets (ARID) to determine area.

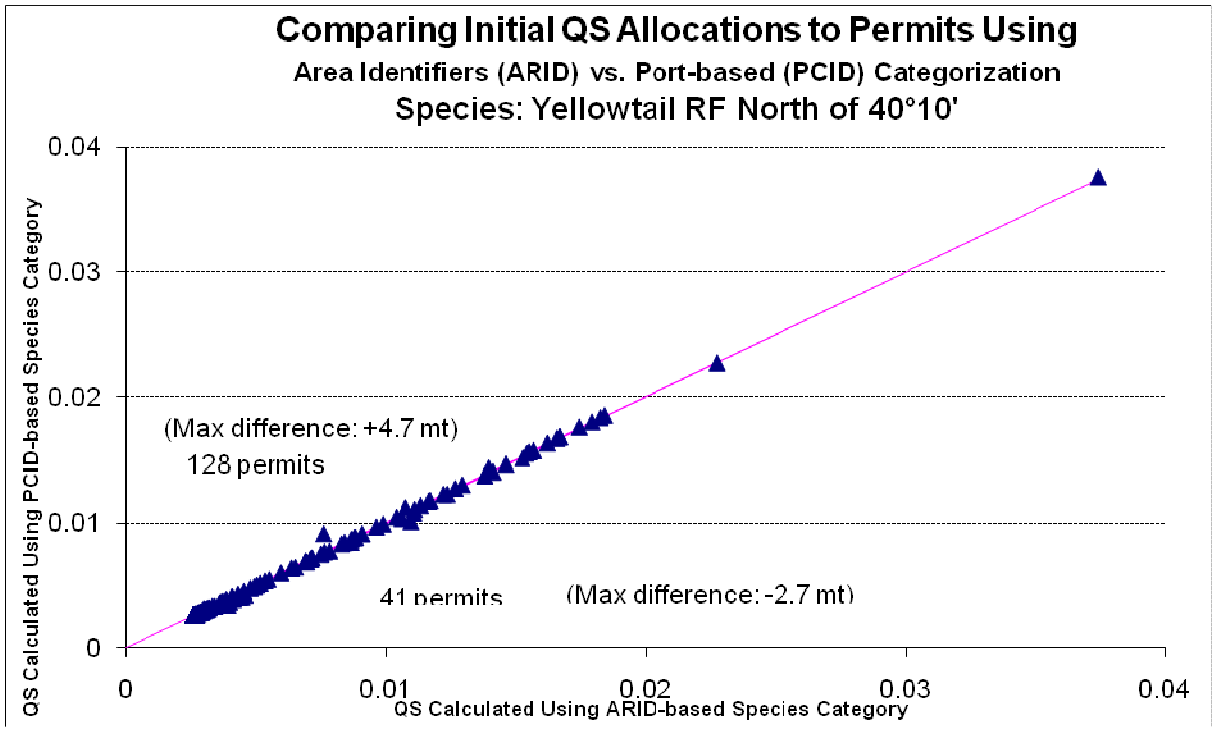

Figure A-90. Comparison of initial allocations of yellowtail rockfish QS using port (PCID) to determine area as compared to using area of catch as coded on fish tickets (ARID) to determine area.

Relative History

- Rationale and Options Considered But Not Included

Relative history is used instead of absolute pounds as a way of taking into account changes in fishing opportunity between years. Using relative history, each permit's history for each year is measured as a share of the fleet total for that year rather than in pounds (absolute history). Under the relative pound approach, harvesters that landed fewer pounds during a year because of low fishing opportunities but still performed as a "highliner" relative to other harvesters in the year will receive the same credit as a harvester that put in relatively similar "highliner" effort when total available harvests were greater. Because of the declining trend in harvest, use of relative history increases the emphasis on history occurring in the later part of the allocation period, (i.e., increases the emphasis on more recent participation).

- Interlinked Elements

The weighting formula results in some very high weighting for some years for rarely caught species (e.g., kelp greenling and overfished species). Additional attention may be needed for the weightings of some of these species depending on whether or not they are included within the scope of the program (Section A-1.1) or an alternative allocation approach is used (application of bycatch rates to target species QS to allocate overfished species). The Council's final FPA excludes some of the rarely caught species that are not overfished and uses a bycatch rate approach for overfished species. Since the bycatch rate approach is used for overfished species, these species will not be affected by the use of the relative history measurement of landings history.

- Analysis

The following are the categories of goals and objectives affected by the decision on whether to use relative history (shares of annual catch) or pounds.

	Related Category of Goals and Objectives										
	Conservation	Net Benefits	Disruption	Excessive Shares	Fairness and Equity	Harvester and Processor Sector Health	Labor	Communities	Small Entities and New Entrants	General Public	Program Performance
		X	X		X	X	X	X			

The relative history approach to allocation bases each permit's QS on its landings history for each year of the allocation period, measured as a proportion relative to the catch of the fleet. The permit's QS is then determined by summing the annual ratios of a permit's catch of a given species in a given year and dividing by the sum of the ratios for all vessels across all years. The effect of this calculation is to weight each year's catch by the ratios displayed in Table A-69. For example, a pound of sablefish caught in 1996 would give a permit about half as much credit toward an allocation as a pound caught in 2003.[60] The ratios between years for some overfished species are very high, more than a hundred to one (2003:1994), however, under the final preferred alternative allocation for these species will be based on bycatch rates applied to target species QS rather than actual landing history for the overfished species. Similarly, there are some very large ratios for species like kelp greenling. Some of these species have not been included in the alternative scope for the program (see Section A-1.1). For selected species, Table A-70 provides the relative weight for a pound of catch each year, examples of three actual catch histories and the differences in allocation that result depending on whether a relative or absolute approach is used. Also shown for each species (grey box) is the difference in weighting between the year given the greatest weight and that given the least weight. For example, for nearshore rockfish a pound caught in 2003 would be the equivalent of 50 pounds caught in 1998.

On one hand, relative history may be considered more fair and equitable because it weighs each vessel's performance each year based on how it did in its competition with the rest of the fleet given the opportunities present that year (its relative effort level). On the other hand, some may view it as most equitable to distribute QS to benefit those with the greatest investment in the fishery; and the amount and distribution of private and community capital involved in the fishery may be more related to total harvests than the proportion of harvest each year. It should also be noted that under a relative weighting scheme, as compared to a straight summing of pounds, catch histories that diverge from the pattern exhibited by the entire fleet tend to be rewarded when determining an initial allocation.

The relative history measure puts a heavier emphasis on more recent landing history because landings have generally declined during the 1994 to 2003 allocation period. This may be consistent with MSA language that encourages consideration of current harvests when making an initial allocation.

[60] While 2003 is the base year used in Table A-69, the choice of which year in the period to use as the base year does not make a difference with respect to illustrating the implicit relative weights).

Increasing the emphasis on more recent years through the mechanism of relative weighting could better reflect the distribution of capital and labor in the fishery. The MSA also encourages consideration of historic harvest, which may also relate to the current distribution of capital in a fishery depending on the particular circumstances of the fishery.

Alignment of the initial allocation to existing patterns of investment and participation in the fishery reduces disruption to labor, capital, the fishing sector, and communities. Reduced disruption implies greater net benefits because there will be less need for transactions to bring the distribution of capital and labor and the distribution of QS into line with one another. There are two issues to be considered, the amount and distribution of investments and whether they are currently used. The amount and distribution of private and community capital involved in the fishery may be more related to total harvests than the proportion of harvest each year. When there is a contraction in production, fixed capital assets that cannot be easily moved to other uses may persist. There has been a recent contraction in the groundfish fishery. Depending on how long the capital persists in a particular use after the investment is made, harvests during more distant years of higher production may have a greater correlation with the current distribution of capital in the fishery than more recent years in which harvest has been lower. During an expansion, recent year history might reflect current distribution but during a contraction recent history is more likely to indicate where existing capital is still in use (and the current distribution of human capital) but less likely to indicate the distribution of all relevant capital. During a contraction, the capital that remains active may be that which is most efficient or otherwise most beneficial to keep in production and, therefore, that which is likely to persist as the fishery is rationalized. Under such circumstances, even if existing capital is distributed in a manner that correlates more with older history, using a QS allocation formula with greater emphasis on recent history may allocate QS to those entities with the assets still in use, e.g., the assets most likely to persist during the initial implementation and rationalization period. Such an allocation might be expected to result in less disruption. As discussed above, because of the recent contraction in the fishery, the relative history approach increases emphasis on recent history, as compared to a straight summing of a permit's total history across all years.

Table A-70. Illustration of relative lb "weights" (sector catch in year 2003 divided by annual catch): 1994 to 2004.

Stocks or Stock Complex	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
Lingcod - coast wide	0.04	0.06	0.05	0.05	0.28	0.28	0.91	1.04	0.59	1.00	1.04
N. of 42° (OR & WA)	0.05	0.06	0.05	0.06	0.34	0.36	1.26	1.54	0.73	1.00	1.14
S. of 42° (CA)	0.04	0.04	0.04	0.04	0.16	0.15	0.43	0.46	0.33	1.00	0.78
Pacific Cod	1.26	2.12	2.40	1.77	2.57	3.76	3.80	3.30	1.51	1.00	0.94
Pacific Whiting											
Shoreside Nonwhiting	0.60	0.43	0.46	0.26	0.27	1.17	0.84	1.20	0.77	1.00	2.06
Shoreside Whiting	0.70	0.68	0.62	0.59	0.58	0.61	0.60	0.70	1.12	1.00	0.55
At-Sea Whiting (MS)	0.46	0.79	0.58	0.53	0.52	0.55	0.61	0.73	0.98	1.00	1.08
At-Sea Whiting (CP)	0.48	0.67	0.63	0.58	0.59	0.61	0.61	0.70	1.13	1.00	0.56
Sablefish (Coast wide)	0.66	0.63	0.56	0.63	1.08	0.74	0.86	0.92	1.61	1.00	0.95
N. of 36° (Monterey north)	0.67	0.64	0.57	0.63	1.11	0.73	0.85	0.90	1.61	1.00	0.95
S. of 36° (Conception area)	0.51	0.38	0.36	0.51	0.68	0.94	2.15	2.74	1.59	1.00	0.97
PACIFIC OCEAN PERCH	0.15	0.16	0.16	0.20	0.22	0.25	0.97	0.70	0.89	1.00	1.01
Shortbelly Rockfish	0.01	0.01	0.01	0.00	0.01	0.10	0.01	0.05	3.08	1.00	2.65
WIDOW ROCKFISH	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	1.00	0.46
CANARY ROCKFISH	0.01	0.01	0.01	0.01	0.01	0.01	0.21	0.32	0.18	1.00	1.17
Chilipepper Rockfish	0.01	0.01	0.01	0.00	0.01	0.01	0.02	0.02	0.05	1.00	0.19
BOCACCIO	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01	1.00	0.02
Splitnose Rockfish	0.52	0.55	0.37	0.35	0.12	0.73	1.80	1.67	2.70	1.00	0.92
Yellowtail Rockfish	0.02	0.03	0.02	0.08	0.06	0.06	0.04	0.07	0.14	1.00	1.08
Shortspine Thornyhead - coast wide	0.22	0.36	0.44	0.48	0.56	0.93	0.87	1.41	1.00	1.00	1.00
N. of 34°27'	0.21	0.38	0.43	0.46	0.54	0.88	0.96	1.32	1.08	1.00	1.06
S. of 34°27'	0.27	0.32	0.47	0.50	0.62	1.09	0.72	1.67	0.85	1.00	0.90
Longspine Thornyhead - coast wide	0.38	0.29	0.33	0.40	0.70	0.88	1.09	1.37	0.82	1.00	2.15
N. of 34°27'	0.38	0.29	0.33	0.40	0.70	0.88	1.09	1.37	0.82	1.00	2.15
S. of 34°27'	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	E	0.00	0.00
COWCOD	0.00	0.00	E	0.00	0.00	0.00	0.00	0.00	E	0.00	0.00
DARKBLOTCHED	0.10	0.11	0.11	0.10	0.09	0.23	0.33	0.52	0.74	1.00	0.42
YELLOWEYE	0.01	0.01	0.01	0.01	0.03	0.04	0.79	0.49	1.02	1.00	2.93
Black Rockfish - coast wide	0.02	0.10	0.05	0.04	0.01	0.19	0.48	0.93	0.27	1.00	0.37
Black Rockfish (WA)	E	E	0.00	E	E	0.00	0.00	0.00	E	0.00	0.00
Black Rockfish (OR-CA)	0.02	0.15	0.05	0.04	0.01	0.19	0.48	0.93	0.30	1.00	0.37
Minor Rockfish North	0.07	0.09	0.09	0.10	0.10	0.20	0.43	0.45	1.20	1.00	0.69
Nearshore Species	0.40	0.30	12.02	0.94	0.05	1.73	0.76	0.47	0.36	1.00	0.20
Shelf Species	0.02	0.02	0.02	0.02	0.02	0.05	0.36	0.10	0.43	1.00	1.61
Slope Species	0.13	0.18	0.20	0.19	0.29	0.41	0.44	0.94	1.63	1.00	0.64
Minor Rockfish South	0.29	0.27	0.20	0.21	0.23	1.54	1.08	0.88	0.48	1.00	0.79
Nearshore Species	0.11	0.05	0.02	0.03	0.54	0.03	0.98	1.54	0.54	1.00	3.26
Shelf Species	0.02	0.01	0.01	0.01	0.01	0.08	0.09	0.12	0.19	1.00	1.52
Slope Species	0.41	0.37	0.26	0.29	0.33	2.49	1.28	0.97	0.50	1.00	0.78
California scorpionfish	E	0.00	0.00	E	0.00	0.00	0.00	E	E	0.00	0.00
Cabezon (off CA only)	E	0.00	E	0.00	0.00	E	E	E	E	0.00	0.00
Dover Sole	0.86	0.72	0.61	0.74	0.93	0.82	0.85	1.09	1.18	1.00	1.05
English Sole	0.79	0.77	0.76	0.60	0.76	0.96	1.15	0.89	0.76	1.00	0.96
Petrale Sole (coast wide)	1.49	1.22	1.08	1.04	1.33	1.32	1.05	1.09	1.09	1.00	1.02
Arrowtooth Flounder	0.74	1.00	1.06	0.99	0.72	0.43	0.70	0.94	1.11	1.00	0.97
Starry Flounder	0.40	0.58	1.04	0.49	0.55	1.31	1.15	3.96	1.58	1.00	0.24
Other Flatfish	0.68	0.62	0.79	0.81	0.96	0.78	0.97	0.92	0.91	1.00	1.16
Kelp Greenling	0.13	0.01	0.33	0.00	0.35	0.00	0.00	0.85	34.00	1.00	0.00
Spiny Dogfish	0.19	0.55	1.01	0.59	0.49	0.46	0.72	0.59	0.44	1.00	1.65
Other Fish	0.26	0.26	0.30	0.40	0.36	0.70	0.95	0.96	1.22	1.00	2.04

Table A-71. Relative weight of landing history for each year of the allocation period using 2003 as the base year (2003 value = 1.0) and comparative histories and QS allocations using pounds (Abs) and relative history (Rel) for actual permits with histories categorized as strong early, strong late, and consistent.

	Year										QS Allocations		% Change (Relative compared to Absolute)
	'94	'95	'96	'97	'98	'99	'00	'01	'02	'03	Abs	Rel	
Sablefish													
Weight	.66	.63	.56	.63	1.08	.74	.86	.92	1.61	1.00			
Greatest Difference: Relative Credit - 2002 vs. 1996 ==>>									**2.88**				
Permit History	Pounds of Harvest History												
Strong Early	24,065	41,773	60,763	49,192	35,528	56,317	43,925	32,718	0	0	0.49	0.45	-0.08
Strong Late	0	0	0	30	0	1,318	1,872	20,897	15,124	18,694	0.10	.13	0.36
Consistent	2,992	2,344	9,913	8,631	12,169	15,392	7,997	33,450	16,335	19,848	.20	.24	0.18
Lingcod													
Weight	.04	.06	.05	.05	.28	.28	.91	1.04	.05	1.00			
Greatest Difference: Relative Credit - 2001 vs. 1994 ==>>								**26**					
Permit History	Pounds of Harvest History												
Strong Early	2,162	2,969	31,230	72,004	3,143	1,810	715	38	0	0	0.93	0.52	-0.44
Strong Late	109	146	102	94	85	129	134	386	466	2,152	0.06	0.44	6.66
Consistent	5,020	2,789	2,195	3,029	2,321	2,817	1,332	1,011	1,128	2,234	0.21	0.68	2.16
Canary													
Weight	.01	.01	.01	.01	.01	.01	.21	.32	.18	1.00			
Greatest Difference: Relative Credit - 2003 vs. 1994 ==>>										**100**			
Permit History	Pounds of Harvest History												
Strong Early	12,542	10,277	82,980	31,806	33,781	18,020	0	61	-	-	1.79	0.95	-0.47
Strong Late	21	0	0	4	54	164	402	106	398	11	0.01	0.15	1182
Consistent	2,077	2,104	1,957	1,639	3,296	3,659	903	771	479	299	0.16	0.53	228
Kelp Greenling													
Weight	.13	.01	.33	-	.35	-	-	.85	34.00	1.00			
Greatest Difference: Relative Credit - 2002 vs. 1995 ==>>									**3400**				
Permit History	Pounds of Harvest History												
Consistent	.00	.00	.00	.00	.00	.00	.00	.00	1.00	.00	0.03	9.09	35,240
Nearshore Shelf Rockfish													
Weight	0.02	0.02	0.02	0.02	0.02	0.05	0.36	0.1	0.43	1			
Greatest Difference: Relative Credit - 2003 vs. 1995 ==>>										**50**			
Permit History	Pounds of Harvest History												
Strong Early	3,792	11,305	27,646	12,575	10,657	7,486	327	4	-	-	0.57	0.37	-35
Strong Late	51	1	0	3	11	102	181	121	384	105	0.01	0.08	36
Const	4,682	172	315	208	323	585	143	161	764	17	0.06	0.15	18

Allocation Formula Results

In Section A-2.1.1, figures are provided illustrating a number of comparisons of the Council's final and PPA to a variety of allocation formulas and to the distribution of landings among permits in 2004 to 2006 (Figure A-8 through Figure A-21). This information is provided for both processors and harvesters. In the section on Control Percentage Limits on page A-362, information is provided on the number of entities the initial allocation formulas would place over the limits and on initial allocations in comparison to recent and historic vessel activities. Table A-71 shows the effects of the expected geographic distribution of QS in comparison to the distribution of 2004 through 2006 landings, as measured by home office location. Estimates of the initial allocations for QS for all species for each permit have been placed on the Council letter for public reference (with masked permit identifiers) (http://www.pcouncil.org/groundfish/gffmp/gfa20/gfa20progtrack.html#qs).

Table A-72. Distribution of nonwhiting ex-vessel value from 2004 to 2006 compared to distribution of QP value, based on zip codes reported for the businesses that would receive the QS allocations assuming an 80/20 permit/processor split, equal allocation of buyback landing history, and a grandfather clause for initial allocations over the control limits ($ thousands).

	Ex-vessel Value (thousands of dollars)		
	2004-2006 Landings	**QP Distribution**	**Change**
Blain	299	67	-233
Bellingham	2,405	759	-1,646
Anacortes	265	225	-40
Port Townsend	-	0	0
Port Angeles	225	50	-175
Neah Bay	10	52	42
La Push	-	1	1
Grays Harbor	153	317	164
Westport	0	3	3
Willapa bay	339	385	47
Ilwaco	12	82	70
Other Washington and Oregon Inside	7,759	5,653	-2,106
Astoria	2,219	2,300	80
Tillamook	391	514	123
Newport	1,204	2,127	923
Waldport	0	0	0
Florence	28	107	78
Winchester Bay	-	0	0
Coos Bay	1,242	1,990	748
Bandon	93	191	98
Port Orford	81	138	57
Brookings	593	1,019	426
Gold Beach	-	0	0
Crescent City	378	488	110
Trinidad	-	0	0
Eureka	447	375	-72
Fields Landing	297	571	274
Fort Bragg	1,715	1,421	-294
Bodega Bay	180	334	154
San Francisco	1,485	1,755	270
Half Moon Bay	361	819	458
Oakland	0	1	0
Alameda	-	0	0
San Jose	0	9	9
Santa Cruz	162	186	24
Moss Landing	209	285	76
Monterey	795	919	123
Morro Bay	116	204	88
Avila	-	16	16
Other California	-	9	9
Other	6	100	
Total	23,471	23,471	

A-2.1.3.b Permits with Catcher-processor History

❖ *Provisions and Options*

This provision is not applicable to the preferred alternative because the final Council recommendation did not include IFQs for catcher-processors (see Appendix B). The section header is maintained to provide continuity of numbering and cross referencing in various documents generated during this process.

Allocate whiting QS based on permit history[61] for 1994-2003 (do not drop worst years) and using relative history as defined for catcher vessel permits.

For bycatch species (if IFQ is used for bycatch species):

Bycatch Option 1: use history for that species, as it is calculated for whiting

►**Bycatch Option 2:** use the whiting history as a proxy (i.e., allocation will be pro rata based on the whiting allocation).[62]

❖ *Rationale and Options Considered But Not Included*

The allocation methods proposed for catcher-processors differ from those for catcher vessels in that they do not include an equal allocation component or a drop-year provision. The rationales for aspects that are in common with the catcher vessel sector (use of permit history, the 1994 to 2003 allocation period, and use of relative history) are provided in the section on allocation to catcher vessel permits (Section A-2.1.3.a). The drop-year provision was not included because of the absence of a perceived need for consideration of possible hardship circumstances with respect to any of the initial recipients and because of the co-op arrangements under which the fleet has been managed. The equal allocation component was not included mainly because there was not a convenient source for the equal allocation QS. For the catcher vessels, that source was the buyback permits. No catcher-processor permits were bought back; therefore, there was not a similar pool of harvest history from which to draw on for the catcher-processor sector. However, the Council's FPA for catcher processors (a system that helps preserve the voluntary co-op) would default to an IFQ program if the current voluntary co-op system ended. Under such circumstances, IFQ would be allocated equally to all catcher-processor permits.

Since permits with catcher-processor history do not participate in the catcher vessel sector(s), they would not receive QS allocations for any catch history associated with permits that have been combined into catcher-processor permits. In contrast, catcher vessels and permits for catcher vessels move between the shore-based and at-sea whiting fisheries, so such permits are allowed to qualify for initial allocations for both sectors.

❖ *Interlinked Elements*

For catcher vessels and shoreside processors, one of the main elements linked to the initial QS allocation is the accumulation limit and grandfather clause (specifically the QS control limit, Section A-2.2.3.e). The allocations to catcher-processors would not approach the accumulation limit levels that were proposed for whiting; therefore, there would not be an interaction with the accumulation limit provisions.

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[61] Permit history from observer data.

[62] The Council's preliminary preferred alternative included the allocation of bycatch species in the mothership and catcher processor sectors pro rata based on the whiting allocation. These options could come into play if the Council does not go with its preliminary preferred alternative to adopt the co-op alternatives for these two sectors.

❖ *Analysis*

The allocation of QS to catcher processors would run from 3 percent to 23 percent with 6 of the 10 permits receiving between 7 and 13 percent of the QS allocation. For five of the permits, the allocation would be within 1 percent of their recent 2004 to 2006 average harvest. For the one permit that would receive the most QS, the amount of the allocation would be just over half of its recent year average. For those permits for there would be a substantial decrease, there could be some potential disruption, unless the voluntary co-op is able to continue to operate as a co-op under the IFQ program. Continuation of the co-op could be a challenge because the incentive to co-operate to avoid a race for fish would be gone. Additionally, those receiving the most QS might benefit most from operating on their own and hoping to acquire additional shares at a good price from those less able to operate efficiently. However there may be some cost-saving and co-operation opportunities that might preserve the voluntary co-op program, even under an IFQ system (for example, sharing observer costs).

Table A-73. Allocation to catcher processor permits using 1997 to 2003 landing history (relative history) and no-drop years.

	Catcher Processor Permits									
	CP-1	**CP-2**	**CP-3**	**CP-4**	**CP-5**	**CP-6**	**CP-7**	**CP-8**	**CP-9**	**CP-10**
Quota Share	13%	11%	11%	5%	23%	10%	7%	11%	5%	3%
Hvst Share 2004-2006	12%	11%	4%	10%	40%	9%	7%	2%	4%	0%

A-2.1.3.c Processors (Mothership)

❖ *Provisions and Options*

This provision is not applicable to the preferred alternative because the final Council recommendation did not include IFQs for motherships (see Appendix B). The section header is maintained to provide continuity of numbering and cross referencing in various documents generated during this process.

Allocate whiting QS based on a vessel's processing history for 1997-2003 (do not drop worst years) and using relative history as defined for catcher vessel permits.

For bycatch species (if IFQ is used for bycatch species):

Bycatch Option 1: use history for that species, as it is calculated for whiting

►**Bycatch Option 2:** use the whiting history as a proxy (i.e., allocation will be pro rata based on the whiting allocation). [63]

❖ *Rationale and Options Considered But Not Included*

The allocation methods proposed for motherships differ from that for catcher vessel and catcher-processor permits in the period used for the allocation. Additionally, the mothership formula differs from that for catcher vessel permits and is similar to that for catcher-processors permits in that it does not include an equal allocation component or a drop year provision. The rationales for aspects that are in common with the catcher vessel sector are provided in that section (Section A-2.1.3.a). The rationale for starting in 1997 rather than 1994 is that the allocation among the three whiting sectors did not start until 1997. The drop year provision was not included because of the perception that there was no need for consideration of possible hardship circumstances with respect to any of the four initial recipients. The equal allocation component was not included mainly because there was not a convenient source for the equal allocation QS. For the catcher vessels, that source was the permits bought back in 2003.

❖ *Interlinked Elements*

For catcher vessels and shoreside processors, one of the main elements linked to the initial QS allocation is the accumulation limit and grandfather clause (specifically the QS control limit, Section A-2.2.3.e). The allocations to motherships would not approach the accumulation limit levels that were proposed for whiting; therefore, there would not be an interaction with the accumulation limit provisions.

❖ *Analysis*

For harvesters, the degree to which the initial allocation of QS deviates from the recent landings levels is an indicator of the potential disruption that may occur as a result of the initial allocation. For processors, this is less of an indicator of disruption since processors do not need the QS to purchase groundfish. However, the receipt of QS will affect the profit per pound of fish landed, either through the leverage it provides for processor negotiation with harvesters, or through the additional revenue from the resource rents collected by the QS holder. The degree to which one processor receives more of an allocation relative to its 2004 to 2006 delivery history than another may indicate relative differences

[63] The Council's preliminary preferred alternative included the allocation of bycatch species in the mothership and catcher processor sectors pro rata based on the whiting allocation. These options could come into play if the Council does not go with its preliminary preferred alternative to adopt the co-op alternatives for these two sectors.

in the advantage processors may have compared to one another with respect the collection of rents per unit of product delivered and their relative bargaining advantages.

The allocation of QS to mothership companies would be relatively evenly distributed, running between 4 percent and 6 percent (Table A-73). MS Companies 03 and 06 were active in the early 1990s but do not have any activity during the allocation period. They are effectively screened out by the chosen allocation period; however, they participated in only one or two years, and their participation was at a level substantially lower than for all other motherships during those years and since. Therefore, had the allocation period gone back to 1994, the allocation that would have been received by those entities would have been relatively small. One new mothership entered the fishery after the allocation period and took a very small percentage of the total harvest in one year (MS Company 04). That mothership was included as a participant under the Amendment 15 action that limited participation for motherships. Amendment 15 provided notice that the trawl rationalization program would supersede the limitations on participation provided in Amendment 15.

With respect to the absence of a drop year provision in the allocation formula for motherships, the allocation to one out of the four companies receiving an allocation would have benefited by the inclusion of a drop year provision (i.e., the company was absent from the fishery two years).

Table A-74. Allocation to mothership companies using 1997 to 2003 processing history weighted (relative history) and no drop years.

	Mothership Companies						
	MS Comp 01	**MS Comp 02**	**MS Comp 03**	**MS Comp 04**	**MS Comp 05**	**MS Comp 06**	**MS Comp 07**
Share of QS Allocation to Processors	19%	30%	-	-	21%	-	31%
QS Allocation (20% of all MS Sector QS)	4%	6%	-	-	4%	-	6%
Share of 2004-2006 Average Whiting	32%	29%	-	1%	10%	-	28%
MT (2004-2006 average)	1,626	2,560	-	-	1,757	-	2,610
Average 2004-2006 Harvest	13,526	12,589	-	450	4,258	-	11,939

A-2.1.3.d Processors (Shoreside)

❖ *Provisions and Options*

► The Council's preferred alternative includes only an allocation for whiting taken on whiting trips.

For nonwhiting trips:

- Allocate QS for all species ***other than*** incidentally-caught overfished species based on the entity's history for the allocation period of 1994-2003 (drop two worst years) and use relative history.
- Allocate QS for incidentally-caught overfished species by considering the same **overfished species** allocation options identified for permits in Section A-2.1.3.a. (***Note: the preliminary preferred option under A-2.1.3.a is Overfished Species Option 2***.)

For whiting trips:

Whiting Option 1: Allocate whiting QS based on the entity's history for the allocation period of 1994-2003 (drop two worst years) and use relative history.

► **Whiting Option 2:** Same as Option 1 but use 1998-2004 as the allocation period.

- If bycatch species are allocated to shoreside processors (not part of the FPA), allocate all species other than whiting by considering the same **bycatch species** allocation options identified for permits in Section A-2.1.3.a (***the preliminary preferred option under A-2.1.3.a is Bycatch Option 2***). ***Note: Under A-2.1.1.a, Options 6a and 6b, the Council will decide the allocation of species other than whiting to processors.***

Initial allocations may be constrained by accumulation limits. See Section A-2.2.3.e for a discussion of the limits and divestiture requirements.

❖ *Rationale and Options Considered But Not Included*

The allocation methods proposed for shoreside processors (first receivers) are similar to those that would be used for the catcher vessel permits delivering shoreside. The allocation criteria include use of relative history, the dropping of two worst of landings history, and an allocation period option that runs from 1998 to 2003. The criteria for shoreside processors vary from the catcher vessel options mainly in the shorter allocation period (starting in 1998 instead of 1994), a recent participation requirement (see Section A.2.1.2.c), and an equal allocation element not being included. Additionally, in its FPA the Council recommended that the allocation period and recent participation period for whiting processors be extended to 2004 (no allocation is provided for nonwhiting processors). The rationales for the use of relative history and the dropping of worst years are similar to what is identified for the catcher vessel permits in Section A-2.1.3.a. Equal allocation was not used for processors because of the relatively small amount of QS going to processors and the absence of a pool of "unclaimed" QS from which to draw. For the permit allocation, 91 permits were bought back in 2003, and the harvest history associated with those permits was used to designate a pool of QS that would be allocated equally among all remaining permit holders. The allocation period for processors was part of an industry compromise that brought permit owners and processors together in agreement that 20 percent of the initial allocation of QS should go to processors. The first year in which there was a three-way split of the whiting allocation (shoreside, mothership, and catcher-processor) was 1997. The use of 1998 as the start of the allocation period increases slightly the emphasis on more recent years. The allocation period for processors was extended to 2004 because keeping the date at 2003 was viewed to disadvantage a processor that was present as a participant during the window period but had increased its share of the processing substantially since the close of the original allocation period (2003).

For shoreside processors the method of allocating bycatch species would be applied somewhat differently than for permits, since processors do not have logbooks. The approach would be to apply the average logbook distributions used for the permits delivering to a particular processor, weighted by the amount of catch the processor receives from each of the permits. However, under the Council FPA, this method will not be used because processors are only allocated whiting and are not allocated QS for groundfish bycatch in the whiting fishery.

❖ Interlinked Elements

For catcher vessels and shoreside processors, one of the main elements linked to the initial QS allocation is the accumulation limit and grandfather clause (specifically the QS control limit, Section A-2.2.3.e). While this may have been an issue for shoreside processors if they had received nonwhiting QS (as proposed under the PPA), under the final preferred alternative, shoreside processors would only receive QS for whiting. The allocations to shoreside whiting processors would not approach the accumulation limit levels that were proposed for whiting; therefore, there would not be an interaction with the accumulation limit provisions.

❖ Analysis

While some of the effects of the 20 percent allocation of QS to processers are discussed here, the primary focus of this analysis is not on whether and how much to allocate to processors (see Section A-2.1.1.a), but rather on the initial QS allocation formula and its impacts among the qualified processors (Section A-2.1.2.c for determination of qualified processors based on recent participation).

For harvesters, the degree to which the initial allocation of QS deviates from the recent landings levels is an indicator of the potential disruption that may occur as a result of the initial allocation. Figure A-7 shows the amount of initial nonwhiting QS that would be allocated to processors compared to their recent levels of purchases under the Council's final preferred alternative. Figure A-16 provides similar information for whiting QS compared to whiting purchases. For processors, differences between initial allocation and recent activity are less of an indicator of direct disruption since processors do not need the QS to purchase groundfish. However, the receipt of QS will affect the profit per pound of fish landed, either through the leverage it provides for processor negotiation with harvesters, or through the additional revenue from the resource rents collected by the QS holder. The degree to which one processor receives more of an allocation relative to its 2004 to 2006 delivery history than another may indicate relative differences in the advantage processors may have compared to one another with respect the collection of rents per unit of product delivered and their relative bargaining advantages. If the Council had recommended no allocation to processors, it appears that five processors have permits that would have entitle them to between 0.5 percent and 5 percent of the initial nonwhiting QS allocation (Figure A-113), and one processor has permits that would entitle it to just under 4 percent of the initial whiting QS allocation (upper right-hand graph in Figure A-17). The 20 percent allocation of whiting QS to processors recommended in the Council's final preferred alternative would provide seven processors with amounts of whiting QS in excess of 0.1 percent of the total QS (Figure A-16).

For whiting, the Council chose to use a 1994 to 2004 allocation period over a 1994 to 2003 allocation period. Figure A-115 shows very small differences in the amounts of whiting QS processors receive based on their processing history with an initial allocation period of 1994 to 2003 as compared to one of 1994 to 2004 (points for all processors are on or very close to the 45 degree line that indicates no difference between the to allocation periods).

Another indicator of disruption resulting from the initial allocation formula is the number of entities that have entered the fishery since the allocation period and their levels of participation. While the Council did not recommend an allocation of nonwhiting QS to processors, the Council's PPA provided a 20 percent allocation of nonwhiting QS to processors. Table A-74 and Table A-75 show that 18 new nonwhiting buyers that have entered the fishery since 2003 and that these buyers have purchased less than 1 percent of the total nonwhiting landings in terms of weight and value. The Council's final preferred alternative would provide a 20 percent allocation of whiting QS to processors. With respect to whiting, five new buyers have entered the fishery since 2004 (the end of the whiting QS allocation period for processors), but these buyers have purchased nearly 3 percent of the shoreside whiting landings and about 9 percent of the landings in California (which are much smaller than for Oregon and Washington, Table A-76). With the possible exception of California, it does not appear that there are many post-2004 entrants with significant amounts of landings that will not receive an initial allocation of whiting QS under the IFQ program. It should be noted that there was one new whiting processor entrant in 2004 that does not qualify for a QS allocation because it does not meet the recent participation requirement (which requires delivery receipts in two years). This new entrant was active in California where there was only one other competing purchaser that will qualify for whiting QS. In 2004 and 2006, the deliveries it received were of an amount for it to be classified as a significant competitor within the context of the scale of the California segment of the whiting fishery (about 30 percent of the states' total whiting deliveries).

Table A-75. Comparison of shoreside nonwhiting receivers, 200 to -2006: all receivers versus new entrants with zero history during 1994 to 2003 (mt).

	All Receivers (MT)	New Entrants (Number)	New Entrants (MT)	Share of Total
California	16,383.08	10	46.96	0.29%
Oregon	32,100.75	6	1.49	0.00%
Washington	7,936.47	2	42.58	0.54%
Grand Total	56,420.31	18	91.03	0.16%

Table A-76. Comparison of shoreside nonwhiting receivers, 2004 to 2006: all receivers versus new entrants with zero history during 1994 to 2003 (revenue).

	All Receivers (MT)	New Entrants (Number)	New Entrants (MT)	Share of Total
California	$20,690,595	10	$85,890	0.42%
Oregon	$39,741,747	6	$3,870	0.01%
Washington	$8,118,285	2	$50,612	0.62%
Grand Total	$68,550,627	18	$140,372	0.20%

Table A-77. Comparison of shoreside whiting receivers, 2005 to 2006: all receivers versus new entrants with zero history during 1994 to 2004 (mt).

	All Receivers (MT)	New Entrants (Number)	New Entrants (MT)	Share of Total
California	9,302.69	3	861.24	9.26%
Oregon	122,778.52	2	4,124.02	3.36%
Washington	62,742.81	0	0	0.00%
Grand Total	194,824.02	4*	4,985.26	2.56%

* One new entrant operates in both California and Oregon.

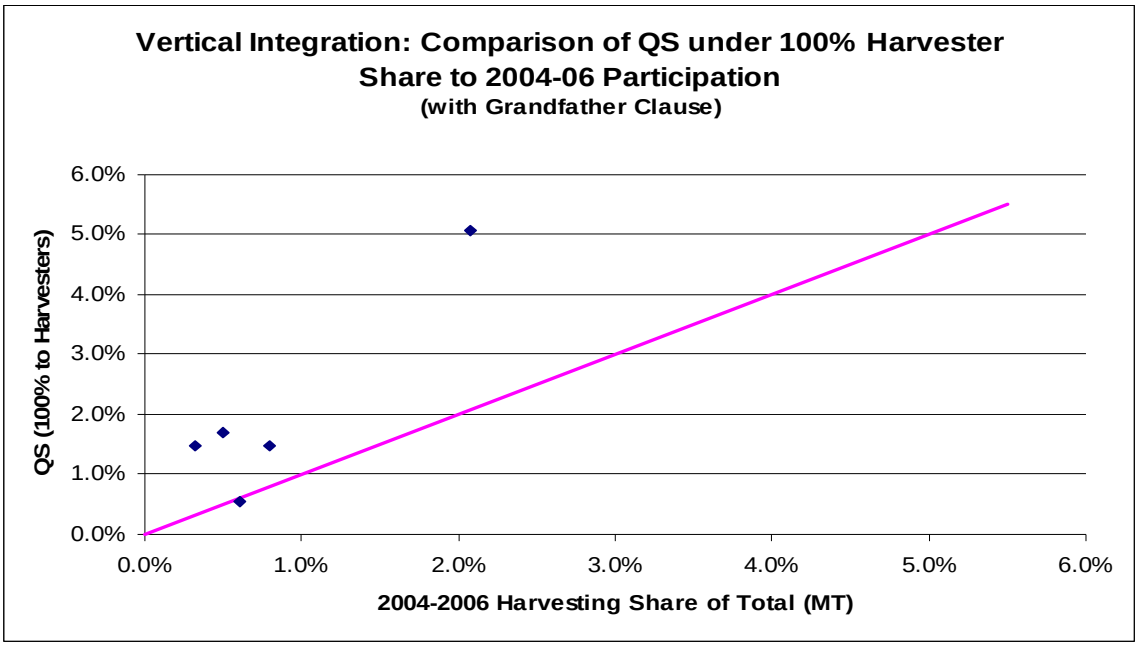

Figure A-91. Vertical integration and nonwhiting QS allocations to processors compared to 2004-2006 history (% of total mt) assuming 100% harvester allocation of QS (no equal allocation element).

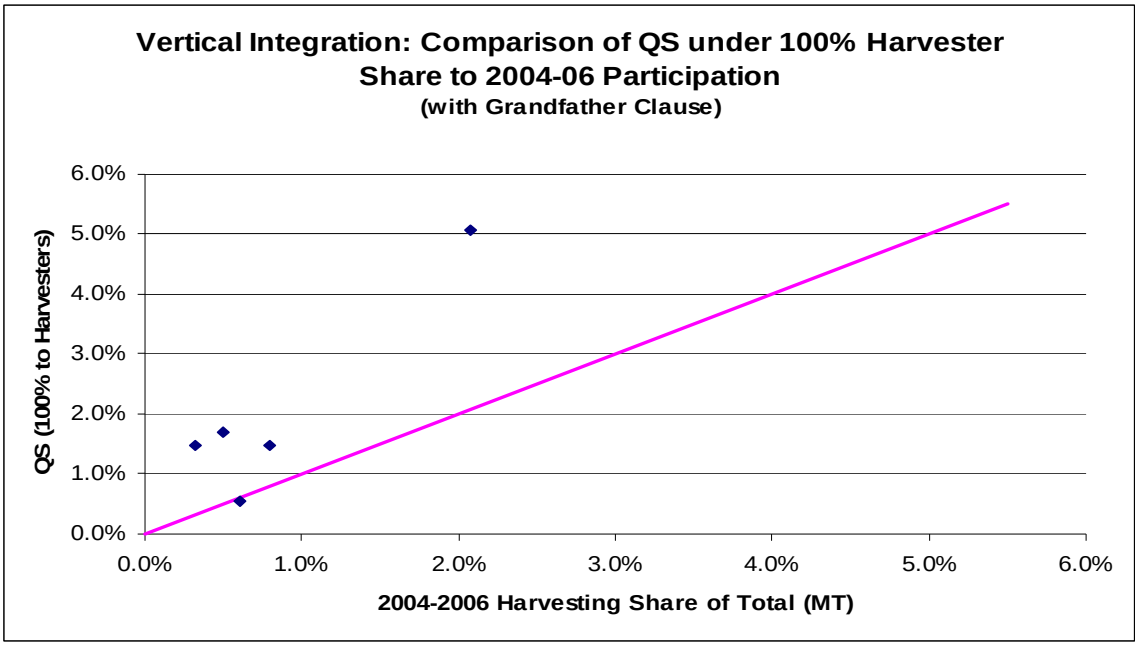

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Figure A-92. Vertical integration and nonwhiting QS allocations to processors (harvesting share) compared to 2004 to 2006 harvesting history (% of total mt) assuming 80/20 permit/processor split of QS and an equal allocation element for permits.

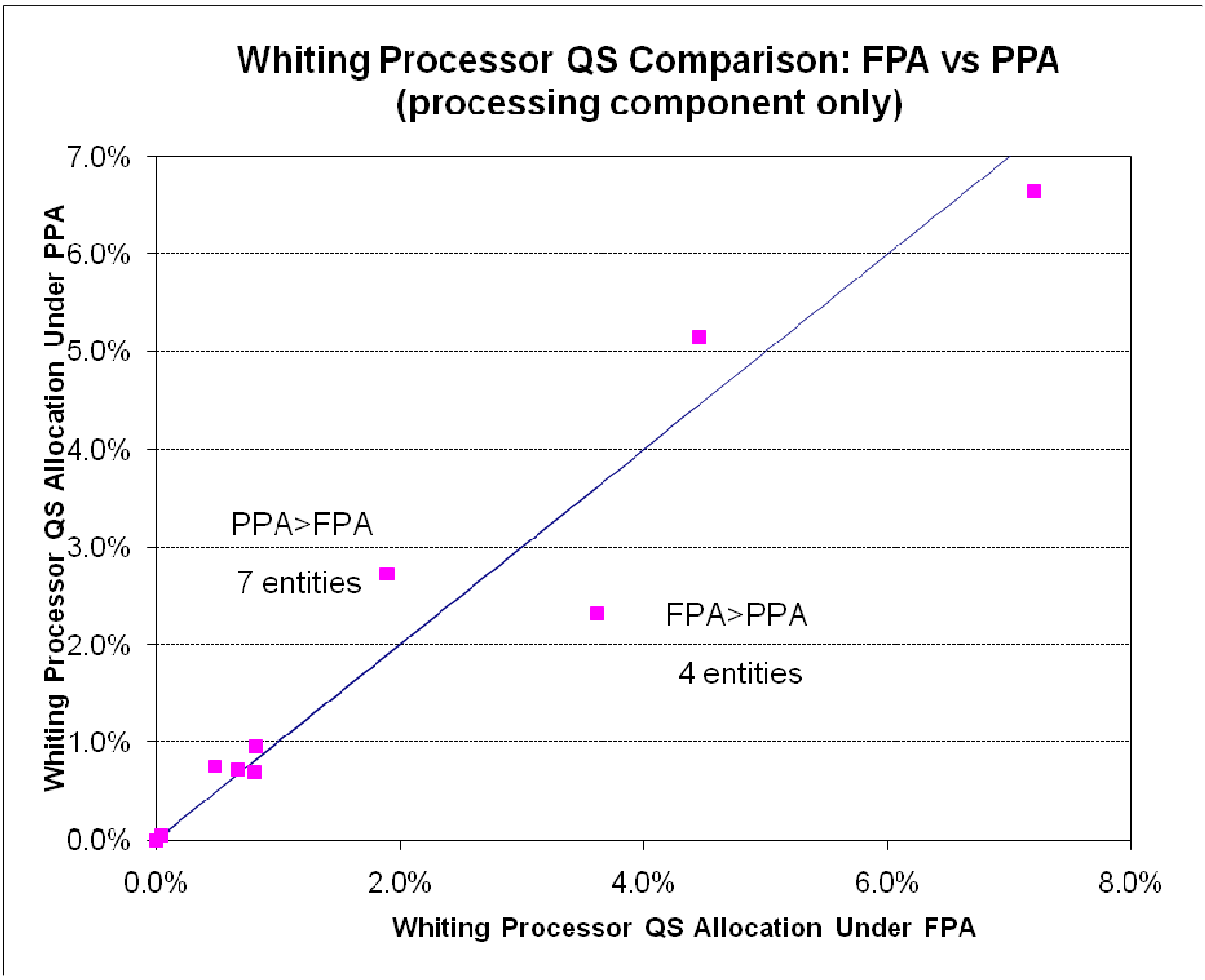

Figure A-93. The allocation from processing history going to each buyer based on the FPA (which uses a 1998 to 2004 allocation period) and the PPA (which uses a 1994 to 2003 allocation period, the only difference between the two alternatives with respect to the whiting QS allocation to processors).

A-2.1.4 History for Combined Permits and Other Exceptional Situations

❖ Provisions and Options

Permit history for combined permits will include the history for all the permits that have been combined. For history occurring when two or more trawl permits were stacked, split the history evenly between the stacked permits. History for illegal landings will not count toward an allocation of QS. Landings made under nonwhiting EFPs that are in excess of the cumulative limits in place for the non-EFP fishery will not count toward an allocation of QS. Compensation fish[64] will not count toward an allocation of QS.

❖ Rationale and Options Considered, But Not Included

Combined Permits – When permits are combined to generate a single permit with a larger size endorsement, and later there is an allocation scheme based on permit history, the question arises as to how to assess the catch history of combined permits. In the past, the catch history of a combined permit has been assessed as the sum of the histories of the combined permits (as it was for the fixed gear sablefish endorsements). The rationale for combining the catch histories is that the resulting permit is for a larger vessel, which may require more fish, and that the person who has combined the permits has likely paid the market value (the value of the harvesting opportunity) represented by the permits being combined. If permit history were not combined, the owner of a permit that has been combined would have to select one of the combined permits to use for catch history, and the fleet as a whole might benefit from any catch history not counted, depending on the allocation scheme being used. Since permits for catcher-processors do not participate in the catcher vessel sector(s), they would not receive catcher vessel history associated with the permits combined into permits large enough for catcher-processors. Hence, they would not be eligible for an initial allocation of QS for the catcher vessel sector(s). In contrast, catcher vessels and permits for catcher vessels move between the shore-based and at-sea whiting fisheries, so such permits are allowed to qualify for initial allocations for both sectors, based on the history of the permits.

Permit Stacking – During the initial allocation period, there was more than one permit registered to a single vessel at the same time, even though such "permit stacking" provided the vessel with no additional harvest opportunities. Nevertheless, while permit stacking was rare, it did occur, and some means is needed to allocate the landing history for the stacking period. A few different approaches were considered, including the following:

1. Associating the landings with the first permit that was on the vessel until such time as the first permit is removed (i.e., there appears to be a transitory period from one permit to another during which there were two permits on the vessel)
2. Associating the landings with the second permit if the first permit was subsequently transferred off the vessel (same transitory situation as described in the first approach)
3. Associating the landings with the first permit if it continues to stay with the vessel after the second permit is removed (i.e., a permit is moved on and off the vessel while the original permit remains)

[64] According to Federal regulations, "*Compensation fishing* means fishing conducted for the purpose of recovering costs associated with resource surveys and scientific studies that support the conservation of species in a fishery, or to provide incentive for participation in such studies. Compensation fishing may include fishing prior to, during, or following such surveys or studies. Compensation fishing shall be conducted under an EFP if the activity would otherwise be prohibited by regulation." [draft FR notice on proposed rule for EFP regs. One published, can cite.]

Unfortunately, it is difficult to know the reasons and circumstances under which two permits were associated with a trawl vessel at the same time. Therefore, an equitable approach appears to be to split the history between the two permits.

Illegal Landings – Rewarding illegal landings with allocation of IFQ is inequitable, on its face.

Landings Under EFPs in Excess of Cumulative Limits and Compensation Fish – In both of these situations, the rest of the fleet did not have the same opportunity to make landings as the EFP and compensation fish vessels. It is proposed that the landings made because of those special opportunities not count toward IFQ as a matter of equity.

❖ Interlinked Elements

The decision on how to count landings under these special circumstances will affect the quantities allocated to individuals. Changes in these provisions would not likely necessitate the need for changes in other parts of the program and vice versa.

❖ Analysis

Combined Permits – Over the course of the license limitation program, 25 permits were combined (17 of which had some landings history) into 17 permits used for catcher vessels (transactions involving 42 permits), plus 99 permits (37 of which had some landings history) were combined into 10 permits used for catcher-processors (transactions involving a total of 48 permits). Permit combination was taken into account in the initial allocation analysis.

Permit Stacking – There were 13 permit stacking events. An event is defined here as permit stacking occurring sometime during a single year. Two permits stacked on the same vessel across two years would count as two events. There is only one occurrence of the same permits being stacked on the same vessel for more than one year. Of these events, most were of less than one month long (Table A-77). Eleven of the events are depicted in Figure A-116. Of all the events, four involved more than 100,000 pounds of history (the three depicted in Figure A-116 and the one not included in the figure for confidentiality reasons). If permits were stacked and then combined (as occurred in one instance), all of the permit history during the stacked period goes with the permit that resulted from the combination.

Table A-78. Number and duration of stacking events.

Number of Months	Number of Events
1	7
2	1
>5	5

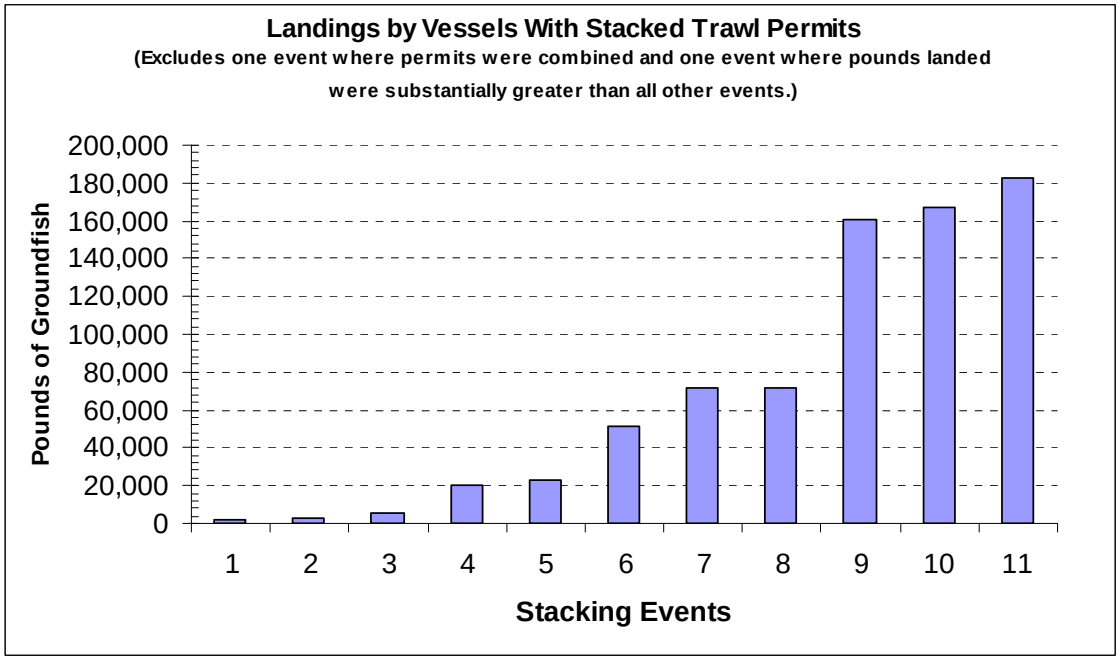

Figure A-94. The amount of allocation period landings that occurred during periods of trawl permit stacking for each of 11 stacking events.

Illegal Landings – Not counting illegal landings is an equity concern about which there is little disagreement. No additional analysis is available. We do not have information about the number or amount of landings that might fall in this category over the allocation period.

Landings under EFPs in Excess of Cumulative Limits and Compensation Fish – The issue argued here is one of equity. Those who say that credit should not be given for EFP landings, including compensation fish, argue that these vessels had opportunities that were not available to other vessels and should not receive additional compensation in the form of an initial allocation of QS. Others argue that had the vessels not been taking part on these special activities, they would have put more effort into other fisheries or groundfish targeting strategies. If they had put their effort into other available groundfish strategies, they would have more landings history, regulations would have been more constraining, and the landings opportunity for other vessels would have been diminished.

A-2.1.5 Initial Issuance Appeals

❖ Provisions and Options

There will be no Council appeals process on the initial issuance of IFQ. NMFS will develop a proposal for an internal appeals process and bring it to the Council for consideration. Only revisions to fish tickets accepted will be those approved by the state. Any proposed revisions to fish tickets should undergo review by state enforcement personnel prior to finalization of the revisions.

❖ Rationale and Options Considered But Not Included

While an administrative appeals process will be provided by NMFS, as required by law and section 303A(c)(1)(I), the Council has not identified any areas of potential that would warrant Council advice. The license limitation program included numerous such grounds for appeal related to hardship and other circumstances and specified that there be an appeals board and Council involvement in the appeals process. Most of these related to initial allocation. The fixed gear sablefish IFQ program (permit stacking) did not include explicit consideration of hardship provisions; most decisions were based on relatively easily determinable facts. This IFQ program does not include hardship provisions. The need for such provisions is avoided, in part, with allocation rules that allow a vessel to drop its two worst years for the initial allocation formula and the long periods covered by such a formula.

One of the judgment calls that may come up on appeal pertains to the attribution of shoreside processing history under Option 3 of Section A-2.1.1.d and the determination of successor in interest where one processing company is acquired by another. The issue to be decided will be determining who processed the fish from a particular landing for those situations in which there is a dispute between the parties.

Another area in which some discretion will be exercised is the classification of fish ticket records for which species remains unspecified, even after the application of species composition information (unspecified flatfish and unspecified rockfish). Unspecified flatfish can be reasonably assigned to the "Other Flatfish" category. Unspecified rockfish are most likely remaining shelf rockfish, but might also be remaining nearshore rockfish (outside the scope of the IFQ program) or remaining slope rockfish. A more accurate determination may be made by considering other species listed on the fish ticket, as well as any logbook data that can be correlated with a particular trip. Judgments made in the application of these ancillary data to determine the correct attribution for unspecified rockfish may be a source of appeal. Data on the extent of this issue are provided in Section A-2.1.3.

The precautionary note regarding changing fish tickets is included in response to rumors that state agency personnel were changing fish tickets at fishermen's requests during the license limitation program implementation without realizing the implications with respect to the license limitation permit issuance process.

❖ Interlinked Elements

The lack of special hardship provisions and a clear allocation formula (A-2.1.3) that take into account hardships by allowing applicants to drop worst years reduce the need for an appeals process involving the Council. If those provisions are changed, the Council might want to revisit the appeals process provision.

Clarity in the definition of processors and processing (Section A-2.1.1.c) will reduce controversy over administrative decisions and possibly the perception of need for Council involvement in appeals.

Allocation of QS based on species and species group information recorded on individual landings records may generate appeals, particularly where some landings remain unidentified due to incompleteness in the species composition information. The other landings-history-based approach available seemed to be to allocate based on aggregates (e.g., allocate all nonwhiting QS based on total landings of nonwhiting groundfish).

After initial allocation, an area of the program in which considerable judgment may be required is the determination of whether control exists to apply control limits. These determinations will likely be based on fact-finding and legal criteria for which the Council and its advisors may not have special expertise. This section, and requirements for appeal listed under the LAP provision of the MSA, address only the need for appeals with respect to initial allocation (MSA 303A(c)(1)(I)).

❖ Analysis

The primary objectives affected by the decision on whether or not to involve the Council in the appeals process are those related to equity and program costs.

Exclusion of the Council from any appeals process will not deprive program participants of the opportunity for appeal, but will only exclude the Council from being an advisor in that process. This will reduce program costs. The main reason for involving the Council in the license limitation program process was that there were numerous hardship provisions requiring judgment calls for which industry and Council body expertise were of value in fact finding and evaluation. As an example, a member of the Council appeals panel was able to identify that an aluminum pole that was purported to have been purchased for a gear conversion was of no value as fishing gear, but rather was the kind of pole that would be used for a street light. The panel also assisted fishermen. Since the members of the panel were well educated in the various provisions of the program, they were able to help fishermen identify the relevant facts and better articulate their case. In many cases, this led to the issuance of permits that were initially denied. The Council appeals body, by providing fishermen an opportunity to be heard and assisted, or told "no" by other fishermen, provided a greater sense of equity for the license limitation program.

For the IFQ program, the rules for which judgment calls will be required are substantially less complex than with the license limitation program, so there may be less need for a Council-based appeals process to ensure a sense that the rules have been applied equitably. With respect to processors, determination of who in the marketing chain was the first processor of a particular landing may come up for appeal (under the Council's preferred option of A-2.1.1.d), as well as a determination of the legitimate successor in interest to the history of a particular processing company (where there have been ownership changes). While there may be some complexity around determination of who processed the fish or an evaluation of successor in interest, the rules that are being applied are relatively simple compared to the license limitation program. Under the license limitation program, there were numerous ways program rules might be applied to qualify a particular vessel owner. A vessel owner could qualify directly for an "A" endorsement via a provisional endorsement through criteria related to vessel building or gear conversion, or through a number of different hardship provisions. The situational facts of a particular vessel owner had to be considered with respect to each of the alternative qualification and hardship criteria.

Another main area for appeal may be the categorization of landings records by species for those situations in which the categorization is incomplete, even after application of the species composition information. This will primarily be an issue for unspecified rockfish. Again, while making an appropriate categorization may require the consideration of some complex logbook and fish ticket information, it is simple relative to the IFQ program because there is only a single program rule that is being applied, i.e., the allocation of QS using a formula based on harvest history.

A-2.1.6 Direct Reallocation and Future Allocations after Initial Issuance

❖ Provisions and Options

Reallocation With Change in Overfished Status. When an overfished species is rebuilt or a species becomes overfished there may be a change in the QS allocation within a sector (allocation between sectors is addressed in the ISA process). When a stock becomes rebuilt, the reallocation will be to facilitate the re-establishment of historic target fishing opportunities. When a stock becomes overfished, QS may be reallocated to maintain target fisheries to the degree possible. That change may be based on a person's holding of QS for target species associated with the rebuilt species or other approaches deemed appropriate by the Council.

Reallocation With Changes in Area Management (Changes in management lines are expected to be rare, however, when the occur the following provides for the reallocation of QS in a manner that will give individual QS holders with the same amounts of total QP before and after the line changes.)

Area Subdivision: If at any time after the initial allocation an IFQ management unit is geographically subdivided, those holding QS for the unit being subdivided will receive equal amounts of shares for each of the newly created IFQ management units.

Area Recombination: When two areas are combined, the QS held by individuals in each area will be adjusted proportionally such that (1) the total QS for the area sums to 100 percent, and (2) a person holding QS in the newly created area will receive the same amount of total QP as they would if the areas had not been combined.

Area Line Movement: When a management boundary line is moved, the QS held by individuals in each area will be adjusted proportionally such that they each maintain their same share of the trawl allocation on a coast wide basis (the fishing area may expand or decrease, but the individual's QP for both areas combined wouldn't change because of the change in areas). In order to achieve this end, the holders of QS in the area being reduced will receive QS for the area being expanded, such that the total QP they would be issued will not be reduced as a result of the area reduction.[65] Those holding QS in the area being expanded will have their QS reduced such that the QP they receive in the year of the line movement will not increase as a result of the expansion (nor will it be reduced).

Reallocation With Subdivision of a Species Group: If at any time after the initial allocation an IFQ management unit for a species group is subdivided, those holding QS for the unit being subdivided will receive equal amounts of shares for each of the newly created IFQ management units. For example, if a person holds 1 percent of a species group before the subdivision, that person will hold 1 percent of the QS for each of the groups resulting from the subdivision.

Future Allocation of Groundfish Outside the Scope of the IFQ Program: For the "Other Fish," category of groundfish, if at some time in the future the Council adds it to the IFQ system, the initial allocation would be determined using the same history criteria as was used for other IFQ species (i.e., 1994 to 2003 history), unless otherwise specified by a future Council action.

[65] Unless there is a change in the total OY or other factors affecting trawl allocation for the areas involved, in which case, their change in quota pounds would be proportional to the change in the trawl allocation.

❖ Rationale and Options Considered But Not Included

Overview

The main reason for these provisions is to plan for future changes in the management units that may be needed for conservation of the resource. Reallocation may be appropriate under the following circumstances:

- If there is a broad swing in the amount of a stock that is available for harvest (as may occur when a stock is rebuilt or becomes over fished)
- When a latitudinal management line is added to subdivide a stock, subtracted to combine separate stocks into a larger geographic unit, or changed to better reflect the stock's population biology
- When species that have been grouped together for management are separated out

Additionally, at some future time, there may be a need to allocate QS for species that are currently outside the scope of the IFQ program.

Consideration of provisions to address situations that may be encountered in the future is in line with National Standard 8, which required the Council to provide for variations and contingencies in the fishery resources.

Reallocation with Change in Overfished Status

Situation. As a species moves out of (or into) overfished status, the opportunities for targeting the species may change significantly. A number of overfished species are not currently targeted, but are caught incidentally in other trawl target strategies. When an overfished species is rebuilt, there will often be a sudden and substantial increase in the OY. As these opportunities change, it may be appropriate to consider reallocation of QS within a trawl sector to accommodate directed fishing on the rebuilt species. If it could be developed, a predetermined approach for such reallocation would provide desired regulatory consistency and predictability for industry and government.

Need. One of the primary concerns behind the reallocation of QS when a species is rebuilt relates to equity. Those who in the 1990s relied on certain species that became overfished (and who took their harvest in line with what were believed to be sustainable levels at the time) have had their fishing opportunities (and their share of the catch) reduced to allow for the continuation of other targeting strategies. Those participating in these other strategies needed only relatively small amounts of the overfished species to cover their bycatch. Under the Council's PPA, the initial allocation of QS for these overfished species will be based on the fleet bycatch rates in the current target fisheries. Those who had their fisheries cut back because their target species had become overfished believe that they have sacrificed for the rebuilding and should, therefore, receive a greater share of the harvest once the stock is rebuilt. Further, because they were targeting on the stocks that are being rebuilt, they do not have as much history for some of the other stocks for which QS will be issued. If no adjustment to the allocation is made when a stock is rebuilt, those who hold the stock primarily to cover bycatch will be the ones receiving QP in sufficient quantities to redevelop a targeted fishery on the rebuilt stocks.

Challenge. The main challenge in a post-implementation reallocation of QS for an overfished species will be the trading of the QS that occurs before the species is rebuilt. Initial issuance of overfished species QS will be to permits. Through the rationalization process and new entry and exit, there is likely to be substantial reshuffling of the QS. If the intent is to reallocate the QS to those who

prosecuted the directed fisheries in the mid-1990s, there will need to be a historic link between those harvesters and the ones who are present when the stock becomes rebuilt. The main vehicles available are harvester identity, the vessel, and the permit. Harvester identity (an individual or business entity's history) has not been used an allocation basis in part because the information would be difficult to acquire, and it does not take into account exits and new entries that occur prior to achievement of rebuilt status. The vessel and permit are the other two vehicles available, and the permit is the primary one on which the Council has relied for the QS allocation decisions. Again, by the time of rebuilding, there may be little relationship between the harvesters that own the permits and the types of fisheries in which the permit is employed at the time of rebuilding, and the target fisheries in which the permit participated in the mid-1990s, making it difficult to make a future reallocation to achieve the desired equity outcome.

Considered, but Rejected.

Allowing reallocation through market mechanisms. Under this approach, there would be no direct reallocation. The concern motivating consideration of direct reallocation would not be addressed.

Auction. Under this approach, there would be a direct reallocation through an auction (e.g., upon rebuilding, adjust everyone's QS holdings downward and auction off the remainder). This would prevent those who were given an allocation of overfished species QS to cover their bycatch needs from benefiting from the rebuilding that was facilitated through the reduction of targeting on the overfished species but would not direct the benefits to those who participated in the target fisheries (or to the current holders of their permits).

Issuance of Shadow QS. In anticipation of the difficulties that would be entailed in reallocating QS at a future time based on history, straw man provisions for reallocation upon rebuilding were presented to the GAC at its September 2007 meeting. These provisions were based on the concept of issuing shadow QS for overfished species based on the 1994 to 2003 history of the initial QS recipients. Shadow QS would be held, but would be dormant (no QP would be issued for shadow QS) until the species is rebuilt. At the same time, at the start of the program, incidental catch QS would be issued for the same species based on bycatch rates and the amount of target species QS an entity receives, as is specified in the Council's final preferred alternative. The incidental species QS would become inactive or would expire when the species is rebuilt, and the shadow QS become inactive. A similar straw man proposal was provided for situations in which a currently healthy stock is declared overfished. Under such circumstances, the existing QS would become inactive (shadow QS), and new incidental species QS would be issued to those needing them to cover incidental catch in fisheries targeted on other species. This approach would add some cost and complexity to the start of the program, including the need to track the transfers of shadow QS.

Final Preferred Provision. The approach of the final preferred alternative is to develop the rules for reallocation when a species is rebuilt or becomes overfished at the time they are needed. Provisions for reallocation with change in overfished status have not been developed because of the high degree of circumstance-specific information that will be important in determining an appropriate reallocation. Therefore, at this time, notice is provided that the Council intends to make a reallocation upon rebuilding but the specific means for reallocation have not been identified.

Reallocation with Changes in Area Management and Subdivision of a Species Group

The provisions for reallocation with changes in latitudinal management areas and subdivisions of species groups were initially developed simply as a test to determine the feasibility and impacts of adjusting the management units once the IFQ program is in place. They have been included as program provisions to avoid the need for separate action later and so that all participants are on notice as to the potential changes that may occur to the QS they hold and the management units for which the QS is designated. These changes may affect QS value; therefore, it is helpful to provide advance information about how adjustments will be carried out if they become necessary.

The basic philosophy behind the geographic and species subdivision provisions is that the change should be carried out in such a manner that no one who holds QS will receive fewer pounds after a change than they would have before the change. The provisions may, however, result in the redesignation of an individual's QS such that they end up with some QS for an area in which they do not fish or for species that are of less interest to them.

Future Allocation of Species Currently Outside the Program Scope

There is concern that fishermen may target species not covered by the IFQ program with the intent of establishing history for an allocation of QS for those species if, at a future time, they are brought under the scope of the program. In this regard, the Council was particularly concerned about the "Other Fish" category of groundfish. Of those species outside the scope of the program, this is the only category for which there are some larger amounts of trawl vessel catch. Additionally, some of these species are longer lived and may be more sensitive to fishing pressure. To reduce the incentive for vessels to target the "Other Fish" category, the Council has indicated that it will continue to rely on 1994 to 2003 permit history, unless it makes some other decision in the future. Also suggested for Council consideration were options that would specify future allocation on some basis other than the 1994 to 2003 permit history, but not on permit history occurring after program implementation (e.g., equal allocation or allocation based on an entity's holdings of other types of QS). By choosing the 1994 to 2003 allocation period, the Council signaled that the permits themselves might have some future value with respect to the harvest history that they represent.

❖ Interlinked Elements

Of these provisions, the future allocation of species outside the scope of the program is the only one that is specifically linked to other provisions. The need for this provision is created by the Council decision to exclude some species from the IFQ program and, in particular, a species group for which trawl vessels have some more substantial landings.

❖ Analysis

Reallocation with Change in Overfished Status

The primary objectives affected with respect to reallocation upon rebuilding relate to equity, net benefits (market certainty, transaction costs), disruption, administrative costs, and complexity. The provisions for reallocation upon rebuilding identify an equity concern but do not identify the means by which that concern will be addressed at some future time. Notice is given that a reallocation may occur. This advance notice will contribute to the perception of equity when the adjustment is made, but, without knowing the mechanism by which it will be carried out, there will be considerable market uncertainty.

Making no reallocation would reduce uncertainty in the market and potential future disruptions, but not address the equity concern. Reallocating through an auction would address the equity concern of those who would view recipients of QS to cover their bycatch needs as receiving an unearned benefit when they are then able to target the rebuilt species. However, an auction would not provide compensation to those who argue that they sacrificed their fisheries to facilitate the rebuilding. The shadow QS approach would address equity concerns and provide market certainty, but would result in trading of shares that have no immediate purpose with respect to management of the fishery, thereby causing an increase in management costs. The approach also increases costs by adding to program complexity.

With respect to reallocation when a species becomes overfished, there is some guidance provided for how the reallocation would be carried out (i.e., as needed to facilitate target fisheries). The concern with respect to conditions that occur when a stock becomes overfished is that targeting healthy stocks be facilitated (addressing objectives related to net benefits, efficiency, sector health, labor, communities, and the general public), and that individuals not take unfair advantage of those who may desperately need QS to cover their incidental take in other fisheries targeted on other groundfish stocks (addressing equity related objectives). The guidance that is provided for action when a stock becomes overfished implies that there may be a reduction in QS for the newly overfished species for those holding QS for that species who do not also hold QS for a target species with which the overfished species is taken incidentally. Those whose QS is revoked will likely request, as an equity issue, that such QS be reinstated when the stock is rebuilt (essentially the same argument that is made now by those who previously lost directed fishing opportunities for overfished species). A concern has also been voiced that if those who target the overfished species are allowed to keep their QS, they might take their small amounts of QS as target rather than providing it for the incidental catch needs of others. While it might occur, such an action (using the overfished species QS as a target) would likely result in a lower profit than if they had sold it to those who need it to cover their incidental catch.

Reallocation with Changes in Area Management and Subdivision of a Species Group

The primary purpose of these provisions is to allow the achievement of conservation objectives while minimizing any adverse effects on net benefits, disruption, equity, sector health, or communities. The primary reason for changing the area or species composition of the management units would be to enhance achievement of conservation objectives. The specification of the exact means by which these benefits would be achieved reduces uncertainty and allows the market to function more efficiently and for businesses to plan for changes. The provisions have been specified in a way that ensures that an entity holding QS will experience the minimum possible change in total fishing opportunities.[66/67] It may, however, result in some temporary dislocation as QS holders could end up with QS for management units outside of their normal fishing area or species that they do not normally catch. Under such circumstances some QS trading may be required which will result in some increase in transaction and administrative costs. Nevertheless, the approach specified here will likely result in the least disruption and most equity possible, while still achieving the conservation objectives. Alternative approaches would require either a data-intense exercise to develop formulas for requalification and reissuance of QS based on recent practices, or relatively arbitrary increases or decreases of entities' QS holdings, which would entail equity issues.

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[66] Line Movement Example: first assume that 50 percent of the trawl allocation for a species is for north of the 40°10' line and 50 percent is for south (i.e., the coast wide trawl allocation is evenly distributed between these two areas). Now assume that a decision is made to move the management line to 38° and that as a result of this movement 70 percent of the QP for the species would be for north of 38° and 30 percent would be for south of 38°. The QS holdings would be adjusted as follows:

> Those persons holding QS for the southern area would continue to hold QS for the new southern area (their QS that previously represented 50 percent of the coast wide OY would be scaled back such that it represents only 30 percent of the coast wide OY).
>
> In addition, those persons would be allocated QS for the new northern area representing 20 percent of the coast wide trawl allocation (they would receive 28.6 percent of the QS for the new northern area (20 percent/70 percent=28.6 percent)). Thus, those holding QS for the south would still hold 50 percent of the coast wide QS (all of the southern 30 percent and 20 percent represented in northern QS). The allocation of northern QS would be made in proportion to their holdings of southern area QS. Those with QS for the expanded northern area would each have their QS reduced by 28.6 percent such that their total QP would remain unchanged.
>
> On an individual basis, if a person holds 1.5 percent of the coast wide trawl allocation through a 3 percent holding of the southern QS, when the adjustment in the latitude line is made, they continue to hold 3 percent of the southern area QS, but it represents only 0.9 percent of the coast wide trawl allocation (3 percent times 30 percent). So they would receive an amount of the northern QS that is equivalent to 0.6 percent of the coast wide allocation. This would bring them back to a total of 1.5 percent of the coast wide allocation. The amount of northern area QS necessary to achieve this would be a little less than 0.9 percent of northern QS (0.9 percent times 70 percent equals about 0.6 percent).

[67] Recombination Example: 50 mt (5 percent) of the trawl allocation is for the Conception area, and 950 mt (95 percent) of the trawl allocation is for latitudinal line 40°10' to the Conception area. An individual who holds 50 percent of the allocation in the Conception area would get 25 mt. Should these areas be combined, that person would receive 2.5 percent of the new 1,000 mt south of 40°10' trawl allocation (50 percent multiplied by 5 percent, i.e., the individual's allocation for the conception area multiplied by the Conception area portion of the new south of 40°10' area)). Similarly, the QS allocation for an individual to the north would be the percent of QS times 95 percent.

Future Allocation of Species Currently Outside the Program Scope

The primary objectives affected with respect to future allocation of a species outside the scope of the program relate to conservations concerns, equity, disruption, net benefits, and administrative costs. The provision adopted by the Council indicates that 1994 to 2003 landings history will be used if, some time in the future, a new species or species group is brought within the scope of the program. The problems entailed by such a provision are similar to those identified for using permit history to reallocate a stock when it becomes rebuilt. Once the QS are issued, QS and permits start changing hands, and there is entry and exit, the relationship between the entities owning the permits, their current activities, and the 1994 to 2003 permit histories will diminish. If, at that time, a stock must be brought into the IFQ program, there is a good likelihood that the permits to which the allocation is given may not be held by those currently targeting the new QS stocks. This could lead to some disruption and dislocation. However, the Council's action also states that some other basis for allocation might be considered. The Council's intent is to avoid creating an incentive for increased targeting on species outside the IFQ program, and the "Other Fish" category of groundfish, in particular. Based on that intent, the industry should expect that if the Council does select some basis other than 1994 to 2003 permit landing history for a future allocation, it is unlikely to select a criterion involving more recent harvest history. Development of an alternative method for allocation would entail some administrative costs. Additionally, the uncertainty about how the allocation would be carried out may dampen significant investment in the harvest or development of markets for species outside the scope of the IFQ program. Under such conditions of uncertainty, it is likely that businesses would plan to recoup any investments they make over a short period on the chance that they may not receive the QS if the species is pulled into the IFQ program. Given the belief that some of the species in these groups may be highly sensitive to exploitation, actions that dampen development of new targeting on those species may be appropriate until stock assessments are available, particularly for dogfish.

A-2.2 Permit/Holding Requirements and Acquisition

A-2.2.1 Permit/IFQ Holding Requirement

❖ *Provisions and Options*

1. Only vessels with limited entry trawl permits are allowed to fish in the trawl IFQ fishery.
2. For a vessel to use QP, the QP must be in the vessel's QP account.
3. All catch a vessel takes on a trip must be covered witH QP within 30 days of the time that data or documentation from the trip shows there is an overage[68] unless the overage is within the limits of the carryover provision (Section A-2.2.2.b), in which case the vessel has 30 days or a reasonable time (to be determined) after the QP are issued for the following year, whichever is greater. [69]
4. For any vessel with an overage (catch not covered by QP), fishing that is within the scope of the IFQ program will be prohibited until the overage is covered, regardless of the amount of the overage. Vessels which have not adequately covered their overage within the time limits specified in paragraph 3, must still cover the overage before resuming fishing, using QP from the following year(s), if necessary. If a vessel covers it overage, but coverage occurs outside the specified time limit (paragraph 3), the vessel may still be cited for a program violation.

   Exception Prohibition Suboption (not selected in preferred alternative): There may be exceptions and additions to the activities which will be prohibited when a vessel has an overage. A vessel with a deficit in its quota pound account would not be prohibited from participating in any of the following fisheries, even if they fall within the scope of the program: salmon troll; HMS troll/surface hook-and-line; Dungeness crab; all other HMS gears, except small mesh gillnet; and CPS purse seine. Additionally, vessels with a QP deficit would be prohibited from participating in state trawl fisheries such as pink shrimp, California halibut, ridgeback prawn, sea cucumber, and small mesh gillnet.
5. For vessels with an overage, the LEP may not be sold or transferred until the deficit is cleared.
6. **"Alternative Compliance Options (all options were rejected in preferred alternative):"**
   Option 1: After two years in deficit, a vessel may resume fishing.
   Option 2: A sliding scale exception would allow a vessel that does not cover its deficit to resume fishing after a period of time. The period of time the vessel would be prohibited from participating in certain fisheries would vary depending on the degree of the uncovered overage. The scale that would be used is still to be developed. [70]
   Option 3: No exceptions to Element 4 of this provision.

❖ *Rationale and Options Considered But Not Included*

The MSA requires that any LAPP do the following:

> (I) Include an effective system for enforcement, monitoring, and management of the program, including the use of observers or electronic monitoring systems.... [MSA 303A(c)(1)(I)]

While the enforcement and monitoring system elements are covered in Section A-2.3, the permit and IFQ holding requirements will have a substantial bearing on the organization and costs of such a system. Therefore, much of the rationale provided here relates to the provision of an effective enforcement and monitoring system.

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[68] Underscored text is a modification made at the April 2010 Council meeting.

[69] QP from a subsequent year may not be accessed until sucH QP have been issued by NMFS.

[70] Example: a minimum of 4 months (120 days) for 100 lbs plus an additional month for every additional 50 pounds of overage (1 mt overage = 44 months)

Element 1 – Trawl Limited Entry Permit Required to Participate

Requiring a LEP for participation is expected to control costs by limiting the number of platforms that must be monitored.

Element 1 option considered, but not included for detailed analysis:

Allowing vessels without trawl permits to participate in the fishery

This option was rejected from consideration because it could dramatically increase the number of vessels in the fishery that would have to be monitored and the number of accounts that would have to be managed. Additionally, there would not be a fixed set of participants in the program, making it more difficult for enforcement to monitor the system. These factors would substantially add to program costs and, absent sufficient additional funding, increase the likelihood that enforcement effort would be diluted.

Element 2 – Vessels Required to Acquire QP

Requiring that QP be placed in a vessel account in order to be used to cover catch is expected to control costs and assist in determining who is responsible for compliance, by linking each landing to one and only one account and responsible party. The holder of that account would be responsible for ensuring that a landing is covered witH QP.

Element 2 option considered, but not included for detailed analysis:

Allowing QP that are not in the vessel's QP account to be used for a vessel's catch

Under this rejected option, for example, a vessel might be able to cover catch witH QP held in a crewmember's account. This option was rejected because it would add to the complexity of the data entry and tracking tasks. Rather than just counting all catch of the vessel against a particular QP account, catch might need to be subdivided and counted against a variety of accounts. Under Element 2, as recommended by the Council, in order to maintain control over the QS/QP, crewmembers would hold QS/QP outside the vessel account until the QP is needed by the vessel and would, at that point, transfer the QP to the vessel (or some other point agreed upon by the vessel and crewmember).

Element 3 – Time Allowed to Cover a Landing (and Minimum Holding Requirement)

The extremes of this provision run from requiring that a vessel have QP to cover its anticipated catch (or hold some minimum amount of QP) prior to departure to allowing a vessel a period after its landing to acquire the QP it needs, specifically 30 days after data are reported that indicate an overage has occurred. The Council's PPA provided a vessel up to 30 days after a landing to cover its catch and was intended to provide the vessel with substantial flexibility (addressing objectives related to efficiency and sector health), as may be needed in a multispecies fishery in which the availability of QP for some species may be relatively limited. Key to the effectiveness of this provision was that the vessel would be prohibited from participating in certain fisheries if it has a negative balance in its QP account (see Element 4). The Council modified the approach at its April 2010 meeting by providing a vessel with 30 days after the time the first data are reported indicating that a catch overage has occurred. The Council felt this approach would be more equitable, flexible, and enforceable since a vessel would not necessarily be demonstrably in violation of the program until data are available indicating that an overage had occurred.

Element 3 options considered, but not included for detailed analysis:

Requiring a vessel to cover its landing witH QP (the following are suboptions)
within 24 hours of the landing
at the time of landing
when it brings the fish on board
Requiring a vessel to have some minimum amount of QP (particularly overfished species) if it is fishing in certain depth strata or hotspots;[71] *including a suboption that would allow the vessel to fulfill that option by participating in a risk sharing pool.*[72]
Requiring a vessel to have some minimum amount of QP before it leaves on a trip.

The first of these options was rejected because of the consequences of the time pressure that it would place on the vessel, potentially encouraging attempts to under-report or put pressure on observers, or forcing the vessel to pay unnecessarily high prices for the QP. The two minimum holding requirement options were rejected because of the difficulty of appropriately specifying the mix of species for which a vessel would be required to hold QP and the need for there to be maximum availability of overfished species, for which the amount of QP available may be quite limited. With respect to this last point, the concern was that QP could end up being unnecessarily tied up by vessels needing it to meet a minimum holding requirement and, therefore, be unavailable to vessels that had encountered the species and needed the QP to cover their catch. Finally, given the strong monitoring and enforcement system, it will be very difficult for a vessel to escape having to cover landings witH QP. Therefore, a minimum holding requirement did not seem necessary.

Element 4 – Fishing Restriction While In Deficit

Element 4 prohibits a vessel from engaging in certain fishing activities if it has a deficit in its account (even if that deficit is within the carryover provision, A-2.2.2-c). Two approaches were considered for designating the time at which a deficit occurred. Under the Council's PPA, the deficit would have been deemed to occur as soon as fish were caught in excess of the vessel's QP balance. The vessel would have been responsible for tracking and accurately estimating its own catch. Under the second approach, a deficit is deemed to occur as soon as the first official data are reported indicating that a deficit has occurred. The second approach starts the fishing prohibition at the same that the Element 3, 30-day clock starts.

Under the first approach (fishing must stop as soon as catch in excess of QP holdings is taken), it would be entirely the vessel's responsibility to avoid fishing with a deficit. A vessel would <u>not</u> be required to refrain from additional fishing while it waited for an official determination of its QP account balance.

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[71] The GMT recommended consideration of a mechanism that would establish a minimum holding requirement to access a certain area. These areas would be defined based on the presence of overfished species and the probability that a trawler would catch them during a fishing trip. This would require that trawlers declare their intent to fish either in the area that requires a minimum holding requirement or outside that area. For example, if trawlers intend to fish in depths shallower than 200 fathoms, a minimum holding requirement for canary and yelloweye rockfish could be required. Vessels could fish deeper without meeting the minimum holding requirement for canary and yelloweye, but would have to meet those minimum holding requirement provisions if they desire to fish shallower than 200 fathoms.

[72] The GMT also recommended consideration of a minimum holding requirement provision that would allow vessels to enter into voluntary pooling agreements in order to reach that minimum holding requirement. This would require that trawlers forming voluntary risk pools register with NMFS. By registering as a member of the risk pool that had an adequate amount of overfished species (an amount that would have to be determined and based in part on the number of participants in the pool), the vessel would be considered in compliance with the minimum holding requirement.

Allowing a vessel to take responsibility for ensuring it is not fishing in deficit reduces the pressure to implement a data system with extremely rapid account resolution turnaround times. This would allow the development of a lower cost data system while at the same time ensuring full monitoring and detection of violations (through 100 percent observer coverage). Under the second approach (a vessel must stop fishing as soon as data are available indicating its catch may have exceeded its account holdings), either a vessel might be required not to resume fishing until data from a trip had been processed, or a vessel might be allowed to start another trip right away but be required to stop as soon as data in the system indicate that it may be in deficit.

One decision required with respect to this element of the program was the scope of the fisheries the vessel would not be able to participate in if it has a deficit. The primary legal concern in specifying the restriction is that any limitations placed on the vessel be necessarily reasonable for effective program design and not an action which would be considered punitive and, therefore, require due process (e.g., an opportunity for a hearing and appeal). A central element to the effective functioning of the program is that a vessel covers its landing witH QP. Therefore, prohibiting a vessel that has not met that condition from participating in the program is a necessary and reasonable result required for an effective program. In contrast, prohibiting participation in fisheries for whicH QP is not required may more likely be considered punitive. On this basis, it is likely that the Council will have to modify the fisheries in which vessels in deficit are allowed to continue to participate so that participation is prohibited and exceptions made only for those fisheries outside the scope of the program. Alternatively, if there are fisheries that are outside the scope of the program specified in A-1.1, but from which the Council believes vessels with a deficit should be excluded, the Council could explore modification of the program scope to incorporate those fisheries.

When the Council took final action in November 2008, there were some fisheries for which a decision was needed as to whether to consider them as part of or outside of the trawl groundfish IFQ program. In particular, the situation of the California halibut fishery had not been clear. Participants in this fishery are considered to be participating in the groundfish trawl fishery if they have a LEP and retain groundfish. Excluding those who do not retain groundfish from the bimonthly cumulative limit rules of the trawl groundfish fishery was feasible when the regulations primarily pertained to landings rather than total catch. The IFQ program requires that all groundfish trawl permitted vessels acquire QP to cover their catch taken with directed commercial groundfish gear. Thus there is no opportunity to avoid the harvest control regulations by discarding groundfish. On this basis, the Council included as part of the PPA an option that would consider the California halibut fishing by LE trawl vessels within the scope of the program (i.e., prohibit California halibut fishing by trawl LE permitted vessels that have a deficit in the QP account). The Council also included in this option all other state water trawl fisheries such as pink shrimp, ridgeback prawn, and sea cucumber trawl, as well as small mesh gillnet. When it took final action under Section A-1.1, the Council clarified that inclusion of California halibut did not cover California halibut gear with a mesh size of greater than 7.5 inches used in state waters.

Element 4 options considered but not included for detailed analysis:

Prohibiting all fishing by a vessel with a deficit in its QP account

This option was rejected because it was viewed to be punitive and, therefore, did not include adequate provisions for due process.

Element 5 – Transfer of Permits Prohibited While In Deficit.

Element 5 is intended to support accountability by ensuring that an individual not be able to dispose of its LEP if it is not in compliance with the program. This provision implies that the processing of any

applications for transfers would have to be delayed until a sufficient time has passed since the vessel's last landing to allow for full resolution of the vessels QP account balance.

Element 5 options considered but not included for detailed analysis:

Prohibiting the sale or transfer of the QS and/or QP in the vessel account

Prohibition of the sale of the QS or QP was rejected because the QS is not assigned to a vessel, and the vessel may have to sell its surplus QP in order to acquire the funds needed to buy the QP to cover the species for which it has a deficit. Additionally, if the vessel is unable to cover its deficit during a particular year, prohibiting the vessel from transferring its surplus QP would be to the detriment of processors, communities, and the general public.

Element 6 – Alternative Compliance Options

Element 6 was intended to provide some alternative avenues for compliance with the program to ensure that the program does not become overly restrictive. Vessels may face a fishery situation in which overfished species are sometimes encountered at very high incidental catch rates on a very random and infrequent basis ("disaster tows") and that the amount of QP available to the fishery may be very limited. Under such circumstances, there is a concern that it may take several years for a vessel to acquire the QP needed to cover an overage. If a vessel is in deficit, even after if it is cited for going beyond the maximum length of time allowed for resolving the deficit (see Element 2), it still must cover the deficit before it resumes participation in the program. Some perceive this as potentially victimizing the fisherman; therefore, these alternative compliance options were developed. Element 6 was not included as part of the final preferred alternative because there was concern it might invite abuse. Fishermen might assess the length of time they would be required to be off the water and time overages to coincide with planned major repairs or transitions to other fisheries.

Element 6 options considered but not included for detailed analysis:

Vessel can continue fishing by voluntarily surrendering QS of other species.

Vessel can continue fishing by voluntarily posting a bond.

Vessel can continue fishing by voluntarily making a payment based on the amount of target species typically associated with the amount of overage species taken (using incidental catch rates) (variation on the deemed value system in New Zealand).

Vessel can continue fishing by voluntarily paying an amount based on the fish on board (similar to the deemed value system in New Zealand).

The payment and surrender options were rejected because they appeared to be punitive (required an action at the vessel's expense that would not be required in the normal course of meeting the objectives of the program). The option of a bond was rejected because it was not apparent that under the MSA the Federal government would have the authority to impose such a requirement.

Related to this element was an option the Council considered for auctioning off QP for overfished species. This option will be discussed at the end of the analysis of Element 6.

❖ *Interlinked Elements*

Element 1 –Trawl Limited Entry Permit Required to Participate

The number of nontrawl vessels able to harvest trawl QS will be constrained by the number of trawl permits not needed after the trawl fleet has consolidated. Thus, if this provision is changed to allow participation in the IFQ program without a trawl permit, there may be a substantial change in the

impacts of the gear switching opportunity provided by the scope of the program (Section A-1.1). This provision parallels the scope of the IFQ program, which covers harvest by LE trawl vessels (as defined by their possession of a limited entry trawl permit).

Element 2 – Vessels Required to Acquire QP

By requiring all QP be deposited to a vessel account in order to be used, this element interacted with the control accumulation limit. Vessel limits were set above the control limits and accumulation limits were originally specified to apply to both the QS and QP. Since a vessel's account would generally be considered under the control of the vessel owner/operator this created a discontinuity, it would be impossible for a vessel to reach the vessel limit without violating the control limit. Therefore, the vessel limits in Section A-2.2.3-e were respecified so that control limits applied only to QS and vessel limits only to QP.

Element 3 – Time Allowed to Cover a Landing (and Minimum Holding Requirement)

The 30-day period a vessel is allowed to cover its landings increases the possibility that the fleet could exceed its annual allocation (but not the multiyear average). The carryover provision provides some mitigation for this risk in that it reduces the incentive for vessels to use all of their QP. This has two closely related effects. First, it increases the probability that some vessel owners will have unused QP at the end of the year, decreasing the probability of an overage on the fleet allocation. Second, those QP may then be available, at the right price, for those with an overage to acquire during the 30-day settle up period. However, the carry-over provision itself creates some possibilities for annual overages. These possibilities are discussed in the section on that provision.

Element 4 – Fishing Restriction While In Deficit

If vessels with a QP deficit can only be restricted from participating in those fisheries that fall within the scope of the program, then there is an interaction between the scope of the program (Section A-1.1) and scope of the prohibition that can be implemented under this element.

The need for a catch and QP tracking system with rapid turn-around times is reduced if vessels are allowed to start on another trip immediately after completion of offloading. This can be achieved either by holding the vessel responsible for fishing while in deficit (even if the deficit has not yet shown up in its account) or by applying the restriction only when the deficit is recorded in the data system (making it legal for the vessel to fish until the deficit shows up in its account).

Element 5 – Transfer of Permits Prohibited While In Deficit.

There are no other provisions in the program that are strongly interlinked with this element.

Element 6 – Alternative Compliance Option

Element 6 does not interact with other provisions of the program, except indirectly through its impacts on other elements of this section. Element 6 may have implications for the effectiveness of those other elements, particularly with respect to meeting conservation objectives over the long term and the strength of the incentives vessels have to ensure that they are able to acquire the QP they need to cover their landings.

❖ Analysis

Element 1 – Trawl Limited Entry Permit Required to Participate

Requiring that a LE trawl permit be held in order for a vessel to participate in the IFQ program has implications for objectives related to conservation; net benefits, program costs, and complexity; and fairness and equity.

By limiting the number of vessels involved in the fishery, this requirement may limit the amount of gear switching that may occur and, therefore, have conservation implications, particularly with respect to habitat impacts. The impacts of gear switching are covered in Section A-1.1 and Section A-7.

If a greater number of vessels were allowed to participate in the fishery, program costs and complexity would increase, and net benefits might decrease, unless all program costs are borne by industry. An unlimited number of vessels would increase the number of accounts to track and could increase the diversity of alternative strategies in which the trawl IFQ is used. This could require the specification of more regulations for how opportunities for the use of trawl IFQs would be mixed with the opportunities provided under the general regulations for nontrawl gears. Most likely it would require a declaration procedure, and vessels would either have to be fishing under the trawl IFQ regulations or the regulations for the gear they use. Vessels fishing under the trawl regulations would have to be in full compliance with those regulations, including requirements to carry observers. The high costs of complying with the program alone might keep the number of participants low, even without the number of vessels being limited by the permit requirement. The number of vessels that participate in the fishery would not be a concern if all costs were privatized and born by the users in proportion to their responsibility for those costs. Under such circumstances, a larger fleet would occur only if that were the most efficient result. The market would allocate the QS out to the most efficient number of participants with the best mix of activities (from an efficiency perspective). However, it is unlikely that all costs will be fully born by the users. On the basis of the anticipated compliance and administrative costs, it is expected that restricting the number of vessels to the number of trawl permits will result in a program with lower total governmental costs.

The LE trawl permit requirement is also viewed to preserve equity with respect to one fleet's ability to access the allocation of another. On one hand, members of the trawl fleet felt that it would be unfair for others to have access to their allocation while they would not be able to access/purchase allocation given to other sectors. On the other hand, if an individual member of the trawl fleet gives its QS to a member of a different fleet, other members of the trawl fleet are not directly harmed so long as all QS holders participate and are responsive to the market for QS/QP (e.g., do not hold on to QS for strategic reasons unrelated to its most efficient use). Even with the LEP requirement, gear switching is allowed, and some nontrawl vessels will likely be able to participate in the trawl sector IFQ program by acquiring permits not needed by the consolidated trawl fleet. However, the ability of other fleets to participate will be limited by the number of surplus permits available after rationalization.

Element 2 – Vessels Required to Acquire QP

Requiring that QP be placed in a vessel account prior to use affects objectives related to conservation, net benefits, program costs, and fairness and equity.

If the QP did not have to be transferred to a vessel account in order to be used, then the data tracking system would have to be set up to allow each landing to be subdivided and counted against a variety of different QP accounts, increasing the costs of the program. Requiring that the QP be transferred to a vessel account breaks the link between the QS holder and the QP (except with respect to vessel owners

owning QS). That link could be preserved but it would require that data be kept to link eacH QP with the QS account from which it was originally issued. The effect on the complexity and cost of the data tracking system would be similar that of not requiring the QP be transferred to the vessel account in order to be used. Therefore, after QP is transferred to a vessel account the QS owners contributing that QP will lose control over it, except as they may be able to otherwise provide through private contract.

Because the QS holder is not held accountable for how the QP is fished and whether an overage is incurred, there is no incentive for the QS holder to ensure that it sells QP to a responsible vessel. A vessel could knowingly harvest an amount of fish that far exceeds the QP it holds in its account, then that vessel could be taken out of the trawl fishery and never cover the overage witH QP. The QS holder that transferred its QP to that vessel would be not be held responsible. Holding the QS liable for overages could increase self-policing within the fishery, but might also raise questions about fairness and equity with respect to the QS holder's responsibility for the vessel's actions.

Setting up a program in which QS holders that do not own vessels are not able to directly use their QP may be viewed as inequitable by some. However, as long as the providers of the QP have been fully compensated for the QP, there appears to be little reason that they should maintain some claim to those QP. If a QS holder, a crewmember for example, wants to retain control of the QP it receives until they are needed by the vessel, Element 3 facilitates that. By providing 30 days for the vessel to cover its landing, the vessel could contract with the crewmember for the QP to be provided as needed after a landing is made, and the crewmember would maintain control over the QP.

Element 3 – Time Allowed to Cover a Landing (and Minimum Holding Requirement)

The provision allowing 30 days to cover a landing has a bearing on objectives related to conservation, net benefits, program costs, sector health, and program performance. The B.C. groundfish trawl fishery allows 30 days; in New Zealand, 15 days are provided; and in Nova Scotia, 45 days are provided (Sanchirico, et al. 2005). The Icelandic system provides three days from the time vessels are notified they have an overage. After three days, the vessel's permit is suspended. Under the Council PPA, the vessel would have been given 30 days to cover its overage from the date of landing, regardless of when data were available indicating an overage had occurred. Additionally, the vessel would have been held responsible for ensuring that it never fished with an overage (see Element 4). Under Element 4, if it were detected that a vessel had fished with a deficit at any time, the vessel would have been subject to a notice of violation. Thus, in a sense it was more restrictive than the Icelandic system, which provides a three-day grace period. However, it was also more liberal in that the vessel could have carried a deficit for up to 30 days without being in violation of the program, so long as during that period it did not take part in any fishing that falls under the scope of the program. Under the Council's final preferred alternative, the vessel would be given 30 days from the time catch data show it may have an overage.

Ability to monitor and enforce this provision will be a major determinant of its impacts. Therefore, we will first discuss the relationship between this provision and monitoring and enforcement with respect to program performance and then look at different requirements and their impacts on other objectives.

- *Monitoring and Enforcement*

The IFQ program will require 100 percent at-sea monitoring (Section A-2.3.1). Complete monitoring is required because the QP is required to cover catch, including discards. QP for some species is likely to be quite expensive (overfished species), while the per-pound value of those species is relatively low;

thus, there will be significant incentive for vessels to discard overfished species if there is not full at-sea monitoring.

A program that requires QP be held at some time prior to offloading would allow a greater opportunity for enforcement activity during fishing or offloading activities. Enforcement officers in the field (USCG at-sea, or state or NMFS agents on the dock) could determine whether the vessel has sufficient QP to cover the fish on board at the time of interception. When violators can be detected and cited in the field, or shortly after a landing, enforcement actions can be taken more efficiently (e.g., the collection of needed evidence), and deterrence is created as information about citations made reaches the fleet rapidly. Thus, providing a 30-day period to acquire QP will make follow-up investigations more difficult, and information about later investigations may be slow to reach the fleet, reducing the deterrence effect of those enforcement actions. However, given the tight monitoring system, field enforcement will not likely increase the frequency with which violations are detected.

With a coverage requirement that provides little or no time after a landing for vessels to acquire the needed QP, if the consequences of the overage are economically significant (as might be the case for an overfished species) the vessel will have incentive to seek to under-report catch. For example, they might have more incentive to interfere with the observers' activities (e.g., discarding fish before the observer has a chance to identify and weigh them), put excessive pressure on observers by questioning the observers' measurements, or by other means. Allowing for delayed resolution of accounts (e.g., 30 days) will somewhat reduce incentives to underreport by providing vessels a longer opportunity to find QP at the lowest available price.

A program that requires some amount of QP be held prior to departing from port would add another rule that would have to be monitored and enforced. Specifying the mix of species that a vessel must have would be difficult, and requiring that vessels hold some minimum amount could reduce QP availability for those who need it. The reduction in QP availability could be a particular problem for overfished species. Under such a rule, it is likely that the species for whicH QP must be held would depend on where the vessel is intending to fish. This would be enforced either during at-sea boardings, or during after-the-fact matching of the vessel's fishing locations to the balances in its account before it departed. Such a requirement would add to program administration and enforcement costs. With strong monitoring of catch, it is not clear that a minimum holding requirement would add anything to encourage compliance and facilitate enforcement.

- *Conservation*

The conservation concern is whether this provision will increase the likelihood that the fleet might exceed its allocation of a particular stock and as a consequence all sectors taken together exceed the overall OY. Assuming that vessels fish without all the QP they need for a particular trip, providing a 30-day period to balance the QP account will create a lag time between when the last of the trawl allocation for the year is taken and when the last of the QP disappears from the market. The Council's FPA, which starts the 30-day clock from the point at which data on the overage is reported, rather than the time of landing, potentially creates a somewhat longer lag between catch and the time the QP to cover that catch is removed from the market. The additional lag will be the time it takes for data from a trip to be recorded in the data system. However, the prohibition on fishing for vessels with a deficit, and the high cost of QP when they are in short supply provide substantial disincentives for risky behavior, such as delaying until the last moment the acquisition of needed QP. Additionally, not allowing a vessel with a deficit to fish under the program ensures that over the longer term of a few years the fleet will not, on average, exceed its allocation (this could have changed if Option 1 or 2 of Element 6 had been adopted). The overage and underage aspects of the carryover provision will increase the probability that

the fleet as a whole does not go over its allocation in a particular year since vessels will not face losing QP (up to 10 percent) if they do not fish to the maximum in the current year. The Canadian system allows 30 days to cover an overage and has a carryover provision. There, trawl sector total allowable catches (TACs) are only occasionally taken and rarely exceeded. If that experience holds true for this program, there would appear to be little risk that OY would be exceeded due to vessels catching fish for which they do not have QP and then not being able to acquire the needed QP after landing. However, based on observations of the Canadian experience, the greatest risk in this regard will be for constraining species. If, on an annual basis, the trawl fishery approaches harvest levels that exceed their allocation, the Council will have to ensure that the provisions of the MSA are met with respect to annual catch limits. To do this, the Council may take action in advance or inseason. For example, buffers might be established in advance of the season (see discussion of this issue in the section on carry-overs (Section A-2.2.2-b)). During the season, if fleet catch for a particular species starts approaching the total trawl allocation, and significant amounts of target species QP for the year remain, there may be restrictions on fishing areas, e.g., expansion of the RCAs (Section A-1.3).

With respect to the minimum holding requirement that was considered, in particular for overfished species, the conservation benefits appear to be minimal given strong monitoring provisions and the difficulty in constructing such a requirement for a multispecies fishery. While potentially helpful in ensuring that a vessel could cover its landing of an overfished species, it would not be possible to set such a requirement at a level that would ensure a vessel could cover an unexpectedly high catch rate ("disaster tow"). The requirement could be set well below disaster tow levels, but this could make QP difficult to acquire for vessels that actually need it to cover a disaster tow. Additionally, maintaining the required amounts of minimum holdings would become even more difficult as the season progressed, and vessels used up the QP. If the minimum holding requirement were based on fishing areas or hot spots, it would encourage fishermen to stay out of those areas if they were unable to acquire the needed QP, as might particularly be the case toward the end of the season. However, with the scarcity of overfished species QP such areas could well become de facto closed areas. Given that major overages could result in restrictions on the fleet as a whole, and even lead to a derby atmosphere in the IFQ program, conservation concerns might better be addressed by closing the high bycatch rate areas rather than leave them available for fishermen willing and able to take the risk.

♦ *Economic Effects*

Providing a significant period of time after a landing to cover the catch might result in the following:

- Decrease the average price paid for the QP
- Provide greater business flexibility and increase the availability of QP on the market
- Improve the market function

The less time a vessel has between when it knows the exact composition of its trip and when it has to have the QP to cover that catch, the less time a vessel will have to search for QP at the cheapest price. Vessels in that situation are more likely to pay a higher "spot price" for the QP they need. To avoid paying those higher prices, a vessel is more likely to hold a larger QP inventory on the chance it might need it. This would reduce the amount of QP available on the market and result in even higher spot prices. Conversely, providing a longer time to acquire QP will allow vessels more time to search for the lowest available price and reduce their need to carry an inventory of QP. This would likely improve market function, particularly if markets for some species are relatively thin (meaning the amount of QP available for trade at any time is relatively limited).

In the extreme, a minimum holding requirement would require that a vessel have certain QP in its account before departing on a trip or entering into certain fishing areas (hot spots or depth zones). The

species for which a vessel would be required to hold QP would likely be those for which there are the fewest QP available and the greatest conservation concern (overfished species). As discussed in the section on conservation, requiring vessels to hold those QP on the chance they are needed would reduce their availability to those who have already encountered those species and need them to cover their catch. This would increase the QP price for the already expensive overfished species and may hamper the fleet's ability to take target species. If this provision were structured such that a vessel could meet this minimum holding requirement by entering into a risk pool with other vessels, the minimum holding requirement would likely drive more vessels into such pools. Given that these pools would be voluntary associations, those who had a reputation for encountering high amounts of bycatch or otherwise were not welcome in an association would likely face higher risks and higher costs. Thus, a minimum holding requirement might force those individuals out of the fishery more rapidly.

Element 4 – Fishing Restriction While In Deficit

Prohibiting a vessel from fishing while in deficit may have an impact on objectives related to conservation, net benefits, efficiency, program performance, and equity.

The prohibition on fishing while in deficit is expected to provide an incentive to vessels to cover their QP in a timely manner, including minimizing their risk of being caught in a situation in which they are unable to acquire QP. This strong incentive is expected to mitigate the potential negative effect of the 30-day time lag provided in Element 3 and thereby expected to promote conservation objectives.

Under the PPA, Element 3 would have allowed a vessel to go on another trip immediately upon completion of a landing, without waiting for an official resolution of its QP account balance. However, if, after the account balance had been resolved, it turned out that the vessel had gone fishing with a deficit, the vessel would have been subject to a notice of violation. The two concerns in this regard were the potential for an accounting error on the vessel's part, or an intentional flagrant violation by a vessel that had determined that it no longer wished to continue to participate in the fishery. Under the latter circumstance, a vessel might knowingly make as many trips as possible before the overage balance is detected. However, such activities would still be illegal and subject to prosecution. Because of the vessel monitoring system (VMS) system requirements and the requirements to carry an observer, it is virtually certain that once the vessel's negative balance became known, illegal fishing occurring during the period of that negative balance would be flagged, and a notice of violation would be issued, similar to the situation vessels are in under the current two-month cumulative trip landing limit system. Therefore it was expected that the restriction on fishing while in deficit could be effectively enforced even with the 30-day accounting lag of Element 3 and the allowance for vessels to continue fishing prior to an official determination of their account balance. Under the final preferred alternative, the Council modified the 30-day clock for covering an overage such that it commences once data are available showing that the overage exists. Application of this rationale to the "no fishing while in deficit" provision leads to the implication that a vessel should not be considered in deficit until the information is in the data system showing that a deficit may exist. This then opens a greater opportunity for vessels that suspect they are in deficit to make a last minute dash to catch additional fish before the deficit shows up in the data system, since such fishing would not be a violation of the program. In terms of an impact on conservation, with the tight monitoring and requirement that all overages be covered, there is little chance that a long-term conservation problem could be created by vessels that remain in the fleet, since these vessels would eventually cover their deficits witH QP. The greatest problem would be for vessels planning to leave the fishery; however, the incentive to engage in such last-minute fishing dashes would be minimized to the degree that harsher penalties might be expected for such irresponsible behavior. In addition to potential conservation concerns, last-minute dashes could also create an equity concern to the degree to which the additional fish taken would lead to the need to impose inseason constraints on the rest of the fleet (e.g., depth restrictions to reduce bycatch). The opportunity for last-

minute dashes will depend on the speed with which data on a particular trip are entered into the tracking system and whether vessels are allowed to go on a subsequent trip before all the data from their current trip are entered into the system.

Under the PPA, efficiency and net benefits were expected to be promoted by allowing vessels to estimate QP balances on their own and continue fishing directly after completion of an offload. Such flexibility was expected to reduce vessel operating costs and allow for the development of a catch-QP tracking system that is less costly and has a somewhat slower turnaround, but still performs well enough to meet industry needs. Under the final preferred alternative, the impacts of the no fishing provision will depend on whether vessels are allowed to go out on a subsequent trip prior to the resolution of the balance in their QP account and/or the speed with which data are put into the system. If, immediately after completion of a trip, vessels are allowed to go out on another trip, there will still be substantial flexibility for vessels to reduce operating costs, but irresponsible operators may generate adverse conservation and equity benefits, as described above. On the other hand, if a vessel cannot go out on another trip until data from its last trip are entered into the system, then flexibility would be reduced, and there would likely be pressure for a data system with faster turnaround times, a system that is likely to be more expensive.

Element 5 – Transfer of Permits Prohibited While In Deficit

This provision provides a disincentive for activities that might otherwise compromise conservation objectives. The purpose of prohibiting a vessel with a deficit from transferring its permit is to provide further incentives for a vessel to avoid the deficit and reduced opportunity to abuse the system. In particular, it puts additional assets at risk for a vessel that might decide to flaunt the system and maximize its catch before overages are detected. Thus it increases the vessel's risk exposure if it were to decide to engage in an illegal action. To administratively complement this requirement, no permit transfers would be allowed between the time of a vessel's landing and the time its QP account has been debited for that landing. Because permit values are expected to decline substantially with the imposition of an IFQ program, the disincentive provided by the potential loss of ability to transfer a permit will be lower than might be expected based on current permit values.

The impounding of QS and QP transfers while a vessel is in deficit was also considered. QS is not associated with a vessel, so there is no opportunity to freeze QS account transfers while account balances are being resolved, and the vessel may need its QP to generate revenue to acquire the QP it needs to cover the species for which it has a deficit. Freezing QP would also penalize other vessels by eliminating that QP from availability on the market, potentially increasing market prices.

Element 6 – Alternative Compliance Options

This provision is intended to address objectives related to fairness and equity, efficiency and net benefits, and sector health, but may also affect conservation objectives.

- Conservation

With respect to the conservation objectives, a potential negative impact of this provision is that a vessel, knowing there is a limit to the time it is off the water, might take advantage of this provision by intentionally fishing into a deficit and planning to rely on other fishing activities until such time as the Element 6 exception allows it to resume fishing (e.g., a vessel might fish its QP account into a large deficit, go to Alaska for two years, then return or sell off its permits after the fishing restriction has expired). When a vessel resumes fishing without having ever covered its deficit, then the conservation

objectives will not have been met unless there has been a buffer or some other measure that has kept total harvest within the OY.

The sliding scale option (Option 2) would provide a variable way for determining the amount of time that a vessel would be off the water and may provide some additional equity by being more responsive to particular circumstances, but would not avoid the possibility that fishermen will determine in advance the amount of time they would be off the water and accept that as part of the cost of their overage.

- Fairness, Efficiency, and Sector Health

The fairness and sector health concern is related to the relatively random nature of the encounters with overfished species. Under status quo management, the effect of harvest in excess of what is expected falls to the individual, but also across the entire fleet in the form of inseason reductions in cumulative limits. Additionally, the duration of the direct impact of the unexpected high harvests on vessels and the fleet is limited in that the cumulative limits start over every two months, and the fishery starts over each year with a new OY and fleet allocation. Under the IFQ program, the effect of random occurrences of high bycatch "disaster" tows may fall on a few vessels at a time, and, absent the exceptions provided in this element, the burden of making up for the random occurrences is not relieved at the end of a year. If the occurrence of high bycatch tows is truly random, there could be fairness concerns, as well as concerns about sector health and efficiency of the fishery. A few vessels could end up bearing the burden for a situation that is faced by the fleet as a whole. Further, if a certain number of vessels are sitting out every year waiting to accumulate enougH QP for a particular species in order to re-enter, a larger fleet may result (as an example, if the optimal fleet size is 70, and 7 vessels on average sit out every year, something close to 10 percent more capital might be dedicated to the fishery than is optimal).

Some vessels encountering overfished species may have substantial difficulty acquiring QP to cover their unexpected high bycatch rate because of the expected high cost of the QP. Given the uncertainty surrounding potential catch of overfished species, vessels with unused overfished species QP may withhold those QP from the market to ensure that they can cover their own needs. Vessels holding QP as insurance against a low probability event may create even more of a market shortage and higher prices.

Available information shows that there are more trawl tows that result in zero encounters of relatively rare overfished species (such as yelloweye, Figure A-117) than there are tows where there are substantial quantities. The encounters of overfished species may not affect most of the fleet since more vessels are avoiding them than not, but the implication to the individual who has an encounter may be quite large given the individual accountability of the trawl rationalization program.

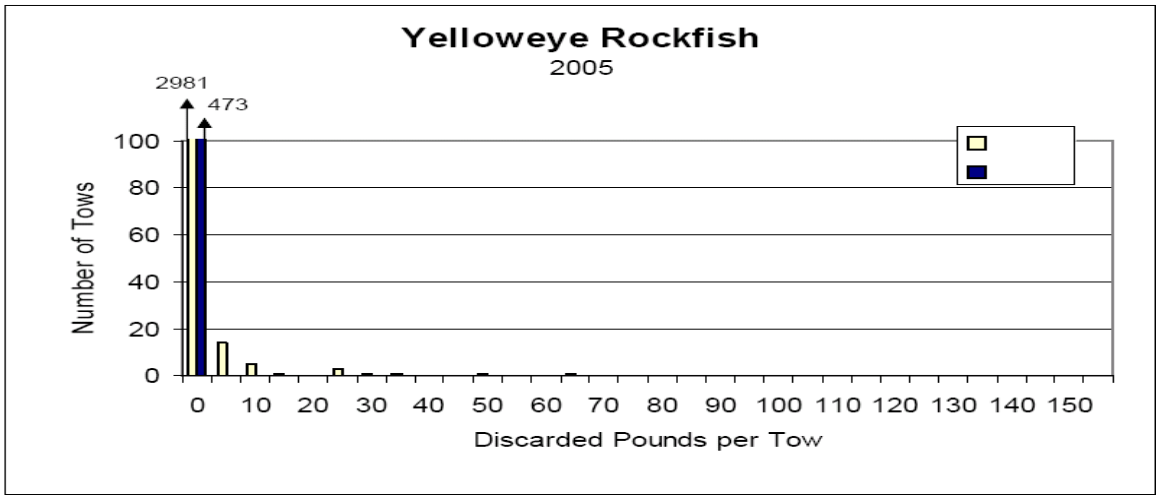

Figure A-95. Observed Discard of Yelloweye Rockfish in the Nonwhiting Trawl Fishery (note: at least one tow occurred in 2004 with > 100 pounds).

To outline the magnitude of the problem, the following scenario was developed. This scenario assumes that the nonwhiting trawl sector will be allocated 0.5 metric tons of yelloweye rockfish and that the number of participants in that fishery consolidates to 60 vessels. This means that there would be approximately three yelloweye rockfish available to each vessel. If each of those vessels intends to hedge against uncertainty by holding on to only one fish, the effect is that approximately 40 percent of the sector allocation is not available for purchase on the market. This reduces the chance that vessels with deficits can cover their catch by purchasing QP, and it increases the cost of purchasing QP because the supply on the market is lower.

	Available Quantity of Yelloweye under Initial Allocation	**Quantity Available on the Market if Hedging Occurs**
Pounds available to the sector	1,102	682
Pounds per vessel	18	11
No. of Fish per Vessel	3	2

The potential for unexpected overages will likely be exacerbated by the rebuilding paradox. The rebuilding paradox has to do with the lag time between when fish become more available to the fishery (more abundant in the catch) and when the increased abundance is detected and OYs appropriately increased. It results in greater than expected harvests. Under an IFQ program, it would mean less QP would be available than might be appropriate given the true stock abundances and encounter rates.

The primary equity and conservation concerns of this provision apply to overfished species that are taken incidentally along with target species. The provision, as currently worded, covers all species. It, therefore, may provide more of an exception than is necessary to address the identified objectives related to fairness and sector health.

To address this concern with respect to overfished species, the Council also considered but rejected the release of overfished species through an IFQ auction. Concern was expressed about the administrative cost and complexity, whether it would ultimately relieve price concerns about overfished species QP, and how vessels would be able to access QP as needed (before auctions occurred).

A-2.2.2 IFQ Annual Issuance

A-2.2.2.a Annual QP Issuance

❖ *Provisions and Options*

QP will be issued annually to QS holders based on the amount of QS held.[73]
As specified above, QS holders will have to transfer their QP to a vessel account in order for those QP to be used.

❖ *Rationale and Policy Issues*

Annual issuance of QP is in line with the annual setting of the OYs. Providing the IFQ as shares (QS) rather than absolute poundage provides flexibility so that reallocation is not needed as the OYs or trawl allocations change.

❖ *Interlinked Elements*

Numerous features of the program rely on this structure of the IFQ privilege (the issuance of QS witH QP issued annually to QS holders). Any change in this basic provision would require substantial reconsideration of numerous provisions and the redevelopment of the IFQ alternative.

❖ *Analysis*

Issuing IFQ as shares that then entitle the holder to annual harvest privileges (QP) is a means by which the Council "take[s] into account and allow[s] for variations among, and contingencies in, fisheries, fishery resources, and catches," as required by National Standard 6 of the MSA. Alternatives might be to issue IFQ anew each year (eliminating the benefits from long-term planning, increasing program complexity, reducing the opportunity to rationalize the fishery, and substantially increasing program costs) or issue IFQ that is valid across a number of years (increasing program costs and creating equity and reverse allocation issues[74]).

[73] Including QS that an entity received in excess of accumulation limits in place at the time of initial allocation (see Section A-2.2.3.e).

[74] Reverse allocation would be required if some QP have to be recalled because of declines in the amounts of fish available to trawlers for harvest.

A-2.2.2.b Carryover (Surplus or Deficit)

❖ *Provisions and Options*

To the extent allowed by the conservation requirements of the MSA, a carryover allowance will allow **surplus** QP in a vessel's QP account to be carried over from one year to the next or allow a **deficit** in a vessel's QP account for one year to be carried over and covered witH QP from a subsequent year. QP may not be carried over for more than one year.

A vessel with a QP **surplus** at the end of the current year will be able to use that QP in the immediately following year, up to the limit of the carryover allowance (see below). However, if there is a decline in the OY, the amount of QP carried over as a surplus will be reduced in proportion to the reduction in the OY.

A vessel with a QP **deficit** in the current year will be able to cover that deficit witH QP from the following year without incurring a violation if

(1) the amount of QP it needs from the following year is within the carryover allowance (see below), and
(2) the QP are acquired within the time limits specified in A-2.2.1.[75]

Carryover Allowance: There is a limit of up to 10 percent carryover for each species. This applies to both non overfished species and overfished species. The percentage is calculated based on the total pounds (used and unused) in a vessel's QP account for the current year. The percentage used for the carryover provision may be changed during the biennial specifications process. ***Note: This provision relates only to carry-over of what is in the vessel's account.***

❖ *Rationale and Options Considered but not Analyzed Further*

In order to understand how the carryover provision would work, it helps to revisit how the distribution and use of QP will work. Before the start of the fishing season and after the OY has been established, the trawl sectors will be allotted apportionments of the OY for each quota-managed species. The trawl sector portion of the OY will be distributed to QS holders. Each QS will be equivalent to a certain poundage for that year for each quota species (poundage will change from year to year if the trawl allocations or OY changes). The QP must then be transferred from the QS holder to a vessel. The QP is then associated with a vessel: the vessel is responsible for any QP overage or underage incurred, because it is at the vessel level where the catch accounting will occur. Any overage or underage is not linked back to the QS, and the QS holder the next year will be allocated 100 percent of the QP associated with the QS. In other words, a QP overage will not be deducted from the original QS holder's future QP. The responsibility for the overage stops with the vessel. The 10 percent allowable carryover for a vessel would be calculated based on all the QP the vessel held (used or unused) in its account for the entire season. "Used" QP is QP a vessel has used to cover catch (it does not include QP that was transferred into and then out of the vessel account).

The term "carryover" in this analysis refers to the vessel's QP that is either in surplus or deficit from one year to the next (it does not apply to QP remaining in the QS holder's account). A carryover provision would allow a vessel to keep a percentage of unfished QP (a surplus of quota pounds) for use the following year. If 90 percent of a vessel's QP is harvested in the first year, then that remaining

[75] Carryover of deficits provides some flexibility to use pounds from a year to cover a deficit from a previous year. Without a carryover provision, a vessel would still have to use pounds in a subsequent year to cover an overage but would incur a violation.

10 percent could be harvested in the second year in addition to whatever QP the vessel acquired in the second year (e.g., acquired from QP issued to QS held by the vessel owner). Conversely, the carryover provision would allow up to 10 percent over-harvest in one year to be covered by QP the vessel acquires in the following year (by QP from the vessel owner's QS or QP acquired from other QS owners). The carryover allowance for a vessel would be 10 percent of the used QP in its account at the end of the 30-day period that it has to cover any overage. Since a vessel must stop fishing as soon as a deficit is recorded, the amount in it account at the end of the 30-day period would be similar to the amount that will be in its account at the end of the year, unless it has been able to resume fishing by covering the overage. If the harvest in a year was equal to 110 percent of the QP in the vessel account, that 10 percent QP overage would be deducted from the following year's QP acquired by that vessel. QP surpluses could not be carried over for more than one year. If a vessel catches more than 10 percent in excess of its QP holding, it would still be required to cover its catch witH QP from a subsequent year, but it would also be subject to penalties for violating provisions of the program.

The Council could have chosen to allow carryover of surplus QP, but not deficit, or provide an asymmetrical carryover provision. An asymmetrical carryover provision is one where the carryover percentages would be different from each other. For example, Iceland allows a 20 percent carryover of a surplus and 5 percent "carry back" of QP to cover an overage (Sanchirico, *et al.* 2005). Additionally, carryover allowances need not be set at a constant level indefinitely. The Council specified the carryover provision to allow for changes to be made as part of the biennial specifications process. These changes might be made based on stock conditions and previous years' experiences.

The Council considered the carryover provision as a means of 1) decreasing the incentive to take the maximum harvest within a year by fishing as close as possible to individual annual limits and, in a multi-species fishery, provide more flexibility for fishermen to fully take the allowable catch on average across years, 2) decreasing the incentive to attempt to underreport when an individual does not have enougH QPs to cover catch, and 3) reducing the need to penalize fishermen for overages (if that overage is within the 10 percent carryover allowance). Additionally, the carryover provision imbues the asset (QPs) with usefulness over a longer timeframe than a single season.

This type of flexibility would be particularly useful in multispecies fisheries. In a multi-species fishery, it is highly likely that not all species will be fully exploited because the catch ratio of species to other species is imperfect.

Applying the QP carryover provision to QP in the vessel account and not at the level of the individual QS holders is expected to result in lower administrative costs than if QS holders were allowed to carry over unused QP. Applying a carryover provision to the QP issued to a particular QS holder would be quite expensive if unused QP had to be tracked back to the QS holder's account. Under such circumstances, instead of tracking just the QP balances in a vessel account, NMFS would also have to track from which accounts the QP was transferred. Further, when catch is taken, in addition to designating species, the vessel would have to designate how to distribute the catch against the QP in its account that comes from various QS holders. This tracking would add a layer of complexity to the tracking and monitoring component of the trawl rationalization program and would increase administrative costs. For this reason, the carryover provision would apply only to QPs held in a vessel account, and the vessel owner, not the original QS owner, would be responsible for any overage/underage occurring on that vessel.

The following options for the carryover allowance were considered but rejected:

- For all species (of which the carryover could be different percentages for overfished than for non-overfished species): 5 percent or 30 percent
- For overfished species only: no carryover

- For QPs that were never transferred to a vessel account: carryover would apply.

The range above and below 10 percent was rejected because of too little benefit (5 percent) or too much risk of overharvesting the fleet's annual limits (30 percent). The option of not having a carryover for overfished species was rejected because it is the overfished species for which the greatest flexibility may be needed. Applying the carryover to QP that was never transferred to a vessel account was rejected to encourage the use of the QP by increasing the incentive to transfer the QP to a vessel account. Ultimately, the Council adopted a provision requiring the transfer of all QP to a vessel account, making the possibility of applying a carryover provision to a QS holder account irrelevant.

To help meet conservation objectives, the Council included in its final recommendation a provision that would proportionally reduce the surplus carryover QP in a vessel account when there is a decline in the OY. For example, if an ABC/OY declines by 50 percent, all carryover QP would be reduced by 50 percent. If someone had 100 QP carried over to the coming year, they would instead have 50 pounds to carryover. Additionally, the Council retained flexibility by allowing the carryover provision to be re-examined and changed during the biennial harvest specifications process, as needed. The net impact of the carryover provision on the fleet's catch of its allocation would not be known until vessels have the opportunity to exercise that provision. Presumably, some harvesters will carry over a surplus and others a deficit. If many vessels carry over a large percentage of the QP for a particular species, then the Council may have to examine the collective effect of the carryover on attainment of conservation objectives and make adjustments to the carryover allowance in future years. While the Council believes that the carryover provision is not likely to result in the fleet exceeding its allocation, there is some chance that a fleet overage could still occur. In the face of this uncertainty, and uncertainty about the other mechanisms that may be in place to ensure fleet overages do not result in harvest in excess of conservation thresholds (e.g., buffers), the Council specified that this provision only be implemented by NMFS to the degree that would be permissible under the conservation requirements of the MSA.

❖ *Interlinked Elements*

Permit/IFQ Holding Requirement – The carryover provision will affect the timeframes in which the enforcement provisions are carried out. In the section on QP holding requirements, an exemption is provided such that a vessel may have a deficit in its QP account and not be in violation of the program, so long as the amount of the deficit does not exceed the carryover provision.

Individual Bycatch Quota – The carryover provision would not apply to IBQ species (Pacific halibut).

❖ *Analysis*

The carryover provision is anticipated to increase individual flexibility for harvesters/vessels and improve sector health. Therefore, the carryover provision affects the achievement of objectives related to MSA National Standard 5 (consider efficiency), Groundfish FMP Goal 2 (maximize the value of the groundfish resource as a whole), and Objective 2 of Amendment 20 (provide for an efficient groundfish fishery).

Conservation	Net Benefits	Disruption	Excessive Shares	Fairness and Equity	Sector Health	Labor	Communities	Small Entities and New Entrants	General Public	Program Performance
	X				X					

This section will focus primarily on the impacts to individual harvesters, links to enforcement issues, collective impacts at a sector level, and market and conservation implications. The carryover provision is related to the sector health goals and objectives. Those effects will be reviewed here in the context of impacts on harvesters (vessels) and sectors.

- Impacts on Individual Harvesters (Vessels) and Enforcement

  - *Carryover of a deficit*

At the start of a season, QPs of varying amounts for various species would be registered to a particular vessel. Once that vessel harvests more pounds of a certain species than the poundage held in the account, the vessel is anticipated to buy QPs from another vessel or QP holder to cover the catch. While midseason quota purchases/transfers can facilitate coverage of catch, as the season progresses there would be fewer QP available for transfer. Near the end of the fishing season, there may be little or no quota available for purchase or lease to cover overages for certain species.

The carryover provision would allow a vessel to avoid a penalty for overages of up to 10 percent of the total QP a vessel holds for a particular species. A vessel could cover a deficit with future QPs until the following year's QPs are calculated, issued to a QS holder, acquired by the vessel, and placed in a vessel account.

Counting the catch against the following year's QP provides flexibility while still holding the vessel accountable for exceeding its QP holdings. The carryover allowance reduces the incentive for vessels to attempt unmonitored discarding (NRC 1999), and is, therefore, a useful provision for both management and enforcement. Despite the carryover allowance, a vessel is still not allowed to continue to fish under the IFQ program if it has a deficit in its account (Section A-2.2.1).

Some vessels may choose to view the quota poundage in their accounts plus the 10 percent overage allowance (carryover of a deficit) as their target harvest amount. However, this would require fishing close to the point where penalties would be incurred for overages and would risk going beyond the 10 percent carryover. Hitting the 10 percent overage exactly would be made particularly difficult by the requirement that a vessel must stop fishing as soon as it has a deficit for any of the species covered by the IFQ program. If a vessel would want to fish into its allowance for a deficit carryover, it would have to fish as close as it could to the amount of QP it holds and then target an amount for its next tow that would take it over its QP holdings but not risk going over those holdings by more than 10 percent

(unless it was relatively certain it could go to the market to acquire additional QP to cover an overage of more than 10 percent). For those wishing to avoid penalties, the carryover provision provides the vessel with a cushion – to attempt to fully harvest each year's QPs without incurring penalties from small overages or business losses from leaving fish "on the table."

With no carryover provision, vessels could attempt to utilize QP fully by transferring QP among themselves. Full utilization of their QP portfolio would likely be achieved through a combination of their own harvest and the sale of QP to vessels needing it to fill out a trip. However, unless the QP market is highly liquid, and the transfer costs are low, it is likely that not all QP for all species will be harvested. Given limited QP liquidity and transfer costs, the carryover provision provides the harvester with some additional flexibility to more fully utilize their QP allocation without transferring QP to others. This provision is most likely to come into play at the end of the fishing season when there may not be enough quota to cover the catch of the various mixes of species either in an individual's account or on the quota market. The advantage that vessels would gain from being able to hold QP over from one year to the next creates a disadvantage to vessels looking to acquire QP to cover their catch. Absent the carryover provision, it would be more likely that vessels with surplus QP would release those QP onto the market. With a carryover provision, they are more likely to hold onto surplus QP for use in the following year.

Any overage one year reduces the QP available to the vessel in the following year. Thus, the advantage a vessel might gain if it fished at the 110 percent level the first year would be at the cost of lost flexibility in all future years until such time as the vessel had an underage. Table A-78 shows an example for a series of years of harvest for a vessel that acquires 100 pounds of QP each year and makes use of the overage provision. In the first year of the series (2011), a 10 percent overage is shown, and the vessel harvests 110 pounds. In the following year (2012), it acquired 100 pounds, but 10 pounds must go to pay back the 2011 debt, so it can only harvest 90 pounds, unless it acquires more than 100 pounds in 2012 or chooses to incur another overage. In this example, the vessel does not incur another overage in 2012. However, in 2013, it repeats the 2012 season with a 10-pound overage, taking a total of 110 pounds, and in 2014 it pays back the 2013 overage, but also incurs a 10 percent overage for the second year in a row. In 2014, the vessel's harvest is limited to 99 pounds. The vessel can continue to acquire 100 pounds a year and catch close to 100 pounds a year indefinitely (as illustrated for 2014 through 2016) making use of the carryover provision, but it will not be able harvest more than about 100 pounds until such time as it has a year in which it harvests substantially less than the 100 pounds it acquires each year (or until it acquires more than 100 pounds in order to pay back its deficit).

Table A-79. Example—carryover of QP overage.

	2011	**2012**	**2013**	**2014**	**2014**	**2015**
QP Acquired by the Vessel During the Year	100 lbs.	100 lbs	100 lbs.	100 lbs	100 lbs	100 lbs
QP Available for Use in the Year	100 lbs	90 lbs (100 – 10)	100 lbs	90 lbs (100 – 10)	91 lbs (100 –9)	90.9 lbs (100 –9.1)
Overage	10%	0%	10%	10%	10%	10%
QP debits for year (catch for the year)	110 lbs.	90 lbs.	110 lbs.	99 lbs.	100.1 lbs.	99.99 lbs.

♦ *Carryover of a Surplus*

Vessels with unused QPs from one year would be able to use those QPs, up to 10 percent of that vessel's total QPs, in the following year. The 10 percent unused QP is applied to the vessel account and

would not go to the QS holder. If the OY for a species should be reduced (due to a point of concern or other inseason stock issue), the individual carryover percentage would also be reduced by the same proportion to help achieve the conservation of that species while still providing flexibility to the harvester. This reduction would equally affect all vessels that carried over a surplus of QP. Vessels will know before the end of one year if there will be a reduction in the following year. Anticipation of a reduction in OY could create an incentive for vessels to use up QP before the end of the year rather than carrying over a surplus and having that surplus reduced as a result of the OY reduction.

Because this is a multispecies fishery, it is likely that for any single vessel several species would be under-harvested in any particular year, and, as a result, there would be carryover of a QP surplus. Allowing a vessel to carry over a portion of its unused QPs from one year to the next would decrease the incentive for the vessel to attempt to take its full QP holdings and hence decrease the risk of exceeding those QP holdings. By increasing the probability that a vessel will have surplus QP in its account and the likely size of those surpluses, the provision allowing carryover of a surplus may help balance out the carryover of deficits such that the fleet as a whole does not exceed its annual allocation and that groundfish conservation objectives are met.

The carryover provision would not allow pounds to be carried over for more than one year. Underages could not be allowed to accumulate across many years, such that potential harvest might far exceed the target in some future year. Like Table , Table provides an example for a vessel that acquires 100 pounds of QP every year; however, in this case, the vessel is mainly making use of the provision that allows it to carry over an underage. In the first year (2011), the vessel takes only 90 pounds and, therefore, has 10 pounds left over. In the second year, it also makes use of the carryover provision, acquires 100 pounds, taking 10 pounds of QP from the previous year, and leaving 10 pounds unused. Its total harvest in the second year is 100 pounds. Because overages cannot be carried over for more than one year, it cannot accumulate more than 110 QP in its account (unless it increases its annual acquisitions to more than 100 pounds). In this example, the vessel uses its entire QP balance in 2014, runs a surplus in 2015, then uses its surplus in 2016 and runs a deficit, using QP from 2017.

Table A-80. Example—carryover of unused QP.

	2011	**2012**	**2013**	**2014**	**2015**	**2016**
QP Acquired by the Vessel During the Year	100 lbs.	100 lbs	100 lbs.	100 lbs	100 lbs	100 lbs
QP Available for Use in the Year	100 lbs	110 lbs (100 + 10)	110 lbs (100 + 10)	110 lbs (100 + 10)	100 lbs	110 lbs (100 + 10)
Unused QP	10% of 2011 QP acquisitions	10% of 2012 QP acquisitions	10% of 2013 QP acquisitions	0%	10% of 2015 QP acquisitions	-10% of 2016 QP acquisitions (fishes on 2017 QP)
QP debits for year (catch for the year)	90 lbs.	100 lbs.	100 lbs.	110 lbs.	90 lbs.	120 lbs.

QP not associated with a vessel would be zeroed out at the end of the year (e.g., QP held by a crew member, processor or community that have not been transferred to a vessel would not be carried over). In order for a surplus to be eligible to carry over to the following year, the QP would have to be transferred to a vessel's account. As discussed in the section on rationale, this creates an incentive to transfer QP to vessel accounts. Additionally, when the Council took final action, it decided to require that all QP be transferred to a vessel account during the year.

- Impacts on Trawl Sectors

♦ *Effect on Total Harvest*

In any particular year, the trawl sector could collectively harvest either more or less than its sector allocation for a species, if enough vessels use the carryover provision in the same way (i.e., many carry over a surplus or many carry over a deficit). If the collective result is that the sector as a whole carries over a surplus QP, this could result in underharvest of the ABC/OY in one year, and a carryover of a surplus can become an amount in excess of the sector allocation in the following year, if the fleet takes its full allocation plus the carryover. This possibility will have to be integrated with the future FMP amendment for establishing annual catch limits (see below – Effect on Flexibility). However, it may also develop as a onetime deferral of harvest, as has occurred to a certain degree for some species in the B.C. trawl fishery. In the B.C. trawl fishery, harvesters consistently carry over QPs for many species from one year to the next. Often, it is as much as 30 percent. This means that for those species about 70 percent of the current year's groundfish is harvested (rather than the full allocation), and 30 percent of the previous year's allocation (the surplus carried over) is also harvested. If the same behavior occurs in the west coast trawl fishery, as much as 10 percent of some species may go unharvested in the first year only; in each subsequent year, that 10 percent would be harvested in the next year along with 90 percent of the current year's QSs. In other words, 100 percent of the ABC/OY trawl allocation would be taken in year 2 and beyond, although the allocation would come out of two different years.

♦ *Effect on Flexibility*

MSA specifies an annual catch limit that cannot be exceeded in any given year without invoking the "overfishing" label. However, the groundfish FMP has not yet been amended to comply with the annual catch limit requirements. Conceivably, the FMP amendment to address ACL could contain buffers or multi-year nuances that would allow the carry-over provision to function on a year-to-year basis while not violating annual limits. Any carryover amount would either have to be under the annual catch limit to keep the fishery in compliance with the MSA, or the FMP amended to show how the carryover of any underage or overage meets the conservation and rebuilding targets without causing overfishing. Those species that currently have an OY set equal to the ABC and that are predominantly caught in the trawl fishery might be especially problematic and include the following:

Species with OY set to ABC
Yellowtail rockfish
Shortbelly rockfish
Black rockfish (WA and OR/CA)
English sole
Arrowtooth flounder

For overfished species, OYs are set below ABCs and harvest in excess of the OY might be allowed in a single year but not on average, so long as the rebuilding plans are revised to take into account the potential overage and ensure that rebuilding targets are not compromised.

A carryover provision might help address the problem created by the rebuilding paradox, depending on how quickly science and management are able to catch up with conditions on the grounds. Under the rebuilding paradox, the lag between when a stock makes rebuilding progress and the adjustment of management restrictions to reflect the increased biomass creates a situation in which fishermen encounter a rebuilding stock at higher rates before management measures can be relaxed based on the stock's improved health. Under such circumstances, the need for QP to cover overfished stocks that are

caught incidentally will increase prior to the time catch limits are increased to accommodate increased retention. This mismatch between management measures and conditions on the grounds would create a shortage of QP. Some of that shortage might be covered by fishing on a subsequent year's QP, however, unless OYs are increased in the following year, the deficit fishing in a current year will reduce supply in a subsequent. This fluctuation in supply will impact markets, as described in the following section.

● Impacts on Market Conditions

Carryover provisions affect the markets through two related mechanisms: the nature of the QP as a commodity and the amount of QP supply available in a year.

In terms of the nature of the QP commodity, without a carryover, the value of the QP goes to zero at the end of the year. Thus, at the end of the year, there would be no incentive to hold on to unused QP, and all QP would likely be released into the market. With a carryover, up to 10 percent of the QP will have some value for use in the following year. In particular, for overfished species that may be high-priced and relatively unavailable, even if the end of year prices are very high, vessels may hold on to overfished species QP as insurance against the consequences of a disaster tow in the following year (see the analysis on Element 6 in Section A-2.2.1, for additional discussion of this issue). Thus, with a carryover, those witH QP that could be sold would have more to lose buy selling the QP than if the QP expired at the end of the year; with a carryover, the sale of QP will entail the loss of opportunity for its future use, while, without a carryover, sale of unneeded QP would not entail any lost opportunity with respect to its use in the following year. Whether the price is higher or lower as a result of this change in the nature of the commodity will depend on the balance between the effect of the carryover on nature of the commodity and its effect on the total supply of QP at particular points in time.

The other main market implication of a carryover provision is its effect on variability in the short-term supply or short-term price fluctuations. As an example, the opportunity to cover QP overages witH QP from a following year increases the total QP available in the first year, but any increase in the amount consumed in one year will result in a decreased availability the following year (across all years there is not a net increase in the total supply). Thus, with a carryover, there may be a wider swing in the total amount of QP that may be available to the market in any particular year.

● Impacts on Conservation of the Resource

Without a carryover provision, any fish that are unharvested one year would remain to contribute to biomass, but the underage would be accounted for in stock assessments, and some subsequent increase in allowable catches would be expected.

Carryover provisions might also have some biological risks and potential benefits. One benefit is that vessels may be more likely to choose to avoid harvesting 10 percent of certain species, thereby giving themselves a buffer in the following year against accidental or unanticipated catch. Under such circumstances, some of the fish are left in the water a year longer, allowing them to continue to contribute to biomass. Without a carryover provision, vessels would be trying to fish as close as they could to their maximum allowable harvests without incurring a violation. On the other hand, if fish are removed earlier through fishing on QP from a subsequent year, there may be an increment of adverse impact on biomass. However, either way, because carryovers are limited to one year, and a surplus or overage one year simply either increases or decreases what can be harvested in the subsequent year, and because of the generally long-lived nature of the groundfish species, relative to achievement of target harvests under status quo management, the impacts of a carryover provision on stock conditions are not

expected to be significant. On average, the annual targets for removals and harvest thresholds such as ABCs will not be exceeded; at worst, there is a onetime advance or delay in 10 percent of the harvest. For overfished species, meeting the annual targets on average and the onetime advance or delay may be permissible if the policies are taken into account in the rebuilding plans.

This concept of hitting the target harvest amounts "on average" is complementary to the OY concept. The OY is a target to be achieved over the long term. One exception is for rebuilding species where the OY is a hard cap that should not be exceeded in a given year, unless accounted for in the rebuilding plan. If the carryover provision is applied to rebuilding species QP, as indicated, rebuilding plans may have to be amended. For healthier groundfish stocks (where OY is set below ABC), there may be more management flexibility to allow OY overages so long as the OY is achieved on average. Whether the carryover provision is appropriate for a particular stock will depend on whether the OY is set below the ABC and, for overfished species, on whether the carryover provision is accounted for in the rebuilding plan. Currently, there are only three nonoverfished species that are covered by the final scope of the IFQ program and for which the OY is set equal to the ABC: yellowtail rockfish, English sole, and arrowtooth flounder (for all other species, the OY is set below the ABC, creating an opportunity to use the carryover provision without violating MSA standards).

Managing the trawl fishery by achieving the OY "on average" could also be facilitated by creating a buffer for the trawl sector, a general buffer to cover overage by any sector (including trawl), or a two-year or a multi-year OY/ABC. These considerations must comply with the MSA and will be explored further during the development and analysis of Amendment 23 - Annual Catch Limits (ACL) for the groundfish fishery. At one extreme, to achieve the needed buffer, the OY could be set far enough below the ABC to accommodate the possibility of all vessels harvesting in a single year the 10 percent carryover from the prior year, plus all the QP for the current year, plus the 10 percent overage to be deducted from the following year. That would be one extreme. The other extreme would be that all vessels under-harvested all species each year by 10 percent and never sought to harvest the surplus of QP in the following year, creating a 10 percent surplus in the first year, but taking the target amount of harvest in each subsequent year (90 percent plus 10 percent carryover from the previous year). It is likely that neither extreme will be the actual situation, although all possibilities will be analyzed in the ACL FMP amendment. In addition, stock life history characteristics[76] should be considered, as well as a strategy for incorporating new stock assessment information in the middle of a management period. While an OY could be set for a multi-year period, QPs would be issued annually. The GMT suggested that the carryover QP could be reduced by the same percentage that the OY is reduced to address the concern that the carryover has the potential to be detrimental to stock management if there is a substantial reduction in OY from one year to the next. In the B.C. program, managers reserve the right to retract or alter the carryover QP if necessary for conservation purposes. The Council included in the final preferred alternative the ability to reduce the individual carryover of surplus QP by the same percentage as the OY is reduced for that species, as well as adjusting the carryover through the biennial harvest specifications process.

● Other IFQ Programs with a Carryover Provision

Several domestic and foreign IFQ programs utilize a carryover tool to provide increased flexibility to individual harvesters and allow for various fishing strategies. Typically, QPs carry over for only one

[76] Faster growing stocks with shorter mean generation times and fewer age classes should probably be managed with shorter OY periods. The most constraining rockfish stocks on the west coast (i.e., cowcod, canary, and yelloweye rockfish) have many age classes in their populations and might be better managed with longer OY periods. Factors such as mean generation time and recruitment variability may be important considerations in selecting a risk-averse multiyear OY period.

year due to administrative/tracking burdens and biological risks of extending carried over QP for several years.

Some carryover provisions are symmetrical where the percentage that can be carried over or carried back is the same. For example, the Southeast Australia trawl fishery has a symmetrical carryover provision, which started at 10 percent and later increased to 20 percent.

Iceland has an asymmetrical provision where a 20 percent underage can be carried over, but only a 5 percent overage carried forward. In the Icelandic management program, about 60 percent of harvesters carry over a surplus while only about 10 percent carry over a deficit (Sanchirico, *et al.* 2005). A general pattern in QS management programs is that the carryover provision for a surplus is used to a greater degree and to a larger volume than the carryover provision for a deficit.

Nova Scotia had a graduated carryover schedule that depended on the total overage amount. As the total overage amount grew, the greater the number of next year's QP it would take to cover one pound of overage. For example, if the overage was in excess of 20 tons, three QP from the next season would be carried back to cover one QP of overage. However, due to a court case that deemed those graduated ratios as overly punitive, the Nova Scotia program has since reverted to a one-to-one ratio.

New Zealand no longer has a 10 percent carry-back provision, and now overages must either be covered by purchasing QP within the same fishing season/year, or by making a payment based on the deemed value of the overage.

The North Pacific region of the U.S. has a number of IFQ, cooperative, and rationalization programs, but only one has a carryover provision. The halibut and sablefish IFQ program, the first to be developed in the North Pacific, has a 10 percent carryover provision for both surplus and deficit quota. All subsequent rationalization programs in Alaska, including pollock cooperatives, Community Development Quota, crab rationalization, rockfish pilot program, and the head and gut trawl catcher/processor LAPP, do not have carryover provisions. Applying the carryover/under to halibut/sablefish QS has proven difficult to implement. In the halibut/sablefish regulations, the carryover provision is required to follow the QS. Because QS and QP can change hands many times throughout the year, it is not simple to follow the QS, determine how they are fished, and then deduct or add on carryover pounds to the following year's QS. Furthermore, the carryover/under calculation is not done until the TAC is established by IPHC in late January, which delays the ability of fishermen to sell QS because they are not able to tell the buyer exactly how many surplus or deficit QPs are tied to the QS until close to the start of the season. The administrative burden of the carryover provision in halibut/sablefish is high, due to the structure of the carryover provision and the timing of the catch reporting and annual quota issuance. This IFQ program is specifically designed to avoid the need to track QP back to QS holders, and, for that reason, the carryover provisions only apply to QP in a vessel account.

The groundfish trawl fishery in British Columbia has similar species and gear types to the U.S. west coast groundfish LE trawl fishery. The British Columbia individual vessel quota (IVQ) program has a symmetrical 30 percent carryover provision for most species. Anecdotal accounts report that most harvesters attempt to carryover the full 30 percent each year for many species. Species with low TACs have low or no overage allowances. If catch exceeds the allowed overage, QP must be obtained to match the catch overage within 30 days or before the next fishing trip. Until the catch overage is covered by the QP in the fishing area where the overage occurred, the fisherman is restricted to mid-water trawl fishing for the remainder of the fishing year.

In the B.C. system, anyone owning a vessel license is allowed to carry over a surplus or deficit up to 30 percent of pounds held.[77] In the instance where catch exceeds the allowed carryover of a deficit, catch can be retained, but the revenue from that catch must be relinquished to the Canadian Groundfish Research and Conservation Society, an organization that conducts research for the benefit of the fishery. The Society is responsible for securing the monies owed. In addition, the pounds of fish caught in excess of the overage allowance are deducted from next year's allocation. The B.C. experience has been that penalties for violations of carry-back provisions have only been assessed twice in the past seven years. The British Columbia Groundfish Trawl Management Plan can be accessed through: http://www-ops2.pac.dfo-mpo.gc.ca/xnet/content/.

The following table indicates that the B.C. fleet under-harvested targets far more often than they exceeded targets. The number of TACs exceeded and the amount by which they were exceeded are significantly lower in the last three years, as compared to the first three years of the program.

Table A-81. British Columbia Groundfish Total Allowable Catch Overages.

Fishing Year	Number of TACs	Number Exceeded	TACs Exceeded - Species (Percent Over)
'97-'98	54	3	Silvergray Rockfish, Area 5C/D (3.34%) Pacific Ocean Perch, Area 5E (1.04%) Roughey Rockfish, Coast wide (10.30%)
'98-'99	52	5	Yellowtail Rockfish, Rest of Coast (0.11%) Silvergray Rockfish, Area 5C/D (2.62%) Pacific Ocean Perch, Area 5E (4.79%) Pacific Hake, Coast wide (7.72%) Pacific Hake, Joint Venture (10.33%)
'99-'00	52	5	Yellowtail Rockfish, Area 3C (5.40%) Yellowtail Rockfish, Rest of Coast (3.61%) Silvergray Rockfish, Area 5E (3.12%) Pacific Ocean Perch, Area 5E (3.65%) Pacific Hake, Joint Venture (4.00%)
'00-'01	53	2	Yellowtail Rockfish, Rest of Coast (4.78%) Pacific Ocean Perch, Area 5E (2.92%)
'01-'02	53	2	Yellowtail Rockfish, Rest of Coast (0.77%) Pacific Ocean Perch, Area 5E (2.92%)
'02-'03	54	1	Yellowtail Rockfish Area 3C (0.87%)
'03-'04	54	3	Silvergray Rockfish, Area 5E (7.80%) Pacific Ocean Perch, Area 5E (2.43%) Sablefish, coast wide (8.32%)
'04-'05	55	2	Silvergray Rockfish, Area 5A/B (1.24%) Pacific Ocean Perch, Area 5E (10.86%)
'05-'06	56	1	Pacific Ocean Perch, Area 5E (4.00%)
'06-'07	58	1	Pacific Ocean Perch, Area 3C (11.13%)

Source: http://www-ops2.pac.dfo-mpo.gc.ca/xnet/content/Groundfish/GFTrawl/GfTrawlInfo.htm

The TACs are adjusted each year based on the previous year's overage or underage. Thus the yellowtail rockfish TAC that was exceeded in the 2002 to 2003 fishing year had been reduced by an amount equal to 2.92 percent of the 2001 to 2002 TAC (if the 2002 to 2003 TAC had not been adjusted downward due to the previous year's overage, the harvest would have been within the unadjusted 2002 to 2003 TAC).

[77] Overages are set lower for some species including hake (15 percent), Pacific cod in certain areas (0 percent), and halibut (15 percent underage, 0 percent overage) to safeguard against an undesirable deviation from the TAC.

Because there is 100 percent observer coverage in the Canadian system, the small percent overage estimates are more likely to reflect actual overages than would be the case if such an estimate were derived for the current U.S. west coast bottom trawl fishery.

Social Benefits versus Net Economic Benefit Trade-Off

This section summarizes the effect of the carryover provision by looking at it from the perspective of the impacts of not having a carryover provision.

Without the carryover provision, the following would occur:

- There would be less flexibility, and it would be more difficult for harvesters to take all of their own QP without risking overages and penalties. Alternatively, they may reap some benefit from most of their QP and avoid the risk if, as they reach their limits, they sell their left over QP rather than trying to harvest it.
- If there are more overages, more penalties would have to be imposed. There would be associated enforcement and administrative costs with these other penalties.
- There would be a downward influence on the end-of-year QP price due to their expiration at the end of the year (no one would hold on to QP in anticipation of being able to use them in the following year).
- Supply of QP in a year would be more consistent because QP could not be moved between years. [With a carryover, more QP made available on the market and used one year would mean less available on the market in the subsequent year. Greater fluctuation in supply would tend to influence more price fluctuation, with prices being lower some years and higher others.]
- Adjustments to OYs, trawl allocations, buffers, and rebuilding plans would not be required to keep the system in compliance with the MSA.
- Any surplus QP from one year would not be taken in the next year and would be left to contribute to ecosystem processes.

A-2.2.2.c Quota Share Use-or-Lose Provisions

❖ *Provisions and Options*

This section was deleted from the final preferred alternative but the numbering is being maintained as a placeholder so as not to change section numbering and corresponding references in the analysis. Since the Council spent a considerable amount of time considering this issue, the rationale for its action and analysis is preserved here.

Before its deletion, the provision was as follows:

None. The need for this provision will be evaluated as part of the program review process, and the provision could be added later, if necessary.

❖ *Rationale and Policy Issues*

A use-or-lose provision would require that QS (converted to QP) be actively fished within some time period or the QS would have to be surrendered (possibly to be reallocated). While there was a strong desire to include methods to ensure that available QP would be used, no use-or-lose provision was included in the IFQ alternative because of effectiveness and tracking and monitoring obstacles. In the PPA, despite there being no use-or-lose provisions, the section was left in as a signal of the Council's strong concern about this issue and intent to evaluate it during the five-year review process. At that time, based on program performance, it would reconsider whether the administrative costs of such a provision would be worth bearing. When it adopted its final preferred alternative, the Council decided not to highlight this issue over others that would be evaluated during the review process. Therefore, it directed that this section be removed.

Concerns motivating consideration of this provision stem from a desire to ensure that one of the primary Council goals for the groundfish fishery is met: full utilization within biological constraints. A use-or-lose provision would prevent the reservation of quota by persons who may not use it for a variety of reasons including withholding QP for key species in order to exert market leverage, or withholding QP to impose more restrictive conservation measures than those determined by the Council and NMFS to be necessary to achieve OY levels. Nonuse of QS/QP may adversely affect objectives for the IFQ program related to net benefits and efficiency, fairness and equity, sector health, labor opportunities, community benefits, impacts on small entities, and new entrants. While the Council has not adopted a use-or-lose provision at this time, it is the Council's intent that the Federal government, acting under the authority of the MSA, not abdicate its role in determining the appropriate level of removals.

A number of use-or-lose provisions were considered for inclusion in the current program, but were rejected because of tracking costs; absent an adequate tracking program, it would be easy to evade the use-or-lose provision. For example:

- Use-or-lose Provision: Require a minimum amount of QS/QP usage to retain ownership (e.g., some minimum poundage landed within x number of years to keep active status), otherwise the QS is revoked and redistributed (e.g., the QS could be divided among the active participants proportionally to their QS holdings, allocated to new entrants, crewmembers, etc.). Time periods considered included use in at least one in three years and in at least three in five years.

In deciding not to pursue development of a use-or-lose provision at this time it was noted that the accumulation limit provision would make it somewhat more difficult for a single entity to acquire and not use significant amounts of QS/QP. However, there was still some concern that multiple entities

might acquire QS/QP and withhold use in concert with one another. It was also noted that once the program is in place it may become more difficult to add a use-or-lose provision.

❖ Interlinked Elements

There are certain provisions of the program that make the use-or-lose provision more of a concern than it might otherwise be. One of these is the rule on who is eligible to own, which is specified so as to include many who do not have direct links to the fishery. It had been suggested that this provision might be narrowed to reduce that concern. The TIQC recommended achieving the intent of a use-or-lose provision by adding a new provision to the IFQ alternative that requires that all QSs be assigned to a vessel with a LEP. The rationale was that while it would not require the vessel to fish that quota, the need to obtain cooperation from the vessel owner in order to own and withhold shares could still serve as a partial, though not insurmountable, deterrent. There was also mention of including processors in the group eligible to own QS. However, this recommendation would run counter to a significant feature of the program, the facilitation participation by crew and communities though QS ownership.

Also making the need for a use-or-lose provision a concern is the question of whether the QS control limits will be effectively enforced.

While a use-or-lose provision penalizes non use, a carryover provision for underages (Section A-2.2.2-b) would be designed to accommodate non use. If both use-or-lose and carryover provisions are included in the program, nonuse threshold levels for the use-or-lose provision would have to be set to accommodate carryover provisions. Carryover provisions may be an important part of an effective IFQ program because in a multispecies fishery, catching almost 100 percent of all QP without exceeding some QP holdings would likely be impossible.

To encourage use, the Council added a provision requiring that all QP be transferred to a vessel in the year for which they are issued.

❖ Analysis

The use-or-lose provision affects conservation and socio-economic objectives (e.g., efficiency, sector health and communities).

These will be covered in the following sections:

- Likelihood of Nonuse
- Conservation
- General Socioeconomic Objectives
- Program Costs and Effectiveness
- Experiences in Other Programs

● Likelihood of Non Use

The concern that entities might acquire and hold significant amount of QS is partially mitigated by the control accumulation limits, if they can be effectively enforced and depending on how entity and control are defined; for example, whether several entities working separately for the same purpose (perhaps to drive up market prices, limit a competitor's business, or reduce total fishing impacts) would be considered to control the QS in aggregate and, therefore, be in violation of the control limits. With respect to attempts to drive up prices by restricting the market, in a typical production situation, an

entity attempting to manipulate the market would benefit both from reduced production costs and increased price of their output. Unlike the typical production control situations, it costs the QP holders virtually nothing to "produce" their product in a given year (the QP); there are no variable costs of production. Further, the amount QP holders produce is predetermined by their QS holding. With no "cost savings" from withholding production, the price increase they receive for what they sell must be enough to offset the normal market price of the QP withheld. Additionally, even if, despite accumulation limits, someone is able to effectively exert some control over QP market prices, it is likely that, by the end of the year, it will be in that individual's financial interest to release nearly all of its QP rather than earn zero revenue on the portion of its QP inventory that expires at year end. This reduces the likelihood that there will be nonuse motivated by the intent to control market prices will occur. On the other hand, in certain circumstances, it might be possible for an entity like a processor to gain advantage by withholding QS to adversely affect a competitor. For example, if a processor held substantial amounts of QS that it used for vessels from which it received deliveries, and if over a period of time those vessels had been able to avoid a key bycatch species (such as an overfished species), rather than selling the QP to further increase its revenue, that processor might withhold its unneeded QP from the market if it could gain advantage by adversely affecting a competitor's production and profits. Another concern regarding the possibility that significant amounts of QS/QP might be withheld from the fishery is that a number of entities might acquire QS and withhold QP with the intent of reducing fishing related environmental impacts.

- Conservation

Nonuse of QS (i.e., not using the associated QP) would decrease mortality, which could benefit the resource if the Council and NMFS have allowed harvests in excess of that which is advisable. If the harvest levels are appropriately set with respect to conservation objectives, the environmental effect of the reduced protein production would depend on the food sources to which people turn as an alternative to fish protein and the relative impacts of producing that food as compared to the fish protein.

A use-or-lose provision could increase impacts on the stock if it encouraged the vessel to harvest fish and discard them, just to use their QP and avoid QS forfeiture. This might occur if the provisions required harvest of amounts that are more than a commercial vessel would normally take (given species availability and market conditions). If a use-or-lose provision is eventually developed, certain species might be exempted, such as those that are under a rebuilding plan or for which the Council might otherwise specify a special precautionary status.

- General Socioeconomic Objectives

In general, the socioeconomic objectives of the program require that groundfish be harvested at sustainable levels that also meet other conservation objectives, such as rebuilding. Any actions that withhold QP and reduce harvest to below those levels is likely to diminish the achievement of socio-economic objectives. If it turns out that a use-or-lose provision is unnecessary, having deferred its creation will have been socially and economically beneficial in reducing the complexity of the IFQ program and implementation costs. On the other hand, if problems develop, and such a provision is needed, it may be more costly to implement at a later time because it will involve the disruption of existing expectations and practices.

- Program Costs and Effectiveness

The main reason for not developing a use-or-lose provision was the heavy cost that would be entailed in tracking QP usage back to the QS accounts for which they were originally issued and tracking QS

transfers between accounts, combined with the potential for relatively easy circumvention. For a vessel using QP from multiple QS accounts the data system would have to track the QS account from which the QP originated. Moreover, since QS can be traded among accounts from one year to the next, in order to avoid circumvention of the intent of the use-or-lose provision individual amounts of specific QS would have to be tracked. For example, if QS has not been used and will be subject to revocation if not used in the following year, the system would have to be set up to prevent avoidance of the use-or-lose provision through simply moving of the QS into a different account. The needed tracking system would be analogous to tracking the particular dollars used in a purchase back to the assets which originally generated them, only more difficult because of the need to also track the movement of divisible and fungible assets associated with those particular dollars as those assets moved among owners. Even if a full blown tracking system were developed, it could still be subject to circumvention given that QS are fungible, and a person withholding QS that are about to expire due to nonuse could simply sell them into the market and use the funds to purchase recently used QS.

The cost of such a program might be diminished if the number of participants were more limited than what is currently allowed under the eligibility provision. Additionally, costs of QP tracking might be reduced by a somewhat different rendering of the provision, such that, rather than tracking the QP to a QS account, (1) only the QP is tracked, (2) all QP must be transferred from a the QS holder directly to a vessel account before the end of the year, (3) any entity not meeting the lose-or-lose provision requirements would be responsible for submitting the required amount of QS for forfeiture from whatever source it could acquire it. Specifically, for example, any vessel account that does not use at least a certain percent (say 75 percent) of its QP holdings (aggregated across all species) in two successive years must forfeit the QS equivalent to one half of the unused QP for the average mix of species that went unused. This approach would keep the current eligibility rules for owning/holding QS/QP, but would ensure that QP is transferred to a vessel and avoid the need to track the QP back to its source QS. It would not entirely prevent circumvention of the provision, but circumvention would require the cooperation of more than one vessel.

● Experiences in Other Programs

The following describes experiences in two Canadian programs that did not start out with use-or-lose provisions (B.C. has implemented one more recently). One of the reasons this issue has been less of a concern for either the B.C. or Nova Scotia fishery is the qualification requirements that quota purchasers must meet. These requirements (e.g., vessel ownership) make speculative activity or ownership without harvesting more expensive and difficult.

British Columbia - There have not been any use-or-lose provisions or other design elements implemented to discourage underutilization of QP. However, there are design elements that became active in April 2005 to help prevent speculative activity and "armchair fishermen." In April, quota owners were required to harvest 25 percent of groundfish equivalent (GFE) or they would lose that 25 percent minus the rollover allowance. This will increase to 40 percent after three years and last for four years. In addition, the number of permanent reallocations (quota transfers) will be restricted to two over each of those periods of time. Purchase of quota by environmental groups that would not harvest what they owned has never been a big concern.

Nova Scotia - There are no use-or-lose provisions or other design elements implemented to discourage underutilization of QPs. Currently, there are "armchair fishermen." Approximately one-third of the "fleet" (100 out of 350 quota owners) leases out all of their pounds each year to other fishermen.

Note: In order for an entity to hold pounds and not harvest them, the entity would have to either purchase quota or purchase pounds each year. In order to purchase quota or pounds, the entity would have to own a groundfish license for the IVQ fishery. To own a groundfish license, a license holder has to be a full-time fisherman. This is defined as a person with two years of experience fishing for seven months each year. The Nova Scotia fishery representatives contacted believe that the expense to hire a fisherman not to fish would be significant.

A-2.2.2.d Entry Level Opportunities

❖ *Provisions and Options*

Under the MSA, the Council is required to consider entry level fishermen, small vessel owners, and crew members, and in particular the possible allocation of a portion of the annual harvest to individuals falling in those categories. No special provisions have been identified for analysis, given that new entry is addressed indirectly by allowing crew, captains and others to acquire QS in small increments.

❖ *Rationale and Policy Issues*

Section 303A(c)(5)(C) of the MSA requires that in developing a LAPP, the Council do the following:

> Include measures to assist, when necessary and appropriate, entry level and small vessel owner-operators, captains, crew, and fishing communities through set-asides of harvesting allocations, including providing privileges, which may include set-asides or allocations of harvesting privileges, or economic assistance in the purchase of quota [78]

The MSA requires that the Council consider, and, if appropriate, provide additional measures to benefit the named groups. The Council has considered these groups, and certain other elements of the program have been designed with impacts on these groups in mind, including the following:

1. Allocating based on the history of the permit, allowing new entrants to receive a greater initial allocation than they would if the allocation were based just on their personal history in the fishery (Section A-2.1.1).
2. Including an equal allocation component as part of the initial allocation formula for permits, this will benefit historically smaller producers (Section A-2.1.3).
3. Not including a minimum holding requirement provision; this might be more difficult for smaller vessels to comply with than larger vessels (A-2.2.1).
4. Specifying a broad class of eligible owners that includes crews and fishing communities (Section A-2.2.3.a).
5. Specifying that the QS/QP be highly divisible so as to facilitate the acquisition of QS/QP in small increments by crewmembers, those who have just entered the fishery, and operators of small vessels (Section A-2.2.3.d).
6. Including provisions for a set-aside, as needed, to support an AMP that may be used at some future time to address community concerns or create other incentives to benefit the groups listed in 303A(c)(5)(C) or for other purposes (Section A-3)

The TIQC also debated and reported to the Council options for a loan program and a provision that would allocate shares forfeited through a use-or-lose provision to new entrants. The TIQC did not recommend that the Council adopt the loan program because the rationalization program already has high costs, and the program would act as a subsidy that might drive up QS prices. The use-or-lose provision was not included as part of the package because of implementation obstacles. The TIQC also noted that providing a central lien registry would facilitate obtaining financing by increasing security in the collateral, reducing risk and, therefore, lower interest rates. This would benefit new entrants. Such a registry, while required by the MSA, has not been implemented.

[78] An **Assisted Purchase Program** may be developed to aid in financing quota purchase by small vessel fishermen and first-time purchase by entry-level fishermen (MSA – 303A(g)(1)).

❖ Interlinked Elements

The section on rationale contains of list of provisions that were considered adequate to address the concerns about entry level opportunities. If those provisions are modified, consideration should be given as to whether the provisions are still considered to adequately address the congressional direction provided in MSA 303A(c)(5)(C).

❖ Analysis

Much of the focus in developing the program is on the impacts of those who are currently in the industry and who will benefit from receiving an initial allocation of QS. Those individuals will be in an economically stronger situation. The value of the QS they receive will be a stream of resource-related rents (additional profits). Because of the infusion of wealth provided by the QS, they will likely be in an economically better position to bear the brunt of increasing fuel prices, program costs, and, if it should occur, declines in the available harvest. As holders of the QS, they will also accrue the benefits that occur from factors that increase the value in the fishery.

However, over the long term, the constituents of the commercial fishery who come before the Council will be those who at one time or another have been new entrants. New entrants who choose to own QS will have paid an amount for their QS based on the best projections of future profits after taking into account expected fuel prices and other production costs, including observer costs, expected ex-vessel prices for raw fish, expected harvest levels, and, significantly, the cost of the QS. If it turns out that costs are greater than expected or revenue is less than expected, they will not have the same revenue buffer initial QS recipients have. Under such circumstances, a new entrant may experience below-normal levels of profit, possibly even similar to those seen in the status quo fishery. At the same time, if costs are lower or revenues higher, they will experience a higher than expected return that will not be dissipated by increased competition. Thus, the IFQ program provides some expectation of more stable profits even for second-generation participants who choose to own QS. However, second-generation participants need not necessarily take on the risk of QS ownership.

The need to acquire quota will add to costs for second-generation owners, as compared to those who came before. In addition to paying for the physical capital (vessel, etc.) they will have to acquire QP each year and may choose to do so by making a capital investment in QS (by acquiring QS). By owning their own QS, they would control their risk with respect to changing QP prices. However, by holding their own QS, they will bear risk and reward from the changing value of the QS asset (increases, if there is a trend toward higher vessel costs or lower revenue, or decreases if conditions move in the other direction). If there were not an IFQ program, entering the fishery would require less of an investment, but revenues would likely be lower. Assuming that all extra profits (resource rents) under status quo are dissipated, the fishery would have similar downside risks, but less upside potential as compared to a fishery managed with IFQs. Upside potential would be lower under status quo because higher than expected profits would likely be dissipated by increased competition. If harvesters enter the fishery and chooses not to acquire QS, but rather to lease QP, the capital investment will be lower, they will not risk the potential decline in value of the asset they purchase, they will have a more limited benefit from any long-term improvement in economic conditions in the fishery, and, if they are able to be competitive, will fish at a normal profit level througH QP they buy during the season or are provided by processors. [Note: a normal profit implies zero economic profit but sufficient profit to compensate for their investment.]

No specific provision is provided here, but there are a number of provisions in other parts of the program that address the concern of MSA 303A(c)(5)(C). The impact of those provisions on entry level, crew, small entity, and community opportunities are discussed in the sections on those other provisions.

A-2.2.3 IFQ Transfer Rules

A-2.2.3.a Eligible to Own or Hold

❖ *Provisions and Options*

► No person can acquire QSs or QPs other than 1) a United States citizen, 2) a permanent resident alien, or 3) a corporation, partnership, or other entity established under the laws of the United States or any State, that is eligible to own and control a U.S. fishing vessel with a fishery endorsement pursuant to 46 USC 12113 (general fishery endorsement requirements and 75 percent citizenship requirement for entities). However, there is an exception for any entity that owns a mothership that participated in the West Coast groundfish fishery during the allocation period and is eligible to own or control that U.S. fishing vessel with a fishery endorsement pursuant to sections 203(g) and 213(g) of the AFA.

> Previous language: "Those eligible to own QS/QP will be restricted to (i) any person or entity eligible to own and control a US fishing vessel with a fishery endorsement pursuant to 46 USC 12108 (general fishery endorsement requirements) and 12102(c) (75 percent citizenship requirement for entities) and (ii) any person or entity that owns a mothership that participated in the West Coast groundfish fishery during the allocation period and is eligible to own or control that US fishing vessel with a fishery endorsement pursuant to sections 203(g) and 213(g) of the AFA."

❖ *Rationale and Policy Issues*

Section A-2.2.1 dealt with who receives an initial allocation. Here the issue is "Who is allowed to acquire QS/QP in the future?"

The Council's policy intent for the permit system on which the trawl rationalization program is built (the Amendment 6 license limitation program) is to require that an entity must be eligible to own a U.S. documented fishing vessel in order to hold a permit. It is important to note that actual vessel ownership is not required, only eligibility to own a vessel. In developing the ownership eligibility provision for the IFQ program, the Council's intent was similar, i.e., to allow those eligible to own a U.S. documented fishing vessel (i.e., to own a permit under the Amendment 6 program) to own QS. In developing language to implement its intent, the Council checked the MSA provisions on who should be restricted from holding a LAP (QS/QP), and the NMFS LE program website has forms indicating who is eligible to own a LEP in the current permit system. On the basis of the latter information, the Council included legal resident aliens in its specification of those eligible to hold QS/QP. Additionally, the Council provided an exception to provide certain foreign entities with an opportunity to hold QS/QP based on their status under the AFA and participation as a mothership owner in the west coast at-sea whiting sector.

The following are some of the intents for this provision that were identified by the TIQC during the first stages of the provision's development (related categories of objectives are in parenthesis; see Chapter 6 for a full description of the objectives):

- Allowing current participants to continue (minimizing disruption)
- Limiting foreign ownership (national net economic benefits)
- Preventing absentee ownership (sector health, communities)
- Preventing ownership by interests who might leave the QS unused (net benefits, sector health, labor, communities)

- Providing entry level opportunity for crewmembers (labor)
- Providing opportunity for community participation (communities)

The new LAPP program provisions of MSA Section 303A restrict those allowed to own QS/QP to a particular set of individuals:

> IN GENERAL.—Any LAPP ... shall—
> (D) prohibit any person other than a United States citizen, a corporation, partnership or other entity established under the laws of the United States or any State,[79] or a permanent resident alien that meets the eligibility and participation requirements established in the program from acquiring a privilege to harvest fish, **including** any person that acquires a LAP solely for the purpose of perfecting or realizing on a security interest in such privilege." (MSA, 303A(c)(1)(D), emphasis added)

In other words, the Council may allow any of the entities listed in 303A(c)(1)(D) to hold QS/QP, or a subset of those entities, but it may not allow anyone not on the list to hold QS/QP. For example, the Council could make a more restrictive eligibility provision by prohibiting corporate ownership or restricting QS ownership to vessel owners but it could not allow a foreign corporation to hold QS/QP.

According to a preliminary determination by NMFS, in the last phrase of 303A(c)(1)(D), "including" refers to being included among those allowed to acquire privileges (as opposed to being included among those who are prohibited from acquiring QS/QP). This last phrase refers to banks or other lenders that might accept the QS/QP as collateral for a loan. The Council language would allow banks and lenders to hold QS/QP, and to be consistent with 303A(c)(1)(D), these entities would need to be established under the laws of the United States or any state.

Another requirement with respect to who is eligible to own QS/QP specifies that those who substantially participate be authorized to acquire QS/QP. The definition of those who substantially participate is left to the Council.

> (5) ALLOCATION.—In developing a LAPP to harvest fish a Council or the Secretary shall—
> . . . .
> (E) authorize LAPs to harvest fish to be held, acquired, used by or issued under the system to persons who substantially participate in the fishery, including in a specified sector of such fishery, as specified by the Council. (MSA, 303A(c)(5)(E))

The Council eligibility provision is intended to include all of those who are presently substantial participants in harvesting activities, and the Council did not opt to further define "substantially participate." The first criterion of the Council's eligibility provision, (i), is intended to ensure that almost all who currently participate as harvesters would be allowed to continue, minimizing disruption while limiting new foreign entry. The current participants that might not be covered by the first criterion are those foreign entities that have participated in the ownership of motherships in the whiting fishery. The criterion of the second part, (ii), was added with the intention of including those entities that have

[79] The definition of "person" under the MSA means "any individual (whether or not a citizen or national of the United States), any corporation, partnership, association, or other entity (whether or not organized or existing under the laws of any State), and any Federal, State, local, or foreign government or any entity of any such government." (MSA, 3(36)). The persons allowed in section 303A(c)(1)(D) are a subset of this broader definition of person (MSA, 3(36). The broader definition includes persons not organized under the laws of the United States or any state. The persons prohibited from QS/QP ownership in 303A(c)(1)(D) include those not so organized.

participated on the west coast and may not have been covered by the first criterion, i.e., entities that include foreign interests and participated in the at-sea mothership sector would be allowed to hold QS/QP. More specifically, the second criterion includes entities with some foreign control that own a west coast mothership and received an exemption to the requirements of 12102(c) under Section 203(g) or 213(g) of the AFA (see discussion below regarding foreign operators). Since the Council criteria allows QS/QP ownership by those who currently participate as vessel owners, any participant who is eligible to own a U.S. documented fishing vessel, and, via the AFA exception, all owners of vessels active in the at-sea whiting sector, it might, therefore, be considered consistent with MSA 303A(c)(5)(E) to authorize participation by substantial participants. Those who do not own vessels but might be able to acquire QS/QP include, for example, shoreside processors, crewmembers, and communities. Additionally, the Council QS/QP eligibility criteria go further than MSA 303A(c)(5)(E) by allowing QS/QP ownership by, for example, those who may wish to hold IFQ to control the way in which the QS/QP is used (e.g., members of conservation organizations), individual members of the general public, those with security interest in the IFQ (e.g., a lender), and any other person (including business entities such as corporations), so long as those entities are eligible to own a U.S. documented fishing vessel.

While intentionally broad, the scope of the Council's eligibility provision is not intended to extend beyond that of MSA 303(c)(1)(D). The MSA allows foreign controlled entities organized under state or Federal laws to hold QS/QP. In that regard, the Council provision is more restrictive in that it prohibits most foreign holding of QS, as is permissible under the MSA. With respect to the requirement that entities not organized under state or Federal laws be excluded from QS/QP ownership, the Council's criterion requiring eligibility to own a U.S. documented fishing vessel was believed to be implicitly compliant because entities must be organized under state or Federal laws in order to be eligible to own a U.S. documented fishing vessel. However, to be certain that compliance was clear, the Council added to its language an explicit statement that a partnership or corporation must be organized under Federal or state law.

It should be noted that the AFA exception within the Council's eligibility provision is intended to apply to the entities in their entirety and not to the individual ownership interests that make up the entity. In other words, if a foreign entity has partial ownership of a company that controls a U.S. fishing vessel and that company has an exemption under the AFA, it is only the company that would be able to own the QS/QP. The foreign entity's participation in the AFA exempted company would not allow the foreign entity on its own acquire QS/QP.

The Council considered an option that would not allow any foreign controlled entities to control QS/QP (i.e., requiring that all entities be eligible to own U.S. documented fishing vessels). This option was rejected because it could not be determined that it would not eliminate some current participants from QS/QP ownership. The Council also considered restricting ownership to stakeholders, including owners and lessees of LEPs or vessels, skippers/crew, processors, buyers, and communities. This option was rejected (1) because of the increased cost associated with development and monitoring of the qualifying requirements for each of these groups and (2) because simple group eligibility requirements that might be easy and less costly to implement would also be easy to circumvent.

Also considered were more extreme restrictions, e.g., allowing only LEP holders to own IFQ. It was believed that such a restriction would reduce program costs by substantially reducing the number of QS/QP holders, make it more likely that QS/QP owners would be community members (make absentee ownership less likely), and make it more likely that QS/QP would be used. The substantially smaller number of potential owners might also increase the feasibility of tracking QP to the owner of the QS for which the QP was issued, facilitating implementation of a use-or-lose provision (see Section A-2.2.2.c).

At the same time, there are considerable social and equity benefits from an ownership eligibility scope that includes crewmembers, communities, and processors.

❖ Interlinked Elements

The main direct interdependency between the provisions for eligibility to own or hold and others is with the initial allocation criteria. Specifically, those eligible to own QS must include those eligible for an initial allocation. Mothership Option 2 of Section A-2.1.1.d would allocation QS to the bareboat charter operators of motherships. The language of the second part (ii) of the eligibility criteria was adjusted to cover both owners and operators of motherships.

❖ Analysis

The following are the categories of goals and objectives affected by the decision on eligibility to own and the section in which each are addressed.

Section	Related Category of Goals and Objectives (see Chapter 6 for detailed description)										
	Conservation	Net Benefits	Disruption	Excessive Shares	Fairness and Equity	Harvester and Processor Sector Health	Labor	Communities	Small Entities and New Entrants	General Public	Program Performance
Conservation and Social Impacts	X							X			X
Net Benefits and Disruption		X	X								
Sector Health						X					
Labor and New Entrants (Labor)						X			X	X	
Communities								X			
Small Vessels and New Entrants (Harvesters)									X		X
Program Performance											X

- Conservation and Social Impacts

The Council eligibility recommendation allows a very broad class of entities to own QS based on an assumption that this will lead to the highest value use of the resource within conservation limits. The broad class of individuals allowed to own QS includes conservation organizations. Conservation organizations or others who strongly believe that the Federal management system is allowing too much harvest could acquire QS and hold the QP for those shares off the market, leaving some of the available catch unharvested. However, it is also the Council's intent that the Federal government, acting under the authority of the MSA, not abdicate its role in determining the appropriate level of removals for meeting conservation objectives. Private interests withholding QP would frustrate the intent of Federal policy that is to allow for an optimum sustained yield and provide social and economic benefits from the fishery. As a result, impacts on the human environmental would change, increasing or decreasing, depending on the impacts associated with the protein sources consumers turn to as a substitute for west coast groundfish. On the other hand, if the Federal policy has not been set appropriately or is not

sufficiently risk averse, a private entity choosing to hold QP back could improve conservation. While allowing a broad ownership class, the Council has indicated that if the intent of the Federal harvest policies are being frustrated it may create a use-or-lose provision at some future time (Section A-2.2.2.c). Adaptive response of this sort would mitigate possible adverse impacts that could result from nonuse of amounts of the resources that is available within harvest constraints.

The limitation of foreign ownership may have some conservation and social benefits. If multinational corporations are not dependent on a particular coastal community or ecosystem and are able to rotate their resource extraction activities from one locale to another, they may have less concern about the long-term sustainability of fisheries in any one nation and less concern about localized effects of harvest activities. As compared to domestic firms, they may also be somewhat more independent of the influence of local and national politics. The ocean fisheries are managed as a trust for the people of the nation. The interest of the people, as expressed by their state and Federal governments through such laws as the MSA, National Marine Sanctuaries Act, and California's Marine Life Protection Act, goes far beyond the economic benefits that might accrue from sustainable removals of the resource. While the laws of a state and nation constrain behavior for domestic and international firms alike, conduct in line with general social values often goes beyond what is strictly required by the letter of the law. While it is possible that an international firm may act more strongly based on local ethics and values than a domestic firm, a firm run by domestic interests may be more likely to act within the local ethics than an international firm simply because more of the decisions will be determined by individuals from the domestic culture.

- Net Benefits and Disruption

It is believed that the greatest benefits would be achieved by providing QS/QP ownership opportunity to a very broad group. Specifying broad eligibility criteria that encompass those who value the resource to different degrees for different reasons would encourage the distribution of QS/QP in a manner that maximizes net benefits over the long run. Net benefits would be enhanced by an active QS/QP market with participation by all of those who may have some reason to value QS/QP. However, net benefits may be less than might otherwise be achieved if, as a result of the broad eligibility requirements, those who are likely to withhold QS/QP from the fishery gain control of the QS/QP. As described in the section on conservation and social impacts, the Council is aware of this possible outcome and will evaluate nonuse as part of future reviews and revision of the program.

In the rationale above, we described the Council's intent to minimize disruption of current practices by allowing ownership of QS/QP by all who currently participate as harvesters or by using mothership vessels in the at-sea whiting fishery, including those with foreign ownership interests. The language developed to achieve this end focuses on those individuals eligible to own a U.S. documented fishing vessel, including some who achieve that eligibility under exemption provisions of the AFA. The AFA exemptions incorporated into the Council eligibility provisions refer to Section 12113 (Chapter 46 of the U.S. Code). This section requires 75 percent domestic ownership and prohibits the chartering of a vessel by any entity that has some foreign ownership. The exemption of 203(g) appears to apply to both those entities eligible to ***own*** the vessels under 203(g) and those entities eligible to ***operate*** the vessels under 203(g). Section 213(g) is a catch all that provides an exemption to the AFA for any other entity that owns a vessel as of July 24, 2001, as necessary to comply with international treaty. As pointed out by the NRC (NRC 1999) (pg. 211) because of foreign ownership interest in the existing fishery, limitations on foreign ownership could be problematic and discriminate against U.S. co-owners and investors. The language of the eligibility provision was intended to be sufficiently broad to cover all participants, including processors, however, any shore based processing company that is more than 25 percent foreign owned or controlled may not be eligible to own QS/QP. We do not know whether

there are any shore based processors that do not meet the eligibility. Also bearing on the issue of foreign ownership are current trends toward the liberalization of direct foreign investment worldwide. Net benefits are generally addressed from a national perspective. On that basis, the limitation on foreign participation will likely ensure that a greater proportion of the fishery benefits accrue to citizens of this nation, as compared to a system that allows more foreign ownership. On the other hand, if foreign participation were allowed as part of general trade liberalization and if trade liberalization has a positive overall effect on total benefits that accrue to U.S. citizens, then allowing foreign ownership as part of that broader policy might generate greater domestic economic benefits.

Three motherships participate in the west coast whiting fishery and come under the exceptions provided under Section 203(g) of the AFA. Of these, at least one was believed to be operated by a company with substantial foreign ownership, although the ownership structure may have changed since the provisions were first developed.

- Sector Health

While the initial allocation would be split between harvesters and processors, over time, the eligibility provisions will allow for all of the QS to migrate to the hands of harvesters or all of it to processors (or to any other group that is able to acquire it through transfers). In the event that an extreme distribution occurs, one sector may be able to exert market power over the other and adversely affect the health of a sector. In contrast, the B.C. IVQ program allows only those who own vessels to hold QS. The Council considered a provision that would have restricted QS/QP ownership to those in the harvesting sector. If only harvesters are allowed to own QS/QP, harvesters (and processors who own vessels) could be at an advantage over other entities. There are provisions in the B.C. program intended to prevent the exclusive harvester ownership of QS from allowing harvesters to take unfair advantage of processors. Specifically the groundfish development quota (GDQ) system was designed to encourage harvesters to remain in their relationships with domestic processors. The program under consideration here, while it would not start out by restricting QS ownership to one side or the other, allows it to develop over time. Because it is not starting out with a one-sided restriction, it is also not starting out with a compensating mechanism for a one-sided distribution. If QS migrates to the hands of one group over time, the AMP would provide an opportunity to compensate for effects on the health of the adversely impacted sector.

The broad ownership eligibility criteria also allow ownership of QS/QP by entities that may acquire it and withhold it from use. This is discussed in the sections on conservation and net benefits. Such withholding of harvest opportunity would adversely affect sector health.

- Labor and New Entrants (Labor)

The eligibility criteria have been specified broadly to allow crewmembers or processing plant employees to own QS. QS/QP eligibility provides laborers a way to incrementally acquire capital assets in the fishery. The ability to acquire some capital and then accumulate wealth both from their wages and from capital ownership may allow them more rapidly to accumulate the assets they need to enter the fishery as business operators. With respect to the opportunity to incrementally become owners of capital, what applies to laborers within the industry also applies to others outside the industry looking to enter. The value of the QS/QP to those who wish to sell it and leave the fishery will be sustained, in part, by those interested in and able to enter the fishery. However, those employees that are not citizens of the U.S., not resident aliens, or not otherwise eligible would not be allowed to own QS/QP.

- Communities

It is believed likely that more benefits will flow to communities if foreign and absentee ownership is limited. Allowing the potential for entities to acquire QS/QP and withhold them from use could adversely impact communities. Of these, the Council's provision only limits foreign ownership. Absentee ownership and QS/QP withholding is not limited at this time.

Making sure that communities themselves are eligible to own QS/QP is one way the Council takes into account the needs of communities. QS/QP eligibility allows communities who so desire to increase security over their economic base, to acquire QS/QP. Under the eligibility provision, a community could, for example, acquire QS/QP and auction the QP off each year to those willing to commit the most matching QP for delivery to that community. With respect to allowing communities an opportunity to participate, the NRC study notes that some communities may be heavily dependent on fishing for social, cultural, and economic values and/or are lacking in alternative economic opportunities; and recommends that Councils be permitted to "authorize communities to purchase, hold, manage and sell IFQs" (NRC 1999) (pg. 206). The GAO notes the following: "The easiest and most direct way to help protect communities under an IFQ program is to allow the communities themselves to hold QS" GAO-04-277. In addition to allowing communities to own or hold QS and QP, CFAs may be developed in conjunction with the trawl rationalization program as a trailing amendment. Presumably, CFAs would be eligible to hold QS/QP for an express purpose benefitting communities, such as community stability, sustainability, and avoidance of economic vulnerability.

- Small Vessels and New Entrants (Vessels)

Again, the broadly specified group of those eligible to acquire QS/QP (combined with the divisibility of the QS/QP into small units, Section A-2.2.3.d) facilitates incremental acquisition and participation by small vessels and new entrants.

- Program Performance

Program cost would be minimized with a very restrictive limit on those eligible to own QS/QP because there would be fewer QS/QP accounts to track. Allowing only those with LEPs to own QS/QP would be one such option. This would limit the number of entities eligible to hold QS/QP to just fewer than 170. The very broad provision that is currently specified would allow for a large number of QS/QP accounts and would require the transfer of QP from QS holders into vessel accounts in order to be used. Depending on the groups to which an allocation will be made, as well as recent participation criteria, there might be 200 processors alone that would qualify for an initial allocation. The greater number of accounts and transactions would add to program costs. An intermediate approach would allow a class of fishery stakeholders to qualify broader than just those who hold LEPs but more limited than under the current provision. However, this intermediate approach could be more costly to implement because of the need to determine and track the criteria for membership in the various classes of stakeholders. While simple low cost criteria might be designed, such criteria are likely to be relatively easy to circumvent, making the program ineffective with respect to limiting the class of those who own QS. For example, if status as a crewmember were required, a simple low cost requirement would be that to own QS/QP, a person would have to hold a crew license.[80] However, most U.S. citizens could get a

[80] Even if a qualifying class is "licensed crewmembers," there is not consistent licensing of crewmembers or other means of crew identification among the states. Therefore, some consistent system would need to be developed to identify members in this class.

crew license without actually working as a crewmember. Therefore, to make this an effective barrier, some other provisions would be needed such as having worked as a crewmember for a certain period. The need to process documentation on crew hours and enforce the provision would add substantially to the program costs. Similar results would be expected for simple versions of processor, buyer, or community participation requirements.

A-2.2.3.b Transfers and Leasing

❖ *Provisions and Options*

QS/QP will be transferable and transfers must be registered with NMFS. NMFS will not differentiate between a transfer for a lease and a permanent transfer.[81]

Each year, all QP must be transferred to a vessel account. A penalty for not meeting this transfer requirement has not been recommended; however, this requirement is intended to encourage its availability for use by the fleet.

QP can only be transferred into vessel accounts. Once in a vessel account QP can be transferred from one vessel account to another.

❖ *Rationale and Policy Issues*

QS/QP transferability is key to the conservation, economic, and social benefits described in Chapter 4. These benefits include the rationalization of the fleet that is expected to increase efficiency and allow the industry to support 100 percent observer coverage (with the attendant conservation benefits), the ability of crewmembers to acquire QS and enter the fishery as owners, and the opportunity for communities to acquire QS and increase their control over their economic base.

- Leasing

Consideration was given to limiting leases of both QS and QP. Each year, QP will be issued to those holding QS and be valid for that year (with some exception for the carry-over provision, Section A-2.2.2.b). The sale of QP might be considered an annual lease of the QS privilege; however, such transactions are not considered a lease for the purpose of this discussion. Here, a lease with respect to QS refers to a temporary but multiyear transfer of the QS from one entity to another. For the period of the lease, the entity with which the QS is registered would receive the annual QP. For QP, a lease would be considered the temporary transfer of QP from one entity to another, within the period over which the QP is valid. Such a temporary transfer would be of limited utility, because, once it is used, the QP cannot be returned to the lessor. A QP lease might be useful if there were some a minimum amount of QP a vessel might have to have before it left port. Under such circumstances, a vessel might lease QP for species it needed, but did not expect to encounter, and then return the unused QS at the end of the trip (presumably paying a premium if they were, in fact, used). While it has been considered, a minimum holding requirement is not part of the Council's PPA.

Leasing might be prohibited in order to reduce opportunities for absentee ownership; however, such prohibitions would be difficult to enforce. Entities might easily establish private arrangements for the transfer of QS and execute those contracts through transfers with NMFS that are registered as permanent. For the same reason, the decision was made not to register lease transfers distinctly from sale transfers because it is not necessary.

Another reason for not tracking leasing is the cost and complexity it might add to the program. There is no specification in the IFQ program that the source of any QS or QP transfers will be tracked over time (i.e., like money, QS and QP will be interchangeable ([fungible]; one will not be distinguished from another, except based on who holds it at the time). This is particularly important with respect to the QP.

[81] QS may be transferred on a temporary basis through private contract (leased), but NMFS will not track lease transfers differently than any other transfer.

QP will be transferred to a single account (see Section A-2.2.1), and, once in the account, QP from various sources will not be differentiated from one another. This is expected to simplify program administration substantially compared to systems in which individuals are allowed to retain control over the QP and fish them from a vessel.

Leases can be established entirely through private contract, and there appears to be little need to incur the added costs that would be entailed in tracking leased quota separate from permanent transfers. However, for the purpose of data collection and interpretation, NMFS may have to request information on whether a QS transfer is a sale or lease and, if a lease, the duration of the transfer. NMFS will be collecting information on payments for QS transfers to evaluate program impacts. Without knowing whether a particular transaction is a lease or sale, it will be difficult to interpret and use the QS price data.

- Mandatory Transfer to Vessel Accounts

The Council was concerned about the potential for absentee ownership and nonuse of QS. A major concern has been that nongovernmental organizations or others might acquire QS and withhold it from the fishery. There is also a history in other systems of some small amounts of quota simply going unused from one year to the next, despite the opportunity cost of nonuse (e.g., Alaska sablefish and halibut IFQ). However, the Council did not want to substantially restrict ownership because of administrative expenses such a restriction would entail, the desire to provide for crewmember and community ownership of QS, and the difficulty of doing so effectively. Additionally, design of an effective use-or-lose provision was problematic (see Appendix A section on use-or-lose provision). As one step in the direction of ensuring that QP would end up in the hands of fishermen who would use it, the Council included in its provisions a mandatory requirement that all QP be transferred to a vessel during the year in which it was issued.

- Allowing QP To Be Transferred Only to Vessel Accounts

The Council developed control limits that apply to QS and vessel limits that apply to QP and set vessel limits above control limits to allow greater vessel efficiency and to provide room on vessels for QP owned by crewmembers, communities, processors, etc. However, in establishing these rules, a situation was created in which there was no restriction on the amount of QP an entity could stockpile during the year. To address this concern, and reinforce its desire to tie QS as tightly as possible to vessels, the Council specified that once issued, transfer of QP would be allowed only to and among vessels.[82]

❖ *Interlinked Elements*

Transferability is a key aspect of many provisions of the IFQ program. Without it, significant program redesign would be required. NMFS will consider all transfers permanent, and individuals will rely on private contracts to execute lease agreements. While this feature may alter the effects of the grandfather clause associated with the accumulation limits (as described in the following analysis), there are no direct interdependencies between the leasing and accumulation limit grandfather clause provisions.

[82] The Council could not tie QS directly to vessels because of its desire to allow for QS ownership by crewmembers, communities, processors, and others while maintaining a cost-effective program. Tying the nonvessel QS/QP to a vessel creates tracking and monitoring challenges that are costly to address. See the section on permit/IFQ holding requirements.

❖ Analysis

As noted in the rationale, QS/QP transferability is the key to performance of the program with respect to conservation, economic, and social goals and objectives. The mechanisms by which these objectives are addressed through transferability are described in Chapter 4. Transferability is necessary for the rationalization of the fleet that is expected to increase efficiency and allow the industry to support 100 percent observer coverage (with the attendant conservation benefits), the ability of crewmembers to acquire QS incrementally to enter the fishery as owners, and the opportunity for communities to acquire QS and increase their control over their economic base.

- Leasing

♦ *Net Benefits and Sector Strength*

A leasing prohibition was considered and could be attempted to reduce the likelihood of absentee ownership, increasing the likelihood that QS will be held and controlled by active members of the fishery. However, such a prohibition, if it could be effectively enforced, would reduce the flexibility businesses have in organizing their activities. For example, a harvester either would have to acquire and pay the full value of the QS, or purchase QP on an annual basis. There would be no intermediate positions through which a harvester might acquire QS at a lower cost on a shorter-term basis. Less flexibility implies lost efficiency opportunities and diminished sector strength, compared to what might otherwise be achieved. For these reasons, there is no prohibition on leasing.

♦ *Program Performance*

There is no requirement that lease transactions be registered, as distinct from sales transactions. By not registering lease transfers, there is expected to be some saving of administrative costs. Additionally, if formal leasing were registered, it would extend the life of the accumulation limit grandfather clause. Individuals would be able to benefit from longer-term divestiture of QS via lease mechanisms without reducing the total amount of QS they are able to hold under the accumulation limit grandfather clause (assuming there is such a clause, and the clause is not modified to specify that a lease would be considered the same as a sale). By not prohibiting and not requiring registration of leases, the program is simpler than it would have otherwise been.

- Mandatory Transfer to Vessel Accounts

The provision requiring mandatory transfer to vessel accounts may affect objectives related to conservation net benefits, harvester and processor sector health, labor, communities, small entrants and new entrants, the general public, and program performance. All of the objectives related to economic performance will be discussed together (all objectives the conservation and program performance objectives).

♦ *Conservation*

Conservation may be affected by this provision's impact on total harvest. Ultimately, any impact will depend on how effective the measure is (see program effectiveness). Under status quo, the Council sets target harvest levels and establishes the regulations intended to achieve them. Those targets will then be harvested if the market conditions (e.g., fuel costs, ex-vessel prices) and technical relationships (e.g., the relation between the mix of species in the catch and the species limits) allow. This is because the

harvest opportunities are open to all vessels, and no one permitted vessel may exclude the activities of another permitted vessel. Under an IFQ program, an entity may hold IFQ and exclude others from accessing that harvest. A major concern has been that nongovernmental organizations or others might acquire QS and withhold it from the fishery to implement an alternative conclusion regarding the appropriate balance between harvest and risk to the stock and ecosystem. Reducing harvest to below identified optimum levels could move the ocean stocks and ecosystem more toward an unexploited condition, depending on how reduction in groundfish stock harvest balances with human induced changes in other parts of the ocean ecosystem. This would further the "preservation" aspect of conservation with respect to the ocean environment. The net effect on the global environment depends on how people respond to reduced availability of fish protein. Increased reliance on animal protein sources from feedlots could have an adverse effect, while increased reliance on soybean or other protein sources might have a positive effect, depending on the relative resource and energy consumption of fishing operations as compared to farming and ranching operations. Conservation also has meaning relative to the preservation of renewable resources for the purpose of ongoing current and future use.

♦ *Economic Performance*

As mentioned under the assessment of the conservation impact, the OYs and allocations for the fishery are set based on a best assessment of an appropriate balance between preservation and harvest. Given that the fishery management agencies have appropriately identified an appropriate balance, any reduction in harvest will diminish short- and long-term economic performance of the fishery. A reduction in harvest would adversely impact net benefits, the health of the harvester and processor sector, payments to labor, income for coastal communities, opportunities for new entrants and small entities, and the protein and benefits received by the general public for appropriate use of a public resource. The reduction would benefit the segment of the public that places an existence value on the resource (where that existence is defined not just in terms of its presence or absence, but rather its existence at higher biomass levels that then would be provided through fishery agency management). The required transfer of QP to a vessel is intended to encourage full harvest at sustainable levels, as determined by fishery management agencies.

♦ *Program Performance*

The effectiveness of this provision will depend on its impacts on two types of behavior. One is the withholding of QP to reduce harvest intentionally, and the second is the withholding of harvest due to inattention to what might be considered best business practices, nonvessel owners with QS ignoring the opportunity to sell the QP for revenue.

With respect to the withholding of QP to reduce harvest intentionally, effectiveness of the provision will depend on whether the costs of circumvention are enough to discourage such circumvention. There are a number of ways this provision might be circumvented. They include(1) acquiring a LE trawl permit, placing it on a low-cost vessel, and transferring QP to that vessel account; (2) acquiring a LE trawl permit, enlisting or paying a nongroundfish harvester to allow the permit to be registered to its vessel, and transferring QP to that vessel account; and (3) paying a vessel with a permit to receive, but not use, QP. For any particular vessel, the amount of QP that could be "parked" in a particular vessel account would be limited by vessel accumulation limits. Whether the costs that would be related to these strategies are enough to discourage the activities will depend on the importance that some entities place on nonuse of the QS. It should also be noted that there is no time during the year by which transfers must be completed. Therefore, someone intent on withholding QP could wait until the last day of the year to effect the transfer.

With respect to leaving QP unused and ignoring revenue opportunity, for the Alaska IFQ programs where this behavior is reported, those entities that do not transfer their QP to vessels have relatively small amounts of quota in most cases. Under such a circumstance, it may be that incurring the transaction costs are not worth what is earned from the transfer. Nevertheless, the quota that has routinely gone unused in Alaska has created controversy there, and action is being undertaken to discourage such practices. This provision would force such transfers, ensuring some opportunity for the fleet to harvest all of the available QP.

- Allowing QP To Be Transferred Only to Vessel Accounts

The effect of prohibiting QP transfers other than those directly to and between vessel accounts will be mainly indirect through more effective achievement of the intent of the accumulation limits (described above in the section on the rationale for this provision). Such restrictions may have some minor effect on net benefits by restricting the types of business arrangements through whicH QP are moved through markets. Because of the fishery's multispecies nature and variability in the species mix caught on each trip, it will be difficult to hold the right mix of QP; as the season progresses, it is likely that information on potential buyers, sellers, and prices will be valuable. Such information is essential to the type of well functioning markets that lead to efficient outcomes. Given the value of that information, some entrepreneurs may set themselves up as QP brokers. Brokers provide information and transactions services, but never take ownership of the QP. Broker operations would not be restricted by this provision. Another type of entity that might otherwise be active in the market would be QP traders/distributors. Like brokers, traders provide a market service to those wishing to buy and sell quota. However, quota traders earn profits by taking on some of the risk through their possession of the QP. A QP seller needing funds and unable to find a buyer wanting the type of QP he has might find a trader/distributor willing to buy his quota immediately at a better price than the seller could get in the market at that moment. The price, however, might be lower than he might otherwise receive some other time or with a longer search. By buying the QP and taking on the risk of QP ownership, the trader/distributor provides the seller with a risk sharing and financial service that a broker would not provide. It is uncertain whether this type of trading/distributing operation would come into being in the absence of this transfer restriction. However, if such businesses would have come into existence, it would be because the service they provide would be of value to individuals and the effective functioning of the market. This provision will prevent that type of business service from developing, possibly reducing net benefits.

A-2.2.3.c Temporary Transfer Prohibition

❖ *Provisions and Options*

NMFS may establish temporary prohibitions on the transfer of QS, as necessary to facilitate program administration.

►**Option:** QS will not be transferred in
SubOption 1: the first year
►SubOption 2: the first two years
of the program (QP will be transferable)

❖ *Rationale and Policy Issues*

Two types of temporary transfer prohibitions are covered in this provision:

(1) An annual QS transfer suspension for administrative necessity
(2) A QS trading moratorium at the start of the program to provide an adjustment period

The Council's final preferred option allows NMFS to establish temporary prohibitions on the transfer of QS at the end of the year if administratively necessary. Such a prohibition might be needed to allow accounts to be resolved before QP is issued to the QS accounts for the following year.

An initial moratorium on trading of QS is proposed to allow initial recipients to develop a better understanding of the IFQ system and the trading prices before they make permanent trades. A number of members of the Council family traveled to New Zealand to learn about their program. They reported to the Council that many of the New Zealanders stated that if they could do it again they would have started with a trading moratorium to be in place while participants developed a better understanding of the value of the QS. This provision will keep industry members from making decisions based on fear or lack of understanding of how the system will function.

This initial moratorium will also provide an opportunity to make needed adjustments to the program before QS trading starts to occur. For example, there may still be appeals in progress when the program starts. As those appeals are resolved, the amount of QS an individual has received may change based on the issuance of additional QS to another entity. On one hand, this might be partially resolved by the issuance of QS in some unit other than a percentage. On the other hand, regardless of the units used for the QS, the issuance of additional QS will change the harvest represented by QS already issued. If QS trading has already occurred, the issuance of additional QS may cause some disruption if the prices paid did not fully anticipate the amount that would be issued through appeals. Another example is the potential need to adjust accumulation limits, particularly control limits. During the first years of the program, QP trading will likely provide some indication of the amount of consolidation that is likely to occur and the impacts of that consolidation. If it becomes apparent that accumulation limits are too high, it will be easier to implement downward adjustments before QS trading has started.

While the Council saw these benefits, it also recognized that the prohibition might slow down the generation of benefits, though it was noted that consolidation could still occur during the QS moratorium through the transfer of QP.

NMFS will be overloaded in the first year, and industry should be protected from making decisions based on fear or a lack of understanding regarding how the system will function. There should be a period over which prices are established, and transfer of QP would be allowed. NMFS concurred, citing both the major change that would be entailed in an IFQ program and industry-voiced regrets about quick transfers that occurred early in the implementation of the New Zealand system.

In the process of developing the options and reaching its conclusion, the Council also considered and rejected an option for a two-year moratorium. Ultimately, the Council believed that a two-year period would be of value, both for the industry to become familiar with the program and to provide some opportunity, if necessary, to adjust the program before QS trading begins.

❖ Interlinked Elements

There are no direct dependency links between this provision and the effective function of other provisions, except as may be determined in the future with respect to the need for suspension of QS trading at the end of each year to facilitate program administration. There is also a link to the ease with which adjustments may be made to the program in its first two years, particularly with respect to accumulation limits, as described in the above rationale.

❖ Analysis

The following are the categories of goals and objectives affected by the decisions on temporary transfer prohibitions.

	Related Category of Goals and Objectives										
Section	Conservation	Net Benefits	Disruption	Excessive Shares	Fairness and Equity	Harvester and Processor Sector Health	Labor	Communities	Small Entities and New Entrants	General Public	Program Performance
Moratorium -- Establishing Market Prices and Adjustments		X	X		X	X					
Moratorium – Delayed Benefits		X				X					
Moratorium -- Effectiveness of the Moratorium					X						X
Moratorium – Administrative Costs										X	X
Annual Trading Suspension		X	X			X				X	X

- Moratorium — Establishing Market Prices

The moratorium is being proposed primarily because it is believed that it will assist QS holders in trading at fair market prices. Most economic literature assumes an established and known market price; little attention is given to how prices are established for entirely new commodities and how institutional arrangements (i.e., the rules of the market in which the commodity is traded) might affect the process by which the prices are established (Anderson 2004). Anderson (2004) experimentally demonstrated that in a market for a new commodity, in which both sellers and buyers advertise their bid and sale prices and trade at will, there is likely to be a high degree of price volatility, and the typical price pattern will be one of price bubble and collapse (technically termed a "double auction"). In such a system, the price one pays is affected more by when one decides to buy than the actual value of the commodity being purchased, thus bringing up concerns about inequities and disruption. It was further demonstrated that early trades would not necessarily result in the transfer of the commodity to the more efficient

producers, thus adversely affecting net benefits and sector health. Comparisons were made to other types of market structures (institutions), and results indicated that a period of leasing prior to free trading tended to stabilize prices and result in prices that are more likely to conform to the actual value of the commodity. Over the long term, appropriate market prices will likely develop regardless of the market structure created to support development of the market; however, the amount of disruption, inequity, and inefficiency encountered during the transition period will vary depending on the structures provided.

The proposed moratorium on QS trading would essentially establish a period of leasing (a time during which only the annual harvest privilege, the QP, could be traded). Based on Anderson (2004), we would expect this to be beneficial for the reasons described in the above paragraph. Lease prices (QP prices) may be helpful to the fishermen in determining the appropriate sale price for the QS in that there should be a relationship between the sale price for the QP and the stream of revenue one would expect from holding the QS and leasing the QP out each year. The Council considered two moratorium options; a one-year, and a two-year moratorium. The difference between the two can be evaluated in terms of the additional information that participants might learn in the second year of the moratorium and the costs to industry from the delay in the start of the period of full transferability. QP prices will likely vary through the first year of the program in response to the changes in knowledge about the trading prices, changing mixes in the catch that occur during the year, and shortages or surpluses that become apparent as the fishery moves through the year. As the participants move through the year, they will begin to understand the value of the QP. It will not be until after the year is over, however, that they will be able to start evaluating what might have been a reasonable price for QP for an entire year. The second year will provide some information on the annual lease prices for QP for an entire year, based on knowledge of the seasonal value of the QP in the previous year. Thus, there is an increment of knowledge to be gained in the second year that is qualitatively different from the first year (i.e., first-year prices are more likely to be based on seasonal demand, while the prices that QP trade for at the start of the second year are more likely to be based on an assessment of the value of the QP across the entire year). The question then is what is the cost of this additional increment of knowledge? First, it may delay QS holders' ability to adjust their QS holdings to the appropriate mix for their businesses (see section on moratorium effectiveness). This will extend the period of uncertainty, make it more difficult to plan, and extend the duration of the transition period. Second, during the period of the moratorium, there will likely be a greater number of transfers of QP, increasing both transaction and program administrative costs. The equal allocation provision will likely ensure that every year, almost every participant will have some allocation for a geographic area outside its normal range of operation that will have to be transferred to those who operate in a different geographic area.

In order for the QS trading moratorium period to be most effective in helping to establish QS market prices, it would be useful for the QP prices to be publically available (see Section A-2.3.2).

- Moratorium — Effectiveness of the Moratorium

While it is hoped that the moratorium will inhibit those who might otherwise transfer QS from doing so, there is little that would prevent QS holders from circumventing the moratorium by signing contracts for the annual transfer of QP to the buyers until the QS transfer moratorium expires and then transferring the QS themselves after the moratorium expires. The moratorium will send a strong message that extreme caution should be exercised in the early transfer of QS, but it will not prevent the effective commitment to a permanent transfer of QS by those determined to do so.

- Moratorium — Delayed Benefits

While QP trading will occur in the first two years of the program and will facilitate consolidation, to the degree that the moratorium is effective, some vessel consolidation and exit may be delayed because of uncertainty about the ultimate QS prices and the harvester's ability to acquire them. To the degree that consolidation is delayed, industry's ability to pay for program costs may be diminished. Higher vessel operation costs could reduce the price that vessels are willing to pay for QP, as compared to a situation in which QS trading was allowed, and consolidation occurred more rapidly.

- Moratorium — Administrative Costs

During the period of the moratorium, there will likely be more transfers of QP than if there is not a moratorium. Once the moratorium ends, there will likely be a period when the number of QS transfers intensifies, perhaps catching up to the number that would have occurred in the absence of the moratorium. Thus, overall administrative costs during the transition period will likely be higher with a moratorium than without.

- Annual Trading Suspension

An annual trading suspension of QS may be implemented, as necessary, to facilitate program administration. Such a short-term suspension might not significantly constrain transactions during the suspension, since nothing would prevent the signing of contracts for the QS during the suspension, with final execution of the contract occurring at the end of the suspension. Under such contracts, it is likely that, when the end-of-year suspension is over, both the QS and QP for the coming year could be transferred from the seller to the buyer. During the QS suspension, the trading of QP would continue to be allowed so as not to interfere with a harvesters' ability to cover their catch.

Depending on the nature of the administrative challenges that a suspension might help address, there may be approaches available that would not require the freezing of QS transfers. For example, suppose it appeared desirable to have a 45-day prohibition on transfers between November 1 and December 15 to determine the QS accounts to whicH QP should be issued for the following year. An alternative might be to issue QP to the holders of QS for a year based on QS account ownership as of November 1. It could be left to private contract for buyers to secure the separate transfer of the attendant QP with respect to transfers of QS occurring after November 1. On one hand, this would put less of a constraint on the market. On the other hand, it might increase administrative costs by increasing the number of transfers of QP independent of QS (any transfers of QS between November 1 and the time the QP are issued would have to be followed up with a transfer of the corresponding QP from the QS seller to the QS buyer, once the QP are issued).

A-2.2.3.d Divisibility

❖ *Provisions and Options*

QS will be highly divisible and the QP will be transferred in whole pound units (i.e., fractions of a pound could not be transferred).

❖ *Rationale and Policy Issues*

Blocking shares into indivisible units has been used in other programs to achieve social objectives (such as the west coast fixed gear sablefish tier system and sablefish and halibut IFQ programs in the north Pacific in which QS were blocked). In the north Pacific sablefish and halibut IFQ programs, some shares are blocked, and holders of unblocked QS are limited in their ability to acquire the blocked QS.[83] This is done to preserve small vessel opportunities. However, for this fishery, the divisibility is needed not only to allow vessels to achieve the most efficient scales of operation, but also to allow vessels to achieve the QP mixes needed to match the species mixes encountered in the catch, catch mixes that vary from tow to tow. Because of the need to matcH QP with variable species mixes in the catch and the desire to provide opportunities for new entrants to acquire QS in small increments, little consideration was given to the blocking of shares into larger units and maximum divisibility is emphasized.

QS divisibility might vary by species, but should probably be small enough to allow the transfer of single pounds.

❖ *Interlinked Elements*

Second to transferability, a high degree of divisibility is central to the IFQ program's ability to achieve many of its goals and objectives. If this provision is changed, a number of other program features would have to be reconsidered, particularly those related to accommodation of new entrants.

❖ *Analysis*

Divisibility is important with respect to efficiency, sector health, and labor, new entry, and small vessel opportunities. The reduction in flexibility that would result from reduced divisibility may decrease the per pound value of the quota.[84] This reduction in the value of the QS would reflect lost efficiency and reduced net benefits. Requiring that shares trade in larger units would make it more difficult to enter through incremental investments. These results might be somewhat different in a system that included both highly divisible and blocked shares, such as that in the NPFMC sablefish and halibut IFQ program.

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[83] The NPFMC restricted the number of these blocks that a person could hold in an area. If the person held any unblocked QS in an area, they could only hold one block of QS for the area. If the person did not hold unblocked QS for an area, then the person could hold up to two blocks for that area. The objective of these blocking rules was to preserve a portion of the QS for the fleet of small part-time operators (Dinneford, *et al.* 1997).

[84] As an example, in the north Pacific, the 1996 average lease price for blocked QS was $0.88 per pound of IFQ, and the average lease price for unblocked QS was $0.97 per pound of IFQ when calculated over all areas and vessel categories (Dinneford, *et al.* 1997).

A-2.2.3.e Accumulation Limits (Vessel and Control)

❖ *Provisions and Options*

This provision restricts the amount of QS and QP that may be held. Three types of accumulation limits are included, control limits, vessel limits, and an unused QP limit for vessels. The control limit would apply to QS; the vessel limit would cap the total amount of QP that may be registered to a single vessel during the year, and would cover both the vessels used and unused QP. Under this limit, a vessel could not have more QPs registered for the vessel than a predetermined percentage of the QP pool. The unused QP limit for vessels would cap the amount of unused QP in a vessel's account.

Limits[85] may vary by species/species group, areas, and sector. See Table A-82, Table A-83, and Table A-84 for the percentage options that were considered for the accumulation limit levels and the Council's final recommendations. The vessel unused QP limits may be revisited in the first biennial specifications process after implementation of the program.

Vessel Use Limit (Vessel Limit): A limit on the total QP that may be registered for a single vessel during the year. This element will mean that a vessel could not have more used and unused QPs registered for the vessel than a predetermined percentage of the QP pool.

► **Option: Vessel Unused QP Limit:** A limit on the amount of unused QP that may be registered to the vessel at any time. As QP are used, permit owners may replenish their QP accounts up to the vessel unused QP limit. This limit applies only for overfished species and Pacific halibut.

QS Control Limit:[86] A person, individually or collectively, may not control QS in excess of the specified limit (unless exempted by the grandfather clause). QS controlled by a person shall include those registered to that person, plus those controlled by other entities in which the person has a direct or indirect ownership interest, as well as shares that the person controls through other means.[87] The calculation of QS controlled by a person will follow the "individual and collective" rule.

> Individual and Collective Rule: The QS that counts toward a person's accumulation limit will include 1) the QS or QP owned by them, and 2) a portion of the QS owned by any entity in which that person has an interest. The person's share of interest in that entity will determine the portion of that entity's QS that counts toward the person's limit.[88]

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85 In this section, the term "permit" was changed to "vessel" to be consistent with Section A-2.1.3, which indicates that QP go into vessel accounts, not permit accounts. The term "own or control" was shortened to "control" for simplicity. Control includes ownership.

86 In the preliminary preferred alternative, and prior to revisions made in the spring of 2009, the control limit applied to both QS and QP. This was changed so that the vessel limit could be set greater than the control limit. Further explanation of this change is provided in the rationale.

87 It is the Council's intent that control limits should not constrain the formation of risk pools to help the fishermen deal with overfished species constraints, as long as the pools do not undermine the effectiveness of the accumulation limits. A risk pool is one in which two or more people enter into an agreement whereby if one person does not have the QP it needs, the others would agree to provide the QP, if they have them. Whether these kinds of agreements are informal or formal, they may begin to constitute control as other considerations and conditions are added to the agreements. It is the Council's intent to allow for these pooling agreements, so long as they do not become control.

88 For example, if a person has a 50 percent ownership interest in that entity, then 50 percent of the QS owned by that entity will count against the individual's accumulation limit unless it is otherwise determined that the individual has effective control of a greater or lesser amount.

Grandfather Clause and Divestiture:

Option 1: A grandfather clause will apply to (1) vessel accumulation limits and (2) control accumulation limits. This clause allows a person, if initially allocated QS in amounts in excess of the cap, to maintain ownership of the QS. The grandfather clause will expire with a change in ownership[89] of the QS. If the owner divests some of the QS, the owner may not reacquire QS or QP until the owner is under the cap. Once under the cap, the grandfather clause expires and additional QS or QP may be acquired but not in excess of the control caps.

Option 2: Same as Option 1 but the maximum allowed under the grandfather clause will be twice the vessel accumulation limit.

Option 3: There will not be a grandfather clause and there will be no opportunity to receive QS and divest of it.

►**Option 4:** There will not be a grandfather clause for the control limits, however, an adjustment period is provided through the following divestiture rules. QS will be issued for amounts in excess of aggregate and species control limits only for holders of permits transferred by November 8, 2008, if such transfers have been registered with NMFS by November 30, 2008. The holder of any permit transferred after that time will be eligible to receive an initial allocation for that permit of only those QS that are within the aggregate and individual species control limits. Anyone who qualifies for an initial allocation of QS in excess of the control limits will be allowed to receive that allocation but required to divest themselves of that excess QS sometime during years 3 and 4 of the IFQ program (the two years after the QS transfer moratorium specified in Section A-2.2.3.c). Holders of QS in excess of the limits may receive and use the QP associated with that excess, up to the time their divestiture is completed. However, QP for year 5 of the program will not be issued for QS held in excess of the limits. At the end of year 4, any QS still held in excess of the species or aggregate limits in place at the time of the initial QS allocation will be revoked and redistributed to the remainder of the QS holders in proportion to their QS holdings. No compensation will be due for any revoked shares. Divestiture transfers will be allowed in accordance with the provisions established here and the transfer rules and processes implemented by NMFS. Permit transfers will not be limited or required by the divestiture provision.

Calculation of Aggregate Nonwhiting QS Holdings: To determining how much aggregate nonwhiting QS an entity holds, an entity's QS for each species will be converted to pounds. This conversion will always be conducted using the trawl allocations applied to the 2010 OYs, until such time as the Council recommends otherwise. Specifically, each entity's QS for each species will be multiplied by the shoreside trawl allocation for that species. The entity's pounds for all nonwhiting species will then be summed and divided by the shoreside trawl allocation of all nonwhiting species to get the entity's share of the aggregate nonwhiting trawl quota.

Note: Absent guidance otherwise, Options 2 and 3 would be implemented in such a manner as to not alter other provisions of the program. Specifically, QS that is not allocated because of the limit or absence of the grandfather clause will be distributed to other eligible recipients in a manner that maintains the distribution among groups specified in A-2.1.1 and based on the allocation formulas specified in A-2.1.3.

❖ *Rationale and Options Considered, But Not Included*

There is a tension between allowing a sufficient accumulation to improve the efficiencies of harvesting activities and preventing levels of accumulation that could result in a variety of adverse economic and social effects. Excessive accumulation of the control of IFQ can result in changes in the structure of the fishing industry and communities and, in the extreme, possibly reduce net economic benefits (in the unlikely event that those accumulating QS alter total production). While some IFQ programs rely solely

[89] **Change in Ownership definition:** For the purpose of the grandfather clause, ownership of a legal entity is defined to change with the addition of a new member to the corporation, partnership, or other legal entity. Members may leave without causing the grandfather clause to expire for that entity.

on antitrust law to prevent excessive concentration of shares, experience has shown this not sufficient to prevent problems resulting from excessive concentration of IFQ (NRC 1999) (pg. 209). The NRC also notes that concentration limits may not be very effective if ways can be found to circumvent them.

National Standard 4 of the MSA has always required the consideration of excessive shares:

> (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 privilege.* [Emphasis added]

Additionally, the reauthorized MSA requires that accumulation limits be established within a limited-access privilege program.

> (5) ALLOCATION. — In developing a LAPP to harvest fish the Council or secretary shall—
> (D) ensure that LAP holders do not acquire an excessive share of the total LAPs in the program by—
> (i) establishing a maximum share, expressed as a percentage of the total LAPs, that a LAP holder is permitted to hold, acquire, or use; and
> (ii) establishing any other limitations or measures necessary to prevent an inequitable concentration of LAPs.

There are a number of policy choices associated with the specification of accumulation limits.

1. Should there be a vessel limit (production level limits: vessel or permit limit)?
2. Should there be a control or ownership limit?
3. How should control be defined and what scope of control relationships should be considered? Should both QS and QP count against the limits?
4. Should there be a grandfather clause and is there a need for a control date?
5. If there is no grandfather clause, what should be done with QS that is not allocated to entities because the allocation would exceed the accumulation limit?
6. At what levels should the limits be set?
7. How should aggregate limits be applied as the trawl allocation changes?

Each of these policy choices will be discussed in the following sections along with other options considered but rejected.

Table A-82. Page numbers for sections on accumulations limit rationale and analysis.

	Rationale	**Analysis**
Vessel Limit (Production Level Limit: Vessel or Permit)	A-287	A-336
Vessel Unused QP Limit	A-288	A-339
QS Control Limit	A-288	A-340
The QS Control Rule and Included Scope of Control Relationships	A-289	A-342
Grandfather Clause, Divestiture and Cut-off Date	A-296	A-346
Percentages for Limits	A-301	A-352
Calculation of the Aggregate	A-335	A-370

♦ *Vessel Limit (Production Level Limit: Vessel or Permit)*

The vessel would limit the total amount of QP a vessel could use each year (both the used and unused QP in the vessel account). Permit limits were considered as an alternative to vessel limits, but rejected.

This section includes the following:

- The reason for including a vessel limit
- The contrast of a vessel limit with a permit limit

The following section covers a different kind of vessel limit: the vessel unused QP limit.

The Council's final preferred alternative contains a vessel limit. The vessel limit applies at the level of the production unit (as compared to the control limit, which does not directly restrict the amount of fish used on a vessel). The vessel limit would be intended to achieve the following:

- Ensure that there is at least some minimum number of fishing vessels in the fleet to support more job positions and the purchase of more equipment, supplies, and support from fishing communities
- Increase the likelihood that harvest would be geographically dispersed
- Serve as a back up to the control limit (control limits may be difficult to monitor and enforce)

The Council is balancing the need to address these objectives with the risk that restrictive vessel limits may decrease potential efficiency gains from consolidation.

A grandfather clause was considered for the control limits and for vessel limits, but was not developed for the vessel limits. On a share of catch basis, vessel limits were set above the maximum historic catches of any individual vessel.[90]

A permit accumulation limit was considered as an alternative to a vessel limit. In order for a permit limit to achieve an effect similar to the vessel limit, there would have to be a prohibition on the stacking of permits and on the rotation of permits through a single vessel. Without such limits on stacking and rotation, the permit based limit would function more like a control limit in that it would not affect the number of vessels in the fleet.[91] The vessel-based limit is simpler than the permit limit because there is no need for provisions related to limiting the stacking or rotation of permits.

[90] A grandfather clause for the vessel limits would present certain implementation challenges. The accumulation limit grandfather clause is generally structured to allow entities to maintain QS they receive in excess of the accumulation limits, but does not address a grandfather level for QP used on a vessel. The grandfather clause would be intended to facilitate initial allocations. QS are issued as part of the initial allocation. QP are not issued until later in the implementation process. Additionally, QS are issued to entities that own permits, not to vessels. Therefore, there is no direct permanent link between a particular permit and vessel. If the Council wanted to grandfather vessels in at certain production levels, an additional provision would be needed to establish the grandfather levels for vessels. A simple approach would be to set the vessel's grandfather level to the amount of QS received for the permit associated with the vessel. A few other decisions would also be needed: the conditions under which the vessel grandfather clause expires (e.g., whether the clause expires with a change in ownership of the permit or vessel) and whether one vessel may be substituted for another without the grandfather clause expiring (i.e., whether the vessel grandfather exemption stays with the vessel or transfers with the permit).

[91] Relative to the vessel-based limit, the permit-based limit would simplify implementation of a grandfather clause because the grandfather clause provisions can be easily applied to the permit: the grandfather level would be determined based on the permit's allocation of QS, and the grandfather clause would expire with a change in ownership of the permit (vessels could be replaced through the transfer of a permit without having the grandfather clause expire).

♦ *Vessel Unused QP Limit*

The Council developed an unused QP limit for incidentally caught overfished species. Under the unused QP approach, a vessel is limited in the amount of unused QP it may hold in its account at any one time, but is potentially free to acquire as much additional QP as is necessary to cover its actual catch of overfished species. The utility of this approach depends on the substantial incentives that vessels have to avoid overfished species: (1) the amount of overfished species QP available will be quite limited, particularly for certain species and, therefore, very expensive to acquire; (2) any overfished species the vessel does not need can be sold, likely at a high price. Absent these incentives to avoid overfished species, the unused QP approach would not work because it would effectively provide no cap on the amount of the species a vessel catches.

Two specific reasons have been identified for considering the unused QP approach:

1. **The Difficulty of Choosing the Right Limit for Incidentally Caught Overfished Species.** An overly constraining vessel QP limit for overfished species could prevent a vessel from accessing its target species QP. Because of variability in bycatch rates along the coast and across different fishing strategies, it is very difficult to pick one QP limit for overfished species that would be large enough to accommodate needs in every geographic area and strategy without providing limits substantially in excess of that needed for others.
2. **Facilitating the Choice of a Lower Limit.** A vessel unused QP limit would not restrict the total amount of overfished species QP a vessel could access to cover the incidental catch taken with its target species. Therefore, the vessel limit could be set at a lower level without constraining vessel's catch of target species (assuming the vessel is able to acquire additional overfished species QP on the market as needed). A lower vessel limit may help maintain QP availability in the market by reducing the opportunity for vessels to sequester overfished species in their accounts on the chance they might need it to cover an unexpectedly high bycatch rate.

The rationale for use of the unused QP approach is discussed further below in the section on the rationale for setting the percentages for the control and vessel limits.

♦ *QS Control Limit*

In this section, we address the following:

- Reasons for having a control limit and reasons for having a control limit instead of an ownership limit
- Rationale regarding whether there should be different control limits for different types of entities

A limit on the amount of QS an entity would be allowed to control is proposed to address requirements of the MSA and a number of goals and objectives. Control limits could achieve the following:

- Contribute to efficiency if the control limits are set at a level that prevents the exertion of market power without constraining operation sizes to below the most efficient levels (MSA – National Standard 5, Groundfish FMP Goal 2 and Objective 7, Amendment 20 Objective 2 and 6)
- Prevent the accumulation of excessive shares (MSA – National Standard 5, 303(c)(5)(B)(ii), 303(A)(c)(5)(D), Amendment 20 Constraint 6)
- Contribute to sector health (Amendment 20, Objectives 2 and 6)

- Help to geographically disperse harvest and landings to the benefit of communities (MSA – National Standard 8, 202A(c)(5)(B); Groundfish FMP Objective 16; Amendment 20 Objective 5 and Constraint 3)
- Contribute to fairness and equity (MSA – National Standard 4(a), 3030(c)(5)(A); Amendment 20 constraint 5);

Please see Table 6-1 for additional description of the referenced guidance.

Consideration was given to relying solely on antitrust laws to address concerns about excessive shares; however, the level of aggregation required to establish the anticompetitive behaviors that are of antitrust concern may be substantially greater than the levels of aggregation that trigger concerns about fairness and equity, geographic distribution, communities, or sector health.

The Council also considered having an ownership limit and a control limit. The term "owner" is used to designate the person with whom the QS is registered through NMFS. In general, *control* includes both the control exerted through ownership of the QS and the control exerted by the ability to direct the use of QS. To address the stated objectives, a limit is needed on the amount of control. A separate ownership limit that is a subset of a control limit would serve little purpose and would add to the complexity of the regulations. Therefore, the Council decided there should be a control limit that subsumes ownership.

Another question to be addressed with respect to the QS control limit is whether there should be different types of control limits for different types of entities (e.g., control limits for harvesters that are different than control limits for crewmembers, processors, or communities). In particular, processors have argued that they should have greater control limits because they handle larger volumes of product. It has also been argued the communities should have larger control limits to address the needs of their entire fleet and that harvester cooperatives should have greater limits to form risk management pools and take advantage of other benefits that may flow from the formation of harvester cooperatives.

When discussed by the TIQC, there were two reasons that setting up different control limit for different groups was rejected. First, the differential limits could be circumvented if an entity would be able to make some simple adjustments and qualify as the type of entity that has the highest accumulation limit. For example, if processor limits would be substantially higher than harvester limits, then harvesting companies might make adjustments that allow them to qualify as a processor (e.g., acquire a processing license and process a small amount of fish or take on a minority processor interest). The second reason for not having different control limit levels for different types of entities was that control limits are less of a direct impediment to operations of other entities, as compared to harvesters. Thus, there did not appear to be a need to provide higher control limits for other groups. However, the Council has expressed its intent to consider a special higher limit for CFAs to facilitate groups of QS holders working together. This would occur as part of a trailing amendment. The rationale would be that these higher limits are needed to allow certain types of group activities that advance Council goals and objectives for the fishery and which would not be possible or as effectively carried out without the higher limits.

♦ *The QS Control Rule and Included Scope of Control Relationships*

The control rule and specification of its scope will affect goals and objectives through its impact on the effectiveness of the limits on control. Control may be exerted directly or indirectly.

PARSING THE QS CONTROL RULE

The full control rule is as follows:

> **Control Limit:** A person, individually or collectively, may not control QS in excess of the specified limit (unless exempted by the grandfather clause). QS controlled by a person shall include those registered to that person, plus those controlled by other entities in which the person has a direct or indirect ownership interest, as well as shares that the person controls through other means. The calculation of QS controlled by a person will follow the "individual and collective" rule:
>
> > Individual and Collective Rule: The QS that counts toward a person's accumulation limit will include (1) the QS owned by them, and 2) a portion of the QS owned by any entity in which that person has an interest. The person's share of interest in that entity will determine the portion of that entity's QS that counts toward the person's limit.[92]

We will now review a number of the key aspects of this rule.

QS Control Limit: A person, individually or collectively . . .

This definition applies to all legal persons, whether they are individuals, partnerships, corporations or other legal entities. By including all legal persons within the scope of the rule (rather than just individuals), this specification acknowledges the abilities of individuals to use partnerships, corporations, and other legal entities to exert control, or for these other types of legal entities, to exert collective control.

Where an individual or group of individuals have collectively formed a legal entity, the individual's influence over the collective legal entity will be taken into account in assessing the control exerted by the individual. Ownership is only one type of influence. The exact formula used to determine the total amount of QS a person controls through ownership is specified below in the "individual and collective rule." This specification will make it more difficult for an individual to circumvent the control cap by exerting influence over a number of different legal entities (e.g., partnerships or corporations).

QS Control Limit: . . . QS controlled by a person . . .

The Council considered applying the control limit to both the QS and QP controlled by a person. However, in order to balance efficiency objectives that require the concentration of harvest on fewer vessels with social objectives related to maintaining a broad distribution of benefits from QS control/ownership, the Council determined that it would be desirable to set the vessel limits at a higher level than the control limits. This created a conflict in that if the control limits applied to QP, and a person was considered to control QP placed on its vessel, then there would be no way to reach the vessel limit without violating the control limit.[93] The Council, therefore, modified the definition of

[92] For example, if a person has a 50 percent ownership interest in that entity, then 50 percent of the QS owned by that entity will count against the individual's accumulation limit.

[93] The possibility that QP might be used on a vessel without placing the QP under control of the owner was discussed. However, this adds complexity both to the tracking of the QP and to the process for crediting catch against QP. For vessels with more QP than the control limit, catch would have to be counted against each of the separate accounts held for the vessel. In addition to adding to the complexity of the tracking system, it would also add a source for error and disagreement and raise questions regarding who is responsible for the various accounts on the vessel. Adding more accounts to the vessel would also require consideration of how

control to exclude explicit control of QP. Not counting QP against the control limit may make it easier for an individual to use indirect methods to exert control without being detected. For example, an individual might use side contracts to acquire QP issued each year for particular QS. Depending on other aspects of the agreement by which the transfers are made, even though the control limit would not apply to QP, a determination could be made that the entity is effectively controlling the QS that is behind the QP. Thus, while a person's control of QP would not automatically be counted toward the control limit, its control of QP could indicate that it also controls the underlying QS. Again, whether the entity acquiring the QP actually controls the underlying QS would largely depend on the circumstances under which the QP are acquired and other aspects of the relationship between the persons receiving and providing the QP.

QS Control Limit . . . shall include those registered to that person . . .

All QS registered with NMFS under the person's name would count against that person's accumulation limit. This language intentionally uses the word "include" so as not to exclude counting QS against a person's limit, even though it is not registered to the person.

QS Control Limit: . . . plus those controlled by other entities in which the person has a direct or indirect ownership interest . . .

The mention of indirect ownership provided here sets up the definition for application of the "Individual and Collective Rule." Indirect ownership might include ownership through intermediary entities, e.g., if Individual A participates in a partnership that has an ownership interest in a corporation that owns or controls QS, some portion of the QS that corporation owns or controls would count against Individual A's limit.

QS Control Limit: . . . as well as shares that the person controls through other means. . .

This language makes it explicit that the term "control" covers means of control beyond ownership. Ultimately, the evaluation of control depends only partially on direct ownership of QS or ownership of some other entity that owns the QS; i.e., one entity may have no direct ownership in another entity or its QS, but still be found to exert control over that other entity and/or the QS it holds.

QS Control Limit. . . The calculation of QS or QP controlled by a person will follow the "individual and collective" rule:

> Individual and Collective Rule: The QS or QP that counts toward a person's accumulation limit will include (1) the QS or QP owned by them, and 2) a portion of the QS or QP owned by any entity in which that person has an interest. The person's share of interest in that entity will determine the portion of that entity's QS or QP that counts toward the person's limit.

This language provides definition and a formula for assessing control through ownership. Note that this rule applies only for the purpose of determining amounts controlled through ownership

the carryover provisions would be applied (which, to this point, have been based on the QP in the vessel account). An assumed constraint in the design of the program has been that once QP are issued for the year we would not track their source. They would be treated similar to bank accounts in that only the total amounts in an account are relevant, not the source of the QP.

and does not cover or restrict the consideration of control through other means in determining the total amount of QS an entity controls. For example, if it was determined that a person who was a partial owner in a corporation effectively exerted complete control over the disposition of QS held by that corporation, all of the QS owned by that corporation might be counted against that person in an evaluation of the "shares that the person controls through other means," depending on case specific circumstances.

OWNERSHIP CALCULATIONS (DOWNSTREAM AND UPSTREAM ACCOUNTING)

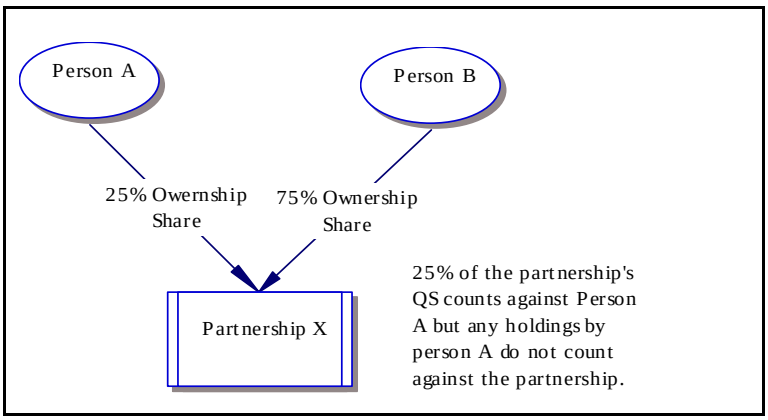


Figure A-96. Downstream accounting for control through ownership.

Under the individual and collective rule, persons are considered to control legal entities, but legal entities are not considered to control persons who control the legal entity. The QS owned by downstream entities counts against control limits of upstream owners, but the QS ownership of upstream owners does not automatically count against the QS of downstream entities. For example, in Figure A-118, a portion of the downstream partnership's QS (Partnership X) would count against Person A, but Person A is upstream of the partnership, and any QS owned by Person A separately from the partnership would not automatically count against the downstream partnership.

Consideration was given to automatically counting against an entity all shares owned by individuals who have some ownership in that entity (upstream accounting). Under such a rule, the control limits could become rapidly over-restrictive because the QS of individuals with only a very distant ownership relationship to a particular entity would still count against that entity. Figure A-119 diagrams an example of partnership QS accounting for a rule under which there is only downstream accounting (QS owned by a partner does not count toward the partnership's QS). Figure A-120 diagrams the same relationships for a rule under which there is both downstream and upstream accounting (QS owned by a partner does count toward the partnership's QS). In these figures, the QS owned by an entity is provided in the diamond shapes, and the entities are represented in circles (individuals) or squares (partnerships). The percent of a partnership a person controls is indicated in the arrows pointing to that partnership. The amount of QS counted against an entity is provided in parentheses in the square or circle. In these examples, Persons A, B, and C are individuals. Persons A, B, or C could also be partnerships, corporations, or other legal entities, in which case there would be additional boxes showing the upstream individuals who owned those entities.

Under the downstream accounting illustrated in Figure A-119, Person A is considered to have ownership over 0.75 percent of the QS (Person A's own 0.5 percent and 25 percent of partnership X's 1 percent QS). Person B is considered to own 1 percent of the QS (75 percent of Partnership X's 1 percent QS and 50 percent of Partnership Y's 0.5 percent QS). Person C is considered to own 0.25 percent of the QS (50 percent of Partnership Y's QS). Note that this method and these illustrations are only for determination of control through ownership. For example, it might be determined that

Person B controls all of the QS of Partnership X because of Person B's 75 percent interest in Partnership X.

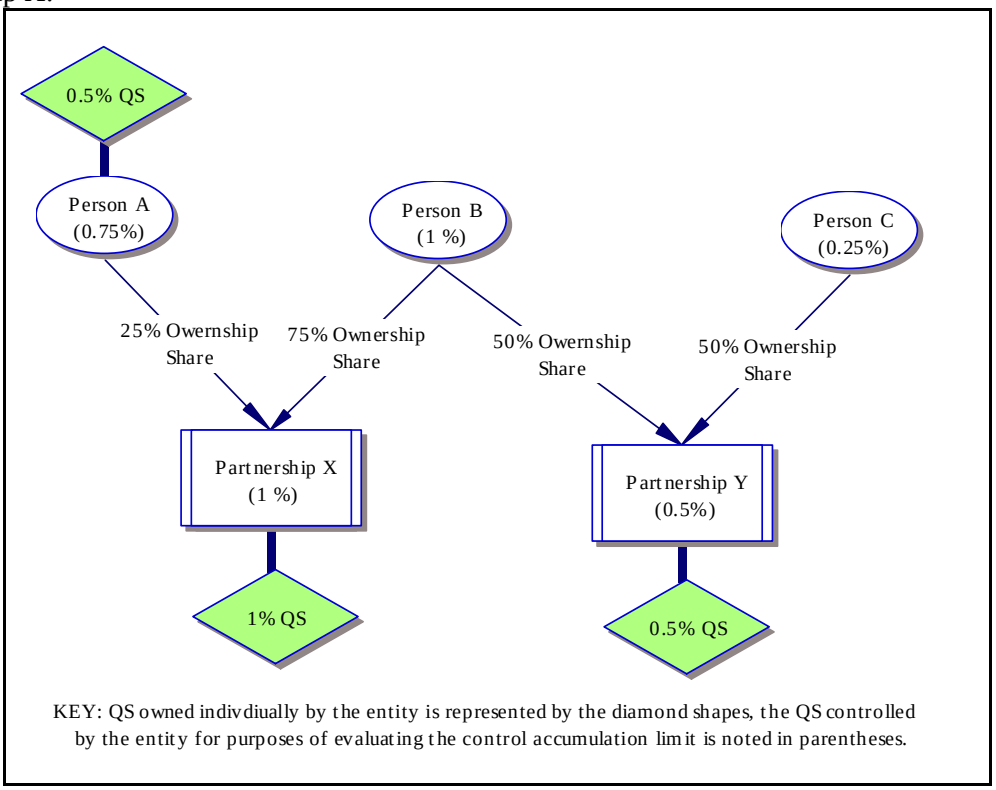
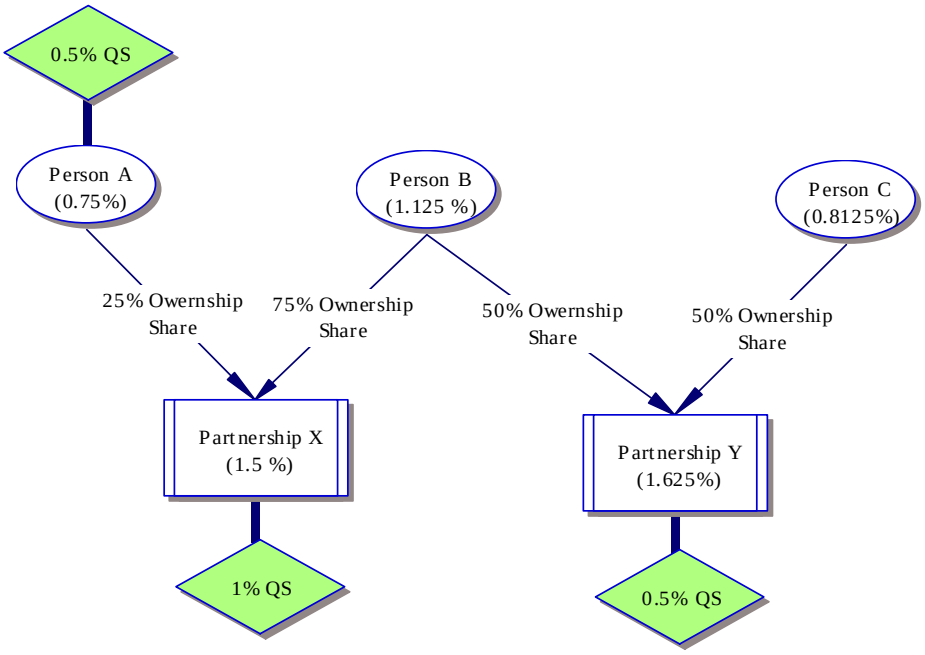


Figure A-97. QS accounting if the QS owned by a partner does not count toward the partnership's QS (downstream accounting only).

As compared to downstream-only accounting, the impact of upstream and downstream accounting illustrated in Figure A-120 is most marked for Partnership Y and Person C. For these two entities, the QS attributed to them more than doubles. Because all of Person A's QS counts against Partnership X, Partnership X has 1.5 percent QS and Person B's 75 percent interest in Partnership X is counted as giving him control over 1.125 percent QS (of which 0.375 percent is that which Person A owns on his own). The QS Person B controls then counts against Partnership Y, which increases that partnership's QS to 1.625 percent (of which 0.375 percent is that which Person A owns on his own, and 0.75 percent is that held by Partnership X). Figure A-120 shows only a partial accounting for upstream ownership. For a full accounting, Person B's ownership of Partnership Y would be counted against Partnership X, increasing Partnership X's QS holdings by 0.25 percent to 1.75 percent. This would then increase Person A's holdings by 0.675 percent (25 percent of 0.25 percent) to 0.8175 percent. Thus, the full effect of upstream accounting is to increase both the extent of the constraint and the complexity of the accounting.

The decision on the downstream/upstream accounting aspect of the control rule draws a balance between a "cascading effect" that may unfairly restrict a person based on the actions of a distantly related entities (Persons A and C in Figure A-120) and the opportunity for an entity to circumvent the limits by a chaining together a number of partnerships that work cooperatively to control QS in excess of limits. It is at this point that the portion of the rule that includes "as well as shares that the person controls through other means" becomes important. Even under a rule that does not automatically count upstream ownership control of QS against limits for downstream entities, if it were determined that upstream ownership and the chaining together of entities was being used to circumvent QS control

limits, such control would still be considered a violation of the limit. Such situations would be evaluated on a case-by-case basis.



KEY: QS owned indivdiually by the entity is represented by the diamond shapes, the QS controlled by the entity for purposes of evaluating the control accumulation limit is noted in parentheses.

Figure A-98. QS accounting if the QS owned by a partner does count toward the partnership's QS (upstream and downstream accounting) (Note: Partnership X's and Person A's QS have not been fully adjusted to account for Person B's separate ownership of Partnership Y. See text for discussion).

An alternative specification of the control rule could count the QS/QP owned by a partner against all entities owned by that partner but not against the other owners of those entities. Under such a rule, in Figure A-120, Partnership X would still be considered to control 1.5 percent of the QS, but Person B would be considered to control only 0.75 percent of the QS (as in Figure A-119), and Partnership Y and Person C would also be unaffected by Person A's ownership of QS (also as in Figure A-119). As compared to a downstream-only rule, this would make it somewhat more difficult to circumvent control limits by chaining entities together, but would not eliminate the problem and would add complexity to the control rule.

Another version of the calculation for the individual and collective rule would have counted 100 percent of the QS held by any entity against each owner of that entity, regardless of the owner's share of ownership. A variation on this approach would count 100 percent of the QS held by an entity against each owner who has at least a 10 percent interest in the entity. Under such an approach, in Figure A-119, Person A would be considered to control 1.5 percent QS. This approach, while making it more difficult to exert covert control over QS, would also constrain a person's ability to participate in multiple partnerships or corporations, or to hold QS and participate in fishing separately from the partnership or corporation in which it also participates. The net effect of the 100 percent approach would likely be to fragment the ownership in the fishery into more distinct units than may now be the case.

From the above discussion, it is apparent that in specifying the control rule, the Council is balancing the following:

- Complexity
- Unintended constraints on business arrangements due to the cascading effect of a more broadly specified control rule
- The effectiveness of the control rule as evaluated based on ownership information alone
- The need and cost of enforcing abuses through investigation of control exerted by means not captured under the rules for evaluating control through ownership

IMPLEMENTATION OF THE CONTROL RULE

In implementing the QS control limit, NMFS would provide a regulatory definition of the Council's intent. With respect to the interpretation of "otherwise controls," the following is the regulatory interpretation that was provided for similar policy language for the North Pacific crab rationalization program[94] *(Note: minor revisions have been made to these examples so that they can be better understood in the context of the IFQ Alternative):*

a) The person has the right to direct, or does direct, the business of the entity to which the QS are registered.
b) The person has the right to direct, or does direct, the delivery of groundfish harvested under a permit registered to a different person/entity.
c) The person has the right in the ordinary course of business to limit the actions of or replace, or does limit or replace, the chief executive officer, a majority of the board of directors, any general partner, or any person serving in a management capacity of the entity to which the QS is registered.
d) The person has the right to direct, or does direct, the transfer of QS.
e) The person, through loan covenants, has the right to restrict, or does restrict, the day-to-day business activities and management policies of the entity to which the QS is registered.
f) The person has the right to control, or does control. the management of, or to be a controlling factor in, the entity to which the QS is registered.
g) The person has the right to cause, or does cause, the sale of QS.
h) The person absorbs all of the costs and normal business risks associated with ownership and operation of the entity to which the QS is registered.
i) The person has the ability through any other means whatsoever to control the entity to which the QS is registered.

The catchall phrase at the end of the definition, "shares that the person controls through other means," restricts ways to circumvent the accumulation limit, but also presents questions as to how the definition should be interpreted in its implementation. Examples include the questions below:

- *If someone is a crewmember of a vessel or a cutting line employee for a processor, should the shares owned by that person be considered within the control of the harvesting/processing company?*
- *If someone is a vessel captain or a plant manager, should the shares owned by that person be considered within the control of the harvesting/processing company?*
- *If someone leases the vessel/facility to the harvesting/processing business, should the harvesting/processing business be considered under that person's control?*
  If there is only one processor in the port, should that processor be considered to control the harvesting operations (and use of quota) of vessels in that port?

[94] NMFS based its examples on the indices used for determining impermissible control by a noncitizen of a U.S. fishing vessel under MARAD regulations at (46 CFR 356.11)

Ultimately, the evaluation of a possible accumulation limit violation would be based on specific situational facts.

♦ *Grandfather Clause, Divestiture, and Cut-off Date*

Grandfather Clause and Divestiture:

Option 1: A grandfather clause will apply to (1) vessel accumulation limits and (2) control accumulation limits. This clause allows a person, if initially allocated QS in amounts in excess of the cap, to maintain ownership of the QS. The grandfather clause will expire with a change in ownership[95] of the QS. If the owner divests some of the QS, the owner may not reacquire QS or QP until the owner is under the cap. Once under the cap, the grandfather clause expires and additional QS or QP may be acquired but not in excess of the control caps.

Option 2: Same as Option 1 but the maximum allowed under the grandfather clause will be twice the vessel accumulation limit.

Option 3: There will not be a grandfather clause and there will be no opportunity to receive QS and divest of it.

►**Option 4:** There will not be a grandfather clause for the control limits, however, an adjustment period is provided through the following divestiture rules. QS will be issued for amounts in excess of aggregate and species control limits only for holders of permits transferred by November 8, 2008, if such transfers have been registered with NMFS by November 30, 2008. The holder of any permit transferred after that time will be eligible to receive an initial allocation for that permit of only those QS that are within the aggregate and individual species control limits. Anyone who qualifies for an initial allocation of QS in excess of the control limits will be allowed to receive that allocation but required to divest themselves of that excess QS sometime during years 3 and 4 of the IFQ program (the two years after the QS transfer moratorium specified in Section A-2.2.3.c). Holders of QS in excess of the limits may receive and use the QP associated with that excess, up to the time their divestiture is completed. However, QP for year 5 of the program will not be issued for QS held in excess of the limits. At the end of year 4, any QS still held in excess of the species or aggregate limits in place at the time of the initial QS allocation will be revoked and redistributed to the remainder of the QS holders in proportion to their QS holdings. No compensation will be due for any revoked shares. Divestiture transfers will be allowed in accordance with the provisions established here and the transfer rules and processes implemented by NMFS. Permit transfers will not be limited or required by the divestiture provision.

There are a number of significant choices within this element. The first is whether to have a grandfather clause (Option 1 or 2 vs. Option 3 or 4) and, if so, the level of the grandfather clause (Option 1 vs. Option 2). If there is no grandfather clause, then a choice is required regarding whether the QS that would be issued in excess of accumulation limits will instead be distributed to all of those under the limits (Option 3), or whether the QS will be issued in accord with the formula and provide those receiving amounts in excess of the accumulation limits an opportunity to divest (Option 4). If there is a grandfather clause or opportunity to divest, will there be a cutoff date beyond which any additional permits acquired will not entitle an initial recipient to receive QS in excess of accumulation limits under any circumstances (Options, 1, 2, and 4)? If there is no grandfather clause, and no opportunity to divest (Option 3), then there is a choice on the order in which the accumulation limits are applied.[96] The order will affect the mix of species an entity receives as part of its initial allocation. Finally is a question as to

[95] Change in Ownership definition: For the purpose of the grandfather clause, ownership of a legal entity is defined to change with the addition of a new member to the corporation, partnership, or other legal entity. Members may leave without causing the grandfather clause to expire for that entity.

[96] Additionally, the order of application of the limits will affect the species mix of the QS issued to any entity that acquires an additional permit after the November 8, 2008, control date, whether or not that acquisition butts the entity over the accumulation limit.

whether the grandfather clause should be applied to vessels. The following subsections take up each of these topics in the order presented here.

GRANDFATHER CLAUSE

The primary purpose of a grandfather clause (Option 1) would be to reduce disruption in the transition to a new program. Fairness and equity are also concerns. The MSA mandates that in order to ensure a fair and equitable initial allocation, the Council consider current and historical harvests in the fishery and participation of fishing communities, employment (harvesting and processing), investment, and dependence. After considering these factors, a broad scope of actions is available for the Council. One possible response is the adoption of a grandfather clause (Option 1). Option 2 would provide a result that is intermediary between the choice of no grandfather clause and a grandfather clause (i.e., a grandfather clause that is capped at twice the QS control limit. On one hand, a grandfather clause could be appropriate if the Council determines there are certain past or existing practices that would not be allowed under a new program, but believes that those practices should not be immediately disrupted. On the other hand, a grandfather clause could delay the full effect and benefit from the program and could create a class of participants with an advantage over other participants. These types of tradeoffs are taken into account in the Council's development of its recommendations.

In addition to the disruption issue, the question of a grandfather clause pits a number of fairness and equity questions against one another. If there is no grandfather clause, and accumulation limits are below what is needed for some highliners to take their historic harvest levels, is it fair that some entities should have their historic practices disrupted (particularly given that the one of the purposes of rationalization is to reduce capital in the fishery and increase efficiency)? If there is a grandfather clause, is it fair that some entities should have advantages over others and that many of those who will benefit from the program will have to wait for the full benefits until the grandfather provisions expire? Finally, there is a fairness question associated with issues of advance notice and the impacts of not having a grandfather clause on those who would receive QS in excess of limits because they have acquired permits during the Council's deliberations on trawl rationalization. This last issue will be discussed below in the section on cutoff dates.

The Council decided that it would not recommend a grandfather clause for those who would otherwise receive an initial QS allocation in excess of limits. The tradeoff in the impacts of this decision was based on the level at which the Council chose to set the QS control limits. These limits were set such that it was not expected that any single permit (or whiting processor) would receive an initial allocation of QS in excess of limits. Therefore, the absence of a grandfather clause would not be expected to impact the ability of such entities to receive the QS that would go to them under the allocation formula. Owners of multiple permits could be adversely impacted in terms of their initial allocations; however, this would not disrupt their ability to continue to operate multiple vessels if they so desires. The result of the QS control limits and absence of a grandfather clause mean that such owners will have to acquire QP from other QS owners each year, rather than relying on QS they own. This result addresses Council concerns about ensuring that there is not excessive accumulation of QS (that the benefits of QS ownership are distributed), while at the same time allowing the generation of efficiency benefits from permitting larger-scale operations. Limiting distribution of QS to maximum levels that reflect that needed by individual permits is expected to better maintain the social character of the industry and its relationship to the communities in which the fleet operates. This result might also have been achieved with a grandfather clause as initial recipients of amounts in excess of limits retire from QS ownership; however, without a grandfather clause the result is achieved earlier in the program. In summary, the absence of a grandfather clause does not constrain the initial allocation to single-permit owners and processors that do not own permits, will not prevent those operating multiple vessels from continuing to do so by relying on QP available from other QS owners, maintains levels of QS ownership aggregation that are expected to be less disruptive to the historic character of the industry and its relationship to communities, and achieves that end earlier than would be the case if there were a grandfather clause.

DISPOSITION OF AMOUNTS IN EXCESS OF LIMITS

In the absence of a grandfather clause, a decision is needed as to the disposition of the QS that would otherwise go to those who would receive QS in excess of control limits. The Council formally considered two options, distribution of that QS to those under the QS limits (Option 3) and allowing those who would receive QS in excess of the limits to receive that QS, but requiring them to divest themselves of the QS within a certain time period (Option 4). There are also other possibilities for disposition of the excess amounts. For example, those amounts could have been redistributed in auctions, through a lottery, or to CFAs. One of the main concerns in moving to a trawl rationalization program is to achieve the move while minimizing disruptive effects and considering recent and historical harvests. In general, because of the averaging effects inherent in most allocation formulas, many participants do not receive amounts sufficient to support their existing activities. This is particularly true with respect to the larger producers (see Section 2.1.3). Therefore, disposition of excess back to the existing operations helps reduce disruption and accounts for recent and historic participation. Options 3 and 4 achieve this end in different ways. Option 3 reallocates the excess back to those who are under the limits in proportion to the allocations they receive under the allocation formula. Option 4 allows those who qualify for that excess to receive an initial capital gain from the initial allocation, but not the long-term security that comes from being able to hold the QS to support their fishery-related operations.[97]

The Council adopted the divestiture provision of Option 4, in part because there had been some confusion in the industry as to whether the November 6, 2003, control date applied to fishing activities or to other activities as well (such as the acquisition of additional permits). Because of this confusion, a number of entities had invested in additional permits anticipating that they would receive benefits from the initial allocations. With respect to fairness and equity, there are two groups to consider, those that chose to buy permits after 2003, and those that did not make that choice. The divestiture provision was viewed as fair to both. It is fair to those who did buy additional permits after that time by allowing them partially to recapture their investment by being given the QS and QP; it is also fair to those who did not additional permits. Divestiture recognizes the decisions being made by those on both sides of this issue.

The following provides some of the rationale for specific elements of the divestiture provision. The November 8, 2008, cutoff for permit acquisition is based on the date on which the Council took its final action making it clear that there would not be a grandfather clause. Since contracts for permit sales may have been signed before that date, but the sales not registered with NMFS until afterward, November 30 was established as a cutoff date for the registration of the sale with NMFS. The Council felt it reasonable to expect that anyone who qualifies for QS in excess of limits based on permits acquired after that date would have had sufficient notice of the risks entailed in their acquisition. Those with QS in excess of limits are allowed to receive QP for their excess QS until they divest because of concern about impacts on the community, the need to avoid major disruptions, and to provide supply to the markets. Absent this provision, the QP associated with the excess would have been redistributed to QS holders throughout the coast in proportion to the amount of QS they hold below the limits. This is more likely to maintain the fishing activity within the community. Further, there is an expectation that some of those who will be forced to divest of their QS will do so in a way that maintains the QS in the local communities. The two-year QS transfer moratorium will apply to those receiving QS in excess of limits. This will allow market prices to develop for QP. Well-developed QP market prices will provide better information for determining the appropriate prices for sale of QS once the moratorium is over. Additionally, during this two-year period, the Council will be considering developing some special provisions for CFA and, in particular, a provision that may provide such associations with higher trip limits. Providing the opportunity for divestiture, but requiring two years before transfers occur, will

[97] The Option 3 redistribution approach could be used in the unlikely event that someone has acquired a permit after November 8, 2008, and that permit puts them over the QS control limits. Under such circumstances, the divestiture option would not apply.

allow the Council to complete such work and determine whether there will be special provisions that may encourage or allow the transfer of QS in amounts in excess of QS control limits to CFAs. After QS trading starts (at the end of the first two years of the program), holders of excess QS would be provided two years (years three and four of the program) to complete their divestiture or forfeit their QS back to NMFS for redistribution. This period of time was considered reasonable, particularly for the purposes of allowing QS market and market prices to be established and to allow CFAs to form and be available to receive QS divestitures (if the special opportunities are eventually provided for CFAs). In anticipation of the possibility that the QS control limits might be increased prior to the time divestiture is completed, the Council specified that the control limits to be applied are those that are in place at the time of initial allocation. This was done to discourage anyone from delaying divestiture of QS in hopes that the QS control limits might be increased and to avoid providing an additional benefit that those below the limits would not have (the benefit of having received an initial allocation in excess of the initial set of QS control limits).

CUTOFF DATE

The above discussion of the divesture provision also covers the November 8, 2009, cutoff date. A control date was published that had the effect of providing fishery participants with advance notice that activities they undertook after that date might not be acknowledged in provisions of the trawl rationalization program under development. In particular, the control date announcement expressed concern that fishermen not increase their fishing activities in order to qualify for more fish. If there is a grandfather clause or no grandfather clause, but a divestiture provision, the question arises regarding whether activities occurring after the control date (in particular, the acquisition of additional permits) should entitle an applicant to a greater allocation. In this regard, there were those who stated that it was not clear that the control date applied to anything more than fishing. They argued that allocations resulting from permit accumulation after the control date should be grandfathered in or they should be allowed to receive the QS and divest themselves of it. As indicated above, ultimately the Council agreed that the control date was not clear regarding whether it would apply to the acquisition of additional permits. This issue is discussed further in the analysis.

APPLICATION OF THE GRANDFATHER CLAUSE TO VESSELS

In the preliminary draft, EIS there was discussion regarding the need for a grandfather clause for vessels. In taking its final action, the Council set vessel QP usage limits well above the shares of harvest that any one vessel had taken in recent years and did not apply control limits to vessels. For these reasons, there was no further work on the development of a grandfather clause for vessels. The preliminary draft EIS covers some of the challenges that would be entailed in developing a grandfather clause for vessels. Some of these challenges are summarized above in the section on vessel limits.

CHOICE ON THE ORDER OF APPLICATION OF QS CONTROL LIMITS

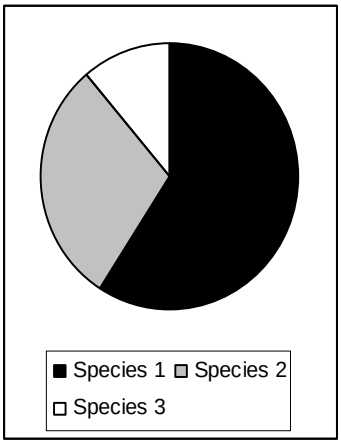
If there is no grandfather clause and no opportunity for divestiture, the species mix of the allocations to entities that would otherwise be over the QS control limits will depend on the order in which the accumulation limits are applied (this could also be true for any entity that, after November 2008, acquires a permit that would result in it receiving an initial allocation in excess of control limits). If the species accumulation limits are applied before the aggregate limits, it is more likely that the ratios will deviate from those that would have occurred in the presence of a grandfather clause. Table A-90 contains a hypothetical three-species example for a single permit scheduled to receive 6.9 percent of the QS if there is no grandfather clause and an aggregate of 3 percent if there is a grandfather clause. The following are the limits applied for each species and the relative size of the OY for each species.

	Accumulation Limits	Relative Weight of OY for Each Species
Species 1	5%	2
Species 2	2%	1
Species 3	3%	0.5
Aggregate Limit	3%	

The first graph contained within Table A-90 shows the allocations to the permit in the presence of a grandfather clause. The second graph shows what happens for the same permit when there is no grandfather clause and the allocations are brought within control limits by first applying the species limit. In this example, when the species limit is applied first, QS Species 2 is cut back by 50 percent (from 0.04 to 0.02). After the species are brought under the accumulation limits, all species are reduced proportionally by another 20 percent to bring the total holdings within the aggregate limit (Species 2 is reduced from 0.02 to 0.16). The third graph shows what happens when the aggregate limit is applied first. All species are cut back by about 50 percent, after which the additional reduction needed to bring Species 2 under the species accumulation limit is only 1 percent. After reducing Species 2 to bring it within the individual species limit, the permit has been reduced to a level below the 3 percent cap so Species 1 and 3 can be increased. The resulting graphs from the two approaches to applying the control limits can be compared to the first graph to see which most closely matches the original species mix. From that, it can be seen that application of the aggregate limit first results in a species mix that better matches the original species mix than application of the species limit first. One objective in developing the QS allocation formulas has been to provide initial recipients with a mix of species that matches their need for prosecuting their fisheries.

Table A-83. Illustration of the effect of the order in which individual species accumulation limits and aggregate groundfish accumulation limits are applied to limit initial QS allocations (Graphs show the proportion of QS for a single entity with QS allocations for three species under three different scenarios).

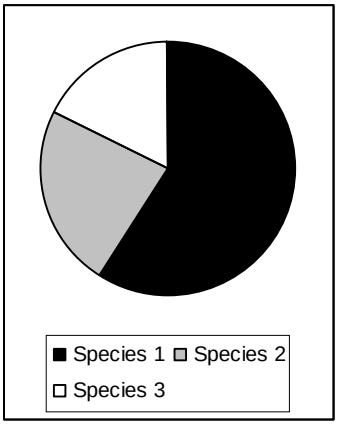
Grandfather Clause



Total QS: 6.9%

QS Species 1 = 8%
QS Species 2 = 4%
QS Species 3 = 1.5%

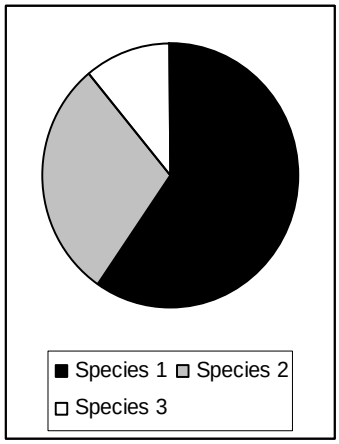
No Grandfather Clause, Species Limits Applied First



Total QS: 3% (weighted total)

QS Species 1 = 4.1%
QS Species 2 = 1.6%
QS Species 3 = 1.2%

No Grandfather Clause, Aggregate Limits Applied First



Total QS: 3% (weighted total)

QS Species 1 = 4%
QS Species 2 = 2%
QS Species 3 = 0.8%

♦ *Percentages for Limits*

The Council's preferred set of control and vessel limits is identified in Table A-82. As highlighted at the start of this section, the task of arriving at these preferred limits a balancing the social objectives behind control and vessel limits against the economic objectives at the center of the rationalization program. In particular, the Council attempted to identify percentage limits that would be low enough to prevent excessive control and use of QS/QP, while at the same time, high enough not to interfere with the objectives of providing for improved operational flexibility for the fleet and a viable, profitable, and efficient groundfish fishery.

The Council's accumulation limits are aimed at more than just preventing market power or other anticompetitive situations from developing in the fishery. The Council views accumulation limits as important tools to use in balancing its broad, and often competing, social, economic, and conservation objectives for the fishery. This broader scope is what Congress seemingly contemplated with section 303A(c)(5)(D) of the MSA. In that provision, Congress chose to use the terms "excessive share" and "inequitable concentration" without defining them and without reference to the Federal antitrust laws or to economic theory. When Congress uses terms without accompanying definitions, the intended meaning comes from the ordinary sense of the words as read within the context of the overall purpose of the statute. Looking to the ordinary meanings of "excessive" and "inequitable" within the context of the MSA national standards and LAPP provisions, it seems clear that Congress granted the Council considerable discretion to determine the levels of quota ownership and usage that would be unreasonable, unnecessary, or unfair considering the Council's overall management objectives for the fishery. This interpretation is consistent with NMFS' nonregulatory guidance on the technical design and use of catch share or LAPPs .

Throughout consideration of control and vessel limits, the Council and its advisors recognized the inexact nature of identifying specific percentage limits for each management unit species. Information on current and historical levels of ownership and control in the harvesting and processing sectors of the fishery is incomplete, as is our understanding of future harvesting efficiency in the trawl fleet. Even with more complete information, there are no analytical methods for pinpointing precise thresholds above which limits become excessive or inequitable. Rather, the process of arriving at percentage limits involved an imprecise balancing of management objectives that left much to the policy discretion of the Council. The task proved especially complex for the nonwhiting trawl fishery because of the many species encountered, the interactions between those species, and the regional diversity in fishing strategies and mix of species for which there is a market.

To help delineate the upper boundaries above which control and use become excessive and the lower boundaries below which limits constrained operational flexibility and efficiency, the Council and its advisory bodies considered several criteria that included the following:

- The initial allocations of QS at the permit and entity level to establish the expected range of starting points in the fishery
- Recent and past levels of vessel performance as an indication of what level of harvest vessels may need to achieve profitability
- The minimum fleet size possible or minimum number of vessels needed to harvest the full trawl allocation for a given species of limits[98]

[98] The minimum number is calculated by dividing the percentage limit into 100 and then adding one vessel or owner for any remainder. For example, the minimum number of vessels needed to harvest a species that was subject to a vessel limit of 3 percent would be 34 (100 ÷ 3 = 33 1/3). Of course, this minimum would be achieved only if participants acquired QS/QP up to the limit. As discussed more below, the more likely result will involve a distribution of QS/QP ownership and usage where only a limited percentage of participants hold

- The minimum number of entities that could control all the harvest in the fishery in comparison to the number of entities that may need some quota to cover catch, including incidental catch
- The maximum amount of revenue a single entity or vessel might receive under a given set of vessel limits

The TIQC developed the first suite of accumulation limits using relatively simple rules focused on past vessel performance. [99] Nonwhiting limits were based on aggregate average catches per permit during the period 1994 to 2003, which was used to allocate QS. Limits for shoreside and at sea whiting were based on the knowledge and recommendations of whiting industry members present at the TIQC meetings. Whiting, as discussed below, was treated differently from the nonwhiting fishery because it is a single-species target fishery with a smaller fleet.

In September 2007, the GAC reviewed the TIQC's initial recommendations and added three options for the Council's consideration (Table A-83). The GAC's options were also based on relatively simple rules using past vessel performance. The GAC's Option 1 would have set control limits at the maximum landings history shares of non-buyback permits for each species, i.e., the 1994 to 2003 average of each nonbuyback permit's annual landings divided by the annual landings of all non buyback permits with an upper limit of 5 percent for all nonwhiting species except for English sole and the Other Flatfish management unit. Option 2 would have set the control limits at 1.5 times the percentages from Option 1. Option 3 was identical to Option 2 for all nonwhiting groundfish control limits except that the aggregate nonwhiting limit would be set at 3 percent. The GAC focused on the 1994 to 2003 period because it matched the window period used for initial allocation of QS and on nonbuyback permits only because those permits represent the performance of vessels most likely to operate in the TIQ program. The intent of Option 1 was to develop caps that were generally above the amounts of QS that will be allocated to most permits based on their history during the qualifying period. Options 2 and 3 were set at levels above Option 1 to explore the effects of higher limit levels. The GAC paid particular attention to the maximum fleet consolidation level, or minimum fleet size, permitted by a particular accumulation limit. For whiting, the GAC followed the GAC recommendations for the purpose of continuing to explore the appropriate level for the limits. The TIQC had recommended exploration of a wide spread of limits for the shoreside, mothership, and catcher-processor fisheries. The low end of the proposed range of limits for the shoreside whiting fishery (10 percent) matched with the maximum 1994 to 2003 landings history shares of nonbuyback permits (i.e., the same data used for the nonwhiting fishery).

QS/QP at the highest level allowed by the accumulation limits.

[99] The first option developed by the TIQC. The limits may vary by species/species group, areas, and sector (see table below).

Sector	Own-or-control Accumulation Limits	Permit Use Limit
Shoreside nonwhiting	All groundfish: 1.5%, 2.1%, 3%, or 5% Individual species: sablefish, 1.7%; Dover sole, 1.95%; Petrale sole, 3.0%; English sole, 7.0%; sanddabs, 27.6%; other flatfish, 9.1%; longspine thornyhead, 2.1%; shortspine thornyhead, 2.0%; widow rockfish, 3.6%; yellowtail rockfish, 3.5%; canary rockfish, 6.0%; and other Sebastes, 6.6%	Double the own-or-control limits
Shoreside whiting	5%, 10%, or 15%.	7.5%, 10%, or 12%
Mothership whiting	10%, 15%, or 25%	20%, 30%, or 50%
Catcher-processor	50%, 55%, or 60%	65%, 70%, or 75%
Whiting sectors combined	15%, 25%, or 40%	25%, 40%, or 50%

Table A-84. Control and vessel limit options: Council preferred alternative.

Species Category	Vessel Limit (Vessel Use Limit)	Vessel Unused QP Limit	QS Control Lim
Nonwhiting Groundfish Species	3.2%		2.7%
Lingcod - coast wide	3.8%		2.5%
Pacific Cod	20.0%		12.0%
Pacific whiting (shoreside)	15.0%		10.0%
Pacific whiting (mothership)	30.0%		20.0%
Sablefish			
N. of 36° (Monterey north)	4.5%		3.0%
S. of 36° (Conception area)	15.0%		10.0%
PACIFIC OCEAN PERCH	6.0%	4.0%	4.0%
WIDOW ROCKFISH *	8.5%	5.1%	5.1%
CANARY ROCKFISH	10.0%	4.4%	4.4%
Chilipepper Rockfish	15.0%		10.0%
BOCACCIO	15.4%	13.2%	13.2%
Splitnose Rockfish	15.0%		10.0%
Yellowtail Rockfish	7.5%		5.0%
Shortspine Thornyhead			
N. of 34°27'	9.0%		6.0%
S. of 34°27'	9.0%		6.0%
Longspine Thornyhead			
N. of 34°27'	9.0%		6.0%
COWCOD	17.7%	17.7%	17.7%
DARKBLOTCHED	6.8%	4.5%	4.5%
YELLOWEYE	11.4%	5.7%	5.7%
Minor Rockfish North			
Shelf Species	7.5%		5.0%
Slope Species	7.5%		5.0%
Minor Rockfish South			
Shelf Species	13.5%		9.0%
Slope Species	9.0%		6.0%
Dover sole	3.9%		2.6%
English Sole	7.5%		5.0%
Petrale Sole	4.5%		3.0%
Arrowtooth Flounder	20.0%		10.0%
Starry Flounder	20.0%		10.0%
Other Flatfish	15.0%		10.0%
Other Fish	7.5%		5.0%
Pacific Halibut	14.4%	5.4%	5.4%

* If widow rockfish is rebuilt before initial allocation of QS, the vessel limit will be set at limit will be 1.5 times the control limit

Table A-85 Control cap and vessel cap options to define QS/QP accumulation limits in the IFQ Program Alternatives.

Stock	Option 1		Option 2		Option 3*	
	Control Cap (%)	Vessel Cap (%)	Control Cap (%)	Vessel Cap (%)	Control Cap (%)	Vessel Cap (%)
All nonwhiting groundfish (in aggregate)	1.5	3.0	2.2	4.4	3.0	6.0
Lingcod - coast wide	5	10	7.5	15		
N. of 42° N (OR & WA)	5	10	7.5	15		
S. of 42° N (CA)	5	10	7.5	15		
Pacific Cod	5	10	7.5	15		
Pacific Whiting			0	0		
Shoreside Sector	10	15	15	22.5	25	37.5
Mothership Sector	10	25	15	37.5	25	50
Catcher Processors	50	65	55	70	60	75
All Whiting Sectors Combined	15	25	22.5	37.5	40	50
Sablefish (Coast wide)	1.9	3.8	2.9	5.7		
N. of 36° N (Monterey north)	2	6.2	3	9.3		
S. of 36° N (Conception area)	5	6.2	7.5	9.3		
PACIFIC OCEAN PERCH	5	6.2	7.5	9.3		
Shortbelly Rockfish	5	6.2	7.5	9.3		
WIDOW ROCKFISH	3.4	6.8	5.1	10.2		
CANARY ROCKFISH	5	10	7.5	15		
Chilipepper Rockfish	5	10	7.5	15		
BOCACCIO	5	10	7.5	15		
Splitnose Rockfish	5	10	7.5	15		
Yellowtail Rockfish	5	10	7.5	15		
Shortspine Thornyhead - coast wide	3.1	6.2	4.7	9.3		
Shortspine Thornyhead - N. of 34°27' N	4.8	9.6	7.2	14.4		
Shortspine Thornyhead - S. of 34°27' N	4.7	9.4	7.1	14.1		
Longspine Thornyhead - coast wide	2	4	3	6		
Longspine Thornyhead - N. of 34°27' N	2	4	3	6		
Longspine Thornyhead - S. of 34°27' N	5	10	7.5	15		
COWCOD - Conception and Monterey	5	10	7.5	15		
DARKBLOTCHED	5	10	7.5	15		
YELLOWEYE	5	10	7.5	15		
Black Rockfish	5	10	7.5	15		
Black Rockfish (WA)	5	10	7.5	15		
Black Rockfish (OR-CA)	5	10	7.5	15		
Minor Rockfish North	5	10	7.5	15		
Nearshore Species	5	10	7.5	15		
Shelf Species	4	8	6	12		
Slope Species	5	10	7.5	15		
Minor Rockfish South	5	10	7.5	15		
Nearshore Species	5	10	7.5	15		
Shelf Species	5	10	7.5	15		
Slope Species	5	10	7.5	15		
California scorpionfish	5	10	7.5	15		
Cabezon (off CA only)	5	10	7.5	15		
Dover Sole	1.8	3.6	2.7	5.4		
English Sole	10	20	15	30		
Petrale Sole (coast wide)	2.9	5.8	4.4	8.7		
Arrowtooth Flounder	5	10	7.5	15		
Starry Flounder	5	10	7.5	15		
Other Flatfish	10	20	15	30		
Other Fish	5	10	7.5	15		

* Same as Option 2 except for the values indicated below.

For all three original GAC options, the vessel limits would have been set at double the control cap amount, except for whiting. The recommendations for whiting vessel limits differed from the recommendations for nonwhiting vessel limits in that the whiting vessel limits were set at 1.5 times the control caps (again based on recommendations first developed by the TIQC). In general, the GAC recommended setting vessel limits higher than the accumulation limits in order to accomplish the following::

- Allow for potential efficiency gains that may result from the aggregation of catch on fewer vessels, while maintaining a tighter limit on control.
- Provide an opportunity for crewmembers and vessel operators to use their QS on the vessel for which they work.

As explained above in the discussion on the control rule, the GAC envisioned that vessel limits greater than control limits made it possible for QP to be used on a vessel without that QP necessarily counting to the control limit of the vessel owner.

The Council reviewed the GAC's options at the November 2007 meeting and adopted them into the trawl rationalization alternatives for analysis.[100] Analysis of the three options was first presented to the GAC in May 2008. After reviewing that analysis, the GAC requested that the TIQC review the options and make a recommendation to the Council for consideration in June 2008.[101] The TIQC reviewed the analysis and offered corrections and modifications to the whiting limits but did not recommend a particular option.[102] The TIQC recommended reevaluation of the limit, for overfished species like widow rockfish in particular, if the Council were to recommend that shoreside whiting and nonwhiting be combined into a single sector. Taking the TIQC's recommendations into account, the Council adopted all three GAC options, with the TIQC's corrections and modifications, into the PPA for public review and analysis in the preliminary DEIS.[103]

The GAC again considered accumulation limits options, together with the full trawl rationalization PPA, in October 2008. Although the GAC acknowledged the importance of control and vessel limits and the necessity of including them in the program, the committee members were unable to recommend a single option.[104] The GAC did request additional tables, which Council staff presented to the Council in November 2008.[105] In consideration of this additional analysis, and the GAC's inability to produce a recommend set of limits, the Council signaled its intent to include accumulation limits in the program but recommended that the limits be further development and analyzed in a trailing action.[106]

That trailing consideration began, again with the GAC, in January 2009. The GAC reviewed the existing options and recommended two new options, described below. The Council arrived at preferred alternative for target species control and vessel limits at the March 2009 meeting and for overfished species and halibut IBQ in June 2009. The Council's deliberations on target species and overfished species are described separately.

[100] PFMC, November 2007 Meeting Minutes (http://www.pcouncil.org/minutes/2007/Final_November07_minutes.pdf).
[101] PFMC, June 2008 Briefing Book, Agenda Item F.6.c, GAC Report.
[102] PFMC, June 2008 Briefing Book, Agenda Item F.6.d, TIQC Report.
[103] PFMC, June 2008 Meeting Minutes (http://www.pcouncil.org/minutes/2008/Final_June08_minutes.pdf)
[104] PFMC, November 2008 Briefing Book, Agenda Item F.3.e, GAC Report.
[105] PFMC, November 2008 Briefing Book, Agenda Item F.3.c, Additional Analysis; and Supplemental Additional Analysis (2).
[106] PFMC, November 2008 Meeting Minutes (http://www.pcouncil.org/minutes/2008/Final_November08_minutes.pdf).

Table A-86. March 2009 GAP recommendations together with GMT, GAC and Existing options and other information used to develop the GAP recommendations.

	Existing Option 1		Existing Option 2		GAC Option 1[a]		GAC Option 2		GMT	GAP Recommendation[b]		Maximums Historic and Initial QS Allocation			
Species Category	Vess Lim	Cntrl Lim	Vess Lim	Cntrl Lim	Vess Lim	Cntrl Lim	Vess Lim	Cntrl Lim	Control Limits Identified in GMT Report	GAP Vessel Limit Option	GAP Control Limit Option	Max Annual Share of Trawl Fleet Allocation ''04-'06	Max Initial Permit QS Allocations	Max Annual Share of Trawl Fleet Landings '94-'03	Max Annual Share of Trawl Fleet Landings '04-'06
Nonwhiting Groundfish Species	3.0%	1.5%	4.4%	2.2%	2.0%	1.0%	3.0%	1.5%		**None**	**2.7%**	1.8%	1.6%	4.1%	4.9%
Lingcod - coast wide	10.0 %	5.0%	15.0 %	7.5%	3.6%	1.8%	4.4%	2.2%		**3.8%**	**2.5%**	1.1%	2.2%	9.0%	3.7%
Pacific Cod	10.0 %	5.0%	15.0 %	7.5%	12.8%	6.4%	12.0 %	6.0%	20.0%	**20.0%**	**12.0%**	7.2%	10.0%	22.7%	21.1%
Pacific whiting (shoreside)	20.0 %	10.0 %	22.5 %	15.0%	15.0%	10.0%	15.0 %	10.0 %		**10.0%**	**15.0%**	6.9%	8.6%	9.1%	7.3%
Sablefish															
N. of 36° (Monterey north)	4.0%	2.0%	6.0%	***3.0%***	2.0%	1.0%	***3.0%***	1.5%	3.0%	**4.5%**	**3.0%**	4.3%	1.4%	2.4%	5.7%
S. of 36° (Conception area)	10.0 %	5.0%	15.0 %	7.5%	20.0%	10.0%	20.0 %	10.0 %		**15.0%**	**10%**	22.0%	15.0%	38.4%	60.3%
PACIFIC OCEAN PERCH	10.0 %	5.0%	15.0 %	7.5%	5.4%	2.7%	7.4%	3.7%		**3.3%**	**3.3%**	3.1%	3.0%	7.3%	10.1%
WIDOW ROCKFISH	6.8%	3.4%	10.2 %	5.1%	9.0%	4.5%	12.0 %	6.0%		**2.5%**	**2.5%**	6.7%	5.4%	28.7%	31.9%
CANARY ROCKFISH	10.0 %	5.0%	15.0 %	7.5%	7.0%	3.5%	7.6%	3.8%		**5.2%**	**5.2%**	0.0%	2.8%	12.6%	45.7%
Chilipepper Rockfish	***10.0 %***	5.0%	15.0 %	7.5%	12.4%	6.2%	20.0 %	***10.0 %***	10.0%	**15.0%**	**10.0%**	0.5%	9.6%	46.8%	26.5%
BOCACCIO	10.0 %	5.0%	15.0 %	7.5%	20.0%	10.0%	20.0 %	10.0 %			**15.0%**	0.0%	12.4%	78.9%	53.4%
Splitnose Rockfish	***10.0 %***	5.0%	15.0 %	7.5%	***11.4%***	5.7%	20.0 %	***10.0 %***	10.0%	**15.0%**	**10.0%**	8.5%	9.2%	19.9%	26.9%
Yellowtail Rockfish	10.0 %	***5.0%***	15.0 %	7.5%	***5.6%***	2.8%	10.4 %	***5.2%***	5.0%	**7.5%**	**5.0%**	0.7%	3.7%	9.9%	11.5%
Shortspine Thornyhead															
N. of 34°27'	***9.6%***	4.8%	14.4 %	***7.2%***	2.6%	1.3%	4.4%	2.2%	6%-10%	**9.0%**	**6.0%**	4.0%	1.9%	5.0%	8.7%
S. of 34°27'	9.4%	4.7%	14.2 %	7.1%	8.4%	4.2%	17.6 %	8.8%		**9.0%**	**6.0%**		3.3%	7.0%	16.0%
Longspine Thornyhead															
N. of 34°27'	4.0%	2.0%	***6.0%***	3.0%	2.8%	1.4%	4.4%	2.2%	6%-10%	**9.0%**	**6.0%**	2.0%	1.3%	2.0%	8.7%
COWCOD	10.0 %	5.0%	15.0 %	7.5%	20.0%	10.0%	0.0%	0.0%		**20.0%**	**20.0%**	0.0%	44.4%	100.0%	0.0%
DARKBLOTCHED	10.0 %	5.0%	15.0 %	7.5%	4.0%	2.0%	6.2%	3.1%		**2.0%**	**2.0%**	3.7%	4.4%	15.8%	5.6%
YELLOWEYE	10.0 %	5.0%	15.0 %	7.5%	18.8%	9.4%	20.0 %	10.0 %		**5.2%**	**5.2%**	0.0%	6.0%	35.8%	35.5%

Table A-85 cont. March 2009 GAP recommendations together with GMT, GAC and Existing options and other information used to develop the GAP recommendations.

	Existing Option 1		Existing Option 2		GAC Option 1[c]		GAC Option 2		GMT	GAP Recommendation[d]		Maximums Historic and Initial QS Allocation			
Species Category	Vess Lim	Cntrl Lim	Vess Lim	Cntrl Lim	Vess Lim	Cntrl Lim	Vess Lim	Cntrl Lim	Control Limits Identified in GMT Report	GAP Vessel Limit Option	GAP Control Limit Option	Max Annual Share of Trawl Fleet Allocation ''04-'06	Max Initial Permit QS Allocations	Max Annual Share of Trawl Fleet Landings '94-'03	Max Annual Share of Trawl Fleet Landings '04-'06
Minor Rockfish North															
Shelf Species	8.0%	4.0%	12.0 %	6.0%	5.8%	2.9%	4.4%	2.2%		**7.5%**	**5.0%**	3.1%	2.6%	30.6%	49.1%
Slope Species	***10.0 %***	***5.0%***	15.0 %	***7.5%***	4.0%	2.0%	***6.0%***	3.0%	6%-10%	**7.5%**	**5.0%**	3.5%	2.4%	11.9%	15.7%
Minor Rockfish South															
Shelf Species	10.0 %	5.0%	15.0 %	7.5%	12.2%	6.1%	20.0 %	10.0 %		**13.5%**	**9.0%**	1.7%	7.5%	46.6%	30.9%
Slope Species	***10.0 %***	***5.0%***	15.0 %	***7.5%***	11.6%	***5.8%***	20.0 %	***10.0 %***	6%-10%	**13.5%**	**9.0%**	12.1%	6.4%	24.8%	21.7%
Dover sole (total)	3.6%	1.8%	***5.4%***	2.7%	2.2%	1.1%	3.2%	1.6%	5%+	**3.9%**	**2.6%**	5.7%	1.3%	2.0%	5.6%
English Sole	20.0 %	10.0 %	30.0 %	15.0%	3.0%	1.5%	**5.2%**	2.6%	5%+	**7.5%**	**5.0%**	2.3%	3.5%	13.9%	7.7%
Petrale Sole	5.8%	**2.9%**	8.8%	4.4%	**2.8%**	1.4%	4.6%	2.3%	3%	**4.5%**	**3.0%**	5.9%	1.7%	6.2%	8.0%
Arrowtooth Flounder	***10.0 %***	5.0%	***15.0 %***	7.5%	3.8%	1.9%	6.4%	3.2%	10%+	**20.0%**	**10.0%**	8.3%	6.2%	25.5%	19.1%
Starry Flounder	***10.0 %***	5.0%	***15.0 %***	7.5%	***20.0%***	***10.0%***	***11.0 %***	5.5%	10%+	**30.0%**	**15.0%**	8.3%	30.5%	65.7%	54.5%
Other Flatfish	***20.0 %***	***10.0 %***	***30.0 %***	***15.0%***	2.6%	1.3%	4.0%	2.0%	10%+	**15.0%**	**10.0%**	1.6%	9.2%	16.4%	8.1%
Other Fish	10.0 %	5.0%	15.0 %	7.5%	5.0%	2.5%	18.0 %	9.0%		**7.5%**	**5%**	1.5%	3.9%	10.2%	21.3%

[a] Under the GAC option, the numbers provided for overfished species are for reference only and not part of the GAC option.
[b] The GAP recommended overfished species control limits equal to the maximum initial allocations to an individual permit. Values provided here for overfished species are based on the maximum allocation estimates available at the March 2009 Council meeting. With a single shoreside sector, the allocations would include QS for shoreside whiting and nonwhiting trips. The allocations for QS for whiting trips were not included in the calculation of the maximums for overfished species.

[c] Under the GAC option, the numbers provided for overfished species are for reference only and not part of the GAC option.
[d] The GAP recommended overfished species control limits equal to the maximum initial allocations to an individual permit. Values provided here for overfished species are based on the maximum allocation estimates available at the March 2009 Council meeting. With a single shoreside sector, the allocations would include QS for shoreside whiting and nonwhiting trips. The allocations for QS for whiting trips were not included in the calculation of the maximums for overfished species.

TARGET SPECIES

The Council's March 2009 deliberations on final preferred control and vessel limits for target species centered on the June 2008 PPA, the two new January 2009 options from the GAC (Table A-84), new analysis from the GMT and Council staff on key nonwhiting target stocks, and recommendations and rationale from the GAP.[107]

The GAC's January 2009 options were intended to create a broader range of control and vessel limits for the Council's consideration. Whereas the existing three options for setting control limits were based on the maximum landings values for each species, the GAC's January 2009 options focused on 90th percentile values. The first option would set control limits at the 90th percentile level from the 1994 to 2003 window for each species, effectively bracketing the top 10 percent of annual landings when evaluated together with the existing option 1. The second January 2009 option focused on 90th percentile landings during 2004 to 2006 to give the Council a more recent period for comparison. Both options would set the vessel limits at twice the control limits and include a maximum cap of 10 percent for control limits and 20 percent for vessel limits. The GAC also requested that the GMT review the two new options in time for review at the March 2009 meeting.

The GMT responded to the GAC's request with a suggested framework approach for setting control and vessel limits for the primary nonwhiting target stocks. The approach did not cover whiting, overfished species, or nontarget stocks like lingcod. In summary, the GMT's framework suggested that the Council do the following:

- Focus on a "one vessel, one owner" scenario as a starting point and way of evaluating control limits in terms of harvesting operations.
- Use ex-vessel revenues to gauge what might constitute an "excessive share" or "inequitable concentration" of quota, and on the other hand, what might be overly constraining on vessel operations.
- Consider the regional diversity in target strategies and geographic distribution of each species.
- Identify maximum potential revenues associated with accumulation limits based on regionally important target strategy "bundles" and landings in the fishery (2004 to 2006).
- Consider the market importance substitutability of each species to judge its susceptibility to control.
- Use sablefish and Petrale sole, the two key economic target stocks in the nonwhiting trawl fishery, as benchmarks to set control and vessel limits for the remaining target species.
- Set limits for target species higher than the GAC recommended options to provide for operational flexibility and increased harvesting efficiency among regions and target strategies.
- Employ a relatively small aggregate groundfish control and vessel limits to counter the effect of the relatively higher species limits.

In developing recommendations based on this framework, the GMT first looked at the level of revenue that might be necessary to sustain an efficient operation after the fleet consolidation expected under a trawl rationalization program. A recent study (Lian, *et al.* 2008) of the status quo fleet found that most vessels merely generated enough revenue to cover costs (including a reasonable return on investment) and pay wages without generating an appreciable additional profit (see discussion in Chapter 4). This same study indicated that under a fully rationalized fishery the nonwhiting fleet could consolidate to between 40 and 50 vessels, with the average vessel generating gross revenues on the order of $700,000, compared to a status quo value that is closer to $200,000 (Figure A-121).

[107] PFMC, March 2009 Briefing Book, Agenda Item G.4.b; GAC Report; GMT Report; Supplemental GAP Report; and NMFS Report.

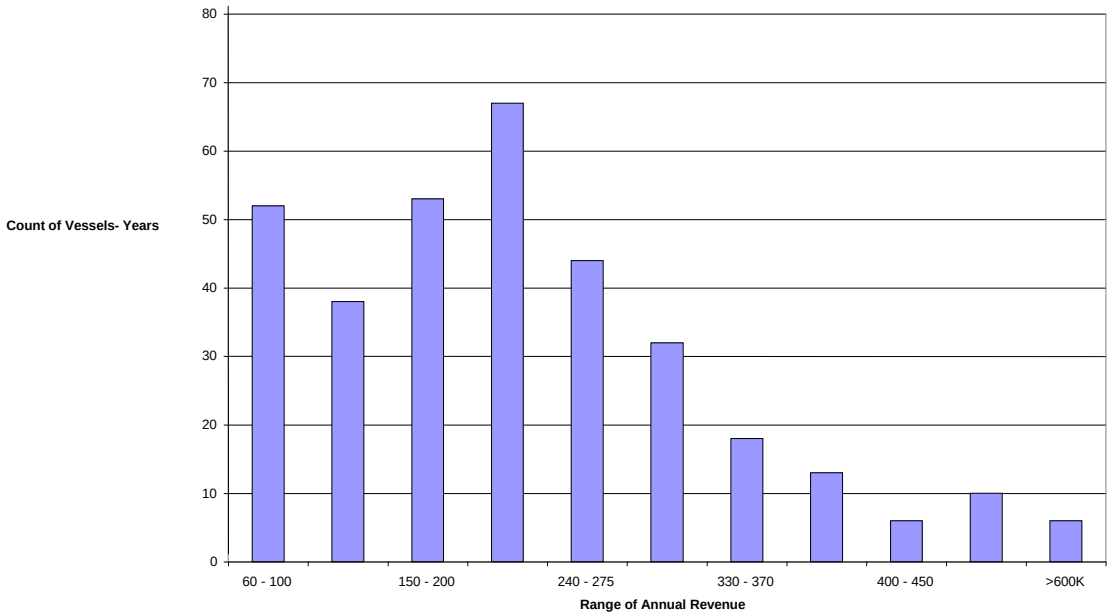


Figure A-99. Count of Vessel-Year Combinations by Annual Revenue Category (2004 - 2006).

The nonwhiting fishery involves considerable diversity in vessels, target strategies, and markets with some species like Petrale sole and sablefish being important to everyone, and other species, like arrowtooth flounder, important only to relatively few vessels. To help the Council identify limits that would most likely accommodate the variety of fishing strategies and opportunities that exist within and across regions, the GMT looked at the species mixes caught by the top three vessels in each region of the coast and identified accumulation limits for the bundles of species targeted by those vessels. These limits were aimed at allowing harvesting entities in each region of the coast to earn at least the $700,000 gross ex-vessel revenue estimate from Lian, et al., 2008.

At the same time, the GMT noted that establishing a suite of species-specific limits intended to accommodate this level of potential ex-vessel revenues in each region would result in limits that could allow for substantially higher levels of consolidation than would be possible under the Council's PPA and the GAC's January 2009 options. Considering the strong preference for accumulation limits that would prevent excessive control and usage expressed by the Council, GAC, GAP, and TIQC, the GMT stressed the aggregate control and vessel nonwhiting groundfish limits as the key means of providing harvesting flexibility among regions and target strategies while maintaining a strong policy against consolidation in quota ownership and usage. Figure A-122 illustrates the expected maximum revenue opportunity by region, depending on the level at which the aggregate limit is set and assuming the suite of individual species accumulation limits developed by the GMT (Table A-84).

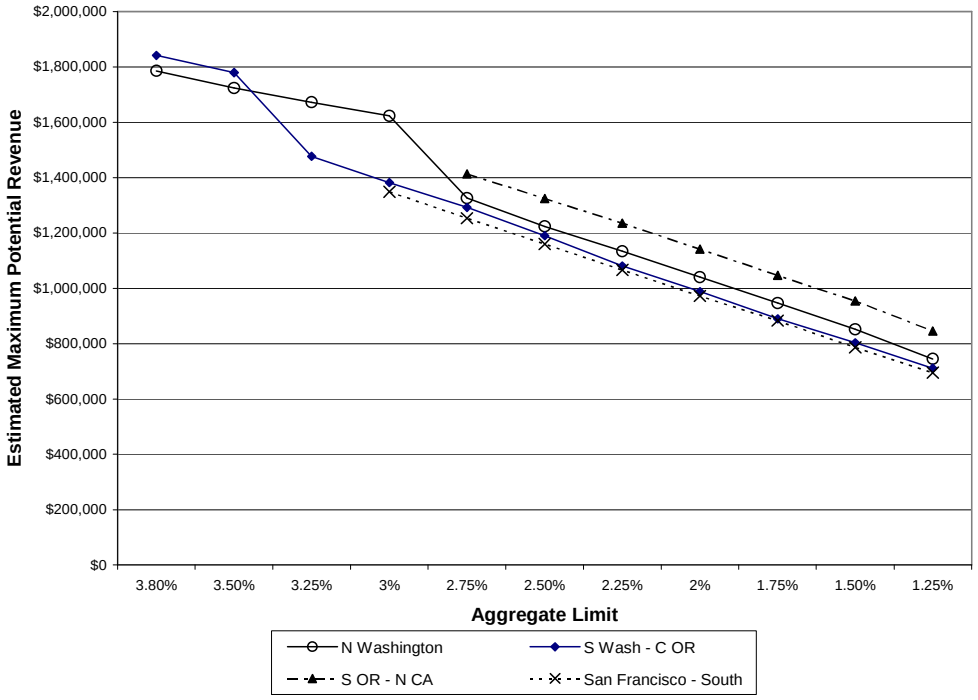


Figure A-100. Estimated maximum potential revenue by regional target strategy and aggregate control limit.

For its recommendations for non-overfished species QS control and vessel accumulation limits, the Council relied principally on the GAP recommendations for the suite of limits it used in the preferred alternative. The GAP had developed its recommendations and rationale taking into account all previous options and analyses, including the suggest framework approach developed by the GMT. The GAP recommendations were focused on accommodating vessel operations for all species at levels that would be at least as great as those identified in the GMT's report, with the exception of Dover sole. Because of Dover sole's market importance and wide spread occurrence in the catch of many vessels, the GAP recommended a limit of 3.9 percent compared to the GMT suggested limit of 5 percent or higher. In addition, the GAP recommendations varied from the GMT on one major principal. The GMT report was based on a principal that each vessel should be able to achieve the target revenue level while relying on QS controlled by the vessel. The GAP approach was to set limits that would allow a vessel to achieve the identified target levels but not necessarily using QP from its own QS. For example, the GMT recommended a Pacific cod control limit of 20 percent. The GAP recommended that the vessel QP limit be set at 20 percent, but that the QS control limit be set at 12 percent. Thus, in order to achieve the revenue and efficiency level that would be accommodated by the 20 percent limit, a vessel will have to rely on QP acquired from other entities. The GAP recommendation was based on concern about excessive consolidation of control for a particular species and the ability of the entities that controlled that species to control not only the targeting for that species, but the harvest of other target species with which that particular species would show up as incidental catch. Based on the GMT analysis, the GAP recommended an aggregate nonwhiting control limit of 2.7 percent. This would accommodate a fairly high level of consolidation (down to as few as about 38 entities controlling QS) and would allow entities to control QS representing up to well over a million dollars of annual ex-vessel revenue (as indicated in Figure A-122).

In general, in developing its recommendations for control limits the GAP used as a starting point the maximum initial QS share allocation to permits and checked that level to ensure that in most cases the

resulting control limit or vessel limit would accommodate the maximum recent share of landings taken by any single vessel in recent years (Table A-84). For many species, the GAP recommended allowing for some growth above the maximum initial allocations to facilitate the desired improvements in harvesting efficiency and in some cases to accommodate recent levels of harvest levels. However, they also went lower than the general approach in situations where a catch of a species was widely distributed along the coast and important to a number of different trawl strategies, as recommended by the GMT with respect to Petrale and sablefish. They did not want to take a chance on one entity developing excess concentration that could potentially affect the entire coast. Occasionally, in the opposite situation, they went somewhat higher when the fishery was very limited geographically. This was also in line with the GMT approach. In these situations, the effect of the concentration would be limited to a smaller geographic area, and they did not believe there was any possibility for expansion of the local fishery to other areas along the coast. Table A-85 provides the GAP recommendation on each species and its rationale. This table also covers GAP recommendations on overfished species. In March 2009, when the Council adopted its final recommendations for non-overfished species, the Council did not adopt the GAP recommendations on overfished species. The limits for overfished species were adopted at a later meeting, as discussed in the following section.

In adopting its preferred QS control and vessel QP limits for non-overfished species, the Council noted that, in general, the ranges of percentages in the accumulation limit options had been relatively consistent since the first set of options was adopted by the Council for analysis at its November 2007 meeting (Table A-83). It was also noted that there will never be perfect information but the Council can still develop a good rationale for setting the accumulation limits while fully recognizing this limitation. In adopting the GAP recommendation, the Council noted its agreement with the rationale provided and indicated that where the GAP recommendations differed from the GMT recommendations, the GAP recommendations were lower (or the GMT had no recommendations). In that regard, the Council deviated from the GAP recommendations for only two species. Starry flounder was the only species for which the GAP recommended a control limit (15 percent) substantially higher than the control limit recommended by the GMT (10 percent). For starry flounder, the Council went with the control limit recommended by the GMT. Additionally, for slope rockfish south, while the GAP recommendation (9 percent) was within the range recommended by the GMT (6 percent to 10 percent), the Council was more comfortable going with the lower end of the GMT's range (6 percent). Neither the GMT nor the GAP provided a recommendation for the aggregate nonwhiting vessel limit. The Council followed the standard approach used for individual species and recommended an aggregate nonwhiting vessel limit of 1.5 times the control limit. The aggregate nonwhiting vessel limit of 3.8 percent could theoretically allow the fleet to shrink to as few as 27 vessels while still taking the entire trawl allocation (or fewer if some of the trawl allocation goes unharvested). However, while the opportunity to trade QP makes it feasible for ownership of QS to contract to as few as 38 entities, it would be very difficult for 27 vessels to take the mix of species necessary such that they could take full advantage of the available harvest opportunities. Lian et al. project an optimum fleet size of 40 to 50 vessels. The fleet size would not be expected to shrink to less than optimum levels.

For shoreside whiting, the Council chose a 10 percent control limit over a higher limit because the 10 percent control limit accommodated the initial allocations and because of concern that a control limit above that (combined with an even higher vessel limit) could concentrate harvest among too few entities and vessels, leaving some coastal plants without enough vessels to maintain operations. Higher limits were set for the mothership co-op program (20 percent ownership and 30 percent usage) because the processing facilities are not tied to coastal communities, and fewer vessels are required to service the motherships.

Table A-87. GAC rationale for recommendations provided to and adopted by the Council (with the exception of overfished species).

Species	Vessel use limit	Control limit	Rationale for limits	Vessel/ Control Ratio (1.5:1.0) (+ =Yes)	Control Limit Greater than (+ =Yes)		In line with GMT Report (+ =Yes)
					Max vessel share of annual fleet landings ('04-'06)	Max Initial Permit QS Allocation	
Pacific Whiting	15.0%	10.0%	Similar to GAC recommendation	+	+	+	
Lingcod	3.8%	2.5%	Limits relatively low because it is a coast-wide species, the catch of which is widely distributed among the fleet.	+	+	+	
Pacific cod	20.0%	12.0%	Higher vessel limits because the distribution is geographically limited, participants few, and opportunities intermittent. Keep the control limits down to prevent excess control. On this basis, provide vessel limits that are greater than the 1.5 to 1 ratio used for other species.	**0**	+	+	
Sablefish N	4.5%	3.0%	Control limit lower than max share because of high dependence on a coast wide basis. Vessel limit is high enough to allow the vessel to achieve the recent maximum share of allocation.	+	**0**	+	+
Sablefish S	15.0%	10.0%	Underutilized; very few vessels operating there now. Potential for gear switching. 10% control limit, in line with GAC 90th percentile recommendation.	+	**0**	**0**	
POP	3.3%	3.3%	*Overfished species rationale.	+	+	+	
WIDOW	2.5%	2.5%	*Overfished species rationale.	+	+	+	
CANARY	5.2%	5.2%	*Overfished species rationale.	+	+	+	
Chilipepper	15.0%	10.0%	On the higher end because it is taken in a smaller area, it s not a coast-wide fishery, and it is under harvested. Similar to GAC recommendations.	+	+	+	+
BOCCACIO	15.0%	15.0%	*Overfished species rationale.				
Splitnose	15.0%	10.0%	Rationale similar to chilipepper.	+	+	+	+
Yellowtail	7.5%	5.0%	Control limit quite a bit higher than initial allocation because it has not been fully utilized in recent years. However, limits should not be too large because the stock is widely distributed and is used in a lot of strategies along the coast.	+	+	+	+

Table A-86 cont. GAC rationale for recommendations provided to and adopted by the Council (with the exception of overfished species).

Species	Vessel use limit	Control limit	Rationale for limits	Vessel/ Control Ratio (1.5:1.0) (+ =Yes)	Control Limit Greater than (+ =Yes)		In line with GMT Report (+ =Yes)
					Max vessel share of annual fleet landings ('04-'06)	Max Initial Permit QS Allocation	
Shortspine N	9.0%	6.0%	Control limits somewhat higher than for Dover and sablefish, for example, because it is underutilized, but at the same time there is need to maintain widespread availability to provide opportunity for many vessels over the majority of the coast.	+	+	+	+
Shortspine S	9.0%	6.0%	The same as limits set for other thornyheads.	+	**0**	+	+
Longspine N	9.0%	6.0%	Similar to shortspine in the north.	+	+	+	+
COWCOD	20.0%	20.0%	*Overfished species rationale.				
DARKBLOTCHED	2.0%	2.0%	*Overfished species rationale.				
YELLOWEYE	5.2%	5.2%	*Overfished species rationale.				
Shelf Rockfish N	7.5%	5.0%	Control limit is twice the maximum initial allocation because the stock has been substantially underutilized in recent years. [Note: While the control limit is less than what is in the GMT report, the vessel limit is in the report's range.]	+	+	+	
Slope Rockfish N	7.5%	5.0%	Rationale similar to shelf.	+	+	+	
Shelf Rockfish S	13.5%	9.0%	South, limits slightly higher than northern rockfish because of fewer vessels participating.	+	+	+	
Slope Rockfish S	13.5%	9.0%	Rationale similar to shelf.	+	**0**	+	
Dover sole	3.9%	2.6%	Lower limit than for many species, because it is widely distributed and caught by many vessels. A large control limit would create opportunities for a few vessels with a relatively lower amount of QS to completely supply the limited market. Even though relatively lower, the control limit is still over twice the maximum initial allocation.	+	**0**	+	
English sole	7.5%	5.0%	Similar to Dover sole (widespread and soft markets) but it is underutilized and more important to a small subset of the fleet (beach boats). Therefore, the limits are larger.	+	+	+	
Petrale sole	4.5%	3.0%	The control limit is similar to sablefish and in line with the GMT report. The limit would constrain the maximum share; however, this maximum occurred in a year in which the OY was exceeded. Similar to sablefish.	+	**0**	+	+

Table A-86 cont. GAC rationale for recommendations provided to and adopted by the Council (with the exception of overfished species).

Species	Vessel use limit	Control limit	Rationale for limits	Vessel/ Control Ratio (1.5:1.0) (+ =Yes)	Control Limit Greater than (+ =Yes)		In line with GMT Report (+ =Yes)
					Max vessel share of annual fleet landings ('04-'06)	Max Initial Permit QS Allocation	
Arrowtooth	20.0%	10.0%	A larger vessel limit is needed because of the smaller number of vessels involved in the fishery and need to allow for expansion of harvest on this underutilized species. Similar to Pacific cod, a control limits is needed that is lower than what is would be if the standard 1.5:1.0 ratio is applied.	**0**	+	+	+
Starry Flounder	30.0%	15.0%	Higher limits because it is one of the fisheries with the lowest number of participants. However, control limit is lower than the maximum initial allocation (30%) because that level would not accommodate enough of the beach draggers.	**0**	+	**0**	
Other Flatfish	15.0%	10.0%	This is a catchall category, which includes sanddabs, rex sole, and true turbots. It has a fairly large aggregate OY. However, a larger control limit is recommended because of the need to specialize in single species within the complex.	+	+	+	
Other Fish	7.5%	5.0%	Lower end of the range of limits because this is a catchall category that everyone might need a little of.	+	+	+	

* Rationale for overfished species control and vessel limits: (1) Control limits are set at the maximum initial allocation under the formula adopted by the Council at this meeting. Of all the species, it is most important to minimize the chance of excessive control of the overfished species QS. The maximum initial allocation level is a reasonable level at which to set the control limit for this purpose. (2) There is significant incentive for vessels to avoid overfished species. The proposed rules for applying the vessel limits will allow any vessel to cover its catch regardless of the level at which the vessel limit is set, if it can find the QP to do it. Therefore, it is recommended that the vessel limit be set at the control limit.

OVERFISHED SPECIES AND HALIBUT IBQ

General Considerations

In March 2009, the Council adopted the GAP recommended accumulation limits levels for overfished species but maintained them as preliminary preferred options. For halibut, the Council adopted a range of options for consideration. The GMT had highlighted reasons why the Council might wish to approach accumulation limits for overfished species differently than target species and raised questions about some of the Council's preliminary choices for overfished species limits.[108] Furthermore, the GAP's recommendations, which the Council used as a basis for its motion, were based on the concept that vessel limits for overfished species would only apply to unused QP with no cumulative limit on annual usage.[109] The Council had not included the unused QP approach when it adopted the limits recommended by the GAP. The GMT had just conceived of this unused QP concept during the meeting

[108] PFMC, March 2009 Briefing Book, Agenda Item G.4.b, Supplemental GMT Report and Supplemental GMT Report 2.

[109] PFMC, March 2009 Briefing Book, Agenda Item G.4.b, Supplemental GAP Report (see footnote).

and had advised the Council that it be scrutinized further before final action was taken. Based on the GMT comments and concerns, the Council maintained the overfished species limit options as preliminary rather than final and requested additional analysis for consideration at the June 2009 meeting.

Three major characteristics of incidentally harvested overfished species (OFS) and halibut (H) (OFS and H bycatch) in the shoreside trawl fisheries ultimately guided the Council in identifying final preferred control and vessel limits for overfished species and halibut IBQ: (1) OFS and H bycatch constrains the harvest of healthy stocks, (2) OFS and H bycatch rates are uncertain, and (3) for target species the incentive is to use QP but for OFS and H taken incidentally the incentive is to avoid the bycatch and conserve QP. In this section, the term bycatch will be used to refer to overfished species and halibut taken incidentally in the groundfish fishery, whether they are retained or discarded. This use of the term varies from the definition of bycatch in the MSA. The MSA uses the term bycatch to refer only to that incidental catch which is discarded.

The first major characteristic to consider is that OFS and H bycatch constrains the harvest of healthy groundfish target stocks. Although individual accountability of the trawl rationalization program is expected to improve individual, and hence fleet, performance in the fishery with respect to OFS and H bycatch, OFS and H are expected to remain scarce relative to healthy target stocks for the near future. OFS and H QP will, therefore, be scarce inputs for harvesting in the rationalized trawl fishery. For some vessels prosecuting certain target strategies in certain regions, QP for particular OFS and H will essentially nonsubstitutable because bycatch will be unavoidable. For example, it will not likely be possible to trawl on the continental shelf, or to target whiting in depths shallower than 150 fathoms, in areas north of 40º 10' N latitude without having the QP to cover incidental catch of canary rockfish. Figure A-123 is a basic, conceptual representation of this point with the diagonal line marking the natural encounter rate between some individual or complex of target species and another species or complex of species that is incidentally encountered as bycatch while targeting those species. Because some rate of encounter will be unavoidable for any given level of target species QP harvested, vessels will need some corresponding amount of bycatcH QP. In the conceptual example provided in Figure 1, vessels would need bycatcH QP at ***B*** in order to harvest at the ***T*** level. This conceptual example assumes that the bycatch rate is fixed and constant. Variability of the bycatch rate will be discussed in the following section.

The importance of OFS and H QS/QP in the trawl rationalization program, and hence its value, will derive from this function as an input. The price fishery participants are willing to pay for OFS and H QP will be related to the target species to which the QP provides access, or more specifically, to the ex-vessel revenue that those target species generate. Harvesters may be able to earn some revenue from the sale of the incidentally caught OFS themselves, yet this revenue could be trivial compared to what the QP is worth in terms of target species revenues. For halibut IBQ, its value will derive exclusively from the value of the target species with which it co-occurs because halibut are a prohibited species that cannot be retained or sold.

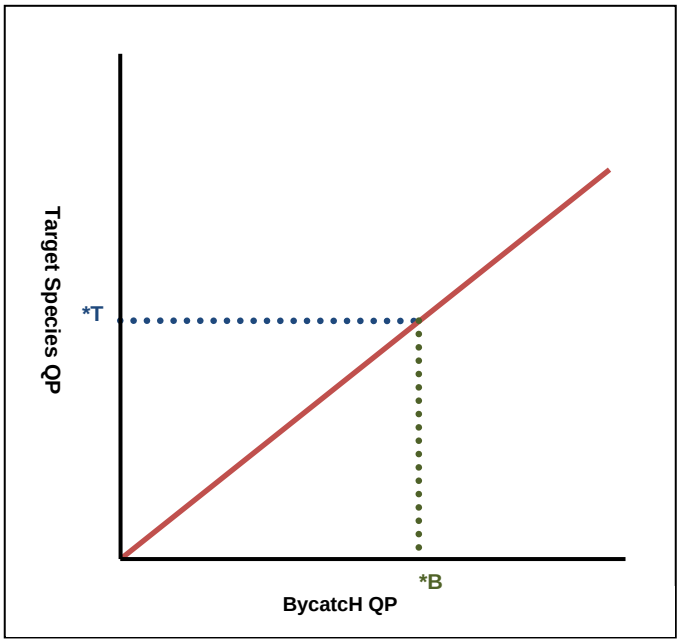


Figure A-101. Conceptual relationship between target and OFS and H bycatch species QP in the TIQ fishery. The diagonal line represents the natural encounter rate between the two species, i.e., the amount of bycatcH QP that a vessel will need to harvest a given amount of target species.

A few implications follow from this first characteristic. Most basically, given that OFS and H QP will be needed to access target species QP, the Council sought to match control and vessel limits for individual bycatch species to the limits for the target species with which they co-occur. That is, the Council sought to set OFS and H quota control and vessel limits high enough to give harvesting operations a reasonable chance at harvesting their target species limits. OFS and H limits that were set too low would unreasonably cap the amount of target stocks that could be harvested by a vessel and would be an overall forced inefficiency on the fleet.

The second implication, somewhat countervailing to the first, arises from the lack of substitutability and relative scarcity of OFS and H QP. Every harvesting operation will need some amount of QP for OFS and H, yet there will not be enough available for everyone to fully harvest their target species holdings. Those that own OFS and H QS, or have other means of directing the use of OFS and H QP, could, therefore, exert considerable bargaining leverage over the fishery. Given that the QS/QP for certain OFS and H will essentially be nonsubstitutable in some cases,[110] concerns about control are as high or higher than for the most economically important targets stocks, such as Petrale sole and sablefish. Again, given that harvesters and processors participate in multiple fisheries on the Pacific coast and in Alaska, that leverage could conceivably extend beyond just activities in the shoreside trawl fisheries. For example, QP for OFS and H might be made available to a vessel contingent on considerations for deliveries in another fishery, such as Dungeness crab.

In consideration of the scarcity and limiting nature of bycatch, the Council's basic approach to setting control and vessel limits was to set them high enough to give harvesting operations a reasonable chance of harvesting the target species limits, yet at the same time, low enough to minimize the risks of allowing entities to gain unacceptable control. Given the central importance of OFS and H bycatch in the fishery, the acceptable margin between limits that are too constraining and those that create

[110] QPs for Dover sole are economically substitutable because if a Dover sole QP is not available (or available in only small quantities), a vessel might earn revenue by targeting on Petrale instead of Dover sole. QP for canary rockfish may not be substitutable because it is needed regardless of the target species that is targeted.

unacceptable levels of control appeared to be much narrower for OFS and H accumulation limits than for target species.

The second major characteristic of OFS and H bycatch is that it is uncertain. This uncertainty, deriving from our limited ability to observe discards and the natural variation in bycatch encounter rates, affected the Council's ability to identify the percentage limits that that best balanced harvest opportunity and concerns about control. The uncertainty of OFS and H bycatch will also be a significant factor influencing fishing and trading behavior in the rationalized trawl fishery.

The best available information on annual bycatch rates in the nonwhiting fishery come from the West Coast Groundfish Observer Program. The WCGOP places observers on board nonwhiting trawl vessels to measure bycatch and discards with a target sampling rate of 20 percent of the annual nonwhiting trawl landings (NMFS, 2006 1700 /id). The bycatch rates produced by the WCGOP are critical for status quo management and have proven effective at assisting the Council with maintaining bycatch within acceptable levels. Yet, as with all statistical estimates, the WCGOP bycatch rates are subject to variation. The estimates used for status quo management are averaged across years and aggregated over all vessels operating in relatively large areas. The "true" bycatch rate varies between vessels, areas, and years meaning that the particular experience of an individual vessel could depend on when, where and how it fishes and could be considerably different from a different vessel operating in the same area. Even with perfect information about current bycatch rates, ratios between target species catch and bycatch are variable at any given time and change over time together with the factors that influence the encounter rate (e.g., fish abundance, ocean conditions, fishing gears and strategies). Fishing strategies, for one, are expected to change in the rationalized trawl fishery under the influence of individual accountability for total catch. The WCGOP rates, although the best available information on bycatch, are, therefore, not necessarily representative of what vessels will experience in the rationalized trawl fishery.

Natural variation in bycatch rates also means that setting control and vessel limits based on an average rate, no matter how precise or unbiased the estimate of that average, would create a situation where some harvesters experience bycatch rates above the average. This point is illustrated in Figure A-124, which represents the same conceptual relationship as in Figure A-123 yet with a variable encounter rate between the target and OFS and H bycatch species. The vertical line at *B represents the average or mean encounter rate and the lines at B_{upper} and B_{lower} mark the tails of the hypothetical probability distribution. In this Figure 2 example, to access target stocks at the QP amount marked by the horizontal line at $*T$, some vessels would end up needing QP near the B_{lower} level while others may encounter amounts closer to the B_{upper}. Figure A-124 can represent the variability in bycatch experienced at the level of a tow or trip or over the course of the fishing year for an individual vessel. It can also represent the different bycatch encounter rates experienced across vessels and operators, seasons and areas, and between years.

As described in detail below, there are some species in the fishery for which a single trawl tow can bring up a significant percentage of the OFS and H bycatcH QP.[111] Fishery managers have referred to these types of bycatch events as "lightning strikes" because of their relatively low probability of occurrence and large magnitude of the catch. Under status quo management, lightning strike tows in the whiting fisheries have contributed to early closures of the fishery in 2007 and 2008. In the trawl rationalization program, a single lighting strike tow of certain OFS and H species could conceivably place a vessel over the vessel limit. For other species, such risks exist more on the scale of the fishing year because it would take multiple "B_{upper}" type tows or trips to put a vessel in jeopardy. The Council is relying on the individual accountability of the trawl rationalization program to push vessels to change their fishing behavior, minimizing their risk of lightning strikes and lowering their individual average bycatch rates.

[111] See also section A-2.2.1 for a discussion of how a "lightning strike" bycatch event can place an individual in an overage situation.

However, the nature of trawl fishing is such that harvesters only have so much control over what they catch. Even the most skilled and experienced vessel operators cannot be expected to completely eliminate randomness from bycatch.

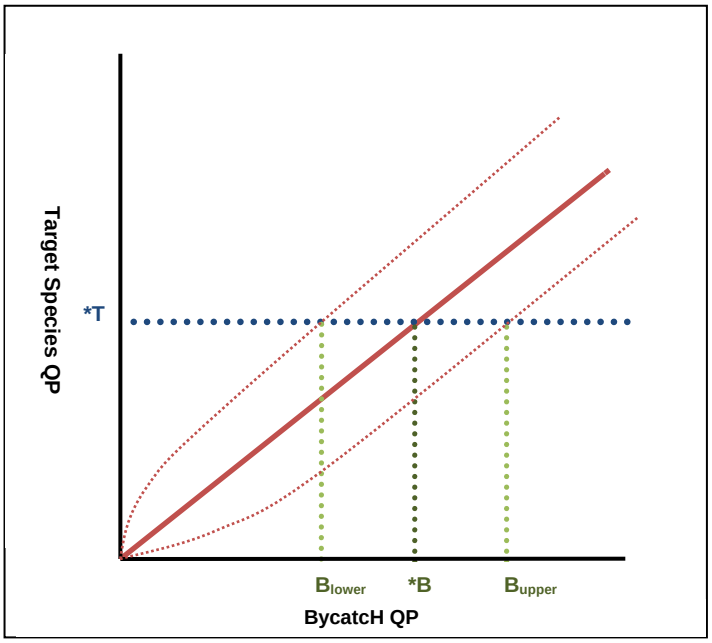


Figure A-102. The same conceptual relationship shown above in Figure A-113 yet with a range of natural encounter rates meant to illustrate the uncertainty and variation involved with bycatch. The amount of bycatch needed to harvest a given amount of target species will vary between vessels, areas, years, etc. For and individual vessel, the rate will vary between tows, trips, and years.

This uncertainty, randomness, and risk involved with bycatch will influence the behavior of harvesters in the trawl rationalization program and the dynamics of the OFS and H QS/QP market. Harvesting operations will have imperfect information about their annual bycatch needs and a perception of risk that they face from high bycatch. This then creates an incentive for harvesting operations to hold onto or acquire enough OFS and H QS/QP to cover their perceived risk. The OFS and H QS/QP would not be needed unless the bycatch is actually encountered, yet in a climate where most in the fishery are uncertain and concerned, harvesters may have little confidence that OFS and H QP would be available on the market at a reasonable price when needed. Therefore, if the control limits are set high enough to permit harvesting operations to cover their perceived margin of risk, then those allocated or with the means of to acquire QS up to the limit may be less likely to sell or lease their QS/QP except at a premium until they gain a better understanding of their OFS and H bycatch needs. This potential chilling effect on market trading is not too dissimilar to the uncertain conditions affecting consumer spending and bank lending in the global financial crisis and recession that existed at the time of the Council's consideration of these limits. Additionally, if harvesting operations are able to cover their margin of risk on their own, then they might be less likely to cooperate with others in risk pools or other arrangements.[112] The tradability of QS/QP will be the main engine of improved harvesting efficiency. Conditions that hamper the trading or cooperative sharing of OFS and H QS/QP could, therefore, be detrimental to the performance of the trawl rationalization program.

[112] For more analysis of the relationship between control limits and risk pools, *see* p. 5-7 of PFMC, June 2009 Briefing Book, Agenda Item E.11.b, GMT Report.

Therefore, as with the first characteristic, the uncertainty of bycatch creates countervailing dynamics to consider in the setting of accumulation limits. The Council looked to set accumulation limits high enough to allow some flexibility for the low probability, high-magnitude bycatch events, yet at the same time, not so high as to reduce quota trading and cooperation between harvesters.

The third major characteristic of bycatch is that the incentives created by the IFQ system are somewhat different than for target stocks, particularly when it comes to the use of QP. Put simply, there is no purpose of using OFS and H QP other than to access target stocks, thereby generating revenue.

Vessel limits are, in effect, a secondary rationing mechanism for QP with the trawl rationalization program itself as the primary mechanism ("IFQ mechanism"). The Council included this secondary rationing mechanism as a measure against the fleet consolidation that will result from the pure market-based rationing of the trawl rationalization program. As detailed in Chapter 4 of this FEIS, the IFQ mechanism is expected to drive those harvesters able to operate most profitably to acquire QP up to their vessels' optimal harvesting capacity. As vessels that are more efficient acquire QP from the less efficient, the fleet consolidates towards some optimal fleet size. Yet, this optimal fleet size is only optimal in terms of harvesting efficiency and may be too small to be considered optimal in light of the Council's other management objectives for the fishery. The vessel limits were thus included in the program in case the IFQ optimal fleet size is undesirably small.

For OFS and H, the IFQ mechanism also creates an incentive for harvesters to acquire an optimal amount of QP. However, there is a key difference in that the optimal amount of OFS and H QP is a direct function of the optimal amount of target species. As discussed above, OFS and H QP will function as an input in the fishery rationalized under an IFQ program, or in other words, as a cost of harvesting. As with all profit-seeking enterprises, harvesters will seek to minimize costs and maximize revenues. The optimal level of OFS and H QP can thus be thought of as the amount that allows vessels to access their target species and no more. The market is expected to set a high price for OFS and H QP, and in turn, there will be a high opportunity cost to using OFS and H QP inefficiently. In a well functioning QP market where each harvesting operation has sufficient information about its OFS and H need, the IFQ mechanism would ration OFS and H QP efficiently, and vessel limits on the use of OFS and H QP would be unnecessary because the Council's policy objectives on fleet size would be achieved solely by the vessel limits placed on target stocks. In other words, in a well functioning market vessel limits on bycatch would be redundant to those on target species.

Figure A-125 illustrates this concept with the horizontal line I representing the vessel limit on target species QP. Again, if the simple diagonal line from Figure A-123 represents the ratio or natural encounter rate between the target and bycatch stock for a particular vessel, that vessel would need OFS and H QP at the *B level in order to harvest the target species vessel limit. In such a scenario, a vessel limit set at *B (vertical line B) or higher (e.g., vertical line C) would, therefore, have no impact to the vessel. If Figure A-125 represents the fleet in aggregate, a vessel limit set at *B or higher would have no influence on fleet consolidation above what is accomplished by the target species vessel limit I. On the other hand, if the Council were to set the vessel limit below *B, the vessel would be prevented from harvesting the full target species limit. In the Figure A-125 example, a vessel QP limit for a bycatch species set at vertical line A would create a de facto target species limit depicted by horizontal line II. Over the aggregate, a vessel QP limit for a bycatch species set below the average encounter rate would be expected to allow less fleet consolidation than contemplated by the Council's target species vessel limit. In sum, in this simplistic example the limit on the amount of QP a vessel is allowed to have to cover OFS and H bycatch either has no effect on fleet consolidation, or it permits less consolidation than desired.

Vessel limits for OFS and H may be redundant in a well functioning, simple IFQ fishery, yet the same cannot realistically be said for shoreside trawl fisheries. For the reasons highlighted above in the discussion of the first two major characteristics of bycatch uncertainty, it would be unreasonable to

assume that the QS/QP market will function optimally, especially in the early years of the program. QS/QP to cover OFS and H could be so scarce and limiting on harvest that many harvesters will be unable to achieve target species vessel limits. Variability in bycatch rates means that harvesters would likely hold on to OFS and H QP on the chance that they might need it. Further, some may see acquisition of OFS and H QP in excess of their needs as a means to capture profits for groundfish, and possibly nongroundfish, harvest of vessels needed the OFS and H QP. The OFS and H vessel limits may be more influential on the number of vessels operating in the fishery than the target species vessel limits. In addition, as discussed above in the section on target species, the Council did not set vessel limits for target species envisioning that the limit would result in some precise fleet size. Instead, the Council, in its best judgment, attempted to set vessel limits at a level that best balanced the need for individual harvesting efficiency and the desire to minimize the risk of over consolidation in the fleet. The interaction between target species vessel limits and vessel limits for OFS and H cannot be represented by the conceptual diagrams shown in this section; the multispecies, regionally diverse, shoreside trawl fishery is just too complex for the Council and its advisors to predict the effect of any one particular vessel limit. The Council, therefore, included limits on the use of OFS and H QP not just because of their effect on fleet consolidation, but also to promote the overall social, economic, and conservation goals and objectives of the trawl rationalization program. Nonetheless, the fundamental point to make related to this third major characteristic of bycatch is that IFQ mechanism creates a strong disincentive against inefficient use of QP. Further implications of this disincentive are explored below in the context of the unused QP limit.

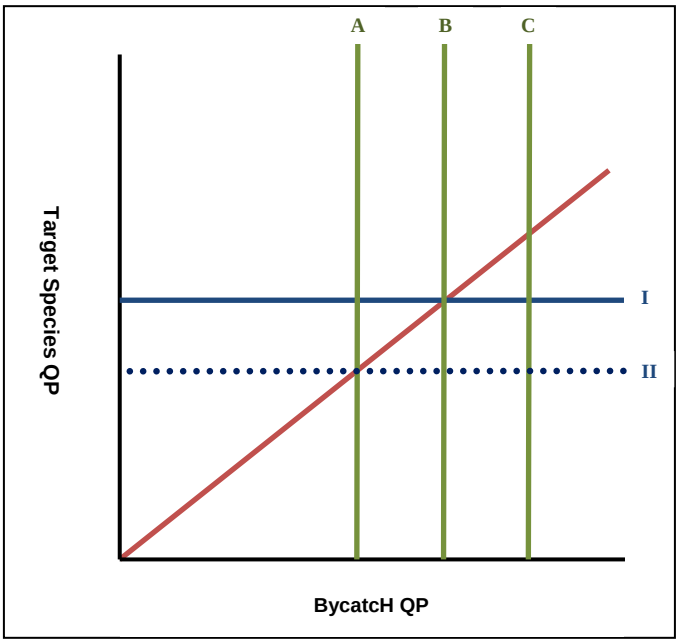


Figure A-103. Same conceptual relationship as in Figure A-113 with a vessel limit on target species marked by the solid horizontal line *I* and three possible vessel limits on bycatcH QP depicted by the three vertical lines *A*, *B*, and *C*. The dotted horizontal line, *II*, represents the effective target species limit that would result if the bycatch vessel limit were set at vertical line *A*.

Approach for Setting Control Limits for Overfished Species and Halibut

The Council set its preferred control limits for overfished species and halibut IBQ at the level of the estimated maximum initial allocation to an individual permit.[113] The Council determined that this method appropriately matched the control limit for a particular overfished species to those for co-occurring target species while also keeping limits low enough to minimize issues of control.

The initial allocation formulas for overfished species and halibut IBQ is described in detail in section A-2.1.3.a and Appendix C. The most important feature of the formulas for analysis of control limits is that they are based on WCGOP bycatch rates and designed to accommodate current spatial fishing patterns in the fishery. For overfished species QS, the initial allocation formula applies area-specific WCGOP bycatch rates for each overfished species to the target species QS allocated to each permit, with the appropriate area-specific bycatch rate assigned to a permit based on the permit's logbooks. The formula for halibut IBQ is structured similarly, except that it uses a broader area stratification and applies the WCGOP bycatch rates only to each permit's allocation of arrowtooth flounder and Petrale sole, the two species most closely associated with Pacific halibut.[114] The estimated maximum initial allocation for a particular species is, therefore, made to a permit with a relatively high initial allocation of target species and a record of fishing in an area where the WCGOP bycatch rate for that species is also relatively high. For example, the maximum initial allocation of halibut IBQ is made to a permit receiving substantial amounts of arrowtooth flounder and Petrale sole and with history operating in an area where the WCGOP rates predict halibut to be abundant.

The GAP believed that of all the species in the trawl fishery it was most important to minimize the chance of excessive control of the OFS and H QS.[115] In its reports to the Council at the March and June 2009 meetings, the GAP recommended the maximum initial allocation level is a reasonable level at which to set the QS control limit for such a purpose.

In a June 2009 report, the GMT team noted that the approach's use of area-based bycatch rates and permit-specific logbook was the most reasonable method of those considered for identifying control limits that would accommodate expected bycatch needs across the different target strategies and regions of the coast. [116] That same report noted that, although the maximum initial allocation approach would set control limits for many species above the expected need of the vast majority of fishery participants, the control limits would still be expected to encourage cooperative risk pooling among vessels operating in regions of the highest bycatch species abundance, which are the areas where such arrangements will be needed most.[117]

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[113] The Council could only set the control limit based on the ***estimated*** maximum initial allocation to individual permits because the final initial allocation will not be known until NMFS freezes the database and issues the QP. However, permit-level allocations are not expected to change substantially from what was estimated in this analysis.

[114] For more explanation, ***see*** Appendix C and PFMC, June 2009 Briefing Book, Agenda Item E.11.a, Attachment 1, Issue Summary and Analysis: Accumulation Limits, Divestiture and Related Provisions.

[115] PFMC, March 2009 Briefing Book, Agenda Item G.4.b, Supplemental NMFS Report.

[116] PFMC, June 2009 Briefing Book, Agenda Item E.11.b, GMT Report.

[117] An overfished species or halibut control limit that is set high relative to the amount needed for target species would allow an individual harvester to acquire enough QS to cover a reasonable range of its expected bycatch need, leaving it with a low likelihood of need to acquire overfished species or halibut bycatcH QP during the fishing year. A control limit that is closer to the average vessel need (for a vessel that has the maximum amount of QS for target species) leaves harvesters in a position where there is a greater probability that they will have to acquire overfished species or halibut QP during the year. This, then, might encourage those entities to enter into risk sharing pools with other harvesters.

The Council was confident in this method's ability to produce control limits that are not unduly constraining on an entity's ability to control the OFS and H QS needed to access target species because the limits are based on the best available information on the expected need of large producers operating in areas where bycatch is most abundant. In other words, the control limits set at the maximum initial allocation should only be constraining to those harvesting operations that own QS at or close to the target species control limits and that wish to operate in areas where bycatch rates are high. Those owners harvesting below the level allowed by the target species, or in areas where lower bycatch rates can be achieved, should not be constrained by the control limits.

The Council was also confident that the method would produce control limits that minimized the ability of entities to exert unwanted control over the fishery because the maximum initial allocation used to set the control limit is at the permit-level and not the entity-level. As discussed elsewhere in this FEIS, permit-level allocations are most representative of the operation of a single vessel. Entities wishing to operate multiple vessels using only the QS they control will have to do so by achieving a lower bycatch rate than that on which the rate used to produce the control limit is based. Likewise, entities receiving an initial allocation of OFS and H QS at or near the control limit will also have to improve upon their bycatch performance if they wish to increase their target species harvest to the levels allowed by the target species control and vessel limits. Overall, the Council's final preferred control limits will make it difficult for entities to control more OFS and H QS than needed by a single vessel operating in areas where bycatch is most needed.

The Council's control limits for overfished species and halibut IBQ are discussed on a species-by-species basis below.

The Unused QP Limit and General Approach to Vessel Limits for Overfished Species and Halibut IBQ

For overfished species and halibut, the Council's final preferred alternative includes both a vessel QP limit and a limit on unused QP in a vessel account. For these species, the Council set the unused QP limit equal to the control limit and identified vessel limits for each species based on the GMT and Council staff analysis of bycatch patterns in the status quo fishery.

The vessel limit and unused QP limit were originally considered as alternative approaches for governing bycatcH QP with both having apparent advantages and disadvantages. Further analysis and consideration between March and June 2009 revealed that the two concepts could be complementary. In light of the central importance of bycatch, the Council believed its management objectives would be best served by employing both in the trawl rationalization program.

The central challenge with OFS and H QP is, again, to prevent excessive use and counterproductive holding of QP while also providing individuals with some flexibility for unexpected bycatch performance. Identifying limits that would accomplish both objectives proved especially difficult because of the many factors and countervailing dynamics discussed above.

The first method considered by the Council and its advisors was to set vessel limits above the control limits. This would allow harvesting operations to acquire QP above what could be derived from the QS allowed under the control limit via the market or some cooperative arrangement like a risk pool.

The major disadvantage to this approach is that higher vessel limits would allow entities to acquire and hold more QP in their vessel accounts than what is contemplated by the control limits. The GMT used canary rockfish to illustrate the potential implications of this in a June 2009 report.[118] To accommodate

[118] PFMC, June 2009 Briefing Book, Agenda Item E.11.b, Supplemental GMT Report 2.

rare but likely bycatch of canary rockfish, the GMT recommended setting the vessel limit at 10 percent. Few vessels would encounter canary bycatch of this magnitude, yet the vessel limit would allow any entity to acquire and place up to 10 percent in a vessel account. This raised concerns, particularly with the GAP, that the benefit of providing flexibility to the relatively few vessels that might need higher vessel limits in any given year might be outweighed by the overall risks to the fishery associated with allowing QP to be held in higher concentrations on fewer vessels. These risks, outlined in more detail above, include potentially less QP on the market for those that need it to cover actual catch and entities exerting control over other fishery participants by directing the use of substantial amounts of QP.

The GMT originally conceived of the unused QP limit concept because it would only allow entities to acquire QP above the control limit if needed and because it would eliminate the need to identify specific vessel limits that best balanced the need for flexibility and concerns over control.[119] The unused QP limit instead relies on the QP market to regulate individual use. Vessels that encountered OFS and H would be allowed to replenish their QP accounts back to the unused QP limit thereby providing flexibility to cover any bycatch overage as long as the QP was available from other fishery participants. The price of acquiring the additional QP would be set by the market, and as highlighted above, the cost of acquiring QP could be substantial.

The major disadvantage to the unused QP limit was that it places no ultimate limit on use of OFS and H QP. The GAP was not concerned by this, believing instead that the unused QP limit would improve functioning of the QP market, and in turn, that the QP market incentives would be enough to prevent fishermen from engaging in a strategy that relies on serial replenishment of OFS and H QP. The unused QP approach would allow harvesters to cover bycatch overages as long as the QP was available. However, the QP would have to be obtained through the market at potentially high cost or through a cooperative arrangement where the ability of would be limited. The GAP was most concerned with the potential issues of control and QP availability associated with the higher vessel limit approach. The GAP endorsed the unused QP limit concept in March 2009 and reiterated its support during the Council's final consideration of accumulation limits in June 2009.

The Council recognized the market forces at play, yet remained concerned that, under the unused QP approach, the lack of an upper limit on bycatcH QP would weaken the incentive, even if marginally so, and send the wrong message to fishery participants about the necessity of improved bycatch performance to the success of the trawl rationalization program. Bycatch is so limiting in the fishery that unreasonable use of QP by a small number of actors could have negative impacts, including less overall harvest and fewer vessels operating in the fishery. For this reason, although the Council accepted the GAP's recommendation and rationale for employing the unused QP limit, it also capped cumulative annual usage with the vessel limits analyzed by the GMT and discussed below species-by-species.

Another concern that has been expressed regarding the unused QP limit concept was that it might induce early season fishing activity by vessels concerned about the availability and price of OFS and H QP later in the year. The degree to which this issue is a concern depends on the degree to which there is seasonality in the price of bycatcH QP. Theoretically, the anticipation of higher prices later in the year should be self-dampening. Those with OFS and H QP anticipating higher prices later in the year will be more likely to hold QP to sell late in the year. This dynamic will tend to make more QP available then, reducing the degree of the price rise. If enough people hold out hoping for a higher price, in the extreme there could be a late season glut and reduction in price. At the other extreme, if enough fishermen fish early in order to use their OFS and H QP and make room to acquire more, the early season demand will rise, increasing early season OFS and H QP prices. Together, these two dynamics would be expected to flatten out the initial expectation of a price swing during the year. In systems such as the New Zealand

[119] PFMC, March 2009 Briefing Book, Agenda Item G.4.b, Supplemental GMT Report.

system, where there are constraining species in a multispecies fishery, strong late season increases in price are not typical. The Council will monitor patterns in fishing activity and QP trading early in the trawl rationalization program and revisit the unused QP limit if necessary.

Development of Specific Limits for Overfished Species and Halibut IBQ

This section describes how the general approaches to setting control and vessel limits were applied to each overfished species and halibut. The analysis detailed below was presented to the Council by the GMT and Council staff in June 2009.[120] The figures describing the distribution of QS initial allocations for each species are also discussed above in Section A-2.1.3.a. Discussion of the different bycatch characteristics of each species is based on observations from the WCGOP, monitoring of the shoreside whiting fishery, and the GMT and Council staff's experience managing the status quo trawl fisheries. Control and vessel limits are equated to pounds of fish using 2010 OYs and Amendment 21 ISAs or status quo sector catch proportions for species not included in Amendment 21 ("2010 catch scenario"). Again, the actual pounds associated with QS/QP could be considerably different at the start of the trawl rationalization program because stock abundance, and our understanding of stock status, changes over time. Likewise, the amount QP deriving from QS will undoubtedly fluctuate throughout the trawl rationalization program from biennial cycle to biennial cycle, and in some cases, from year to year. Given the uncertainty in the data and questions about how fishing behavior and bycatch rates and needs might change, the Council recommended that vessel limits for overfished species and halibut IBQ be reviewed during the first biennial management process after implementation of the trawl rationalization program.

Yelloweye Rockfish

The maximum initial allocation of QS for yelloweye rockfish is 5.7 percent. Under the current shoreside trawl catch of 0.6 mt per year, this would equate to 75 pounds of fish. As the distribution in Figure A-126 shows, only a few entities that operate in the areas of highest yelloweye abundance would be expected to need this amount of yelloweye to access their target QS holdings.

Although most harvesting operations should be more than accommodated by the control limit, the Council also recognized that a single trawl tow can bring up enough yelloweye to put vessels at jeopardy. The WCGOP data includes discard events of yelloweye rockfish as large as at least 150 pounds, which under catch levels, would represent 11 percent of the QP, or almost twice what would be allowed by the control limit.

The Council also recognized that a vessel experiencing a tow of this magnitude would almost certainly encounter additional yelloweye during the year. The Council, therefore, chose to set the vessel limit at 15 percent, which would equate to 200 pounds under a shoreside trawl allocation of 0.6 mt.

[120] PFMC, June 2009 Briefing Book, Agenda Item E.11.a, Attachment 1 Issue Summary and Analysis: Accumulation Limits, Divestiture and Related Provisions; and Agenda Item E.11.b, GMT Report

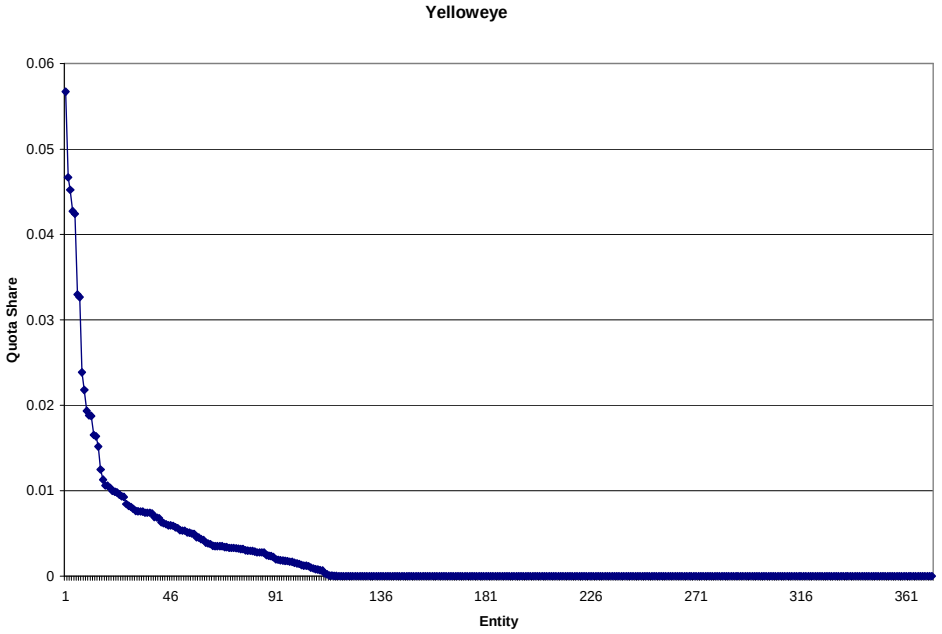

Figure A-104. Estimated distribution of yelloweye rockfish QS to individual vessel permits and processing entities.

Canary Rockfish

Canary rockfish is one of the most important bycatch stocks in the shoreside trawl fisheries. The canary rockfish initial allocation plots are fairly similar to those for yelloweye in that a handful of receive initial allocations that are noticeably larger than others. The highest initial allocation of canary rockfish is 4.4 percent, which at existing catch levels, would equate to 1,571 pounds of canary in the 2010 catch scenario. Canary rockfish are also highly important in the whiting fishery; thus, the initial allocation is a product of the weighted average of the whiting and nonwhiting initial allocation formulas. The Council, therefore, expects that a control limit of 4.4 percent will adequately meet the needs of harvesting entities that have prosecuted both whiting and nonwhiting strategies under the status quo.

In November 2009, the Council revised its final preferred alternative with respect to the allocation of canary rockfish. Before the revision, canary would have been allocated entirely based on the bycatch method, which applies a permit's logbooks to fleet bycatch rates and the permit's initial allocation of target species QS. The revision made was to allocate 45 percent of the canary rockfish equally among all permit holders (amount based on the amount of canary landed by the permits that were bought back). As a result of this revision, the maximum initial allocation was reduced from 4.4 percent to 3.8 percent. However, this reduction does not alter the rationale for setting a canary control limit at 4.4 percent. The revision to the allocation formula was based on the lack of an initial allocation provided to certain ports along the coast. The accumulation limits are "one size fits all" for the entire coast, and they govern not just the initial allocation, but the amount of canary that an entity will be able to control over the long term. Therefore, it is important that the individual species limits be set in proportion to the target species limits. Without an equal allocation element for overfished species, the maximum allocation of canary (4.4 percent) was driven by the allocations of target species to individual entities and the application of logbook and bycatch rates to those target species allocation. Changing the allocation formula for canary to include an equal allocation element does not alter the balance between the target species QS accumulation limits and the best estimates of the corresponding amounts of canary QS needed. Therefore, despite the revised method for making an initial allocation of QS, it continues to be

appropriate, based the control limit on the balance between the target species QS and the need for canary as determined entirely by permit logs and bycatch rates. No adjustment is needed in response to the revision made to the canary allocation formula.

Canary rockfish have also been caught in lightning strike tows of considerable magnitude. Available data from the WCGOP shows that discard events of canary have occurred as large as at least 150 pounds. These data are truncated at 150 pounds, meaning larger events may have occurred. Data from the Washington Arrowtooth Flounder EFP show that some vessels incidentally caught as much as 1,000 pounds of canary over the year. This EFP was conducted under conditions similar to a rationalized fishery and in an area where canary are relatively abundant. Shoreside whiting vessels have also encountered nearly 1,000 pounds of canary rockfish during the 2004 to 2007 seasons. The Council, therefore, chose to set the vessel limit at 10 percent, to accommodate vessels that participate in both the whiting and nonwhiting target strategies. At current catch levels, this would permit vessels to use roughly 2,000 pounds of canary QP over the year.

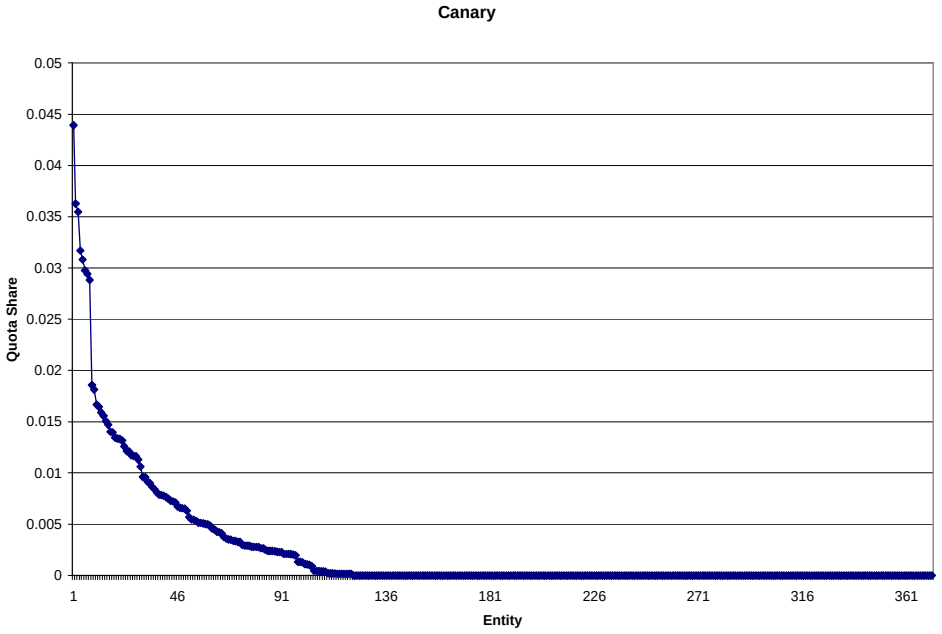

Figure A-105. Estimated distribution of canary rockfish QS to individual vessel permits and processing entities.

Darkblotched Rockfish

Darkblotched rockfish are also allocated based on the nonwhiting and whiting allocation formulas. The highest initial allocation is expected to be 4.5 percent, which equates to 25,000 pounds of fish scenario. Darkblotched rockfish do not appear to create the same "disaster tow" risk as canary and yelloweye. This may be attributable to the fact that darkblotched aggregate to a lesser degree than other types of rockfish (Parker, pers. comm., 2005). Without the same concern about lightning strike catch events, the Council chose to set the vessel limit for darkblotched rockfish at 1.5 times the control limit, or 6.8 percent, using the convention used for most nonwhiting target stocks.

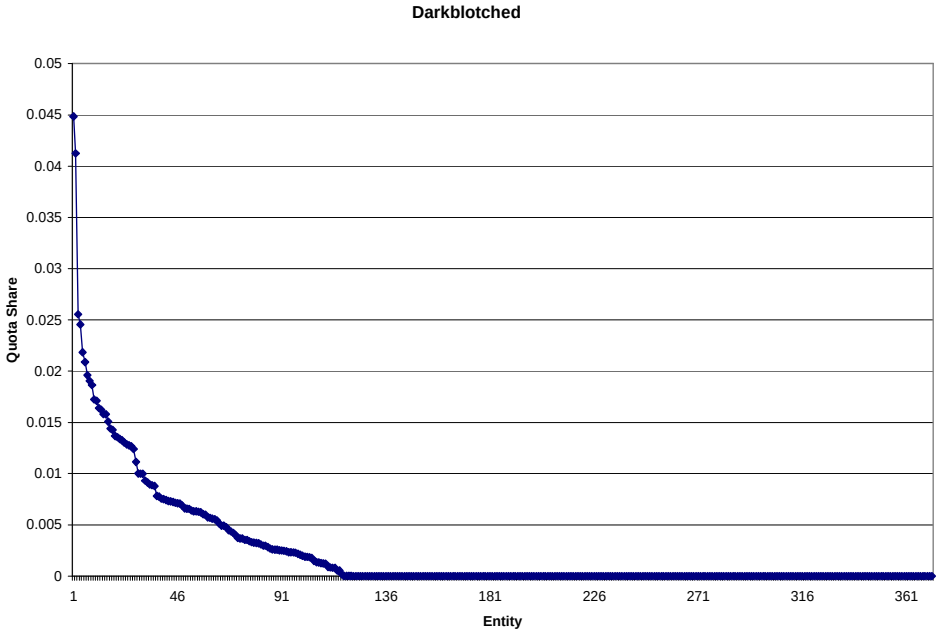

Figure A-106. Estimated distribution of inital allocation of darkblotched rockfish QS to individual vessel permits and processing entities.

Pacific Ocean Perch

The maximum initial allocation of Pacific Ocean perch is estimated to be four percent. This percentage equates to 14,374 pounds of fish in the 2010 catch scenario. Pacific Ocean perch are similar to darkblotched rockfish in that they are less subject to lightning strike tows. The Council, therefore, chose to set the vessel limit at 1.5 times the control limit or six percent.

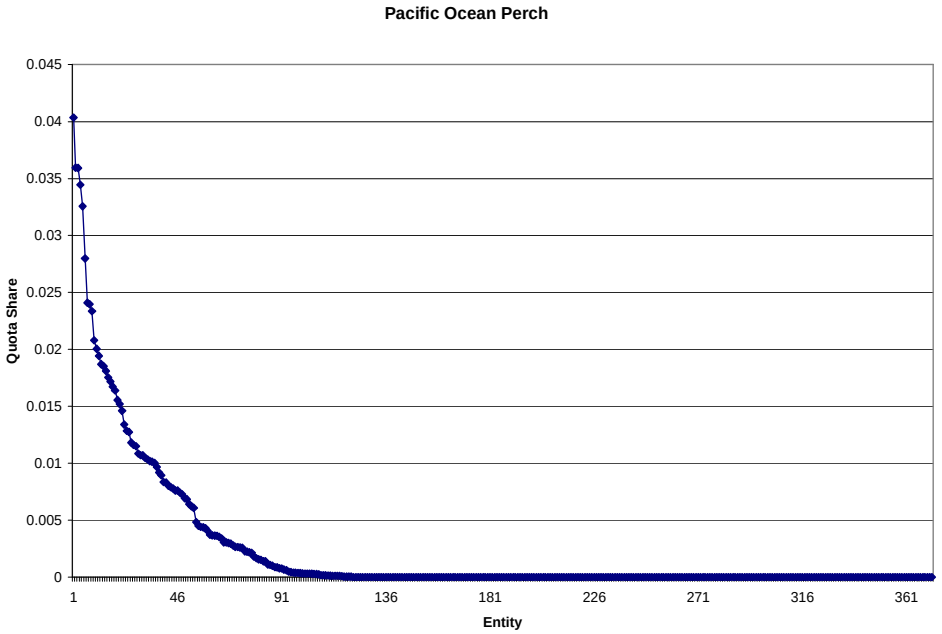

Figure A-107. Estimated distribution of initial allocation of Pacific ocean perch QS to individual vessel permits and processing entities.

Bocaccio

Even more so than for yelloweye and canary, the initial allocation bycatch formula results in a highly skewed distribution of QS with some entities receiving amounts that are orders of magnitude larger than others. The estimated maximum allocation of bocaccio is 13.2 percent. Under the 2010 catch scenario, this percentage would equate to 3,579 pounds of fish.

The Council considered this number closely because it is large compared to other overfished species. At the suggestion of the GMT, the Council also considered disregarding the highest allocation amounts and setting the control limit at 8 percent. However, given that bocaccio is highly constraining to a relatively small geographic area, the Council believed 13.2 percent was an appropriate control limit. The Council did not believe the percentage was so high as to raise concerns over excessive market control or to justify a deviation from the methodology used for the other overfished rockfish stocks. In addition, the Council also noted that few vessels are likely to operate in the area where the overfished bocaccio stock is encountered in large numbers and that larger control limits were natural in such circumstances.

With few trawl vessels operating in southern areas, the WCGOP data are more limited for bocaccio than for other species. The available WCGOP data do record individual discard events as large as at least 150 pounds, yet, as with canary, the data are truncated, and larger catch events may have occurred. West coast research landings have taken more than 4,000 pounds of bocaccio on a single trip in recent years. Under current shoreside trawl catch levels, 4,000 pounds of bocaccio equate roughly to 16 percent of the QP. However, given that research data are not reflective of commercial fishing practices, the Council did not believe vessel limits should accommodate unintended catch of this magnitude. Instead, the Council chose to set the vessel limit at 15.4 percent, which would permit vessels an additional 2,000 pounds above what is permitted by the control limit under current shoreside trawl catch levels.

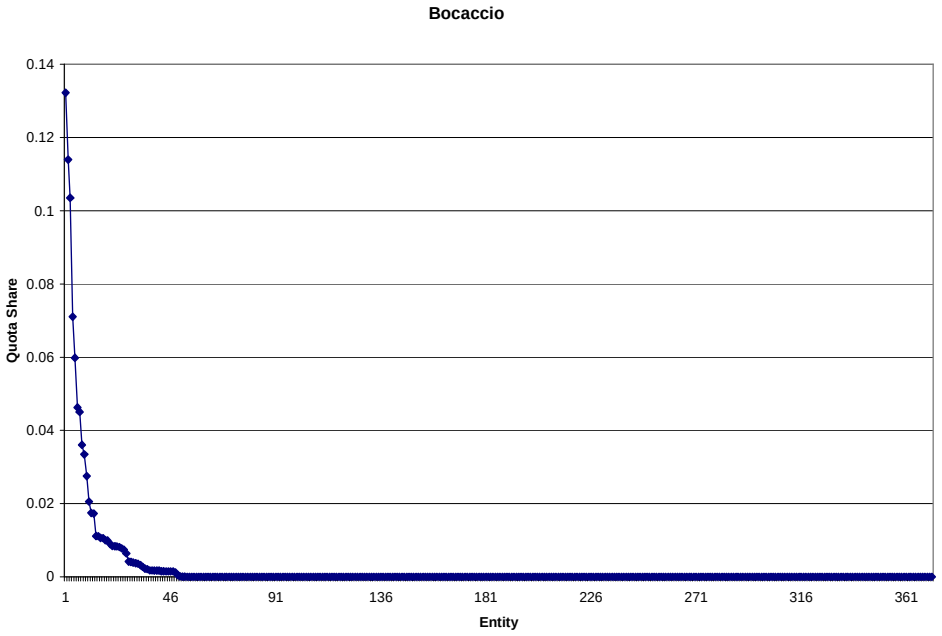

Figure A-108. Estimated distribution of initial allocation of bocaccio QS to individual vessel permits and processing entities.

Cowcod

Cowcod raised similar concerns as bocaccio as it is also highly constraining to the trawl fleet in a relatively concentrated area in the south. The bycatch rate allocation again results in a few entities receiving initial allocations of cowcod QS that are orders of magnitude larger than most others, with the maximum initial allocation estimated to be 17.7 percent. As with bocaccio, the Council determined that this was an appropriate control limit despite being high relative to other species because of the small number of vessels expected to fish in areas where cowcod are encountered. Like yelloweye, cowcod is relatively rare with 17.7 percent translating into only 507 pounds of fish under current shoreside trawl catch levels.

The WCGOP data are also limited for cowcod because of the few trawl vessels operating from ports in the south in recent years. However, the available observer data again indicate that some encounters of cowcod have exceeded 150 pounds. Yet the data also show that most of the larger cowcod discard events have been less than 100 pounds. Based on this information, the Council determined that the 507 pounds of fish allowed by the control limit was sufficient to protect vessels from unexpected cowcod bycatch events and, therefore, set the vessel limit equal to the control limit.

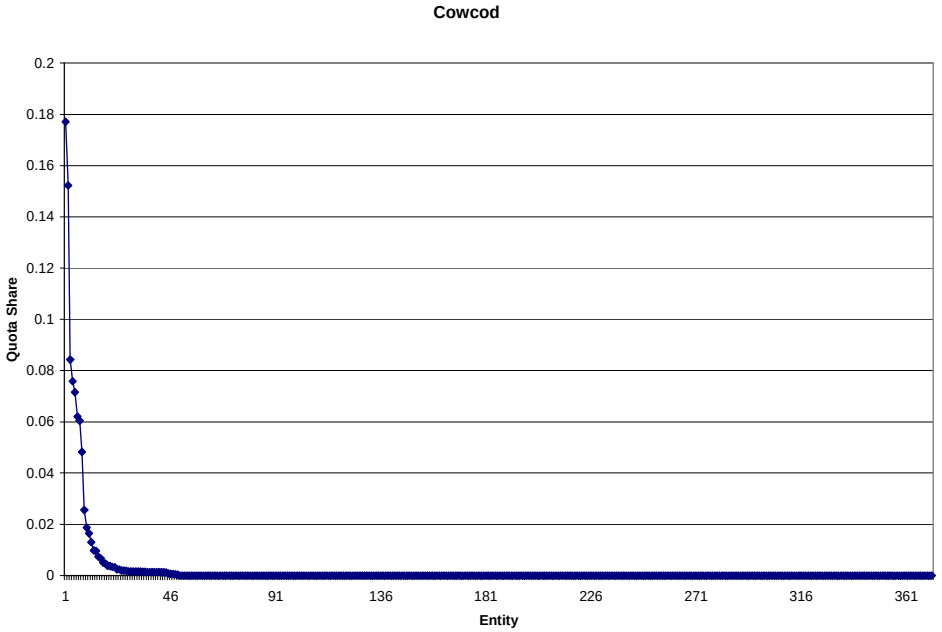

Figure A-109. Estimated distribution of initial allocation of cowcod QS to individual vessel permits and processing entities.

Widow Rockfish

Widow rockfish are caught by both whiting and nonwhiting vessels, although they have become particularly important to whiting vessels under rebuilding. The maximum initial allocation of widow rockfish produced by the whiting and nonwhiting bycatch allocation formulas is estimated to be 5.1 percent. This percentage would equate to 33,000 pounds of fish under the 2010 catch scenario.

In recent years, individual shoreside whiting vessels have encountered the largest lightning strike catches of widow, with some tows bringing up more than 20 metric tons of fish. Under the 2010 catch scenario, 20 mt would equate to nearly 7 percent of the QP. Most vessels, however, have not encountered catch evens of this magnitude. In consideration of the whiting data, the GMT

recommended 10 mt as a reasonable margin for large bycatch events. The Council accepted the GMT's recommendation and set the vessel limit at 8.5 percent, which amounts to 54,989 pounds under the 2010 catch scenario.

The Council also recognized the possibility that widow rockfish could be declared rebuilt by the start of the trawl rationalization program. In the scenario that the stock is rebuilt, the Council recommended setting the vessel limit at 1.5 times the control limit in line with the convention used for most nonwhiting target stocks. The Council chose to maintain the 5.1 percent control limit under either scenario. The overall amount available to the shoreside trawl sectors could be four times higher than what is available under rebuilding, meaning the control limit of 5.1 percent could represent more than 130,000 pounds of widow. Based on the widow rockfish stock assessment adopted by the Council at the September 2009 meeting, widow will not be rebuilt before the 2011/2012 management period.

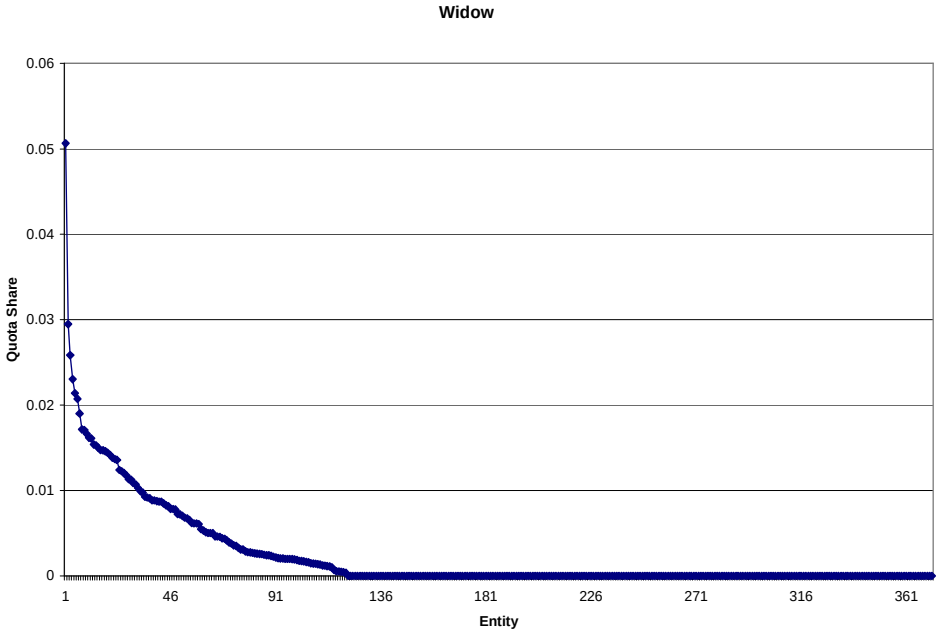

Figure A-110. Estimated distribution of initial allocation of widow QS to individual vessel permits and processing entities.

Pacific Halibut

Pacific halibut is not overfished, yet allowable levels of trawl bycatch could potentially constrain trawl targeting of flatfish, primarily arrowtooth flounder and Petrale sole, depending on the status of the stock and available harvest in the PFMC management area. In addition, halibut is a prohibited species in the groundfish trawl fisheries that cannot be retained or sold. For this reason, the Council has signaled its intention to progressively limit the trawl take of halibut in the future to allow for more catch by the recreational and commercial hook and line sectors.

The expected maximum initial IBQ-QS allocation to a single permit is 5.4 percent. Figure A-133 shows the strong relationship between halibut IBQ and allocations of Petrale sole and arrowtooth flounder. Analysis of this relationship between arrowtooth flounder and Petrale sole was presented first to the GAC in May 2009, then to the Council in June.[121] The Council established the control limit at this

[121] PFMC, June 2009 Briefing Book, Agenda Item E.11.a, Attachment 1 Issue Summary and Analysis: Accumulation Limits, Divestiture and Related Provisions.

maximum initial allocation level despite setting control limits that were 60 percent higher for Petrale sole and 75 percent higher for arrowtooth flounder than the maximum initial allocations of those species. Harvesting operations that want to operate using only their own QS will have to better the bycatch rate used in the initial allocation formula to achieve the higher harvest levels allowed by the control limits.

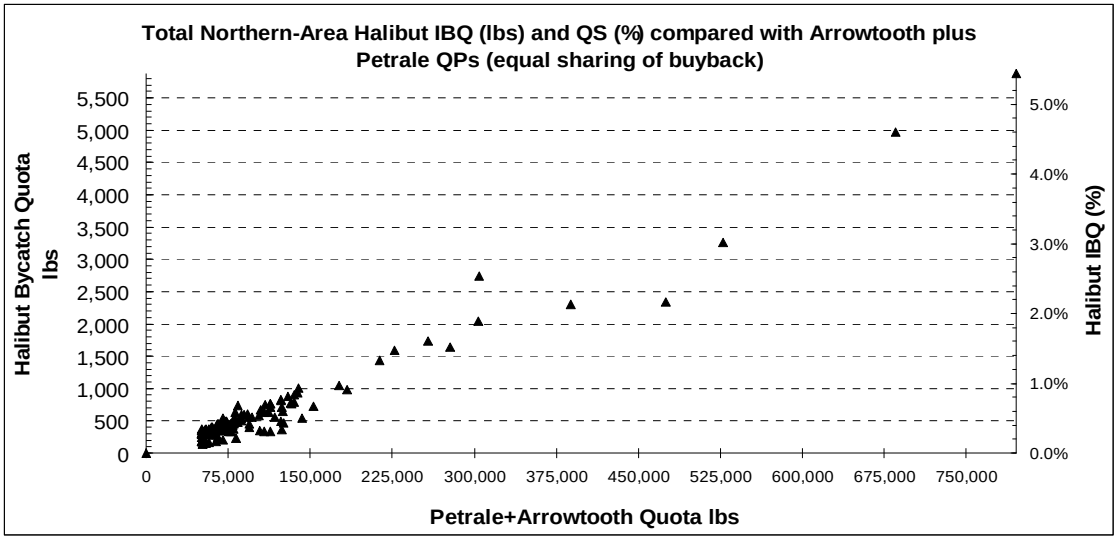

Figure A-111. Amount of halibut IBQ QPs (left vertical axis) and QSs (right vertical axis) by permit (permits are arrayed from the smallest to greatest based on amount of Petrale sole and arrowtootH QPs allocated assuming 2006 OY levels.

The Council also relied on an analysis of Petrale sole and arrowtooth flounder bycatch ratios in setting vessel limits for halibut IBQ. Based on 2008 CEY for halibut and OYs for Petrale and arrowtooth, the Council evaluated halibut IBQ vessel limits by using the following methods:

1. Calculating the maximum pounds of a target species that can be harvested for each target species vessel limit
2. Evaluating the amount of halibut that might be needed to achieve that target species catch
3. Determining the percent of the total trawl bycatch represented the pounds of halibut needed

Because the allowable harvest for halibut is set by the International Pacific Halibut Commission, the evaluation did not use the 2010 catch scenario, but instead used 2008 OYs for Petrale and arrowtooth, with the available halibut IBQ determined based on applying the Council's Amendment 21 trawl halibut bycatch formula to the 2008 halibut total Constant Exploitation Yield (CEY) (Table A-86).

The first calculation determined the pounds represented by each vessel limit, provided in the first two columns of Table A-87. Second, the WCGOP bycatch data were applied to determine an amount of halibut needed, with a range of rates considered (Table A-88). Bycatch rates were originally reported by the observer program in round pounds of legal and sublegal halibut catch per round pound of arrowtooth and Petrale catch, but were then converted to account for discard survival and measurement in dressed weight (Table A-88). Figure A-134 and Figure A-135 illustrate the degree of variation in the bycatch rates observed for halibut.

Full harvest of the 2008 arrowtooth and Petrale OYs would require average bycatch to be reduced to 0.006 pounds per pound of target species. At this assumed rate, a halibut vessel limit set at 1.4 percent

would allow full harvest of the Petrale limit, and a halibut vessel limit set at 14 percent would allow full harvest of the arrowtooth limit. At the lowest average bycatch rate in the WCGOP data of 0.17, the halibut IBQ vessel limit would have to be 3.8 percent to fully harvest the Petrale vessel limit and 39.2 percent to fully harvest the arrowtooth vessel limit (Table A-87).

In light of this analysis, the Council established the vessel limit at 14 percent following the rationale recommended by the GAC.[122] This is the level that would permit harvest of the full vessel limit for either arrowtooth or Petrale sole by vessels able to achieved the halibut bycatch mortality rate of 0.006 pounds of legal and sublegal halibut per pound of arrowtooth or Petrale. Data from the Washington EFP fisheries suggest that such reductions in halibut bycatch rates may be achievable.

Table A-88. OYs and halibut mortality limits based on 2008 fishery conditions.

2008 Halibut Mortality Limits (Trawl)	**Pounds (thousands)**
a. Total 2008 CEY (Legals)	940
b. Trawl Bycatch Calculation: 15 percent of CEY	141
c. Trawl Bycatch Mortality Max (not more than 130,000)	130
d. The greater of b and c = amount available for legal and sublegal trawl bycatch (dressed weight total mortality)	130
e. Set-aside for South of 40 10 (5 mt) and At-sea (5 mt)	22
f. **Trawl Halibut IBQ**	108
2008 OYs	
Petrale OY	5,509
Arrowtooth OY	12,787
Petrale + Arrowtooth	18,296
2008 Catch	
Petrale OY	4,873
Arrowtooth OY	5,887
Petrale + Arrowtooth	10,761

[122] PFMC, June 2009 Briefing Book, Agenda Item E.11.b, GAC Report: GAC Recommendations on Accumulation Limits, Divestiture and Related Matters.

Table A-89. Target species vessel limits and halibut needed to take those limits based on various assumed bycatch rates.

	Vessel Limit	Vessel Limit (thous pounds)	Assumed Lbs Halibut Mortality (Mty) /Target Species LB Caught	Halibut Mty Needed to Take Vessel Limit (thous pounds)	Halibut Needed as % of Available Halibut
Petrale	4.5%	248			
Minimum average bycatch rate strata			0.017	4	3.8%
Closest to midpoint average bycatch rate strata			0.039	10	8.9%
Maximum average bycatch rate strata			0.065	16	14.8%
Average bycatch rate to achieve full target species harvest a/ b/			0.006	1	1.4%
Arrowtooth	20.0%	2,557			
Minimum average bycatch rate strata			0.017	42	39.2%
Closest to midpoint average bycatch rate strata			0.039	99	91.5%
Maximum average bycatch rate strata			0.065	165	153.0%
Average bycatch rate to achieve full target species harvest a/ b/			0.006	15	14.0%
Total					
Total halibut required to take maximum vessel limits of Petrale and arrowtooth using assumed average bycatch mortality rate b/			0.006	16	15.4%

a/ The rate of 0.006 represents the bycatch mortality rate that would have to be achieved for the fleet to take the entire Petrale and arrowtooth harvest in 2008. It is the total halibut that would have been available based on the Council's Amendment 21 recommendations (108,000 pounds) divided by the total Petrale and arrowtooth available (18,296,000 pounds).

b/ If a rate of 0.006 is achieved, then a vessel would require the percent of the total trawl halibut IBQ indicated in the last column in order to take the vessel limits for this target species. The last rows of the table (total) show the amount of halibut a vessel would need in order to take the vessel limit for both Petrale and arrowtooth.

Table A-90. Observer program halibut bycatch rates by strata ((legal plus sublegal halibut lbs)/(Petrale + arrowtooth lb)) (2003-2006).

	North-South Area Strata	Depth Strata	
		<115 Fm	>115 FM
Catch Round	North of 47°05' N Lat	0.117	0.061
Discard Mortality (dressed wt)		0.065	0.034
Catch Round	South of 47°05' N Lat	0.07	0.03
Discard Mortality (dressed wt)		0.039	0.017

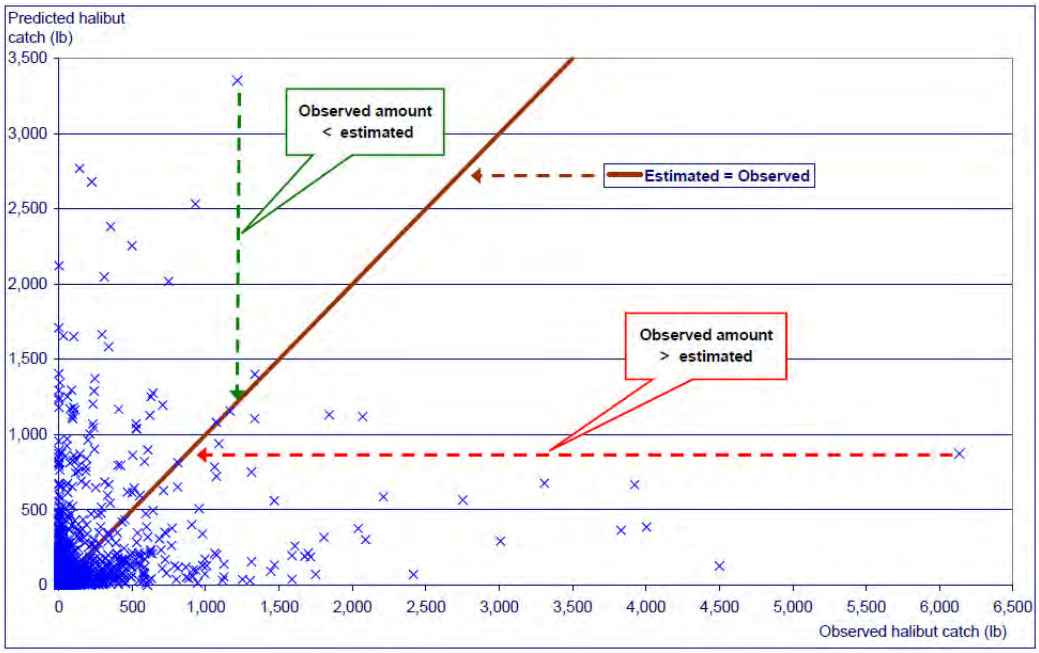

Figure A-112. Plot of observed vs. predicted Pacific halibut catch, using the mean stratum rate of Pacific halibut pounds per pound of Petrale sole and arrowtooth flounder caught in the area north of 47.5º N. lat. in depths less than 115 fathoms.

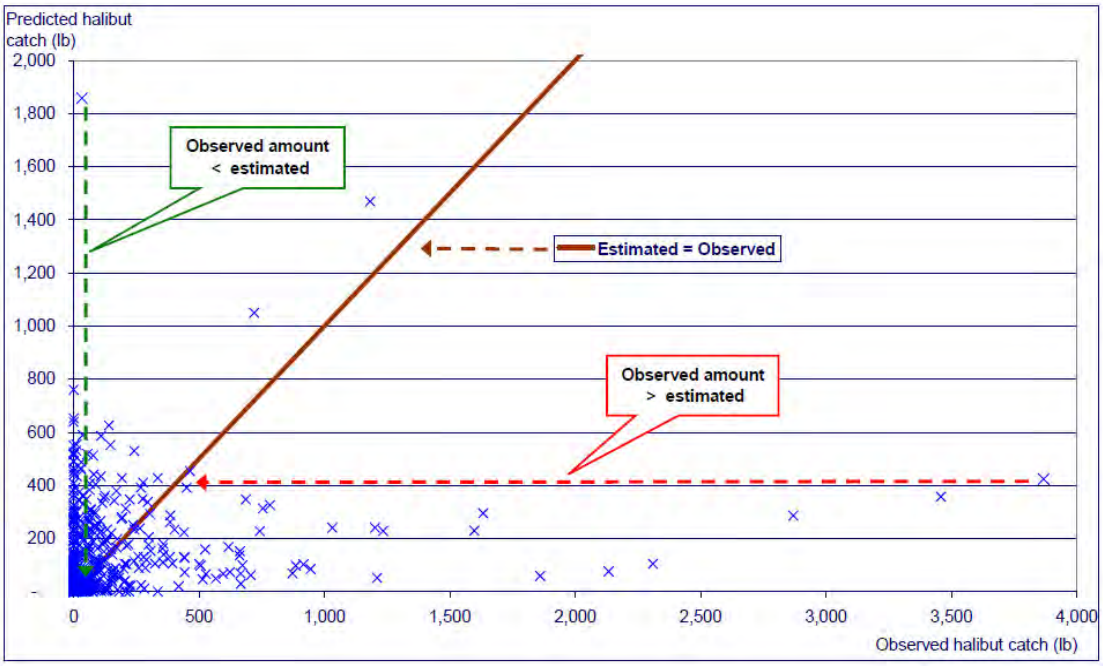

Figure A-113. Plot of observed vs. predicted Pacific halibut catch using the mean stratum rate of Pacific halibut pounds per pound of Petrale sole and arrowtooth flounder caught in the area north of 47.5º N. lat. in depths greater than 115 fathoms.

♦ *Calculation of the Aggregate*

Calculation of Aggregate Nonwhiting QS Holdings: To determining how much aggregate nonwhiting QS an entity holds, an entity's QS for each species will be converted to pounds. This conversion will always be conducted using the trawl allocations applied to the 2010 OYs, until such time as the Council recommends otherwise. Specifically, each entity's QS for each species will be multiplied by the shoreside trawl allocation for that species. The entity's pounds for all nonwhiting species will then be summed and divided by the shoreside trawl allocation of all nonwhiting species to get the entity's share of the aggregate nonwhiting trawl quota.

The control limits apply to each individual species, and there is an aggregate limit for all nonwhiting species. Increases or decreases in the OYs for individual species would not affect a QS owner's standing relative to being above or below the QS control limit for an individual species. However, an entity's aggregate QS holdings would be calculated by converting QS to QP and determining the entity's share of the total QP for all nonwhiting species. If this were done based on each year's trawl allocation, a change in the OY for an individual species could push someone who is close the aggregate nonwhiting limit above it, as is explained in the following paragraph. Because of concern that a person's aggregate QS holdings would fluctuate with changes in the OY, the Council decided to establish a more stable approach for this calculation. Under this approach, the method of calculating QS will be fixed until explicitly changed by the Council. This method anticipates using the trawl allocations coming out of the Amendment 21 process and applying those allocations to the 2010 OYs to determine a weighting for the QS of each species.

Example of Calculating the Aggregate and Effects of OY Changes. An entity's aggregate nonwhiting QS is evaluated by weighting the QS of each species using the expected trawl allocations and summing the results. Under this approach, for example, if the trawl allocation of Dover sole is 10,000 mt, and the trawl allocation of Pacific cod is 1,000 mt, then an individual who holds 1 percent of the Dover sole QS and 2 percent of the Pacific cod QS would hold QS for 120 mt of a total 11,000 mt (1.09 percent of the combined Dover sole and Pacific cod QS). In this example, either an increase in the Pacific cod OY or a decrease in the Dover sole OY would increase the combined QS holdings, as illustrated in the following table.

Table A-91. Example calculations showing how increases or decreases in the OY (represented as changes in the amounts allocated to the trawl fishery) may increase an entity's aggregate holdings.

	Trawl Allocation	Entity's QS Holdings	Entities QP
Starting point for the trawl allocation and entity's holdings (aggregate holdings 1.09%).			
Dover Sole	10,000 mt	1%	100 mt
Pacific cod	1,000 mt	2%	20 mt
Aggregate	11,000 mt	**1.09%** (120/11,000)	120 mt
Entity's aggregate increases with an **increase** in Pacific Cod OY (from 1.09% to 1.13%)			
Dover Sole	10,000 mt	1%	100 mt
Pacific cod	1,500 mt	2%	30 mt
Aggregate	11,500 mt	**1.13%** (130/11,500)	130 mt
Entity's aggregate increases with a **decrease** in Dover sole OY (from 1.09% to 1.17%)			
Dover sole	5,000 mt	1%	50 mt
Pacific cod	1,000 mt	2%	20 mt
Aggregate	6,000 mt	**1.17%** (70/6,000)	70 mt

The Council considered two methods for calculating an entity's nonwhiting aggregate QS in a manner that would hold a person's aggregate nonwhiting QS constant.

Under one method, **QS for all species would be weighted the same.** For example, the aggregate holdings of someone with 2 percent of the Dover sole QS and 1 percent of the Pacific cod QS would be the average (1.5 percent of the combined Dover sole and Pacific Cod QS). This would provide a more stable system and make it easier for QS holders to determine their aggregate. There would be no need to deal with situations in which QS holders are forced over the aggregate limit through no action of their own. However, there was also some reason to believe it could distort QS markets, putting a premium on the QS and participation in those strategies that require fewer different types of QS.

Under the method adopted by the Council, **relative weights of the QS for each species would be set at a certain point in time, but would be changed only through direct Council action** (i.e., would not automatically change whenever the OY or trawl allocation changes). This would provide a hybrid that uses the relative weighting system while providing the stability of the equal weighting approach. Such an approach is expected to reduce the frequency with which QS holders are faced with an externally imposed change in their aggregate holdings, but the approach would still require QS holders to multiply their shares of each IFQ management unit by a factor to determine their aggregate holdings.

❖ *Interlinked Elements*

The accumulation limits and decisions on the grandfather clause will have a strong but indirect impact on the results of the allocation formulas. The allocation formulas do not directly rely on provisions of the accumulation limits.

The vessel QP limits and unused QP approach rely heavily on the restriction that allows QP to be transferred only from QS holder accounts directly to vessel accounts (i.e., prohibits the transfer of QP anywhere other than to and among vessel accounts). Without such a requirement, once QP are issued at the start of the year, an entity could acquire addition QP in amounts exceeding both the QS control and the vessel limits.

❖ *Analysis*

The analysis of the accumulation limits is subdivided into sections that parallel the sections used to describe the rational for the limits (see Table A-80 on page A-286).

● Vessel Limit (Production Level Limits: Vessel or Permit Limit)

The following are the categories of goals and objectives affected by the decision to have vessel limits (independent of the level of those limits or the size of the vessel limits relative to the control limits) and the section in which each is addressed.

Section	Related Category of Goals and Objectives										
	Conservation	Net Benefits	Disruption	Excessive Shares	Fairness and Equity	Harvester and Processor Sector Health	Labor	Communities	Small Entities and New Entrants	General Public	Program Performance
Social Versus Net Benefit Trade-off		X			X	X	X	X			
Impact on Labor							X				
Impact on Processors						X					
Impact on Harvester						X					
Impact on the Public										X	

♦ *Social Benefits versus Net Economic Benefit Tradeoff*

The vessel limit is designed to ensure that there is at least some minimum number of vessels in the fleet, so that benefits are more likely to be distributed across more individuals and a broader geographic area. Ensuring this distribution may come at the cost of a lost opportunity for greater efficiency (lower net economic benefits). Absent a vessel accumulation limit, the fleet would be expected to shrink in size to a number that would be determined based largely on efficiency. Control limits alone will not maintain fleet size because several QS owners that are at their control limits might work together to take their QS from a single vessel. Maintaining a larger fleet diverts money from profits to payments for the parts, equipment, supplies, labor, and support services needed to maintain and operate the larger fleet. The diverted profits represent lost efficiency and will likely have a downward influence on the QS price. Had the profits not been diverted they would have been spent or invested on goods and services elsewhere in the economy and overall production in the economy would be greater. While net national benefits may be lower as a result of the vessel limit, the higher expenditures needed to maintain the fleet are likely to occur in the coastal communities, potentially increasing local benefits.

The actual effects of the accumulation limits will depend on whether the fleet would have consolidated to numbers lower than that allowed by the vessel limits. For example, in an analysis based primarily on maximization of efficiency, it was estimated that the nonwhiting fleet would decline to between 40 and 50 vessels. The aggregate nonwhiting vessel limit was set at 3.2 percent, implying that at maximum consolidation if the full trawl allocation was harvested, the fleet might decline to as few as 32 vessels (100 percent/3.2 percent). Thus, in the case of the aggregate limit, the floor on the minimum number of vessels would not directly constrain the maximum efficiency result.[123] While the aggregate limit may not constrain achieving the most efficient fleet size, it may be that vessel limits for individual species could constrain efficiency in particular targeting strategies. For example, the vessel limit for Petrale

[123] The decline could be greater if not all of the allocation can be taken due to limits (such as overfished species constraints). However, it would also be difficult to have 32 vessels that were able to harvest the exact mix of species that would allow each of them to achieve the 3.2 percent accumulation limit and fully exhaust the trawl allocation. For these reasons, a 3.2 percent vessel limit would likely imply a minimum number of vessels at least somewhat greater than 32. The other issue is whether the trawl allocation would end up being taken by full-time trawl vessels or vessels that participated in multiple fisheries. The latter case would also lead to an expectation of more than 32 trawl vessels.

sole is set at 4.5 percent, but it may be that all Petrale sole could be harvested most efficiently with a fleet of fewer than 23 vessels (100 percent / 4.5 percent).

♦ *Impact on Labor*

If vessel limits result in more vessels than would be the case without such a limit, this could result in more job positions, but might not result in an increase in the payments to vessel labor. With more vessels, the annual pay per job position on a vessel might be lower than if there were not a vessel accumulation limit. Under similar circumstances in other systems, individual crewmembers and vessel operators have sometimes rotated between vessels so that crewmembers earn a greater annual income, and the harvesting companies gain the benefit of a more experienced crew.

♦ *Impact on Processors*

For processors that do not own vessels, the vessel limit might help ensure that they have more potential suppliers than if there were not such a limit. In the absence of a vessel limit, as many QS owners as is economically efficient might work together to harvest their QS off a single vessel. Individual QS owners operating off the same vessel might negotiate with processors independently of one another or collectively. Their use of a single vessel would reduce their flexibility for independent negotiations.

For processors that do own vessels, the effect of the vessel limit will depend on where it is set relative to the control limit and whether or not there is a grandfather clause. If there is a grandfather clause for the control limits, or if there is no grandfather clause but the control limit is greater than the vessel limit, the vessel limit will force the processor to operate more vessels to take its QS (or to pay other vessels to harvest its QS). If the control limit is lower than the vessel limit and there is no grandfather clause (the preferred alternative), the vessel limit will not have a direct effect on processors owning vessels.

	Grandfather Clause	**No Grandfather Clause**
Control Limit Greater than Vessel Limit	Processors with more QS than allowed under the vessel limit or grandfathered vessel level forced to operate more vessels to take their QS.	Processors with more QS than allowed under the vessel limit forced to operate more vessels to take their QS.
Control Limit Less than or Equal to the Vessel Limit	Processors grandfathered in at a QS levels higher than the vessel limits may be forced to operate more vessels to take their QS.	Vessel limit will have no effect on the number of vessels the processor operates using its own QS (the processor will be able to take all of its QS on one vessel).

♦ *Impact on Harvesters*

As discussed in the section on net benefits, the vessel QP limit could effectively require that a greater number of vessels operate in the fishery, increasing the costs to harvesters and reducing their benefits. The existence of a vessel limit reduces the opportunity for multiple QS owners to gain efficiency by taking their QP from the same vessel. As with processors that own vessels, the effect of the vessel limits on the number of vessels operated by a particular harvesting company will depend on where the vessel limit is set with respect to the control limit and whether or not there is a grandfather clause (see the matrix in the section on processors). Under the preferred alternative, the vessel limit is higher than the control limit, so it would not require that a harvesting company operate more than one vessel to take its allocation of QS and could provide independent harvesters some opportunity to cooperate by fishing their QP from the same vessel.

♦ *Impact on the Public*

Vessel limits could negatively affect the general public through both lower overall net benefits than might be achieved without a vessel accumulation limit and increased program administrative costs. The effect on net benefits was discussed above. With a vessel accumulation limit, program administration, tracking, monitoring, and enforcement costs may be higher than they would be with a greater degree of fleet reduction. The fleet can be charged fees of up to 3 percent of ex-vessel value. Additional cost recovery may occur through the collection of royalties through means such as auctions, though no such mechanisms are included in the Council's PPA. Some costs may be paid directly by the fleet, such as the cost of carrying an observer. Any program-related expenses that are not covered through the fee, royalty collection, or direct payment by industry would be covered by taxpayers.

● Vessel Unused QP Limit

The following are the categories of goals and objectives affected by the decision to have vessel unused QP limits for overfished species and Pacific halibut and the section in which each are addressed.

	Related Category of Goals and Objectives										
Section	**Conservation**	**Net Benefits**	**Disruption**	**Excessive Shares**	**Fairness and Equity**	**Harvester and Processor Sector Health**	**Labor**	**Communities**	**Small Entities and New Entrants**	**General Public**	**Program Performance**
Impact Mechanism and Conservation	X										
Net Benefits		X								X	
Other Impacts			X	X	X	X	X	X			

♦ *Impact Mechanism and Conservation*

The unused QP limit has its impact through the flexibility it allows for the Council to set lower vessel limits for overfished species and halibut without directly limiting a vessel's ability to achieve the harvests of target species allowed under the vessel limits. Absent this approach, the Council may have had a more difficult time in determining the appropriate balance between setting overfished species and halibut vessel limits that are high enough to accommodate the ranges of bycatch rates that a vessel might reasonably be expect to encounter and low enough so that QP is not sequestered on vessels, possibly making it less available on markets.

The unused limit approach could generate a conservation concern in that, absent an annual cap on total QP an individual vessel could use, there might be greater potential for the fleet to exceed its limits for these species. However, the trawl rationalization program does not end the governmental responsibility to ensure that the fleet stay within its limits. Full observer coverage (100 percent) combined with rapid catch reporting should allow NMFS to impose additional fishery restrictions as necessary to ensure that individual vessel overages do not result in a fleet overage. Additionally, the Council has backed up the unused QP limit with a vessel QP limit to ensure that fishermen who regularly encounter overfished

species and halibut at high rates and who have the money to acquire the needed QP do not cause the fleet to prematurely consume its annual allotment of QP for overfished species and halibut.

♦ *Net Benefits*

As described above, and in the rationale for this provision, it is hoped that low unused QP limits will increase the availability of QP on the market during the year and improve market function, contributing to higher net benefits from the program. Whether this happens depends the degree to whicH QP transfer commitments are made before actual transfers occur. Harvesters will be able to control their own QS for all species, but not up to the maximum of the vessel limits. Therefore, for vessels that want to harvest amounts of QP in excess of what the harvester can hold under the QS control limits, some transfers will be required. For nonoverfished species, these transfers can happen at the start of the year. However, for overfished species or halibut, if the vessel is already at the unused QP limit, the transfers must wait until some of the overfished species or halibut QP are used. Given harvester concern about having adequate amounts of overfished species and halibut QP, it seems likely that they will try to lock up as much as they can early in the year. This could be done through side agreements under which the QP transfers are not registered with NMFS until there is room on the vessel account. If it is not possible to limit such side agreements, and if they are used extensively, the unused QP approach could have limited effect. Another circumvention tactic could be the use of surplus trawl permits. As the fleet shrinks under trawl rationalization, it is expected that there will be numerous surplus permits of limited value. A vessel owner might acquire one of these permits, place it on some other vessel, and then transfer overfished species and halibut QP to that vessel until they are needed by the trawl vessel.

There was some concern that the unused QP limit itself could encourage vessels to fish early so they could recharge their accounts before QP prices increased. This could cause a race for fish and higher bycatch rates. Analysis provided to the Council indicated that seasonality in the prices might self-correct so that there would not be large fluctuations during the year; however, the result is not certain. Because of concern over how the overfished species and halibut vessel limits will perform, the Council will review these limits during the first management cycle after the program is implemented

♦ *Other Impacts*

Sector health, labor, and communities will benefit if the unused QP approach is successful in increasing the availability of QP on the market. However, there was a concern about not having any annual limit on the total amount of QP a vessel could take. This concern went to questions of fairness and equity, as well as the effective function of the program with respect to encouraging bycatch avoidance. In particular, without an annual limit, a vessel that regularly experienced higher than normal bycatch rates and had sufficient wealth to remain in the fishery (perhaps as a lifestyle choice) could adversely affect function of the trawl rationalization system through individual accountability mechanisms. By combining the unused QP approach with a straight vessel limit on overfished species, the ability of such vessels to impact the remainder of the fleet and those dependent on it adversely is limited.

● Control Limit

The following are the categories of goals and objectives affected by the decision to have control limits. The level at which such limits are set, whether there is a grandfather clause, etc., are discussed in other sections.

Section	Related Category of Goals and Objectives										
	Conservation	Net Benefits	Disruption	Excessive Shares	Fairness and Equity	Harvester and Processor Sector Health	Labor	Communities	Small Entities and New Entrants	General Public	Program Performance
Market Power and Efficiency		X				X					
Geographic Dispersion								X			
Fairness and Equity					X						

♦ *Market Power and Efficiency*

Market power is the ability to influence prices away from the competitive equilibrium to the favor of the entity(ies) exerting that power. Exerting such power redistributes wealth and, in some cases, may result in market distortions that reduce overall efficiency of the economy. This issue is discussed in detail in Appendix E.

With respect to relative market power advantage between harvesters and processors, the initial allocation will set the starting point. The initial allocation is (1) an allocation of wealth and (2) an allocation of advantage to certain firms, if there is a grandfather clause. The grandfather clause would allow firms to retain QS they receive as part of the initial allocation that exceeds accumulation limits. However, over time, the accumulation limits will have more of an effect than the grandfather clause or the initial allocation. If the accumulation limits are set sufficiently low, they will limit the opportunity for individual firms to use QS to exert market power. If set too low, they will constrain efficiency to the degree that firms can be develop more efficient operations based on the certainty provided through ownership of QS (i.e., not having to rely on buying QP each year).

When the Council decided not to apply control limits to QP, there was a dramatic change in the implications of the control limits for the size of the harvesting operation and processors' ability to vertically integrate. When control limits applied to QP, harvesting companies could not take more fish than the control limits, and processing companies could not have more vertical integration than allowed under the control limits. By not applying control limits to QP, harvesting companies are free to harvest as much fish as they can so long as none of their individual vessels exceeds the vessel limits. Harvesting companies are only restricted in the amount of QS they can control, not the amount of QP that they can acquire and place on vessels they own during the year. Similarly, with this change processing are able to operate as many vessels as they desire and can support through the acquisition of QP from QS holders, after the QP for each year is issued. Options for the level at which accumulation limits would be set are discussed in the section on Percentages for Limits.

♦ *Geographic Distribution*

With respect to geographic distribution, the control limit does not directly result in greater geographic distribution of the harvest. While requiring that QS be distributed among more entities does not guarantee that those entities will be geographically dispersed, allowing QS to be concentrated into the

hands of only a few would make geographic concentration of harvest, landings, and benefits more likely.

♦ *Fairness and Equity*

Some view the accumulation of large amounts of wealth as unfair. Others view it as fair as long as everyone is under the same rules. The accumulation limits would constrain an entity's ability to accumulate wealth through use of QS, but all would be playing by the same rules (have the same limit), depending on the Council decision with respect to the grandfather clause.

● The Control Rule and Included Scope of Control Relationships

A narrower control rule allows for circumvention of the limits through means outside of the scope of the rule, frustrating achievement of the objectives related to the accumulation limit provision (objectives identified in previous sections). A broader control rule may inhibit relationships that are useful and beneficial for the efficient organization of the seafood industry (e.g., the formation of co-ops to manage overfished species QP or exclusive marketing agreements to encourage entry by a new processor). The analysis of impacts is organized into the following sections:

- Market Power
- Efficiency
- Alternative Organization of Production
- Administrative and Enforcement Costs
- Fairness and Equity

A bullet summary is provided at the end of this section.

♦ *Market Power*

The control rule is specified to take into account the exertion of control beyond the boundaries of ownership. This is required to effectively prevent the exertion of market power and the adverse effects that the exertion of such power would have on the economy and socio-economic conditions. Without a broadly specified control rule and the associated percentage limits, anti-trust law would provide the next level of protection against the adverse effects of excessive control. Anti-trust laws are more difficult and costly to enforce than a control rule with a specified threshold (the accumulation limit percentage).

Effectiveness of the control rule in evaluating the amount of QS under an entity's control may be limited by not taking into account QS that owners of an entity hold separately (not accounting for upstream ownership). See the rationale for this provision for further explanation of "upstream" (page A-292). Not including upstream ownership as part of the calculation of ownership control does not prevent that ownership from being taken into account in the application of the more generalized restrictions that entail "other means of control."

♦ *Efficiency*

The extension of the control rule to means of control beyond ownership could inhibit the formation of relationships that are useful to maintaining an efficient industry. One example is the potential inhibition of the formation of risk control co-ops. This is discussed further in a following section. Another example might be exclusive marketing agreements. On one hand, exclusive marketing agreements can

be a means of exerting control. On the other hand, such agreements may also be used to limit risk and encourage new investment, including the development of new markets. For example, if vessels in a particular port wanted to encourage entry by a new processor, they might reduce that processor's risk by offering an exclusive marketing agreement for a period. If the number of competing buyers in the local area is limited, ability to encourage new entrants via marketing agreement may lead to more competitive pricing in the raw fish markets and a more efficient distribution of resources.

Counting QP against the control limit could have had an adverse impact on processors' ability to vertically integrate. All catch must be covered by QP placed in a processor's vessel accounts. That QP would have counted against the processor's control limits, even if the processor did not own or otherwise control the associated QS. In its final preferred alternative, the Council adjusted this provision so that QP in a vessel account does not automatically count toward the vessel owner's control limit. This adjustment allows processors to use their own vessels to catch a volume of fish that exceeds QS control limits.

♦ *Alternative Organization of Production*

The control rule may affect the ability to effectively form other types of organizations that would benefit the fishery, such as harvester co-ops or regional fisheries associations.

One of the difficulties that harvesters will face under the IFQ program is covering their catch witH QP when they encounter an unexpected high bycatch of an overfished species ("lightning strike" or "disaster tow") for which the amount of QP available is very limited. There has been talk that industry members might form risk pools or risk management co-ops. Such types of arrangements may be established as contractual agreements that place obligations on and provide benefits to the parties to the agreement; or it may be established as an entity unto itself (for example, a co-op established as a corporation). Under a contractual agreement, members might simply agree that, whichever of them encounters a "disaster tow," all parties of the agreement will transfer to that member a proportion of their holdings of the species sufficient to cover the tow. Or, a risk management co-op might be established to which the members transfer certain species and a co-op manager monitors members and transfers QP to the member accounts in accordance with the co-op rules. Under the rules of the IFQ program, in order for such a co-op actually to hold QS or QP, it would have to be incorporated or otherwise take on a legal identity that makes it eligible to own a U.S. documented fishing vessel (the requirement for QS/QP ownership). In the case of an entity eligible to own a vessel, there is clearly an entity to which the control rule would apply. In the case of a contractual agreement, the question may become one of whether or not the contract effectively establishes control of one entity over another.

If consideration is given to exempting risk management pools from the accumulation limits, the types of pools for which such exemptions are provided, and the consequences that would be incurred if attempts were made to use such a pool to circumvent accumulation limits, should be taken into account. Under a contract-based risk management pool for vessel overages, the consequences to the vessel for exceeding the limits would limit the ability of anyone routinely to use the contract to circumvent the control rule. Even if parties entered into a risk management contract, no one party to the contract could start with more QS than allowed. If a vessel experienced an overage, the needed QP would be transferred to that vessel. If the amount needed by the vessel exceeded the QS accumulation limit, the vessel would not be prevented from receiving the QP needed to cover its overage. However, the vessel would have to stop fishing until the end of the year. The requirement that the vessel acquire the needed QP and then stop fishing for the remainder of the year would apply regardless of whether the QP were transferred from the risk management pool or through transactions on the open market. Thus, there would be some limit on the opportunity to abuse an interpretation of the control rule that allows QS control limits to be exceeded by a risk management pool contract entered into for the purpose of covering a vessel overage. On the other hand, it might be easier to abuse a control rule that is interpreted, as an example, to allow

processors to establish contingency contracts to mitigate the risk that they will not be able to keep a plant in operation year-round. Such a contingency contract might specify that if a processor runs short of product, QP would be transferred to vessels that are not under its control, but are under contract to deliver to that processor. So long as the vessels are not at their individual accumulation limits, there would be no disincentive for the exercise of such a contract. The processor would be able to continue processing even if the risk management contract resulted in the transfer of amounts of QP to vessels delivering to that processor that exceeded the accumulation limits. In contrast, for the example of a vessel risk management pool for an overfished species overage, the vessel would be forced to stop fishing if the exercise of the contract gave it more QP than allowed under the accumulation limit. Thus, a determination as to whether contracts that support risk management pools are within or outside the scope of the control rule should consider not only the nature of the control entailed in that contract, but also the consequences that might flow from the abuse of the interpretation.

The control rule may also present challenges in the development of RFAs or CFAs. Specifically, unless an exemption is provided that allows RFAs or CFAs to exceed the general limits, RFAs/CFAs that involve amounts of QS in excess of the accumulation limits will have to be structured such that they cannot be construed as an entity "controlling" the QS/QP of its members. To be eligible to participate in an IFQ program, an RFA must meet criteria developed by the Council (MSA, 303A(c)(4)(A)). At this time, there are no provisions in the IFQ alternative that would establish the criteria needed for creation of RFAs.[124] The Council has indicated its intent to consider special accumulation limit rules for CFAs as part of a trailing action.

As with other types of entities, the problem with providing exemptions or higher limits for co-ops and RFAs is the potential for such entities to be formed as a front for private interests whose main goal is to control QS in excess of the accumulation limits. In response to uncertainty about the application of control rules, the Council provided the following policy statement:

> It is the Council intent that control limits should not constrain the formation of risk pools to help the fishermen deal with overfished species constraints, so long as the pools do not undermine the effectiveness of the accumulation limits. A risk pool is one in which two or more people enter into an agreement whereby if one person does not have the QP it needs, the others would agree to provide the QP, if they have them. Whether these kinds of agreements are informal or formal, as other considerations and conditions are added to the agreements, they may begin to constitute control. It is the Council's intent to allow for these pooling agreements, so long as they do not become control.

[124] When rules are established for RFAs, to minimize the chance that RFAs are established to circumvent the accumulation limit rules, the Council might impose certain restrictions and requirements. The following is an example of the type of language that might be considered as part of the criteria for an RFA:

An RFA plan shall:

(a) not be approved if the Council or NMFS determines that
  (1) the primary purpose or effect is to allow an entity to control quota shares in excess of the accumulation limits which apply to entities that are not part of RFAs or co-ops;
  (2) it will in any way allow the RFA or its members to exert market power with respect to ex-vessel price negotiations between processors and harvesters.

(b) be revocable at any time based on a Council or NMFS determination that the RFA is not meeting the terms and conditions on which the agreement was approved or that the RFA is otherwise being used to circumvent the intent of the trawl rationalization program.

♦ *Administrative and Enforcement Costs*

The control accumulation limit restricts the acquisition of excessive shares, including acquisition by means other than through purchase of QS. "Ownership" and potential violation of such limits would be tracked on an ongoing basis in a NMFS database. The need to track indirect ownership will add to the amount of information NMFS collects about the entities that nominally own QS (as compared, for example, to the information collected on ownership of a trawl LEP). NMFS might also require that additional information be submitted to assist in assessing levels of control not reflected in ownership records. Investigation and prosecution of potential violations of control limits would likely require information beyond that contained in the regular submissions to NMFS. Such investigations would likely be instigated based on substantiated citizen complaints or other sources of information. Adequate enforcement resources would be needed to follow up on substantiated allegations.

♦ *Fairness and Equity*

Full application of the control rule will require case-by-case investigations and evaluation of the situations. If those who are adversely harmed by entities that are alleged to exert excessive control do not believe those violations are being adequately investigated, they may believe that the program is not fair and equitable, or that someone is getting away with violating the program. For this reason, it will be important to ensure that there are resources available to follow up adequately on allegations of violations for which there is some supporting evidence. On the other hand, those who are the subject of such allegations will likely think that the program is not fair and equitable if control is not being evaluated consistently against all participants. In particular, the consistent application of the language "shares that the person controls through other means" will be important. Further, the vagueness of the language may leave some uncertainty about what is and is not allowed. Ultimately, the standard of evaluation might be "Is or isn't control being established that adversely impacts program objectives?"

♦ *Summary*

- A control rule that extends beyond ownership control is necessary to effectively limit control and achieve related program objectives.
- Depending on its interpretation, the control rule may hamper the ability of harvesters to form risk management co-ops or other types of beneficial business arrangements.
- The control rule will hamper the ability of processors to vertically integrate.
- The operation of RFAs/CFAs could be hampered by control rules (the current alternative does not include criteria for formation of RFAs, and the Council will address special limits for CFAs in a trailing amendment).
- Direct and indirect ownership will be monitored on an ongoing basis. Monitoring indirect ownership will add to program costs.
- Control that is not based on ownership will be enforced on a case-by-case basis and will require additional enforcement resources for investigation.
- Perceptions of fairness and equity may be affected by whether it is perceived that nonownership control is being adequately investigated and applied consistently across all QS/QP holders.

● Grandfather Clause, Divestiture, and Cutoff Date

The following are the categories of goals and objectives affected by the decision on the grandfather clause and implications of the control date and the section in which each are addressed:

Section	Related Category of Goals and Objectives										
	Conservation	**Net Benefits**	**Disruption**	**Excessive Shares**	**Fairness and Equity**	**Harvester and Pro-cessor Sector Health**	**Labor**	**Communities**	**Small Entities and New Entrants**	**General Public**	**Program Performance**
Grandfather Clause, Divestiture, and Disruption			X			X					
Grandfather Clause and Fairness and Equity				X	X						
Permit Acquisition Cutoff Date and Disruption, Fairness and Equity			X		X						
Program Performance	X	X									X
Net Economic Benefits		x				X					

The analysis of impacts is organized into the following sections:

- Grandfather Clause, Divestiture, and Disruption
- Grandfather Clause and Fairness and Equity
- Permit Acquisition Cutoff Date, and Disruption, Fairness, and Equity
- Program Performance
- Net Economic Benefits

♦ *Grandfather Clause, Divestiture, and Disruption*

Disruption is often associated with change, and greater disruption is likely to adversely affect sector health over the short term. The grandfather clause and divestiture provisions affect the speed and mechanisms through which the change to an IFQ trawl rationalization system occurs, but have a lesser effect on the total amount of change. In particular, these provisions affect the path by which the QS distributions are brought into line with the long-term rules on accumulation limits, specifically, QS control limits.

With no grandfather clause and no divestiture provision, the initial distribution of QS will comply with the QS control limits, the reallocation of amounts of QS that would have otherwise been issued to entities in excess of the limits will occur administratively (distributed to those below the limits in accordance with the allocation formula), and the initial distribution of the wealth represented by the QS that would have otherwise been issued in excess of the limits will go to those who are under those limits. The amount of the redistribution would depend on the level at which the limits are set. The

number of entities over control limits, and the amount by which they are over, is provided in a following section as part of the analysis of the options for setting percentages for the control limits. With no grandfather clause, there may be some disruption to the degree that those who had made investments in permits that entitled them to QS in excess of limits would not receive QS for those permits. After the initial allocation, the value of those permits would decline, but they would receive no QS in compensation for the reduction. The possibility that they might sell those permits in advance of the initial allocation is discussed below. In addition to the potential disruption from the loss of value of the permits, to the degree that their investment in permits was accompanied by capital investments in harvesting they will experience a sudden change in their annual operating costs, represented by their need to purchase additional QP each year.

With no grandfather clause and a divestiture provision (the PPA), the initial distribution will not be compliant with the QS control limits, but will be brought into compliance over a relatively short time (four years). The reallocation will occur through market transactions instead of administratively (as would occur without a divestiture provision). Those selling the QS will have an opportunity to direct their QS sales to entities with which they may have an ongoing long-term relationship (e.g., a harvester might sell to someone with whom they might enter into an overfished species risk sharing pool, a processor might sell to a vessel from which it expected to receive deliveries, or either of these entities might choose to sell in a manner that maintains the QS in their local community). The opportunity to maintain QS for a few years will provide the divesting entities more opportunity to adjust their cost structures and finances in anticipation of the need to purchase QP annually to replace those from the QS that they divest (if such purchases are necessary to maintain their operations, as would be the case for harvesters but not processors). The revenues from sale of the QS should provide them with sufficient funds to make annual QP purchases for a number of years.

If there were no grandfather clause and no divestiture opportunity, those with permits that place them in excess of accumulation limits could also generate revenue through the sale of those permits prior to initial allocation. By doing so, they could direct the distribution of their harvest privileges and buffer the disruption caused by the move to the IFQ program in a fashion somewhat similar to what they could achieve through divestiture after initial allocation. However, prior to initial allocation there may be uncertainty about whether and when the program will be implemented, its final form, the actual amount of history and QS that will be assigned to a particular permit, the trading value of the QS, and whether the program will be successful and survive over the long term. These uncertainties are likely to result in a lower price for the permit prior to QS allocation than for the permit and QS after initial allocation and initial experience with the program. Additionally, prior to initial allocation, a permit with its entire suite of QS must be traded as a lump to someone who may be more interested in some of the associated species than other species. After the initial allocation, the QS can be divided and sold separately to those who place the highest value on each particular species.

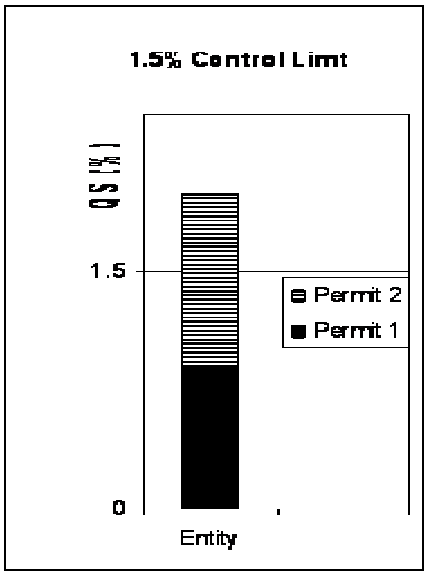

Figure A-114. An entity with two permits selling one permit to get under the control limit may end up being far below the control limit.

If there is no divestiture provision, the opportunity to sell permits provides substantially less flexibility for a permit holder to get under the control limits than with divestiture after initial QS allocation. For example, if two permits put an entity over the limit, selling one permit might put them well under the limits, as illustrated in Figure A-136.

With a grandfather clause, the result is similar to the result without a grandfather clause and with divestiture except that the redistribution is spread out over a substantially longer period. Rather than being forced to come into compliance with the accumulation limits over a relatively short time, those with QS in excess of limits would be able to maintain that QS until they retire from QS ownership. Their retirement from QS ownership might occur substantially later than their retirement from active participation in harvesting or processing activities. On one hand, the ability of some entities to own QS in excess of the QS control limits may have provided those entities a long-term competitive advantage over those whose initial allocation was less than the control limits. In addition to having lower long term operating costs, these entities would have had greater bargaining strength relative to those with lesser amounts of QS. On the other hand, the fact that they qualified for QS in excess of limits indicates the possibility that their operations were larger-scale and that being forced to QS ownership levels within limits would have been disruptive. The exception would be for those that are over limits only because they speculated in permits based on their expectation of receiving QS and not because of their need for that QS to support their harvesting operations.

The impacts of the decision on whether to have a grandfather clause was changed substantially as a result of the Council's decision that control limits would not apply to QP. Application of the control limit to QS and QP would have created a situation in which harvester production was constrained by the control limit but not by processor production. Under such circumstances, the absence of a grandfather clause might have disrupted some harvesters, but would have had less effect on processors (except those owning vessels). The level of production by harvesting companies would have been restricted by QP limits, but not the level of production by processors. However, since QP placed on vessels would have counted against their total quota holdings (regardless of the source of those QP), processors owning vessels might have found themselves needing to reduce their level of vertical integration (ownership of vessels) in order to come into compliance with the control limits.

♦ *Grandfather Clause and Fairness and Equity*

Another major objective affected by the grandfather clause issue is the perception of fairness and equity. If there is no grandfather clause and no opportunity for divestiture, those who do not receive an amount of QS that they would have otherwise received may believe they been treated unfairly (that, unlike those under the limits, they would not have been entitled to receive QS in proportion to their investment in the fishery). With the opportunity to divest after QS issuance, they would be able to receive a capital return through the sale of their QS. The degree of difference in impact between having and not having the opportunity to divest is reduced by the opportunity permit holders have to benefit from the selling before the initial allocation those permits representing an excess. As discussed above, they would have

less flexibility in making those sales and would likely receive lower returns compared to being able to receive the initial allocation and then divest themselves of it. If there is a grandfather clause, those who are unable to accumulate as much QS as those who were grandfathered in above the limit may feel unfairly disadvantaged by the protected competitive position provided to those who are grandfathered in at levels in excess of the accumulation limits. Those below the limits would have no opportunity to buy themselves up to the same level of QS as those who received the initial allocation in excess of accumulation limits.

♦ *Permit Acquisition Cutoff Date, and Disruption, Fairness, and Equity*

Not providing a grandfather clause, but providing an opportunity to divest raises fairness and equity questions. As indicated in the previous section, there are two sides to this issue, one being the fairness of providing rewards to those who have been accumulating permits in anticipation of the issuance of QS (through a grandfather clause or divestiture provision) and the other being the fairness of reducing the opportunity to reap those rewards (through the absence of a grandfather clause).

Related to the balance of perceived fairness is the advance notice provided regarding policy development and its implication for investment while policy was being developed. In regard to a cutoff on permit acquisition and issues of disruption and fairness and equity, the issues to be addressed here are the importance of effective control dates in reducing disruption, whether the November 6, 2003, control date applied to permit acquisition, and the degree to which permits were, in fact, accumulated during Council deliberations on this program.

The Council's final recommendation includes a divestiture opportunity for those with permits, qualifying them for more QS than the QS control limit, but it also provides a cutoff date such that prevents the divestiture opportunity from being applied to permits acquired after that date. In this section, we will address the importance of the control date in setting the cutoff date, providing a sense of fairness and equity, and minimizing disruption; arguments pertaining to whether the control date announced by the Council can be construed as applying to the acquisition of additional permits; and the number of entities affected and the degree of effect of the Council's recommended cutoff date for new permit acquisition.

Provision of advance notice of policy changes has a major impact on the perception of fairness and equity. If there is not a grandfather clause, then it is likely a program will be perceived as more fair and equitable if those making investments during policy deliberations were on advance notice that they might not receive benefits from those investments. On the other hand, if advance notice has been provided, and there is a grandfather clause or an opportunity to divest, then the program may be perceived as less fair and equitable if those who made investments despite the notice are rewarded for those investments. Additionally, when policy makers disregard the advance notice they have provided (e.g., allocations are provided based on activities occurring after announced control dates), the probability increases that future announcements will be less effective in minimizing disruption.

While control dates can contribute to a sense of fairness, a major purpose is to reduce disruption. This reduction occurs through two mechanisms. First, it discourages speculative activities that may have adverse effects on the fishery during deliberations on rationalization programs (discourages "fishing for quota"). Second, if those speculative activities have been minimized by the control date, there is less disruption during implementation (assuming that the policy adheres to the control date). To maintain the ability to announce control dates that are effective in their intent, the resulting policy must generally adhere to the control date. Failure to do so will result in disregard for future control dates. Maintaining the ability to credibly announce control dates is important for controlling the speculation that can have

disruptive effects, both during policy deliberations and when the management system changes as a result of those deliberations.

On November 6, 2003, the Council took action to adopt a control date for the trawl rationalization program. The November 6, 2003, control date was published in the *Federal Register* on January 9, 2004, and the public was put on notice that a trawl rationalization system that could alter their future opportunities in the fishery was under development. One point of discussion around the issue of a cutoff date for the acquisition of additional permits and need for a grandfather clause on accumulation limits is whether the November 6, 2003, control date covers activities such as the acquisition of additional permits. The control date notice stated that "The control date for the trawl IQ program is intended to discourage increased fishing effort in the LE trawl fishery based on economic speculation while the Pacific Council develops and considers a trawl IQ program." There are many ways an individual can increase fishing effort, including more intense use of existing permits and vessels, or aggregation and use of additional permits and vessels. The notice further states that "The control date announces to the public that the Pacific Council may decide not to count activities occurring after the control date toward determining a person's qualification for an initial allocation or determining the amount of initial allocation of QSs." Use of the general term "activities" indicates that the scope of the notice goes beyond fishing activities such that it discourages any activity that might potentially entitle an individual to a greater allocation. Therefore, strictly interpreted, the control date could be applied the acquisition of additional permits. However, in terms of the interpretation applied by the general public, the Council found there was substantial room for alternative views. Therefore, the Council chose to use as a cutoff date a point at which there was little doubt that a grandfather clause would not be provided for QS control limits (the date on which it adopted its final recommendations in this regard).

There has been change in ownership of permits since the November 6, 2003, control date was set. The main data set used in this analysis is based on records held by NMFS on permit ownership as it stood in the fall of 2006 and an examination of state data on the identity of buyers associated with fish ticket records. To evaluate how ownership of permits has changed since the control date, we examined NMFS data on LEP ownership changes, comparing permit ownership information from the start of 2004 with the fall of 2006, the start of 2008, the Council's cutoff date for permit acquisition (November 30, 2008, for registration of the transfer with NMFS), and the most recent date available for this analysis (June 22, 2009). Our assessment of ownership and ownership changes is based on an examination of name and address changes on permit records in consultation with agency personnel and members of industry. We lack information on control other than ownership or on changes in ownership that may not be reflected in the NMFS data set. We were unable to evaluate changes in ownership of processors over that period. From the start of 2004 through the November 30 2006, there were 26 entities that acquired permits, and 45 entities that divested themselves of permits (Table A-90). Most of the divestitures and acquisitions occurred between the start of 2004 and the fall of 2006. After the November 30, 2008, date and through June 22, 2009, three entities divested themselves of permits, and these permits were acquired by two entities. In neither case did the additional permit acquisitions put the entity over the aggregate nonwhiting control limit of 3.2 percent. After the fall of 2006, only one entity acquired additional permits that put it further over the aggregated nonwhiting accumulation limit. However, these conclusions are limited by the limited ownership data available for the analysis. More complete ownership and control information would be collected during program implementation and the Council could review ownership relationships and impacts that we were not able to detect.

Table A-92. Shoreside aggregate nonwhiting QS allocations to business entities acquiring or divesting permits between January 1, 2004, and June 22, 2009 (QS allocations based on a 90 percent allocation to permits, combined shoreside sector, equal sharing of buyback portion).

	Permit Ownership Dates					Change in Permit Ownership							
						2004 to 2006		2006 to 1/1/2008		1/1/2008 to 11/30/2008		11/30/2008 to 6/22/2009	
BUSID	Jan 1, 2004	Fall 2006	Jan 1, 2008	Nov 30, 2008	June 22, 2009	Gain	Loss	Gain	Loss	Gain	Loss	Gain	Loss
B0150	1.32%	4.94%	4.94%	4.94%	4.94%	Y							
B0019	0.66%	0.90%	0.90%	0.90%	0.90%	Y							
B0094	0.65%	1.23%	0.65%	0.65%	0.65%	Y			Y				
B0061	0.50%	0.54%	0.54%	0.54%	0.54%	Y							
B0048	0.47%	0.87%	0.87%	0.87%	0.87%	Y							
B0040	0.44%	0.68%	0.68%	0.68%	0.68%	Y							
B0002	-	3.53%	4.03%	6.95%	6.95%	Y		Y		Y			
B0050	-	1.30%	1.54%	1.54%	1.54%	Y		Y					
B0013	-	1.03%	1.03%	1.03%	1.66%	Y						Y	
B0095	-	0.90%	0.90%	0.90%	0.90%	Y							
B0111	-	0.80%	0.80%	0.80%	0.80%	Y							
B0025	-	0.79%	0.79%	0.79%	0.79%	Y							
B0071	-	0.77%	0.77%	0.77%	0.77%	Y							
B0072	-	0.65%	0.65%	0.65%	0.65%	Y							
B0047	-	0.57%	0.57%	0.57%	0.57%	Y							
B0069	-	0.40%	0.40%	0.40%	0.40%	Y							
B0124	-	0.28%	0.28%	0.28%	0.28%	Y							
B0112	-	0.28%	0.28%	0.28%	0.28%	Y							
B0070	-	0.24%	0.24%	0.24%	0.24%	Y							
B0270	-	0.24%	0.24%	0.24%	0.24%	Y							
B0125	-	0.23%	-	-	-	Y			Y				
B0526	-	-	1.26%	1.26%	1.26%			Y					
B0531	-	-	0.58%	0.58%	0.58%			Y					
B0541	-	-	-	0.67%	0.67%					Y			
B0542	-	-	-	0.38%	0.38%					Y			
B0540	-	-	-	0.25%	0.25%					Y			
B0180	0.61%	0.61%	0.61%	-	0.50%						Y	Y	
B0011	1.26%	1.26%	-	-	-				Y				
B0032	0.50%	0.50%	-	-	-				Y				
B0077	1.15%	1.15%	1.15%	-	-						Y		
B0098	0.83%	0.83%	0.83%	-	-						Y		
B0107	0.67%	0.67%	0.67%	-	-						Y		
B0116	0.38%	0.38%	0.38%	-	-						Y		
B0130	0.33%	0.33%	0.33%	-	-						Y		
B0041	0.25%	0.25%	0.25%	-	-						Y		
B0085	0.63%	0.63%	0.63%	0.63%	-								Y
B0087	0.25%	0.25%	0.25%	0.25%	-								Y
B0065	0.25%	0.25%	0.25%	0.25%	-								Y
QS for 36 entities departing after Jan 1, 2004 (not listed above)	17.12%	-	-	-	-	-	-	-	-	-	-	-	-
QS changing hands compared to previous period		17.12%	2.58%	4.22%	1.13%								
Number of entities acquiring permits	-	21	4	4	2								
Number of entities divesting permits	-	36	4	7	3								

♦ *Program Performance*

Much of the overall performance of the program relies on the transfer of QS from less efficient to more efficient producers and from those with higher bycatch rates to those with lower bycatch rates. If there is a grandfather clause, firms that are grandfathered in at higher accumulation limits will be less likely to sell their QS than others because they will not be able to buy back any QS they sell, as long as they are above the limit. Further, these firms are less likely to change ownership because the grandfather clause will expire with change in ownership, and advantages of the grandfathered levels of QS will be lost. Therefore, it would be difficult to find buyers willing to purchase the firm for an amount that fully compensates the grandfathered owners for what they can earn if they maintain ownership of the firms. The absence of a grandfather clause would eliminate these impediments to the transfers needed for a rationalization program to succeed, with respect to both its efficiency effects and reduction of bycatch rates for overfished species. The divestiture provision may forestall some transfers for a few years (no transfers would be allowed in years one and two, and all divestitures would have to be completed by the end of year four).

♦ *Net Economic Benefits*

In the PPA, control limits applied to both QS and QP such that the control limit grandfather provision had the potential to affect the size of harvesting operations and, therefore, efficiency. In the Council final preferred alternative, the control limit applies only to QS. Therefore, the question of whether there should be a grandfather provision does not affect the size of the harvest operation (size of harvest operation is affected by the vessel limits, and the vessel limits were set to accommodate recent harvest levels). The absence of a grandfather clause will encourage the transfer of QS to the most efficient producer. The delay in those transfers that results from the divestiture provision might delay some of the expected efficiency benefits; however, the delay would be short relative to the duration of the program.

● Percentages for Limits

♦ *Vessel Percentage Limits*

The following are the categories of goals and objectives affected by the decision on the level at which vessel accumulation limits are set and the section in which each are addressed.

Section	Related Category of Goals and Objectives										
	Conservation	Net Benefits	Disruption	Excessive Shares	Fairness and Equity	Harvester and Processor Sector Health	Labor	Communities	Small Entities and New Entrants	General Public	Program Performance
Initial Endowments (Allocations Compared to Vessel Limits)			X	X	X	X					
Structure of the Fleet (Vessel limit effect on historic fleet structure)		X	X			X					
Efficiency		X				X					

The vessel percentage limits will determine the minimum size to which the fleet may shrink while still taking all of the groundfish and will cap the degree to which vessel efficiency may increase (assuming efficiency consistently increases with the amount a vessel can harvest). Because the regulatory focus of concern here is the vessel, this section concentrates on the permits and vessels rather than the firms owning them or the processors. Effects of the allocation on firms, including processors, are addressed in the following section on control limits. The rationale for using vessel limits is discussed above in the section on vessel limits. Here the focus is on the actual percentages chosen for those limits.

INITIAL ENDOWMENTS (ALLOCATIONS COMPARED TO VESSEL LIMITS)

Vessel limits will not constrain initial QS allocations or constrain the acquisition of QS. QS holdings are constrained by the QS control limits. However, there is some relationship between the per permit initial allocations of QS and the historic production levels of vessels operating under the permit, particularly for those permits with greater production history. Therefore, a comparison of the initial QS allocations per permit to the vessel limits provides a sense of the degree to which the vessel limits might constrain a permits historic share of harvest. If QS allocations exceed the vessel limits, the impact of the vessel limits would depend on whether there is a grandfather clause for QS control limits and vessel limits. Such a clause would allow permit owners receiving QS in excess of those limits to use their QS on a single vessel. If there were a grandfather clause, the main issue would be whether there is a perception of inequity because some permits/vessels are able to operate at higher levels of production and efficiency than others. If there were no grandfather clause, the issues would be whether there are inequity, disruption, and reduced efficiency because of the reduced opportunity for permits/vessels that have a history of making greater amounts of deliveries.

In its final preferred alternative, the Council did not provide a grandfather clause for either the vessel QP limits or QS control limits. However, vessel limits were set higher than control limits and higher than the unconstrained initial allocations (allocations without QS control limits applied). Table A-91 shows that, under the FPA, there would be a potential initial allocation that is greater than the vessel limit for only one non-overfished species (starry flounder). With respect to overfished species, there would be an initial allocation of cowcod in excess of the vessel limit; however, the allocation would be only slightly over the limit and only because the vessel limits would be rounded to the nearest tenth of a percent. There were some combinations of QS allocation and vessel limit options considered during the

process for which there could have been more initial QS allocations in excess of the vessel limits. For example, with permit holders allocated 100 percent of the QS using an allocation formula based entirely on landings history (with no equal allocation component) and using the most constraining vessel limits (Option 1), for 18 of 37 potential IFQ management units, some permits would have been eligible for more QS than the most restrictive accumulation limits (Option 1 in Table A-92). In many of these cases, however, the QS allocations in excess of vessel limits would be for management units that the Council exempted from the scope of IFQ program as part of its final preferred alternative, or for overfished species, for which a different allocation formula was used in the final preferred alternative. Under the 100 percent to permit owner option and Option 1 vessel limits, initial allocations would have exceeded vessel limits for only six IFQ management units that are within the scope of the program and are not overfished.

Table A-93. Combined (whiting and nonwhiting) QS allocations to permits based on Council's final preferred alternative (FPA* June 2009).

	# Permits Receiving QS***	MAX QS Alloc.	Vessel Limit	Number of Entities Over the Limit	Total QS Over the Limit	Limit - Max QS Allocation
Nonwhiting Groundfish Species	169	1.55%	3.2%	-	-	1.65%
Lingcod - coast wide	169	2.08%	3.2%	-	-	1.12%
Pacific Cod	169	9.02%	20.0%	-	-	10.98%
Pacific whiting (shoreside)	169	3.73%	15.0%	-	-	11.27%
Pacific whiting (mothership)	30	9.89%	0.3	-	-	20.11%
Sablefish	169	2.23%	-	-	-	-
N. of 36° (Monterey north)	169	1.24%	4.5%	-	-	3.26%
S. of 36° (Conception area)	169	13.50%	15.0%	-	-	1.50%
PACIFIC OCEAN PERCH	169	2.80%	6.0%	-	-	3.20%
WIDOW ROCKFISH **	169	1.86%	8.5%	-	-	6.64%
CANARY ROCKFISH	169	1.91%	10.0%	-	-	8.09%
Chilipepper Rockfish	169	8.60%	15.0%	-	-	6.40%
BOCACCIO	73	13.22%	15.4%	-	-	2.18%
Splitnose Rockfish	169	8.26%	15.0%	-	-	6.74%
Yellowtail Rockfish	169	3.07%	7.5%	-	-	4.43%
Shortspine Thornyhead	169	1.63%	-	-	-	-
N. of 34°27'	169	1.68%	9.0%	-	-	7.32%
S. of 34°27'	169	2.99%	9.0%	-	-	6.01%
Longspine Thornyhead	169	1.13%	-	-	-	-
N. of 34°27'	169	1.13%	9.0%	-	-	7.87%
COWCOD	73	17.71%	17.7%	1	0.01%	-
DARKBLOTCHED	169	1.71%	6.8%	-	-	5.09%
YELLOWEYE	162	4.67%	11.4%	-	-	6.73%
Minor Rockfish North	-	-	-	-	-	-
Shelf Species	169	2.29%	7.5%	-	-	5.21%
Slope Species	169	2.13%	7.5%	-	-	5.37%
Minor Rockfish South	-	-	-	-	-	-
Shelf Species	169	6.72%	13.5%	-	-	6.78%
Slope Species	169	5.80%	9.0%	-	-	3.20%
Dover sole	169	1.14%	3.9%	-	-	2.76%
English Sole	169	3.13%	7.5%	-	-	4.37%
Petrale Sole	169	1.55%	4.5%	-	-	2.95%
Arrowtooth Flounder	169	5.61%	20.0%	-	-	14.39%
Starry Flounder	169	27.44%	20.0%	1	7.44%	-
Other Flatfish	169	8.26%	15.0%	-	-	6.74%
Other Fish	169	3.39%	7.5%	-	-	4.11%
Pacific Halibut	169	5.44%	0.144	-	-	8.96%

* Under the FPA, 90 percent of the QS goes to permits.
**If widow rockfish is rebuilt before initial allocation of QS, the vessel limit will be set at limit will be 1.5 times the control limit.
***At the time the data set for the analysis was developed, there were 169 permits (fall of 2006). By 2009, the number of trawl permits declined to 167.

Table A-94. Number of permits and amounts of QS allocated to permits in excess of vessel limits (100 percent allocation to permits, no equal sharing, with grandfather clause).

	# Permits Receiving QS	MAX QS Alloc.	---------Vessel Limit Option 1----------			---------- Vessel Limit Option 2----------		
			Limit	Number of Permits Over the Limit	Total QS Allocated to Permits Over the Limit	Limit	Number of Permits Over the Limit	Total QS Allocated to Permits Over the Limit
Aggregate Nonwhiting Groundfish (Nonwhiting Grndfsh)	163	2.5%	3.0%	0	0.0%	4.4%	0	0.0%
Lingcod Coast wide	155	3.5%	10.0%	0	0.0%	15.0%	0	0.0%
Pacific Cod	109	20.4%	10.0%	2	31.4%	15.0%	1	20.4%
Pwhiting (bycatch)	73	14.7%	7.5%	3	32.2%	11.3%	1	14.7%
Sablefish Coast								
Sablefish North	152	2.1%	6.2%	0	0.0%	9.3%	0	0.0%
Sablefish South	31	23.4%	6.2%	6	78.6%	9.3%	4	63.6%
Pac Ocean Perch	126	5.0%	6.2%	0	0.0%	9.3%	0	0.0%
Shortbelly	120	35.5%	6.2%	2	43.3%	9.3%	1	35.5%
Widow	157	8.1%	6.8%	1	8.1%	10.2%	0	0.0%
Canary	156	4.7%	10.0%	0	0.0%	15.0%	0	0.0%
Chilipepper	87	11.8%	10.0%	2	22.2%	15.0%	0	0.0%
Bocaccio	73	15.1%	10.0%	1	15.1%	15.0%	1	15.1%
Splitnose	77	12.0%	10.0%	1	12.0%	15.0%	0	0.0%
Yellowtail	130	6.2%	10.0%	0	0.0%	15.0%	0	0.0%
Shortspine Coast	149							
Shortspine No.	127	3.2%	9.6%	0	0.0%	14.4%	0	0.0%
Shortspine So.	101	4.7%	9.4%	0	0.0%	14.1%	0	0.0%
Longspine Coast	148							
Longspine No.	148	1.8%	4.0%	0	0.0%	6.0%	0	0.0%
Longspine So.	1	100.0%	10.0%	1	100.0%	15.0%	1	100.0%
Cowcod	1	100.0%	10.0%	1	100.0%	15.0%	1	100.0%
Darkblotched	153	7.9%	10.0%	0	0.0%	15.0%	0	0.0%
Yelloweye	145	8.9%	10.0%	0	0.0%	15.0%	0	0.0%
Black RF Coast	80							
Black RF WA	19	40.3%	10.0%	2	78.0%	15.0%	2	78.0%
Black RF OR-CA	71	16.7%	10.0%	1	16.7%	15.0%	1	16.7%
Minor RckFsh No.	153							
Nearshore	50	30.8%	10.0%	1	30.8%	15.0%	1	30.8%
Shelf	153	4.4%	8.0%	0	0.0%	12.0%	0	0.0%
Slope	128	3.8%	10.0%	0	0.0%	15.0%	0	0.0%
Minor RckFsh So.	111							
Nearshore	52	15.0%	10.0%	4	47.5%	15.0%	1	15.0%
Shelf	104	9.8%	10.0%	0	0.0%	15.0%	0	0.0%
Slope	104	9.4%	10.0%	0	0.0%	15.0%	0	0.0%
CA Scorpionfsh	2	67.3%	10.0%	2	100.0%	15.0%	2	100.0%
Cabezon CA	2	62.0%	10.0%	2	100.0%	15.0%	2	100.0%
Dover Sole	155	1.8%	3.6%	0	0.0%	5.4%	0	0.0%
English Sole	154	5.4%	20.0%	0	0.0%	30.0%	0	0.0%
Petrale	156	2.8%	5.8%	0	0.0%	8.7%	0	0.0%
Arrowtooth	129	13.0%	10.0%	2	24.0%	15.0%	0	0.0%
Starry Flounder	72	34.6%	10.0%	1	34.6%	15.0%	1	34.6%
Other Flatfish	156	13.5%	20.0%	0	0.0%	30.0%	0	0.0%
Other Grndfsh	136	6.2%	10.0%	0	0.0%	15.0%	0	0.0%

* Gray rows indicate management units not included in the scope of the final preferred alternative.

Rows with a single gray cell indicate an overfished species. In this table, a history-based approach was used for calculating the allocation of overfished species. In the Council's final preferred alternative, an approach was used that applied bycatch rates and logbook information to initial allocations of target species.

STRUCTURE OF THE FLEET (VESSEL LIMIT EFFECT ON HISTORIC FLEET STRUCTURE)

This section addresses how the vessel limits will affect the structure of the harvesting and processing sectors. Specific questions include the following:

- What levels of concentration of harvest on vessels have we experienced recently and in the past?
- What size of fleet has been active in the fishery?
- How do the vessel accumulation limits compare to those levels of concentration and will they allow consolidation or constrain the fleet as compared to the past?

There are a number of ways to look at recent past and historic data. One way is to look at permit/vessel recent and historic shares of annual harvest to determine whether a particular vessel limit option will allow lesser, similar, or greater levels of concentration as compared to that of the past. Comparison to permit shares is most relevant to the proportional sharing of harvest within the fleet, distribution, and equity issues.

Per-vessel recent and historic shares are evaluated in two ways. One approach is that taken by the GAP, in which each permit's catch was compared to its share of the fleet allocation (Table A-84 and right-hand column of Table A-93). If, under an IFQ program, the fleet is able to more fully harvest its allocation (or individual vessels are able to take the entire amount of QP allowed under the vessel limit), then comparison of the vessel limits to recent and historic maximum individual vessel shares of the trawl allocation in recent years may best reflect the impact of the vessel limits. Under such circumstances, the vessel limits would be less than the maximum share of the trawl allocation take by a vessel from 2004 to 2006 (evaluated annually) only for sablefish south, minor slope rockfish south, Dover sole, and Petrale sole (comparing the last column of Table A-93 to the final preferred alternative vessel limits). Thus for most species, the vessel limits would not constrain vessel operations, again assuming overfished species can be avoided as markets develop.

An alternative look compares the permit shares to actual landings for two periods: 1994 to 2003 and 2004 to 2006 (Table A-93). While this approach may not reflect the actual opportunities that may be present under the trawl rationalization program, it allows us to evaluate the vessel limits against the shares of harvest that vessels were taking during the allocation period 1994 to 2003 (for which it is difficult to determine what the trawl allocations might have been). Additionally, to the degree that the vessel limits are not constraining in comparison to vessel share of landings, they would be even less constraining when considered in comparison to vessel share of the trawl allocation, since a vessel's share of fleet landings will be greater than the share of the trawl allocation if the allocation is not fully harvested. Therefore, the share of landings comparison provides an upper bound for the degree of constraint that vessel limits might impose, in comparison to vessel harvest shares for recent and historic periods. In Table A-93, values are provided for the maximum share of landings achieved by any single vessel in a year during the period and for the 90th percentile vessel (i.e., values exceeded by only 10 percent of the fleet). An accumulation limit set at the 90th percentile would accommodate past landing shares of 90 percent of the fleet but not the top 10 percent. The maximum share of nonwhiting species landings taken by any one vessel in any single year from 1994 to 2003 or 2004 to 2006 was 4.9 percent. The aggregate nonwhiting vessel accumulation limits under Options 1, 2, and the final preferred alternative are 3 percent, 4.4 percent, and 3.2 percent, respectively. There was a third accumulation limit (not shown in this table) for which the vessel limit would have been 6 percent (Table A-83). Thus, only under Option 3, would vessels be able to achieve that maximum share of landings reflected in this table. On the other hand, 90 percent of the vessels did not take more than 1.5 percent of the total landings, and such levels of performance would be more than accommodated by Option 1 and the Council final preferred alternative. Additionally, the maximum vessel landings as a

share of the allocation was only 1.8 percent, a value more than accommodated by the most restrictive vessel limit (Option 1). Looking at the results for single species, and taking northern sablefish as an example, the proposed vessel accumulation limits are 4 percent, 6 percent, and 4.5 percent. The maximum share achieved by any vessel from 1994 to 2003 was 2.4 percent, and the maximum for 2004 to 2006 was 5.7 percent. Thus, if Option 2 were selected, with respect to sablefish, the fleet could rationalize to the point where every vessel had slightly more than the maximum share achieved by any one vessel from 1994 to 2003. The Council's final preferred alternative is for a 4.5 percent limit. While less than the 2004 to 2006 5.7 percent maximum, it is well above the 1.5 percent that would accommodate 90 percent of the fleet and also above the 2004 to 2006 maximum share (4.3 percent) as evaluated against the trawl allocations.

For both these approaches (the comparison to trawl allocation and comparison to landings), vessel landings are evaluated rather than vessel catch. Information is not available on individual vessel catch. To the degree that vessel catches exceed reported landings, the share of the trawl allocation required to support historic landings will be greater than indicated in these tables.

Another way to evaluate the accumulation limits would be to determine whether they would allow lesser, similar, or greater poundage of harvest as compared to the past (Table A-94). Where the previous comparisons are relevant to distribution and equity issues, this comparison may be more relevant to the efficiency that individual harvest operations will be able to attain under the trawl rationalization program as compared to the past. For the individual harvesters, the pounds of fish they can catch relate more to their costs and earnings than their share of harvest. This becomes rapidly apparent if we consider, for example, northern slope rockfish. The same maximum share of landings from the mid-1990s applied to northern slope rockfish OY for 2010 would yield one third less harvest. For most of the important target species that are not under rebuilding plans, the vessel limits of the Council's final preferred alternative would allow vessels to catch volumes of fish equal to or exceeding the amounts taken by the single largest annual production by any vessel in any year from 1994 to 2003. For those non-overfished species for which the historic maximum cannot be reached (lingcod, whiting, splitnose, northern and southern shelf and slope rockfish) the 90th percentile harvest levels can be reached. These results seem to indicate that the levels of harvest allowed by the Council's final preferred alternative for vessel limits have a reasonable chance of allowing vessels to increase their annual harvest to levels that match or exceed levels taken when the fleet was believed to be in better economic health. The overfished species could constrain this result until they are rebuilt. In terms of current target species, the primary exception with respect to the opportunity to achieve past harvest levels might be for directed vessels whiting. However, for the shoreside vessels, the vessel limit would allow a vessel to come within 1 percent of the maximum annual landings observed for any one vessel from 1994 to 2003. For the mothership fishery (which will be managed under a co-op system), the vessel limit would allow a vessel to come within 5 percent of the maximum observed from for any one vessel 1994 to 2003. Overall, the vessel limits appear to provide good prospects for increased efficiency and economic health of the trawl fishery.

The number of vessels catching each species/species group also suggests a minimum vessel accumulation limit that might be set if one wanted to ensure that the fishery could accommodate as much consolidation as there has been in the past. For example, if the minimum number of vessels participating in a segment of the fishery in the past is 20 (catching a particular species), an accumulation limit of 2 percent would require that 30 more vessels participate than in the past in order to take the entire available catch (a 2 percent limit requires that at least 50 vessels take part if the entire trawl allocation is to be harvested). Table A-95 provides the accumulation limit options, the minimum limit required to accommodate the minimum number of vessels catching each species in 2004 to 2006, the minimum fleets implied by the vessel accumulation limit options, and the minimum annual number of vessels taking each species for two past periods (1994 to 2003 and 2004 to 2006). There is only one

species for which the vessel limits may force more vessels into the fishery than have participated in recent years, if the full allocation is to be taken (sablefish south). There are a number of species that appear to be taken broadly in the fishery, but for which the vessel limits could allow substantial consolidations (e.g., Pacific cod, northern slope rockfish, and English sole).

Summary

For most species, the Council's final preferred alternative vessel limits would accommodate recent permit/vessel shares of landings and shares of the trawl allocation.

For most species, the maximum poundage landed by a permit in a single year from 1994 to 2003 could be achieved under 2010 OYs and the Council's final preferred alternative for vessel limits. The most important exceptions would be overfished species and target species for which harvest has been dramatically reduced to protect overfished species, including shelf and slope rockfish.

For some species that are broadly taken by many vessels, it appears that the vessel limits would allow levels of consolidation that would leave less than 20 percent of the vessels as compared to recent periods.

In general, it appears that the final preferred alternative vessel limits would provide substantial opportunity for vessels to improve their efficiency and economic performance as compared to levels from the 1990s, if they can develop markets and avoid overfished species.

- The vessel limit for sablefish south is such that the fleet could have to expand to fully take the allocation.

Table A-95. Comparison of vessel limits to vessel share of actual history (maximums and 90th percentile history for the indicated periods [values in gray cells are greater than the Council's final preferred alternative]).

Stock	Vessel Limits (%)			Annual Percent of Total Landings				Max Annual Share of Trawl Fleet Allocation '04-'06
				1994-2003		2004-2006		
	Option 1	Option 2	FPA	90th Percent	Max	90th Percent	Max	
All nonwhiting groundfish (in aggregate)	3	4.4	3.2	1	4.1	1.5	4.9	1.8
Lingcod - coast wide c/	10	15	3.2	1.8	9	2.2	3.7	1.1
Pacific Cod	10	15	20	6.4	22.7	6	21.1	7.2
Pacific Whiting								
Shoreside Sector	15	22.5	15	8.1	9.1	6.2	7.3	6.9
Mothership Sector	25	37.5	30	11.3	18.5	16.4	28.9	
Catcher Processors	65	70		37.3	49.5	31.1	49.4	
All Whiting Sectors Combined	25	37.5						
Sablefish (Coast wide)								
N. of 36° N (Monterey north)	4	6	4.5	1	2.4	1.5	5.7	4.3
S. of 36° N (Conception area)	10	15	15	24	38.4	43.5	60.3	22
PACIFIC OCEAN PERCH	10	15	6	2.7	7.3	3.7	10.1	3.1
WIDOW ROCKFISH	6.8	10.2	8.5	4.5	28.7	6	31.9	6.7
CANARY ROCKFISH	10	15	10	3.5	12.6	3.8	45.7	0
Chilipepper Rockfish	10	15	15	6.2	46.8	14.9	26.5	0.5
BOCACCIO	10	15	15.4	60	78.9	36.8	53.4	0
Splitnose Rockfish	10	15	15	5.7	19.9	12.1	26.9	8.5
Yellowtail Rockfish	10	15	7.5	2.8	9.9	5.2	11.5	0.7
Shortspine Thornyhead - coast wide								
Shortspine Thornyhead - N. of 34°27' N	9.6	14.4	9	1.3	5	2.2	8.7	4
Shortspine Thornyhead - S. of 34°27' N	9.4	14.1	9	4.2	7	8.8	16	0
Longspine Thornyhead - coast wide								
Longspine Thornyhead - N. of 34°27' N	4	6	9	1.4	2	2.2	8.7	2
COWCOD - Conception and Monterey	10	15	17.7	100	100	0	0	0
DARKBLOTCHED	10	15	6.8	2	15.8	3.1	5.6	3.7
YELLOWEYE g/	10	15	11.4	9.4	35.8	13.7	35.5	0
Minor Rockfish North								
Shelf Species	8	12	7.5	2.9	30.6	2.2	49.1	3.1
Slope Species	10	15	7.5	2	11.9	3	15.7	3.5
Minor Rockfish South								
Shelf Species	10	15	13.5	6.1	46.6	13.1	30.9	1.7
Slope Species	10	15	9	5.8	24.8	12.2	21.7	12.1
Dover Sole	3.6	5.4	3.9	1.1	2	1.6	5.6	*5.7
English Sole	20	30	7.5	1.5	13.9	2.6	7.7	2.3
Petrale Sole (coast wide) c/	5.8	8.7	4.5	1.4	6.2	2.3	8	5.9
Arrowtooth Flounder	10	15	20	1.9	25.5	3.2	19.1	8.3
Starry Flounder	10	15	20	13.2	65.7	5.5	54.5	8.3
Other Flatfish	20	30	15	1.3	16.4	2	8.1	1.6
Pacific Halibut (IBQ)			14.4	N/A	N/A	N/A	N/A	1.5

* Greater than maximum share of 2004-2006 landings because the trawl allocation of Dover was exceeded in one year.
N/A = not applicable (all Pacific halibut are discarded)

Table A-96. 90th percentile and maximum pounds per vessel landed in historic period (1994 to 2003) compared with vessel limit options, and translated into shares of average fleet harvest for the more recent period 2004 to 2006.

	Vessel Limits (lbs)		Annual Pounds and Percent of Total Landings			
			1994-2003 (lbs)		1994-2003 Pounds as a % of 2004-2006 Fleet Landings	
Stock	FPA (%)	FPA (lbs based on 2010)	90th Percentile	Max	90th Percentile	Max
All nonwhiting groundfish (in aggregate)	3.2	4,449,253	1,045,368	2,500,536	2.5	5.9
Lingcod - coast wide c/	3.2	144,063	31,057	203,593	15.5	101.6
Pacific Cod	20.0	480,285	115,342	287,803	7.2	18
Pacific Whiting						
Shoreside Sector	15.0	13,909,940	12,145,550	14,042,043	5.7	6.6
Mothership Sector	30.0	15,897,074	8,197,176	16,683,203	8.7	17.7
Catcher Processors			40,313,940	62,729,980	23.8	37
All Whiting Sectors Combined						
Sablefish (Coast wide)						
N. of 36° N (Monterey north)	4.5	300,124	74,566	180,128	1.4	3.3
S. of 36° N (Conception area)	15.0	174,211	49,226	63,959	45.2	58.7
PACIFIC OCEAN PERCH	6.0	23,951	35,725	117,139	19	62.3
WIDOW ROCKFISH	8.5	78,664	247,904	473,554	188.6	360.3
CANARY ROCKFISH	10.0	5,093	29,969	130,574	149.7	652
Chilipepper Rockfish	15.0	602,787	120,083	595,649	174.9	867.4
BOCACCIO	15.4	4,176	40,252	224,802	517	>1,000
Splitnose Rockfish	15.0	144,513	135,035	287,617	51.7	110.1
Yellowtail Rockfish	7.5	563,730	154,382	498,907	34.6	111.9
Shortspine Thornyhead - coast wide						
Shortspine Thornyhead - N. of 34°27' N	9.0	294,441	65,613	245,689	7.2	26.9
Shortspine Thornyhead - S. of 34°27' N	9.0	9,921	58,929	97,906	16.3	27.1
Longspine Thornyhead - coast wide						
Longspine Thornyhead - N. of 34°27' N	9.0	404,504	65,613	245,689	7.2	26.9
COWCOD - Conception and Monterey	17.7	507	19	19		
DARKBLOTCHED	6.8	39,931	26,849	250,799	10.1	94.2
YELLOWEYE g/	11.4	151	4,914	28,578	588.5	>1,000
Minor Rockfish North						
Shelf Species	7.5	110,948	38,680	178,331	55.1	254.1
Slope Species	7.5	150,297	33,529	261,950	11.4	89
Minor Rockfish South						
Shelf Species	13.5	28,813	20,815	83,556	226.7	909.9
Slope Species	9.0	78,251	49,159	285,834	15	87
Dover Sole	3.9	1,312,085	226,860	439,098	1.5	3
English Sole	7.5	1,486,052	36,117	339,187	1.9	17.4
Petrale Sole (coast wide) c/	4.5	215,484	57,251	195,683	1.1	3.7
Arrowtooth Flounder	20.0	4,157,781	181,499	1,432,863	3.9	30.8
Starry Flounder	20.0	233,447	11,631	58,510	8	40.2
Other Flatfish	15.0	1,415,159	69,572	548,878	2.7	21.5

Table A-97. The minimum number of vessels required to take the full allocation as determined by the vessel accumulation limits and the minimum number of vessels that have landed in any one year in the past (by species).

Stock	Vessel Limits (%)			Minimum Number of Vessels Under Vessel Limits			Minimum Annual Number of Vessels	
	Option 1	Option 2	FPA	Option 1	Option 2	FPA	'94-'03	'04-'06
All nonwhiting groundfish (in aggregate)	3	4.4	3.2	33	23	31	206	131
Lingcod - coast wide c/	10	15	3.2	10	7	31	142	105
Pacific Cod	10	15	20	10	7	5	71	57
Pacific Whiting			0					
Shoreside Sector	15	22.5	15	7	4	7	42	30
Mothership Sector	25	37.5	30	4	3	3	11	10
Catcher Processors	65	70	0	2	1		5	6
All Whiting Sectors Combined	25	37.5	0	4	3			
Sablefish (Coast wide)								
N. of 36° N (Monterey north)	4	6	4.5	25	17	22	191	121
S. of 36° N (Conception area)	10	15	15	10	7	7	12	6
PACIFIC OCEAN PERCH	10	15	6	10	7	17	129	83
WIDOW ROCKFISH	6.8	10.2	8.5	15	10	12	61	59
CANARY ROCKFISH	10	15	10	10	7	10	87	67
Chilipepper Rockfish	10	15	15	10	7	7	29	23
BOCACCIO	10	15	15.4	10	7	6	4	9
Splitnose Rockfish	10	15	15	10	7	7	50	23
Yellowtail Rockfish	10	15	7.5	10	7	13	94	72
Shortspine Thornyhead - coast wide								
Shortspine Thornyhead - N. of 34°27' N	9.6	14.4	9	10	7	11	141	90
Shortspine Thornyhead - S. of 34°27' N	9.4	14.1	9	11	7	11	50	27
Longspine Thornyhead - coast wide								
Longspine Thornyhead - N. of 34°27' N	4	6	9	25	17	11	167	100
COWCOD - Conception and Monterey	10	15	17.7	10	7	6	0	0
DARKBLOTCHED	10	15	6.8	10	7	15	171	104
YELLOWEYE g/	10	15	11.4	10	7	9	25	15
Minor Rockfish North								
Shelf Species	8	12	7.5	13	8	13	121	91
Slope Species	10	15	7.5	10	7	13	141	94
Minor Rockfish South								
Shelf Species	10	15	13.5	10	7	7	38	19
Slope Species	10	15	9	10	7	11	54	28
Dover Sole	3.6	5.4	3.9	28	19	26	190	123
English Sole	20	30	7.5	5	3	13	167	110
Petrale Sole (coast wide) c/	5.8	8.7	4.5	17	11	22	186	115
Arrowtooth Flounder	10	15	20	10	7	5	134	99
Starry Flounder	10	15	20	10	7	5	20	40
Other Flatfish	20	30	15	5	3	7	196	125

EFFICIENCY

This section addresses how the vessel accumulation limits will affect efficiency. For most of the objectives, we do not have the quantitative information needed to make exact predictions about how the objectives will be affected by the level at which accumulation limits are set, therefore, we rely on comparisons to historic experiences. However, we do have some general quantitative results indicating the effect of the accumulation limits on overall fleet efficiency. These will be discussed below.

A quantitative analysis by Lian et al. (2008) indicates an expectation that optimal size of the nonwhiting fleet under rationalization might be between 40 and 50 full-time vessels of approximately 60 to 70 feet in length. While it may be that the unconstrained fleet size will be larger if vessels choose to maintain multifishery strategies, aggregate accumulation limits in the range of 2.0 to 2.5 percent would be sufficient to allow a fleet of this size. Lian et al. also indicated that an aggregate accumulation limit of 1 percent would increase the minimum fleet size to 100 vessels, reduce benefits by about $3.8 million, and substantially increase the number of 50-foot vessels. Based on this model, it does not appear that the aggregate limits under consideration by the Council, even under Option 1, would necessarily constrain an efficient outcome.

♦ *Control Percentage Limits*

The following are the categories of goals and objectives affected by the decision on the level at which to set QS control limits and the section in which each is addressed.

Section	Related Category of Goals and Objectives										
	Conservation	Net Benefits	Disruption	Excessive Shares	Fairness and Equity	Harvester and Processor Sector Health	Labor	Communities	Small Entities and New Entrants	General Public	Program Performance
Initial Endowments (Allocations to Firms Compared to Control Accumulation Limits)			**X**	**X**	**X**						
Structure of the Harvesting Sector (QS Control Limit Relative to Past Harvest Levels)		**X**	**X**			**X**					

The control limits will determine the minimum number of firms that may control all the QS and cap the profit levels firms may achieve through QS ownership. Efficiency of firm level fishing operations may also be constrained to the degree that ownership of the QS provides efficiency advantages (see Appendix E for a discussion of possible efficiency benefits from vertical integration through QS ownership[125]).

[125] Summary of information on vertical integration from Appendix E: Under the IFQ program, in addition to other inputs, a harvester must also acquire QP each year to cover its catch. The QP becomes a new required input or "factor of production." QP is issued each year to QS holders. The harvester might be considered vertically integrated with respect to the QP if it owns the QS needed to meet its annual needs for QP. The

We evaluate control limit percentages from the perspective of how they affect the distribution of the initial endowments and the magnitude and degree of concentration as compared to our historical experience.

INITIAL ENDOWMENTS (ALLOCATIONS TO FIRMS COMPARED TO CONTROL ACCUMULATION LIMITS)

This section addresses how the control limits compare to the QS allocations to fishing businesses. It evaluates the specific levels at which the control limits will be set. As discussed in the general sections on QS control limits and cutoff dates (see pages A-340 and A-346), QS that would be issued to entities over the QS control limits would be treated as follows:

- Redistributed to those under the limits (if there is not a grandfather clause)
- Allocated to entities in excess of the limits; those entities will then be required to sell them within four years (if there is not a grandfather clause, but there is a divestiture provision).
- Allocated to entities in excess of the limits; those entities will then be entitled to retain them until they retire from QS ownership (if there is a grandfather clause)

Table A-96 shows the number of entities over the QS accumulation limits and the amounts of their overages under Option 1, Option 2, and the Council's final preferred alternative. In general, under the final preferred alternative, not more than three entities are over the limit for any one species or species group. For about two-thirds of the species, at least one entity is over the limit. Then number of entities directly affected by the control limits may be greater than three if different entities are affected by different individual species limits. The amount potentially available for reallocation, retention and sale, or retention until retirement is greater than 10 percent for many species groups with a southern distribution (sablefish south, bocaccio, shortspine south, cowcod, minor slope rockfish south). The only other species for which the total amount allocated in excess of limits could be more than 10 percent is starry flounder. The greatest amounts potentially available to be redistributed, retained and sold, or kept until retirement are sablefish south, bocaccio, and cowcod (more than 25 percent for each). For bocaccio and cowcod, the entire amount in excess of the control limits may go to a single entity. If these amounts are considered excessive, the control limits will reduce the initial allocation below excessive levels, either immediately or over time. To the degree that businesses have corresponding physical capital invested in harvesting at levels reflected by those initial allocation, the absence of a grandfather clause or requirement to divest may be somewhat disruptive. However, since the control limits do not apply to QP, those entities unable to retain the QS they would otherwise receive under the initial allocation will not be prevented from continuing to operate at their existing production levels by acquiring QP each year from the market.

On one hand, for large initial allocation in excess of limits, the program could be viewed as unfair if there is no grandfather clause to allow those who have acquired assets entitling them to the allocation to also acquire and hold or acquire and sell the initial allocation. On the other hand, others may view the program as unfair if entities are allowed to keep the QS in excess of the limits (if there is a grandfather clause). Table A-97 shows how the amount going to a single entity has varied since discussions of the trawl rationalization program began. For January 1, 2004 (two months after announcement of the November 6, 2003, control date), there was not more than one entity that held permits for any species or species group that would entitle it to QS in excess of the limits. Moreover, the amount by which any

harvester might also vertically integrate by acquiring a processing operation. Similarly, a processor might vertically integrate by acquiring QS or a harvesting operation. Vertical integration through ownership provides certainty about the price that will be paid for each year's QP, reducing the QS holder's price risk and increasing its ability to plan and maximize efficiency.

entity's initial allocations would exceed the limits was less than 1 percent, with the exceptions of sablefish south and starry flounder.

For whiting, the Council selected the lowest control limit it had under consideration (10 percent). In contrast to nonwhiting species the amount of QS going to any single entity, for shoreside whiting is not in excess of the whiting QS control limit and has not changed during the time the Council has been deliberating on the initial allocation (Table A-98).

The amounts by which individual allocations are over the limits would vary by the initial allocation formula. Table A-99 shows amounts of aggregate nonwhiting QS in excess of the initial allocation, as that amount varies depending on whether there is an equal allocation and on the amount of the initial allocation going to processors.

All data provided in this section are based on ownership information as best as it can be determined based on name and address records from the LEP Office. During program implementation, additional ownership information will be collected and may result in determination that existing levels of concentration are higher or lower than indicated here.

Table A-98. Combined (whiting and nonwhiting) shoreside entity-level QS and halibut IBQ allocations compared with the Council Final Preferred Control Limit Alternative and Control Limit Options 1 and 2 from the October 2008 EIS (based on November 30, 2008, permit ownership).

Species category	Number of Entities Receiving QS	Max QS (%)	FPA Control Limit Option (%)	Number of Entities Over the Limit	QS over the Limit (%)	Control Limit Option 1 (%)	Number of Entities Over the Limit	QS over the Limit (%)	Control Limit Option 2 (%)	Number of Entities Over the Limit	QS over the Limit (%)
All nonwhiting groundfish (in aggregate)	116	7.02%	2.70%	2	6.52%	1.50%	9	11.33%	2.20%	2	7.52%
Lingcod - coastwide	116	4.49%	2.50%	3	3.72%	5.00%	-	-	7.50%	-	-
Pacific Cod	116	10.23%	12.00%	-	-	5.00%	3	9.49%	7.50%	2	4.25%
Pacific Whiting (shoreside)	124	8.59%	10.00%	-	-	10.00%	-	-	15.00%	-	-
Pacific Whiting (mothership))	25	10.20%	20.00%	-	-	10.00%	1	0.20%	15.00%	-	-
Sablefish (Coastwide)											
N. of 36° N (Monterey north)	116	4.95%	3.00%	2	3.16%	2.00%	4	6.41%	3.00%	2	3.16%
S. of 36° N (Conception area)	116	34.70%	10.00%	2	32.81%	5.00%	2	42.81%	7.50%	2	37.81%
PACIFIC OCEAN PERCH	116	4.03%	4.00%	1	0.03%	5.00%	-	-	7.50%	-	-
WIDOW ROCKFISH	116	5.06%	5.10%	-	-	3.40%	1	1.66%	5.10%	-	-
CANARY ROCKFISH	116	3.83%	4.40%	-	-	5.00%	-	-	7.50%	-	-
Chilipepper Rockfish	116	11.08%	10.00%	1	1.08%	5.00%	6	17.91%	7.50%	4	6.01%
BOCACCIO	49	37.92%	13.20%	1	24.72%	5.00%	3	36.01%	7.50%	1	30.42%
Splitnose Rockfish	116	10.47%	10.00%	1	0.47%	5.00%	5	18.15%	7.50%	4	6.78%
Yellowtail Rockfish	116	5.76%	5.00%	1	0.76%	5.00%	1	0.76%	7.50%	-	-
Shortspine Thornyhead - coastwide											
Shortspine Thornyhead - N. of 34°27' N	116	7.69%	6.00%	1	1.69%	4.80%	1	2.89%	7.20%	1	0.49%
Shortspine Thornyhead - S. of 34°27' N	116	35.57%	6.00%	2	40.78%	4.70%	2	43.38%	7.10%	2	38.58%
Longspine Thornyhead - coastwide											
Longspine Thornyhead - N. of 34°27' N	116	6.55%	6.00%	1	0.55%	2.00%	5	8.88%	3.00%	4	4.81%
COWCOD - Conception and Monterey	49	43.69%	17.70%	1	25.99%	5.00%	5	45.65%	7.50%	2	36.26%
DARKBLOTCHED	116	4.48%	4.50%	-	-	5.00%	-	-	7.50%	-	-
YELLOWEYE	114	5.95%	5.70%	1	0.25%	5.00%	2	1.62%	7.50%	-	-
Minor Rockfish North											
Shelf Species	116	4.18%	5.00%	-	-	4.00%	1	0.18%	6.00%	-	-
Slope Species	116	3.65%	5.00%	-	-	5.00%	-	-	7.50%	-	-
Minor Rockfish South											
Shelf Species	116	11.25%	9.00%	1	2.25%	5.00%	4	11.60%	7.50%	1	3.75%
Slope Species	116	15.56%	6.00%	3	10.65%	5.00%	3	13.65%	7.50%	1	8.06%
Dover Sole	116	7.42%	2.60%	3	6.63%	1.80%	4	9.71%	2.70%	3	6.33%
English Sole	116	7.11%	5.00%	2	3.89%	10.00%	-	-	15.00%	-	-
Petrale Sole	116	5.87%	3.00%	3	4.71%	2.90%	3	5.01%	4.40%	2	1.51%
Arrowtooth Flounder	116	5.61%	10.00%	-	-	5.00%	2	0.73%	7.50%	-	-
Starry Flounder	116	27.44%	10.00%	1	17.44%	5.00%	4	26.89%	7.50%	1	19.94%
Other Flatfish	116	16.28%	10.00%	1	6.28%	10.00%	1	6.28%	15.00%	1	1.28%
Pacific halibut IBQ	116	5.44%	5.40%	1	0.04%	5.40%	1	0.04%	5.40%	1	0.04%

Initial allocations notes:

Non-whiting spp in non-whiting fishery (90% allocation to permits):

Non-OF spp: 1994-2003, relative lbs, drop 3 years, equal allocation of buyback permits' catch history.

OF spp: Alloc. based on finer area bycatch rates and 2003-2006 logbook target spp history (Average distribution was used in cases where logbook unavailable). (Canary allocations include equal sharing component)

Whiting in shoreside fishery (80% allocation to permits, 20% to processors):

Permits: 1994-2003, relative lbs, drop 2 years, equal allocation of buyback permits' catch history.

Processors: 1998-2004 (at least 1 mt in any two years 1998-2004), relative lbs, drop 2 years.

Non-whiting in shoreside whiting fishery: allocated to permits in proportion to whiting QS, 90% allocation to permits.

Table A-99. Combined (whiting and nonwhiting) shoreside entity-level QS and halibut IBQ allocations under different permit ownership date scenarios based on Council Final Preferred Alternative (June 2009).

		January 1, 2004				"Fall 2006"				January 1, 2008				November 30, 2008				June 22, 2009			
Species category	FPA Control Limit	# Entities reveiving QS	Max QS	# Entities Over the Limit	QS over the Limit	# Entities reveiving QS	Max QS	# Entities Over the Limit	QS over the Limit	# Entities reveiving QS	Max QS	# Entities Over the Limit	QS over the Limit	# Entities reveiving QS	Max QS	# Entities Over the Limit	QS over the Limit	# Entities reveiving QS	Max QS	# Entities Over the Limit	QS over the Limit
All nonwhiting groundfish (in aggregate)	**2.70%**	142	2.16%	-	-	121	4.89%	2	3.11%	120	4.89%	2	3.61%	116	7.02%	2	6.52%	114	7.02%	2	6.52%
Lingcod - coastwide	**2.50%**	142	2.64%	1	0.14%	121	4.49%	2	2.13%	120	4.49%	2	2.13%	116	4.49%	3	3.72%	114	4.49%	3	3.72%
Pacific Cod	**12.00%**	142	9.02%	-	-	121	10.23%	-	-	120	10.23%	-	-	116	10.23%	-	-	114	10.23%	-	-
Pacific Whiting (shoreside)	**10.00%**	150	8.59%	-	-	129	8.59%	-	-	128	8.59%	-	-	124	8.59%	-	-	122	8.59%	-	-
Pacific Whiting (mothership))	**20.00%**	27	10.20%	-	-	26	10.20%	-	-	25	10.20%	-	-	25	10.20%	-	-	25	10.20%	-	-
Sablefish (Coastwide)																					
N. of 36° N (Monterey north)	**3.00%**	142	2.65%	-	-	121	4.22%	1	1.22%	120	4.22%	1	1.22%	116	4.95%	2	3.16%	114	4.95%	2	3.16%
S. of 36° N (Conception area)	**10.00%**	142	18.11%	2	9.59%	121	28.87%	2	26.98%	120	33.39%	2	31.50%	116	34.70%	2	32.81%	114	34.70%	2	32.81%
PACIFIC OCEAN PERCH	***4.00%***	142	3.59%	-	-	121	4.03%	1	0.03%	120	4.03%	1	0.03%	116	4.03%	1	0.03%	114	4.03%	1	0.03%
WIDOW ROCKFISH	***5.10%***	142	5.06%	-	-	121	5.06%	-	-	120	5.06%	-	-	116	5.06%	-	-	114	5.06%	-	-
CANARY ROCKFISH	***4.40%***	142	3.71%	-	-	121	3.83%	-	-	120	3.83%	-	-	116	3.83%	-	-	114	3.83%	-	-
Chilipepper Rockfish	**10.00%**	142	8.75%	-	-	121	8.75%	-	-	120	8.75%	-	-	116	11.08%	1	1.08%	114	11.08%	1	1.08%
BOCACCIO	***13.20%***	61	13.22%	1	0.02%	54	13.22%	1	0.02%	53	13.22%	1	0.02%	49	37.92%	1	24.72%	48	37.92%	1	24.72%
Splitnose Rockfish	**10.00%**	142	9.39%	-	-	121	9.39%	-	-	120	9.39%	-	-	116	10.47%	1	0.47%	114	10.47%	1	0.47%
Yellowtail Rockfish	**5.00%**	142	3.21%	-	-	121	5.76%	1	0.76%	120	5.76%	1	0.76%	116	5.76%	1	0.76%	114	5.76%	1	0.76%
Shortspine Thornyhead - coastwide																					
Shortspine Thornyhead - N. of 34°27' N	***6.00%***	142	2.74%	-	-	121	4.99%	-	-	120	5.86%	-	-	116	7.69%	1	1.69%	114	7.69%	1	1.69%
Shortspine Thornyhead - S. of 34°27' N	***6.00%***	142	32.69%	2	37.89%	121	33.89%	2	39.09%	120	34.13%	2	39.34%	116	35.57%	2	40.78%	114	35.57%	2	40.78%
Longspine Thornyhead - coastwide																					
Longspine Thornyhead - N. of 34°27' N	***6.00%***	142	3.12%	-	-	121	4.18%	-	-	120	4.83%	-	-	116	6.55%	1	0.55%	114	6.55%	1	0.55%
COWCOD - Conception and Monterey	***17.70%***	61	17.71%	1	0.01%	54	17.71%	1	0.01%	53	17.71%	1	0.01%	49	43.69%	1	25.99%	48	43.69%	1	25.99%
DARKBLOTCHED	***4.50%***	142	4.48%	-	-	121	4.48%	-	-	120	4.48%	-	-	116	4.48%	-	-	114	4.48%	-	-
YELLOWEYE	***5.70%***	137	4.67%	-	-	118	5.67%	-	-	118	5.67%	-	-	114	5.95%	1	0.25%	112	5.95%	1	0.25%
Minor Rockfish North																					
Shelf Species	**5.00%**	142	3.93%	-	-	121	4.18%	-	-	120	4.18%	-	-	116	4.18%	-	-	114	4.18%	-	-
Slope Species	**5.00%**	142	3.65%	-	-	121	3.65%	-	-	120	3.65%	-	-	116	3.65%	-	-	114	3.65%	-	-
Minor Rockfish South																					
Shelf Species	**9.00%**	142	7.08%	-	-	121	7.48%	-	-	120	7.93%	-	-	116	11.25%	1	2.25%	114	11.25%	1	2.25%
Slope Species	**6.00%**	142	7.00%	1	1.00%	121	11.97%	3	7.06%	120	13.01%	3	8.09%	116	15.56%	3	10.65%	114	15.56%	3	10.82%
Dover Sole	**2.60%**	142	2.72%	1	0.12%	121	4.46%	3	3.67%	120	5.32%	3	4.53%	116	7.42%	3	6.63%	114	7.42%	3	6.63%
English Sole	**5.00%**	142	3.13%	-	-	121	6.78%	1	1.78%	120	6.78%	1	1.78%	116	7.11%	2	3.89%	114	7.11%	2	3.89%
Petrale Sole	**3.00%**	142	3.40%	1	0.40%	121	4.44%	3	1.91%	120	4.44%	3	2.20%	116	5.87%	3	4.71%	114	5.87%	3	4.71%
Arrowtooth Flounder	**10.00%**	142	5.61%	-	-	121	5.61%	-	-	120	5.61%	-	-	116	5.61%	-	-	114	5.61%	-	-
Starry Flounder	**10.00%**	142	27.44%	1	17.44%	121	27.44%	1	17.44%	120	27.44%	1	17.44%	116	27.44%	1	17.44%	114	27.44%	1	17.44%
Other Flatfish	**10.00%**	142	8.26%	-	-	121	8.26%	-	-	120	8.26%	-	-	116	16.28%	1	6.28%	114	16.28%	1	6.28%
Pacific halibut IBQ	**5.40%**	142	5.44%	1	0.04%	121	5.44%	1	0.04%	120	5.44%	1	0.04%	116	5.44%	1	0.04%	114	5.44%	1	0.04%

Initial allocations notes:

Non-whiting spp in non-whiting fishery (90% allocation to permits):

Non-OF spp: 1994-2003, relative lbs, drop 3 years, equal allocation of buyback permits' catch history.

OF spp: Alloc. based on finer area bycatch rates and 2003-2006 logbook target spp history (Average distribution was used in cases where logbook unavailable).
(Canary allocations include equal sharing component)

Whiting in shoreside fishery (80% allocation to permits, 20% to processors):

Permits: 1994-2003, relative lbs, drop 2 years, equal allocation of buyback permits' catch history.

Processors: 199**8**-2004 (at least 1 mt in any two years 1998-200**4**), relative lbs, drop 2 years.

Non-whiting in shoreside whiting fishery: allocated to permits in proportion to whiting QS, 90% allocation to permits.

Table A-100. Maximum Pacific whiting allocations to entities under different permit ownership control dates (QS allocation formula uses: 80/20 permit-processor split, equal sharing, and shoreside processor recent participation requirement).

FPA Control Limit = 10%		Maximum Allocation	Enitities Over the Limit	QS Over the Limit
Permit ownership Control Date	**Entities with Allocation**			
January 1, 2004				
Total whiting QS	150	8.59%	-	-
Harvester portion	142	8.59%	-	-
Buyer portion	11	7.20%	-	-
Fall 2006				
Total whiting QS	129	8.59%	-	-
Harvester portion	121	8.59%	-	-
Buyer portion	11	7.20%	-	-
January 1, 2008				
Total whiting QS	128	8.59%	-	-
Harvester portion	120	8.59%	-	-
Buyer portion	11	7.20%	-	-
November 30, 2008				
Total whiting QS	124	8.59%	-	-
Harvester portion	116	8.59%	-	-
Buyer portion	11	7.20%	-	-
June 22, 2009				
Total whiting QS	122	8.59%	-	-
Harvester portion	113	8.59%	-	-
Buyer portion	11	7.20%	-	-

Table A-101. Number of entities receiving allocations of total nonwhiting groundfish above the Option 3 aggregate control limit and the amounts of QS over the limit, categorized by type of entity (Option 3 QS limit = 3%).

	QS Allocations to Harvesters / Buyers	Number of Entities Over the Limit	Total QS Allocated to Entities Over the Limit (%)
1	**All eligible harvesting entities and buying entities**		
	Equal sharing of buyback		
	100% to Harvesters	2	9
	87.5% / 12.5%	2	13
	75% / 25%	2	17
	50% / 50%	3	33
	No equal sharing of buyback		
	100% to Harvesters	4	16
	87.5% / 12.5%	3	16
	75% / 25%	3	20
	50% / 50%	4	37
2	**Only entities that are buyers (includes allocation to buyers that own permits)**		
	Equal sharing of buyback		
	100% to Harvesters	1	5
	87.5% / 12.5%	1	9
	75% / 25%	2	17
	50% / 50%	3	33
	No equal sharing of buyback		
	100% to Harvesters	1	5
	87.5% / 12.5%	1	10
	75% / 25%	3	20
	50% / 50%	4	37
3	**Only entities that are not buyers**		
	Equal sharing of buyback		
	100% to Harvesters	1	4
	87.5% / 12.5%	1	3
	75% / 25%	0	0
	50% / 50%	0	0
	No equal sharing of buyback		
	100% to Harvesters	3	11
	87.5% / 12.5%	2	6
	75% / 25%	0	0
	50% / 50%	0	0

Note: Data in this table are based on ownership information available in the fall of 2006.

STRUCTURE OF THE HARVESTING SECTOR (QS CONTROL LIMIT RELATIVE TO PAST HARVEST LEVELS)

As mentioned in the introduction to this section on QS control limits, these limits may constrain efficiency gains by restricting the degree to which a vessel can support its operation with QS under its personal ownership. In this section, the control limits are compared to past vessel performance levels to evaluate the degree to which a vessel owner might support operations with QS owned (the degree to which the owner can vertically integrate through QS ownership relative to his or her total production level). The section on vessel limits compared those limits to past operations of individual vessels to determine the degree to which vessel limits might directly constrain vessel operations. Here QS control

limits are compared to the same vessel level data to determine the degree to which an owner's ability to control the QS available to support production might be constrained. In general, because QS control limits are about two thirds of the vessel limits (vessel limits are generally 1.5 times greater than control limits) the QS control limits interfere with the amount of QS a vessel might like to have to support operations to a greater extent than the vessel limits interfere with past vessel operation. As an example, Table A-100 shows that for 10 nonwhiting species, the control limits are below the 90th percentile level for vessel landings as a share of 2004 to 2006 fleet landings. This compares to only four nonwhiting species in this category when comparing past performance to the vessel limits Table A-93. This evaluation covers the single vessel case. Harvesters owning multiple vessels could be more constrained in their ability to support those vessels with QS than is indicated in this table.

Table A-102. Comparison of control limits to vessel (permit) share of annual landings (1994 to 2003 and 2004 to 2006. Values in gray cells are greater than the Council's final preferred alternative).

	Control Limits (%)			Annual Percent of Total Catch				Max Annual Share of Trawl Fleet Allocation '04- 06
				1994-2003		2004-2006		
Stock	Option 1	Option 2	FPA	90th Percent	Max	90th Percent	Max	
All nonwhiting groundfish (in aggregate)	1.5	2.2	2.7	1	4.1	1.5	4.9	1.8
Lingcod - coast wide c/	5	7.5	2.5	1.8	9	2.2	3.7	1.1
Pacific Cod	5	7.5	12	6.4	22.7	6	21.1	7.2
Pacific Whiting	10	15						
Shoreside Sector	10	15	10	8.1	9.1	6.2	7.3	6.9
Mothership Sector	10	15	20	11.3	18.5	16.4	28.9	
Catcher Processors	50	55		37.3	49.5	31.1	49.4	
All Whiting Sectors Combined	15	22.5						
Sablefish (Coast wide)								
N. of 36° N (Monterey north)	2	3	3	1	2.4	1.5	5.7	4.3
S. of 36° N (Conception area)	5	7.5	10	24	38.4	43.5	60.3	22
PACIFIC OCEAN PERCH	5	7.5	4	2.7	7.3	3.7	10.1	3.1
WIDOW ROCKFISH	3.4	5.1	5.1	4.5	28.7	6	31.9	6.7
CANARY ROCKFISH	5	7.5	4.4	3.5	12.6	3.8	45.7	0
Chilipepper Rockfish	5	7.5	10	6.2	46.8	14.9	26.5	0.5
BOCACCIO	5	7.5	13.2	60	78.9	36.8	53.4	0
Splitnose Rockfish	5	7.5	10	5.7	19.9	12.1	26.9	8.5
Yellowtail Rockfish	5	7.5	5	2.8	9.9	5.2	11.5	0.7
Shortspine Thornyhead - coast wide								
Shortspine Thornyhead - N. of 34°27' N	4.8	7.2	6	1.3	5	2.2	8.7	4
Shortspine Thornyhead - S. of 34°27' N	4.7	7.1	6	4.2	7	8.8	16	0
Longspine Thornyhead - coast wide								
Longspine Thornyhead - N. of 34°27' N	2	3	6	1.4	2	2.2	8.7	2
COWCOD - Conception and Monterey	5	7.5	17.7	-	100	0	0	0
DARKBLOTCHED	5	7.5	4.5	2	15.8	3.1	5.6	3.7
YELLOWEYE g/	5	7.5	5.7	9.4	35.8	13.7	35.5	0
Minor Rockfish North								
Shelf Species	4	6	5	2.9	30.6	2.2	49.1	3.1
Slope Species	5	7.5	5	2	11.9	3	15.7	3.5
Minor Rockfish South								
Shelf Species	5	7.5	9	6.1	46.6	13.1	30.9	1.7
Slope Species	5	7.5	6	5.8	24.8	12.2	21.7	12.1
Dover Sole	1.8	2.7	2.6	1.1	2	1.6	5.6	5.7
English Sole	10	15	5	1.5	13.9	2.6	7.7	2.3
Petrale Sole (coast wide)	2.9	4.4	3	1.4	6.2	2.3	8	5.9
Arrowtooth Flounder	5	7.5	10	1.9	25.5	3.2	19.1	8.3
Starry Flounder	5	7.5	10	13.2	65.7	5.5	54.5	8.3
Other Flatfish	10	15	10	1.3	16.4	2	8.1	1.6

- Calculation of the Aggregate

The Council decided to establish a fixed formula for calculating an entity's aggregate nonwhiting QS. This formula weights QS based on the 2010 trawl allocation for each IFQ species. As the trawl allocations change over time, there may be more need to adjust the calculation of the aggregate to bring the calculation into line with the intent for the level at which the control limit is set. Because the approach remains fixed until explicitly changed, when such a change appears needed, the amount of adjustment required could be substantial compared to what would have occurred if incremental adjustments were made every two years. However, the approach adopted by the Council will provide more stability for planning and a simpler program for administration.

A-2.3 Program Administration

A-2.3.1 Tracking, Monitoring, and Enforcement

A-2.3.1.a Discarding

❖ *Provisions and Options*

It is the Council's intent to provide NMFS flexibility sufficient to design and implement a tracking and monitoring (T and M) program that will achieve the goals and objectives of the trawl rationalization program.

►T and M Program Alt 1: Nonwhiting – Discarding of IFQ species allowed, discarding of IBQ species required, discarding of non groundfish species allowed.

T and M Program Alt 2: Nonwhiting – Discarding of IFQ species prohibited, discarding of non IFQ commercial species prohibited, discarding of IBQ species required, discarding of non groundfish species allowed except retention of non IBQ prohibited species would be required.

►T and M Program Alt 1 and 2:

Shoreside whiting
Maximized retention vessels: Discarding of fish covered by IFQ or IBQ, and non groundfish species prohibited.
Vessels sorting at sea: Discarding of IFQ allowed, discarding of IBQ required, discarding of non groundfish species allowed.

At-sea whiting
Discarding of IFQ allowed by processors, discarding of IBQ required by processors, discarding of non groundfish species allowed by processors, mothership catcher vessels prohibited from discarding catch.

❖ *Rationale and Policy Issues*

Alternatives 1 and 2 are identical for the shoreside whiting and nonwhiting fisheries. Options are provided for vessels that supply nonwhiting groundfish to shoreside processors.[126] It is expected that the tracking and monitoring program will be able to provide accurate estimates of each vessel's discards of IFQ and IBQ species. Non-marketable species can also be discarded. As a disincentive to IBQ catch, the current policy of mandatory discard of halibut would continue. [127] Allowing discards of IFQ species gives vessels the flexibility to determine what species are retained for landing or discarded. In determining what to discard, vessel captains would review a variety of factors including ex-vessel prices, marketable sizes of fish, and vessel storage space. Allowing discard provides flexibility to the vessels. Discarding will also require changes in vessel operations and the purchase of new equipment to have onboard and at sea. In addition to observers, vessels would need to have scales on board to allow for accurate weighing of fish. To use observer time efficiently, vessel crew will have to aid the observer in the sorting of fish and with other functions associated with sorting, weighing, and identifying discarded fish species.

[126] The shoreside whiting and at-sea mothership and catcher-processors sectors do not bottom trawl; they mid-water trawl for whiting.
[127] Halibut is currently the only IBQ species.

❖ *Interlinked Elements*

IFQ discards have to be accounted for witH QPs. The accuracy and timeliness of IFQ discard estimates will affect all those elements associated with comparing QPs with catch and QS.

❖ *Analysis*

Allowing discards would change the nature of the tracking and monitoring system. Observers will have to focus their efforts on estimating discarded catch and not on estimating retained catch. However, implementation of a full retention program where there is zero discarding of IFQ species would be difficult. Full retention might require keeping everything from tires and derelict fishing gear to bottom items like mud, clams, and sea anemones. For example, the shoreside whiting fishery has evolved from the concept of "full retention" to a "maximized retention" fishery to account for operational discards and safety issues. Maximized retention would apply to the relevant species of the fishery and would not prevent the discard of rocks, seaweed, and plastics, for example.

A-2.3.1.b Monitoring

❖ *Provisions and Options*

At Sea Catch Monitoring

T and M Program Alt 1: Nonwhiting – The sorting, weighing and discarding of any IFQ or IBQ species must be monitored by an observer with supplemental video monitoring.

►T and M Program Alt 2: Nonwhiting – The sorting of catch, the weighing and discarding of any IBQ and IFQ species, and the retention of IFQ species must be monitored by the observer. ***(The preferred alternative matches this with T and M Program Alt 1, discarding allowed. Therefore, discards would also have to be monitored.)***

►T and M Program Alt 1 and 2:

Shoreside whiting - ***For maximized retention vessels***: video monitoring as proposed under Amendment 10.

►Suboption: Observers would be required in addition to or as a replacement for video monitoring.

For vessels that sort at sea: The sorting, weighing, and discarding of any IFQ or IBQ species must be monitored by an observer with supplemental video monitoring.

At-sea whiting: ***Catcher vessels.*** Observers would be required in addition to or as a replacement for video monitoring. ***Motherships and catcher/processors***: The sorting, weighing and discarding of any IFQ or IBQ species must be monitored by an observer.

►**Shoreside Landings Monitoring** (T and M Program Alt 1 and 2)
Nonwhiting and whiting - The sorting, weighing, and reporting of any IFQ must be monitored by a catch monitor (IBQ will have been discarded at sea).

❖ *Rationale and Policy Issues*

More accurate estimates of total mortality through better catch accounting would help achieve stock conservation goals.

Shoreside whiting and nonwhiting: A monitoring and tracking program is necessary to ensure that all catch (including discards) is documented and matched against QP. For shoreside nonwhiting trips, there is a proposed requirement for 100 percent observer coverage on vessels and for shoreside whiting trips, observers in addition, to or as a replacement for, video monitoring. Note that the Council's preferred alternative is for the shoreside whiting and nonwhiting fisheries to be managed under an IFQ system and as a single combined sector. In its PPA the Council specified that if Congress provided the needed legislation, the shoreside whiting fishery might be managed as a co-op with processor linkages rather than with IFQs. In addition to 100 percent observer coverage, 100 percent shoreside monitoring is also being proposed because the sorting, weighing, and reporting of any IFQ or IBQ species must be monitored by a catch monitor.

At-Sea Sector: Under status quo, mothership processing vessels and catcher-processors currently carry two observers. This monitoring requirement would remain for these vessels. However, a new requirement would be the placement of observers, possibly supplemented by cameras, on catcher-vessels that deliver to motherships. [Note that for the 2009/2010 groundfish harvest specifications and management measures, the Council is proposing video monitoring for these vessels.] See Appendix B, Section 1.4 on at-sea observers and monitoring for information regarding this sector.

❖ *Interlinked Elements*

Overall Program Execution: Implementation of the trawl rationalization program hinges on individual and co-op catch accountability, which in turn hinges on complete observer coverage. Should 100 percent observer coverage not be retained as part of the trawl rationalization preferred alternative, the entire proposed program would have to be rethought.

General Management and Trawl Sectors (A-1.3): The decision whether to manage the shoreside whiting fishery as a co-op or an IFQ fishery will affect the determination whether observers are more appropriate than cameras for the shoreside whiting fishery. As mentioned above, shoreside co-ops with processor linkages will require congressional approval.

❖ *Analysis*

Cameras are currently employed as an electronic monitoring system (EMS) in the shoreside whiting fishery, and EMS is used as a monitoring tool. The EMS system employed under the EFP for Pacific whiting permits shoreside vessels to dump unsorted catch directly below deck and allows this unsorted catch to be landed, if an EMS is used on all fishing trips to verify retention of catch at sea. The EMS is an effective tool for accurately monitoring catch retention and identifying the time and location of discard events. However, current video technology is not good enough to use cameras in trawl fisheries to measure the amount of fish discarded or to determine the species of fish discarded. Therefore, observers are deemed a superior monitoring tool for the nonwhiting trawl fishery given the number of species and need to have accurate estimates of IFQ discards. If the shoreside whiting fishery is managed as an IFQ fishery, observers rather than the current cameras will also be needed for the same reason. The option of requiring cameras in addition to observers (should human observers be deemed necessary to ensure compliance) is a potential cost-cutting measure compared to requiring a second human observer. The purpose of having catch monitoring in the shoreside nonwhiting fishery is to ensure that all IFQ and IBQ species are accurately weighed, sorted, and reported. Catch monitors are already employed in the shoreside whiting fishery. See also the discussion under program costs, below.

A-2.3.1.c Catch Tracking Mechanisms

❖ *Provisions and Options*

►Catch Tracking Mechanisms (T and M Program Alt 1 and 2)

Electronic vessel logbook report
Nonwhiting, shoreside whiting and at-sea whiting: VMS-based electronic logbook required to be transmitted from vessel. At-sea entry by vessel personnel required including catch weight by species and if retained or discarded.

Vessel landing declaration report
Nonwhiting and shoreside whiting: Mandatory declaration reports.

Electronic IFQ landing report
Nonwhiting and shoreside whiting: Mandatory reports completed by processors and similar to electronic fish ticket report.

Processor production report
Nonwhiting, shoreside whiting and at-sea whiting: Mandatory reports (possible inclusion of proprietary data included to be recommended as option is fleshed out).

❖ *Rationale and Policy Issues*

Other than the declaration reports and the processor production reports, these catch tracking mechanisms are largely the conversion of existing state paper-based systems. Converting to electronic reporting is seen as an aid for improved accuracy of reported data and better quota monitoring at the individual vessel, co-op, and sector level. Declaration reports and processor production reports are seen as tools that improve the ability to enforce regulations. One of the issues facing the implementation of these reporting systems is how best to adapt the existing state paper-based systems to the needs of the trawl rationalization program.

❖ *Interlinked Elements*

All of these reports address directly or indirectly address the needs for total catch accounting, biological and management data, socioeconomic data, economic data (including data for anti-trust), excessive share assessments, cost recovery, and program performance measures.

❖ *Analysis*

All trawl sectors (shorebased nonwhiting, shorebased whiting, mothership catcher vessels and processors, and catcher-processors) will require VMS-based electronic logbooks. Nonwhiting and whiting vessels that deliver shoreside will also have to submit declaration reports. Shorebased processors will have to submit the electronic IFQ landing reports in the form of the electronic "fishtickets," and processors will also have to supply mandatory production reports.

Compared to the status quo, the only new reports are the vessel declaration reports and the processor production reports. As cited above, there are many conservation and management reasons for these reports. In addition, electronic reporting will aid vessels, processors, and all QS and QP holders in making real-time decisions. Currently the Pacific States Marine Fisheries Commission (PSMFC) is working with the states on converting their paper-based fish ticket and trawl logbook systems into electronic systems. Electronic fishtickets are now being experimented with in the shoreside whiting

fishery. The actual design of these reports are under development and most likely will be more fully analyzed for public comment under the rulemaking process that converts the Council's preferred alternative into regulation. This process includes addressing reporting issues under the Paperwork Reduction Act process and under the Regulatory Flexibility Act (regulatory reporting burden on small businesses). One of the issues in the design of these systems and the integration with observer, catch monitor, and QP/QS tracking systems concerns lining up the coding systems so that all IFQ species are reported consistently on a species and species group basis. Another issue is understanding when changes are needed. As the Council and Federal management tracking and monitoring needs change, states will have to convert their systems to meet these needs.

A-2.3.1.d Cost Control Mechanisms

❖ *Provisions and Options*

Shoreside landing hour restrictions
T and M Program Alt 1, Nonwhiting and shoreside whiting: Landing hours not restricted.
T and M Program Alt 2, Nonwhiting and shoreside whiting: Landing hours restricted.
►T and M Program Alt 3, Nonwhiting and shoreside whiting: Landing hours may be restricted.

Shoreside site Licenses
►T and M Program Alt 1 and 2, Nonwhiting and shoreside whiting: Mandatory license for shoreside deliveries. License can be issued to any site that meets the monitoring requirements.

Vessel Certification
►T and M Program Alt 1 and 2, All Trawl Sectors: Mandatory certification. Certificate can be issued to any vessel that meets the monitoring requirements.

❖ *Rationale and Policy Issues*

The certification of vessels, licensing of shoreside processing plants, and restricted shoreside landing hours support management and enforcement objectives and potentially reduce costs by restricting the number of shoreside processing plants and the hours under which plant monitors have to be present in the plant.

❖ *Interlinked Elements*

Among other requirements to receive certification or licensing will be the need for accurate scales to be used, thus aiding many of the catch tracking mechanisms discussed above. Tracking and monitoring costs will be affected by the certification requirements and by decisions to limit shoreside landing hours.

❖ *Analysis*

All trawl sectors (shoreside nonwhiting, shoreside whiting, mothership catcher vessels and processors, and catcher-processors) would require certification or licenses that show they meet the monitoring requirements. To reduce costs, landing hours could be restricted. In addition to the options to restrict or no restrict landing hours, a third option was added and selected as the final preferred alternative, which states that landing hours *may* be restricted. This option provides for greater flexibility to provide solutions as issues arise, rather than preemptively limiting landing hours.

Many of the other requirements will be similar to those currently specified as part of the 2008 Pacific Whiting Shoreside Fishery Maximized Retention and Monitoring Exemption Program (see http://www.pcouncil.org/bb/2008/0308/F1a_SUP_ATT2.pdf). This program outlines the reporting

requirements, equipment needs, and vessel and plant responsibilities including relationships with plant monitors, notification and declaration procedures, and the requirement of a NMFS monitoring plan. For IFQ and co-op fisheries, these elements would have to be expanded to include existing observer requirements, together with safety requirements, as well as the responsibilities of the crew to assist the observer in the weighing and sorting of catch and responsibilities of the captain to ensure that vessel operations do not hinder observer efforts. For IFQ vessels, there is likely to be a need to purchase appropriate scales to meet these requirements. The actual design of these reports is under development and would be more fully analyzed for public comment under the rulemaking process that converts the Council's preferred alternative into regulations. This process includes addressing reporting issues under the Paperwork Reduction Act process and under the Regulatory Flexibility Act (regulatory reporting burden on small businesses).

A-2.3.1.e Program Performance Measures

❖ *Provisions and Options*

►**T and M Program Alt 1 and 2,** All Trawl Sectors: integrate into the tracking and monitoring program the collection of data on cost, earnings and profitability; Economic efficiency and stability; capacity measures; net benefits to society; distribution of net benefits; product quality; functioning of quota market; incentives to reduce bycatch; market power; spillover effects into other fisheries; contribution to regional economies (income and employment); distributional effects/community Impacts; employment in seafood catching and processing; safety; bycatch and discards; administrative, enforcement, and management costs. [See A-2.3.2., Socioeconomic Data Collection.]

A-2.3.2 Socioeconomic Data Collection

❖ Provisions and Options

The data collection program will be expanded and submission of economic data by harvesters and processors will be mandatory. Random and targeted audits may be used to validate mandatory data submissions. See footnote for a full description. Information on QS transaction prices will be included in a central QS ownership registry. ***NOTE: Data collection started before the first year of implementation would be beneficial, in order to have a baseline for comparison.***

Footnote from IFQ Program provisions:

- Mandatory submission of economic data for LE trawl industry (harvesters and processors)
- Voluntary submission of economic data for other sectors of the fishing industry
- Include transaction value information in a centralized registry of ownership
- Formal monitoring of government costs

Mandatory Provisions: The Council and NMFS shall have the authority to implement a data collection program for cost, revenue, ownership, and employment data, compliance with which will be mandatory for members of the West Coast groundfish industry harvesting or processing fish under the Council's authority. Data collected under this authority will be treated as confidential in accordance with Section 402 of the MSA.

A mandatory data collection program shall be developed and implemented as part of the groundfish trawl rationalization program and continued through the life of the program. Cost, revenue, ownership, employment, and other information will be collected on a periodic basis (based on scientific requirements) to provide the information necessary to study the impacts of the program, including achievement of goals and objectives associated with the rationalization program. These data may also be used to analyze the economic and social impacts of future FMP amendments on industry, regions, and localities. The program will include targeted and random audits as necessary to verify and validate data submissions. Additional funding (as compared to status quo) will be needed to support the collection of these data. The data collected would include data needed to meet MSA requirements (including antirust).
The development of the program shall include the following: A comprehensive discussion of the enforcement of such a program, including discussion of the type of enforcement actions that will be taken if inaccuracies are found in mandatory data submissions. The intent of this action will be to ensure that accurate data are collected without being overly burdensome on industry in the event of unintended errors.

Voluntary Provisions: A voluntary data collection program will be used to collect information needed to assess spillover impacts on nontrawl fisheries.

Central Registry: Information on transaction prices will be included in a central registry of QS owners. Such information will also be included for LE permit owners/lessees.

Government Costs: Data will be collected and maintained on the monitoring, administration, and enforcement costs related to governance of the rationalization program.

❖ Rationale and Policy Issues

The goal of the Council's rationalization alternatives involves several economic components. The stated goal of the program is presented below:

> *Create and implement a capacity rationalization plan that increases net economic benefits, creates individual economic stability, provides for full utilization of the trawl sector allocation, considers environmental impacts, and achieves individual accountability of catch and bycatch.*

The Act also contains a monitoring requirement to determine whether a LAPP is meeting its goals. Sec. 303A (c)(1)(G) states that any LAPP shall do the following:

> *include provisions for the regular monitoring and review by the Council and the Secretary of the operations of the program, including determining progress in meeting the goals of the program and this Act, and any necessary modification of the program to meet those goals, with a formal review 5 years after the implementation of the program and thereafter to coincide with scheduled Council review of the relevant FMP (but no less frequent than once every 7 years).*

The MSA (as amended through January 2007) also places importance on social and economic outcomes resulting with a rationalization programs. Sec. 303A(c)(1)(C) states that any LAPP to harvest fish submitted by a Council or approved by the Secretary under this section shall promote social and economic benefits. The Council has also enumerated several objectives and constraints for the program that involve economic components and monitoring of the program (see Chapter 1).

In order to meet the monitoring requirements for the economic goals, improved and expanded economic data would be needed for the trawl IFQ fishery. The Council's PPA provides for a mandatory economic data collection provision. Regardless of whether the economic data collection is mandatory or voluntary, the types of data necessary to monitor the effects of the program are the same. However, the choice of mandatory or voluntary data collection will likely have a large effect on the Council's and the NMFS' ability to consistently and systematically collect the necessary data.

Despite the NWFSC's recent progress in voluntary economic data collection, economic analysis of the LE trawl fishery historically has been severely constrained by a lack of economic data. Incomplete cost-earnings data on vessels and processors have been a particular problem. While PacFIN provides data on most, but not all, earnings sources for LE trawlers, little data on the cost of operating harvesting vessels have been available. Data on the costs and earnings of processing plants have not been available to NMFS or Council economists. This lack of economic data has hampered attempts to measure economic performance, build regional economic input-output models, assess overcapacity, and build models that predict economic behavior.

The first of recent attempts to collect economic data from LE trawl vessel owners occurred in 1999 and 2000. This mail survey used a lengthy questionnaire asking for considerable fishery-specific information, but obtained a response rate well below 20 percent. Because of the low response rate and nonrespondent bias, data collected through this survey were of limited value. A processor survey conducted at about the same time obtained an even lower response rate.

A second voluntary economic survey of LE vessel owners was conducted from 2005 to 2007. In order to obtain higher response rates, this second survey used a much shorter questionnaire and collected data

through in-person interviews. This survey obtained a fairly high response rate of more than 70 percent, but at the cost of considerably less data collected from each respondent due to the shorter questionnaire. While this second survey provides much data of value for assessing industry economic performance and regional economic impacts, our ability to evaluate the contribution of individual fisheries (such as groundfish) to vessel economic performance is limited by the reduced questionnaire length. Collecting data through in-person interviews helped to substantially increase the response rate, but at considerably increased survey cost.

Mandatory economic data collection offers the advantages of reduced nonresponse bias, the ability to collect more detailed fishery-specific data, and reduced survey fielding costs. These advantages would apply to data collection from both the harvesting sector and the processing sector.

❖ Interlinked Elements

The program inherently relies on data collection. These provisions include requirements for data needed to adequately monitor program performance (see Section A-2.3.4).

❖ Analysis

The collection of such data are related to several aspects of MSA and groundfish FMP guidance on rationalization that will be discussed in the analysis. These include the categories of net benefits, fairness and equity, and harvester and processor sector health. To a large degree, these broad categories are addressed by data collection because such data collection allows for the measurement of these categories. The measurement of these categories may help inform future decisions on the part of the Council.

Element of Cooperative Alternative	Conservation	Net Benefits	Disruption	Excessive Shares	Fairness and Equity	Harvester and Processor Sector Health	Labor	Communities	Small Entities and New Entrants	General Public
Data Collection		X			X	X				

An economic data collection program will increase the ability to monitor and measure the economic performance of the industry, as described in the rationale above. It will also increase the burden on agencies involved in the data collection and analysis and the burden on industry members in the form of time spent reporting data.

The NWFSC has gone through two voluntary survey efforts. The first effort resulted in a relatively low response rate, which minimized the ability to use the survey. The second effort used face-to-face interviews and resulted in a response rate of more than 70 percent. This relatively high response rate has resulted in several pieces of analysis utilized in the rationalization process and may prove useful for other means as well. While this survey has largely been considered successful, the face-to-face

interview technique is estimated to have cost somewhere approximately $700 to $800 per interview. This cost does not include the time and cost of developing the survey and analyzing the data. Given that the trawl fishery is over 100 vessels, the field cost of conducting a voluntary survey using a face-to-face technique could be approximately $100,000 to the agency each year it is conducted.

On the other hand, a mandatory survey may obviate the need for face-to-face interviews. Face-to-face interviews were used in the voluntary survey for several reasons including obtaining a favorable response rate. If a survey is mandatory, a face-to-face technique may not be necessary. However, differences may exist between a mandatory and a voluntary survey, which can make the burden on the industry greater for a mandatory survey than a voluntary survey.

Factors affecting the response rate of a voluntary survey include the length of the survey and the difficulty of the questions. If a survey is viewed as overly lengthy and/or requests information that is not readily available and that may take time to uncover, the response rate is likely to suffer. The response rate from a mandatory survey may not suffer in the same fashion. Therefore, it is reasonable to expect that a voluntary survey may (at least at times) be simpler and shorter than a mandatory survey simply to get a favorable response rate. If this is the case, a mandatory survey may impose a larger burden on industry than a voluntary survey. In the worst-case scenario (one where the survey is highly burdensome), industry members may at times respond with a "protest response" or information that is of poor quality. Such protest response might be an indication of issues related to the program's costs, fairness, and equity. This can affect the ability to use the survey responses even if the response rate is high.

The collection of economic data relates to several aspects of policy guidance from the MSA, the Groundfish FMP, and Amendment 20 goals and objectives. If better data collection leads to more informed decisions relating to net benefits and efficiency, then data collection is related to MSA National Standard 5, MSA – 303A(c)(1)(B), Amendment 20 objectives 2 and 6, and potentially others. In particular, Amendment 20 objective 6 (promote measurable economic benefits) is related to data collection, because data collection allows economic benefits to be measured. Many benefits may not be measurable without the acquisition of additional economic data. If additional data collection helps in the development of sound policies that benefit the industry, then such data collection may also relate to policy guidance on sector health including Amendment 20 objectives 2 and 6, groundfish FMP goal 2, and groundfish FMP objective 7 and 15. Finally, data collection is directly related to several aspects of policy guidance on program performance monitoring and modification. MSA – 303A(c)(1)(G) calls for a regular review and monitoring of the program for progress in meeting goals.

A-2.3.3 Program Costs

A-2.3.3.a and b, Cost Recovery and Fee Structure

❖ *Provisions and Options*

Cost Recovery
►Option 1: Fees up to 3 percent of exvessel value, consistent with 303A(e) of the MSA may be assessed. Cost recovery shall be for costs of management, data collection, analysis, and enforcement activities.

Option 2: There will be full cost recovery. Cost recovery will be achieved through landing fees plus privatization of elements of the management system. In particular, privatization for monitoring of IFQ catch (e.g., industry pays for their own compliance monitors). Stock assessments will not be privatized and the electronic fish ticket system will not be privatized.

Fee Structure
To be determined. TIQC recommends a fee structure that reflects usage. A fee structure that allows for equitable sharing of observer costs for smaller vessels may be developed.

❖ *Rationale and Policy Issues*

Fees would be used to recover costs associated with management, data collection and analysis, and enforcement of the IFQ program. The limit on fees will be 3 percent of ex-vessel value, as specified in the MSA, shown below.

The MSA states in Sections 303A (e):

> (e) COST RECOVERY.—In establishing a LAPP, a Council shall—
>
> > (1) develop a methodology and the means to identify and assess the management, data collection and analysis, and enforcement programs that are directly related to and in support of the program; and
> >
> > (2) provide, under section 304(d)(2), for a program of fees paid by LAP holders that will cover the costs of management, data collection and analysis, and enforcement activities.

In Section 304(d)(2)(A) of the MSA:

> (2)(A) Notwithstanding paragraph (1), the Secretary is authorized and shall collect a fee to recover the actual costs directly related to the management, data collection, and enforcement of any—
> (i) LAPP; and
> (ii) community development quota program that allocates a percentage of the total
> allowable catch of a fishery to such program.
>
> (B) Such fee shall not exceed 3 percent of the ex-vessel value of fish harvested under any such program, and shall be collected at either the time of the landing, filing of a landing report, or sale of such fish during a fishing season or in the last quarter of the calendar year in which the fish is harvested.

The policy issues associated with cost recovery include aligning the Council's preferred alternative to be consistent with MSA by including enforcement costs as required by the MSA and adjusting the provisions of tracking and monitoring program so that the three percent fee covers the costs of management, data collection and analysis, and enforcement activities.

Preliminary cost projections are higher than the maximum fee of 3 percent of ex-vessel value of fish harvested that is allowed for direct cost recovery. Some costs, such as payment for observers, will be paid directly by industry to the observer companies. These costs would not come under the 3 percent limit. However, cost projections are preliminary and will be refined during the regulatory process that converts the Council's preferred alternative into regulation. During this period, it is also expected that there may be several public meetings. These meetings would include the affected industry to determine how costs can be reduced. These discussions would also cover the Council's recommended use of limited landings hours for shoreside processors to limit program costs. NMFS will also be meeting with the states to discuss state needs and integration of the tracking and monitoring elements of this program with existing state programs. In this depressed economy, there are state budget concerns about maintaining existing programs, let alone expending programs. State resources may need augmentation to complete status quo projects (electronic fish ticket system) and address budget needs associated with the trawl rationalization program (e.g., personnel to carry out the program implementation).

Fees collection based on "usage" and any special provisions such as "equitable sharing of observer costs for small vessels" is pending further development of tracking and monitoring cost estimates and Council discussion of these issues.

❖ *Interlinked Elements*

The interlinked elements are all the tracking and monitoring elements discussed above, as well as all elements that affect the costs of management, enforcement, or are associated with data collection and analysis. Almost all elements affect costs. These elements include permits, endorsements, IFQ and co-op allocation and transfer rules, adaptive management rules, excessive share monitoring, gear switching regulations, and regional and area management and allocation rules.

❖ *Analysis*

NMFS presented the preliminary estimates below at the November 2009 Council Meeting. (See November 2009 Briefing Book: Agenda Items G.8.B Supplemental NMFS Presentations, Lockhart and Freese.) NMFS has updated these estimates based on April 2010 Council actions. These estimates can be found in Appendix H. These estimates will be updated again during the regulatory processes that convert the Council's preferred alternative into regulation. Through these and Council processes, we expect to address public comment on how costs can be lowered. NMFS is also proposing to partially fund the costs of observers and compliance monitors for the first three years of this program. It should also be noted that there are state budget concerns regarding upholding existing programs, let alone expanding these programs, given the current state of the economy. State resources may have to be increased to establish the electronic fish ticket and logbook programs or to hire personnel for port sampling, enforcement, and other purposes.

Below are tables that show the existing tracking and monitoring system, current tracking and monitoring costs by sector, and what the costs of additional observers, and plant monitors. In addition to these costs, other state, federal, and Council costs are also listed. Total cost projections are then compared with alternative revenue estimates.

Status Quo Tracking and Monitoring Systems (see Table A-103): VMS are used by all vessels except motherships. Paper logbooks are used by all harvest sectors. Logbooks are mandatory for shoreside vessels but voluntary for the at-sea motherships and catcher-processors. PSMFC combines the state fish tickets and logbooks into a single database. This database is funded federally; states contribute personnel and other resources. Shoreside whiting trawlers are monitored with cameras. The industry pays for the cameras, and NMFS pays for review and analysis of the resulting video. Observer coverage in the nonwhiting fishery is approximately 25 percent, which is funded by NMFS, while the at-sea motherships and catcher-processors use hired observers from a private company. Shoreside whiting plants also pay a private company for compliance monitors. The equipment, training, data collection, and analysis associated with these observers and monitors are paid for by NMFS. Electronic fish tickets are now used in the shoreside whiting fishery.

Table A-103. Status quo observer coverage and monitoring for all sectors.

Status Quo	Shorebased Nonwhiting Trawl	Shorebased Whiting Trawl	At-Sea Mothership Trawl	At-Sea Mothership processor	At-Sea Catcher-Processor
VMX	X	X	X		X
Logbooks	X	X	X	X	X
Cameras		X			
Observers	25% WCOP		0	2	2
Compliance Monitors		100%			
Fish Tickets	X	X			
Electronic Fish Tickets		X			

The Council's preferred alternative would result in the following:

- Increase the observer coverage to 100 percent in the shore based nonwhiting trawl fleet.
- Replace the cameras used in shore based whiting trawl sector with 100 percent observer coverage.
- Expand the whiting compliance monitor program to 100 percent coverage of the shore based nonwhiting trawl program.
- Institute 100 percent coverage to the at-sea mothership trawl fleet.

In comparison to status quo management, rationalization will require increases in NOAA Fisheries' Northwest Region, NOAA General Counsel, Northwest Fisheries Science Center, and the Northwest/Southwest Offices of Law Enforcement staff. State fisheries management and enforcement staff will also have to be increased. Additional equipment, training, and information technology resources (hardware and software) will also needed by both state and federal agencies. The Council will also incur additional costs in the early years of the program.

Listed below are examples of anticipated additions to state and federal staff levels due to rationalization:

- Staff for cost recovery, permitting and, quota tracking and appeals processes
- Staff and contracting for performance monitoring including mandatory economic data collection
- Observers, debriefers, and, port samplers
- Law enforcement officers, technicians, equipment, and training
- Lawyers, policy analysts, and regulation writers to adopt federal and state regulations in support of the program and address enforcement issues
- IT resources (FTEs, hardware, and software) to support electronic reporting (logbooks, fish tickets, observers, compliance monitoring, etc.)
- State and Federal outreach

Based on the preferred alternative, NMFS has developed the following preliminary estimates of potential costs.

Implementation Costs (One-time costs to develop the tracking and monitoring programs.)

State management and enforcement $300,000 to $500,000 per state
NMFS management and enforcement $2.1 million
NMFS (NWFSC) Observer Program and
Economics Data Collection Programs $3.150 million

Total: Approximately $6.5 million

Annual Costs (State, Council, and federal costs associated with running the Program when fully implemented.)

State management and enforcement$750,000 to $1.5 million per state
NMFS management and enforcement $1.7 million
NMFS (NWFSC) Observer Program and
Economics Data Collection Programs$3.15 million

Total: Approximately $8 million

Direct Observer and Monitoring Costs (Daily costs associated with hiring observers and plant monitors.)

Shoreside nonhake trawl fishery$3.5 million
Mothership Processors$243,000
Mothership Catcher Vessels$253,000 to $362,000
Catcher-Processor$415,000
Shoreplant Compliance Monitors non hake$950,000
Shoreplant Compliance Monitors hake$300,000

Total: Approximately $5.7 million

Total Annual Costs and Direct Observer and Monitoring $14 million

These costs are preliminary, and the direct observer and monitoring costs depend heavily on operational decisions by industry (both fishing vessels and processors) to reduce costs. In addition, it is impossible to predict how much consolidation will occur, especially in the initial years of program implementation. For these reasons, this analysis makes broad assumptions about industry behavior to frame the range of costs. At one extreme, annual observer costs could rise to $18 million if a 100-vessel fleet needed observers 365 days a year at a cost of $500 per day. The industry could reduce costs by imposing voluntary limits on the number of vessels that can be at sea at any one time or agreeing to share observer coverage between multiple vessels. These and other costs could decline as the number of participating vessels decline, when the fleet consolidates because of the program. A quantitative analysis (Lian *et al*., 2008) indicates an expectation that there will be a fleet of 50 to 60 vessels of a size of 60 to 70 feet after rationalization. If this were to happen, one would expect the costs to be significantly lower and approximately half of the estimated costs for the current fleet.

Table A-104 below shows harvest, revenue, and price dimensions of the fishery. The 2007 fishery earned $57 million in ex-vessel revenues with the nonwhiting groundfish components earning $27 million while the whiting components earned $30 million. Between 2004 and 2007, there were

rising whiting and fuel prices. In 2008, these fisheries earned approximately $90 million in ex-vessel revenues mainly based on the size of the whiting quota and continued high prices for whiting. The total estimated annual cost of the Trawl Rationalization Program, including the direct observer and monitoring costs, is estimated to be $14 million. These costs can be addressed by a combination of industry fees, congressional appropriations, or state/federal reprogramming of existing resources. Additionally, as has been stated, these cost estimates can be reduced via industry adoption of operational changes to lower cost tracking and monitoring alternatives.

Table A-104. Economic comparison of 2004 and 2007 revenues.

Economic Comparison		2004	2007
Harvests Metric Tons			
Total Non-Tribal Whiting		191,793	180,056
Total Nonwhiting Groundfish		17,238	22,253
Total Groundfish including Whiting Tons		209,031	202,309
Ex-vessel Revenues Million $			
Total Non-Tribal Whiting		$26.1	$29.7
Total Nonwhiting Groundfish		$16.2	$27.2
Total Groundfish including Whiting Tons		$42.3	$56.9
Ex-Vessel Prices			
Ex-Vessel Price Whiting		0.046	0.075
Ex-Vessel Price All flatfish	$/lb	0.425	0.43
Ex-Vessel Price Thornyhead Compl.	$/lb	0.609	0.627
H&G Whiting Export Price	$/lb	0.55	0.75
Marine Diesel Fuel Costs Newport, Oregon, June	$/gal	1.65	2.5

Regardless of how these costs are addressed, it is likely that the industry will be paying the maximum recovery fee of 3 percent. (NMFS will discuss fee collection processes with the Council and industry when it undertakes cost-recovery rule-making.) All industry borne compliance costs would be expected to reduce the value of QS prices by corresponding amounts. For those having to buy into the fishery, higher compliance costs would be expected to reduce what they have to pay for QS.

However, for perspective, according to the Council's SSC review of the Lian Analysis (this analysis included an estimate of $350 per day observer costs.) (See: http://www.pcouncil.org/bb/2008/0608/F6d_SUP_SSC_0608.pdf), the following is noted:

The TIQAT (Trawl Individual Quota Analytical Team) used a fleet consolidation model to estimate the size and profitability of the groundfish trawl fleet that may result from the TIQ program....

A standard econometric methodology was used to estimate the economic efficiency of individual trawl vessels based on vessel cost and earnings data collected for 2003 and 2004 by the Northwest Fisheries Science Center (NWFSC). Results from the analysis, based on 2004 costs and harvests, indicated considerable consolidation, with the fleet being reduced to 40 to 60 vessels and with cost savings in the range of $18 to 22 million. The cost savings would arise from a shift in fleet composition to vessels with lower costs, which were estimated to fall in the 50- to 60-foot size range, and a reduction in fixed costs due to the operation of a smaller fleet.

Nonwhiting Trawl (Table A-105***):*** According to the Lian-Weninger analysis (Lian, *et al.* 2008), there were 117 vessels operating in the nonwhiting trawl fishery, taking 2,699 trips in 2004. Based on average of three days per trip, these vessels operated just over 8,000 days. Based on observer cost estimates used in NMFS's Alaska Region and Northwest Region analyses of $350 per day, 100 percent

observer coverage would require the industry to pay approximately $2.8 million in observer costs. If, in addition to observers, cameras were also required, industry costs would be about $700,000 based on the industry estimate of $6,000 per camera per vessel. It is not known how many vessels already have the proper scales that may cost in the neighborhood of $5,000 to $10,000 each. Processors would have to pay plant monitors to monitor the landings from the 2,699 trips. Assuming that each trip requires one day of plant monitoring, the costs to the processors will be approximately $945,000 for 100 percent monitoring. Currently, vessels and processors do not have observer and monitoring coverage, so the status quo estimate is zero. The costs of observers and plant monitors are estimated to be approximately $3.8 million. Note that there will be operational costs to both the plants and vessels as they adjust their operations to account for the observers and monitors. There are no available estimates of these adjustment costs. If, in addition to observers, vessels also are required to carry cameras, this option raises the estimated cost of monitoring to approximately $4.5 million.

Table A-105. Nonwhiting trawl sector observation and monitoring costs at sea and shoreside.

Nonwhiting Trawl				
Catcher Vessels	**Current**			
Number	117			
Trips	2,699			
Days per trip	3			
Observer days	8,097			
Observer variable cost per day	$350			
Observer cost		$2,833,950		
Camera unit cost	$6,000			
Camera cost	$702,000	$702,000		
Additional equipment costs	Discard option may require vessels to have motion-compensating scales			
Processors				
Number	29			
Trips	2,699			
Number of trips per day	1			
Operating days	2,699			
Number of monitors	1			
Monitor variable cost	$350			
Total monitor variable cost		$944,650		
Status Quo			**0**	
T&M Alternative 1 Observers and Monitors			**$3,778,600**	
T&M Alternative 2 Observers, Monitors, and Cameras			**$4,480,600**	

Shoreside Whiting (Table A-106***):*** Based on recent participation rates, a whiting fishery prosecuted by 30 vessels with a season length of 60 days leads to 1,800 observer days at an industry cost of $630,000. The current camera costs are $180,000, and the current processor monitoring costs are about $294,000 for a combined status quo cost of $474,000. If cameras are replaced with observers, the costs rise to $924,000; if cameras are used to supplement observers, the costs rise to $1.1 million. These cost estimates will be updated based on information on the 2008 fishery, the first year in which plant monitors were employed in this fishery. It is unknown if these vessels will have to purchase scales, and the operational adjustment costs of these vessels to the use of observers are also unknown.

Table A-106. Shoreside whiting trawl sector observation and monitoring costs at sea and shoreside.

Shorebased Whiting				
Catcher Vessels	**Current**			
Number	30			
Season length	60			
Observer days	1,800			
Observer variable cost per day	$350			
Observer cost		$630,000		
Camera unit cost	$6,000			
Camera cost	$180,000	$180,000		
Additional equipment costs	???			
Processors				
Number	14			
Season length	60			
Operating days	840			
Monitoring cost per day	$350			
Total monitor variable cost		$294,000		
Status Quo			**$474,000**	
T&M Alternative 1 Observers and Monitors			**$924,000**	
T&M Alternative 2 Observers, Monitors, and Cameras			**$1,104,000**	

Mothership Whiting (Table A-107***)***: This analysis follows a similar approach to the shoreside whiting analysis above. Under status quo, mothership processors are required to carry two observers, and the catcher vessels have no direct monitoring; therefore, the costs are about $250,000. Adding observers to the catcher vessels increases the costs to $672,000, and adding observers and cameras further increase costs to $828,000.

Table A-107. Mothership sector observation and monitoring costs.

Mothership Whiting				
Catcher Vessels	**Current**			
Number	20			
Season length	60			
Observer days	1,200			
Observer variable cost per day	$350			
Observer cost		$420,000		
Camera unit cost	$6,000			
Camera cost		$120,000		
Processors				
Number	6			
Season length	60			
Operating days	360			
Number observers	2			
Observer cost per day (1)	$350			
Total Monitor variable cost		$252,000		
Camera unit cost	$6,000			
Camera cost		$36,000		
Status Quo			**$252,000**	
T&M Alternative 1 Observers Catcher Vessels and Processors			**$672,000**	
T&M Alternative 2 Observers, Monitors, and Cameras			**$828,000**	

Catcher-processor Whiting (Table A-108***):*** Unless cameras are required, there would be no change to industry costs of tracking and monitoring because catcher-processors already carry two observers. If cameras are also required, industry costs would rise from $378,000 to $432,000.

Table A-108. Catcher-vessel sector observation and monitoring costs.

Catcher-Processor Whiting				
Processors				
Number	9			
Season length	60			
Operating days	540			
Number observers	2			
Observer cost per day (1)	$350			
Total Monitor variable cost		$378,000		
Camera unit cost	$6,000			
Camera cost		$54,000		
Status Quo			**$378,000**	
T&M Alternative 1 Observers			**$378,000**	
T&M Alternative 2 Observers and Cameras			**$432,000**	

State and Federal agency costs for program enforcement, data collection and analysis, and administration are outlined in the following paragraph and in Chapter 4. The costs in Table A-109 on the following page are 'incremental' costs of the IFQ program compared to the status quo. The shift from dockside enforcement to enforcement through auditing-reported data as a result of IFQ was discussed by the Enforcement Committee. With the presence of 100 percent observation and monitoring on vessels, the need for dockside enforcement is greatly reduced, and restricted landing hours may not be crucial for cost reduction purposes. Consequently, state/Federal enforcement estimates ranged from no additional costs above the status quo to $500,000. Camera program costs are based on scaling up the costs NMFS is currently incurring for the whiting EMS camera program and scaling up to the entire trawl sector. Estimates of the At-Sea Observer Program are based on scaling up the estimated current costs of managing the trawl portion of the West Coast Observer Program to 100 percent of the fleet. The $3 million estimate for scaling up the observer program includes the costs of administration, observer training, and program infrastructure. It does not include the observer services. Data quality assurance would result from the periodic substitution of industry-paid-for observers with those paid by NMFS. The catch monitoring program cost estimate is based on the scaling up of the current costs of catch monitoring in the current shoreside whiting fishery. [These estimates will be updated based on analysis of the 2008 season, the first year catch monitors were employed in the whiting fishery.]

The IFQ/Co-op Permits, Quota Program estimate is based on doubling the current size of the NMFS NWR Permit Staff (supervisor, computer specialist, permits specialist, and permits assistant) plus one staff person devoted to the cost-recovery process. The appeals costs were based on requiring the services of a lawyer and a paralegal. It is expected that the PSMFC will continue working with the states, NMFS, and industry in developing electronic fish ticket and logbook reporting. There will be costs in the collection of data to monitor the performance of the fishery and developing various reports. In sum, these estimated costs total $5.2 million.

Table A-109. Program enforcement, data collection and analysis, and administration estimated costs.

	Total Costs	
State/Fed Enforcement	$500,000	Incremental cost – 4 staff support, 1 uniform officer **could be $0
Camera Program	$500,000	Tape review and analysis
At-Sea Observer Program	$3,000,000	Scale up current observer programs to 100% and data quality assurance
Catch Monitor Program	$300,000	Monitor, computer specialist, training and equipment, logistical
ITQ/Coop Permits and Quota Program	$500,000	Permits staff plus cost-recovery specialist
Appeals/GCF/GCF	$200,000	Lawyers and para-legal
E-Reporting Support	$100,000	Working with industry/states
Performance monitoring data collection and reporting	$100,000	Collect data and draft reports
TOTAL	**$5,200,000**	

To provide an economic comparison, Table A-110 below shows current harvest, revenue, and price dimensions of the fishery. It shows the recent variation in landings, revenues, ex-vessel prices, fuel prices, and wholesale whiting prices. The 2007 fishery generated $57 million, approximately $27 million of which was associated with nonwhiting groundfish, and $30 million of which was generated by the whiting fishery. Over the 2004 to 2007 period, the whiting fishery experienced a significant increase in prices, while all sectors experienced rising fuel costs.

To provide a summary of the comparison of costs to revenues,

Table A-110 below compares the status quo to costs of a trawl rationalization program that requires 100 percent observer coverage for all trawl sectors and 100 percent monitoring coverage in shoreside plants (T and M Alternative 1), as well as costs if cameras are also used to supplement observers (T and M Alternative 2). Again, the costs of observers are divided between government and industry, with government requiring about $3 million for administration, observer training, and program infrastructure and industry paying for observer services. The largest increase in industry costs occurs in the nonwhiting fishery with change in costs of $3.8 million over the status quo. This change is due to the fact that the industry currently neither pays for the 25 percent observer coverage, nor is it required to have plant monitors. Program management costs under T and M Alternative 1 are about $4.7 million. The total costs of T and M Alternative 1 are about $10.5 million. However, funds currently received by NWFSC for observing the trawl sector would continue to be used, thus reducing the total new costs related to the program to $8.2 million. If ex-vessel revenues in the fishery were $57 million, then the total costs of management would be about 14 percent. The industry would pay $10.5 million directly to contractors to obtain the services of observers and plant monitors required by the program. This would leave 4 percent needed to cover Federal government management costs, which is higher than the maximum fee level of 3 percent. Therefore, in developing this program, such aspects as limited landing hours have to be explored to see if program costs can be reduced enough to match up with the 3 percent maximum cost recovery level.

However, as the fishery adjusts to the IFQ and co-op programs, it is expected that costs will be reduced, because consolidation will create fewer, more-productive vessels earning greater revenue by catching more target species. If industry costs are reduced 25 percent, and revenues are increased by $20 million, then the resulting program costs fall to 3 percent. If program costs also fall, then possibly the cost recovery fee will fall below 3 percent.

The revenue estimate includes estimates of ex-vessel revenues associated with the whiting fishery. In 2007, the catcher-processor sector accounted for about 40 percent of the fish landed or about $12 million. If the catcher-process cooperative is not a LAPP then the cost recovery fee would not apply. The 2007 industry revenue estimate would have to be adjusted to $45 million. The program cost ($2.4 million after the offset) to industry revenues ($45 million) percentage is about 5 percent. After the projected industry adjustment to IFQs, the program costs would be 3.5 percent of industry revenues ($68 million).

Fees collected from industry to cover program costs will reduce the value of the QS initially allocated and the price at which QS and QP is traded by an amount that reflects the additional costs of participation in the program.

Table A-110. Summary comparison of tracking and monitoring costs.*

Summary Totals (Millions $)	Status Quo	T&M Alt 1	T&M Alt 2	Change from Status Quo T&M Alt 1 - Status Quo
Non-Whiting Trawl	-	3.8	4.5	3.8
Shoreside Whiting	0.5	0.9	1.1	0.4
Mothership Whiting	0.3	0.7	0.8	0.4
Catcher Processor	0.4	0.4	0.4	-
Program(s) Management	2.3	4.7	5.2	2.4
Grand Total	3.5	10.5	12.0	
NWFSC Observer Program Offset	2.3	2.3	2.3	
Net Grand Total	1.2	8.2	9.7	7.0
Ex-vessel Revenue Millions $	57	57	57	
% Net Grand Total		14%	17%	
% Direct Payments by Industry		10%	12%	
% Program Management		4%	5%	
Assume: IFQs reduce costs by 25% because it leads to few more productive vessels				
Assume: IFQs lead to $20 million in nonwhiting revenues as educed bycatch allows greater target catch				
Adjusted Costs		6.15	7.28	
Adjusted Revenues		77	77	
% Net Grand Total		8%	9%	
% Direct		6%	7%	
% Program Management		3%	4%	

* These values are provided for the purpose of providing an initial estimate of the magnitude of the impacts for the environmental impact assessment. The RIR/IRFA produced in conjunction with publication of the propose rule provides more refined estimates and an assessment of impacts on the fishing industry.

A-2.3.4 Program Duration and Modification

❖ Provisions and Options

Preliminary Preferred Language: Four-year review process to start four years after implementation. Community advisory committee to review IFQ program performance.

► **Final Preferred Language:** The Council shall begin a review of the IFQ program no later than five years after implementation of the program. The review will evaluate the progress the IFQ program has made in achieving the goal and objectives of Amendment 20. The result of this evaluation could include dissolution of the program, revocation of all or part of QSs, or other fundamental changes to the program. Holders of QSs should remain cognizant of this fact when making decisions regarding their QSs, including buying selling, and leasing of these shares.

The Council shall consider the use of an auction or other nonhistory based methods when distributing QS that may become available after initial allocation. This may include quota created when a stock transitions from overfished to nonoverfished status, quota not used by the AMP, quota forfeited to "use it or lose it" provisions, and any quota that becomes available as a result of the initial or subsequent reviews of the program.

The specific form of the auction or other method of distribution shall be designed to achieve the goals of Amendment 20, specifically including minimizing the adverse effects from an IFQ program on fishing communities to the extent practical.

After the initial review, there will be a review process every four years. A community advisory committee will take part in the review of IFQ program performance.

❖ Rationale and Policy Issues

Within five years of implementation, a quadrennial review cycle would begin. The four-year review is more frequent than that required by Section 303A(c)(1)(g) of the act. The act only requires that the review occur within five years of implementation and thereafter in conjunction with the Council's scheduled review of the groundfish FMP, but not less frequently than once every seven years. The Council wanted to ensure regular review but, for workload management purposes, to time the review around its biennial management cycles.

A community advisory committee would review IFQ program performance. At its November 2005 meeting, this provision was added when the Council considered provisions to ensure full consideration of community concerns.

Options were considered to provide a sunset provision for the program as a whole. Early on, the Council rejected the automatic program sunset provision because of the uncertainty it would introduce into the program and the mandated need it would create to reenter an extensive and controversial process when there might not be a need to do so. The program performance review process is expected to ensure adequate consideration regarding whether the program is meeting its objectives and the appropriateness of its continuation.

A closely related issue is whether the terms of the QS should be limited. The MSA mandates such a provision with a term of no more than 10 years, but specifies it in such a way that the term is effectively limited only for those who violate the program. The Council has not identified any specific acts in this program that would be the cause for QS revocation (Section 303A (f)) and has not specifically identified

a limit on the term of the QS. The MSA type of fixed term for QS is discussed in this section in the context of a discussion of provisions for program modification and the limited nature of the QS privileges issued. In Section A-6, the Council considers an approach for fixed term QS under which QS owners might lose some of their QS even if they have not violated the program. This provision is considered in combination with an auction. The provisions, analysis and the rationale for the Council's decision not to include the option are provided in Section A-6.

❖ Interlinked Elements

This provision could be modified by the fixed term option included in Section A-6 and analyzed in Appendix F. However, the Council chose not to recommend the fixed term and auction option analyzed in Section A-6. The Council did include consideration of a sunset and auctions as part of the quadrennial program review.

❖ Analysis

The following are the categories of goals and objectives affected by the decisions on program duration and modification.

Section	Related Category of Goals and Objectives										
	Conservation	Net Benefits	Disruption	Excessive Shares	Fairness and Equity	Harvester and Processor Sector Health	Labor	Communities	Small Entities and New Entrants	General Public	Program Performance
Schedule for Program Review											X
Program Modification		X	X			X					
Auction										X	

Schedule for Program Review

The Council's current schedule requires more frequent review than that required by the MSA. It entails higher administrative costs than one that is less frequent. By timing the review process to occur every four years, the Council can set the review up to coincide with either the on-year or the off-year for the biennial groundfish specifications process. Depending on the degree of work entailed and modifications to be considered, reviewing the program at the same time the biennial specifications are developed could be more efficient or could create untenable workloads. The specification of a flexible review period could provide the Council with an opportunity to better prioritize and manage its workload.

Program Modification

The IFQ program may be modified at any time through Council action. QS do not constitute a property right. An IFQ program does not change the resources public ownership status. It is a public resource managed by the government as a public trust. Under the current management system, the government

manages the resource to the public benefit by controlling catch (directly or indirectly) and allowing catch taken under the management rules to be converted to private property sometime between when it is caught and when it is sold to a fish buyer. IFQs are an alternative way for the government to control and organize harvest activity. IFQs do so by creating a catch privilege. A catch privilege is different from ownership of the resource. The following MSA language pertains to the limits on this catch privilege:

> Sec. 303A(b) NO CREATION OF RIGHT, TITLE OR INTEREST.—LAP, QS, or other limited access system authorization established, implemented or managed under this Act—
>
> (1) shall be considered a permit for the purposes of sections 307, 308, and 309;
>
> (2) may be revoked, limited or modified at any time in accordance with this Act, including revocation if the system is found to have jeopardized the sustainability of the stock or the safety of fishermen;
>
> (3) shall not confer any right of compensation to the holder of such LAP, QS, or other such limited access system authorization if its revoked, limited or modified;
>
> (4) shall not create, or be construed to create, any right, title, or interest in or to any fish before the fish is harvested by the holder; and
>
> (5) shall be considered a grant of permission to the holder of the LAP or QS to engage in activities permitted by such LAP or QS.

> Sec. 303(d)(3) "An individual fishing quota...
>
> (B) May be revoked or limited at any time in accordance with the MSA.
>
> (C) Shall not infer any right of compensation to the holder of such individual fishing quota, if it is revoked or limited.

The MSA requires that QS be set with specific fixed terms. However, the MSA specifies that QS must be automatically renewed at the end of those terms, unless an individual has violated the program or the program has been modified. This effectively makes the MSA mandated fixed term more like an unlimited or indefinite term with the possibility of modification or termination, but not on any particular schedule.

The explicit statement that the program may be modified has an indirect effect on all objectives as it makes clear that the privileges conferred by the IFQ program are not open-ended. If it becomes apparent that conditions in the fishery could be improved by the modification or termination of this program, there would no doubt be objections by some based on capital expenditures in expectation that the program was expected to continue unchanged, the disruptive effects of those changes, and related fairness and equity arguments. While this provision will not end or eliminate these arguments, the explicit advance notice should reduce the amount of disruption that occurs if a change is made (to the extent that people take the possibility of change into account when making investments) and reduce the weight of such arguments against changes.

While the specification of IFQ as harvest privileges that may be changed to the point of revocation introduces some uncertainty into the system, private markets are generally able operate effectively under such circumstances. Industries often rely on key inputs for which they do not secure long-term rights of access. For example, airlines rely on fuel as a key input, but most do not try to secure their access to fuel through ownership of oil companies. If they believe it necessary, there are other ways they can mitigate risk due to changing fuel costs (e.g., futures trading). In fisheries, changing resource conditions always create uncertainty about future harvest opportunity. While industry members cannot necessarily plan on continuation of their QS privileges, it is highly likely that some form of access to the fishery will be provided, to the degree that conservation objectives allow. Thus, it is unlikely that, even with

termination of the IFQ program, a firm necessarily would totally lose access to the resource. A firm's ability to secure tenure over a key input is a form of vertical integration. Such vertical integration can contribute to a firm's profitability, increase efficiency, and improve net benefits (see discussion of vertical integration in Appendix E). Whether the IFQ program might generate more net benefits if the QS were issued with no statement about their limited tenure depends on the extent to which people take the possibility of change into account and modify their investments. If a greater possibility of change is taken into account, there may be some reduction in private efficiency gains. The effect on net benefits also depends on whether losses occur as a result of not clearly preserving the opportunity to make changes to the program, i.e. a loss could occur if failure to explicitly identify the limits on QS tenure creates opposition to change that cannot be overcome despite identification of some socially and/or economically desirable improvements that might result from the change.

In summary, explicitly maintaining limited tenure (as mandated by Congress) creates some uncertainty that may have some negative effect on industry efficiency, but makes it more likely and less costly to implement program changes that may increase net social and economic benefits. No limit on tenure might create more efficiency but there would be less opportunity for program change, and change would be more costly. Finally, limited tenure over some key input is something that almost every sector of most industries deals with to some degree. At issue here is the government specification of limited tenure as a quality of the asset that is to be created.

While this section addresses in general the possibility that the IFQ program may be modified and, thus, the terms of the QS issued may be limited, Section A-6 and Appendix F present and analyze an option that would explicitly limit the duration of the terms of the IFQ program and provide for an auction of shares returned to the government. The effect of a fixed term of this type, accompanied by certain revocation and an auction, would be different than the type of fixed term mandated by the MSA (described above).

- Auction Provisions

This provision gives notice of the Council's intent to consider implementing an auction if QS become available that have to be redistributed. The public, industry, and in particular those who acquire QS should be aware that the program could be changed at any time and an auction implemented, after going through the appropriate process for amending the FMP. If the Council considers such an auction, a full regulatory amendment and rule making process would accompany that decision. That process would include a complete analysis of the specific proposal and an opportunity for public comment. Auctions are a way to secure for the public royalties representing a portion of the resource rents that would otherwise be received by the sellers of QS.[128] Other impacts would depend on the source of the QS for the auction and other specifics of the proposal. An analysis of one auction proposal is provided in Appendix F to this document.

[128] QS owners who purchase QS may or may not gain rents when they sell the QS but rather, under stable price and resource conditions, may recover their original investment plus some normal level of return. If resource abundance levels or prices change, they may lose or gain relative to their original investment when selling the QS, depending on the effect of those changes on profitability in the industry.

A-2.4Additional Measures for Processors (All Options – Not Adopted)

❖ Provisions and Options

No options from this section were included as part of the preferred alternative.

Option 1: Any QS received for processing history as part of the initial allocation will expire after a certain period of time (to be determined prior to final Council action). At that time all remaining QS will be adjusted proportionally so that the total is 100 percent.
Option 2: The accumulation limit grandfather clause of Section A-2.2.3.e will not apply for processing history. Regardless of the percent of the total QS designated for processors, processing history will not entitle a person to receive QS in excess of the accumulation limits.
Option 3: The Adaptive Management allocation and process (Section A-3) will be used to compensate processors for demonstrated harm by providing QP to be directed in a fashion that increases benefits for affected processors.

❖ Rationale and Options Considered but not Analyzed Further

Note: In this section and for these options the impacts of the not having a grandfather clause provision assume that there is not an opportunity for divestiture. Under divestiture entities that according to the allocation formulas would receive QS in excess of accumulation limits are allowed to receive and sell such QS within a specified time. Without a divestiture provision QS not allocated because of accumulation limits would be redistributed among other the QS recipients in proportion to the QS they received.

These options were considered as possible ways to address processor concerns short of a full allocation of QS to processors. In Section A-2.1.1.c, we focused on reasons for allocating or not allocating to all groups. The focus of this section is on measures that might be adopted in addition to, or in lieu of, an allocation to processors. In the spring of 2007, we compiled and received public comment on a list of the reasons provided for allocating and not allocating to processors. A summary of that compilation is provided here.

Reasons to Allocate to Processors	Reasons Given for Not Allocating to Processors
Compensate for stranded capital.	Stranded capital will not occur for processors. Long-term compensation should not be given for a short-term problem.
Processors are fishery participants that are invested and dependent on the fishery (303A) and have contributed to the development of the fishery.	National Standard 4 says allocations, when necessary, should be to "fishermen." No precedence for allocating IFQ to processors.
Keep balance of market power and flow of product to existing plants.	Will create a market power imbalance.
Facilitate communication and coordination of fishing activity between plants and vessels, including management of total harvest, bycatch, and participation among co-ops.	Such communication and coordination occurs under status quo and processors do not need an initial allocation to continue. If processors do not receive an initial allocation they can still participate in co-ops by acquiring QS in the market place.
There is a conservation benefit whether you give QS to permit holders or processors.	Degrades conservation benefit.
Maintain diversity and competition in the processing sector.	The processing sector will be consolidated and new entry will become more difficult.
Processor buy-in is needed to move the program forward.	Consolidation among permit holders not associated with processors will increase.
	An allocation to processors does not take into account the permit owner's obligation to repay loans from the buyback program. Those loans bought up permits representing nearly 50 percent of the fleet's landing history.

The following option was considered but rejected from the list of possibly additional measures related to processors:

> As needed, a fee will be established to provide financial compensation to processors for demonstrated harm. A process will be established for the demonstration of harm.

Establishing the fee and using it to provide direct financial compensation would require congressional action.

The Council adopted none of the options provided in this section. Rationale for its action on each of these options is provided below. Rationale for the Council's decision on the amount of QS it would allocate to processors is provided in Sections 2.8.7 and A-2.1.1.a.

Limited Duration QS. Option 1 would provide processors with QS for a limited period. Under the Amendment 6 program, limited duration permits ("B" permits) were issued to provide an adjustment period for those to whom "A" permits were not granted. One reason that limited duration QS might be considered would be if the primary rationale for granting QS to processors were the concern that QS holders may capture a portion of processor profits. This may be a possibility if processors are overcapitalized, the processing side of the market is structured competitively, and QS holders are able to exert market power. The period might be set such that it is believed excess processing capital will have left the fishery when the QS expire or that any processors who had taken out loans to finance their investment would be able to pay that investment back. Holding QS for that period would provide leverage in the market place while the QS is active.

As explained in Section 2.8.7, the strongest argument that IFQs would create excess processing capital applied to the shoreside whiting sector. For the nonwhiting sector, no QS was provided; therefore, this provision could not be applied. For the whiting sector, harvesters and processors reached a compromise agreement in which processors would receive 20 percent of the whiting QS and no QS for bycatch species. Given the compromise reached by the parties, the Council did not consider limitations on the duration of the QS issued.

No Grandfather Clause. Option 2 would place caps on the amount of QS a processor receives at the time of initial allocation. It is relevant only if the Council adopts a grandfather clause as part of the accumulation limit option. This option might be adopted to pursue at least two different ends:

(1) To provide another balance the Council could strike in trying to establish the appropriate distribution of QS between processors and harvesters
(2) To alter the balance of program impacts between small and large processors (independent of issues related to the harvester/buyer split of the initial allocation)

If a grandfather clause had been included in the program, this option would provide more QS to smaller processors and less to larger processors and would not affect the split between harvesters and processors (assuming that the intent of the option is to preserve the split of QS between harvesters and processors established in section A.2.1.1.a, e.g., a 75/25 split). [129] Part of the rationale for a grandfather clause for harvesters is that they must have QP to operate, and a grandfather clause allows them to achieve certain historic scales of operation. Processors do not need the grandfather clause to preserve their historic scale of operation because they do not have to hold QP to buy groundfish. The grandfather clause might

[129] An alternative interpretation of this option could be that any QS that is not issued to a processor because it exceeds the accumulation limit would be distributed as part of the initial allocation to QS holders.

be needed to provide for historic scale of operations with respect to processor owned permits; however, this option is phrased such that QS allocations issued for processor owned permits would still be grandfathered in.

This provision was rejected when the decision was made that no grandfather provision would be provided for any QS recipient.

Adaptive Management. Option 3, like Option 1, is focused primarily on the issue of compensation for harm to processors. Option 3 would establish that it is the Council's specific intent to use the AMP to compensate processors for harm. Under this option, no special action would be taken to benefit processors until after such harm has been identified. At that time, the Council would have to decide if the holdback program would be used to benefit all processors, a certain class of processors, or just those specific entities that demonstrate they have been harmed by the program.

The Council's final action on the adaptive management essentially includes this option as a possible purpose for using the QP provided for adaptive management (Section A-3). The specific related objective included in the program is "Processor Stability." While processor stability does not necessarily imply some form of direct compensation for loss, to the degree that it is necessary to use adaptive management QP for this purpose, there may be some benefit to processors that have experienced harm.

❖ Interlinked Elements

Depending on the rationale for considering these options, each of these may be linked with the decision on the amount of QS allocation to give buyers (processors) as part of the initial allocation (Section A-2.1.1.c).

Options 1 and 2 are interlinked with the accumulation limit decision on whether to include a grandfather clause. Option 2 only makes sense if such a clause is provided in Section A-2.2.3.e. Option 1, in particular, would require some additional considerations with respect to specification of the grandfather clause. Specifically, when the QS issued to processors expires, and the result is that all other QS increase proportionally, are those who control QS allowed to keep the additional QS they receive that is in excess of the accumulation limits? If there is a vessel grandfather clause, will the grandfathered levels for vessels be increased?

Under a previous version of the AMP (Section A-3), Option 3 of this section would have applied to relatively few processors if it was adopted in conjunction with Option 5 of Section A-2.1.1.a (Option 5 allocated to processors and specifies a set-aside for the AMP). The previous version of the AMP specified that, if the Council were to allocate QS to processors (adopt Option 5 in Section A-2.1.1.a), those processors who receive an initial allocation would not be eligible to receive QP issued through the AMP. Option 3 of this section allocates only to those processors able to demonstrate harm. Presumably, in order to demonstrate harm from an IFQ Program, the processor would have to exist at time of program implementation. Since if there were an allocation to processors most processors would receive an initial allocation, the only processors eligible for QS under Option 3 would be those that had entered the program relatively recently (i.e., after 2003) or are preexisting, but did not meet the recent participation criteria of Section A-2.1.2.

❖ Analysis

These options impact goals and objectives related to net benefits and efficiency, disruption, excessive shares, fairness and equity, and sector health. The impacts will be reviewed here in the context of the effect of the options on processors and harvesters. There may be some indirect impacts to communities

and labor related to the amount and duration of the QS issued to processors or the distribution of QP under adaptive management. These impacts are discussed in Section A.2.1.1.a and A-3. Whether communities benefit more by a provision that benefits harvesters or one that provides more benefits to processors depends in part on the degree to which each of these entities tends to be tied to communities.

Limited Duration QS (Option 1)

Impacts on Processors

One of the rationales for allocation to processors is that during the post-implementation transition period, those who hold QS will be able to capture profits from the harvesters or processors that would otherwise go to a return on investment and possibly repayment of debt. In Section A-2.1.1-a, we identified that the opportunity for QS holders to capture such profits would be limited to the time and the sectors for which overcapitalization exists. If, prior to implementation of the IFQ program, processors competed for vessel deliveries primarily on the basis of the prices offered, then under IFQs, processor profits should not vary substantially from what is observed under status quo. If, under status quo, processors competed for deliveries at least partially based on their ability to handle product volume during an Olympic fishery, then profits that might otherwise go to return on investment might be captured by QS holders under an IFQ program. That ability to capture such profits should be limited to the period during which overcapitalization remains in the sector. Thus, whether this measure would address the concern about capture of processor profits by QS holders would depend on when QS issued to processors are set to expire, the time over which the processors capture adequate return on capital, and the time required to repay debt on the capital investment.

With respect to the difference between capturing adequate return and paying off debt, adequate return is that return needed to compensate the owners of capital for their investment, and it should be comparable to the return for investments of similar levels of risk in other sectors of the economy. When such compensation is not available, it discourages future investments in the sector. Adequate return should be taken into account, whether the capital investment is financed through the firm's own assets (e.g., cash on hand) or through a bank loan. The period required to cover debt is an important consideration with respect to the effect of the IFQ program on financial stress and potential bankruptcies. Banks generally require that most fishery-specific equipment investments be paid off within 5 to 10 years.

Another reason for providing QS to processors is to affect the balance of market power in the fishery. Those initially receiving QS will receive resource rents and be in a better position to thwart an attempt by those on the opposite side of the market to exert market power. If processors are given QS over concern about harvesters' ability to exert market power, limiting the duration of the QS will cut short the achievement of this objective. It would provide processors with a grace period during which they might move to a better position to maintain their profits (assuming that harvesters would otherwise exert market power) and that period could provide an opportunity for them to acquire QS from harvesters (QS that will not expire). Under this option, at the start of the program, the QS available from harvesters may be somewhat less expensive relative to their value after expiration of the QS issued to processors. At the same time, those holding the QS may be more reluctant to part with them because they know their value will increase substantially as the time at which the QS issued to processors approaches. Additionally, an initial moratorium on the transfer of QS (an option in Section A-2.2.3.c) would also make it more difficult to accumulate QS.

An initial allocation of QS will provide an infusion of wealth to the initial recipients, which may give them a leg up in the growth and expansion of their operations, including the accumulation of additional QS (see Section A-2.1.1.a). If the intent of an initial allocation to processors is also to provide them with this advantage, or an advantage more on a par with harvesters, that advantage will be substantially decreased if the QS are set to expire after a certain period.

The initial allocation will also create a competitive advantage for existing businesses compared to new entrants (a barrier to new entry, see Section A-2.1.1.a). Over the long run, sectors are able to exert market power only to the degree that a barrier to entry prevents new competitors attracted by higher profits. Limiting the duration of the initial allocation will reduce this affect.

Impacts on Harvesters

If processor QS is to expire after a time, and all QS that were originally issued to harvesters expanded, the expiration will cause QS prices to increase as the expiration approaches, and there will be a second transition period. The effect of the expiration on price and QS availability on the market is described above in the section on processors. After QS are issued, it is expected that the individual quota will migrate into the hands of the most efficient producers (whether as QS they own or as QP they acquire from other QS holders). It is, however, likely that the initial distribution will affect the vessels to which the QS/QP migrates. The QS issued to permit owners will likely migrate through the market to the most efficient vessels, some of which may be owned by harvesters and others owned by entities that also process.[130] Processors may be more likely to use QS on their own vessels (taking advantage of vertical integration opportunities) and accumulate additional QS to make those vessels more efficient;[131] or they may decide it is more efficient not to operate vessels, but rather to use the QS they own to influence deliveries of independently operated vessels. Depending on this choice and the decision to allocate to processors, the rationalization process may leave a different set of active vessels. Either way, however, if a substantial degree of rationalization is achieved within the "lifespan" of the limited duration QS, once those limited duration QS expire, some vessels may find themselves with more QS than they need and others with less than they need (those who depended on QS issued to processors). Vessels owners may use a variety of contracting mechanisms to arrange in advance to minimize the disruptive effects of the second transition period. However, this will require additional transaction costs.

Impacts on Net Economic Benefits

The need to track QS originally issued to processors separately from other QS will add some cost to the QS tracking program. The second adjustment period occurring when limited duration endorsements expire will also have an effect on net benefits by increasing transaction costs as QS owners prepare for the repositioning required by the expiration.

No Grandfather Clause (Option 2) ***(and no opportunity for divestiture)***

Impacts on Processors

The absence of a grandfather clause for processors (in the presence of a grandfather clause for permits) would not affect any QS issued to a processor based on the history of a LEPs owned by that processor. However, a processor that would receive for its LEPs an amount of QS in excess of the accumulation limits would not be eligible to receive QS for its processing history (assuming no divestiture is allowed). QS it would have otherwise received will be redistributed to the remaining processors in accordance with the allocation formula. Thus, if there were a grandfather clause, excluding processors from the grandfather clause provision may have evened the distribution of QS among processors. However, it is likely that those processors with permits that would put them over accumulation limits would sell those permits to gain some financial benefit related to the QS they represent. To the degree that excess permits would be transferred away, the absence of a grandfather clause would cause less redistribution

[130] In some cases, it will be the QP that migrates, while others retain ownership of QS.
[131] Up to accumulation limits.

among processors than would otherwise be the case. This effect has been discussed in Section A-2.1.1.a.

To the degree that there is an allocation to processors and no grandfather clause or opportunity for divestiture, some of the smaller processors could be made relatively better off by this provision in that they would have more QS and thus potentially more bargaining power in their interaction with harvesters. Relative to larger processors, they are likely to have greater strength, as compared to what they would have had if there had been a grandfather clause.

Impacts on Harvesters

As compared to a processor allocation in which a grandfather clause is applied to processors, harvesters are more likely to face a buying sector that has a greater number of buyers and smaller buyers with relatively more bargaining power.

Impacts on Net Economic Benefits

The impact of Option 2 on net benefits, relative to a processor allocation without a cap on the accumulation limit, is uncertain and likely depends on whether there would be any greater or lesser reason to expect that market function would be hampered (i.e., that one side or the other could be effective in exerting market power). As compared to Options 1 and 3, the transition/implementing costs of Option 2 are lower.

Adaptive Management (Option 3)

Impacts on Processors

Under Option 3, QP issued through the AMP would be used to compensate processors for demonstrated harm. If adopted, the exact impacts of this provision would depend on the process by which the provision is activated and how the QP issued for this purpose are distributed.

With respect to activation of the provision, the first step is demonstration of harm. If, prior to implementation of the IFQ program, there were no further development of this option, there would be several implicit lags in its activation. First, the harm would have to be identified, and someone, the industry or government, would have to collect the information and provide it in a Council forum. The Council would then develop criteria for evaluating the information and harm, conduct the evaluation, identify a remedy, and complete the Council decision process, at which time NMFS would evaluate the Council recommendation and take appropriate action. Alternatively, the matter of developing criteria, evaluating the harm, and determining a remedy could be delegated to NMFS discretion. In either case, the action would require a public process. The first QP would likely be issued in the year following completion of that process.

On one hand, leaving the program completely open with respect to criteria and response provides the maximum flexibility for appropriate adaptive management in response to harm to processors. On the other hand, that flexibility results in a time lag for taking action. Depending on the length of that lag and the degree of harm, processing companies could go out of business prior to remedial action. Alternatively, some criteria and remedial actions might be developed in advance, so they are ready to support a rapid initial response using the AMP QPs. The Council's consideration of this possibility and final recommendations are described in Section A-3.

Option 3 of this section and Option 5 of A-2.1.1.a (Option 5 allocates QS to processors and provides for an AMP) could both be adopted; in that case, however, the only processors able to benefit from Option 3 of this section would be those entering the fishery after 2003 or those disqualified by recent participation criteria (Section A-2.1.2). This is because the AMP (A-3) prohibits allocation of QP to processors that received an initial allocation.

Impacts on Harvesters

As with the processors, the impact on harvesters will depend on how the program is implemented. If adaptive management QP are issued to processors, depending on the criteria for usage, it may be more likely that a processor will use the QP on its own vessel rather than an independent harvester. This would cause a direct disruption in the flow of QP among vessels; by definition, however, the AMP will likely alter either product flow or the prices at which raw fish are sold. While issuing QP to processors for use in balancing bargaining power might alter product flow among harvesters, issuing QP to harvesters as a reward for delivering to the same processors that they had in the previous year would stabilize product flow. Issuing the QP to harvesters in this fashion would also stabilize the rationalization process. Alternatively, if the fleet rationalizes, adjusting operation sizes to QS holdings, and QP is diverted for use to compensate for processor harm and not available to the same harvesters (e.g., processors that receive the QP want to use it on their own vessels), then harvesters would go through another adjustment.

Impacts on Net Economic Benefits

There will be some management costs associated with the AMP, and, depending on how the program is implemented, there may be some additional transaction costs if the QP available to particular harvesters are reduced and they have to adjust their QS holdings in order to re-optimize. For example, in the first year of the IFQ Program, all AMP pounds will be passed through to harvesters. If harvesters adjust to those initial levels of QP, and then QP is diverted to other harvesters through AMP mechanisms, some may have to readjust.

In general, imposing a restriction on a properly functioning market system results in some inefficiency. However, if market power is being exerted, and adaptive management is used to counter that effect, the effect on efficiency may be minimal. It might be possible to distribute the QP in such a way as to change the balance of market power, essentially redistributing the profits without changing who harvests and processes the fish. If this end were achieved, the effect on efficiency would be lower than if the program resulted in an actual redistribution of the product flow. In order for the distribution to redistribute profits without redistributing the flow, it would be the threat of the potential redistribution that would cause a different outcome in the bargaining process, rather than an actual shift.

A-3 ADAPTIVE MANAGEMENT (OPTION)

❖ *Provisions and Options*

Preliminary Preferred Language. During the biennial specifications process, up to 10 percent each year's QP available for the trawl IFQ program will be set aside for use in an AMP that could create incentives for developing gear efficiencies, or community development or to compensate for unforeseen outcomes from implementing the IFQ program. Examples of unforeseen outcomes include, but are not limited to, unexpected geographic shifts in the distribution of catch or landings, unexpected effects on certain segments of the industry (e.g., processors), or an unexpected barrier to new entry into the fishery. Should the Council adopt initial allocation of **fishing QS** to processors, those processors receiving an initial allocation would not be eligible to hold QP issued through an AMP. This provision will apply to the overall trawl sector (whiting and nonwhiting) but the QP set-aside from each trawl sector would be specific to that sector.

►**Final Preferred Language.** Ten percent of the nonwhiting QS will be reserved to facilitate adaptive management in the shoreside nonwhiting sector. Therefore, each year 10 percent of the shoreside trawl sector nonwhiting QPs will be available for use in adaptive management (adaptive management QP). The set-aside will be used to address the following objectives.

- o Community stability
- o Processor stability
- o Conservation
- o Unintended/Unforeseen consequences of IFQ management.
- o Facilitating new entrants.

Years 1 and 2. During the first 2 years in which the IFQ program is in place,

- o The method to be used in distributing QP in years 3 through 5 is to be determined, including.
    - The decision making and organization structure to be used in distributing the QP set-aside135F[132]
    - The formula for determining community and processor eligibility, as well as methods for allocation, consistent with additional goals.
    - The division of QP among the states.
    - Whether to allow the multi-year commitment of QP to a particular project.

Years 3 through 5.
QP will be distributed through the organizational structure, decision process, formulas and criteria developed in years 1 and 2 and implemented through subsequent Council recommendation and NMFS rule making processes. Consideration will be given to the multiyear commitment of QP to particular projects (3 year commitments).

Review and Duration. The set-aside of QP for the identified objectives will be reviewed as part of the year 5 comprehensive review and a range of sunset dates will be considered, including 10, 15, 20 year and no sunset date options.

[132] The following are three options for the sequences of agency involvement in decision making for the distribution of adaptive management QP after year 2:
1. NMFS
2. State → Council →NMFS
3. Council →NMFS

❖ Rationale and Policy Issues

Rationalization of the trawl LE fishery could have unforeseen or unanticipated consequences. The QS set-aside for an AMP provides a tool to adaptively deal with these unforeseen issues. For example, if unforeseen harm to processors or communities occurs, adaptive management QPs could be used for compensation. The Council intends that the adaptive management holdback for each sector would be specifically for use in that sector. The Council's adaptive response would not be limited just to the use of the QS set aside for this purpose. See Section A-10 for additional discussion of adaptive response.

The Council may choose to build flexibility into the management of the rationalization program by providing incentives to harvesters to shape fishing behaviors. Adaptive management could be used to rewarded low bycatch rates/amounts, low prohibited species catch rates/amounts, or to encourage conversion to fixed gear.

The Council intends that the adaptive management QP be fished. Any QP not allocated through the adaptive management provision would be redistributed to all the QS holders in proportion to the amount of QS they hold. In this manner, no QP in the AMP would remain unallocated. It is not the intention of the Council to remove 10 percent of each sector's allocation from use.

Vessels receiving adaptive management QP in addition to QP already held in a vessel account could cause the vessel to exceed a vessel accumulation limit. The Council would have to address this issue of excessive shares/pounds caused by allocation of adaptive management QP. If adaptive management QP count towards the accumulation limit, then for those vessels that are at the maximum, there is no way to provide them with the incentives. If AMP QP are not counted towards the vessel's accumulation limit, that would add a small amount of complexity to the tracking and monitoring of accumulation limits. The Council could consider this issue as part of the trawl rationalization program, or leave it as a modification to be made upon implementation.

If the Council were to allocate QS to processors (adopt Option 5 in Section A-2.1.1.a), those processors who receive an initial allocation would not be eligible to "hold" QP issued through the AMP, according to the way the adaptive management provision is written. It may be difficult to track indefinitely which processors were initially allocated QS, and whether they are processors that CAN or CANNOT hold adaptive management QP. The Council may wish to address this issue by changing the term "hold" to "cannot initially receive." In other words, processors would not be able to initially be awarded adaptive management QP, but could later in the year buy them, hold them, and fish them. This alternation to the provision would substantially reduce the amount and cost of tracking adaptive management QP beyond the initial receiver. Another possible approach might be to put a sunset date on processors that are ineligible to hold adaptive management QP.

Depending on the final purpose and structure of the Adaptive Management provision, the goals and objectives addressed include the following: promote fishery conservation and assist in rebuilding of overfished species (MSA 303A(c)(1)(A) and (C)); address concerns over excessive geographic or other consolidation in the harvesting or processing sectors (MSA 303A(c)(5)(B)(ii)); avoid unnecessary adverse impacts on small entities (Groundfish FMP Objective 15); and assist fishing communities, entry-level and small vessel owner-operators, captains, and crew through set-asides or assistance in the purchase of quota (MSA 303A(c)(5)(C)).

Conservation	Net Benefits	Disruption	Excessive Shares	Fairness and Equity	Sector Health	Labor	Communities	Small Entities and New Entrants	General Public	Program Performance
X			X			X	X	X		

❖ *Interlinked Elements*

Quota shares allocated to processors – Adaptive management QP would not be allocated to processors that received an initial allocation of QS.

Tracking and Monitoring – Adaptive management QP may have to be tracked separately from other QP, if they cannot be transferred to processors that receive an initial allocation.

Accumulation limits – Adaptive management QP may or may not count against an individual's, an entity's, or a vessel's accumulation limit.

Transferability – Adaptive management QP may or may not be transferable, depending on the purpose of the awarded QP.

Program costs – Adaptive management would add some complexity and increase the cost of execution of the rationalization program.

Additional measures for processors – A particular use of the adaptive management QP is specified in Section A-2.4, Option 3.

❖ *Analysis*

A Council staff paper was presented at the April 2009 Council meeting (Agenda Item F.5.a, Attachment 1, April 2009) to assist decision-making. The paper outlined the following general principles:

- The decision-making process will be governed by one or more goals identified by the Council, providing boundaries on what activities or entities will be eligible to receive AMP quota.[133]
- The decision-making process will most likely involve the Council, but states may play an independent role in decision-making (for example, by pre-screening proposals).
- NMFS will be involved in the decision-making process, at a minimum reviewing Council/state decisions.
- For legal reasons it is likely that NMFS will retain control of AMP QS while distributing the associated QP to program participants.[134]

[133] It is expected that the program goal or goals could be modified from time to time to address changing socioeconomic or environmental conditions.

[134] Note that this is somewhat at odds with the language in the Council's motion.

- The AMP could be "proposal-driven" or "formulaic." In a proposal-driven process, the use of AMP quota will be identified by individuals or entities that apply to receive quota. A decision-making process then evaluates proposals to determine which "applicants" should receive quota, and how much quota each applicant should receive. In a formulaic process, very specific criteria or performance standards determine who receives AMP quota and the allocation is based on a formula rather than case-by-case decisions.
- The Council and NMFS will not be directly involved in structuring local entities that may receive AMP quota, such as regional fishery associations, community stability plans, or other entities that might receive quota, although evaluation criteria could favor certain types of entities or limit eligibility to certain types.

Up to 10 percent of each trawl sector's allocation would be distributed to those harvesters that meet the criteria established for the AMP. The Council may choose to utilize the AMP QP trawl fishery (including processors) so that trawl rationalization is consistent with the goals, objectives, and guiding principles laid out by the Council (see Chapter 1 in the FEIS); Groundfish FMP goals and objectives; National Standards listed in §301 of the MSA; and requirements of limited access programs listed in §303A(c) of the Act. A truly adaptive program would respond to unforeseen and adverse effects from trawl rationalization stemming from implementation.

Establishing program goals is an important part of program design. Goals could be kept broad, essentially relying on the language from the MSA, FMP, and EIS cited above. This would give the Council the greatest flexibility to consider particular activities or proposals for the use of AMP quota on a case-by-case basis. As an alternative or in addition, specific program goals could be enumerated, focusing on particular issues that are anticipated to arise. In that case, the specific goals would be translated into (ideally measurable) standards and evaluation criteria used to decide what specific activities, projects, and entities should receive AMP quota. If more specific goals are identified, the overall AMP framework could incorporate enough flexibility to allow the Council to change the goals from time to time.

The following examples program goals were presented in the staff white paper:

Vulnerable communities: *Protect vulnerable communities from the adverse effects of trawl rationalization*. A program with this goal would distribute AMP quota to harvesters or others (e.g., government or nongovernment organizations) to ensure landings in specified vulnerable communities or communities that can demonstrate harm resulting from trawl rationalization. Objectives could include preventing the loss of fishing-dependent businesses and related employment and tax revenues supporting port infrastructure. This would approximate the competitive grant program of the Groundfish Development Authority (GDA) in British Columbia, Canada. In that program, 10 percent of the quota is available to harvesters if they have an agreement with a processor for delivery. The criteria for this program favor Canadian processors and favor more established or stable processors. The Canadian program is not intended to help new entrants into the fishery, but rather is intended to act as a stabilizing factor for processors. The GDA was set up as the alternative to allocating processor QSs.

Stabilizing harvester-processor relationships: *Support existing business relationships between harvesters and processors*. A program with this goal would distribute AMP quota to processors and/or harvesters that commit to continue an existing business relationship. Objectives could include preventing the closure of a processing plant or providing an incentive for processors to develop new product forms or markets. As noted in Section A-2.4 on processor measures, QP issued through the AMP also could be used to compensate processors for demonstrated harm, which would have to be evaluated in any decision-making process.

Encouraging conservation benefits: *Favor harvesting techniques and technologies that reduce environmental impacts.* A program with this goal would distribute AMP quota to harvesters that use gear and methods producing conservation benefits. Activities could include testing new gear and methods to determine the conservation benefits or supporting the switch to gear and methods that have proven conservation benefits. Objectives could include reducing incidental catch of depleted species or reducing habitat impacts.

Another goal not discussed in the staff white paper is to facilitate entrants into the fishery. To address this goal, the AMP QP could be distributed to applicants based on certain criteria that must be met. These criteria might include a certain amount of time as crew on a U.S. commercial fishing vessel or on a west coast groundfish trawl vessel. For example, the halibut/sablefish fishery in Alaska has a 150-crew-days-in-any-U.S.-commercial-fishery requirement for new entrants to become quota shareholders.

AMP QP would not be retired or held back from use in the fishery. All AMP QP would end up with vessels; however, the distribution would not necessarily be equal among all vessels. Depending on how the adaptive management provision is structured, all vessels may have an equal shot at competing to receive adaptive management QPs (e.g., a QP bump would be given to vessels delivering to same processors as the previous year, or vessels that achieve a certain reduction in bycatch over the previous year). The adaptive management provision could be structured in a way that would benefit certain vulnerable communities; therefore, some vessels would be positioned to access adaptive management QPs, while other vessels would not be positioned well to compete. Note also that control of AMP QP could be given to communities or regional fishing associations.

In designing the decision-making process, the central question is the role that the states, the Council, and NMFS will play in deciding the distribution of AMP quota. The staff white paper identified four possible decision-making structures:

1. **States → Council → NMFS (Proposal Evaluation Process)**: Under this structure, first a state would prescreen proposals from applicants within their state or work with applicants in developing proposals. Proposals accepted by the state would then be forwarded to the Council. The Council would review all proposals submitted and make a recommendation to NMFS on the allocation of AMP quota among the proposals.

2. **States → NMFS (Proposal Evaluation Process)**: This structure is similar to the first except that there would be no direct Council role. States would submit proposals directly to NMFS with the Council having a broad oversight role. For example, the Council's role would be confined to specifying program goals, periodically evaluating program performance, and modifying the program as necessary.

3. **NMFS (Proposal Evaluation Process)**: Under this structure, individual applicants would submit proposal directly to NMFS. The Council would have the type of broad-scale involvement described above (e.g., setting program goals).

4. **NMFS (Allocation by Formula)**: This structure would substantially reduce or eliminate regular decision-making. At its simplest, there would be no proposal process as suggested in the first two structures. Any entity that meets specific criteria, which could be defined as a performance standard, would automatically receive AMP quota, divided up among recipients according to a pre-set formula. For example, anyone who delivers to a specified port or processor would receive quota. Alternatively, as in the previous two decision structures, applicants could be selected but the allocation of AMP quota would then be made formulaically.

The overall decision-making structure could still accommodate varying degrees of state involvement. For example, the framework could be open enough so that each state could decide what role they want to play in selecting recipients. This approach is similar to how the Council currently reviews groundfish exempted fishing permit (EFP) applications, found in Council Operating Procedure 19. In some cases, a state will work with applicants to bring forward proposals, while in other cases applicants bring proposals they have developed independently to the Council without state agency involvement.

Any decision-making process involving the Council would require at least a two-Council-meeting process with full public participation. Production of a regulatory package, including an environmental assessment, might be needed in some circumstances. From a process perspective, environmental review requirements could possibly be folded into the groundfish biennial specifications process, although this is already a complex decision-making process, and adding new elements could increase the difficulty in implementing regulations in a timely manner.

There are two basic ways to view AMP quota that influence how AMP quota use would be monitored. One perspective is to see AMP quota as a reward for past behavior or as an incentive for committing to a particular course of action in the future (i.e., the coming year). For example, any harvester who delivers to specified ports would receive a portion of AMP quota in the following year; alternatively, if he commits to those deliveries in the current year, he could receive the AMP quota at the beginning of the year.[135] In an incentive-oriented program, there is little need to monitor how AMP quota is used; if recipients wish to sell the AMP quota, that should not be a problem, as long as they engage in the behavior that AMP was designed to encourage. Another perspective is to direct AMP quota to specified uses. For example, a harvester requests AMP quota to experiment with a new fishing method that has a high risk-reward ratio. In this case, the AMP distributes quota for specified activities that will occur in the future, and there is, thus, a greater need to monitor its use because the receiver of AMP quota should not do anything with it other than use it for a stated purpose. However, since QP will be fungible (one unit of quota is indistinguishable from all other units of the same type), it will be difficult to determine whether the AMP quota (separate from any other QP in a vessel account) was used for the stated purpose, was sold, or remained unused.

Another consideration is whether AMP quota receivers would be exempted from accumulation limits up to the amount of AMP quota received. This is especially an issue with vessel limits. If vessels at their limits cannot exceed them with AMP quota, it will be difficult to use AMP quota to influence the largest harvesters' actions.

How frequently AMP quota will be allocated has to be considered. Ultimately, AMP quota will be used in the form of QP in vessel accounts, and QP will be of one-year duration. However, allocation decisions do not have to occur that often. For example, allocation could be made to an activity or project that has a multiyear time span. This could provide recipients more certainty about their future operations, which some entities may find beneficial, but may reduce the flexibility to make adaptations to the program (although periodic review could be built in). A proposal-driven program structure would have to specify how frequently proposals would be accepted and AMP quota allocated.

If AMP QP can be held elsewhere than in vessel accounts, the Council may wish to establish eligibility criteria for AMP quota receipt different from the general IFQ eligibility requirements.

[135] In either case there would need to be a mechanism to check whether the behavior actually occurred.

The Adaptive Management provision could be used in many different ways. If the QP is used to protect vulnerable communities by ensuring that landings are delivered to those locations, the following will occur:

An AMP program will likely require several different monitoring and evaluation elements:

- If proposal-driven, a framework for evaluating proposals and deciding which ones to "fund"
- If AMP quota is allocated for a specified activity, a monitoring element to ensure that AMP quota is actually used in that way; if the AMP quota is provided as a reward or an incentive for a particular action, a monitoring or auditing element may be needed to verify that the action was taken (e.g., use of a particular gear)
- Periodic review of the overall AMP to decide if goals are being met and whether those goals have to be changed

In a proposal-driven process, if the amount of AMP quota available is lower than the amount requested, evaluation criteria could be a way to better match the total amount of AMP quota requested with the amount available. Criteria would likely be matched with program goals (for example, making only vulnerable communities, processors, or harvesters eligible). Measurable, minimally subjective criteria would be preferable to make it clear what a proposal has to focus on to successfully receive AMP quota. In these situations, the Council could decide in advance on a maximum number of recipients based on the amount of available quota. Alternatively, if proposals specify the amount of AMP quota needed, the Council would use that information when screening proposals so that the total amount did not exceed the total amount of AMP quota available.

If the program is set up so that AMP quota use must be monitored, as discussed above, there are two monitoring issues: checking whether the AMP quota was transferred (sold) to someone else outside the terms of the proposal and whether it is fully utilized, at least in preference to any other quota the recipient may possess. Figuring out whether this happens does not necessarily require AMP quota to be tracked separately from other quota but would rely on a year-end accounting of the use of quota. However, the need to account for AMP quota in this way could be difficult and could reduce the overall efficiency of IFQs. If the terms of the AMP proposal have been violated, then sanctions could be applied, such as loss of the future eligibility or reduction in the amount of AMP quota received in subsequent periods to make up for unused quota.

The Council's motion states that "up to 10 percent of the non-whiting QS will be reserved for" the AMP. The "up to" language reflects the Council's intent that any unused AMP quota will be redistributed back to QS holders based on the percentage value of their QS holdings. [Figure A-137 illustrates the general process for the allocation of AMP QP based on this model.]

The decision on the amount of AMP quota to be reserved would have to be synchronized with the harvest specifications process and the resulting distribution of QP into vessel accounts. First, the Council could decide in advance the amount of quota to set aside, once OYs and sector allocations have been set. Then the AMP quota could be allocated under whatever mechanism is established. Finally, if there is any unused AMP quota after the allocation process it could be returned to all QS holders. The allocation of AMP quota and any subsequent redistribution of unused AMP quota to QS holders does not necessarily have to occur before the beginning of the fishing year as long as deposits to vessel accounts is timely enough to allow its use at some point during the year and/or for the specified purpose.

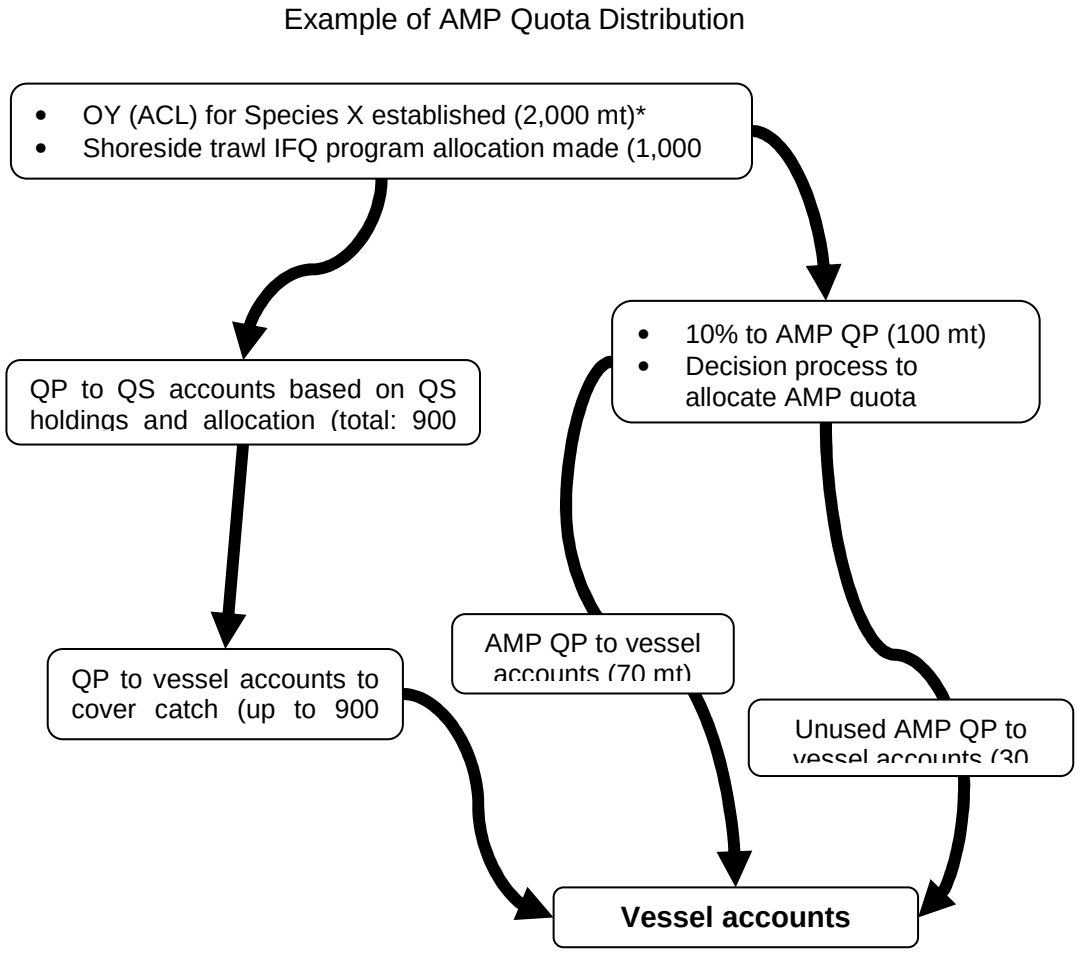

Figure A-115. Schematic of likely process for distribution of AMP quota.

The Council chose to wait to implement the adaptive management provision until year three of the trawl rationalization program, both to reduce the complexity of initial program implementation and to allow more time to develop the AMP. In the first two years the AMP, QP would be distributed pro rata to QS holders ("pass through"). This delay in implementation could cause some disruption and uncertainly for harvesters because the specifics of a future program have not been worked out. Although uncertainty may have a marginal effect on QS prices, the stated intention to implement the program in year three gives notice to QS holders that an adaptive management holdback will occur at a future date. Although the intent in delaying the AMP was to make implementation of both the overall trawl rationalization program and the AMP easier, it may also allow more effectively addressing unforeseen issues in the new management program. By definition, these cannot be determined a priori, but are likely to become apparent in the first two years. On the other hand, delay in implementing the AMP will mean that disruptions in the short term due to transition to the new management program cannot be addressed through the AMP.

A-4 PACIFIC HALIBUT INDIVIDUAL BYCATCH QUOTA (IBQ) – NONRETENTION

❖ *Provisions and Options*

Preliminary Preferred Alternative Language. IBQ for Pacific halibut bycatch in the trawl fishery will be established. Such IBQ will be issued on the basis of a bycatch rate applied to the target species QS an entity receives in a manner similar to that described in Section A-2.1.3.a, Overfished Species Option 2. Area specific bycatch rates may be used for allocation but halibut IBQ will not be geographically subdivided.

►**Final Preferred Alternative Language:** IBQ for Pacific halibut bycatch in the trawl fishery will be established. IBQ limit will be required to cover legal and sublegal sized Pacific halibut bycatch mortality in the area north of 40°10 N latitude. It is the intent of the Council that halibut IBQ mortality be estimated on an individual vessel basis. Such IBQ will be issued on the basis of a bycatch rate applied to the target species QS an entity receives in a manner similar to that described in Section A-2.1.3.a, for overfished species caught incidentally. Area-specific bycatch rates may be used for allocation but halibut IBQ will not be geographically subdivided.

❖ *Rationale and Policy Issues*

Under the status quo trawl fishery, the trawl sector bycatch of halibut constrains directed halibut fisheries. As in all IPHC management areas, Area 2A (off Oregon and Washington) has a total constant exploitation yield[136] (TCEY). Trawl caught halibut bycatch is estimated each year by the WCGOP and is taken off the top of the Area 2A TCEY. The trawl caught halibut subtracted from the TCEY is expressed in pounds of legal-sized halibut mortality. Currently the trawl fleet has no cap on the amount of halibut caught, discarded, or killed. Under the trawl rationalization program, actual bycatch of all sizes of halibut would be capped. Under Amendment 21, it is proposed that the trawl caused halibut mortality be reduced, increasing the amount of halibut that would be available for directed halibut fisheries. This reduction would be achieved through the individual vessel accountability provided by the IBQ program.

Pacific halibut IBQ would function in a manner similar to IFQ for other species, except that retention and landing of halibut would be prohibited, and only pounds of dead halibut would be counted against the IBQ. Discard at sea of Pacific halibut would be required; before discard occurred, observers would estimate the halibut bycatch mortality on that vessel (average mortality rates would be applied based on the condition of the halibut in a particular tow) to provide greater individual accountability and incentives for harvesters to control halibut mortality. Minimization techniques by the individual harvester might include taking short test tows to explore what fish are present in the area (and avoiding areas with high halibut rates), taking shorter tows or smaller amounts of groundfish so that halibut bycatch is less likely to be crushed in the cod end, and helping the observer to the extent possible in order to minimize halibut time on deck ,thereby improving the fish's condition at the time of discard. If a vessel were held accountable for catch instead of mortality, a fleetwide discard mortality rate would be applied, and there would be little incentive for the individual harvester to change his/her fishing behavior to reduce mortality rates. Therefore, the Council specified that under the trawl rationalization program discard mortality should be estimated on a vessel-by-vessel basis to encourage conservation-oriented behaviors in harvesters.

[136] TCEY is expressed in terms of legal-sized halibut, since the primary commercial target halibut fishery (using gear other than trawl) can only retain and land legal-sized halibut.

Consideration was given to requiring IBQ only for legal sized halibut. However, this option would not encourage harvesters to avoid sub-legal sized halibut and would not do as good a job of achieving the objective of reducing bycatch and bycatch mortality.

In order to allocate IBQ, the LE trawl sector cap must be specified; this has not been done in the past. Defining the sector total allocation would allow that amount to be divided up into individual QSs. There are various ways to define the trawl sector allocation, and those methods are described as options in the ISA EIS (Amendment 21). In its final action under Amendment 21, the Council decided to "allocate" 15 percent of the Area 2A (i.e., all waters off Washington, Oregon, and California) TCEY of Pacific halibut to the LE trawl sector, not to exceed 130,000 for the first four years and not to exceed 100,000 pounds for years five and beyond of the trawl rationalization program.

Halibut IBQ would be required only in the area north of 40° 10' north latitude line. At the start of program development, IBQ would have been required for the entire west coast (i.e., anywhere in Area 2A); however, as the trawl rationalization program evolved towards the final preferred alternative, the Council recognized that halibut bycatch in the at-sea sectors and south of 40° 10' north latitude line were negligible and could be managed with set-asides rather than IBQ. Tracking IBQ by sub-area would add an additional tracking and monitoring feature to the rationalization program. Therefore, the Council decided instead to use set-asides for at-sea and the southern management area. This approach requires monitoring of bycatch but does not manage the fishery with IBQ. The 10-mt set-aside for these two fisheries comes off the trawl allocation described in the previous paragraph.

The method for the initial allocation of halibut is described in Appendix C and is similar to that used for overfished species. The Council decided to base initial allocation of IBQ on the different rates of bycatch in different areas or in association with various target species (e.g., arrow tooth flounder and Petrale sole). Halibut cannot be allocated based on individual vessel records because halibut mortality is estimated based on fleet averages; there is no data set of per vessel halibut catch. For a similar reason, there is no history for buyback permits; thus, equal allocation of a portion of the QS related to the buyback fleet is not possible.

❖ *Interlinked Elements*

IFQ Management Units – The management unit options would not apply to IBQ, unless specified by the Council.

Initial Allocation – Initial allocation of IBQ would be similar to the allocation of overfished species IFQ in the nonwhiting fishery (Option 2). That method includes determining a fleet average halibut bycatch rate and then tying that to the target species QS allocations. Initial allocation of IBQ could not be based on landings of halibut, because Pacific halibut is a prohibited species and is not landed in the trawl fishery.

Annual Quota Pound Issuance – Surplus or deficit IBQ would not likely be carried over

Tracking, Monitoring and Enforcement – IBQ discard would be required in all options

Adaptive Management – Adaptive management would not likely be applied to IBQ

In general, most of the IFQ program provisions for groundfish would also apply to halibut bycatch. Notable exceptions include the following:

- Tracking, Monitoring and Enforcement – IBQ discard would be required in all options.
- Adaptive Management – Adaptive management has not been applied to IBQ.

❖ *Analysis*

The IBQ provision addresses the following goals and objectives: reduce nongroundfish mortality (FMP Objective 4); reduce bycatch (Amendment 20, Objective 3); and account for total mortality (Amendment 20, Constraint 4).

	Conservation	Net Benefits	Disruption	Excessive Shares	Fairness and Equity	Sector Health	Labor	Communities	Small Entities and New Entrants	General Public	Program Performance
Conservation	X									X	
Initial Allocation and Accumulation Limits		X		X	X						
Net Benefits, Sector Health and Communities		X				X		X			

Conservation

The International Pacific Halibut Commission (IPHC) manages the conservation and sustainability of the Pacific halibut resource by conducting an annual coast-wide stock assessment and developing and setting directed fishery catch limits. IPHC accounts for bycatch mortality in an area prior to setting the catch limits for the directed halibut fisheries program. The estimate of discard mortality of trawl caught halibut potentially would be based on observed condition upon release, if observer coverage were at 100 percent, as proposed under rationalization. For Area 2A, the fleetwide discard mortality rate (DMR) had previously been estimated at 50 percent of total catch. IPHC studies have found that discard mortality in trawl fisheries is depends on the size of the fish, the target fishery, and the duration and size of the trawl haul. Under the status quo fishery, the percentage of observer coverage was not extensive enough to estimate a DMR based on condition/release data collected by observers prior to 2007. After 2007, observer viability data were used to estimate the halibut mortality rate, which turned out to be higher (56 percent) than the 50 percent fixed mortality rate. In British Columbia, where the trawl fleet has near 100 percent observer coverage, the DMR is based on observed condition, and, in some instances, is lower than 50 percent. A similar circumstance has the potential to occur in the U.S. groundfish trawl fishery, if individuals have the incentive to behave in a more conservation-oriented way, such as helping the observer to minimize halibut time out of water.

The IFQ program requirement for 100 percent monitoring will increase assurance that total halibut mortality is being properly estimated. Halibut individual bycatch quota (IBQ) would provide incentives to reduce halibut bycatch in the trawl fishery. Bycatch reduction is an objective of the trawl rationalization. The broader experiences of our Canadian counterparts are relevant to this trawl rationalization analysis. Up until 1995, before Canadian groundfish trawl rationalization, the B.C. trawler fishery was estimated to have taken 1.5 to 1.7 million pounds of halibut bycatch mortality annually (all sizes). At the onset of the Canadian IVQ program in British Columbia, a cap of 1 million

pounds was set by Canada's Department of Oceans and Fisheries for the B.C. trawl sector. In 1996, after implementation of the trawl IVQ management program and an IBQ program for managing the halibut bycatch, bycatch was just less than 300,000 pounds. Reasons for this large reduction include the concurrent decline of the cod fishery, avoidance behavior by harvesters, and more deliberate conduct of fishing operations. In addition, 100 percent observer coverage allowed quick and accurate feedback to the skipper of pounds of halibut caught and discarded each trip.

Observed Catch of Pacific Halibut in the Trawl Fishery

The bycatch rate estimates are generated by NMFS Northwest Region using West Coast Groundfish Observer Program (WCGOP) halibut bycatch information, stratified by season, depth, latitude, and amount of arrowtooth flounder and multiplied by effort in each stratum using Oregon and Washington logbook information. Halibut bycatch rates may be different in different areas; however, according to the IPHC, there is no biological reason to divide Area 2A into finer scales of management.

Observations of Pacific halibut bycatch in the west coast LE trawl fishery show some distinct patterns. In particular, Pacific halibut bycatch tends to be closely associated with the catch of arrowtooth flounder, Petrale sole, lingcod, and skates. The association with arrowtooth, Petrale, and skates is not unexpected as these species exhibit similar habitat preferences and have similar life-history characteristics as with Pacific halibut. However, the association with lingcod is somewhat surprising and unexpected. Other patterns clearly exist, including associations with depth and with latitude. Pacific halibut tend to be encountered more frequently by vessels fishing off the northern Washington coast (north of 47.5° N. lat), and differences exist on a depth basis. The majority of Pacific halibut observed in the trawl fishery was caught at depths less than 115 fathoms, though a large percentage was caught at deeper depths as well. This information is illustrated in the following table.

Table A-111. Amounts of species catch (retained + discard weight) and bycatch ratios between Pacific halibut and two flatfish species on observed limited entry bottom trawl hauls during 2003 to 2006.

	Depth Stratification		
	< 115 fm	**> 115 fm**	**All depths**
Area North of 47.5o N. lat Number of observed hauls	1,487	724	2,211
Observed catch of species (lbs) Petrale sole	314,471	450,562	765,033
Arrowtooth flounder	1,648,667	753,976	2,402,643
Petrale + Arrowtooth	1,963,138	1,204,538	3,167,676
Pacific halibut	230,090	73,092	303,182
Ratio of halibut lbs to arrowtooth lbs	**0.140**	**0.097**	**0.126**
Ratio of halibut lbs to combined Petrale + arrowtooth lbs	**0.117**	**0.061**	**0.096**
Area between 40o10' and 47.5o N. lat Number of observed hauls	4,646	4,395	9,041
Observed catch of species (lbs) Petrale sole	1,353,420	1,457,496	2,810,916
Arrowtooth flounder	958,221	1,361,180	2,319,402
Petrale + Arrowtooth	2,311,642	2,818,676	5,130,318
Pacific halibut	161,217	85,553	246,769
Ratio of halibut lbs to arrowtooth lbs	**0.168**	**0.063**	**0.106**
Ratio of halibut lbs to combined Petrale + arrowtooth lbs	**0.070**	**0.030**	**0.048**
Total Area North of 40o10' Number of observed hauls	6,133	5,119	11,252
Observed catch of species (lbs) Petrale sole	1,667,891	1,908,058	3,575,949
Arrowtooth flounder	2,606,889	2,115,156	4,722,045
Petrale + Arrowtooth	4,274,780	4,023,214	8,297,993
Pacific halibut	391,307	158,645	549,952
Ratio of halibut lbs to arrowtooth lbs	**0.150**	**0.075**	**0.116**
Ratio of halibut lbs to combined Petrale + arrowtooth lbs	**0.092**	**0.039**	**0.066**

Observer information also indicates that Pacific halibut bycatch occurs south of the 40° 10' north latitude line. The tool for allocating Pacific halibut bycatch (described in Appendix C) does not provide a mechanism for allocating Pacific halibut to vessels in this southern area, due in part to the lack of observations for informing a bycatch rate calculation. However, in the final preferred alternative, a set-aside of Pacific halibut was made for the fleet in this southern area and the at-sea sector.

Initial Allocation and Accumulation Limits

Like overfished species, halibut will be allocated using a formula intended to provide QS to those who most need it to cover their bycatch while pursuing target species. Providing an initial allocation to these entities is expected to reduce disruption and related costs, thereby increasing overall benefits. To achieve this end, halibut IBQ will be allocated proportionally to arrowtooth flounder and Petrale. Information on the initial allocation and accumulation limits for halibut is provided starting on page A-330. The control and vessel limits for Pacific halibut are covered in Section A-2.2.3.e.

Net Benefits, Sector Health and Communities

It is anticipated that the bycatch of Pacific halibut will decrease under trawl rationalization due to the incentive for individual vessels to avoid bycatch and based on observations of the B.C. fishery. Reduction of trawl bycatch of Pacific halibut would provide more yield for directed Area 2A halibut fisheries. This would increase net benefits, positively impacting net national benefits and the fishing and processing sectors, as well as the communities that depend on them. The overall effect on net benefits, sector health, and communities will depend on whether enough halibut is provided for trawlers to access all of the available and marketable target species. If the amount of halibut is not sufficient for this purpose, net benefits may still be higher under the IBQ system if the value of the additional halibut directed fishing opportunities is greater than the value of the target groundfish harvest forgone because of IBQ constraints.

A-5 ALTERNATIVE SCOPE FOR IFQ MANAGEMENT (OPTION)

❖ *Provisions and Options*

Option: IFQ will be required to cover all groundfish catch except for bycatch species taken on whiting sector trips.

If this option is selected sections above would be modified as follows.

Section A-1. Replace "QP will be required to cover catch of all groundfish (including all discards" with "for nonwhiting trips, QP will be required to cover catch of all groundfish (including all discards), for whiting trips, QP will be required to cover catch of all whiting (including all whiting discards but not incidental catch of nonwhiting groundfish species)." If the three sector option is selected in Section A-1.3, then in the previous sentence replace "nonwhiting trips" with "shoreside trips" and replace "whiting trips" with "trips delivered at sea."

Section A-1.3 Under the three sector option (shoreside, mothership, and catcher-processors) this alternative scope does not apply to the shoreside sector. For all catch destined for shoreside delivery QP would be required, including catch on trips targeted on whiting. For catch destined for at-sea delivery, QP would be required for whiting but not bycatch species. Under the four sector option, shoreside whiting trips would be included among those for whicH QP is required to cover whiting and not required for bycatch species.

Section A-1.5. Whiting trip bycatch species will not be managed with IFQ but will be pooled and managed with bycatch caps. Select one of the following options for incorporation in Section A-1.5:

Bycatch Management Option 1: A single bycatch caps covering all whiting sectors. All sectors and co-ops will close as soon as the whiting fishery bycatch cap is reached for one species; a controlled pace may be established if the sectors choose to work together cooperatively, potentially forming an intersector/interco-op cooperative.

Bycatch Management Option 2: A single bycatch caps covering all whiting sectors and seasonal releases. Same as Option 1, including the potential for forming co-ops, except there will be seasonal releases of bycatch allocation.[137]

[137] At the outset, it is envisioned that the seasonal approach will be used to manage widow rockfish bycatch; for canary rockfish and darkblotched rockfish, status quo management will be maintained (i.e., no sector allocation and no seasonal apportionment). A seasonal release bycatch management program will be implemented through regulation. For reference, a similar program is used to manage halibut bycatch in NPFMC-managed flatfish and Pacific cod fisheries, see 50CFR679.21(d). In practice, seasonal releases protect the next sector entering the fishery. For example, a May 15 to June 15 release will be used by the catcher-processors and motherships, but it protects the shoreside fishery; the June15 to September release will be used by shoreside and whichever catcher-processors and motherships are still fishing whiting and to protect a fall at-sea season after September 15; the final release in September will again be shared by the catcher-processors and motherships, assuming shoreside is done.

For example:

1. No sector bycatch allocations.
2. Status quo for canary and darkblotched rockfish; i.e., no seasonal or sector allocation.
3. May 15 to June 15; 40 percent of widow hard cap released.
4. June 15 to August 31; an additional 45 percent of widow hard cap released.
5. Sept. 1 to December 31; final 15 percent of widow hard cap released.
6. Once a seasonal release of widow rockfish is reached, the whiting fishery is closed to all three sectors for that period. The fishery reopens to all three sectors upon release of the next seasonal release of widow rockfish.
7. Unused amounts from one seasonal release rollover into subsequent release periods.

(Note: percentages are for illustration purposes only, actual release percentages will be developed through the PFMC process).

Bycatch Management Option 3: A separate bycatch caps for each sector. Each sector closes when its bycatch cap is reached.

Bycatch Management Option 4: A separate bycatch cap for each sector and a roll-over. Each sector closes when its bycatch cap is reached. Unused bycatch may be rolled over from one sector to another if the sector with unused bycatch has used its full allocation of whiting or participants in the sector do not intend to harvest the remaining sector allocation.

❖ *Rationale and Analysis*

The rationale and analysis covering this topic are included in Section A-1 and within Appendix B. Therefore, the reader is referred to these analyses when considering the effect of this alternative scope.

❖ *Interlinked Elements*

Interlinked elements are identified in the text of the option.

A-6 DURATION: FIXED TERM (AND AUCTION) (OPTION – NOT PREFERRED)

❖ *Provisions and Options*

Fixed Term Option: The term of all QS issued will be limited to 15 years (except that the Term-1 QS may last 15 or 16 years, depending on when the biennial specification period ends). Starting with Term-2 of the program, **Reallocation Option 1:** QS will be reallocated to holders at the end of the term, unless the program is otherwise modified. **Reallocation Option 2:** Starting with Term-2 of the program, every two years up to 20 percent of all QS will be returned to NMFS for reissuance via an auction, unless the program is otherwise modified.

If the fixed term option is selected, sections above would be modified as follows.

Section A-2.3.4. Add the following. The initial allocation of QS will be valid for a period of 15 or 16 years (ending at the end of the second year of the biennial specification period). Thereafter, in the absence of actions to end or amend the program, QS will be issued for 15 year terms (i.e., all QS will expire every 15 years) on the following basis.

Section A-2.1.6. Add the following.

Reallocation Option 1: After initial issuance, for the start of each subsequent term of the program, QS will be reallocated to current QS holders (those holding the QS on the day the term expires), in proportion to the amounts they held on the day of expiration, unless the program is otherwise modified,

Reallocation Option 2: After initial issuance, for the start of each subsequent term of the program, up to 20 percent of the QS will be reallocated in an auction with the remainder going to the current QS holders (those holding the QS on the day the term expires), in proportion to the amounts they held on the day of expiration, unless the program is otherwise modified. Additionally, every two years during the term up to 20 percent of each holder's QS will return to NMFS for redistribution via an auction. All auctions for the QS to be redistributed will be held at least one year in advance of the actual redistribution. When the redistribution occurs, the QS will come from those holding it at the time of the redistribution and go to the winners of the auction.

The specific form of the auction will be decided by the Council in the period between trawl rationalization implementation and the first auction. It will be designed to achieve the goals of the trawl rationalization program, including reducing bycatch, increasing operation flexibility, measurable economic and employment benefits through the seafood catching, processing, distribution elements, and support sectors of the industry.

❖ *Rationale and Policy Issues*

An initial auction is not proposed because of the need for a transition during a period of economic stress. It is unlikely that many of the participants in the current fishery have structured their operations financially in a manner that would allow them to effectively compete in an auction. After 15 years, the fishery should be in much better shape, and 15 years would provide fishermen a long time to get used to the IFQ program without having to pay for the QS. It would also provide a substantial amount of advance notice to allow existing firms an opportunity to position themselves financially to effectively compete in an auction. The general reason for 15 years is to provide a substantial amount of stability for industry to make fishing decisions. The term of 15 years was also chosen because of the rebuilding periods for overfished species. Within 15 years, Boccaccio, canary, POP and widow would all be rebuilt. With the exception of darkblotched, the other species are not projected to rebuild for a

substantially longer period. An auction should not be included in the period during which the Council is exploring how it will handle allocation when species are rebuilt.

Holding an auction every year would result in too much annual change and increased administrative costs; therefore, it was proposed that the auction occur every two years in conjunction with the biennial specifications. There should be a transition at the end of the 15 years; therefore, an auction of 20 percent of the QS every two years was specified. The Council could choose to auction less than 20 percent, and that decision could come out of the analysis conducted when the auction is designed. The auction could be designed to provide for new entrants and protect communities by setting aside specific amounts to go to small fishermen, communities, etc.

The 15-year limit and auction were also intended to add to the assurance that IFQ would not be viewed as property rights. The largest investors in the fishery are the citizens of the U.S., and that had to be more strongly recognized, at least as an option for analysis. There are various other public natural resources for which use rights are auctioned.

Funds collected in the auction would go into the new fund specified in the MSA, which, subject to appropriations, could come back to the fishery.

The rationale for the Council's final action on the auction option is provided in Appendix F.

❖ *Interlinked Elements*

The option is a variation on Section A-2.3.4Program Duration and Modification.

❖ *Analysis*

Analysis is provided in Appendix F.

A-7 GEAR CONVERSION (OPTION – NOT PREFERRED)

❖ *Provisions and Options*

The scope of the IFQ program allows trawl vessels to use other types of gear to harvest groundfisH QPs. At its June 2008 meeting, the Council added the following option for consideration. ***This option is not necessarily a preferred option.***

Gear Conversion Option: allow a permit holder to use an alternative legal gear for a two-year period after which the permit holder decides whether to continue to use the alternative gear or trawl gear.

❖ *Rationale and Policy Issues*

When trawl vessels use a nontrawl gear in the current groundfish fishery, their groundfish catch is attributed to the trawl sector allocation. Section A-1.1 specifies the scope of the trawl rationalization program, which implicitly allows vessels to switch back and forth between trawl and other gears. The purpose of a gear conversion provision would be to make a permanent reduction in the amount of groundfish catch taken with trawl gear, change the fishing footprint on bottom habitat, and provide an additional option to harvesters on gear usage. Gear conversion would be voluntary. Permanent gear conversion would not change the scope of the IFQ program but, depending on how it is implemented, gear conversion would not allow vessels to convert back to trawl gear. In other words, some of the trawl permits, vessels, and/or QS/QP would be prohibited from use with trawl gear.

Gear switching and gear conversion would both allow harvesters to have greater flexibility, though to differing degrees. To achieve gear conversion, incentives would likely be required to encourage trawlers to permanently convert gear types. Adaptive management QP in the shoreside nonwhiting trawl sector could be used to reward or encourage bottom trawlers to convert to fixed gears.

The Council decided against this option based on its preliminary specifications. Additional guidance would have been needed to fully specify this gear conversion provision. Specifically there was a question as to what would be constrained or converted to "fixed-gear only" after the two-year period. Choices appeared to include the following:

- The permit
- The vessel
- All QS/QP used with the vessel (including QS/QP taken with trawl gear)
- Only certain QS/QP used with the vessel (partial conversion)

With respect to the question of "what would be constrained," constraint of the permit would be unlikely to achieve the purpose of the provision until enough permits had been converted to constrain the fleet's ability to use trawl gear to take the full amount of the available harvest. Until such time, QS could be moved from the converted trawl permits (trawl IFQ sector permits) to regular trawl permits, such that no permanent conversion to nontrawl gear is achieved. Constraint of the vessel would be even less likely to achieve the desired end because there are even more substitute vessels available than there are trawl permits. Requiring the conversion of all QS/QP used with the vessel would provide a substantial disincentive for a vessel to opt for conversion unless it was the vessel's intent to use only nontrawl gear. In addition to the constraint on the vessel's activities with full conversion of all a vessel's QS, the loss of flexibility to use those QS with trawl gear would reduce the market value of those QS. Partial conversion, requiring the conversion of only those QS representing the QP used with the converted gear, would substantially reduce the disincentive for participating in conversion at the end of the second year.

The vessel choice between conversion and returning to the use of a trawl gear would likely depend on the benefits the vessel experienced by using the nontrawl gear compared to the amount of time it would be required to forgo use of that gear before it would be once again allowed to engage in gear switching.

Both the complete and partial QS conversion approaches could present tracking problems with determining what QS would be converted. First, the QP used on a vessel may not be from QS owned by the harvesting company. Second, the QS from which a vessel receives its QP may be different from one year to the next. One possible approach would be to require that QS to be converted be assigned to the vessel, along with the QP, and left there for two years in order to trigger the conversion provision. For this approach to work, there would have to be an incentive for harvesters to want to permanently convert their QS to nontrawl gear, otherwise most harvesters would probably prefer to take advantage of the gear switching opportunities without committing to permanent conversion. There may be some possibility that at-sea monitoring with cameras instead of observers is more feasible with nontrawl gear than with trawl gear. If this were the case, providing an opportunity to fish their QS without having to pay observer costs (an opportunity that using converted QS might allow) would provide an incentive for some harvesters to commit to the conversions. Another incentive might be to use some of the adaptive management QP to bump up the QP allocated to QS that have been converted. Another approach for addressing the tracking problem would be not to require the identification of the QS to be converted, until the end of the two-year period. At that time, if the harvester wanted to continue to use nontrawl gear, it would be required to submit QS to NMFS for conversion.

Because the gear conversion option needs further development, two analytical options are provided. These options focus on the conversion of QS rather than the vessel or permit. Under these options, vessels would either be provided a positive incentive to permanently switch QS from trawl to nontrawl gears (Option 1), or a disincentive for not switching after using a nontrawl gear for two years (Option 2). Under the second gear conversion option, the disincentive would be a restriction on a vessel's ability to switch gear types for a period. The design of these options takes into account that, under the program as it is currently designed, only QP is associated with a vessel (QS is held in separate accounts that may be held by processors, crewmembers, and communities, as well as individuals that happen to be vessel owners).

Analytical Option 1: Incentive for Permanent Gear Conversion, No Constraint on Gear Switching

Adaptive management QPs could be utilized as an incentive to convert permanently to fixed gear. Gear conversion is a long-term prospect. To provide sufficient incentive, either the amount of the adaptive management QP provided as incentive would have to be high enough to compensate for the longer-term commitment, or there would have to be a longer-term commitment of the adaptive management QP. If the 10 percent set-aside of adaptive management QP is to be fished only by vessels that have permanently converted to fixed gear, this would require an extra element of tracking of adaptive management QP to make sure it was caught with fixed gear.

Analytical Option 1a: QS Acquired In Advance and Designated for Conversion

At the start of a two-year period, a harvester interested in permanent conversion would assign to a vessel the QS it intends to convert to another gear. At the end of the two-year period, the harvester would be required to choose between permanently converting those QS to an alternate gear or not receiving the incentives in the following period. Incentives would be provided for permanent conversion of all QS the vessel designated for conversion. Examples of possible incentives include additional quota for the following two-year period and/or ability to use some lower cost at-sea monitoring technologies (e.g., electronic monitoring) if deemed to meet the program's monitoring standards. Vessels that gear

switch but do not assign QS to the vessel for purpose of conversion would not have to make a gear conversion choice after two years, but would receive no incentives for switching.

All other provisions of the IFQ program would continue to apply, including the requirement that a trawl permit must be held in order to fish in the rationalization program. Harvesters who assign QS for conversion but opt out within two years must wait two years before having an opportunity to again take advantage of the conversion incentives.

Analytical Option 1b: QS Acquired At End of Two-year Period

Option 1b is the same as Option 1a except that instead of acquiring the QS in advance to receive the incentives, a vessel would acquire the QS at the end of the two-year period and submit the request to NMFS for permanent conversion of that QS. The amount of QS a vessel would be required to acquire and designate for permanent conversion would be the amount that is equivalent to the average amount of QP it used with nontrawl gear during the previous two-year period.

Analytical Option 2: Disincentive for Not Switching After Two Years

Option 2 is the same as Option 1b except that there would be no incentives and a vessel that used nontrawl gear and, at the end of that period, did not permanently convert the required amount of QS would be prohibited from using the nontrawl gear again for two years.

❖ *Interlinked Elements*

Tracking and Monitoring (A-2.3) - At the permit level, NMFS may have to track which permits/QS/QP had permanently converted to fixed-gear usage. Tracking of the specific gear type used to catcH QPs would not necessarily occur. Observer coverage and compliance monitoring coverage are necessary elements for the trawl rationalization program.

Adaptive Management (A-3) - Adaptive management QSs could be utilized to develop gear efficiencies, which might include incentives for permanent gear conversion in the shoreside nonwhiting fishery.

Regional Landing Zones (A-8) – The need to track additional types of QS is multiplicative. If regional landing zones are adopted, the 30 different IFQ management units would be subdivided, possibly resulting in well over 100 different categories to track. If some QS and QP were designated as "converted," that number would double.

❖ *Analysis*

The goals and objectives addressed by the gear conversion provision include the following: reduce bycatch and minimize adverse impacts on EFH; contribute to reducing capacity; maximize the value of the groundfish resource by providing further flexibility to harvesters; and minimize negative impacts resulting from localized concentrations of fishing effort if fixed gear users access different locations than trawl gear users.

Conservation	Net Benefits	Disruption	Excessive Shares	Fairness and Equity	Sector Health	Labor	Communities	Small Entities and New Entrants	General Public	Program Performance
X	X				X		X			

The conservation consequences of gear conversion include a potential reduction in bottom trawl contact in areas where trawl gear is allowed to fish; a potential increase in fixed-gear bottom contact, both in areas where trawlers can fish and in areas where only fixed-gear types are allowed to fish; and a change in the volume and species mix of fish taken by the LE trawl fishery. Fixed gear is better able to avoid certain bycatch species, but fixed gear can also access and impact more sensitive (rocky relief) habitat, upon which trawl gear cannot fish. Should 10 percent of trawl gear be converted to fixed gear, there would likely be a decrease in bottom disturbance from trawl gear and a corresponding (but not equivalent) increase in bottom disturbance by fixed gear.[138] Fixed-gear impacts benthic habitat differently than trawl gear.

As noted in the "gear switching" analysis in Section 4.7.2.1, some trawlers in southern-central California coast have expressed an interest in using fixed gear due to public demand for fixed-gear-caught product. Fishing effort could increase south of Eureka, an area where there currently is little trawling, if fixed gear is utilized to a greater extent because fixed gear is more workable in that area of the west coast. That analysis also suggests that harvesters in areas that encounter constraining bycatch species at a higher rate than other areas of the west coast may be more likely to utilize gear switching (and perhaps, by extension, gear conversion) to avoid those stocks. Those areas of higher constraining species bycatch rates are northern Washington and southern Oregon.

The Chapter 4 gear-switching analysis states that market prices of certain species – like fixed-gear-caught sablefish – may incentivize the switch to fixed gear. Gear switching would also provide flexibility to the harvester to catch all of the QP in a vessel account in a given year (modifying the mix of gear used based on conditions and the mix in the trawl harvest in a particular year). However, these advantages for gear switching would not be incentives to commit to permanent gear conversion.

The permanence of gear conversion may deter some trawlers who want to use fixed gear but do not want to fully convert with no provision to convert back. A Natural Resources Defense Council funded study (Jenkins 2008) of west coast trawlers regarding gear conversion, noted that "because of the long-term commitment, some trawlers, especially those with the highest volume, are not likely to convert to an alternative gear." Absent adequate incentives, the likelihood of trawlers permanently converting to fixed gear may be low because nonpermanent gear switching would already be allowed (see Section A-1). Without an incentive or prohibition otherwise, trawlers could use fixed gear for two years, come to the point of making a decision whether to convert to fixed gear, choose not to, and still use whatever gear type they choose. If a requirement were specified that after two years of using an alternative gear a

[138] The 10 percent switching number is mentioned because the Council requested an analysis based on the assumption that there would be a 10 percent switch from trawl to other gears. Unfortunately, we are not able to provide quantification of the impacts from this switch.

trawler chose not to permanently convert, then the vessel would have to fish only with trawl gear, trawlers would be forced to use trawl gear when they might have preferred to continue to use nontrawl gear. This could reduce the amount of gear switching and the associated benefits.

While permanent conversion to fixed gear would provide less flexibility than gear switching, it may provide other advantages. For example, camera monitoring could be more feasible with fixed gear than with trawl gear. Incentives could also be provided by charging different annual renewal fees or transaction fees for QS that has been converted or by providing a supplemental amount of QP from the AMP. These differences and incentives could contribute to differences in the overall cost and revenue of fishing with the alternative gear, encouraging use of that gear.

Gear conversion may create imbalances in the multispecies mix necessary for prosecution of the trawl fishery. Species targeted by trawlers include flatfish and the Dover sole-Thornyhead-Sablefish (DTS) complex. Flatfish cannot be effectively harvested by fixed gear, and that market would be sacrificed by trawlers that convert to fixed gear. Sablefish caught by fixed gear could yield a higher price than sablefish caught by trawl gear. For example, in response to multiyear-duration, cyclical swings in price, relative availability, and/or species mixes, conditions may favor the conversion of some of the trawl sablefish QS to nontrawl gear, reducing its availability for use in the DTS fishery. If conditions then reversed, favoring targeting of the sablefish harvest with trawl gear, the switch back would not be possible without a regulatory change. This could reduce the net economic value derived from the fishery. While permit holders or vessel owners may consider that conditions in the fishery vary over time, the effect of those conditions on their decisions will depend on their planning horizon. The planning horizon needed to appropriately organize production in the fishery may be longer than that of the individual fishermen, (i.e., decisions based on short-term conditions may be suboptimal as fishery conditions change).

A-8 REGIONAL LANDING ZONE (OPTION – NOT PREFERRED)

❖ Provisions and Options

Under the preferred alternative, the Council will choose between creating a split in the management units at 40°10' N latitude and the regional landing zones option (see Section A-1.2). The following describes the regional landing zone option as presented in the WDFW proposal:[139]

Regional Landing Zone Option:

1. Two basic types of QS would be issued for target species:
   (a) zone-specific QS and
   (b) zone-free QS.
   Zone specific QS would not be required for incidentally caught overfished bycatch species.
2. The Council would decide the overall split between zone-specific and zone-free QS (e.g., 80 percent zone-specific, 20 percent zone-free). Each permit owner or processor would be allocated the same split of zone-specific and zone-free QS.
3. Zones would be limited in number (i.e., two to six per state with a coast wide maximum of ten), designed and nominated by the states, and approved by the Council. The states could design individual zones to encompass a single port or group of ports.
4. QP from zone-specific QS could only be landed in the zone for which the QS is issued. However, the zone designation would not restrict the catch area. Zone-specific QS would be transferable to holders outside the zone, but the QP associated with that QS would have to be landed within the specified zone.
5. QS would be issued to permit owners and processors based on the allocation formulas specified in Section A-2.1. These formulas use a 1994-2003 allocation period. The QS issued to each recipient would be designated for a particular zone based on the recipient's landings history over a time period chosen to reflect recent conditions (e.g., 2005-2007). For each target species, zone-specific QS would be issued to a recipient based on the proportion of landings history in each zone during the recent period.
6. The Council could adaptively manage the system by varying the split of zone specific to zone free QS, redistributing QS among zones, permitting limited transfers between zones, adding or subtracting zones, etc.

❖ Rationale and Policy Issues

Rationale for the Option

The Council added the regional landing zone option for consideration alongside the June 2009 PPA out of concern over the negative impact that consolidation in the nonwhiting fleet could have on fishing communities. The option was proposed as a means of directing landings towards communities that have traditionally participated in the nonwhiting trawl fishery.

The option was proposed with both short- and long-term social objectives in mind. The short-term objective would be to provide stability to communities by preventing quota recipients from completely transferring their QS/QP out a region. Quota holders could transfer their QS/QP, yet any zone designated QS/QP-transferred would remain subject to the landings restriction. Over the long term, the zone landings requirement could be used as a tool to prevent excessive geographic consolidation of quota, to promote sustained participation from fishing communities, and to ensure that the economic benefits of the program were dispersed coast wide.

[139] PFMC, June 2008 Briefing Book: Agenda Item F.6.f, WDFW Supplemental WDFW Attachment 1.

The Council did not include the regional landing zones option in the November 2008 preferred alternative. Many Council members expressed their concern about fleet consolidation and the impact to communities. However, the Council's discussion and motion in November 2008 focused on the AMP as the tool for addressing those concerns.

Policy Guidance and Previous Consideration of Area Landings Requirements

Section 303A(c)(5) of the MSA requires the Council to do the following:

> (B) consider the basic cultural and social framework of the fishery, especially through—
>
> > (i) the development of policies to promote the sustained participation of small owner-operated fishing vessels and fishing communities that depend on the fisheries, *including regional or port-specific landing or delivery requirements*; and
> >
> > (ii) procedures to address concerns over excessive geographic or other consolidation in the harvesting or processing sectors of the fishery (emphasis added).

The Council's consideration of regional area management and landing requirements began even before Congress added Section 303A to the MSA. Indeed, the need for such policies was a major topic of discussion during the NEPA scoping process:

> The question has been raised as to whether or not an IFQ program might increase the need for regional area management to address biological or socioeconomic concerns. Without area management, it has been suggested that under an IFQ program there may be a greater potential for effort to be concentrated within some areas than there would be under other types of catch control tools. . . . Assigning area-specific OYs may prevent regional depletion of stocks, which is an issue of biological concern to the extent that mixing or migration of stocks between areas is not occurring. Maintenance of fishing opportunities and protection of local community interests and processing infrastructure could be potential socioeconomic reasons for dividing OYs by area.[140]

The scoping process identified three key objectives for of regional area management:

- Preventing regional depletion and set catch levels for areas based on stock assessments
- Distributing economic benefits of catch along the coast
- Ensuring that certain communities receive economic benefits

The scoping process also drew a distinction between biological and social objectives and the appropriate methods for achieving the two:

> Catch area restrictions on IFQs would more precisely address biological concerns and would likely keep landings more geographically dispersed than might be the case without such restrictions. Landing area restrictions on IFQs would more precisely address socioeconomic

[140] PFMC. 2005. NEPA Scoping Results Document: Individual Fishing Quotas (A Kind of Dedicated Access Privilege) and Other Catch Control Tools for the Pacific Coast Limited Entry Trawl Groundfish Fishery.

All quotations and references made to the scoping document in this section can be found in Appendix A, Section A.1.0.

> concerns and would likely keep catch more geographically dispersed than might be the case without such restrictions.

At the end of scoping, the TIQC rejected any type of landings area endorsement and concluded that area management measures "should be based solely on the need to address stock conservation concerns." The TIQC's recommendation was based on concerns about possible constraints on the fleet's operational flexibility:

> Minimizing restrictions, such as catch area restrictions, will increase operational flexibility and increase the value of the IFQ. Given flexibility, vessels will go to areas where they can fish the cleanest.
>
> Landing area endorsements should be rejected. With respect to protection for ports, the TIQC felt that there are not enough groundfish to support processing facilities in every port that has historically had such fisheries. The economics of the trawl fishery do not allow vessels to travel far from the fishing grounds to deliver their catch. Where fish should be landed cannot be accurately forecasted and is worked out through negotiations between vessels and processors. The potential for geographic redistribution is a reality for market driven systems. Nothing in the current system prevents vessels from migrating between ports.

In October 2008, the GAC considered the regional landings zone option but did not recommended that it go forward as part of the Council's preferred alternative.[141] The GAC had concerns about the task of tracking the additional types of quota that would be created by the option. Members of the GAC and its advisors raised questions about the landings requirement's potential effectiveness given that fish can just be landed in a port and trucked elsewhere. Some members of the GAC stated their belief that adaptive management would do a better job of providing community stability. The GAP discussed the regional landings zone option in November 2008 and was not in favor of its inclusion in the trawl rationalization program.[142]

❖ Interlinked Elements

The regional landings zone option shares overlapping objectives with the proposed AMP. However, the structure and approach of the two are substantially different and, therefore, potentially compatible. The proposed latitudinal area management option described in Section A-1.2, in contrast, would potentially be redundant to this option. An area management program that combined the biological objectives of the latitudinal area management option with the socioeconomic objectives of the regional landings zone option would have to be carefully designed.

[141] PFMC, November 2008 Briefing Book, Agenda Item F.3.e, GAC Report.
[142] PFMC, November 2008 Briefing Book, Agenda Item F.3.f, Supplemental GAP Report.

❖ Analysis

This analysis examines how a regional landing zone option would modify and integrate into the IFQ system. There are several design elements, which we identify and discus in this section. There are many possible configurations of these design elements, making it difficult to analyze anything but broad dynamics.

Design elements of the regional landings zone option that would have to be considered by the Council:

- Number and location of the regional landing zones
- Method for assigning zone restricted QS/QP to the zones and for tracking and enforcement of the landings obligation
- The overall ratio between zone free and zone restricted QS/QP
- Identifying the IFQ management units to be covered by the landings restriction
- Adaptive features

Assigning and Tracking QS/QP under a Regional Landings Zone Program

Assigning Zone Restricted QS/QP

This regional landings zone option would divide QS issued for a set of IFQ management units in the shoreside nonwhiting trawl fishery into two categories: zone-restricted QS and zone-free QS. Zone-free QS would be identical to the IFQ management units described in Alternative A.1-2. QS would have a restriction on the zone where the associated QP can be taken, but it would not otherwise alter the IFQ Management Units.[143]

Zone-restricted QS would be marked with a zone designation at initial allocation and would "run with" the QS through transfers. This means that zone-restricted QS/QP would be transferable subject to the IFQ Transfer Rules chosen in Alternative A-2.2.3, yet transferees would still be bound by the landings requirement. The zone designations would remain in effect until extinguished through regulation.

Table A-110 illustrates the basic process of how the zone assignment would occur at initial allocation. In the first step, the QS for each IFQ management unit covered by the option would be designated either as zone-free or zone-restricted based on the percentage of QS the Council desired split. The example in Table A-110 uses a 40/60 split so that 40 percent of all QS is zone-free, and 60 percent is zone-restricted. Each QS recipient would receive the same overall amount of QS they would obtain under the Initial Allocation and Direct Reallocation rules chosen under Alternative A-2.1. In Table A-110, the hypothetical Company X stands to receive 0.02 of the *Sablefish N. of 36* QS. Using the 40/60 split, 0.008 of Company X's QS would be zone-free, and 0.012 would be designated as zone-restricted.

In the second step, each permit's zone-restricted QS would be assigned specific zone designations based on the permit's landings history. The assignment would be based on a window or "zone assignment"

[143] The IFQ management units are based on stocks and catch areas and ensure that acceptable levels of fishing morality are not exceeded. The landing area restrictions placed on the QS will not alter the amount of QP issued or directly change the areas where the harvest is taken. However, harvest areas could be indirectly influenced by the zone restrictions because trawl vessels tend to operate close to where fish are landed.

period chosen by the Council. In the Table A-110 example, the zone assignment period is 2006 to 2009; in those years, Company X made 6 percent of its *Sablefish N. of 36* landings in Zone 1, 83 percent in Zone 2, and 11 percent in Zone 3. Applying the percentages to Company X's overall zone-restricted QS (0.012) would then yield Company X's QS for each zone.[144]

Table A-112. Illustration of the process for assigning a quota recipient's ("Company X") zone-restricted QS/QP. The example is based on a 40/60 split between zone-free/restricted QS. Initial QS, landings history, and "Trawl OY" data are hypothetical.

Company X -- "Sablefish N. of 36" IFQ				
[Step 1] QS Split Initial QS ***0.0200***				
Zone Free QS ***40% x 0.0200*** ***= 0.008***	**[Step 2] Zone Assignment** **(based on window period 2006-2009)**			
	Total Landings		***150 mt***	
[redacted]				
Zone-restricted QS ***60% x 0.020***	Landings by Zone	***Zone 1*** 8.4 mt	***Zone 2*** 125.1 mt	***Zone 3*** 16.5 mt
[redacted]			***÷ 150 mt***	
	% of Total Landings	***= 6%***	***= 83%***	***= 11%***
= 0.012	⟶		***x 0.012***	
	Zone Restricted QS	***= 0.00067***	***= 0.01001***	***= 0.00132***

[Step 3] QS/QP Portfolio in Year

	Zone Free	Zone 1	Zone 2	Zone 3
QS	***0.00800***	***0.00067***	***0.01001***	***0.00132***
Trawl OY in Year	7,000 mt			
QP for Year	123,458 lbs	10,370 lbs	154,445 lbs	20,371 lbs

Additional zone assignment rules may be necessary to address the issuance of *de minimis* amounts of zone restricted QS to quota recipients. The amount of zone-restricted QS resulting from this minor amount of landings could be so small that the quota holder would not bother to land within the zone and may even have difficulty trading it on the market. A minimum threshold percentage (e.g., 5 percent) would be one method of addressing the issue. Landings not meeting this percentage threshold could be assigned to an adjacent zone or designated as zone-free QS.

[144] The zone assignment could be based on species-by-species basis, as shown in Table A-110, or based on all groundfish landings in aggregate during the window period.

After initial allocation of QS, the next step would involve translating the zone-restricted QS into an annual landing requirement. In this step, the zone-restricted QS would either (1) be converted into QP using the same IFQ Annual Issuance process chosen under Alternative A-2.2.2 used for all IFQ management units, or (2) converted into zone assignment QS ratios depending on how the zone landings requirement was tracked (discussed below). Neither method would involve an annual sub-allocation of the trawl sector OY to the regional zones. Unless altered through the Council process, the QP received by each zone would be based solely on QS assigned to the zone at initial allocation.

Tracking Zone Restricted QS/QP

There are two potential methods for tracking zone restricted QP. The first would track zone-restricted QP in the same manner contemplated for tracking QP without the zone landings option in place. Doing so would require zone-restricted QP to maintain its species-zone identity throughout the year as a special type of QP. For example, a vessel account could contain multiple types of Dover sole QP: zone-free Dover sole QP, Zone A Dover sole QP, Zone B Dover sole, and so on. The Permit/IFQ Holding Requirements described in Alternative A-2.2.1 would apply to eacH QP type. If a vessel landed a particular species in a particular zone, QP for that species-zone combination would be required. Zone-free QP could be used as well. If the vessel account had both types, the owner could designate which type and the amount to deduct from the vessel account.

The second approach—which would have to be worked out in more detail—would fashion the option as an annual requirement. QS account owners would be given zone assignment QS ratios at the start of the fishing year. At the close of the fishing season, account owners would have to show documentation that proved their annual landings achieved or bettered the zone assignment ratios (e.g., Company X show that 1.32 percent of its *Sablefish N. of 36* landings were made into Zone 3.

The potential downside to the first method is that there would be significantly more types of QP categories to track than there would be in the absence of the zone landings requirement. The potential number of QS/QP combinations is explored below. Under the second method, data collection would be the same as it would be absent the regional landings requirement. Quota holders would only have to know the amount and location of each landing to track their cumulative landings in each zone. However, the review of landings documentation at the end of the year would create another administrative task for NMFS.

Design Elements and Other Considerations

IFQ Management Units Covered by the Regional Landings Zone Requirement

As described in the WDFW proposal, the regional landings zone requirement would apply to all nonwhiting groundfish IFQ stock management units except the overfished stocks. The potential universe of stocks is identified in Table 2-5. Table A-111 provides a list of those species that tend to be trawl targeted and were included within the scope of the Council's PPA.[145]

[145] See section A.1-2 for details on the IFQ management units. The Council's preliminary preferred alternative would not have required QS/QP for longspine thornyhead south of 34°27' N latitude, minor nearshore rockfish north, minor nearshore rockfish south, black rockfish (WA), black rockfish (OR-CA), California scorpionfish, cabezon, kelp greenling, shortbelly rockfish, other rockfish, and spiny dogfish. In June 2009, the Council recommended adding the Other Fish category to the list.

Table A-113. The shoreside nonwhiting IFQ stock managed units that would potentially be subject to the regional zone landings restriction under the Council's PPA.

1	Lingcod N of 42º	12	Dover Sole
2	Lingcod S of 42º	13	English Sole
3	Pacific Cod	14	Petrale Sole
4	Sablefish N of 36º	15	Arrowtooth Flounder
5	Sablefish S of 36º	16	Starry Flounder
6	Chilipepper Rockfish	17	Other Flatfish
7	Splitnose Rockfish	18	Other Fish
8	Yellowtail Rockfish	19	Longnose Skate
9	Shortspine Thornyhead - N of 34º27'	20	Minor Rockfish North
10	Shortspine Thornyhead - S of 34º27'	21	Minor Rockfish South
11	Longspine Thornyhead - N of 34º27'		

The total number of QS units in the zone landings option would depend on the configuration and number of zones and actual landings into those zones during the zone assignment window period. The number of QS units would be something less than the following:

> [(*the # of IFQ management units subject to the zone restriction*) * (*the # number of zones* + 1)] + [the # of *overfished stocks management units* / *other stocks not subject to the restriction*].[146]

It would be "something less than" the number produced by this equation because not all IFQ management units would have coast wide landings history. Very few stocks (e.g., Dover sole, Petrale sole) would have landings history for every zone. Several stocks are already subject to some geographical subdivision. In addition, other stocks like arrowtooth flounder and Pacific cod are not geographically subdivided as management units yet would only have landings history within a limited number of zones because of the natural geographic distribution.

Even so, the regional zone landings option would likely add a considerable number of stock-zone QS units. If the Council designated eight zones, all 21 stock units in Table A-111 were subject to the zone restriction, and (on average) those stock units had landings history in four different zones, then the zone landings option would create 105 QS units for a total of 112 management units (including 7 QS/QP units for the overfished stock).[147] If the average number of zones were five instead of four, then the number of QS units created by the option would increase to 126 for a total of 133 management units. For comparison, the latitudinal area management option in Alternative A-1.2 would increase the number of management units from about 35 to 58. This number is comparable to the B.C. IVQ program, which involves eight groundfish management areas and 27 stocks that are managed for a total of 55 species area quota units.[148]

Another factor to consider in subdividing QS into regional units would be the potential risk posed by the pools of quota becoming too small. In other words, for species with a relatively small trawl sector

[146] The "plus 1" accounts for the zone free QS.

[147] 105 = 21 * 5 = (# of stock management units) * (average # of zones + 1 zone free).

[148] The B.C. trawl IVQ species area units can be viewed in Appendix 8 of the 2008/2009 Groundfish Trawl Commercial Harvest Plan: Fisheries and Oceans Canada, Pacific Region Amended Integrated Fisheries Management Plan: Groundfish, March 8, 2008 to February 20, 2009. (http://www-ops2.pac.dfo-mpo.gc.ca/xnet/content/mplans/mplans.htm#Groundfish).

allocation to begin with, the subdivision of pools of zone-restricted quota might create thin market conditions and potentially erode some of the efficiency gains expected under an IFQ program (see discussion of thin markets in Section 4.7.2.3).

To reduce the number of stock-zone QS combinations, the Council could choose to designate only a subset of stocks with the zone restriction. Given that a relatively few target species drive the nonwhiting groundfish trawl fishery, the outcome of the regional landings zone option could be more or less the same if only those key target species were covered. Still, even a limited number of target stocks would still have the potential to create a considerable number of new species area management units. Covering the top five target stocks would be similar to the area management by geographical subdivision option in terms of the total number of additional QS/QP units. For example, assuming 8 zones and an average of 6 zones per stock (target stocks tend to be more widely distributed), the total number of management units would be 58.

Table A-112 identifies the most economically significant stocks based on approximate average annual ex-vessel value from 2004 to 2006.[149]

Another potential way of reducing the number of QS units in the program would be to endorse certain zone-restricted QS units with multiple zone designations (e.g., Dover sole QS eligible for landing Zone 1, 2, or 3).

Table A-114. Top 12 nonwhiting, groundfish species in terms of average ex-vessel value, 2004 to 2006 (PacFIN).

	Species	Approx. value (thousands $)
1	Sablefish	~$6,200
2	Dover sole	~$5,200
3	Petrale sole	~$5,200
4	Shortspine thornyhead	~$1,000
5	Pacific cod	~$900
6	Longspine thornyhead	~$700
7	English sole	~$700
8	Arrowtooth Flounder	~$500
9	Rex Sole	~$500
10	Lingcod	~$450
11	Pacific sanddab	~$300
12	Unspecified. Skate	~$300

Designating the Regional Landings Zones

The configuration of the regional landings zones—their number and location—is perhaps the key design element of the option. The zones would redefine the geographic scope of the quota market. In addition, the ultimate configuration of the zones would be the primary factor determining the option's impact on

[149] There may be other significant target species that have been targeted in the past, and may again be targeted under the IFQ system, that do not have recent landings history because of overfished species constraints (e.g., chilipepper rockfish, yellowtail rockfish).

harvesting efficiency and operational flexibility. Some configurations might be highly constraining to some areas of the coast, whereas other configurations might have negligible impact on overall efficiency and flexibility.

As described in the WDFW alternative, the regional landings zones would be designed and nominated by the states and approved by the Council. The proposal suggests that there should be no more than 10 zones. The borders of each zone would be delineated by a north and south latitude line. Zone borders could either coincide with state borders or cross them. In addition, a regional landing zone could conceivably be designed to cover a single port to provide strong protection to that community. Alternatively, zones could be designed to encompass multiple ports to increase competition and operational flexibility. Overlapping zones would also be possible. Overlapping zones could make a single port or port group eligible to receive multiple sets of zone restricted QS/QP.

Multiple sections in this document could be used to guide the design of the zones. The regional comparative advantage analysis in Section 4.7.2.1 and Appendix C discuss some of the initial conditions (e.g., distribution of QS/QP at initial allocation) that are expected to influence geographic shifts in fishing effort and landings under an IFQ program. The regional geography of processing infrastructure is examined in Section 4.10.2.2. Possible impacts to fishing communities from the proposed action fleet are detailed in Section 4.15.2. Section 3.7 discusses the current status and vulnerability of individual fishing communities based on their dependence on and engagement in the groundfish fishery and other fishing activities.

Designating the Zone-Free/Restricted QS Split

As highlighted in the Table A-110 example, the Council would determine the overall split or ratio between zone-free and zone-restricted QS. The WDFW proposal suggested that the percentage split would be uniform across the program; however, it would also be possible to vary the split between IFQ stock management units (e.g., 40/60 for Dover sole, 25/75 for Petrale sole).

While the configuration of the zones defines the geography of the quota markets, the zone-free/zone-restricted QS split essentially determines the degree of independence between those markets. Competition between zones would be limited to the zone-free QS/QP, so the degree of independence would be proportional to the percentage of zone-restricted QS/QP designated by the Council: the higher the percentage, the lower the QS/QP competition between zones. At the same time, the independence of zone QS/QP markets would remain limited as long as overfished stocks were tradable coast wide.

Again, the objective of the option is to provide community stability by preventing quota from shifting geographically. Buyers and processors within regional landings zones could leverage the zone-restricted QS/QP to attract zone-free QS/QP. To remain "whole" in the IFQ program, each zone would have to leverage its zone-restricted QS/QP up to the amount of the zone-free QS ratio. The chances of this happening would presumably increase with higher percentages of zone-restricted QS. At the same time, restricting QS to a zone would not necessarily mean that all the associated QP would be landed every year. As is the case with the status quo, harvesters may not be able to access the full trawl sector OY because of overfished species constraints or they might not have a market for the fish.

Designating the Zone Assignment Window Period

As also discussed and illustrated in Table A-110, the Council would need to identify a zone assignment window period for assigning each quota recipient's zone-restricted QS to specific zones.

To achieve the goal of providing community stability during the IFQ program, this window period should be chosen to reflect recent landings patterns. A window period that went too far back might increase restrictions on operational flexibility because it would increase the chances that permit holders receiving the initial allocation of QS may have purchased the permit, or changed the location of their operations, outside or at the tail end of the window period.

Given that the zone assignment window would not influence the overall amount of QS issued to quota recipients, and that the objective of the option is to mitigate against substantial disruption to the fishery, the Council could consider designating a window period that extended to the present and beyond (e.g., 2004 to 2010). Doing so would allow those eligible to receive QS some influence over their potential portfolio of zone-restricted QS.

Further examination of potential window periods or alternative zone assignment rules would likely reveal a need for additional procedures for assigning the initial allocation of QS to zones. For example, if a recent window period is chosen, there may be permits receiving an initial allocation of QS/QP that have no landings history. There are known latent LEPs that will receive little QS/QP other than what may be distributed from the buyback history.

Adaptive Features of the Regional Landing Zones Option

The WDFW proposal suggests that the regional landings zone program could be managed adaptively by altering the design elements of the program. As seen above, there is considerable flexibility in the design elements of the program. For example, IFQ management units could be added to or subtracted from the zone requirement; the zone-free/zone-restricted QS percentage split could be decreased or increased; the boundaries of zones could be redesignated to add or subtract ports, etc. The Council would presumably make such changes in response to new information about the performance of the fishery.

Changing the design elements would involve varying administrative complexity and costs. The simplest change to the program would involve converting zone-restricted QS to zone-free QS, either wholesale or for a certain percentage (e.g., converting 25 percent of zone-restricted Dover sole QS to zone-free).[150] This conversion to zone-free could be made on a permanent basis or temporarily in response to inseason conditions. Increasing the number of zones in which a QS unit could be landed (e.g., permitting Zone 1 QS to be landed in Zone 2 as well) would also be relatively simple in terms of administrative complexity. In contrast, redesignating zone boundaries or increasing the amount of zone-restricted QS from the pool of zone-free QS would be more administratively complex and would require use of a zone assignment window period or other formula.

Biological effects of the Regional Landings Zones Option

Although the objectives of the regional landings zones option are exclusively socioeconomic in nature, any shift in fishing activity induced by the landings restrictions could have biological implications as well. Many of these implications are discussed in the analysis of the latitudinal area management provision in A-1.2. The biological effect of the regional landing zones option would be similar to that of the area management provision—i.e., precautionary and expected to decrease the likelihood of localized stock depletion—to the extent that the regional landing zone provisions were successful at preventing geographic consolidation of fishing activity. If, however, the design of the zones somehow increased concentration of fishing effort in certain regions, then the risk of localized depletion in those

[150] If the regional landings boundaries coincided with the 40° 10’ N latitude line (e.g.. if Zones 1-4 were north of 40, and Zones 5-8 south), then it would also be relatively simple to convert to the area management option.

regions would be higher. A major difference between area designations and the landing zone provisions is that the landing zone designations do not necessarily force vessels into particular catch areas if the fish are not there. The vessels can fish anywhere along the coast as long as they meet the landing area requirements for zone designated QP.

Influence of the Regional Landings Zone on the IFQ system

The regional landings zones option would not amount to a fundamental alteration of the IFQ mechanism. Therefore the tradability of QS/QP and individual accountability for total catch and discards would still be expected to change the behavior and composition of the fleet. The regional zones would, however, be expected to alter the scale at which these dynamics operate, and in turn, to impact the geographic redistribution of landings under the program. Again, markets for zone-restricted QS/QP would maintain some degree of independence from one another, yet would remain connected through trade for zone-free QS/QP. Competition for overfished species QS/QP in particular would be expected to remain high.

Potential Benefits to Fishing Communities

By creating landings restrictions based on recent conditions in the fishery, the regional zone provision would preclude wide-scale redistribution of QS/QP under the IFQ program. Over the long run, the regional zones would be expected to prevent excessive geographic consolidation of landings and promote broader distribution of benefits from the IFQ program. However, the degree to which individual ports and communities would benefit from these protections would depend largely on the configuration of the zones. The option could also provide communities disadvantaged under the IFQ system some protection by reducing coast-wide competition for QS/QP and by dampening down the influence of initial conditions (e.g., port infrastructure) on the redistribution of QS/QP. The converse of this, of course, is that communities that stood to gain the most from increased coast-wide competition would lose some of their advantages under the zone requirement.

Ports and communities within zones would still face competition from one another; thus, fishing activities and zone-restricted QS/QP could still shift within zones. If a port were placed into the same zone as a major competitor, then the zone provision might not provide much protection to that community. From the point of view of individual buyers and processers, nothing in the regional landings zone option would prevent new entrants from competing for landings. As happens under status quo, competitors could enter a zone with little or no capital investment in the community by sending mobile buyers into a zone to purchase fish and transport them to another area for processing.

The regional landings zones option would also present some risk of undermining overall economic efficiency and long-term benefits to the fishery. In 2004, the GAO evaluated landings restrictions as part of a report evaluating various community protection measures for IFQ programs and reached the following conclusion:

> *Requirements to bring catch into ports in a particular geographic area . . . may not be healthy for a community's economy in the long term. For example, such a requirement may subsidize inefficient local fish processors that cannot compete on the open market. With reduced competition, these processors may offer less money for the catch, thus reducing the fishermen's income and ultimately harming the community. According to Shetland Islands fishery managers we spoke with, had fishermen been required to land their catch in the Shetland Islands, they would have been forced to sell their catch at a*

> *price far below the market value and the processor would have had no incentive to restructure into the competitive business it is today.(GAO, 2004)*[151]

Although conditions on the west coast are much different than those in an isolated archipelago like the Shetland Islands, the potential for the zone landings provision to reduce competition within zones would still exist. As discussed elsewhere in Appendix A and in Appendix E, there are issues of market power and competitiveness in the processing and harvesting sectors related to the transition to an IFQ system and the initial distribution of QS/QP. These would be important factors for the Council to consider during the design of the regional zones.

Potential Impacts in the Harvesting Sector

The IFQ program would be expected to produce gains in harvesting efficiency over the status quo even with the regional landings zone option in place. Any additional costs associated with the landing restriction would be internalized into the IFQ mechanism, and the price harvesters are willing to pay for QS/QP will remain connected to the potential profits earned through harvesting the fish. As explained in Section 1.3.1, given that the zone-restricted QS/QP would still be divisible and tradable, harvesting efficiency within each zone would improve over time as the quota accrues to those able to harvest and land fish within the zone most profitably.

At the same time, there is some risk that economic improvement in the fishery would be lower than it would be without landings restrictions in place. This risk can be weighed by examining the potential impact of the landings restriction on the two sources of expected economic improvement under the proposed IFQ system: (1) reductions in overall and per-vessel harvesting costs and (2) increased access to target species from improved avoidance of overfished species bycatch. The risks posed by the regional landings zone option to improvements in these two areas are weighed separately.

- Risk to Expected Reductions in Harvesting Costs

Reductions in harvesting cost alone are expected to bring significant economic benefit to the fishery, with fleet consolidation being a major the source of the savings. This consolidation would occur as less efficient vessels transfer quota to vessels that are more efficient and exit the fishery. As more vessels exit, overall harvesting costs in the fishery are reduced as fixed costs and capitalization decrease, and the proportion of efficient vessels in the fleet increases.

Assuming that market conditions for zone-restricted QS/QP remain competitive, and transaction costs not too high, then consolidation and associated cost savings would still be expected within the regional landings zones. The geographic pattern of consolidation would ultimately depend on the configuration of the zones. The degree of consolidation and cost savings could vary between zones and could be higher or lower overall than it would be in the absence of the zone structure, depending on economic conditions within the zones.

Vessel efficiency could also be impacted. Vessel efficiency is a function of the vessel's harvesting capacity and its cost structure. Harvesting capacity would not be expected to differ over the long run under this option, yet a vessel's cost structure might vary because it depends in part on port infrastructure. Zones that contained only high cost ports would thus be expected to hamper cost savings of the vessels within that zone and reduce the overall efficiency gains in the program.

[151] GAO. 2004. Individual Fishing Quotas: Methods for Community Protection and New Entry Require Periodic Evaluation. GAO-04-277.

Bycatch is expected to be a major contributor to harvesting costs in the IFQ program. As described in Appendix C, there are regional differences in the distribution and abundance of overfished species. If a regional zone locked vessels into fishing in one of the known high bycatch areas, the cost of harvesting a given volume of target species would be higher in this zone because of the overfished species QP costs. Yet, this would be true only to the extent that higher bycatch rates could not be avoided within the zone, or if the cost of travel to harvest in lower bycatch rate areas was high. If the zones were large enough to provide multiple fishing and landings locations, high bycatch areas could likely be avoided. Over the long term, we would expect harvesters to try to reduce their bycatch rates by changing fishing locations and strategies. The incentives produced by individual accountability, together with improved at-sea data collection, should push harvesters to identify and avoid bycatch hotspots at a much finer scale than is possible under the status quo management structure. At the same time, if the only available bycatch avoidance strategy available were farther travel to fishing ground, then the increased travel distance would be a forced inefficiency and an undesirable outcome of the program.

- Risk to Potential Increased Access to Target Stocks

Increased access to target stocks is expected to occur under the IFQ program as regulatory discards are eliminated, and individual accountability creates incentives to reduce overall bycatch rates in the fishery. The regional landings zones program could potentially lower target species access compared to having no landings requirements in place if the zones somehow hampered improvement in bycatch rates.

This incentive to avoid bycatch might lead to coast-wide differences in target strategies and, in turn, regional differences in the amount of bycatch needed to access a given volume of target species. If zone restrictions prevented QS/QP from flowing to those areas where target stocks could be accessed for the least amount of bycatcH QP, then bycatch rates would not decrease to what they could have in the absence of the landings restriction. Yet, as mentioned above, this would only be true to the extent that the bycatch avoidance techniques used to achieve the lower bycatch rate would not be effective everywhere. As long as bycatch rates can be lowered through improved fishing techniques, the amount of target stock QP accessible per QP of bycatch would be expected to even out among zones over the long run.

Increased access to target stocks would also depend on demand for the increased volume of raw fish product. Therefore, differential market conditions for raw fish product between zones could also be a factor in how large the increase in landings will be under a zone-restricted IFQ program. For example, assume Zone 1 received zone-restricted QS/QP for a species that had little or no market for the raw fish product within the zone. With no zone restrictions in place, the QS/QP for this locally unmarketable species would flow to regions where demand for the species did exist. With zone restrictions in place, this transfer could only occur with zone-free QS/QP. With no market for the fish, the value of Zone 1 QS/QP would be zero. However, given that the assignment of QS to zones would be based on recent conditions in the zones, such situations should not be common. Significant landings of a species would not have been made in the zone if there were no market for the fish. Moreover, even if such market disconnections did occur, they might only be a problem over the short term. Over the long term, if enough demand existed for the raw fish product, processors or buyers would enter the zone to capture the profits.

Landing Patterns and Implications for Potential Zone-Restricted QS Portfolios

Vessels in the nonwhiting groundfish trawl fleet show a high degree of port fidelity, thus most permit owners receiving a quota allocation based on their trawl permit landings history would likely have their zone-restricted QS/QP assigned to a single zone. Yet, those that visited multiple ports during the zone assignment window period could have their zone-restricted QS assigned to several zones.

We examined permit ownership and landings patterns associated with those permits during 2004 to 2006 to get a sense of how many recipients would have their zone-restricted QS assigned to multiple zones.[152] As shown in Table A-113, 59.5 percent of permit owners hold LEPs with landings history in only one port group, nearly 25.6 percent hold permits with landings history in two or more port groups, and 14.9 percent hold permits with no landings history at all. Considering just the permits with landings during 2004 to 2006, nearly 70 percent hold permits with history in a single port, 12.6 percent in two ports, 10.7 percent in three ports, and 6.8 percent in four or more ports. Given that zones would likely be designed to cover multiple ports, it would be expected that more than 80 percent of quota recipients would receive zone-restricted QS for a single zone.

Quota recipients with history in multiple port groups could have very small portions of their zone-restricted QS assigned to a certain zone. Table A-114 shows that permit owners with landing history in multiple ports tend to make the majority of their landings into a single port group. Those with landings history in three or more port groups made, on average, less than 10 percent of their landings into the third port group. Those with landings history in four or more port groups show even smaller percentages. Some of these small numbers might not reflect regular business practices and could be artifacts of one-time business transactions or the transfer of permits between vessels. If so, then the regional zone landings provision could force additional transactions on quota recipients as they attempt to divest themselves of quota assigned to unwanted zones.

If the processing business received initial allocation of quota based on processing history, they would also potentially receive zone-restricted QS for multiple zones. Almost two-thirds of the QS would go to processors that have processing history in more than one port group. However, processing history is more likely to reflect recent business practices than vessel landings history. In other words, if the zone assignment window period reflects recent conditions in the fishery, then the zone-restricted QS received by processors should tend to match the location of their processing operations. Nonetheless, depending on the zone assignment window period, processors could still receive zone-restricted QS quota for a zone where they no longer, or no longer wish to, do business.

[152] The port groups used in this analysis are based on the PacFIN W-O-C port groupings (e.g., Eureka Area, San Francisco Area, Coos Bay Area; see *www.psmfc.org/pacfin*) except that Washington's north coast (e.g., Neah Bay) and Puget Sound ports were combined into a single port group based on the WDFW proposal's indication that those ports would likely be covered by a single zone.

Table A-115. Profile of limited entry trawl permit owners' nonwhiting groundfish landings history, 2004 to 2006, including count of port groups where landings were made. Ports consisting of less than 1 percent of a permit owner's landings were excluded.

	# of Port Groups with Landings					
	0	***1***	***2***	***3***	***4+***	**Total**
Count of Permit Owners	18	72	13	11	7	121
% of total	14.9%	59.5%	10.7%	9.1%	5.8%	--
		Permits Active during 2004-2006				
		1	***2***	***3***	***4+***	**Total**
Count of Permit Owners		72	13	11	7	103
% of total		69.9%	12.6%	10.7%	6.8%	--
Cumulative %		--	82.5%	93.2%	100.0%	--
Total landings (mt)		13,765	2,466	1,388	1,253	18,871
% of total landings		72.9%	13.1%	7.4%	6.6%	--
Landings per permit owner (avg. mt)		191.2	176.1	242.0	179.0	--

Table A-116. Distribution of groundfish landings history, 2004 to 2006, by permit owner and port group. The percentages in the table signify the average, maximum, and minimum percentages of permit owners' total landings made into their primary port group ("1st port"), secondary port group ("2nd port"), etc. Ports consisting of less than 1 percent of a permit owner's landings were excluded.

Permit owners with landings history in 4 or more port groups	**1st Port**	**2nd Port**	**3rd Port**	**4th Port**	**5th Port +**
Avg.	55.1%	16.1%	9.4%	5.1%	1.3%
Max.	90.3%	37.3%	23.5%	21.7%	1.8%
Min.	30.4%	3.0%	1.4%	1.3%	1.0%
Permit owners with landings history in 3 port groups	1st Port	2nd Port	3rd Port		
Avg.	69.5%	21.4%	8.8%		
Max.	95.9%	36.0%	26.7%		
Min.	44.0%	3.0%	1.2%		
Permit owners with landings history in 2 port groups	1st Port	2nd Port			
Avg.	83.3%	16.7%			
Max.	98.9%	42.6%			
Min.	57.4%	1.1%			

A-9 COMMUNITY FISHING ASSOCIATIONS (OPTION – NOT PREFERRED)

❖ *Provisions and Options*

The Council did not include in Amendment 20 any special provisions for formal CFAs but did commit to the consideration of such provisions as part of a trailing amendment.

❖ *Rationale and Policy Issues*

In the summer and fall of 2005, the Council gave extensive consideration to provisions to address the concerns of communities (see also "Consideration of Communities" on page A-38). In response to the trawl rationalization analysis in the preliminary draft EIS, as well as to public comment, the Council recognized a continuing concern regarding community stability and vulnerability associated with the implementation of the trawl individual quota program. In November 2008, the Council selected a final preferred alternative on the essential elements for a trawl rationalization program, but left three issues for trailing actions: establishing accumulation limits, defining eligibility to own, and an AMP. Part of the latter two actions included consideration of special community-based entities. As a starting point, the Council considered utilizing definitions of two types of special geographic entities provided for by the MSA: Fishing Communities and Regional Fishing Associations. The Council looked at both definitions and chose to define another type of entity more suited to the Council and constituencies' needs - CFAs. CFAs may approximate or utilize certain elements from the MSA's Fishing Communities and Regional Fishing Associations, but would not necessarily match either definition precisely. The MSA requires consideration of RFAs, but does not require the councils to adopt RFAs. In March 2009, the Council indicated interested in defining a CFA as an entity that is expressly eligible to own QS and as an entity that may be entitled to special accumulation limits. Council staff were directed to use, as a starting point, the National Oceanic and Atmospheric Administration (NOAA) Memorandum titled Design and Use of LAPPs, and a public comment letter from The Nature Conservancy. CFAs may be defined as a special class of entities eligible to hold IFQ, or could be an association of QS holders. Through the definition process, CFAs could be given special considerations or privileges, such as higher control caps, waivers of other program requirements, or priority consideration for Adaptive Management QPs. In return for such special privileges, the Council might require CFA goals, objectives, and performance measures that further the Groundfish FMP goals and objectives.

In April, the Council made and then withdrew a motion to further define CFAs and goals related to aiding vulnerable communities. There was little consensus on which communities were vulnerable, how to define vulnerability, and what analysis could be completed before the final preferred option would be selected in June 2009. The Council opted to defer the CFA decision-making to a trailing amendment.

A-10 ADAPTIVE RESPONSE AND FOLLOW-ON ACTIONS

Ad Hoc Response

After program implementation, the Council will continue to monitor the trawl rationalization program and make modifications as necessary. There will be a comprehensive program review after five years; however, adjustments may be made prior to that time. In Section A-3 (Adaptive Management) of the program, QS are set aside specifically to be available to support adaptive response. While this set-aside and the objectives and criteria for its use have been labeled the "AMP," the Council's adaptive response to program performance would extend beyond the objectives specifically identified for using the Section A-3 adaptive management set-aside. The Council will monitor the program and adaptively respond as necessary to address MSA requirements, MSA national standards, groundfish FMP goals and objectives, and goals and objectives for trawl rationalization. In particular, the Council has identified that it may modify the following program elements as part of the biennial specifications process:

- The percent used for the carry-over provisions (Section A-2.2.2.b)
- The vessel unused QP limits (Section A-2.2.3.e)

Through the process of developing the biennial management regulations, the Council may also recommend regulatory modifications to specific elements of the trawl rationalization program identified in Appendix D of this document. Modification to these elements would be made as needed to address the requirements, standards, goals, and objectives that apply to the groundfish plan and trawl rationalization. Any regulatory adjustments requiring a change to the related FMP language (Appendix G) would have to comply with the standard processes for amending the FMP.

Modification and termination of the program are options at any time (after required process and opportunity for public comment); under such circumstances, no compensation would be due to QS holders or others making investment decisions based on the trawl rationalization program.

Comprehensive Program Review

Section A-2.3.4 covers the Council comprehensive review process. The first review will occur five years after implementation with subsequent reviews every four years. In addition to evaluating performance of the program, during the first review process consideration will be given to the use of an auction or other non-history-based methods for redistributing QS that may become available after the initial allocation. Need for a use-or-lose provision may also by a significant topic for consideration.

First Biennial Management Cycle Actions

As part of the process of developing the biennial specifications for the first year in which this program is implemented, the Council will have to specify an allocation between the shoreside nonwhiting and whiting fisheries for all species within the scope of the IFQ program for which such allocations were not established as part of Amendment 21 (including and allocation of whiting bycatch in the nonwhiting fishery and whiting taken in the shoreside whiting fishery). Completion of the allocation decision is a onetime action and will not have to be repeated in subsequent management cycles. As part of every biennial cycle, a determination will have to be made on the need for bimonthly cumulative limits or other catch controls for species not covered within the scope of the IFQ program.

Planned Follow-on Amendments and Rulemakings

As identified in Section A-9, it is the Council intent to consider whether or not there should be special provisions for CFAs. Additionally, during the first two years of the program the Council will be working on an approach for using the QS set-aside for adaptive management (as discussed above and in Section A-3).

A-11 PROVISIONS REJECTED FROM FURTHER CONSIDERATION

During the process of developing the IFQ program, a number of provisions were considered but rejected without further development. When such provisions fall within the scope of sections of the program, they are discussed above in the related sections. For example, allocation to crewmembers was rejected early on, but that option and the reason for its rejection are covered in the section on eligible groups (Section A-2.1.1). In this section, we will cover some rejected provisions that do not fall within the scope of sections of the IFQ program. All such provisions are documented in the administrative record of the Council's deliberations. During the end of the Council deliberations, two potential provisions not covered elsewhere in this document were the topic of discussion and comment:

1. Sideboards or other measures to prevent spillover
2. Owner on Board Requirement

Sideboard and Measures to Prevent Spillover

A rationalized trawl fishery may have an effect on other west coast fisheries through the transfer of effort and capital into other fisheries (spillover). Most of the other nongroundfish fisheries are already under LE programs. Shrimp is an exception.[153] There are generally three additional fisheries in which LE trawl vessels participate: the Dungeness crab fishery, the pink shrimp and prawn trawl fisheries, and the sablefish tier fishery. Because the current bimonthly management structure of the groundfish trawl fishery provides ample opportunity for vessels to participate in other west coast fisheries, both the GMT and the TIQC advised the Council that they did not believe that nontrawl participants in these other fisheries will be impacted to any noticeable degree by a move to manage the groundfish trawl fishery with IFQs. The possibility that consolidation in the groundfish trawl fleet could result in surplus vessels and that these vessels might acquire latent permits for these other fisheries was discussed. However, since the LE systems for these other fisheries are state-managed, it was thought best that the latent permit issue be addressed outside the Council process.

Owner-on-Board Requirements

An owner-on-board requirement was discussed at various times during the process of developing the IFQ program. The topic often came up in the context of concern over absentee ownership of QS ("sharecropping") and the potential need for a "use-or-lose" provision to ensure that QS were not acquired by groups that would like to see harvest reduced to levels lower than those determined appropriate through the processes provided by the MSA. Overall, an owner-on-board requirement would be intended to provide control over resource access to those most closely involved with harvesting operations. By doing so, it would be hoped that the links between the fishery and fishing communities would be maintained and that communities would benefit from QS ownership by their citizens. Additionally, it was thought that by maintaining QS in the hands of active fishermen it would be more available for purchase by those wishing to enter the fisheries as harvesters. Without an owner-on-board requirement, the concern is that QS might be acquired by investors, and it could be more expensive for fishers to acquire the shares.

The owner-on-board provision was rejected because of at least three concerns. First is the practicality of such a provision in a multispecies fishery. Because of the variation in the mix of catch that may be taken on any particular trip, it is expected that there will be substantial QP trading during the year in

[153] Participation in the shrimp fishery is cyclic and more dependent on biomass and the strength of the market. As compared to the situation under cumulative landing limits, an IFQ program is not likely to have a substantial effect on participation in the shrimp fishery.

order for vessels to match the mix of species in the catch with the mix of species held in the vessel account. Developing an owner-on-board rule that accommodated the need to transfer quota between vessels was intractable. Second, if such a rule could be developed, it would add substantially to tracking costs. Under the current design, QP would be transferred to a vessel account, and no distinction would be made between the sources of the QP. Provisions were intentionally designed to make it unnecessary to track QP back to the owner of the QS and to make it unnecessary to split a single trip up and count it against various QP accounts. This approach was taken to reduce administrative costs. An owner-on-board program would require tracking QP to QS owners and splitting the catch taken on a single trip among various QP accounts, instead of just the vessel account. The third reason for not adopting an owner-on-board requirement was concern about the nature of vessel operations in the trawl fishery as compared to other fisheries in which owner-on-board provisions have been implemented. Compared to other coastal fisheries, the trawl fishery is believed to involve many more multi-vessel companies with hired operators. Therefore, it was thought that the owner-on-board provision might change the character of the fishery rather than preserve it. At the same time, it was recognized that under an IFQ program it is highly likely that the character of the fishery will change and that provisions such as that considered here will determine the direction of change. After evaluating this issue, on balance, the Council believed that an owner-on-board provision would be excessively cumbersome in a multispecies fishery, relative to the benefits that it might bring. Provisions such as the owner-on-board provision and use-or-lose requirement could potentially be reconsidered during review of the IFQ program performance.

APPENDIX A: LIST OF REFERENCES

Anderson, C. M. 2004. How institutions affect outcomes in laboratory tradable fishing allowance systems. *Agricultural and Resource Economics Review* 33(2):93-208.

Asche, Frank. 2001. Fishermen's discount rates in ITQ systems. *Environmental and Resource Economics* 19:403-410.

Branch, T. A., K. Rutherford, and R. Hilborn. 2006. Replacing trip limits with individual transferable quota: implications for discarding. *Marine Policy* 30(3):281-292.

Costello, C. J., S. D. Gaines, and J. Lynham. 2008. Can catch shares prevent fisheries collapse? *Science* 321:1678-1681.

Dawson, Robert. 2003. Vertical Integration in Commercial Fisheries. Virginia Polytechnic Institute.

Dewees, C. M. 2006. Effects of Individual Transferable Quotas in New Zealand's Marine Fisheries, 1986-2006. Powerpoint.

Dinneford, E., Iverson, K., Muse, B., and Schelle, K. 1997. Changes Under Alaska's Halibut IFQ Program, 1995 to 1996.: Alaska Commercial Fisheries Entry Commission.

Falk, Armin, Ernst Fehr, and Urs Fischbacher. 2002. Appropriating the Commons: A Theoretical Explanation. In *The Drama of the Commons*, edited by Ostrom, Elinor, Thomas Dietz, Nives Dolsak, Paul C. Stern, Susan Stonich, and Elke U. Weber. Pages 157-191. Washington, DC: National Academy Press.

Francis, R. C., M. A. Hixon, M. E. Clarke, S. A. Murawski, and S. Ralston. 2007. Ten Commandments for Ecosystem-based Fisheries Scientists. *Fisheries* 32:217-233.

Jenkins, Lekelia D. 2008. Gear conversion as a means to reduce bycatch and habitat impacts in the U.S. west coast sablefish fishery.

Lian, C., Singh, R., and Weninger, Q. 2008. Economic impacts of individual fishing quota management in the Pacific coast groundfish fishery.: Unpublished Report.

Lian, C., R. Singh, and Q. Weninger. 2009. Fleet Restructuring, Rent Generation, and the Design of Individual Fishing Quota Programs: Empirical Evidence from the Pacific Coast Groundfish Fishery. *Mar. Res. Econ.* 24(4).

NMFS. 2007. Design and Use of Limited Access Privilege Programs.

NRC. 1999. *Sharing the Fish: Toward a National Policy on Individual Fishing Quotas / Committee to Review Individual Fishing Quotas, Ocean Studies Board, Commission on Geosciences, Environment, and Resources, National Research Council*. Washington D.C.: National Academy Press.

Sanchirico, J. N, Holland, D., Quigley, K., and Fina, M. 2005. Catch-Quota Balancing in Multispecies Individual Fishing Quotas. Washington D.C.: Resources for the Future. RFF Discussion Paper 05-54.

Stern, P. C., T. Dietz, G. A. Guagnano, and F. Kalof. 1999. A Value-belief-norm theory of support for social movements: The case of environmentalism. *Human Ecology Review* 6(2):81-97.