

**Alternatives for the West Coast Groundfish
Adaptive Management Program**

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Abstract

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The West Coast groundfish individual fishing quota program divided fishing rights among commercial trawl fishermen into transferable quota shares in 2011. Instead of allocating the full 100% of shares to fishermen, the Pacific Fishery Management Council made a bold decision to hold 10% of the quota shares for each of 28 species aside in an adaptive management program. These shares were an insurance policy for the substantial changes occurring under the new management regime; by holding something aside, the Council could later direct these shares toward one or more of the five adaptive management program objectives: stabilizing fishing communities, stabilizing fish processors, facilitating new entrants, addressing conservation concerns, or responding to other unintended outcomes of the individual fishing quota program. But after almost five years, the Council has not yet developed the adaptive management program and the shares have not been assigned to meet their intended objectives. Instead current quota share owners receive adaptive management program quota pounds in addition to what they already own. Here, I suggest six policy options for the adaptive management program to meet the Council's stated objectives, and consider each option in terms of effectiveness, political viability and implementation feasibility. While no policy can clearly be seen as superior to others using the dimensions analyzed, the strengths and weaknesses of the various options become more transparent. This assessment can contribute to continued discussion in the Council process.

Table of Contents

Abstract	i
List of Tables	ii
List of Figures	ii
Introduction	1
Framework and Methods for Analysis	5
Results	7
1. History of Adaptive Management Program Decisions	7
2. Policy Problem	9
3. Criteria	10
4. Policy Options	12
Conclusions and Recommendations	31
Acknowledgements	34
References	35
Appendix A	38

List of Figures

Figure 1. Example Quota Pound Calculation at Sector Level under Status Quo	14
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List of Tables

Table 1. Summary of Policy Options	13
Table 2. Example Quota Pound Calculation at Quota Share Permit Owner Level under Status Quo	15
Table 3. Example Adaptive Management Program Quota Share Distribution at Quota Share Permit Owner Level under Option 4	24
Table 4. Adaptive Management Program Alternatives - Criteria Rankings Summary	31

Introduction

In the US, state governments manage ocean fishing from the coastline out to three nautical miles, while the federal government manages fishing in the Exclusive Economic Zone, from three to two hundred nautical miles (SLA 2012 §1301(a)(2), MSFCMA 2012 §1801(b)(1)). The central law governing federal fisheries is the Magnuson-Stevens Fisheries Conservation and Management Act (MSFCMA) (2012 §§ 1801-1884), which aims to balance conservation with economic and social goals. MSFCMA has a distinctive framework of eight fishery management bodies, called councils, that meet publicly several times a year to review and make recommendations for the fisheries in their region (MSFCMA 2012 §1852). These recommendations are subject to approval by the National Oceanic and Atmospheric Administration's National Marine Fisheries Service (NOAA Fisheries) (MSFCMA 2012 §1854), an administrative agency within the Department of Commerce responsible for protecting and managing US ocean resources and habitat, one part of which is the implementation and enforcement of approved council decisions (NOAA Fisheries 2015a).

In the federal waters off the coasts of Washington, Oregon and California, the Pacific Fishery Management Council (herein, Council) and NOAA Fisheries manage over 90 species of groundfish through a single fishery management plan (PFMC 2014a). These species include rockfish, flatfish, roundfish, sharks, skates, ratfish, morids, and grenadiers (PFMC 2014a). Groundfish are caught with a variety of gears, including trawl, pots, longline, hook and line, troll, and gillnets (PFMC 2015). Pacific whiting, sablefish, petrale sole, dover sole and thornyheads are the primary target species (PFMC and NOAA Fisheries 2010a). Other species have been declared overfished and are in rebuilding, such as bocaccio and yelloweye rockfish. Strict catch limits for rebuilding species in a multi-species fishery constrain total groundfish harvest (PFMC 2015).

In 1991, the Council adopted a license limitation system within the groundfish fishery in response to overcapacity and fear that overcrowding in the North Pacific would spill over to the West Coast (PFMC 1992). Fishery managers closed the door to further increases in fleet harvest capacity by issuing limited entry permits with gear and vessel length endorsements to historical participants (PFMC 1992). Catch by vessels registered to limited entry permits was controlled through two-month cumulative trip limits (PFMC

and NOAA Fisheries 2010a). But problems persisted. Vessel owners would race out at the start of each two-month period in order to catch as much groundfish as they could before the fleet reached one or more of the sector limits, at which time NOAA Fisheries would close fishing until the next period (NOAA Fisheries 2015b). Despite a government buyback of permits and vessels in 2003 to further reduce capacity, bycatch in the trawl sector - especially of overfished species - constrained total landings (PFMC and NOAA Fisheries 2010a).

In 2003, the Council began what would be a seven year process to amend the groundfish fishery management plan and implement a catch share program for the limited entry trawl sector (PFMC and NOAA Fisheries 2010a). The Council sought to increase individual accountability, flexibility, and economic stability, reduce bycatch, and more fully utilize the groundfish species allocations (PFMC and NOAA Fisheries 2010a). To manage trawl participants making groundfish landings to shorebased fish processors (the shorebased sector), the Council began developing a transferrable individual fishing quota program (Brinson and Thunberg 2013).

Any amendments to a fishery management plan, including the development of a catch share program, must be consistent with ten National Standards (MSFCMA 2012 §1854(a)(1)(A)). These Standards include sometimes-competing requirements for fishery management plans, such as the consideration of economic efficiency (National Standard 5) while both minimizing negative economic impacts on fishing communities (National Standard 8) and preventing excessive accumulation of fishing privileges (National Standard 4), or that bycatch be reduced (National Standard 9) and overfishing prevented while reaching an optimal harvest level (National Standard 1) (MSFCMA 2012 §1851(a), Eagle 2008). MSFCMA defines individual fishing quota (IFQ) as a “federal permit under a limited access system to harvest a quantity of fish, expressed by a unit or units representing a percentage of the total allowable catch of a fishery that may be received or held for exclusive use by a person” (MSFCMA 2012 §1802(23)), and the NOAA Catch Share Policy (2010) further specifies that in transferable IFQ programs, these “privileges can be transferred subsequent to initial allocations” (p.21). All limited access privilege programs, including IFQ programs, must: assist in rebuilding any overfished species, help to reduce overcapacity if it exists in the

fishery, encourage vessel safety, conservation, and social benefits, and include catch monitoring and enforcement mechanisms, among other requirements (MSFCMA 2012 §1853a(c)).

Under this context, NOAA Fisheries implemented the trawl catch share program in 2011 and allocated shorebased IFQ percentages to trawl permit owners for 30 groundfish species groups, based on the historical catch of each limited entry permit (NOAA Fisheries 2015)(see **Appendix A** for IFQ species listing). These shares convey an ongoing and transferrable right to a portion of the total sector allocation, which can be harvested at any time throughout the year (NOAA Fisheries 2015). Quota share permit owners receive their quota share percentage of each IFQ species by weight, called quota pounds, in online quota share accounts at the start of every year (Fisheries Off West Coast States §660.140(d)(1)(ii)). For example, if a quota share permit owner held 3% of canary rockfish and the sector allocation for that species was 100,000 pounds, NOAA Fisheries would allocate 3,000 quota pounds to the permit owner's quota share account (see Quota Share Permit Owner 1's canary in **Appendix A**). Quota share permit owners must then transfer these quota pounds to a particular vessel account in order to be used toward fishing (Fisheries Off West Coast States §660.140(d)(1)(ii))(see **Appendix A**). Vessel owners must have a positive balance of quota pounds in their vessel account in order to leave on an IFQ fishing trip, and any fish caught - whether discarded at-sea or landed onshore - will be debited against their available quota pound balance (Fisheries Off West Coast States §660.112(b)(1)(ii)). For example, if a vessel owner had an available balance of 500 pounds of sablefish before leaving on an IFQ trip, then discarded 100 pounds of undersized sablefish at-sea and landed 600 pounds, their account would be debited 700 pounds total and go into deficit by 200 pounds. The vessel owner could not leave for another trip until he or she obtained enough quota pounds from a quota share permit owner or vessel owner to cover the deficit (Fisheries Off West Coast States §660.140(b)(1)(ii)).

Major IFQ features include a program requirement that all IFQ fishing trips be monitored by a fisheries observer at sea who reports discards, and that offloads from the vessel be watched and recorded by a catch monitor at the shoreside buying or processing facility (Fisheries Off West Coast States §660.140(h)(1)(i)(A)). This provision ensures that each harvester is individually accountable for an accurate report of bycatch and landings, and because quota pounds must be used to offset catch, creates

an incentive to fish more cleanly (PFMC and NOAA Fisheries 2010a). Quota share permit owners are held to limits on the amount of quota shares they may own or control, while vessel owners are held to limits on how many quota pounds they may obtain (Fisheries Off West Coast States §660.140(d)(4); §660.140(e)(4)). While the Council acknowledged that there would be a large amount of consolidation under the catch share program, these accumulation limit provisions were added to “disperse fishery benefits”, prevent excessive holding of fishing privileges, and “inhibit consolidation” (PFMC and NOAA Fisheries 2010a p.53). The Council also included a gear-switching provision, where trawl vessels may now use other gears, such as pots or longlines, to decrease bycatch, improve marketing or value of catch, or harvest groundfish species that are difficult to catch with trawl gear (PFMC and NOAA Fisheries 2010a).

And, in an unprecedented action, the Council held 10% of the total quota shares¹ aside in an adaptive management program as a tool to respond to unanticipated outcomes of the IFQ program (PFMC and NOAA Fisheries 2010b). Based on a review of the major program features of 13 federal catch share programs described in Brinson and Thunberg (2013), no other US program has held shares aside for flexible use by a Council. The Council intended for this quota to be used towards one or more of the five adaptive management program objectives: community stability, processor stability, facilitating new entrants, conservation, and/or responding to any other unintended consequences of IFQ management (Fisheries Off West Coast States §660.140(l)). IFQ programs have been criticized for the permanency of allocation decisions which make it difficult to respond to evolving problems in the fishery (Levy 2010), so the Council established the adaptive management program as an insurance policy that could respond to the Council’s identified priorities and be flexible enough to be used toward future problems that may develop in the fishery (PFMC 2007b). However, the Council has not yet developed the adaptive management program and the shares have not been assigned to meet their intended objectives (Fisheries Off West Coast States §660.140(l)). Instead current quota share owners receive adaptive

¹ The Council held aside 10% of total quota shares in an adaptive management program for 28 of the 30 IFQ species groups (see IFQ species groups listed in **Appendix A**). Pacific whiting and Pacific halibut were the two IFQ species excluded from the adaptive management set-aside (Fisheries Off West Coast States §660.140(l)).

management program quota pounds in addition to what they already own (Fisheries Off West Coast States §660.140(l)).

Framework and Methods for Analysis

I used a policy analysis framework to establish the history of the West Coast groundfish adaptive management program, identify a policy problem, set relevant criteria, and analyze several policy options that could be used to meet the objectives of the adaptive management program. Policy analysis is “an applied social science discipline that uses multiple research methods in a context of argumentation and public debate in order to create, critically evaluate, and communicate policy-relevant knowledge” (Dunn 1994 p.84). Policy analyses are used to systematically compare a range of options available to public actors for solving social problems (Weimer and Vining 2011). The construction of this paper was influenced by the policy analysis frameworks of Dunn (2009), Bardach (2012), Wheelan (2010), Salamon (2002), Weimer and Vining (2011), and Winter (2013).

In addition, because the federal fisheries management process is defined by and held in adherence to administrative law, the policy options identified were structured within the framework of applicable law, particularly MSFCMA and the National Environmental Policy Act (NEPA), which requires federal agencies to consider the impacts of their proposed actions on the natural and human environment (EPA 2015). Although this paper does not attempt to use a MSFCMA or NEPA analysis structure, the framework and requirements of these laws influenced the development of the policy alternatives, particularly the inclusion of the status quo alternative, and set the bounds for permissible Council action.

In order to develop the policy alternatives, I conducted a literature review of Council briefing book documents, Council meeting minutes, Council decision documents, and the NEPA final environmental impact statement for the trawl catch share program for information relating to the development of, and subsequent decision-making about, the adaptive management program. These documents helped me to better understand the context of the trawl catch share program, the intent and objectives of the adaptive management program, and any implicit policy options that had already been discussed at the Council level.

The decision-makers are considered to be the Council members and the institutions they represent, including the states of Washington, Oregon and California, as well as the tribes and NOAA Fisheries. The major stakeholders considered were the affected fishing industry, including quota share permit owners, IFQ vessel owners, IFQ fish buyers and processors, fishing communities, new entrants, environmental non-governmental organizations and other participants who might receive adaptive management quota pounds or shares or be affected by the outcomes of decisions made about adaptive management program. Since the Council process is open to the public (PFMC 2007) and embodies a form of representative governance (Wheelan 2010), the stakeholders can ultimately affect the decision-making process, within the framework of applicable law.

I established six policy options (two with sub-options), including status quo and five action alternatives by which the adaptive management program could meet one or more of its objectives. I set the options up in a pairwise way, since the Council could either use the annual quota pounds that accrue to the adaptive management program quota shares, or the quota shares themselves, to meet program objectives. I paralleled each quota pound policy option with a quota share policy option. Each option chosen has some precedent in Council discussion, but was developed further through this analysis. The Council anticipated that adaptive management program pounds would be used towards the program's objectives, but that at some later date they might choose to end the program and distribute the shares (PFMC 2008). For this reason, and because the Council has failed to act so far, I included options for Council action that would end the program by distributing the shares (Options 4-6). The Council conceived of an application process for adaptive management program quota pounds (Option 2 in this paper) as early as 2005 (PFMC 2005b), and I expanded this idea to include an application process for quota shares (Option 5). The Council also considered an auction for processors (PFMC 2007a), but that was before other adaptive management program objectives were identified, so I expanded to auction idea more broadly (Options 3 and 6). Please see an overview of adaptive management program decision-making in the Council process, below, and **Table 1** for a summary of policy options considered.

I analyzed each policy option against selected criteria, and scored each option in terms of each criteria using the following scores:

- For each policy option that scored high in terms of the given criteria, I assigned a score of 3.
- For each policy option that scored moderately in terms of the given criteria, I assigned a score of 2.
- For each policy option that scored low in terms of the given criteria, I assigned a score of 1.

I then added these scores up to come up with a total score for each policy option. This total score helped me to quantify each policy option and compare the outcomes across policy options. However, it was not sufficient for choosing a policy option, so the qualitative discussion captures the interplay of each option and criteria more thoroughly.

Results

My results are structured in several sections. First, from a literature review of relevant documents, I trace the history of Council decision-making on the adaptive management program in order to establish how the program objectives were formed, possible policy options already discussed by the Council, and the development of the status quo “pass-through” of adaptive management program quota pounds. Second, I set out the policy problem. Third, I identify several criteria that are relevant to the Council decision-making process. Fourth, I introduce six policy options for the adaptive management program and examine each against each criterion.

1. History of Adaptive Management Program Decisions

The Council decision-making process on the adaptive management program was long, controversial, and involved many compromises. In June 2005, the Council moved to analyze alternatives for community involvement in the IFQ program (PFMC 2005a). In November of the same year, the Council’s Analytical Team identified three potential options for addressing communities: 1) a set aside of quota shares that could be used to benefit communities and/or for other purposes, 2) community representation in IFQ policy development, and 3) community impact controls, such as a two-year moratorium on quota share trading to provide initial stability (PFMC 2005b). While all of these options were implemented, Option 1 was the precursor to the adaptive management program. Under Option 1, the Analytical Team proposed that a Council committee allocate 10% of the shorebased sector quota to joint processor/harvester

collaboratives through an application process or to non-profit organizations in eligible port districts “for the purpose of achieving specific [fishing] community development, enhancement, or stabilization goals” (PFMC 2005b p.3).

By June 2007, the Council had considered and rejected a system that would allocate a major portion of quota shares to processors, and subsequently expanded the scope of the potential community quota set-aside, now called the adaptive management program, to more explicitly include processors (PFMC 2007a). They also added a quota pound auction as one mechanism by which the Council could “compensate processors for demonstrated harm” with adaptive management quota pounds or auction revenue (PFMC 2007a p.29). At this meeting the Council formally discussed the adaptive nature that this quota should take on, and explicitly identified as an objective that it could act as insurance for unforeseen consequences under IFQ management (PFMC 2007b). In November 2008, the Council passed a motion stating that they would consider “the use of an auction or other non-history based methods when distributing quota share that may become available after initial allocation, such as...when quota share from an adaptive management program is no longer needed” (PFMC 2008 p. 44). At this meeting, the Council also deliberated whether they or the States should be the decision-making body for adaptive management program allocations (PFMC 2008). One Councilmember suggested that because the States participate in the Council process, State representatives could support future applications for adaptive management projects through this process, rather than a separate State process, but no decision was made (PFMC 2008).

An April 2009 document prepared by Council staff identified conservation benefits as another possible use of adaptive management quota (PFMC 2009a), which the Council included, along with the fifth and final objective of facilitating new entrants (PFMC 2009b). At this same meeting, the NOAA Fisheries representative to the Council noted concerns with implementing the existing provisions of the IFQ program by the January 2011 target. Rather than adding another complex item to the list, he suggested that the adaptive management shares be held aside as planned, but that the quota pounds accruing to these shares be “passed-through” to quota share permit owners for the first two years of IFQ management, during which time the Council could further develop the implementation aspects of the

adaptive management program and permit owners could benefit from a temporary boost in the amount of pounds they received (PFMC 2009b). The Council voted to adopt this “pass-through” provision in June 2009 (PFMC 2009c), and the quota pounds accruing to the 10% quota shares for each of the 28 adaptive management species were passed-through to quota share permit owners in proportion to their quota share holdings from January 2011 through December 2012 (Fisheries Off West Coast States 2015 §660.140(l)). The Council envisioned that they would develop the program further during this period and then, beginning in 2013, implement methods to allocate the adaptive management quota to one or more of the five program objectives (PFMC 2009c).

However, the Council focused on other IFQ trailing actions and chose to delay adaptive management program implementation further and continue the pass-through for two more years, from January 2013 through December 2014 (PFMC 2011). In 2014, the Council delayed using this quota towards its own established objectives for a third time, citing the fact that no criteria for implementation had been developed yet (PFMC 2014b). The MSFCMA (2012 §1801(b)(1)) and the NOAA Catch Share Policy (NOAA 2010) urge periodic program reviews to evaluate the effectiveness of limited access privilege programs in meeting intended goals and management measures, and the Council plans to begin a review of their trawl catch share program in 2016 (PFMC 2014c). So the Council chose to continue the adaptive management program quota pound pass-through until criteria could be developed as part of the catch share program review (PFMC 2014c).

2. Policy Problem

After almost five years, the adaptive management program has not been implemented, and 10% of the total sector quota shares and quota pounds have not been assigned to meet their intended objectives: stabilizing fish processors, facilitating new entrants, addressing conservation concerns, or responding to other unintended outcomes of the individual fishing quota program. Fulfillment of these objectives was crucial for demonstrating how the Council and NOAA Fisheries would meet certain fishery management plan and limited access privilege program requirements throughout the catch share program’s final environmental impact statement (EIS) (PFMC and NOAA Fisheries 2010a). The EIS cited the adaptive management program as one way in which the catch share program would accomplish the groundfish

fishery management plan's objectives of minimizing impacts on small entities and communities (fishery management plan objectives 15 and 16) (PFMC and NOAA Fisheries 2010a). In addition, the EIS used the adaptive management program to show how the catch share program would meet MSFCMA's National Standard 6, "to address unexpected contingencies" (PFMC and NOAA Fisheries 2010a p. 611) and National Standard 8, "to mitigate any adverse impacts, including community impacts, that might result from the trawl rationalization [catch share] program" (PFMC and NOAA Fisheries 2010a p.612). NOAA Fisheries further cited the adaptive management program in *Pacific Coast Federation of Fishermen's Associations v. Blank* (2012) to demonstrate that the agency had both considered the impacts of the catch share program on fishing communities and adopted measures to support those communities. For these reasons, development of the adaptive management program is important not only to meet its own stated objectives, but also those of the groundfish fishery management plan and the MSFCMA National Standards.

3. Criteria

A. Effectiveness in Meeting Adaptive Management Program Objectives

Effectiveness describes whether an activity will meet its intended purpose - in this case, whether the policy option would achieve one or more of the five adaptive management program objectives: community stability, processor stability, facilitating new entrants to the fishery, increasing conservation measures, or resolving other unintended consequences of IFQ management (Fisheries Off West Coast States 2015 §660.140(I)). A highly effective option would directly achieve or improve one or more adaptive management program objective, while an option with low effectiveness would only indirectly respond to the adaptive management program objectives. A short discussion of each program objective follows.

i. Community Stability

A policy option that would contribute to community stability means that a fishing community with historical groundfish participation would see improved economic and social outcomes for the fishing industry in their region. This might include the development of a fishing organization in their town, such as a community fishing association or risk pool that would coordinate fishers, subsidies for the

cost of observers in communities with poor observer coverage, increased landings to community ports, or the development of a groundfish apprenticeship program.

ii. Processor Stability

A policy option that would improve processor stability might create incentives for fishers to work more collaboratively and efficiently with processors, open or reopen a buying or processing facility in an underserved area (if AMP pounds or shares went to fishers who pledged to land there), or fund testing for new groundfish markets.

iii. Facilitating New Entrants

An option that would facilitate new entrants is one that would encourage new participants to enter the groundfish fishery, through such mechanisms as a groundfish apprenticeship program (also mentioned above), or by providing pounds or shares directly to new entrants or graduates of such an apprenticeship program.

iv. Conservation

An option that would improve conservation measures might fund the quota pounds for a group of vessels testing gear excluders, reward low bycatch rates (PFMC and NOAA Fisheries 2010b), create incentives for gear switching (for example, a gear buyback) to a gear with less harmful impacts on the ocean floor (PFMC and NOAA Fisheries 2010b), or fund research for how climate change will impact the West Coast groundfish fishery.

v. Unintended/Unforeseen Consequences of IFQ Management

A policy option that would resolve unintended outcomes might fund a portion of the cost of observers or monitoring (also mentioned above), fund research for new groundfish markets, or provide solutions to other emerging problems under IFQ management.

B. Political Viability

The Council is inherently a political body, and Council decisions go through a public process (PFMC 2007c). Political viability describes whether a policy option is likely to receive support from Council members and stakeholders; essentially whether or not there are supporters who perceive the policy as legitimate (Salamon 2002). An option that has high political viability has political support and will be perceived as more legitimate by decision makers and stakeholders, while an option that is not politically supported will be perceived as less legitimate.

C. Ease of Implementation

This criterion describes whether the activity would be easy or difficult for the Council and NOAA Fisheries to implement. Policy options are highly implementable when they are simple and direct with few actors and existing infrastructure. Policy options are less easily implemented when they are complex, have little precedent, and involve many actors (Salamon 2002).

4. Policy Options

In developing the policy options, it was important to establish the decision-maker for adaptive management program decisions, because it is the basis of each policy option formation and directly influences implementation. Because the Council is an established representative body that works within the legal framework of MSFCMA and other applicable law (PFMC 2007c), the Council is the most appropriate body for making direct decisions about the use of federal adaptive management program pounds. The final environmental impact statement for the catch share program identified the Council, the States of Washington, Oregon and California, and/or NOAA Fisheries as potential decision-makers (PFMC and NOAA Fisheries 2010b), but the States and NOAA Fisheries are already represented in the Council process and could support projects of their choosing in the Council arena (PFMC 2007c, PFMC 2008). During a 2008 discussion, the Council considered splitting the adaptive management program shares or pounds among the States to be released at the discretion of each State (PFMC 2008), but such a construction would be fraught with political and implementation complexities. First, the Council would need to determine how to divide the shares or pounds among the States, and for how long. For example, would shares or pounds be distributed equally among the States, or on the basis of current participation or

some past level of participation? And how would participation be measured - by number of vessels, total landings, dependent communities or processors? Then the States would need some mechanism to receive and distribute adaptive pounds or shares, presumably through an online account. And once distributed to the States, each State would then need to determine to whom, and how much to allocate, within their State. This secondary layer of decision-making would decrease flexibility and impact of the adaptive management shares. Such a process could be extremely time consuming, expensive, and difficult for the States to implement. In addition, there may be legal concerns for State distribution of a federal resource that are not considered in this paper. Because the Council is a with an existing authority and decision-making infrastructure for federal fisheries management actions, all of the policy options that I have set forth in this paper establish the Council as the direct decision-making body for adaptive management program allocations, and I excluded policy options that would put the States in this role.

Below you will find a summary (**Table 1**) and description of six policy options, and an analysis of each policy option against each of the criteria: effectiveness in meeting adaptive management program objectives, political viability, and ease of implementation.

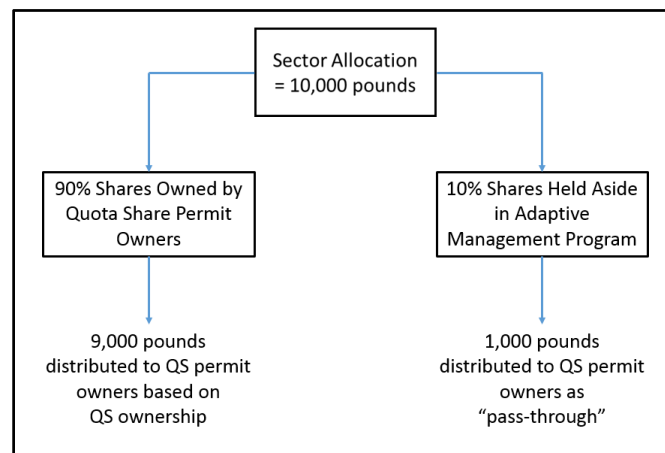
Table 1. Summary of Policy Options

Continue AMP		Discontinue AMP	
Option 1	AMP QP Distributed to Current QS Permit Owners (Status Quo)	Option 4	AMP QS Permanently Distributed to Current QS Permit Owners
Option 2	AMP QP-Use Application Process	Option 5	AMP QS Permanent Allocation Application Process
Option 3	AMP QP Annual Auction	Option 6	AMP QS Permanent Auction
3A	Highest Bidder	6A	Highest Bidder
3B	Qualified Subset of Bidders	6B	Qualified Subset of Bidders

Option 1: Continue to “Pass-Through” Adaptive Management Program Quota Pounds to Current Quota Share Permit Owners (Status Quo)

90% of quota shares for each of 28 IFQ species² are owned by quota share permit owners, while 10% are held aside in the adaptive management program (see **Appendix A** for a list of IFQ species). Since initial implementation of the trawl rationalization program, the annual quota pounds accruing to the adaptive management program quota shares have been “passed-through” to quota share permit owners, in proportion to the permit owner’s current quota share holdings (see **Figure 1**, below) (PFMC 2014b). For example, a person owning 1% of a species with a sector allocation of 10,000 pounds would receive 100 pounds based on their quota share, plus an additional 11 pounds from the adaptive management program pass-through (see **Table 1**, below). Based on a June 2014 Council decision, this pass-through process will continue through the completion of the five-year program review and the implementation of any adaptive management program regulations resulting from that review, which would likely be in 2017 or 2018 at the earliest - six or seven years after implementation of the trawl catch share program (PFMC 2014c).

Figure 1. Example Quota Pound Calculation at Sector Level under Status Quo



² The Council held aside 10% of total quota shares in an adaptive management program for 28 of the 30 IFQ species groups (see IFQ species groups listed in **Appendix A**). Pacific whiting and Pacific halibut were the two IFQ species excluded from the adaptive management set-aside (Fisheries Off West Coast States §660.140(l)), so 100% of those shares were allocated to quota share permit owners.

Under this policy option, the Council would take no action as a result of the program review and would continue to hold the 10% adaptive management program shares aside as a latent program until some future need arises. The annual quota pounds accruing to this 10% would continue to be passed-through to quota share permit owners in proportion to their current share holdings. If an adaptive management program was established in the future, the pounds would no longer be passed-through to quota share permit owners.

Table 2. Example Quota Pound Calculation at Quota Share (QS) Permit Owner Level under Status Quo

A	B	C	D	E
Total Sector Allocation	QS% of QS Permit Owner	Pounds Allocated = A * B	Adaptive Management Program Pounds Allocated = ((B ÷ 90%) * A) - (A * B)	Total Allocated = C + D
10,000 pounds	1%	100 pounds	11 pounds	111 pounds

For nearly five years, the adaptive management program pass-through provision has accounted for more than 10% of the quota pounds allocated to each quota share permit owner (see **Table 2**, above). Many of the IFQ sector allocations are not fully attained, meaning that not all of the quota pounds allocated are caught. Therefore ex-vessel revenue, or the weight of catch multiplied by the price paid to fishermen, provides a better estimate of the revenue generated by the adaptive management program quota pounds than an extrapolated quota pound price would. The average 2011-2013 annual ex-vessel revenue for the IFQ sector was about \$28,440,000, excluding Pacific whiting and Pacific halibut since they are not part of the adaptive management program (PacFIN and WCG Databases 2015). But because most IFQ species have low attainment (a low percentage of available quota pounds are caught), is not appropriate to approximate that 10% of this ex-vessel revenue is derived from adaptive management quota pounds. Instead, I only used 10% of the species that had an average attainment of 90% or greater from 2011-2013³ because I could assume that most of the adaptive management pounds were caught. Using this method, the adaptive management program pass-through during these years accounted for a conservatively-estimated annual benefit of \$1,436,463 in ex-vessel revenue spread across the IFQ fleet

³ Only petrale sole and sablefish North of 36° N. had an average attainment >90% from 2011-2013, at 95.13% and 95.35%, respectively (PacFIN and WCG Databases 2015). 10% of the average ex-vessel revenue from 2011-2013 for these species only was used to estimate the average benefit from the adaptive management program in terms of ex-vessel revenue.

(PacFIN and WCG Databases 2015). The longer these pounds are passed-through to quota share permit owners and are sold or transferred to vessels, the more they become accustomed to this valuable benefit, which may decrease the political viability and future flexibility of the Council to use these shares or pounds for another purpose.

Effectiveness in meeting adaptive management program objectives

Low (Score = 1). The pass-through provision distributes adaptive management program pounds among all quota share permit owners who hold shares, and therefore the benefits of the program are widely dispersed and accrue to those who already hold quota shares, which are valuable assets. This benefit may have provided stability during the first few years of the program by increasing the allocation to program participants during a significant management shift, but adaptive management program was initially intended to be passed-through for only two years, and only because the Council did not have time to develop a comprehensive program before catch share implementation (PFMC 2009b). By spreading the adaptive management program pounds so widely, none of the original adaptive management program objectives, except perhaps the unforeseen consequences objective, are being met. It could be argued that because some of the adaptive management program pounds have high value (such as sablefish and petrale), and because many quota share permit owners are also vessel owners, the conveyance of these pounds lessens some of the unintended high costs of vessel participation in the IFQ program - such as observer and monitoring costs and the fact that IFQ catch must be landed to a licensed first receiver. Otherwise, the status quo pass-through option contributes little, if at all, to community stability, processor stability, facilitating new entrants, or to conservation measures.

Political Viability

High (Score = 3). This option is highly politically viable because the policy is already in place, and quota share permit owners, who are major stakeholders in the Council process, receive the benefit of an extra quota pound allocation on top of what they already receive. Perhaps part of the reason the adaptive management program has never been developed is precisely because there is little political impetus to move away from status quo. Because the pass-through provision has been in place since

2011, quota share permit owners have become accustomed to receiving this benefit and may perceive any action to develop adaptive management program as the Council taking something away from them.

Ease of Implementation

High (Score = 3). This option is highly implementable because this policy is currently in practice and therefore the infrastructure and precedent already exist. No further decision points or added staff time would be needed beyond what is already in place.

Option 2: Establish an Application Process for the Use of Adaptive Management Program Pounds

Under this option, adaptive management program pounds would be allocated at no cost directly to applicants selected by the Council. For the purposes of this paper, applicant selection would be based on the submission of a complete and timely application, a demonstrated ability of the applicant to receive and manage adaptive management program quota pounds (active or pending quota share permit and/or vessel account), and the likelihood that a grant of quota pounds to the applicant would achieve or work toward one or more of the adaptive management program objectives. An application-driven process was frequently discussed as a method for distributing adaptive management program pounds during trawl catch share program development (PFMC 2009a; PFMC and NOAA Fisheries 2010b). The Council identified NOAA Fisheries or a multi-stakeholder Council committee or as two bodies that might be appropriate reviewers of adaptive management quota applications (PFMC and NOAA Fisheries 2010b).

This policy option brings many implementation questions to the forefront. First, the adaptive management program objectives are broad and diverse, with potential to overlap, making Council selection from an open pool of applicants difficult without concrete prioritization. The Council could rank the adaptive management program objectives at the beginning of every application period, based on the perceived needs of the fishery, but this may take considerable time and analysis. Second, the size and timing of the quota pound grant(s) could be variable depending on the applicant's needs. For example, a group applying for adaptive management program pounds to test improved gear selectivity under the conservation objective might only want a small grant for one or two years, and only want quota pounds for

the target and bycatch species in their study. On the other hand, a community applying for pounds under the community stability objective might argue that they need all of the adaptive management quota pounds for several years to ensure ongoing participation of fishermen and processors in their community. Certain IFQ species are latitude-specific (see **Appendix A** for list of IFQ species and latitudes), which could complicate allocations to a place-based community. For example, quota pounds assigned to Southern California but not fishable in that area would likely be of little benefit, unless it was traded or sold to others who could use it. Fewer grants for longer terms might be likely to offer a more significant and lasting impact for recipients, but could create equity concerns. Third, since sector allocations, and therefore the amount of adaptive management program quota pounds, are variable from year to year, it is unclear whether applicants would seek a specific amount of pounds or the use of a set quota share percentage. A further consideration is whether grants would be made in excess of accumulation limits. 19 of the 28 adaptive management program species have quota share control limits lower than 10% (NOAA Fisheries 2013), while 15 have vessel limits lower than 10% (NOAA Fisheries 2015c). Depending on the size of the grant and the quota share or quota pound holdings of the applicant, there could be potential for an adaptive management program recipient to exceed the accumulation limits.

Effectiveness in meeting adaptive management program objectives

High (Score = 3). By directing quota pounds directly to applicants who have demonstrated a need and an ability and a clear plan to achieve one or more of the adaptive management program objectives with those pounds, an application process could be highly effective. Particularly if the Council chose one or two interrelated adaptive management program objectives to focus on during each application cycle and granted all of the adaptive management program quota pounds to very few recipients, the allocation could have enormous impacts for a struggling community, processor, conservation project, or a small group of new entrants. Additionally, because this option would grant quota pounds to applicants for a specified amount of time, the Council could be truly adaptive and respond to the changing needs within the fishery.

Political Viability

Moderate (Score = 2). This policy option would be moderately viable because although the selection of adaptive management program quota pound applicants would be highly contentious, the Council is perceived as a legitimate decision-making body because it works within a legal framework and can be influenced by stakeholders and the public. Because such a policy would be ongoing and provide repeated application periods, stakeholders would not perceive this year's quota pound allocation as binding into future years, and this flexibility may increase political viability. However, any option other than status quo may upset a large group of stakeholders, the quota share permit owners, who would no longer receive adaptive management program pounds as part of their allocation if this option was developed.

Ease of Implementation

Low (Score = 1). Because of the multitude of implementation questions discussed above, this option would have low implementability. First, in a truly adaptive program, the Council may choose to switch their focus on the adaptive management program objectives from year to year, or biennially. A Council decision on which objective to support would be time consuming of itself, let alone the review of applications. If the Council chose to move forward with this option, they might improve implementation time by establishing a committee to review adaptive management program applications and provide briefing documents to Council decisions so that more timely decisions could be made on the Council floor. Still, this option would include a variety of decision points, actors, and would have no precedent, making its overall level of implementation low.

Option 3: Establish an Annual Auction for Adaptive Management Program Quota Pounds

There are two annual quota pound auction sub-options, 3A and 3B below, but the proposed mechanism for both of the following sub-options is the same: each year, as quota pounds are allocated to the IFQ sector, the pounds accruing to the adaptive management program shares would be auctioned. An auction could be an effective tool to achieve one or more of the adaptive management program objectives, and some of the benefits may be felt sector-wide, even by those not participating in the auction or receiving direct benefit from the auction's revenue. Namely, in what has so far been an inefficient quota pound

market, auction sale price information might help sector participants set future transaction prices (Holland and Norman 2015).

Both the MSA and the NOAA Catch Share Policy direct Councils to consider the use of auctions when establishing limited access privilege programs (NOAA Fisheries 2007 §303A(d); NOAA 2010), but no US catch share program has yet included a collection of resource rent (NOAA 2010). If the Council were to establish an auction for adaptive management program quota pounds, the revenues would be deposited into a special fund called the Limited Access System Administration Fund and could only be spent in the fishery from which the revenue was generated (NOAA 2010). Unlike cost recovery programs, which use funds to recoup implementation costs to the government, “many important social, economic, and community objectives of a fishery management plan could be funded by royalty payments [from auctions], such as supporting specific goals for research, monitoring, new entrants/small entities, or sustainable fishing communities” (NOAA 2010 p.16).

While the sale of quota pounds itself does not directly respond to the adaptive management program objectives (unless you auction to bidders who qualify under one or more objectives, as in Sub-Option 3B), the revenue generated from auction payments could. For example, revenue could be used to establish a grant program for funding conservation projects, gear research to reduce bycatch, a buyback of trawl gear (where vessel owners could trade in their trawl gear for payment and use the money to purchase more sustainable gear types that can be used in the shorebased sector under the gear-switching provision), an apprenticeship program for new entrants, to offset the cost of observers or electronic monitoring for new entrants or fishing communities (the high cost of which might otherwise be a barrier to their entry), or fund fishing community association meetings or fisher exchanges.

Since the intent of the Council was that the adaptive management program quota pounds should be fished (PFMC and NOAA Fisheries 2010b), it follows that only current program participants should be eligible to purchase quota pounds from such an auction. Otherwise outside groups with no mechanism to hold or move quota pounds could purchase these pounds and render them unfishable for the sector. One simple method for tracking would be to have NOAA Fisheries manage the auction and allow only those

with a current quota share or vessel account to participate, perhaps bidding through their online accounts. This would enable a direct transfer of quota pounds from NOAA Fisheries (which currently issues all quota pounds for normal allocations annually) to the winning bidder. The Council or NOAA Fisheries could also consider hiring an outside third party to conduct the auction who would verify each bidder's eligibility before final sale; however, this may increase transaction costs.

Several implementation concerns would likely arise under this policy option. First, the auction mechanism and timing are important considerations that would have a big impact on effectiveness. Would the pounds be auctioned online, and by NOAA Fisheries or some other third party? Would the pounds be available all at once, or released at intervals throughout the year? Would the auction-manager set the quantities for purchase, and would they designate single or multi-species quota pound packages? How long would the bidding periods be set for? Would auction purchases be allowed only up to the quota share control limits and vessel limits? In addition, it is highly plausible that not all of the adaptive management program quota pounds would attract bidders, since very few IFQ species are fully attained and demand for these species may be low. However, because the quota pounds of some species are eligible to be rolled over into the following year (Fisheries Off West Coast States 2015 §660.140(e)(5)), low demand could lead to very low cost quota pounds that could be used in the following year. In this way, vessel owners who do not own quota shares and therefore do not receive an annual quota pound allocation might lessen their quota pound costs for the following year. But would any unpurchased auction pounds expire, or would the Council set some auction-end date when NOAA Fisheries would distribute any un-auctioned pounds to quota share permit owners in proportion to their quota share holdings (as under Option 1)? One further decision point would be how to publish auction transaction prices while protecting confidentiality of the bidders.

Sub-Option 3A: Open Auction, Highest Bidder Receives Quota Pounds

Under this sub-option, all quota share permit owners could bid on quota pounds. The revenue generated would be used to fund projects that the Council chose to meet adaptive management program objectives.

Effectiveness in meeting adaptive management program objectives

High (Score = 3). This option would be highly effective in achieving one or more adaptive management program objectives in multiple ways. First, an auction of quota pounds to the highest bidder might lead to a more efficient distribution, where the most efficient actors have the highest demand and are willing to pay the most for pounds- high auction revenues would mean a high monetary return to the fishery in the service of funding adaptive management program objectives. Posted auction prices might also increase confidence in what has so far been a shaky quota pound market (Holland and Norman 2015), which could contribute to improving one unintended consequence of IFQ management. In addition, the Council would be handling and making decisions about money, rather than quota pounds - which might be a more concrete and clear method to measure impact on the objectives. An allocation process to program objectives may be more fungible with revenue than quota, but an auction would increase transactions costs that would need to be identified prior to implementation.

Political Viability

High (Score = 3). Although quota share permit owners are likely to oppose any policy that reduces the number of quota pounds they have been accustomed to receiving, an annual auction of quota pounds is likely to be perceived as the next most viable option since bidding would be open to all quota share permit owners and vessel account owners, and revenues would be returned to the fishery.

Ease of Implementation

Moderate (Score = 2). While an auction process would be difficult to establish initially, once the auction implementation questions were answered, an annual auction would be a repeated process with precedent. Especially if the auction were conducted online and quota pounds could be verified and distributed through automatic online transfers to winning bidders, this may decrease long-term implementation efforts and time. But the Council would also have an added layer of decision-making: they would need to choose projects to fund with the revenue generated from the auction, in line with the adaptive management program objectives.

Sub-Option 3B: Closed Auction to Qualified Subset of Bidders

Under this sub-option, only a select group of quota share permit owners could bid on quota pounds. These permit owners would be selected by the Council, based on one or more prioritized adaptive management program objectives. The revenue generated would be used to fund projects that the Council chose to meet adaptive management program objectives.

Effectiveness in meeting adaptive management program objectives

High (Score = 3). This sub-option could also meet the adaptive management program objectives in a variety of ways, both by limiting the pool of bidders in such a way as to encourage the adaptive management program objectives (for example, only allowing new entrants or up-and-coming processors to bid), and using the funds from such an auction towards the advancement of adaptive management program objectives. However, it should be noted that if the pool of bidders was limited, the auction revenue would likely be smaller than under sub-option 3A.

Political Viability

Moderate (Score = 2). While an open auction (Sub-Option 3A) would likely be perceived as legitimate, the designation of bidders by the Council under this sub-option may be highly contentious. For example, if the Council chose to focus on the community stability objective and invited communities to participate in the auction, determining which communities could participate would entail significant analysis and many decision points.

Ease of Implementation

Low (Score = 1). Because the Council would have the added and highly contentious step of limiting the pool of bidders in such a way as to advance the adaptive management program objectives, this would slow down the annual implementation process and add unprecedented decision points. In addition, the Council would have an added layer of decision-making: they would need to choose projects to fund with the revenue generated from the auction, in line with the adaptive management program objectives.

Option 4: Permanently Allocate Adaptive Management Program Shares to Current Quota Share Permit Owners

If the Council were to disband the adaptive management program after analysis through the five-year trawl catch share program review, one available policy option would be to permanently allocate the adaptive management program shares in the same manner that has been used to distribute adaptive management program quota pounds since 2011 (see Option 1). Instead of holding 10% of the total IFQ shares aside in an adaptive management program, the Council would end the program and permanently allocate the shares to quota share permit owners in proportion to their current quota share holdings. Normal rounding rules would be applied (see **Table 3**, below). Once distributed, the shares would be permanently held by those quota share permit owners and the quota pounds that previously accrued to adaptive management program and then were passed-through to quota share permit owners would instead directly accrue to the quota share permit owners. In this way, quota share permit owners would receive the same amount of pounds they had been receiving under Option 1, status quo. However, quota share permit owners would perpetually hold the share and be able to make business decisions based on this ownership, instead of receiving pass-through pounds from a latent adaptive management program that could be developed at any time and cause them to lose the benefit.

A	B	C
QS% of QS Permit Owner	Adaptive Management Program Shares Allocated = $(A \div 90\%) * 10\%$	New Total QS% Holdings = $A + B$
1.000%	0.111%	1.111%

Table 3. Example Adaptive Management Program Quota Share (QS) Distribution at Quota Share Permit Owner Level under Option 4

One important difference in outcomes between Option 1 and Option 4 is the effect of accumulation limits, which are limits on ownership and control by persons in the IFQ fishery. Under the pass-through provision (Option 1), adaptive management program pounds have been allocated to quota share permit owners without taking into account the accumulation limits, because the limits that apply to quota share permit owners are specific to quota share *percentages*. For example, if a quota share permit owner had maximized their quota share percentage holdings up to the quota share control limit for each species, they

would still receive adaptive management program quota pounds in addition to the pounds they received from their shares. However, if the Council decided to permanently distribute the adaptive management program shares, the regulations set clear limits on the amount of quota share that a person, individually or collectively, may own or control (NOAA Fisheries 2013). For example, if a quota share permit owner held 12% of Pacific cod quota share, they could receive adaptive management program pounds under Option 1, but would already be at the quota share percentage limit and would not be eligible to receive any adaptive management program shares under Option 4.

Effectiveness in meeting adaptive management program objectives

Low (Score = 1). The effectiveness of this option in meeting the adaptive management program objectives would be similar to Option 1, where the benefits would be dispersed in such a way that it would add to the holdings of those participants who already own quota shares. This inherently prevents new entrants from benefitting, and communities and processors who were having trouble stabilizing under the IFQ program would also be unlikely to benefit since very few community associations or processors were initial recipients of non-whiting quota shares. At its maximum possible effectiveness, this option might address some unforeseen consequences of the IFQ program by providing a boost of adaptive management program shares to permit owners that might offset high catch share program costs.

Political Viability

High (Score = 3). This option would be highly politically viable since it would permanently cement a process that is already in existence, and benefits a major group of stakeholders who would be likely to support it under the Council's system of representative governance.

Ease of Implementation

High (Score = 3). This option would be easy to implement since it would involve a one-time calculation and allocation of quota shares to existing permit owners, and would require no further decision-points or Council actions.

Option 5: Establish an Application Process for the Permanent Allocation of Adaptive Management Program Shares

Under this option, the adaptive management program would end, and the 10% of quota shares would be distributed permanently and at no cost to recipients, based on an application process and selection by the Council. For the purposes of this paper, applicant selection would be based on the submission of a complete and timely application, a demonstrated ability of the applicant to receive and manage quota shares (active or pending quota share permit), and the likelihood that a permanent allocation of quota shares to the applicant would achieve one or more of the adaptive management program objectives. An application-driven process was frequently discussed as a method for distributing adaptive management program pounds during trawl catch share program development (PFMC 2009a; PFMC and NOAA Fisheries 2010b), but this option modifies Option 2 to distribute adaptive management program quota shares. The Council identified NOAA Fisheries or a multi-stakeholder Council committee or as two bodies that might be appropriate reviewers of adaptive management applications (PFMC and NOAA Fisheries 2010b).

While this option is similar to Option 2, its outcomes would be much more enduring: quota shares are valuable assets that convey an ongoing right to receive a portion of the annual sector allocation, whereas the quota pounds allocated under Option 2 only convey access for the calendar year(s) given. Since the shares could only be allocated once, it would be extremely important for the Council to prioritize the adaptive management program objectives and think in the long term. Instead of asking, “Will these adaptive management program *pounds* meet one or more adaptive management program objectives during the specified time given?” under Option 2 and having the flexibility to change focus to a different objective during the next cycle, the Council would instead need to ask, “Will these adaptive management program *shares* achieve one or more of the adaptive management program objectives over the long term once allocated *permanently* to this applicant?”. By removing adaptive management program, the Council would clearly be removing the adaptive nature of these shares. The number of recipients and amount of shares allocated to each recipient would also have enormous impacts on the effectiveness of such a distribution. While fewer allocations in large amounts would provide a more significant benefit to recipients, there may be allocation and equity concerns under MSA. The more broadly the shares were

dispersed, the amount allocated, and therefore the impact, to each recipient would decrease. And if every quota share permit owner received some portion of the adaptive management program shares, this option would begin to parallel Option 4 and cease to be relevant. Depending on the size of the grant and the quota share holdings of each applicant, there could also be potential for recipients to exceed the accumulation limits.

Effectiveness in meeting adaptive management program objectives

Moderate (Score = 2). By directing quota pounds directly to applicants who have demonstrated a need and an ability to achieve one or more of the adaptive management program objectives, an application process could be highly effective. However, because this would be a one-time allocation of quota shares in service of one or more adaptive management program objectives that were deemed important in the present, there would be no flexibility for future adjustment if the Council later wanted to focus on an emerging problem.

Political Viability

Low (Score = 1). This policy option would be highly contentious, since all allocation decisions are contentious, and this option would entail a permanent allocation of quota shares to those who demonstrated a need or ability to meet one of the adaptive management program objectives. Because the decision-makers ability to foresee the future may come into question, any decision on which objectives should outweigh others and which applicants should get quota shares would likely be perceived as illegitimate. Picking long-term beneficiaries on the basis of limited application could also create a danger of corruption.

Ease of Implementation

Low (Score = 1). Because this policy option would entail an enormity of unprecedented analysis in order to prioritize the adaptive management program objectives and the applications submitted therein, this option would be difficult to implement. Although the Council could appoint a committee to conduct any analysis and make a preliminary determination on applications, it would still be difficult

for the Council to choose certain applications over others if they were equal in quality, since the allocation of shares would be permanent.

Option 6: Establish an Auction for the Permanent Sale of Adaptive Management Program Shares

There are two permanent adaptive management program share auction sub-options, 6A and 6B below, but the proposed mechanism for both of the following sub-options is the same: the 10% of shares that are currently set-aside for the adaptive management program would be permanently auctioned to quota share permit owners, and the adaptive management program would cease to exist. However, the money generated from an auction would be spent in service of the adaptive management program objectives. Again, NOAA Fisheries or a third party could manage the auction.

While this policy option is similar to Option 3, the key difference lies in the fact that this would be a one-time auction of quota shares, as opposed to an annual auction of quota pounds. As under Option 3, the revenues from a quota share auction would be deposited into a special fund called the Limited Access System Administration Fund and could only be spent in the fishery from which the revenue was generated (MSFCMA 2012 §1853a(d)). While the funds collected from auctioned adaptive management program quota shares would be much higher than the price of annually auctioned quota pounds since they convey an ongoing privilege, the money raised over the long-term is likely to be less, depending on many market factors. For example, using pure hypotheticals: if 1% of sablefish north quota could sell at auction for \$500,000 (under Option 6), but the equivalent pounds could sell at auction for an average of \$50,000 annually (under Option 3), by the eleventh year Option 3 would return more money to the fishery to be spent on adaptive management program objectives than Option 6. In addition, quota pounds have been traded since 2011, while quota shares only became transferrable in 2014 (Holland and Norman 2015), so participants might be more confident with pricing quota pounds than quota shares.

Similar implementation concerns to Option 3 would arise under this auction structure. The auction mechanism and timing would be important considerations. Would the shares be auctioned online, and available all at once, or released at intervals? Would an auction manager set the quantities for purchase, and would they designate single or multi-species share packages? How long would the bidding periods be

set for? Would auction purchases be allowed only up to the quota share control limits? If some of the shares did not attract bidders, would they remain at auction indefinitely, and would the pounds accruing to those un-auctioned shares be allocated to quota share permit owners in the meantime? One further decision point would be how to publish auction transaction prices while protecting confidentiality of the bidders.

Sub-Option 6A: Open Auction, Highest Bidder Receives Quota Pounds

Under this sub-option, all quota share permit owners could bid on quota shares. The revenue generated would be used to fund projects that the Council chose to meet adaptive management program objectives.

Effectiveness in meeting adaptive management program objectives

High (Score = 3). As under Sub-Option 3A, this Sub-Option would have high potential to meet the adaptive management program objectives since the permanent sale of quota shares would likely raise significant funds. These funds could be used for many direct purposes by the Council, for example to set up an endowment for a grant program that would meet adaptive management program objectives in an ongoing manner.

Political Viability

Moderate (Score = 2). Because this sub-option might not return as much money to the fishery in the long-term as Option 3A (because at some point the total value of the annual sale of pounds will likely eclipse the value of the one-time sale of shares), it was ranked moderate instead of high. In addition, just because of the permanent nature of auctioning shares, this decision might be seen as less legitimate. However, the benefits of an auction could be ongoing if a substantial amount of money was raised, was doled out over time, and able to accrue interest in the interim.

Ease of Implementation

Moderate (Score = 2). An online auction would be an unprecedented action and would require Council input on several decision-points, however, once these concerns were resolved and the auction was

designed, it would be a one-time auction and the Council would have no further decisions or actions to take on adaptive management program.

Sub-Option 6B: Closed Auction to Qualified Subset of Bidders

Under this sub-option, only a select group of quota share permit owners could bid on quota shares. These permit owners would be selected by the Council, based on one or more prioritized adaptive management program objectives. The revenue generated would be used to fund projects that the Council chose to meet adaptive management program objectives.

Effectiveness in meeting adaptive management program objectives

High (Score = 3). This sub-option could meet the adaptive management program objectives both by designating collected funds for the purpose of achieving one or more of the adaptive management program objectives, and also by allowing preference to a subgroup of bidders (such as fishing communities, small processors, or new entrants) who might not otherwise have an equal bidding opportunity under an open auction in sub-option 6A.

Political Viability

Low (Score = 3). Although the Council is perceived by decision-makers as a legitimate body that makes binding decisions, the criteria used to determine which groups could become bidders under this option might delegitimize the process and disenfranchise hopeful participants who are not selected. In addition, because this would be a permanent sale of quota shares, it would remove flexibility to respond to future problems in the fishery and only aid in the current priorities of the Council.

Ease of Implementation

Low (Score = 3). While an auction under this sub-option would only occur one time and would entail no further Council action on adaptive management program once the auction was completed, this sub-option received a low score in terms of implementability because of the analyses and decision-making that would be required to select a subset of bidders from program participants.

Table 4. Adaptive Management Program Alternatives - Criteria Rankings Summary

		Effectiveness	Political Viability	Ease of Implementation	Score
Option 1	AMP QP Distributed to Current QS Permit Owners (Status Quo)	Low (1)	High (3)	High (3)	7
Option 2	AMP QP-Use Application Process	High (3)	Moderate (2)	Low (1)	6
Option 3	AMP QP Annual Auction				
3A	Highest Bidder	High (3)	High (3)	Moderate (2)	8
3B	Qualified Subset of Bidders	High (3)	Moderate (2)	Low (1)	6
Option 4	AMP QS Permanently Distributed to Current QS Permit Owners	Low (1)	High (3)	High (3)	7
Option 5	AMP QS Permanent Allocation Application Process	Moderate (2)	Low (1)	Low (1)	4
Option 6	AMP QS Permanent Auction				
6A	Highest Bidder	High (3)	Moderate (2)	Moderate (2)	7
6B	Qualified Subset of Bidders	High (3)	Low (1)	Low (1)	5

From a purely quantitative perspective, the annual quota pound auction which would be open to the highest bidders (Option 3B) received the highest ranking when measured against the criteria. However, the qualitative discussion demonstrates the complexity in choosing between the policy options because there are so many design and implementation considerations.

Conclusions and Recommendations

The six policy options considered represent a range of alternatives that could achieve adaptive management program objectives. When measured against relevant criteria, I found clear tradeoffs between program effectiveness, political viability, and ease of implementation. Generally the policies that might be the most effective and direct at achieving the goals of the program, such as a quota pound application process (Option 2), could also be time consuming to implement and involve many layers of politically-charged decision-making. On the other hand, the policies that would be highly implementable and politically viable (Options 1 and 4), would contribute little to program effectiveness.

I prioritized the effectiveness criterion as the most important measure of the adaptive management program alternatives since the original adaptive management program objectives were intended to contribute to larger MSFCMA and fishery management plan guidelines. While the Council did not explicitly

prioritize certain adaptive management program objectives over others, they should consider prioritizing those objectives that were used to demonstrate consistency with MSFCMA in the catch share program's final environmental impact statement (community stability, unforeseen consequences) and in *Pacific Coast Federation of Fishermen's Associations v. Blank* (2012) (consideration of communities), as well as consistency with the fishery management plan (community stability, unforeseen consequences).

Even outside of the legal requirements, I recommend prioritization of the adaptive management program objectives by the Council simply to help focus discussion and decision-making. If the Council were to continue the adaptive management program and achieve program objectives under Options 2 or 3, they could narrow their focus to one or two objectives per year, and either switch their emphasis to the next objective each year or choose the most pressing need each year (Note: Option 1 achieves little toward the program objectives). If the Council were to discontinue the adaptive management program, but still achieve program objectives under Options 5 or 6, it may be more difficult to prioritize objectives, because shares and/or revenue would be allocated on a one-time basis and any prioritization would need to be based in long-term thinking (Note: Option 4 achieves little toward the program objectives).

Another factor that adds significant complexity to decision-making is implementation. While it's easy to discuss goals and objectives in the broad sense, it may be more difficult to assign definitions and boundaries. For example, while Councilmembers may agree that the adaptive management program should focus on communities or processors, it is difficult to identify which communities or processors were harmed by the IFQ program (as opposed to unrelated factors such as ecological changes or a local shift to tourism-based industries) and are in need of stabilizing. And even if this could be clearly demonstrated, how would the Council choose which community or processor should receive pounds, shares, or auction revenue over another? In addition, the structure of community entities has not been well defined, and it may be difficult for an already-struggling community to organize and manage an allocation from the Council. Any action forward that the Council takes will need to consider the implementation complexities and outcomes.

For other catch share programs or natural resource allocation programs considering a flexible set-aside like the West Coast groundfish adaptive management program, a clear lesson learned is that delay of implementation pushes back these tough questions and may create dependencies that make truly innovative and flexible future decisions difficult. The ongoing pass-through of adaptive management program quota pounds provides a benefit to current quota share permit owners who now have a financial incentive to oppose any action that moves away from status quo. However, the Council and NOAA Fisheries have an obligation to meet fishery management plan and limited access privilege program requirements with this quota, and I hope this paper can provide a starting point and potential options for future discussion by the Council.

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Appendix A

IFQ Species	Example Sector Quota Pounds
Arrowtooth flounder	7,000,000
Bocaccio rockfish South of 40°10' N.	180,000
Canary rockfish	100,000
Chillipepper rockfish South of 40°10' N.	2,500,000
Cowcod South of 40°10' N.	3,175
Darkblotched rockfish	650,000
Dover sole	100,000,000
English sole	20,000,000
Lingcod North of 40°10' N.	2,500,000
Lingcod South of 40°10' N.	1,000,000
Longspine thornyheads North of 34°27' N.	6,525,000
Minor shelf rockfish North of 40°10' N.	2,500,000
Minor shelf rockfish South of 40°10' N.	425,000
Minor slope rockfish North of 40°10' N.	2,600,000
Minor slope rockfish South of 40°10' N.	930,000
Other flatfish	16,910,000
Pacific cod	2,273,870
Pacific halibut (IBQ) North of 40°10' N.	186,000
Pacific ocean perch North of 40°10' N.	250,000
Pacific whiting	250,000,000
Petrale sole	5,500,000
Sablefish North of 36° N.	4,840,000
Sablefish South of 36° N.	1,587,000
Shortspine thornyheads North of 34°27' N.	3,485,000
Shortspine thornyheads South of 34°27' N.	110,000
Splitnose rockfish South of 40°10' N.	3,500,000
Starry flounder	1,668,000
Widow rockfish	3,132,000
Yelloweye rockfish	2,200
Yellowtail rockfish North of 40°10' N.	10,000,000

Quota Share Account #1	
Quota Share Percentage	Allocated Quota Pounds
0.400%	28,000
0.000%	0
3.000%	3,000
0.100%	2,500
0.000%	0
1.000%	6,500
0.525%	525,000
0.500%	100,000
0.700%	17,500
0.700%	7,000
0.550%	35,888
0.300%	7,500
0.200%	850
0.600%	15,600
0.220%	2,040
0.305%	51,576
0.320%	7,276
0.380%	707
1.500%	3,750
0.050%	125,000
1.000%	55,000
1.000%	48,400
0.200%	3,174
0.700%	24,399
0.250%	275
0.100%	3,500
0.125%	2,083
0.000%	0
0.150%	3
0.300%	30,000

Quota Share Account #2	
Quota Share Percentage	Allocated Quota Pounds
0.500%	35,000
0.005%	0
0.650%	650,000
5.000%	125,000
0.000%	0
2.000%	13,000
0.650%	650,000
0.300%	60,000
2.000%	50,000
2.000%	20,000
1.000%	65,250
1.750%	43,750
0.200%	850
2.500%	65,000
0.200%	1,860
0.275%	46,500
0.300%	6,820
0.225%	410
1.700%	4,250
1.500%	3,750,000
0.400%	22,000
1.200%	58,080
0.350%	5,550
0.900%	31,360
0.250%	270
0.200%	7,000
0.100%	1,660
1.000%	31,320
0.100%	0
1.750%	175,000



IFQ Species
Arrowtooth flounder
Bocaccio rockfish South of 40°10' N.
Canary rockfish
Chillipepper rockfish South of 40°10' N.
Cowcod South of 40°10' N.
Darkblotched rockfish
Dover sole
English sole
Lingcod North of 40°10' N.
Lingcod South of 40°10' N.
Longspine thornyheads North of 34°27' N.
Minor shelf rockfish North of 40°10' N.
Minor shelf rockfish South of 40°10' N.
Minor slope rockfish North of 40°10' N.
Minor slope rockfish South of 40°10' N.
Other flatfish
Pacific cod
Pacific halibut (IBQ) North of 40°10' N.
Pacific ocean perch North of 40°10' N.
Pacific whiting
Petrale sole
Sablefish North of 36° N.
Sablefish South of 36° N.
Shortspine thornyheads North of 34°27' N.
Shortspine thornyheads South of 34°27' N.
Splitnose rockfish South of 40°10' N.
Starry flounder
Widow rockfish
Yelloweye rockfish
Yellowtail rockfish North of 40°10' N.

Vessel Account #1	
Starting Quota Pound Balance	Quota Pound Balance Post-Transfer
0	28,000
0	0
0	3,000
0	2,500
0	0
0	6,500
0	525,000
0	100,000
0	17,500
0	7,000
0	35,888
0	7,500
0	850
0	15,600
0	2,046
0	51,576
0	7,276
0	707
0	3,750
0	125,000
0	55,000
0	48,400
0	3,174
0	24,395
0	275
0	3,500
0	2,085
0	0
0	3
0	30,000

[illegible]

Vessel Account #3	
Starting Quota Pound Balance	Quota Pound Balance <i>Post-Transfer</i>
0	35,000
0	9
0	650
0	125,000
0	0
0	13,000
0	650,000
0	60,000
0	30,000
0	20,000
0	65,250
0	43,750
0	850
0	65,000
0	1,860
0	46,503
0	6,822
0	419
0	4,250
0	3,750,000
0	22,000
0	57,580
0	5,555
0	1,365
0	275
0	7,000
0	1,668
0	31,320
0	1
0	175,000



This figure shows the 30 species groups in the West Coast groundfish shorebased IFQ program. Quota shares can move between quota share accounts only, and convey an ongoing right to a portion of the total sector allocation. Quota pounds are allocated to quota share accounts and must be moved to a vessel account to be used for fishing. Quota pounds can be transferred between vessel accounts, but not between quota share accounts. For 28 of the 30 species, 10% of the total quota shares were held aside in an adaptive management program. No shares were held aside for Pacific whiting or Pacific halibut. (Fisheries off West Coast States 2015)