

EXECUTIVE SUMMARY

This document is the 20-year review of the halibut and sablefish individual fishing quota (IFQ) Program. The scope of this review was established with input from the Council process, including comments from the Council and its Advisory Panel in December 2015 and February 2016 and from the Scientific and Statistical Committee in February 2016. Public comment was also received on the workplan for the review at the IFQ Committee meeting, and during the December 2015 and February 2016 Council meetings.

Sections 303A(i) and 303A(c)(1)(G) of the Magnuson-Stevens Act (MSA) require that the IFQ Program be subject to a formal and detailed review on a regular basis. Because the IFQ Program was implemented in 1995, well before the provisions of Section 303A became law in 2007 under the MSA (Pub. L. 109-479), the requirement to conduct a review within 5 years of implementation does not apply to the IFQ Program. However, the requirement to conduct a review of the IFQ Program “no less frequently than once every 7 years” does apply. Although this is the first comprehensive review of the IFQ Program, there have been numerous regulatory impact reviews and reports¹ produced by Council and NMFS staff, which provide relevant information about QS ownership and transfers, IFQ use and landings, and other provisions in the program.

The Council and NMFS have the flexibility to evaluate whatever information they deem necessary to evaluate the IFQ Program. Section 303A(c)(1)(G) of the MSA does not specify a checklist of required elements for LAPP reviews. Although the MSA does not specify program review requirements, the Council and NMFS can use several sources to guide the scope of this review, including the MSA’s National Standards in Section 301 and LAPP requirements in Section 303A, NOAA’s Catch Share Policy document², previous LAPP reviews (e.g., BSAI Crab Rationalization and Amendment 80), and public comment.

This review focuses on evaluating the IFQ Program with respect to its 10 original objectives. During discussion of the workplan in December 2015 and February 2016, the analysts noted that by focusing the review on the 10 original objectives of the IFQ Program and entry-level opportunities, many of the elements and issues addressed in the MSA, the NOAA Catch Share Policy, other LAPP reviews, and comments received by the public would also be addressed.

Conclusive statements about the success of the IFQ Program at meeting the Council’s original objectives cannot be made due to the inherent limitations of this analysis which relies largely on summary data and trends and in light of the nature of the objectives themselves. In order to make definitive statements about the impacts of the IFQ Program, the analysts would need to construct a counterfactual of what trends would have looked in the absence of the program and in many other cases to construct complicated econometric models. Furthermore, the objectives of the IFQ Program are broad and generally not measurable, and many of the objectives inherently conflict, so that progress on contradictory objectives would be inversely related. However, the analysts do examine trends in metrics, which are consistent with

¹ See for example “Changes under Alaska’s halibut and sablefish IFQ Program 1995 through 2014: [Halibut](#) and [Sablefish](#)” and the “Report to the Fleet” for [2012](#). The Report to the Fleet is also available for previous years online as well: <http://alaskafisheries.noaa.gov/ram/ifqreports.htm>

² See: http://www.nmfs.noaa.gov/sfa/management/catch_shares/about/documents/noaa_cs_policy.pdf

programmatic objectives, to evaluate whether there is indication that the objective is being realized in the program.

This review relies on data sources utilized in analyses for FMP and regulatory amendments and previous programmatic reviews for the Council. These data sources include NMFS's Restricted Access Management program's harvest and administrative data, AKFIN's fisheries landings data, ADF&G's COAR data, Alaska DCCED's loan data, NMFS's IFQ loan program data, IPHC's halibut biological management data, AFSC's biological management data, NOAA's Office of Law Enforcement data, USCG enforcement and safety data, and NIOSH's safety data. These quantitative data sources are augmented with qualitative information solicited from an IFQ crew workshop and gathered from personal communication with individuals who have experience in the fisheries. Findings from relevant literature are also used whenever possible.

Throughout this review, the baseline period is the average of values of the three years preceding the implementation of the IFQ Program (1992 through 1994). Baseline years could have been defined in many ways. No years would be completely representative of pre-IFQ Program fisheries, as there are a multitude of exogenous factors that have influenced the operations of the fisheries overtime. However, since history was determined from activity between 1988 and 1990, it is likely there was less strategic fishing behavior in the baseline years chosen. Furthermore, there are concerns about the reliability of the data further back in time.

The review is organized as follows. Sections 1.1 and 1.2 provide introductory information and a description of the IFQ management program, respectively. Section 2 is the analytical section of the review, examining the IFQ Program with respect to its 10 original objectives and providing entry opportunities into the IFQ fisheries. The objective being evaluated is identified at the beginning of each section, and because these objectives tend to overlap there are often several objectives identified. Section 3 summarizes the key findings of the review and identifies potential areas of concern in the program, data and information gaps, and areas of research interest.

1.2 Description of Management

Section 1.2 describes the management of the IFQ Program and amendments to the program over the last 20 years.

The IFQ Program was implemented in 1995 in response to growing concerns about issues that had emerged from management of the fixed-gear halibut and sablefish fisheries under the open access regime. In both fisheries, growth in fishing capacity under open access had necessitated large reductions in length of the fishing seasons and caused a host of undesirable biological, economic, and social effects.

The Council and NMFS identified 10 objectives for the original IFQ Program:

- 1) Address the problems that had occurred with the previous management regime.
 - a. The Council identified 10 components of the allocation problem associated with the previous open access management regime that it sought to address with the implementation of IFQs: 1) allocation conflicts; 2) gear conflicts; 3) fishing mortality due to lost gear; 4) bycatch loss of halibut and sablefish in other fisheries; 5) discard mortality for halibut and other retainable species in the halibut and sablefish fisheries; 6) excess

harvesting capacity; 7) product wholesomeness as reflected in halibut and sablefish prices; 8) safety; 9) economic stability in the fixed gear halibut and sablefish fisheries and communities; and 10) rural coastal community development of a small boat fishery.

- 2) Link the initial quota share allocations to recent dependence on the halibut and sablefish fixed gear fisheries.
- 3) Broadly distribute quota share to prevent excessively large quota share from being given to some persons.
- 4) Maintain the diversity in the fleet with respect to vessel categories.
- 5) Maintain the existing business relationships among vessel owners, crews, and processors.
- 6) Assure that those directly involved in the fishery benefit from the IFQ Program by assuring that these two fisheries are dominated by owner/operator operations.
- 7) Limit the concentration of quota share ownership and IFQ usage that will occur over time.
- 8) Limit the adjustment cost to current participants including Alaskan coastal communities.
- 9) Increase the ability of rural coastal communities adjacent to the Bering Sea and Aleutian Islands to share in the wealth generated by the IFQ Program.
- 10) Achieve previously stated Council goals and objectives and meet Magnuson-Stevens Fishery Conservation and Management Act requirements.

Quota shares are the basic long-term use privilege in the IFQ Program. Quota shares were initially issued to “qualified persons”, natural persons (hereinafter individuals) or non-individual entities (e.g., partnerships, corporations, etc.), who owned or leased a vessel that made fixed gear halibut or sablefish landings during the qualifying years 1988, 1989, and 1990 from any IFQ regulatory area. By using this three-year eligibility period the Council linked the initial QS allocations to recent dependence [of vessel owners] on the halibut and sablefish fixed gear fisheries (objective 2 of the program), while ensuring that there would be no incentive for new participants to enter the fishery in order to try to receive initial QS allocations. The initially allocated QS units were determined on the basis of the person’s qualifying landings - during the best five of seven years (1984 to 1990) in the halibut fishery and the best five of six years (1985 to 1990) in the sablefish fishery.

Quota shares are specific to a species, management area and a vessel class. Quota shares are a permit, the amount of which is used as the basis for the calculation of a person’s annual IFQ – the pounds of IFQ that the person may harvest in a given season.

The IFQ Program includes numerous provisions that were intended to achieve the 10 programmatic objectives by limiting QS transferability and IFQ usage. Since the implementation of the IFQ Program, the Council has largely lifted many of the restrictions in the IFQ Program with respect to QS use caps, QS blocks, and inter-area and inter-class harvesting of IFQ. The one exception to this has been the increasing restrictions on hired master use to try to address evidence of increasing reliance on hired masters by initial QS recipients and the slow transfer of QS to new entrants (see Section 2.5). The Council’s amendments to the IFQ Program likely reflect a combination of lessons learned about how to achieve its objectives for the IFQ fisheries as well as changes to the objectives themselves.

2.1 Overarching trends and external impacts on IFQ participants

Section 2.1 discusses overarching trends in season durations, TACs, and revenues in the IFQ fisheries and changes in fisheries external to the IFQ management regime itself, which could affect IFQ fishermen.

2.1.1 Changes in season duration, TACs, and revenues

Section 2.1.1 examines changes in season duration, TACs, and ex-vessel revenues in the IFQ fisheries. One of the greatest impacts of the IFQ Program has been the complete elimination of the derby-style fisheries that previously existed with 24-hour openers in some regulatory areas and the transition to 8 month seasons. This elongation of the fishing seasons has provided for safety improvements, better handling of fish and gear, and product quality improvements. In both IFQ fisheries there has been some variability in annual TACs, although for both species the TACs have generally declined since 2004. Changes in TACs can have formidable impacts on IFQ participants as they affect earnings expectations, which can have effects on exit/entry decisions, the numbers of vessels participating in the fisheries, the availability of crew jobs, the use of hired masters, leasing, etc. Some of the impacts of decreasing TACs since 2004 were likely forestalled by concurrent increasing ex-vessel prices, which allowed for the maintenance and even increase in revenues in some years in the IFQ fisheries, although revenues have begun to decline over the last several years. The IFQ Program addressed over-harvesting of the TACs in the halibut fishery, with harvests consistently below annual TACs in both fisheries since IFQ implementation. However, there has been consistent under-utilization of the sablefish TACs since IFQ, as harvests in the Bering Sea and Aleutian Islands areas have been limited by accessibility and the difficulty of fishing on remote fishing grounds subject to extreme marine weather.

2.1.2 Impacts on IFQ fishermen external to the IFQ Program

Section 2.1.2 discusses potential impacts on IFQ fishermen external to the IFQ Program itself. Such external changes may affect the degree or extent of impacts from changes within the IFQ regulatory regime. Some of the most important changes have been the institution of more limited entry and catch share programs throughout Alaska's State and federal fisheries, respectively, decreasing TACs and revenues in important alternative fisheries, increasing limited entry permit prices, and a general migration of fishing permits from rural communities local to the fisheries. As a result, entry opportunities and diversification of fishing portfolios have become more limited for fishermen. Limitations on diversification may further inhibit entry into the IFQ fisheries as diversified fishing portfolios have become more important for acquiring loans and as fishermen become more limited in wherein they can earn the revenue to purchase more QS (see Section 2.6). Increasing USCG and EPA regulations have also increased the costs of fishing operations according to IFQ participants. Taken together, all of these changes have potentially made participation in and entry into the IFQ fisheries more difficult, which may be important to examine in considering any changes to the IFQ Program itself.

2.2 Initial Allocation Process

Section 2.2 discusses the potential implications of initial allocation decisions with respect to the immediate fleet consolidation and regulatory changes that followed IFQ implementation. The way in which initial allocations were determined under the IFQ Program – using the best five years of landings and a three-year qualifying period – allowed the Council to more broadly distribute the benefits of the program to a greater number of participants (Objective 3). However, this broad distribution also resulted in many participants, especially in the halibut IFQ fleet, receiving quantities of QS that yielded economically unfishable amounts of IFQ. The history of participation particularly contributed to this outcome in the halibut IFQ fishery. The halibut fishery had been relatively accessible to small boat fishermen and was utilized by many fishermen to generate extra revenue in lean years or between

participation in other fisheries. As a result of the impacts of broad QS distribution among a relatively large number of participants, the Council decided to reduce some of the regulatory constraints on consolidation immediately following IFQ implementation. This reduction in constraints contributed to a substantial amount of consolidation within the halibut IFQ fleet in the first several years after program implementation. The sablefish fishery had never been as readily accessible as the halibut fishery and included considerably fewer QS holders at the outset. Therefore, consolidation following IFQ implementation was much lower in the sablefish fishery.

2.3 Harvesting flexibility, capacity, and consolidation

Several of the objectives of the IFQ Program relate to addressing issues with overcapacity while limiting consolidation and maintaining fleet diversity, including: address the problems that have occurred with the current management regime (excess harvesting capacity, allocation conflicts, gear conflicts, and product wholesomeness) (objective 1), maintain the diversity in the fleet with respect to vessel categories (objective 4), and limit the concentration of quota share ownership and IFQ usage that will occur over time (objective 7). Section 2.3 addresses these objectives together through a series of sub-sections examining various aspects of harvesting flexibility, capacity, and consolidation.

2.3.1 Gear Conflicts

Section 2.3.1 describes the history of gear conflicts and regulatory changes to allowable gear pre and post IFQ implementation, the context for gear conflicts between the trawl and IFQ sectors, and the information that could be used to understand the impacts of IFQ implementation on gear conflicts. Actual assessment of the impacts of the IFQ Program on gear conflicts is limited by the lack of data on the subject, which is further discussed in Section 3.2.

The competitive race for fish that existed prior to the IFQ Program provided an incentive for participants to compete for space on the most productive fishing grounds sometimes laying gear on top of each other. For the sablefish fishery, longline pot gear could also be used to preempt fishing grounds because it is heavier than hook-and-line gear, soaks for longer, and may be left on the grounds even when fishing is not occurring.

In response to expectations about reductions in gear conflicts following IFQs due to increased temporal and spatial flexibility for participants and about increasing concerns over whale predation on sablefish on hook-and-line gear, the Council has iteratively lifted the restrictions on longline pot gear in the sablefish IFQ fishery. Longline pot gear was not and is not used in the directed commercial halibut fishery.

The prolongation of the fishing seasons for halibut and sablefish under the IFQ Program was also anticipated to potentially increase gear conflicts between IFQ fishermen and the groundfish trawl sector, because the trawl sector could not as easily avoid the IFQ sector under extended IFQ fishing seasons. However, the elimination of the derby-style fishery also decreased the amount of lost or abandoned gear from the IFQ sector (see Section 2.9) thus reducing the probability of trawlers accidentally snagging this gear. In effect, the two types of gear conflicts between the IFQ and trawl sectors would be differentially impacted by the IFQ Program.

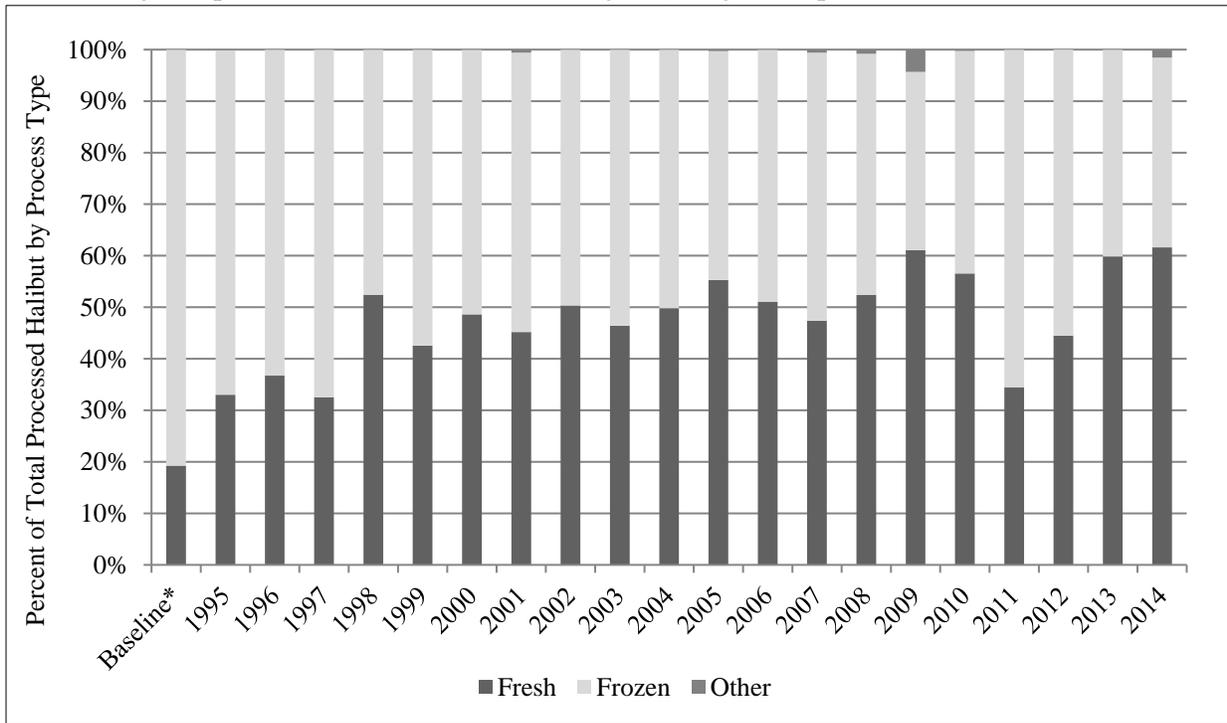
2.3.2 Allocation Conflicts

Section 2.3.2 briefly discusses issues over initial allocations that emerged in the first several years following IFQ as a result of persons seeking QS allocations. Many of the conflicts over initial QS allocations that emerged from IFQ implementation are discussed under other sections of the IFQ Program Review. Given the potential value of QS as a long-term asset, the percentage of applicants who were denied an allocation and then appealed is surprisingly small. Only 10.6% of the 1,800 applicants who were denied ever appealed and only 1% of these applicants continued their appeal through the Federal court process. Although the analysts do not suggest that there were no issues over allocations, the limited number of initial allocation appeals and the unsuccessful litigation on the initial QS allocation suggests that the impetus for such appeals diminished over time.

2.3.3 Product Wholesomeness

Section 2.3.3 examines changes in product quality for halibut and sablefish following IFQ implementation. The IFQ Program was anticipated to result in product quality improvements due to prolonged fishing season, better handling of fish, decreased processing costs, and better targeting of markets. These benefits were expected to be especially significant for halibut, which is primarily consumed in North America and therefore could feasibly have substantial increases in production for the fresh market. Since IFQ implementation, Alaska halibut has gradually increased in fresh production, averaging 48% fresh product from 1995 to 2014 compared to 20% during the 1992 to 1994 baseline period (Figure ES1). Sablefish product form largely did not change following IFQ implementation, as sablefish continues to be primarily processed as frozen fish for the export market to Japan. Wholesale prices (adjusted for inflation) for both IFQ fish have increased since IFQ implementation as well, and price increases have transferred to dockside price increases for fishermen. Assuming a direct relationship between wholesale and ex-vessel prices and product quality, these price increases and other research which provides an appropriate counterfactual of the halibut and sablefish markets without IFQ indicate that the IFQ management regime has been associated with overall product quality improvement in the IFQ fisheries.

ES 1. Changes in product form for halibut following IFQ Program implementation.



2.3.4 Harvesting Flexibility

Many of the benefits that were anticipated to materialize from the IFQ Program were associated with the flexibility that would be afforded by QS allocations. Section 2.3.4 focuses specifically on examining the utilization of the 10% administrative adjustment policy (the underage and overage provision, which allows annual adjustments of IFQ permits by up to 10% of the remaining balance), and the inter-area harvest provision that was implemented in 2005.

Since IFQ implementation, administrative adjustments within the allowable 10% threshold have accounted for a very small percentage of the overall TACs for both IFQ fisheries (generally less than 1%). However, on average 79% to 80% of all IFQ permit accounts in the halibut and sablefish fisheries, respectively, have been adjusted on an annual basis since 1998. In other words, administrative adjustments are highly utilized in the IFQ fisheries, although they amount to a small quantity of IFQs.

Overage violations are overages above the 10% allowable threshold for an IFQ permit. From 2005 to 2015, when these data were available, the count of annual overage violations ranged from 34 to 63. Several dozen annual overage violations may be expected given the small IFQ amounts likely left over on IFQ permits at the end of the fishing season that permit holders are trying to harvest, but these violations may also be indicative of QS holders trying to maximize harvests to the allowable 10% overage. It should be noted that inclusive of both administrative overages and overage violations, the TACs in the IFQ fisheries have not been exceeded since IFQ implementation. That is at least in part because annual underage adjustments have greatly exceeded overage adjustments since IFQ.

In 2005, in response to declining catch rates and poor harvest in halibut Area 4C – the regulatory area surrounding the Pribilof Islands – an amendment was implemented allowing Area 4C IFQ harvest in Area

4D. There is indication that this amendment provided for the increased harvest of Area 4C IFQ, even in the face of declining halibut stock abundance in the Bering Sea as indicated by halibut TACs. Annual underage adjustments for Area 4C IFQ permits have decreased from 7.5% for 2000 through 2004 to 5.6% for 2005 through 2014, while increasing slightly for Area 4D IFQ permits. This may be indicative of increased competition on fishing grounds as well as decreasing resource abundance.

2.3.5 Fleet Diversity

Section 2.3.5 examines QS distributions and IFQ harvests by vessel class, the evolution of participation in the IFQ fisheries with respect to multiple definitions of vessel diversification, and the production efficiency costs and qualitative benefits of maintaining fleet diversity in the IFQ fisheries.

The Council's intention in designating QS by vessel class and in prohibiting trading between vessel classes was to prevent a redistribution of fishing privileges amongst the vessel classes, largely from the smaller to the larger vessels. The Council viewed the removal of small vessels as particularly problematic because of their tie to coastal communities and because they provide an opportunity for more people to participate in the fisheries.

Because of the restriction on QS trading between vessel classes, QS distributions by vessel length were largely fixed at initial allocation. In the halibut IFQ fishery, 52% of QS was allocated to Class C, 37% to Class B, 8% to Class D, and 3% to Class A. In the sablefish IFQ fishery, the QS was more evenly distributed across the QS classes – 21% to Class A, 42% to Class B, and 37% to Class C. These distributions within the IFQ fisheries were very nearly the same at initial allocation and in 2015.

There have been minor changes in the composition of the IFQ fleets since IFQ implementation. Over course of the IFQ Program, the proportion of total vessels in the halibut IFQ fishery from the smallest class vessels (less than or equal to 35 feet) has decreased relative to the mid-size vessels (greater than 35 feet to 60 feet) (Figure ES 2). In the sablefish fishery, the proportional composition of the fleet has remained relatively stable (Figure ES 3).

Figure ES 2. Composition of active halibut IFQ vessels by length overall

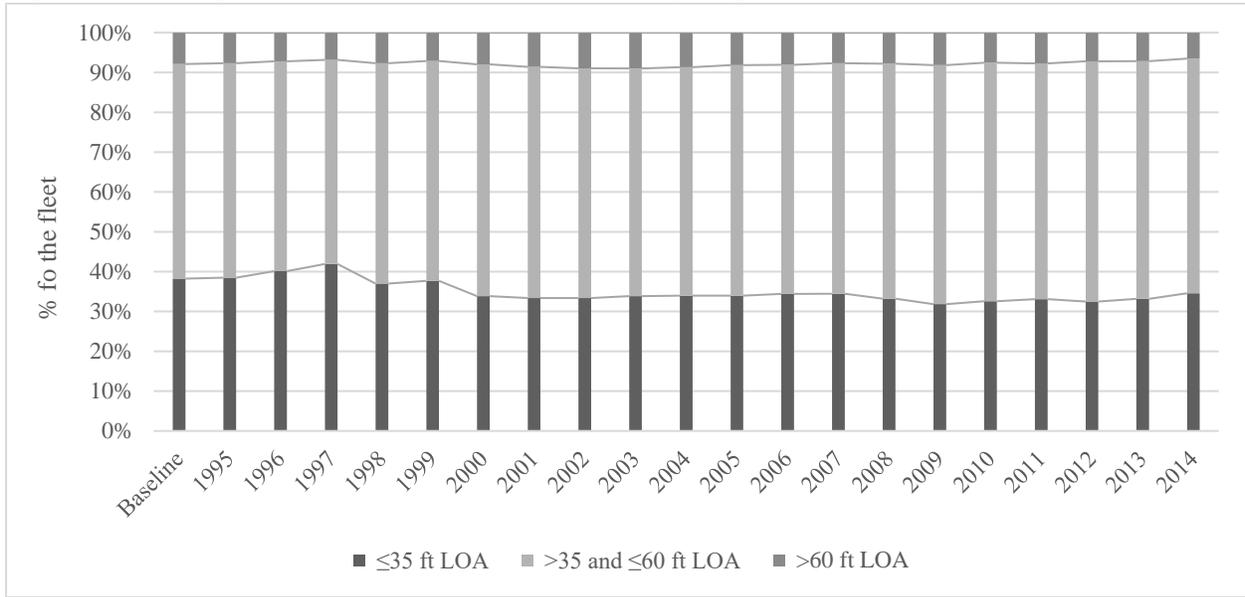
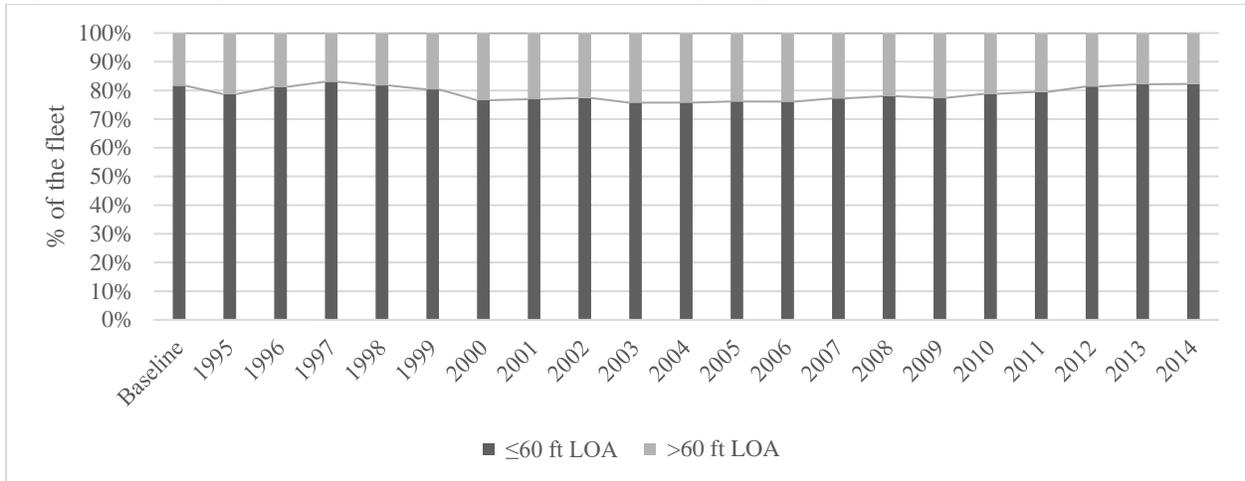


Figure ES 3. Composition of active sablefish IFQ vessels by length overall



There is indication that the implementation of the “fish up” and “fish down” provisions provided desired flexibility in how catcher vessel IFQ may be landed in the IFQ fisheries. In both of the fisheries, an increasing portion of Class B IFQ is landed on smaller class vessels (greater than 35 to 60-foot vessels in the halibut IFQ fishery and less than or equal to 60-foot vessels in the sablefish IFQ fishery). In the halibut IFQ fishery, the implementation of the “fish up” amendment in 2007 was followed by an increasing portion of Class D IFQ being fished by the greater than 35 to 60-foot vessels in Areas 3B and 4C. A similar increase was seen in 2015 in Area 4B following the implementation of the “fish up” amendment for that area.

The fishery revenue distributions by vessel length are not completely aligned with QS distributions by vessel class. This is likely because of the utilization of the fish up and fish down provisions, because Class A IFQ can be landed on vessels of any length, and potentially because of ex-vessel price

differentials between the vessel classes. The greater than 35 to 60-foot vessel class accounts for the majority of halibut IFQ fishery revenue and has been increasing its portion of the total revenue over the course of the IFQ Program. In the sablefish IFQ fishery, the less than or equal to 60-foot vessel class accounts for a majority and an increasing proportion of total fishery revenue.

Income diversification, or the diversification of one's fishing portfolio (through participation across multiple areas or regions), can be an important tool for managing financial risk for fishing businesses. Kasperski and Holland (2013) examined diversification over time for vessels that had been participating in the fixed gear halibut and sablefish fisheries prior to IFQ implementation and found that for these vessels there was a significant reduction in diversification following IFQ. For the IFQ Program review, a distinct increase was identified in the percent of unique vessels participating across multiple IFQ areas and in both IFQ fisheries following IFQ implementation. The disjunction in our findings and those of Kasperski and Holland (2013) may be attributed to the differences in the vessels identified for the analyses and the definition of diversification. Kasperski and Holland (2013) examined diversification with respect to different species groups and regions for vessels that had been participating in the fixed-gear fisheries prior to IFQ. The IFQ review examined diversification only as a factor of fishing in multiple IFQ areas and in both IFQ fisheries.

At the time of IFQ implementation, the Council recognized that maintaining fleet diversity by allocating QS by vessel class and prohibiting QS trading between vessel classes would limit the production efficiency gains that could be had with an unrestricted market. The prohibition on QS trading between the vessel classes prevented the redistribution of QS to those with the highest willingness to pay for the QS, which should reflect greater marginal earnings expectations and lower marginal operating costs. However, the Council weighed these efficiency costs against the QS trading restrictions providing the benefit of more widespread fishing opportunities and employment in the IFQ fisheries as well as maintaining the tie between the smaller vessel class and coastal communities. Recently, researchers conducted an ex-post analysis of the costs of QS trading restrictions in the IFQ fisheries including those related to vessel class and blocking and found that these restrictions have decreased the present value of resource or economic rent³ (as measured by quota share prices) over the lifetime of the program by approximately \$117 million for halibut and \$39 million for sablefish (in \$2012), or 25% and 9% of the respective gross ex-vessel revenues (Kroetz, Sanchirico, and Lew, 2015). These researchers are currently developing a model to examine how these QS trading restrictions in turn affected entry and exit behavior, quantity fished, and profitability of IFQ fishery participants.

2.3.6 Harvesting Capacity

Section 2.3.6 examines harvesting capacity consolidation over the course of the IFQ Program, the constraints of the individual and vessel use caps, and inequality and market power in the IFQ fisheries.

The capacity in the halibut and sablefish fisheries, with respect to the number of active vessels and the number of QS holders, decreased drastically in the first few years of the IFQ Program and has continued to decline over its lifetime (Figures ES 4; ES 5). Due in part to the exit of more individuals/ entities

³ Economic rent is any payment to a factor of production in excess of the cost needed to bring that factor into production. Economic rent arises from conditions of scarcity and is above normal profit.

selling their QS than new entrants buying QS, as well as the increased coordination among existing QS holders, there has been drastic reduction in the number of vessels actively participating in both fisheries.

Figure ES 4. Annual active vessels and total QS holders in the halibut IFQ fishery.

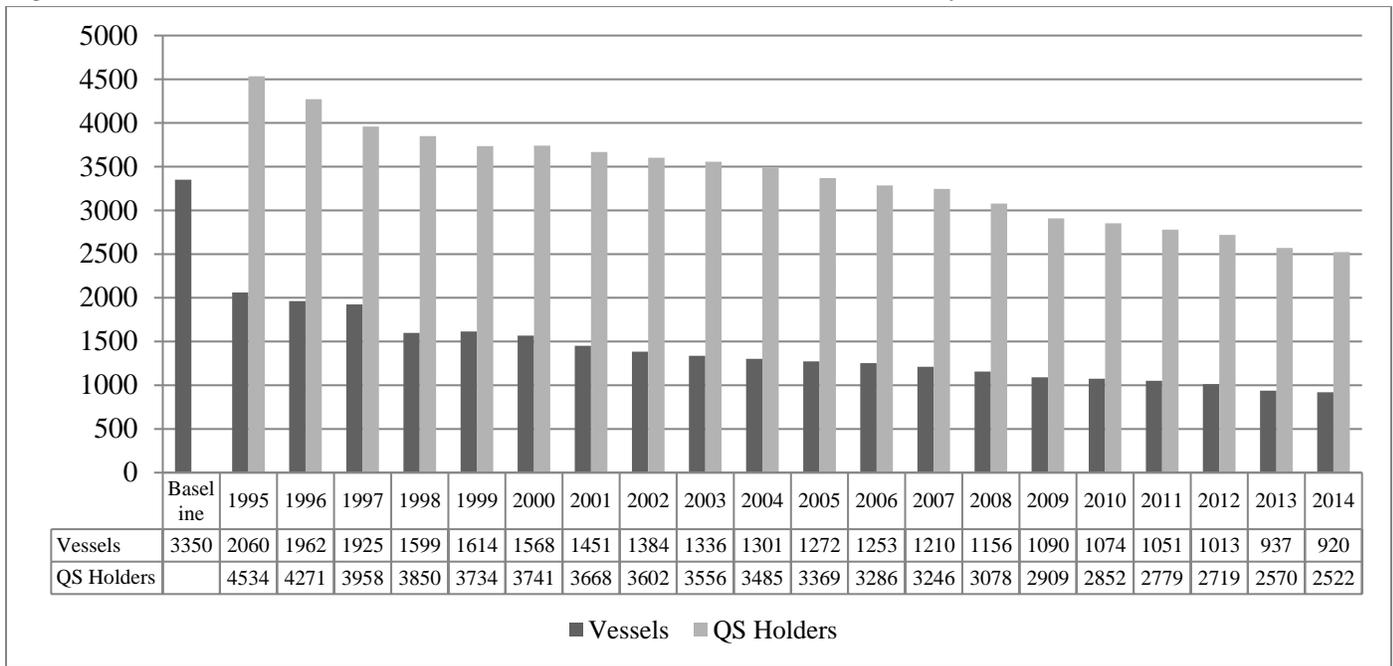
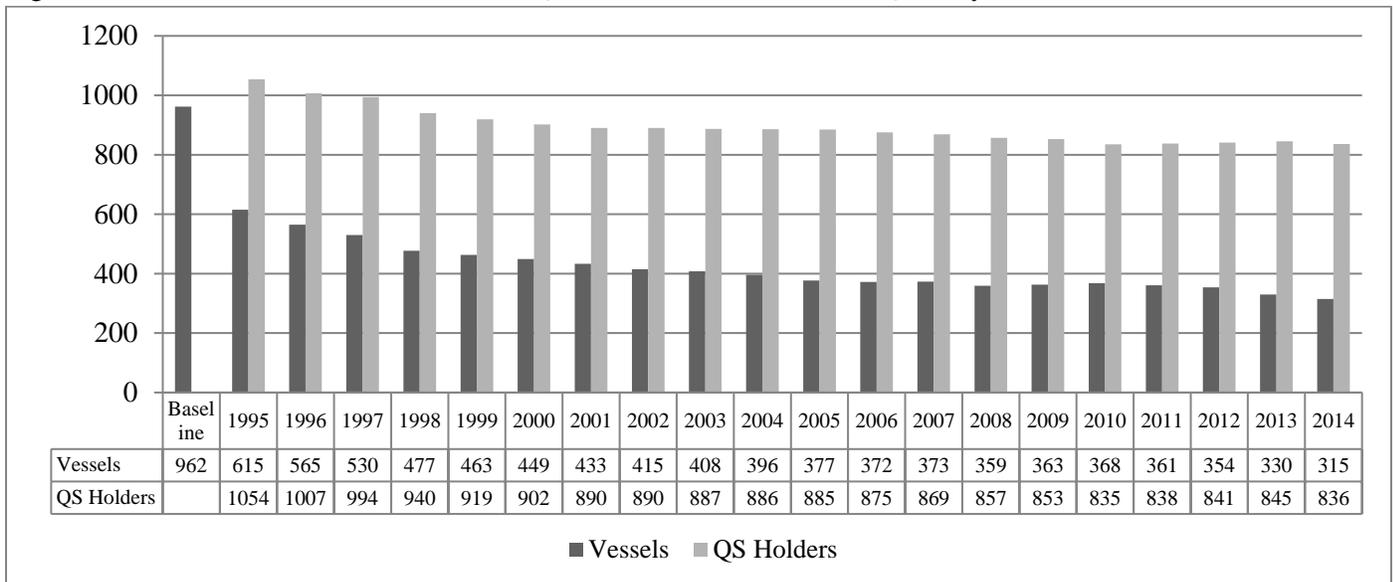


Figure ES 5. Annual active vessels and total QS holders in the sablefish IFQ fishery.



Although the vessel IFQ caps have been constraining for some individual vessels and specific types of operations and an increasing number of vessels are nearing the caps, the majority of the halibut and sablefish fleets are not near these caps, despite the consolidation that has occurred. In the halibut fishery, when the total number of active vessels is divided into even quartiles, the relative distribution of harvest among four quartiles of vessels has been relatively stable. For example, the 25% of the vessels that

harvest the greatest amount of halibut have continued to harvest approximately the same proportion of the total catch. In the sablefish fishery, there has been a slow, long-term trend of the top quartile of vessels harvesting a proportionately smaller amount of the total catch.

At the QS holder level, average and median QS holdings have increased for all regulatory areas for both species. The greatest level of consolidation (both in terms of the number of QS holders and average holdings) tends to be in the smallest class of QS (i.e. generally D class QS for halibut and C class for sablefish). Despite consolidation, there is not a large population of QS holders constrained by the QS use caps (at the first-level ownership structure).

The Gini coefficient and the HHI are used in this section to examine annual IFQ revenue distributions across all active vessels within both IFQ fisheries in order to understand how the distribution of the value of the fisheries has changed overtime. The Gini coefficient is a metric of inequality; measuring the evenness of distribution for revenue per vessel over time. The Gini coefficient varies between 0 and 1, where a value of 0 indicates that all vessels earn exactly the same revenue, while a value of 1 indicates that a single vessel had 100% of the revenues. The HHI is a metric of market concentration; evaluating concentration of revenues over the total number of vessels. HHI scores approach zero when a market is composed of a large number of firms (here, vessels) of similar size and reaches a maximum of 10,000 when a market is controlled by a single firm (i.e., vessel).

Comparing the Gini coefficient in the halibut fishery for the baseline period to the years under the IFQ management regime indicates that there was a more even distribution of vessel halibut revenues before program implementation. In the sablefish fishery, for all vessels in the fishery, and for catcher vessels exclusively, there has been a general decline in vessel revenue inequality following the first several years of the IFQ Program wherein inequality increased. While the Gini coefficient for catch-processor vessels, exclusively, shows a lot more variation throughout the years, it has been below the pre-IFQ baseline value throughout the course of the IFQ Program

The HHI for halibut IFQ vessels shows an increase in the revenue concentration since the IFQ Program, likely in part due to the decrease in the number of participating vessels following IFQ implementation. For all vessels in the sablefish IFQ fishery and for the catcher vessels exclusively, the HHI remained fairly stable after the first several years of increased concentration following IFQ. The HHI for sablefish catcher processors operates on a vastly different scale than the HHI for catcher vessels due to its nature of having a higher concentration of revenues for a smaller number of vessels. However, this sector also experienced an increase in concentration of sablefish IFQ revenues throughout the course of the program. Given the limited vessels in this sector, this index is more sensitive to changes in the operations of an individual vessel.

2.4 Crewmember and processor impacts

With the IFQ Program the Council wanted to allow for the continuation of the business relationships that had existed within the halibut and sablefish fixed-gear fleets prior to IFQs. Nevertheless, the Council understood that creating exclusive harvesting privileges for vessel owners could fundamentally shift the power structures in the fisheries towards those vessel owners. Sections 2.4.1 and 2.4.2 discuss how the implementation of the IFQ Program affected IFQ crewmembers and processors of halibut and sablefish and how these impacts have changed over the 20 years of the IFQ Program.

2.4.1 Crewmember Impacts

Section 2.4.1 discusses crewmember impacts from IFQ implementation, including the number of crew jobs, crew earnings, and other conditions of crew employment. Information about the number of crewmembers or their earnings has historically not been tracked in the IFQ fisheries. Because of the dearth of data and information on IFQ crewmembers, this examination of the impacts of the IFQ Program on crewmembers relies on previous research in this area and information gathered during a crew workshop held in April of 2016 with IFQ participants that was specifically intended to address these information gaps.

The implementation of the IFQ Program likely led to several major changes for crewmembers in the halibut and sablefish fisheries. The number of total crew jobs in the IFQ fisheries has decreased likely by several thousand due to consolidation and the exit of vessels from the fisheries. With a decline in the number of available crew jobs and an overall shift away from vessel owners' need for manpower, the bargaining strength of crewmembers relative to vessel owners has likely decreased. In part as a result of these changes in bargaining strength as well as in how vessel owners now participate in the IFQ fisheries, crew shares as a percentage of vessel gross revenues have likely also declined since IFQ implementation. However, average crew earnings in the IFQ fisheries have likely increased and become more predictable following IFQ implementation. Furthermore, with some safety improvements in the fleet following IFQ implementation, crew jobs have potentially become safer as well.

2.4.2 Processor Impacts

Section 2.4.2 examines the impacts of the IFQ Program on the processing sector, including the count of processors in the IFQ fisheries, processor diversification, and bargaining strength.

Since IFQ implementation the number of processors that had been processing halibut prior to IFQ (pre-IFQ processors) has decreased (by 90% by 2015), while the number of new processors has increased (by 120 within the first year of the IFQ Program), although the number of processors in both generations has decreased over time (Figure ES 6). There has also been a substantial exodus of processors active in the sablefish fishery pre-IFQ (by 90% by 2015) and an influx of new processors (165 within the first year) (Figure ES 7). However, conclusions about processor entry and exit following IFQ implementation should be qualified given the limitations of the underlying data (see Section 2.4.2.1) For both the halibut and sablefish fisheries, the proportion of the total amount of fish processed by the pre-IFQ processors is larger than their proportion of the total number of processors.

Figure ES 6. Numbers of halibut processors that did and did not process halibut pre-IFQ

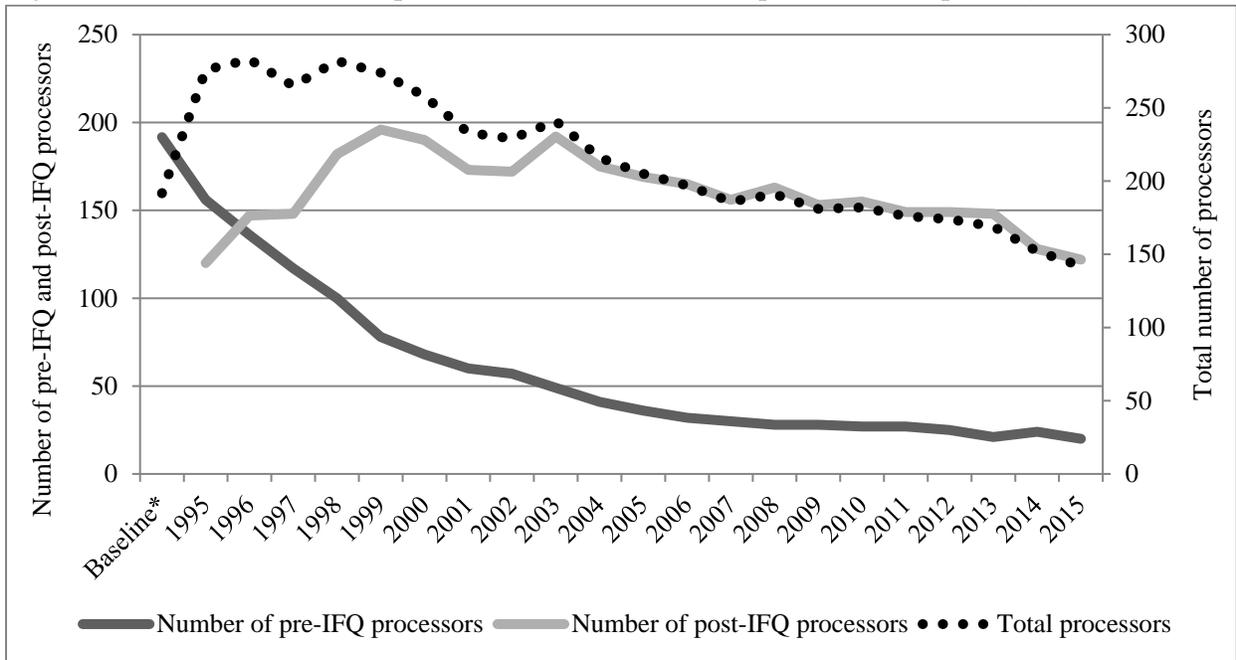
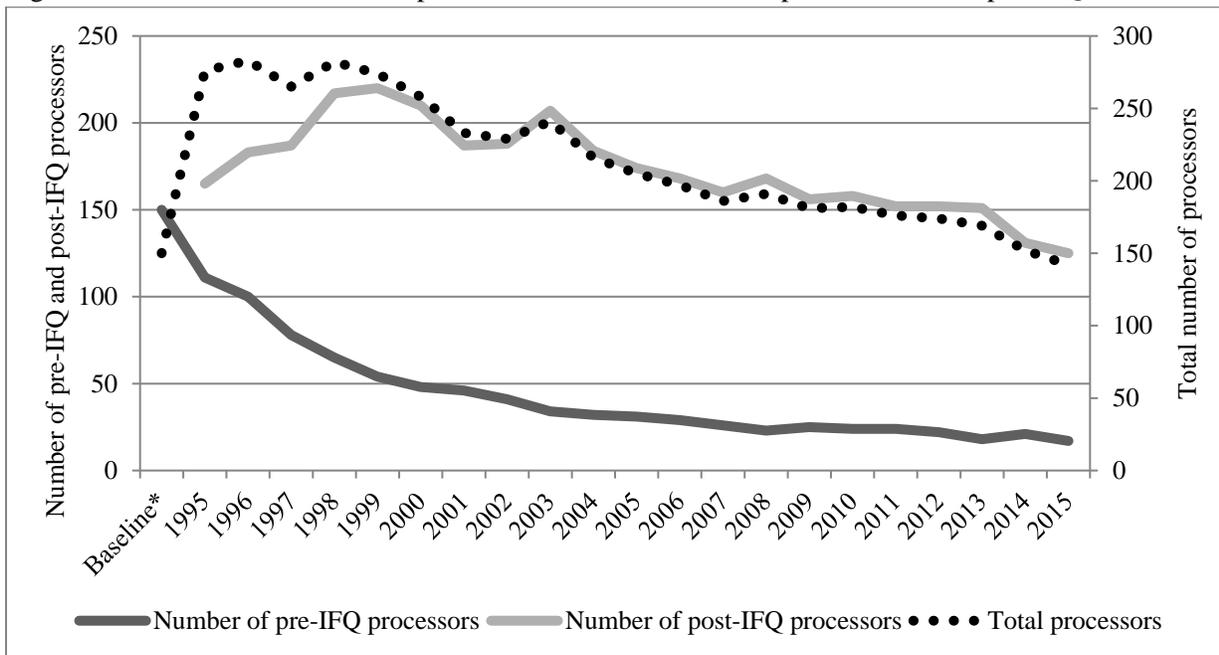


Figure ES 7. Numbers of sablefish processors that did and did not process sablefish pre-IFQ



Species diversification seems to have become more important to processors following IFQ implementation. Of the pre-IFQ generation of processors, an increasing percentage has diversified into processing both IFQ species since IFQ implementation. Processor representatives also noted that diversification overall became a key survival strategy for them after the IFQ Program, including entering into other fisheries, increasing processing of species that they had previously been processing, adding value added products, and entering into custom processing arrangements.

Researchers have shown that the IFQ Program resulted in increased spatial competition for IFQ landings, an increase in market power for harvesters, and near-symmetric bargaining positions and economic rent distribution between the harvesting and processing sectors. The analysis of margins between wholesale and ex-vessel prices in the IFQ Program Review indicates that halibut processor price margins have decreased over time, and processor representatives noted that these margins have essentially disappeared since IFQ implementation. The margins between wholesale and ex-vessel prices for sablefish, however, are fundamentally different. After a decade of decreasing margins, these margins began to increase again for the processing sector in the mid-2000s. Processor representatives noted that the market for sablefish has been changing over the last decade, with an increase in domestic demand for sablefish, which may be driving up wholesale prices. It should be noted that these margins do not represent the profit margins for the processors, because we do not have information on processor costs.

Processor representatives highlighted the top impacts of the IFQ Program from their perspective on the processing sector as: lower volume of IFQ species landings, the creation of surplus capacity (freezing and ice-making capacity), devaluation of capital investments, shift in bargaining power towards harvesters, previously active processors going out of business (especially in rural communities without access to transportation), overall changes in landings patterns, changes in relationships between processors and fishermen, diversification into other fisheries and different product types, and steadier and longer employment for the processing workforce. Processor and tender representatives also noted that the necessity for tenders in the halibut and sablefish fisheries was largely eliminated with the implementation of the IFQ Program.

2.5 Owner-operator characteristic

Section 2.5 examines trends over the last 20 years of the IFQ Program with respect to the owner-operator objective for the IFQ fisheries. Although the objective of an owner-operator fleet was not specified for a certain vessel class, the Council has constrained its owner-operator requirements to the catcher vessel fleet. Therefore, Section 2.5 largely focuses on leasing and hired master use in the catcher vessel fleet, although information on Class A IFQ leasing and hired master use is also presented.

Overall Class A IFQ leasing rates have decreased in the IFQ fisheries over the last 20 years, despite a transfer of Class A QS to non-individual entities during the same time period. At the same time, hired master use by Class A QS holders has increased. Class A QS holders may be choosing to engage in informal leasing arrangements with hired masters in order to avoid paperwork requirements for formal leasing arrangements with NMFS.

Despite a continued transfer of catcher vessel QS to individuals from non-individual entities, formal leasing of, and hired master use for, catcher vessel IFQ have increased over the course of the IFQ Program. Harvest of catcher vessel QS by hired masters has increased in both IFQ fisheries over the last 20 years, although this trend has begun to reverse in both fisheries over the last few years (Figures ES 8; ES 9). Although total leasing of catcher vessel IFQ under the beneficiary, medical, CQE, and GAF transfer provisions comprises a small percentage of the TACs in both IFQ fisheries – about 4.25% and 2% in 2015 in the halibut and sablefish fisheries, respectively, these percentages have been increasing over the last 15 years. There is also some indication of increasing lease rates (or the percentage of the ex-vessel revenue that the QS holder receives) over time. Although lease rates should reflect earnings expectations in the IFQ fisheries, rising lease rates may also be a factor of initial recipients' higher

willingness to pay for leasing IFQ because they are also fishing for IFQ derived from freely allocated initial QS. Thus, there may be a profit squeeze for those participating in the lease market strictly or mostly as lessees.

Figure ES 8. Harvest by hired masters and QS holders in the halibut IFQ fishery

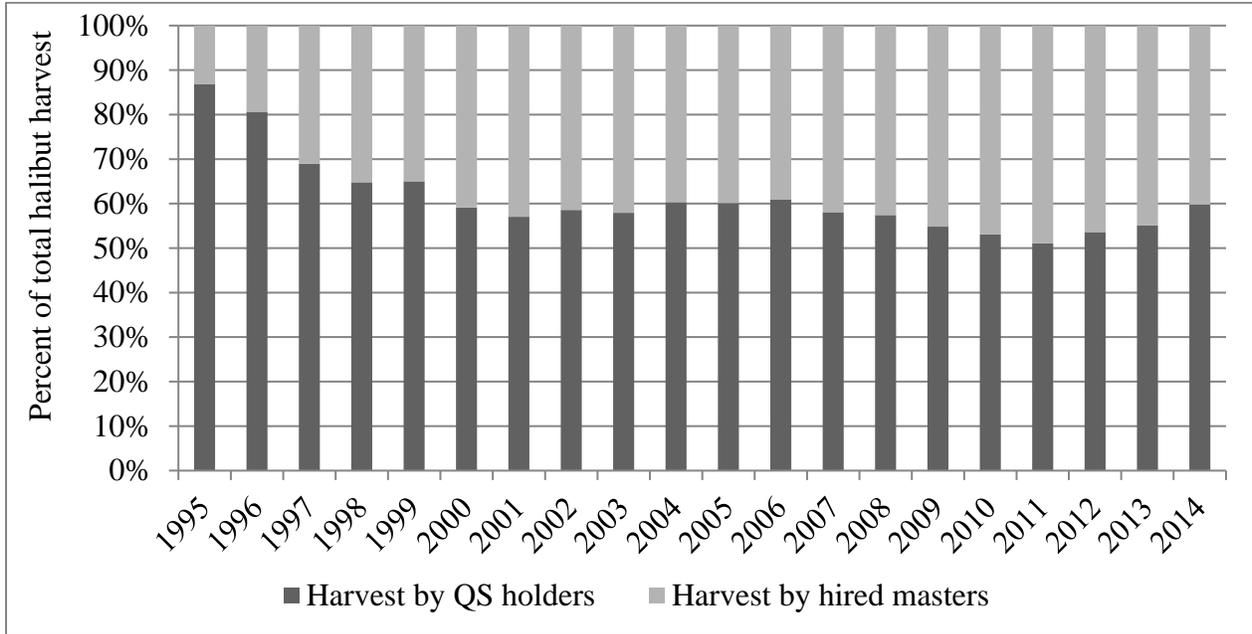
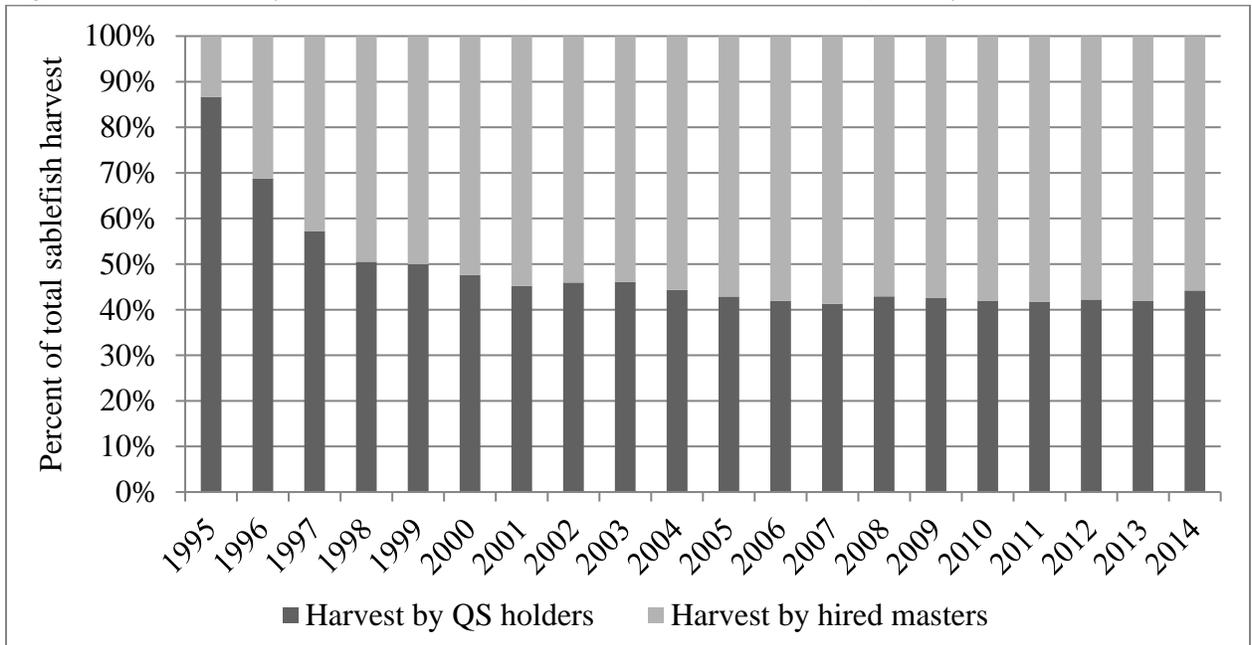


Figure ES 9. Harvest by hired masters and QS holders in the sablefish IFQ fishery



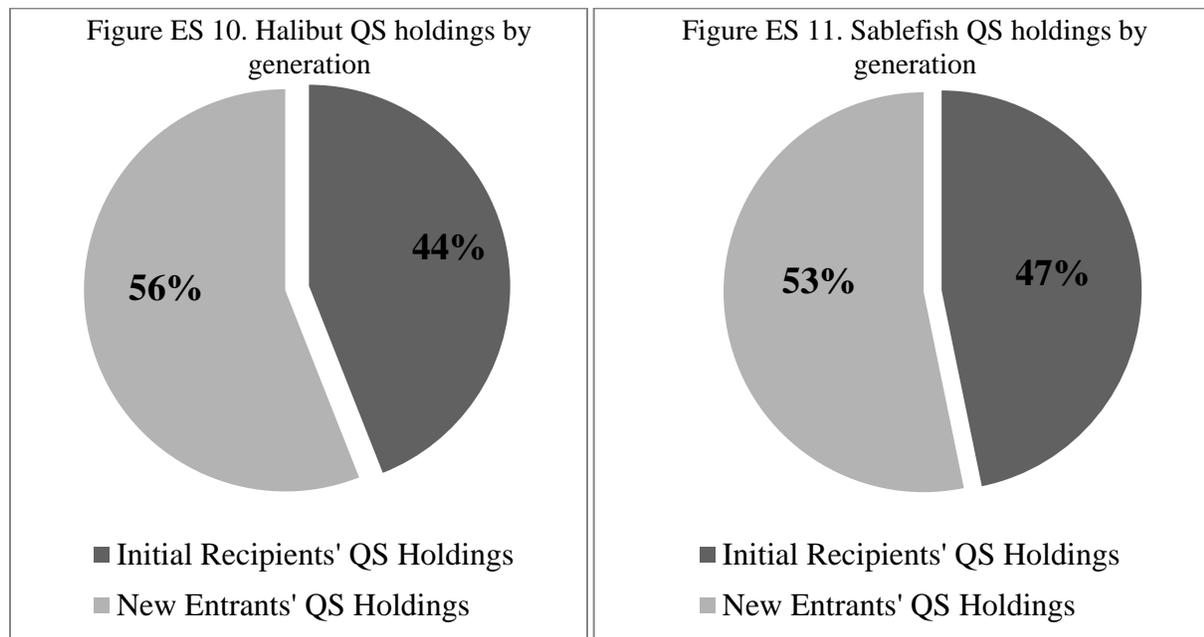
Catch share and limited entry programs can create formidable incentives for privilege holders to lease their privileges, generating income in absentia and avoiding the overall risks of physically participating in the fisheries. In the IFQ fisheries, even as QS is transferred to second-generation shareholders who are

mandated to be on-board during the harvest of their IFQ, there is anecdotal information that some of these second-generation shareholders are coming on board as “walk-ons” or “ride-ons”, who do not participate in the actual fishing activity. Because the IFQ Program tied the hired master use privilege to the initial catcher vessel QS holder and not the initially allocated catcher vessel QS, some initial recipients may have built business models on the basis of utilizing hired masters to land their IFQ. The hired master provision implemented in 2014 prevents such initial recipients from acquiring additional catcher vessel QS for the purpose of utilizing a hired master to land the resultant IFQ. Nevertheless, there will likely continue to be a lag in transfer of catcher vessel QS to second-generation, owner-on-board QS holders, because initial catcher vessel QS recipients can still use hired masters to land their IFQ from QS transferred prior to 2010. Furthermore, there is indication of repeated use of the medical lease provision for catcher vessel IFQ by a limited number of QS holders in the fisheries. Such repeated use can be indicative of QS holders using the medical lease provision to bypass the owner-on-board requirement or for chronic conditions from which the QS holder may not recover, while the provision was intended to provide relief from fishing for IFQ participants in emergency hardship situations.

2.6 Entry Opportunities

Section 2.6 examines new entry into the IFQ fisheries over the 20 years of the IFQ Program. Although not outright objective of the IFQ Program, providing for new entry opportunities was identified as an area of interest during the outline and work-plan presentations for the IFQ review to the Council.

Since IFQ implementation, 2214 new entrants have purchased QS in the halibut IFQ fishery and 513 new entrants have purchased QS in the sablefish IFQ fishery. New entrants hold a majority of the QS in both IFQ fisheries (Figures ES 10; ES 11) and continue to consolidate QS on an annual basis, although in both IFQ fisheries new entrants’ average holdings are smaller than the average holdings of initial recipients. Additionally, the rate at which new individuals have become QS holders has generally fallen throughout the course of the program. New entrants’ QS holdings distributions across the vessel classes are generally aligned with the total distribution of QS across the vessel classes.



Since initial recipients can utilize hired masters to harvest their IFQ, the privilege associated with QS has been fundamentally different for initial recipients and new entrants. Prior to the December 1, 2014 rule limiting hired master use to QS transferred prior to February of 2010 there was potentially a greater incentive for initial recipient QS holders to consolidate QS. The right-skewed age distribution of initial recipient QS holders and the increasing use of hired masters by individual initial recipients of catcher vessel QS (see Section 2.5) provides some evidence that some of these QS holders are retaining QS past the point at which they are willing or able to harvest their IFQ themselves. The retention and consolidation of QS by initial recipients, who rely on the use of hired masters to harvest their IFQ, has thus likely stymied entry into the IFQ fisheries.

Anecdotally, QS holders in the IFQ fisheries have also remarked that tax considerations are a significant factor in whether and how they transfer their QS. Capital gains taxes, which are paid on the profit realized from a sale of an asset that was purchased at a cost amount that was lower than the amount realized at the sale, have been cited by QS holders as providing a significant incentive for them to refrain from selling their QS. Transferring QS as a gift or through an unpriced sale may limit the amount of such a tax that the transferor has to pay. Over the last several years, the number of gift QS transfers and transfers between family members has increased in the IFQ fisheries. While this is beneficial for those who receive the gifted QS, such transactions may perpetuate inter-generational inequities in access to the fisheries by providing a select group of new entrants with a marked advantage in competing for more QS.

In the Southeast Alaska regulatory areas of the IFQ fisheries, Area 2C of the halibut fishery and the Southeast Outside District of the sablefish fishery, the Council included a prohibition on catcher vessel QS acquisition by non-individual entities and a prohibition on hired master use for the harvest of catcher vessel IFQ by any individuals. Although these restrictions may have theoretically led to more QS being available on the market for new entrants in the Southeast Alaska regulatory areas relative to other areas, new entry into these areas has generally been on par with the other IFQ regulatory areas. Isolating the impacts of these Southeast-specific provisions on new entry is beyond the scope of this review, as it would necessitate developing an appropriate counterfactual of the Southeast areas without these provisions.

Entry into the IFQ fisheries may have become more difficult over the course of the IFQ Program due to decreasing TACs, rising QS prices, and some limitations on lending. Rates of new entry have decreased since a peak in the first several years of the IFQ Program. Due to decreasing TACs, the principal balances of QS loans in some IFQ regulatory areas are slightly greater than the estimated current market value of the underlying quota. In order to reduce the risk of defaults, the NMFS Financial Services Division, which administers the Fisheries Finance Program that provides loans for halibut and sablefish QS, now increasingly relies on secondary collateral, income diversification, and down payments to assess credit risk for loans for halibut and sablefish QS. The number of loans through the NMFS' Fisheries Finance Program has decreased substantially over the last several years, while the number of halibut and/or sablefish QS loans through Alaska's Department of Commerce, Community, and Economic Development Commercial Fishing Loan Program has increased over the same time frame.

The block program has created some entry opportunities by preventing the additional consolidation that would have happened if the block program had not existed and by providing for the availability of small amounts of QS on the market. However, the utility of the sweep up provision, which allows small

amounts of blocked QS to be swept up into larger blocks, has likely decreased over the course of the IFQ Program as evidenced by the decreasing number of sweep-up transfers as well as the high percentage of QS holders who hold sweepable QS. The easiest of such transfers likely occurred at the onset of the program. Coordinating the sweep-up of multiple QS blocks from different shareholders is likely difficult and associated with relatively high transaction costs. The purchase of individual small QS blocks or sweepable amounts of QS may not be economically worthwhile assuming the shareholder does not have additional QS in the area with which they can harvest the resultant IFQ. Thus the current function of the sweep-up provision may not be optimal for new entrants, who are likely seeking small amounts of QS and may not have other QS holdings in the area with which they can consolidate new QS purchases.

2.7 Community Impacts and 2.7A Indices of Community Involvement in the IFQ Fisheries

Section 2.7 examines the impacts of IFQ Program on communities with respect to IFQ landings and QS holdings. Section 2.7A presents community indices of participation in the IFQ fisheries, which were developed by NOAA's Alaska Fisheries Science Center.

The IFQ Program was intended to provide economic stability to coastal communities and rural coastal community development of a small boat fleet (objective 1), to limit the adjustment costs to Alaska coastal communities (objective 8), and to provide rural coastal communities adjacent to the Bering Sea with the opportunity to participate in the IFQ fisheries (objective 9). The Council included several provisions to achieve these objectives, including QS allocations by vessel class, limits on who can acquire and use QS, limits on leasing and hired master use, and QS acquisition and use caps. Economic stability from IFQ implementation was expected to flow out of the guaranteed harvesting privilege afforded by QS and potentially more stable and predictable landings.

Anticipated changes in the processing needs following IFQ, especially for halibut, were expected to result in geographic redistributions of halibut IFQ landings. With a change to more fresh production of halibut, halibut processing was expected to shift from outside of Alaska into Alaska and from remote Alaska coastal communities to those with access to road and air transportation, which would be critical in moving fresh product down to markets. For both IFQ fisheries, there has been an increase in shoreside processing (although at sea processing comprised a small percentage of total processing prior to IFQ as well) and an increase in the percentage of that shoreside processing that takes place in Alaska. Following IFQ, there has also been a shift in processing for both IFQ fisheries from remote Alaska communities without road and airport transportation to those with access to air transportation.

Overall, the percentage of the total QS held by Alaskans has remained relatively stable since IFQ implementation. The percentage of the total QS holdings in both fisheries have decreased for Washington resident fishermen, remained stable for Oregon resident fishermen, and increased for resident fishermen of other states. Compared to the movement of QS between residents of different states at the aggregated level for both IFQ fisheries, there has been more movement of QS between residents of different states within specific IFQ regulatory areas.

Of the total QS held by Alaskans in the IFQ fisheries, the percentage held by rural Alaska communities has remained relatively stable since initial QS allocations. Amongst rural Alaska communities, there has been a general movement of QS for both IFQ fisheries away from the more remote communities (without airport and road access) to those with airport transportation. Some geographic redistribution of QS

amongst rural Alaska communities was expected at the time of IFQ implementation, in response to consolidation and the greater willingness to pay for QS by more efficient operators. In addition, the movement of processing capacity out of some remote rural Alaska communities potentially affected other things like the provision of support services and fuel prices, which would have impacted operating costs for IFQ fishermen in these communities and how competitive they could be in the market for QS.

After the first several years of the IFQ Program, there was concern about the decline in QS holdings of residents of small Gulf of Alaska coastal communities. In response, the Council elected to revise the IFQ Program to allow specific communities to purchase sablefish and halibut QS through the Community Quota Entity (CQE) Program, which was implemented in 2004. There has been a substantial decline in QS holdings in CQE communities since IFQ implementation and the CQE Program has not proven to be effective in terms of providing a feasible mechanism to increase these QS holdings. The decline in QS holdings in CQE communities may have at least in part been due to residents of CQE communities receiving small quantities of QS at initial allocation, resulting in IFQ amounts that were not economically viable to fish. Augmenting QS holdings was likely prohibitively expensive and coordinating with fellow CQE residents was potentially not feasible due to differences in the area and vessel class designations of the allocated QS. QS acquisition by CQE entities is likely limited by the same factors that inhibit QS purchases by individuals, including high QS prices, a limited availability of QS on the market, and a lack of access to capital and financing.

For both IFQ fisheries, there have been some substantial changes in processing and harvesting engagement at the community-level since IFQ implementation, where engagement is intended to reflect multiple ways in which a community participates in the IFQ fisheries but is not inclusive of all activities related to the IFQ fisheries in a community and does not necessarily reflect a community's dependence on these fisheries. Processing engagement reflects IFQ landings and revenue, vessels making IFQ landings and processors receiving IFQ deliveries, while harvesting engagement reflects IFQ fishing activities by vessels owned by residents of the community. Of those communities that were highly engaged in the processing of halibut prior to IFQ, Kenai, Ketchikan, Seattle, and Other Washington were no longer highly engaged by 2014. Of those communities that were highly engaged in the harvesting of halibut prior to IFQ, Anchorage, Ketchikan, and Oregon were no longer highly engaged by 2014. Of those communities that were highly engaged in the processing of sablefish prior to IFQ, Pelican, and Unalaska were no longer highly engaged by 2014. Of those communities that were highly engaged in the harvesting of sablefish prior to IFQ, Oregon was no longer highly engaged by 2014.

2.8 Fishing vessel safety and 2.8 Assessment of occupational hazards in the IFQ fleet (NIOSH)

Section 2.8 and 2.8A address the impacts of the IFQ Program on fishing vessel safety in the IFQ fleet. Concern about safety in the fixed gear halibut and sablefish fleets was one of the 10 problem areas that the Council sought to address with the IFQ Program (objective 1). USCG Search and Rescue (SAR) case data (Section 2.8) and the NIOSH Safety Assessment (Section 2.8A) both indicate a slightly decreasing trend in hazards following IFQ implementation. However, the continued incidence of fatalities and vessel disasters during the 2000s indicate that while fishery

management policies may have influenced safety, other factors may be responsible for the persistent hazards observed in the fleet.

2.9 Biological management

There were three biological management issues that the Council identified the IFQ Program was intended to address – deadloss from lost gear, bycatch loss, and discard mortality. The implementation of the IFQ Program was expected to decrease gear losses and abandoned gear in the IFQ fisheries by eliminating congestion on fishing grounds and allowing for prolonged fishing seasons. The IFQ Program was also anticipated to increase the retention of other groundfish bycatch for the halibut and sablefish IFQ fleet, because the opportunity costs of time are lower under an IFQ Program with a guaranteed harvest allocation. The IFQ Program, however, was anticipated to potentially result in greater discard mortality of halibut and sablefish due to the incentives for highgrading catch.

There is indication that the IFQ Program did decrease deadloss from lost or abandoned gear in the halibut IFQ fishery. The amount of halibut mortality due to lost or abandoned gear varies by year but for the 10 years prior to IFQ implementation ranged from 0.77 – 3.27 Mlbs (net weight); since IFQ implementation the mortality has dropped to between 0.038- 0.28 Mlb pounds (net weight). Estimates of deadloss from lost or abandoned gear in the sablefish fishery are not available.

There is also evidence that the IFQ Program did increase the retention of other groundfish bycatch by the sablefish IFQ fleet. Since program implementation both the absolute number of tons and the rate (expressed as the ratio of estimated bycatch of non-target FMP groundfish species to the estimated total catch of target species) of discards of other FMP groundfish have decreased for the sablefish IFQ fleet. Discards of other FMP groundfish species by the halibut IFQ fleet have historically not been estimated. The Groundfish Plan Team is currently discussing methodologies for estimating other FMP groundfish, non-target species, and prohibited species catch discards for the halibut IFQ fleet using observer data from the restructured Observer Program that began in 2013.

There is also some indication that discards of IFQ target species increased in the halibut and sablefish following IFQs. In the three years preceding the implementation of the IFQ Program the average sublegal-size halibut discard mortality was 1.03 (in thousands of net pounds) and since IFQ implementation this mortality has increased to 1.43 (estimated from 1995 to 2015). Since IFQ implementation, discards in metric tons of sablefish in the sablefish IFQ fleet have generally been above the pre-IFQ baseline level (average of 1991 through 1994) of just under 400 metric tons. The discard rate of sablefish in the sablefish IFQ fleet (estimated as the sum of all discarded weight to the sum of all retained weight in the sablefish IFQ fleet) has also increased since IFQ implementation.

2.10 Inseason Management

The fixed gear sablefish TACs are fully allocated to the IFQ Program, and none of the TAC is set aside for sablefish caught incidentally in other fixed gear fisheries (i.e., in the Pacific cod and halibut IFQ

fisheries). During IFQ development, the Council acknowledged that incidental catch in other fisheries could result in annually exceeding the fixed-gear TAC, but at the time an estimated bycatch mortality rate had not been established for sablefish. Furthermore, the Council believed that there would be enough unused sablefish TAC in the trawl fisheries to absorb incidental catches without exceeding the TACs.

Because there is no incidental catch allowance (ICA) for sablefish caught in the other fixed gear fisheries, any incidental catch of sablefish must be discarded and accrues toward the TAC. Sources of discards of sablefish in the fixed gear fisheries include sablefish caught in excess of a vessel's available sablefish IFQ, sablefish caught by vessels that do not have sablefish IFQ, and sablefish that are caught out of season (e.g., during the early season Pacific cod fishery).

The potential need for an ICA is currently limited to the Gulf of Alaska only. In the Bering Sea and Aleutian Islands areas, retained catches of sablefish in both the fixed gear and trawl sectors have been well below the TACs. In the Gulf of Alaska, the allocations to the IFQ fleet have been fully harvested in most years since implementation of the IFQ Program. As a result, incidental catches of sablefish by other fixed gear vessels without sablefish IFQ have caused sablefish harvests by the fixed gear sector to exceed the fixed gear TACs in some areas of the Gulf of Alaska in some years. The combined area TACs for fixed gear and trawl gear have generally not been exceeded since the implementation of the IFQ Program because the trawl allocation has not been fully harvested. However, in recent years trawl harvests plus discards of sablefish in the Central Gulf of Alaska and West Yakutat districts have been approaching the TAC, leaving little TAC available to absorb overages from the fixed gear sector. As a result, the combined TAC has been exceeded in the Central Gulf of Alaska in 2004, 2011, and 2014, and in the West Yakutat District in 2010, 2013, and 2015. Although retained plus incidental catches have exceeded the sub-area TACs in some years, NMFS does not consider this a current management issue, because total catch has remained below the area-wide TACs and area-wide ABCs.

2.11 Other issues

Section 2.11 is comprised of several sub-sections that discuss various aspects of monitoring and regulating the IFQ fleet. Although these sections do not necessarily directly relate to the original objectives of the IFQ Program, they discuss important aspects of the operations and management of the IFQ fleets. Section 2.11.1 (Recordkeeping and Reporting) summarizes the recordkeeping and reporting requirements for the IFQ Program, which include requirements for QS holders to report specific information to NMFS and other management agencies for management, monitoring, and enforcement purposes. Section 2.11.2 (Observer Program) summarizes a framework of the Observer Program as it applies to IFQ participants, including a description of how changes to the Observer Program may have impacted IFQ participants. This section also identifies areas of current Observer Program development that are relevant to the IFQ Program, although it does not analyze specific issues related to observer coverage in the IFQ fisheries, which are analyzed and prioritized through the Observer Advisory Committee. Section 2.11.3 (Monitoring and Enforcement) presents information on monitoring and enforcement in the IFQ fisheries, including two issues of concern identified by NMFS OLE. Section 2.11.4 (Management Costs and Recovery) presents information on management costs and cost recovery for the IFQ fisheries, including the requirements and responsibilities for IFQ permit holders and IFQ registered buyers and the calculation of the cost recovery fee. Section 2.11.5 (Housekeeping) presents

information about sections of IFQ regulations that could be clarified or streamlined and IFQ regulations that pose some administrative issues for NMFS.

2.12 Native Village of Eyak's

The Native Village of Eyak submitted a public comment to the Council at the Council's February 2016 meeting requesting IFQ shares be allocated to the Native Village of Eyak (Tribe). In response, the Council passed a motion requesting analysts to describe in the IFQ Program Review the Tribe's proposal for an allocation of IFQ to the Tribe, its past litigation on the IFQ Program, and its requests for tribal consultation on IFQ allocations.

During the development of the IFQ review, the Tribe submitted its proposal to NMFS for QS allocations, requesting 1,502,823 halibut QS units in any vessel class in Area 3A to be allocated to the Tribe over the course of 5 years. Allocating QS to the Tribe would expand the 3A QS pool and impact the holdings of other QS holders in 3A, resulting in a decrease in the percentage of the TAC that current 3A QS holders would receive. An increase in the TAC of 59,147 pounds over five years would absorb the increase in the QS pool relative to 2016 IFQ allocations to current 3A QS holders.

In 1995 and 1998, the Native Village of Eyak along with four other tribes (plaintiffs) filed two separate lawsuits challenging the IFQ Program on different grounds. The courts rejected the plaintiffs' claims, and after several appeals through the federal courts the Supreme Court did not hear the case.

The Native Village of Eyak did submit a letter to NMFS on December 12, 1994 asking "what is the Native Village of Eyak's Individual Fishing Quota of black cod and halibut in the Gulf of Alaska." This request was past the application period for QS, and NMFS's records did not support a finding that the Tribe owned any vessels that would have qualified it under the regulations to receive QS. To date, NMFS has found no other written requests or documentation of communications between NMFS or the Council and the Native Village of Eyak requesting IFQ allocations or a government-to-government consultation prior to the implementation of the final rule for the IFQ Program. Furthermore, there were no formal tribal consultation requirements in effect during the development of the IFQ Program.

3. Key Findings, Data and Information Gaps, and Potential Research Interests

This final section of the review summarizes the findings of the review with respect to how the IFQ Program is meeting its 10 original objectives and the objective of providing entry opportunities. This section also highlights areas that appear to contain the largest challenges in reaching the 10 programmatic objectives. Finally, this section identifies key data and information gaps in informing how the IFQ Program has performed with respect to its original policy objectives and potential research extensions for future IFQ programmatic reviews.