INITIAL REVIEW DRAFT

Regulatory Impact Review/ Initial Regulatory Flexibility Analysis/ Environmental Assessment

for a Proposed Regulatory Amendment

To allow a recreational quota entity to hold commercial halibut quota share for use by halibut charter anglers

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Abstract: This Regulatory Impact Review/Initial Regulatory Flexibility Analysis/ Environmental Assessment examines proposed changes to the management of the Pacific halibut (*Hippoglossus stenolepis)* charter fisheries and commercial setline fisheries in International Pacific Halibut Commission (IPHC) Regulatory Areas 2C and 3A in the Gulf of Alaska. The two measures under consideration seek to promote long-term planning and greater stability in the charter halibut fishery. The first action alternative under consideration would allow a recreational quota entity (RQE) (or entities) to be established in IPHC regulatory Area 2C and 3A, respectively, to represent the common pool of charter anglers for the potential compensated reallocation of commercial halibut QS. Any halibut QS purchased by an RQE would augment the apportioned pounds of halibut for the charter catch limit for that area in that year. Underlying allocations to the charter and commercial halibut sectors would not change. The second action alternative under consideration would allow the RQE to purchase charter halibut permits to help reduce potential latent capacity.

List of Acronyms and Abbreviations

ABC	acceptable biological catch
ACA	Alaska Charter Association
ADF&G	Alaska Department of Fish and Game
AFA	American Fisheries Act
AFSC	Alaska Fisheries Science Center
AKFIN	Alaska Fisheries Information Network
Area 2C	Southeast Alaska (IPHC management area)
Area 3A	Central Gulf of Alaska (IPHC management area)
Area 3B	Western Gulf of Alaska (IPHC management area)
Area 4	Bering Sea and Aleutian Islands (IPHC management area)
BSAI	Bering Sea and Aleutian Islands
CATCH	Catch Accountability Through Compensated Halibut
CCL	Combined Catch Limit
CE	Choice experiments (economic)
CEQ	Council on Environmental Quality
CEY	Constant Exploitation Yield
CFEC	Commercial Fisheries Entry Commission (State of Alaska)
CFR	Code of Federal Regulations
CHLAP	Charter Halibut Limited Access Program
CHP	Charter Halibut Permit
Council	North Pacific Fishery Management Council
CPUE	Catch per unit effort
CQE	Community Quota Entity
CSP	Catch Sharing Plan (Pacific Halibut)
CV	catcher vessel
DMV	Department of Motor Vehicles
E.O.	Executive Order
EA	Environmental Assessment
EIS	Environmental Impact Statement
ESA	Endangered Species Act
F	Fishing intensity
FCEY	Fishery Constant Exploitation Yield
FMP	fishery management plan
FR	*Federal Register*
GAF	Guided Angler Fish
GHL	guideline harvest level
GOA	Gulf of Alaska
IFQ	Individual fishing quota
I/O	Input-Output model (economic)
IPHC	International Pacific Halibut Commission
IRFA	Initial Regulatory Flexibility Analysis
LAPP	Limited access privilege program
LLP	license limitation program
LOA	length overall (vessel)
MRA	Maximum retainable amount
MSA	Magnuson-Stevens Fishery Conservation and Management Act
MSY	Maximum sustainable yield
Mlb	Million pounds
mt	metric ton
MWR	U.S. Military Morale, Welfare, and Recreation Program
NEPA	National Environmental Policy Act
NMFS	National Marine Fisheries Service
NOAA	National Oceanographic and Atmospheric Administration
NPFMC	North Pacific Fishery Management Council
O26	Over 26 inches (fish length)
OFL	Overfishing limit
OMB	Office of Management and Budget
PA	Preferred alternative
PPA	Preliminary preferred alternative
PRA	Paperwork Reduction Act
PSEIS	Programmatic Supplemental Environmental Impact Statement
PWS	Prince William Sound
QS	Quota share
RAM	Restricted Access Management (Program)
RARA	Report of Assessment and Research Activities (IPHC)
RFA	Regulatory Flexibility Act
RFFA	reasonably foreseeable future action
RIR	Regulatory Impact Review
RQE	Recreational Quota Entity
SAFE	Stock Assessment and Fishery Evaluation
SAM	Social accounting matrix (economic)
SBA	Small Business Act
SEAGO	Southeast Alaska Guides Organization
Secretary	Secretary of Commerce
TAC	total allowable catch
TCEY	Total Constant Exploitation Yield
U26	Under 26 inches (fish length)
U.S.	United States
U.S.C.	United States Code
USCG	United States Coast Guard
WPUE	Weight per unit effort
WTP	Willingness to pay

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1 Executive Summary

This document analyzes proposed management measures that would apply exclusively to the guided angler sport (charter) halibut fisheries and commercial halibut setline fisheries in International Pacific Halibut Commission (IPHC) Regulatory Areas 2C and 3A in the Gulf of Alaska (GOA). The measures under consideration would allow a recreational quota entity (RQE) (or entities) to be established to represent the charter sector in the acquisition of commercial halibut quota share (QS), which could augment management measures annually recommended by the Council, approved by the IPHC, and implemented by NMFS through Federal regulations. The third alternative under consideration allows the RQE to purchase a limited number of CHP permits in each area.

Purpose and Need

In December 2015 the Council developed the following purpose and need:

> *Alaska's guided halibut anglers have seen recent increases in regulatory restrictions due to declining halibut stocks and guided recreational allocations. A market-based mechanism for the guided halibut recreational sector may be an effective means to supplement their annual allocations. Allowing an RQE (Recreational Quota Entity) to hold a limited amount of commercial halibut QS on behalf of guided recreational halibut anglers under a "willing seller and willing buyer" approach may result in less restrictive annual harvest measures for guided recreational anglers in times of low halibut abundance, while complying with total halibut removals under the guided halibut catch limits determined by the International Pacific Halibut Commission. The guided recreational halibut allocation under the Halibut Catch Sharing Plan would be combined with the halibut quota share held by the RQE to determine the annually adjusted total guided halibut allocation. The total allocation would be the basis for the determination of appropriate management measures for the guided halibut sector each year. The intent is to consider such a mechanism without undermining the goals of the halibut IFQ Program or significant adverse impacts to other halibut sectors.*

There are a number of issues the Council included in the December 2015 motion that were not listed as alternatives or options, but as additional points for further analysis. These issues are listed as Appendices to this action including: Appendix A: a discussion of the RQE impact on observer coverage and fees, and Appendix B: a discussion on the mechanics of creating additive transfer restrictions for GAF and an RQE.

Alternative 1. No Action

Alternative 2. Establish a Recreational Quota Entity (RQE) as a qualified entity to purchase and hold commercial halibut QS for use by the guided halibut sector

Element 1. Number of entities

- **Option 1.** Two entities, one for each IPHC Regulatory Area 2C and 3A
- **Option 2.** One entity with two area quota pools, Area 2C and Area 3A

Element 2. Restrictions on transfers. Two-way transfers are allowed. Quota class and block designation are retained if the quota is transferred back to the commercial sector.

(Options below are not mutually exclusive)

- **Option 1.** No restrictions
- **Option 2.** Annual limit on transfers to the RQE in each regulatory area (Area 2C and 3A) of 1% - 5% of commercial QS units in each area (2015)

Option 3. Total (cumulative) limit on amount held by RQE by regulatory area (Area 2C and 3A)

Sub-option 1. 5% - 20% of any commercial QS based on 2015

Sub-option 2. 5% - 20% of each class of QS based on 2015

Option 4. Restrictions on RQE quota share purchases (in either or both areas)

Sub-option 1. Restrict purchase of D class quota share (limits selected under Option 2 and 3 are calculated using excluding D class QS)

Sub-option 2. Restrict purchase of blocked QS by class that equates to (≤1,500 lb or ≤2,000 lb in 2016 lb)

Element 3. Setting of annual charter management measures. Use RQE quota share holdings as of October 1 each year as the basis to estimate IFQ pounds to add to the estimated guided recreational allocation under the catch sharing plan for the upcoming year. This amount must be maintained for the following fishing year. This estimated combined allocation would be used to recommend the guided recreational harvest measures for the following year. The procedural process steps and timeline would remain unchanged.

Option 1. Restrictions on RQE quota share purchases (in either or both areas)

Sub-option 1. Equally to all catcher vessel QS holders which hold not more than 1,500 to 3,000 pounds in 2016 pounds (by area, proportional to QS holdings)

Sub-option 2. Equally to all catcher vessel QS holders (by area, proportional to QS holdings)

Sub-option 3. CQEs actively participating in Area 2C/Area 3A

Sub-option 4. Unallocated RQE IFQ would not be allocated (left in the water)

Element 4. Limit on use of RQE funds. RQE funds are limited in their use to acquisition of commercial halibut quota; acquisition of charter halibut permits; halibut conservation/research; promotion of the halibut resource; and administrative costs.

Element 5. RQE Organizational Structure. The RQE shall consist of a board of seven people and shall include the following: 4 CHP holders, 1 commercial halibut quota share holder, 1 community representative (not a holder of a CHP or commercial QS), and Commissioner of Alaska Department of Fish and Game, or designee.

Option 1. A representative of the Alaska Department of Revenue shall sit as an ex-officio member of the RQE board.

Option 2. RQE board terms shall be for [Options: 3 or 5 years].

Option 3. The RQE shall hold no less than two board meetings annually.

Option 4. The RQE shall file an annual report detailing RQE activities during the prior year.

Alternative 3. RQE purchase of charter halibut permits. The RQE shall be limited in the purchase of charter halibut permits to [options: 10% - 30%] of the permits in each area.

Regulatory Impact Review

The Council's considered action would develop a market based mechanism for the guided halibut recreational sector to supplement their annual allocations, thus liberalizing Area-wide harvest regulations up to the unguided limit, by purchasing commercial halibut QS from the commercial longline sector. This

executive summary uses a question and answer format to summarize the primary results of this initial analysis in a way that focuses on the primary concerns of stakeholders and Council members have expressed during public testimony and Council discussions.

Would the Status Quo allow for liberalized bag limits? (Alternative 1)

The status quo allows for CHP holders and individual anglers to liberalize individual daily bag limits, up to the unguided angler daily bag limit, through the existing Guided Angler Fish (GAF) program. In addition, the status quo allows for liberalized bag limits sector wide through the existing Catch Sharing Plan (CSP) if and when halibut biomass increases. What the status quo does not provide for is a way for the charter sector to collectively mitigate the effect of higher regulatory burdens in times of low abundance. Alternative 2 establishes a mechanism by which halibut QS could be purchased from willing sellers and used to increase the regulations affecting all guided anglers.

Could RQE ownership of QS allow for liberalized harvest regulations? (Alternative 2, Element 2)

Yes, the data show that even relatively small percentages of QS would have allowed an RQE to enable less restrictive fishing conditions in 2015. For example, in 2015 the charter sector in Area 2C was given a harvest limit of 0.851 Mlb, and ADF&G predicted that the best management measure to hold the sector within their allocation was a daily bag limit of one fish that was under 42 inches or over 80 inches in length (see Table 4-34). If a RQE had existed in Area 2C in 2015 and it held one percent of Area 2C QS, then the harvest limit would have been 0.888 Mlb and ADF&G could have recommended a daily bag limit of one fish under 44 inches or above 80 inches in length.

Table 1-1 Projected 2015 fishing regulations based portion of QS held, Area 2C

		Portion of Area QS Held by RQE				
Category	**Status Quo**	**1**	**2**	**3**	**4**	**5**
Harvest Limit+IFQ	0.851	0.888	0.925	0.961	0.998	1.035
Regulation	1F-U42 O80	1F-U44 O80	1F-U45 O80	1F-U46 O80	1F-U48 O80	1F-U49 O80

Source: Northern Economics, Inc. estimates from NOAA (2015a).

The situation is slightly different in Area 3A, in part because QS ratios in 2015 were much higher than the historical average and because regulations are allowing the 3A sector to operate with regulations that are less restrictive than one would expect based on ADF&G's harvest tables (see Table 4-33). With a harvest limit of 1.89 Mlb and a five fish annual limit, one would expect a daily bag limit of one fish of any size and the second fish to be restricted to less than 26 inches. However, the regulations were set at one fish of any size and the second fish restricted to less than 29 inches. This said, as shown in Table 4-35, the Area 3A RQE would have needed to hold 4 percent of the QS to liberalize the restriction on the second fish to under 30 inches in length.

Table 1-2 Projected 2015 fishing regulations based portion of QS held, Area 3A

		Portion of Area QS Held by RQE				
Category	**Status Quo**	**1**	**2**	**3**	**4**	**5**
Harvest Limit+IFQ	1.89	1.968	2.046	2.124	2.202	2.279
Regulation	2F-U29	2F-U29	2F-U29	2F-U29	2F-U30	2F-U32

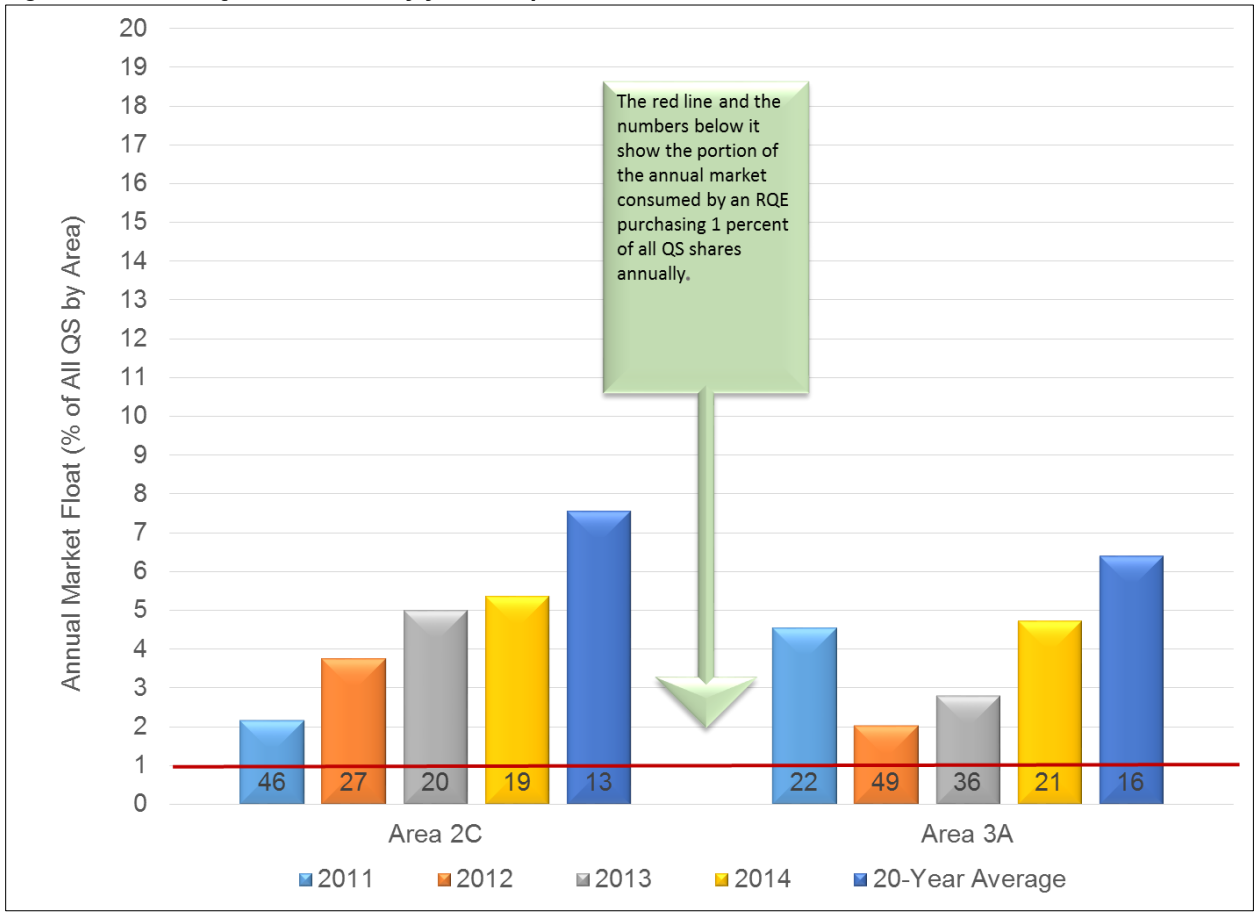
Source: Northern Economics, Inc. estimates from NOAA (2015a).

The ranges shown in these tables are below the 5 percent to 20 percent cumulative caps considered in the Council's options.

Would RQE purchase of QS affect existing QS markets? (Alternative 2, Element 2)

Option 2 of Element 2 of Alternative 2 would restrict an RQE to annual purchases of between one percent and 5 percent of all QS. RAM data show that even at a one percent annual purchase limit that the RQE would be the largest individual player in the quota market. The red line in Figure 4-11 depicts a one percent annual transfer cap compared to the portion of all shares, including D-Class shares, transferred that year. The number below the line indicates what portion of the market in that year an RQE would have consumed if it purchased one percent of all QS units in each area. Historically, an entity purchasing one percent of all QS in an IPHC area would consume 13 percent of the annual market in Area 2C and 16 percent of the annual market in Area 3A. Under lower stock conditions, when it appears that QS transfer rates slow, the portion would be higher. For example, in 2011 in Area 2C, the RQE would have had to purchase 46 percent of all the shares that came onto the market. In recovery years, such as 2013 and 2014, the RQE would have had to purchase roughly one-fifth (20 percent) of the market to hit a one-percent cap. Higher transfer limits mean that the RQE could, but not necessarily would, consume more of the market than depicted in Figure 4-11.

Figure 1-1 Annual QS market size by year compared with a 1-Percent Annual Transfer Limit



Source: Northern Economics, Inc. estimates from NOAA (2015a).

While the specific magnitude of market effects is unknown, it is likely that market participants could expect higher prices, all other things staying constant, and possibly a larger market if higher prices encourage more owners to enter the market.

How much QS does an RQE need to provide for meaningfully liberalized bag limits in low stock conditions? (Alternative 2, Element 2)

This question, in part, can only be answered with greater input from stakeholders, particularly charter anglers, because it's unclear how anglers react to bag limit changes. In 2011, the Area 2C charter sector under operated under a one fish with a maximum size of 37 inches daily bag limit. Under those same low stock conditions, but with 2015 demand levels, the Area 2C charter sector could have had a one fish U44-O76 bag limit, assuming no QS purchase restriction and a 5 percent cumulative RQE ownership cap. Or, the sector could have had a one fish U43-O76 if all of the restrictions considered by the Council were in place. At higher cumulative cap allowances the sector would have experienced more liberalized bag limit. For example, a ten percent cumulative cap, and ownership, would have allowed between one fish U46-O78 and one fish U48-O76 depending on purchase restrictions.

Table 1-3 Comparison of Element 2 Options and Sub-Options, Area 2C 2011 Stock Conditions/2015 Demand

Cumulative Cap (Percent)	No Restrictions	No D-Class	≤1,500 lb Blocks		≤2,000 lb Blocks	
			No Blocks	No Blocks and D-Class	No Blocks	No Blocks and D-Class
5	U44-O76	U44-U80	U44-O80	U43-O76	U43-O76	U43-O76
6	U44-O74	U44-U76	U44-O76	U44-O78	U44-O80	U44-O80
7	U46-O78	U45-O80	U45-O78	U45-O80	U44-O76	U44-O76
8	U47-O80	U46-O80	U46-O80	U45-O76	U45-O76	U45-O80
9	U48-O80	U46-O76	U47-O80	U46-O80	U46-O80	U45-O76
10	U48-O76	U47-O76	U48-O80	U47-O80	U46-O76	U46-O78
11	U49-O76	U48-O76	U48-O76	U47-O76	U47-O78	U47-O80
12	U50-O78	U49-O80	U49-O80	U48-O80	U48-O78	U47-O76
13	U50-O74	U49-O76	U49-O76	U48-O74	U48-O76	U48-O78
14	U50-O72	U50-O80	U50-O80	U49-O78	U49-O80	U48-O76
15	U50-O70	U50-O76	U50-O74	U50-O80	U50-O80	U49-O80
16	U50-O68	U50-O74	U49-O70	U50-O76	U50-O76	U49-O76
17	U46-O62	U50-O72	U50-O70	U50-O74	U50-O74	U50-O78
18	U50-O66	U50-O70	U49-O68	U50-O72	U49-O70	U50-O76
19	U50-O64	U50-O68	U50-O68	U50-O70	U50-O72	U50-O74
20	U49-O62	U46-O62	U50-O66	U49-O68	U50-O70	U50-O72

Source: Northern Economics, Inc. estimates from ADF&G (2015) and NOAA (2015a).

For Area 3A, the analysis shows low stock conditions of 2015. Under higher stocks and similar demand conditions the sector would need less than the 5 percent minimum allowance under consideration by the Council. Under 2015 conditions, an unrestricted 5 percent allowance would allow the sector to have a 32-inch maximum size limit on the second fish while the most restrictive option would only allow a 30-inch maximum size limit. A ten percent allowance would have allowed the sector to operate with a U48 limit on the second fish under the most restrictive scenario or to trade-off a U50 limit on the second fish with perhaps a higher annual harvest limit.

Table 1-4 Comparison of Element 2 Options and Sub-Options, Area 3A 2015 Stock Conditions/2015 Demand

Cumulative Cap (Percent)	No Restrictions	No D-Class	≤1,500 lb Blocks		≤2,000 lb Blocks	
			Only Blocks	Blocks and D-Class	Only Blocks	Blocks and D-Class
5	U32	U31	U31	U31	U31	U30
6	U34	U33	U33	U32	U32	U32
7	U38	U35	U35	U35	U34	U34
8	U44	U40	U40	U38	U37	U37
9	U50	U48	U48	U44	U42	U41
10		U50	U50	U50	U50	U48
11						U50
12						
13						
14						
15						
16						
17						
18						
19						
20						

This blue shaded area indicated allowances that would allow managers to select a maximum size on the second fish larger than 50" in length or relax the 5-fish annual limit or eliminate the day of the week closure.

Source: Northern Economics, Inc. estimates from ADF&G (2015) and NOAA (2015a).

How would class and block restrictions affect the efficacy of an RQE program (Alternative 2, Element 2)?

As shown above the block and class restrictions noted in Elements 2 and 3 of Alternative 2, would have modest effects on the overall efficacy of the program. As noted in more detail in the analysis there is significant overlap between the block-poundage restriction and the D-Class restriction. Engaging the block-poundage restriction captures a minimum of 60 percent of D-Class shares in both Areas. Thus, the combination of the block-poundage restriction and the D-class restriction is less than the sum of the individual effects of each potential restriction. The greatest effect of these restrictions will be to force the RQE to focus on purchasing C-Class shares in Area 2C and B-Class and C-Class shares in Area 3A. The D-Class markets will either be effectively or explicitly off-limits and the A-Class markets are thinly traded and more expensive per QS unit.

In times of high abundance how would QS reallocation affect the commercial sector (Alternative 2, Element 3)?

The data show two separate stories for Area 2C and Area 3A. They are:

- Reallocations are very unlikely in Area 2C without i) very high abundance above the historical pattern or ii) a very high (≥15 percent) of total cumulative purchase allowance. If reallocations did occur the size of the allocations could be several hundred thousand pounds of IFQ or more and they add 50 percent to 600 percent more quota to the small holders considered in the reallocation scenarios.
- Reallocations are more likely in Area 3A for a number of reasons including relative starting point, the size of the charter fishery relative to the commercial fishery, and the larger amount of biomass. If abundance returned to historical levels reallocations would occur at every cumulative cap level under consideration and these reallocations would be worth millions of pounds of IFQ.

> The allocated amounts would result in a substantial windfall for remaining QS holders and, in the case of CQEs, could overwhelm their functional ability to harvest that much fish.

Can the Council specify the organizational structure and expenditures categories of an RQE (Alternative 2, Element 4 and Element 5)?

Discussions with NMFS staff indicate that the Council can specify an RQEs organizational structure and limit expenditures to certain categories. That said, the current wording goes beyond the specificity provided for under other programs. For example, the CQE program regulations state:

> *Regulations at § 679.41(l) specify that CQE applications must include articles of incorporation and management organization information, including 1) bylaws and 2) a list of key personnel including, but not limited to, the board of directors, officers, representatives, and any managers.*

How effective of would an RQE CHP repurchase be if limited to 10 to 30 percent of existing CHPs? (Alternative 3)

Logbook data from 2014 indicates that there is likely significant latent (i.e., permits which are not fishing) and significant underutilized capacity (i.e., permits which are fishing substantially below their capacity). In 2014, the top 40 percent of CHPs, as measured by permit activity, accounted for 82 percent of the Area 2C harvest and 89 percent of the Area 3A harvest. In both areas, between 20 and 25 percent of all permits where not fished in 2014. The majority of these permits are non-transferrable permits and will eventually leave the fishery. The takeaway is that with a 10-30 percent limit on purchasing CHPs that the RQE will be unable to substantially eliminate both latent and underutilized permits as these permits make up 40 percent of all CHPs. If the RQE took a long-term focus it could reduce the long-term risk of latency and underutilized permits by focusing on transferrable permits. However, this approach would leave the risk posed by the non-transferrable permit unaddressed.

Environmental Assessment

The purpose of the Environmental Assessment (EA) is to analyze the environmental impacts of **Alternative 2**, the proposed federal action to allow a representative entity hold commercial halibut QS for a guided angler common pool in Area 2C and Area 3A, and to provide sufficient evidence to determine the level of significance of any potential impacts.

Alternative 3 would not expand an existing fishery: this alternative would allow the RQE to purchase CHPs. Under this alternative no combination of the elements and options would change the annual combined catch limit set by the IPHC for the charter and commercial sectors. This alternative is socio-economic in nature. Therefore this alternative is not expected to impact any of the environmental components.

Alternative 2 in this analysis discusses a resource allocation issue: whether or not to allow an entity to be developed on behalf of charter halibut anglers, with the opportunity to purchase commercial halibut QS. No combination of the elements and options under Alternative 2 would influence the annual combined catch limit set by the IPHC for the charter and commercial sectors. Both sectors would still be constrained by the total catch limits set for each regulatory area based on halibut abundance. As both types of fishing occur under the status quo, the footprint of the fishery and relative timing of the fisheries would be expected to remain the same; as would regulations around seasons and gear type. The primary change that would occur would be an opportunity to shift in harvest intensity and size selectivity from the commercial halibut IFQ fishery in Area 2C and Area 3A to the charter halibut fishery in the corresponding area. The level of harvest intensity shifting sectors will depend on many factors, including the elements and options

under Alternative 2. Along with the change in relative intensity of halibut harvest by each sector, there could be a possible change in the intensity halibut is harvested in specific locations (e.g., nearshore versus further off-shore).

No effects are expected on ecosystems, benthic community, sea bird, groundfish, and marine mammal components of the environment from the proposed Alternative 2 (including its elements and options). No effects are presumed for these components because, as mentioned, the current manner in which the fish are harvested would remain unchanged from the status quo.

However, given the potential movement of halibut harvest opportunity between user groups within a regulatory area under Alternative 2, it is important to consider the effects that changes in the distribution and selectivity of fishing may have on the halibut stock.

Under Alternative 2, the primary environmental consideration with regards to the sustainability of the halibut resource includes the consideration of what could result from the opportunity to shift some harvest intensity from the commercial halibut IFQ fishery the charter halibut fishery. **Will there be effects on the spatial or temporal distribution of the halibut stock? Will there be localized depletion?**

This is a challenging impact to assess, because there are some pieces of information that are unavailable. This includes halibut biomass estimates for sub-areas and migratory patterns of halibut by sub-area.

While biomass information is not available at a localized level, creel sampling occurs at the major ports, so harvest-per-unit effort can be understood in terms of number of retained halibut (harvest) and angler-days (effort). As part of the assessment of annual management measure ADF&F often produces this type of information on harvest, effort, and harvest-per-unit effort in sub-areas of 2C and 3A. This continuous monitoring can aid management in tracking significant changes in number of fish, average weight of halibut, number of angler days, and overall effort relative to the management measures set each year.

In addition, the IPHC has conducted general research on localized depletion of halibut. These studies have not realized the effects of localized depletion. However catch rates and migration may be confounded in these studies. Relatively speaking, the fishing effort applied in the example studies is quite small compared with a season-long effort of multi-year localized fishing such as might happen in some sport fisheries.

Most importantly, based on research around the migratory nature of the adult halibut, the IPHC considers Pacific halibut to be a single stock, and assesses it as such. Therefore, it can be concluded **that Alternative 2 is unlikely to affect the distribution of harvested stock either spatially or temporally such that it has an effect on the ability of the stock to sustain itself.**

This is not to say that there could not be localized effects under Alternative 2. The Council has received numerous public comments in the past on the perceived impact or expected impacts of localized depletion. Depending on the type of charter operation (lodge versus day trips), vessel operators typically do not travel more than two to three hours from a home port. In many sub-areas for both Area 2C and 3A, the footprint of the halibut charter fishery overlaps with the footprint of the other halibut user groups, such as non-guided sport anglers and subsistence users. [1] Any potential localized depletion resulting from a shift in harvest intensity to more nearshore areas could impact these user groups. Given the importance of the resources, this could also be an important area of future research.

[1] This is a prime motivator for the Sitka Sound Local Area Management Plan (LAMP). This LAMP restricts commercial fishing vessels and charter vessels from halibut fishing in Sitka Sound to allow personal use fishermen and non-guided sport fishermen greater opportunity to catch halibut in waters near Sitka.

It should also be noted that one effect not analyzed here is the different size compositions that the commercially harvested halibut IFQ and recreationally harvested halibut may have. Depending on the amount transferred, effects of this difference might be evident. Particularly if there were annual transfer limits in place, this type of effect may be noted early on the program's development.

2 INTRODUCTION

This document analyzes two proposed management actions that would apply exclusively to the guided angler sport (charter) halibut fisheries and commercial halibut setline fisheries in International Pacific Halibut Commission (IPHC) Regulatory Areas 2C and 3A in the Gulf of Alaska (GOA). The two measures under consideration seek to promote long-term planning and greater stability in the charter halibut fishery. The first alternative under consideration is the status quo while the second alternative under consideration would allow a recreational quota entity (RQE) (or entities) to be established to represent the common pool of charter anglers in each IPHC regulatory Area 2C and 3A for the potential compensated reallocation of commercial halibut QS. Any halibut QS purchased by an RQE would augment the pounds of halibut for the charter allocation for that area in that year. Underlying allocations to the charter and commercial halibut sectors would not change. The third alternative under consideration allows the RQE to purchase a limited number of CHP permits in each area.

This document is a Regulatory Impact Review/Initial Regulatory Flexibility Analysis/ Environmental Assessment (RIR/IRFA/EA). An RIR/IRFA/EA provides assessments of the economic benefits and costs of the action alternatives, as well as their distribution (the RIR), the impacts of the action on directly regulated small entities (the IRFA), and the environmental impacts of an action and its reasonable alternatives (the EA). This RIR/IRFA/EA addresses the statutory requirements of the Magnuson Stevens Fishery Conservation and Management Act, the National Environmental Policy Act, Presidential Executive Order 12866, and the Regulatory Flexibility Act. An RIR/IRFA/EA is a standard document produced by the North Pacific Fishery Management Council (Council) and the National Marine Fisheries Service (NMFS) Alaska Region to provide the analytical background for decision-making.

2.1 Purpose and Need for Action

In December 2014 the Council developed the following purpose and need:

> *Alaska's guided halibut anglers have seen recent increases in regulatory restrictions due to declining halibut stocks and guided recreational allocations. A market-based mechanism for the guided halibut recreational sector may be an effective means to supplement their annual allocations. Allowing an RQE (Recreational Quota Entity) to hold a limited amount of commercial halibut QS on behalf of guided recreational halibut anglers under a "willing seller and willing buyer" approach may result in less restrictive annual harvest measures for guided recreational anglers in times of low halibut abundance, while complying with total halibut removals under the guided halibut catch limits determined by the International Pacific Halibut Commission. The guided recreational halibut allocation under the Halibut Catch Sharing Plan would be combined with the halibut quota share held by the RQE to determine the annually adjusted total guided halibut allocation. The total allocation would be the basis for the determination of appropriate management measures for the guided halibut sector each year. The intent is to consider such a mechanism without undermining the goals of the halibut IFQ Program or significant adverse impacts to other halibut sectors.*

2.2 History of this Action

In 2007, the Council considered a program that would facilitate both setting a catch sharing initial allocation between the commercial and the charter halibut user groups, as well as establishing a compensated reallocation opportunity (NPFMC 2007). After an Initial Review analysis, it was determined that Council attention would be focused on establishing a charter allocation to include sector accountability for discard mortality. The Council considered this an interim solution at the time. They

moved the compensated reallocation component to the Council's Charter Stakeholder Committee to flesh out in more detail as a more "long-term" solution; however, the initial allocation discussion became the Council priority.

In October 2012, the Council took final action to establish the Catch Sharing Plan (CSP) for two halibut users groups: the charter sector and commercial setline sector (78 FR 75844, published December 12, 2013 for 2014 implementation). This management strategy was developed in order to resolve conservation and allocation concerns that have resulted from increased harvest in the charter halibut fishery in both Area 2C and 3A, and decreased catch limits in the commercial setline fisheries. The CSP established a process for determining the annual management measures for each regulatory charter area based on an annual Combined Catch Limit (CCL) for both the charter and commercial sectors in each area.

The CSP details provisions for the annual transfer (lease) of individual fishing quota (IFQ) from the commercial sector into what is known as guided angler fish (GAF), for use by individual charter permit holders in the charter sector. This provision is intended to provide charter anglers additional opportunity to harvest halibut above the established annual management measures and up to the limits in place for unguided anglers (i.e., two fish daily bag limit). The CSP does not allow for the permanent transfer of halibut quota share (QS) from the commercial sector to the charter sector; unused GAF is transferred back to the commercial sector as IFQ pounds two weeks before the end of the commercial halibut fishing season.

During the development stages of the CSP, representative organizations from the charter sector testified that their members did not believe the GAF component of the CSP would provide sufficient harvesting opportunities for charter anglers to retain traditional charter sector daily bag limits. During the same meeting of final action on the CSP (October 2012, during Staff Tasking), the Council also requested a discussion paper investigating how an entity might be formed that could administer a compensated reallocation component to the CSP. The intent of this discussion paper was to understand how to begin and the challenges that would emerge in the development of such an entity. Additionally, this discussion paper would evaluate whether the Community Quota Entity (CQE) program was the appropriate model for an entity that could manage this common pool reallocation.

Prior to the development of this paper, two representative organizations, Alaska Charter Association (ACA) and the Southeast Alaska Guides Organization (SEAGO), informed the Council of their intent to explore and design a recommended amendment to the CSP on their own, which would add a new compensated reallocation component for both areas. These representative organizations received a grant from National Fisheries and Wildlife Foundation which they used to establish the Catch Accountability Through Compensated Halibut (CATCH) Project. In February 2014, contributors to this project presented a summary report to the Council detailing how a compensated reallocation component may be integrated in the current CSP (Yamada & Flumerflet 2014). They also presented highlights from a complementary economic report, also funded by the CATCH project, which examined the economic implications of purchasing commercial halibut quota for a recreational guided angler common pool (Davis, Sylvia, & Cusak 2013). Also at the February 2014 meeting, the Council heard from Gregg Williams, IPHC staff (retired), who presented some initial feedback from the perspective of the IPHC. The Council deferred establishing an actionable proposal until October 2014, requesting Council staff to work with CATCH contributors to highlight the areas of the proposal for Council decision-making.

In October 2014, the Council reviewed a discussion paper (NPFMC 2014) that presented and addressed a series of questions related to a CATCH project. The Council initiated an analysis of an action to allow an RQE to hold commercial halibut QS on behalf of charter anglers. The Council also established a

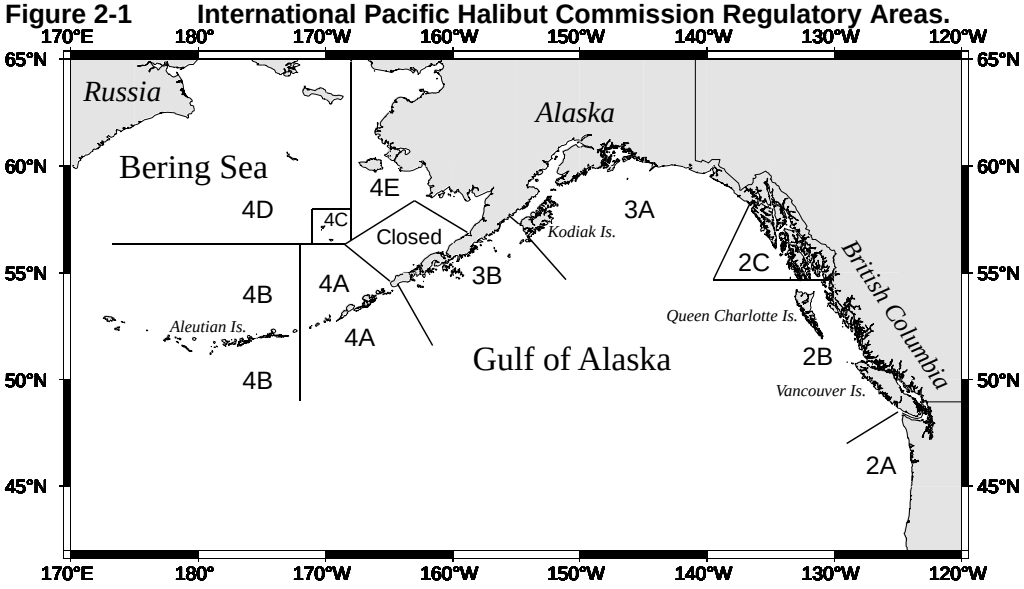
committee workgroup consisting of charter operators, representatives from the commercial halibut IFQ sector, and other knowledgeable stakeholders who could contribute to the development of a RQE program structure for analysis and review by the Council.

An Initial Review Draft analysis of these issues was made available in November 2015. The analysis was presented and the issues discussed at the December 2015 Council meeting to the RQE committee, the AP, and the Council. Based on feedback from advisory bodies and stakeholders, the Council revised and augmented the original motion with additional alternatives, elements and options. Alternative 3 was amended from the action of retiring latent CHPs, to allowing an RQE to buy CHPs up to a certain level. This change was based around a discussion that halibut abundance and the market for halibut charters may change in the future and allowing an RQE to add flexibility to fleet capacity, rather than through permeant retirement of CHPs. The Council requested another round of initial review based on these changes.

2.3 Description of Action Area

The potential actions under consideration would directly affect IPHC halibut regulatory areas 2C (Southeast Alaska) and 3A (South Central Alaska). Direct effects would be expected to occur for charter participants and commercial halibut QS holders in these areas, and potential spill-over effects for other halibut user groups particularly in 2C and 3A as well. Indirect spill-over effects could also occur for commercial halibut participants in other IPHC regulatory areas.

Figure 2-1 International Pacific Halibut Commission Regulatory Areas.



2.4 Relationship of this Action to Federal Law

The Pacific halibut fishery off Alaska is governed under the authority of the Northern Pacific Halibut Act of 1982 (Halibut Act, 16 U.S.C. 773-773k), in coordination with annual fishery management measures adopted by the IPHC. Section 7.1 details the authority of the Halibut Act and its relevance to the proposed action.

The IPHC promulgates regulations governing the halibut fishery; however, the Council may recommend regulations that are not in conflict with IPHC regulations. Council action must also be approved and implemented by the U.S. Secretary of Commerce (Secretary). While the proposed action would not be

under the authority of the Magnuson-Stevens Fishery and Conservation Act (Magnuson-Stevens Act) (16 USC 1801, *et seq*.) and would therefore not include an amendment to a Fishery Management Plan, the proposed action would still require an amendment to U.S. Federal regulations.

The National Environmental Policy Act (NEPA) and the Regulatory Flexibility Act (RFA) are the primary laws directing the preparation of this document for a regulatory amendment. NEPA requires a description of the purpose and need for the proposed action, as well as a description of alternative action that may address the problem. The specific contents required to satisfy NEPA are integrated throughout the document, which incorporates additional information to more rigorously capture the impacts of the proposed action. The purpose and need for this action are addressed in Section 2.1 and the description of alternative actions are listed in Section 3 and with potential impacts examined in Sections 4.6 through 4.9.

Additional NEPA documents listed below provide detailed information on the halibut fishery, and on the natural resources, the economic and social activities, and the communities affected by those fisheries.

- Groundfish Programmatic Supplemental Environmental Impact Statement (PSEIS) (NOAA 2004);
- Essential Fish Habitat Environmental Impact Statement (EIS) (NOAA 2005);
- EIS for the Alaska groundfish harvest specifications (NOAA 2007).

3 DESCRIPTION OF THE ALTERNATIVES

The National Environmental Policy Act (NEPA) requires that an EA analyze a reasonable range of alternatives, consistent with the purpose and need for the proposed action. The alternatives in this chapter were designed to accomplish the stated purpose and need for the action. The development of an RQE would provide a market-based mechanism for the guided halibut recreational sector to supplement their annual allocations.

The alternatives that are analyzed in this package were adopted by the Council in December 2015. These alternatives are listed here and described in detail in Sections 3.1 through 3.3. The alternatives propose management measures that would apply exclusively to the charter and commercial setline fisheries in IPHC Regulatory Areas 2C (Southeast Alaska) and 3A (Southcenteral Alaska).

There are a number of issues the Council included in the December 2015 motion that were not listed as alternatives or options, but as additional points for further analysis. These issues are listed as Appendices to this action including: Appendix A: a discussion of the RQE impact on observer coverage and fees, and Appendix B: a discussion on the mechanics of creating additive transfer restrictions for GAF and an RQE.

Alternative 1. No Action

Alternative 2. Establish a Recreational Quota Entity (RQE) as a qualified entity to purchase and hold commercial halibut QS for use by the guided halibut sector

Element 1. Number of entities

Option 1. Two entities, one for each IPHC Regulatory Area 2C and 3A

Option 2. One entity with two area quota pools, Area 2C and Area 3A

Element 2. Restrictions on transfers. Two-way transfers are allowed. Quota class and block designation are retained if the quota is transferred back to the commercial sector.

(Options below are not mutually exclusive)

Option 1. No restrictions

Option 2. Annual limit on transfers to the RQE in each regulatory area (Area 2C and 3A) of 1% - 5% of commercial QS units in each area (2015)

Option 3. Total (cumulative) limit on amount held by RQE by regulatory area (Area 2C and 3A)

Sub-option 1. 5% - 20% of any commercial QS based on 2015

Sub-option 2. 5% - 20% of each class of QS based on 2015

Option 4. Restrictions on RQE quota share purchases (in either or both areas)

Sub-option 1. Restrict purchase of D class quota share (limits selected under Option 2 and 3 are calculated using excluding D class QS)

Sub-option 2. Restrict purchase of blocked QS by class that equates to ($\leq$1,500 lb or $\leq$2,000 lb in 2016 lb)

Element 3. Setting of annual charter management measures. Use RQE quota share holdings as of October 1 each year as the basis to estimate IFQ pounds to add to the estimated guided recreational allocation under the catch sharing plan for the upcoming year. This amount must be maintained for the following fishing year. This estimated combined allocation would be used to recommend the guided recreational harvest measures for the following year. The procedural process steps and timeline would remain unchanged.

Option 1. Restrictions on RQE quota share purchases (in either or both areas)

Sub-option 1. Equally to all catcher vessel QS holders which hold not more than 1,500 to 3,000 pounds in 2016 pounds (by area, proportional to QS holdings)

Sub-option 2. Equally to all catcher vessel QS holders (by area, proportional to QS holdings)

Sub-option 3. CQEs actively participating in Area 2C/Area 3A

Sub-option 4. Unallocated RQE IFQ would not be allocated (left in the water)

Element 4. Limit on use of RQE funds. RQE funds are limited in their use to acquisition of commercial halibut quota; acquisition of charter halibut permits; halibut conservation/research; promotion of the halibut resource; and administrative costs.

Element 5. RQE Organizational Structure. The RQE shall consist of a board of seven people and shall include the following: 4 CHP holders, 1 commercial halibut quota share holder, 1 community representative (not a holder of a CHP or commercial QS), and Commissioner of Alaska Department of Fish and Game, or designee.

Option 1. A representative of the Alaska Department of Revenue shall sit as an ex-officio member of the RQE board.

Option 2. RQE board terms shall be for [Options: 3 or 5 years].

Option 3. The RQE shall hold no less than two board meetings annually.

Option 4. The RQE shall file an annual report detailing RQE activities during the prior year.

Alternative 3. RQE purchase of charter halibut permits. The RQE shall be limited in the purchase of charter halibut permits to [options: 10% - 30%] of the permits in each area.

3.1 Alternative 1, No Action

Under the no action alterative, status quo would be maintained. That is, the Charter Halibut Limited Access Program (CHLAP) and the Catch Sharing Plan (CSP) would still be in place for the halibut charter sector, as described in Section 4.4.

Only qualified persons, as defined in the current Federal regulations could hold and use commercial halibut QS in the GOA (50 CFR 679.40(a)(2)). Section 4.4.1 and 4.4.1.2 describe the elements of these management programs in more detail. Formation of an RQE would not be authorized to obtain QS to augment the charter catch limits.

3.2 Alternative 2, Establish a Recreational Quota Entity Program

Alternative 2 would allow a recreational quota entity (RQE) (or entities) to be established as an eligible entity to purchase commercial quota share (QS) in Area 2C and Area 3A, with limitations, for use by the

halibut charter sector as a whole. Federal regulations would be amended to allow these entities to acquire QS, annually generating a designated poundage of IFQ. The additional IFQ pounds of halibut would be combined with the charter catch limit determined by the CSP, to determine an adjusted catch limit for the year by IPHC regulatory area.

This alternative would not change the underlying allocations to the sectors or the total QS pool, and, therefore, the QS holders in the commercial fishery that did not transfer QS to the RQE would not have their IFQ pounds directly impacted by the transfer of other QS to the RQE. Annual charter management measures for Areas 2C and 3A would be analyzed and recommended to the IPHC for implementation based on this adjusted catch limit. This alternative includes a number of elements and options under consideration, if the Council were to establish one or more RQEs.

The first element under Alternative 2 is an option of either establishing two RQEs, one each for IPHC Regulatory Area 2C and 3A, or establishing one RQE for both regulatory areas combined with a separate QS pool for each regulatory area, one for Area 2C and one for Area 3A. There is no option to establish multiple RQEs in each regulatory area.

The second element under Alternative 2 details a series of restrictions on transfers from the commercial sector to the RQE. Common across all of the four options is the requirement that the RQE must track the QS' class and block designation for any future sale or transfer back to the commercial sector. The four options are:

- Option 1 places no volume, block, or class restrictions on transfers.
- Option 2 would limit the RQE's annual purchase of commercial QS to between one and five percent of the commercial QS units in each area.
- Option 3 places cumulative limits on the amount of QS held by the RQE by regulatory area. This option has two sub-options with Sub-option 1 limiting QS units to 5 percent to 20 percent of all commercial QS units while Sub-option 2 limits cumulative RQE purchases to five to twenty percent of each class of QS units.
- Option 4 places class and block restrictions. Sub-option 1 would restrict the purchase of D class quota shares under Options 2 and 3. Sub-option 2 would restrict the RQE's ability to purchase blocked QS by class to either $\leq$1,500 lb or $\leq$2,000 lb in 2016 lb.

Options 2, 3 and 4 are not mutually exclusive of each other, but Option 1 is exclusive of the other options.

Element 3 describes a date each year (October 1) that would be the basis for estimating IFQ pounds to add to the estimated guided recreational catch limit under the CSP for the upcoming year. An October 1 date would allow estimates of the supplemental pounds of IFQ for the charter catch limit to be considered when ADF&G analyzes proposed annual management measures for the charter sector for the upcoming year. This element includes a single option which governs annual reallocations of RQE holdings back to the commercial sector if RQE holdings provide for a charter harvest opportunity greater than the unguided recreational bag limit in the corresponding regulatory area. The option contains four sub-options:

- Sub-option 1 would reallocate excess QS to all catcher vessel QS holders which hold not more than 1,500 to 3,000 in 2016 pounds (by area, proportional to QS holdings).
- Sub-option 2 would reallocate the excess equally to all catcher vessel QS holders (by area, proportional to QS holdings).
- Sub-option 3 would reallocate the excess to CQEs actively participating in Area 2C/Area 3A.
- In Sub-option 4 the excess QS would be not be allocated and would be left in the water.

In the first three sub-options the reallocations would be temporary, managed by NMFS, and do not include a compensation component for the RQE. In the fourth sub-option, no action would be needed and the excess could act as buffer to any potential charter overage.

Element 4 places limits on how the RQE can use its funds. Under the element RQE funds are limits to the purchase of commercial QS, acquisition of charter halibut permits (if allowed under Alternative 3), halibut conversation/research, promotion of the halibut resource, and administrative costs. The element does not allow for marketing or angler education.

Element 5 defines the RQE's organizational structure establishing a seven member Board of Directors including four CHP holders, one commercial halibut QS holder, one community member who doesn't hold a CHP or a QS, and the commissioner of ADF&G or their designee. The element also includes four options:

- Option 1 would add a representative for the Alaska Department of Revenue as an ex-officio member.
- Option 2 would establish RQE board terms of three (3) or five (5) years.
- Option 3 requires the RQE to hold no less than two board meetings per year.
- Option 4 require the RQE to file an annual report detailing the RQE's activities in the prior year.

None of these options are mutually exclusive.

3.3 Alternative 3, RQE Purchase of Charter Halibut Permits

Alternative 3 would allow the RQE to purchase CHPs. The purpose of Alternative 3 would be to reduce the capacity of the charter fleet, particularly latent capacity, to enable better predictions of annual harvests. Alternative 3 is not mutually exclusive from Alternative 2 and the impacts may differ depending on the timing and relationship of this alternative compared to Alternative 2.

4 REGULATORY IMPACT REVIEW

This Regulatory Impact Review (RIR) examines the benefits and costs of a proposed regulatory amendment to establish a Recreational Quota Entity (RQE) to represent the charter sector in the acquisition of commercial halibut quota shares (QS). Additionally, this document analyzes the retirement of latent Charter Halibut Permits (CHPs). Actions under consideration would apply exclusively to the guided angler sport (charter) fisheries and commercial setline fisheries in International Pacific Halibut Commission (IPHC) Regulatory Areas 2C and 3A in the Gulf of Alaska (GOA). This Federal regulatory amendment would augment management measures annually established by the IPHC.

The preparation of an RIR is required under Presidential Executive Order (E.O.) 12866 (58 FR 51735; October 4, 1993). The requirements for all regulatory actions specified in E.O. 12866 are summarized in the following Statement from the E.O.:

> *In deciding whether and how to regulate, agencies should assess all costs and benefits of available regulatory alternatives, including the alternative of not regulating. Costs and Benefits shall be understood to include both quantifiable measures (to the fullest extent that these can be usefully estimated) and qualitative measures of costs and benefits that are difficult to quantify, but nonetheless essential to consider. Further, in choosing among alternative regulatory approaches agencies should select those approaches that maximize net benefits (including potential economic, environmental, public health and safety, and other advantages; distributive impacts; and equity), unless a statute requires another regulatory approach.*

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

- Have an annual effect on the economy of $100 million or more or adversely affect in a material way the economy, a sector of the economy, productivity, competition, jobs, local or tribal governments or communities;
- Create a serious inconsistency or otherwise interfere with an action taken or planned by another agency;
- Materially alter the budgetary impact of entitlements, grants, user fees, or loan programs or the rights and obligations of recipients thereof; or
- Raise novel legal or policy issues arising out of legal mandates, the President's priorities, or the principles set forth in this Executive Order.

4.1 Purpose and Need for Action

In December 2015 the Council developed the following purpose and need:

> *Alaska's guided halibut anglers have seen recent increases in regulatory restrictions due to declining halibut stocks and guided recreational allocations. A market-based mechanism for the guided halibut recreational sector may be an effective means to supplement their annual allocations. Allowing an RQE (Recreational Quota Entity) to hold a limited amount of commercial halibut QS on behalf of guided recreational halibut anglers under a "willing seller and willing buyer" approach may result in less restrictive annual harvest measures for guided recreational anglers in times of low halibut abundance, while complying with total halibut removals under the guided halibut catch limits determined by the International Pacific Halibut Commission. The guided recreational halibut allocation under the Halibut Catch Sharing Plan*

would be combined with the halibut quota share held by the RQE to determine the annually adjusted total guided halibut allocation. The total allocation would be the basis for the determination of appropriate management measures for the guided halibut sector each year. The intent is to consider such a mechanism without undermining the goals of the halibut IFQ Program or significant adverse impacts to other halibut sectors.

4.2 Alternatives

The National Environmental Policy Act (NEPA) requires that an EA analyze a reasonable range of alternatives, consistent with the purpose and need for the proposed action. The alternatives in this chapter were designed to accomplish the stated purpose and need for the action. The development of an RQE would provide a market-based mechanism for the guided halibut recreational sector to supplement their annual allocations.

The alternatives that are analyzed in this package were adopted by the Council in December 2015. These alternatives are listed here and described in detail in Sections 3.1 through 3.3. The alternatives propose management measures that would apply exclusively to the charter and commercial setline fisheries in IPHC Regulatory Areas 2C (Southeast Alaska) and 3A (Southcenteral Alaska).

There are a number of issues the Council included in the December 2015 motion that were not listed as alternatives or options, but as additional points for further analysis. These issues are listed as Appendices to this action including: Appendix A: a discussion of the RQE impact on observer coverage and fees, and Appendix B: a discussion on the mechanics of creating additive transfer restrictions for GAF and an RQE.

Alternative 1. No Action

Alternative 2. Establish a Recreational Quota Entity (RQE) as a qualified entity to purchase and hold commercial halibut QS for use by the guided halibut sector

Element 1. Number of entities

Option 1. Two entities, one for each IPHC Regulatory Area 2C and 3A

Option 2. One entity with two area quota pools, Area 2C and Area 3A

Element 2. Restrictions on transfers. Two-way transfers are allowed. Quota class and block designation is retained if the quota is transferred back to the commercial sector.

(Options below are not mutually exclusive)

Option 1. No restrictions

Option 2. Annual limit on transfers to the RQE in each regulatory area (Area 2C and 3A) of 1% - 5% of commercial QS units in each area (2015)

Option 3. Total (cumulative) limit on amount held by RQE by regulatory area (Area 2C and 3A)

Sub-option 1. 5% - 20% of any commercial QS based on 2015

Sub-option 2. 5% - 20% of each class of QS based on 2015

Option 4. Restrictions on RQE quota share purchases (in either or both areas)

Sub-option 1. Restrict purchase of D class quota share (limits selected under Option 2 and 3 are calculated using excluding D class QS)

Sub-option 2. Restrict purchase of blocked QS by class that equates to (≤1,500 lb or

≤2,000 lb in 2016 lb)

Element 3. Setting of annual charter management measures. Use RQE quota share holdings as of October 1 each year as the basis to estimate IFQ pounds to add to the estimated guided recreational allocation under the catch sharing plan for the upcoming year. This amount must be maintained for the following fishing year. This estimated combined allocation would be used to recommend the guided recreational harvest measures for the following year. The procedural process steps and timeline would remain unchanged.

Option 1. If the RQE holdings provide a charter harvest opportunity greater than the unguided recreational bag limit in either area, NMFS would not issues annual IFQ in excess of the amount needed for the charter sector to obtain the unguided recreational bag limit to the RQE for that area. Unallocated RQE IFQ would be reallocated as follows:

Sub-option 1. Equally to all catcher vessel QS holders which hold not more than 1,500 to 3,000 pounds in 2016 pounds (by area, proportional to QS holdings)

Sub-option 2. Equally to all catcher vessel QS holders (by area, proportional to QS holdings)

Sub-option 3. CQEs actively participating in Area 2C/Area 3A

Sub-option 4. Unallocated RQE IFQ would not be allocated (left in the water)

Element 4. Limit on use of RQE funds. RQE funds are limited in their use to acquisition of commercial halibut quota; acquisition of charter halibut permits; halibut conservation/research; promotion of the halibut resource; and administrative costs.

Element 5. RQE Organizational Structure. The RQE shall consist of a board of seven people and shall include the following: 4 CHP holders, 1 commercial halibut quota share holder, 1 community representative (not a holder of a CHP or commercial QS), and Commissioner of Alaska Department of Fish and Game, or designee.

Option 1. A representative of the Alaska Department of Revenue shall sit as an ex-officio member of the RQE board.

Option 2. RQE board terms shall be for [Options: 3 or 5 years].

Option 3. The RQE shall hold no less than two board meetings annually.

Option 4. The RQE shall file an annual report detailing RQE activities during the prior year.

Alternative 3. RQE purchase of charter halibut permits. The RQE shall be limited in the purchase of charter halibut permits to [options: 10% - 30%] of the permits in each area.

4.3 Methodology for analysis of impacts

This evaluation of impacts is designed to meet the requirements of E.O. 12866, which dictates that an RIR evaluate the costs and benefits of the alternatives, to include both quantifiable and qualitative considerations. Additionally, the analysis should provide information for decision makers "to maximize net benefits (including potential economic, environment, public health and safety, and other advantages; distributive impacts; and equity), unless a statute requires another regulatory approach." The costs and benefits of this action with respect to these attributes are described in the sections that follow, comparing the "No Action" Alternative 1 with the action alternatives. The analyst then provides a qualitative assessment of the net benefit to the Nation of each alternative, compared to no action.

ADF&G Saltwater Charter Logbooks data were heavily relied upon in this analysis of impacts. Since the mid-1980s, ADF&G has assumed responsibility for the collection of data from the recreational fishery in order to advise Federal management agencies so that allocation decisions could be made based upon the best available information (Meyer 2014). In addition to logbooks, this analysis was prepared using data from the ADF&G fish tickets, NMFS catch accounting system, Restricted Access Management (RAM) division reports, and IPHC catch and removal data.

4.4 Description of the Charter Halibut Fishery

This section details the current management of the charter halibut fishing in regulatory Areas 2C and 3A. It also contains a description of current operations in the fishery for these areas in which more than 99 percent of the charter halibut operations for the State of Alaska take place (ADF&G 2014).[2] For additional information on the management history of the charter sector (e.g., a history of the Guideline Harvest Levels), the development of the Catch Sharing Plan, or charter sector harvest comparisons to non-guided and subsistence fisheries, see NPFMC (2013).

4.4.1 Management of Charter Halibut Fishing

Sport fishing activities for Pacific halibut in Areas 2C and 3A are subject to different regulations, depending on whether those activities are guided or unguided. Guided sport fishing for halibut is subject to charter restrictions under Federal regulations that can be more restrictive than the regulations for unguided anglers. Charter regulations apply if a charter vessel guide is providing assistance, for compensation, to a person who is sport fishing, to take or attempt to take fish during any part of a charter vessel fishing trip. Unguided anglers typically use their own vessels and equipment, or they may rent a vessel and fish with no assistance from a guide.

The Council and NMFS developed specific management programs for the charter halibut fishery to achieve allocation and conservation objectives for the halibut fisheries. These management programs are also intended to maintain stability and economic viability in the charter fishery by establishing 1) limits on the number of participants; 2) allocations of halibut that vary with abundance; and 3) a process for determining annual charter angler harvest restrictions to limit charter fishery harvest to the established allocations. The charter halibut fisheries in Areas 2C and 3A are managed under the Charter Halibut Limited Access Program (CHLAP) and the Catch Sharing Plan (CSP). The CHLAP limits the number of operators in the charter fishery, while the CSP establishes annual allocations to the charter and commercial fisheries and describes a process for determining annual management measures to limit charter harvest to the allocations in each management area. The CHLAP and the CSP are summarized in the following sections, this section concludes with some baseline information on safety in the charter sector.

4.4.1.1 Charter Halibut Limited Access Program and Charter Halibut Permits

The CHLAP was adopted by the Council in 2007 and NMFS published the final rule in January 2010 (75 FR 554, January 5, 2010). The CHLAP established Federal charter halibut permits (CHPs) for operators in the charter halibut fishery in Areas 2C and 3A. The program officially began in 2011, subsequent to the determination of eligibility and the issuance of permits for the 2011 season. NMFS implemented the

[2] Halibut charter operations for Area 3B and Area 4 are not included in the CSP. According to 2013 ADF&G estimates, these operations represent less than 0.4 percent of the Alaska's charter/ non-charter recreational yield. For charter anglers in all IPHC regulatory areas in Alaska except Areas 2C and 3A, the regulations are the same as for unguided anglers.

CHLAP, based on recommendations by the Council, to meet allocation objectives in the charter halibut fishery. Specifically, this program provides stability in the fishery by limiting the number of charter vessels that may participate in Areas 2C and 3A. The CHLAP also issues a limited number of permits to non-profit corporations representing specified rural communities and to U.S. military morale programs for service members.

Since implementation of the CHLAP program in 2011, all vessel operators in Areas 2C and 3A with charter anglers on board must have an original, valid permit on board during every charter vessel fishing trip on which halibut are caught and retained. CHPs are endorsed for the appropriate regulatory area and the number of anglers that may catch and retain halibut on a charter vessel fishing trip, ranging from 4 to 38.

Vessel operators had to meet minimum participation requirements to receive an initial issuance of a CHP. NMFS initially issued charter halibut permits to qualified applicants who were licensed by ADF&G and who, according to the Official Record, had at least five logbook fishing trips recording halibut effort during one of the initial qualifying years (2004 or 2005) and the recent participation year (2008).

Complete regulations for the CHLAP are published at §§ 300.65, 300.66, and 300.67. Additional details on the development and rationale for the CHLAP can be found in the proposed rule implementing the program (74 FR 18178, April 21, 2009).

4.4.1.2 Catch Sharing Plan

The Catch Sharing Plan was adopted and implemented by NMFS in January 2014 (78 FR 75844, December 12, 2013). The CSP replaced the Guideline Harvest Level program that was in place from 2004 through 2013 (68 FR 47256, August 8, 2003) as the method for setting pre-season specifications of acceptable annual harvests in the charter fisheries in Areas 2C and 3A. The CSP defines an annual process for allocating halibut between the charter and commercial halibut fisheries in Areas 2C and 3A. The CSP establishes sector allocations that vary proportionally with changing levels of annual halibut abundance and that balance the differing needs of the charter and commercial halibut fisheries over a wide range of halibut abundance in each area. The CSP describes a public process by which the Council develops recommendations to the IPHC for charter angler harvest restrictions that are intended to limit harvest to the annual charter halibut fishery catch limit in each area. This process is described in more detail in Section 4.4.1.2.2 below. Additional detail on the development and rationale for the CSP can be found in the proposed rule (78 FR 39136, June 28, 2013) and final rule implementing the program (78 FR 75844, December 12, 2013).

4.4.1.2.1 Combined Catch Limit and Sector Catch Limits

The process by which the IPHC sets annual catch limits is depicted in Figure 4-1. Each year, the IPHC estimates the exploitable biomass of halibut using a combination of harvest data from the commercial, sport, and subsistence fisheries, and information collected during scientific surveys and sampling of bycatch in other fisheries. The IPHC calculates the Total Constant Exploitation Yield (CEY), or the target level for total removals (in net pounds) for each area in the coming year, by multiplying the estimate of exploitable biomass by the harvest rate in that area. The IPHC subtracts estimates of other removals from the Total CEY. Other removals include unguided sport harvest, subsistence harvest, and bycatch of halibut in non-target commercial fisheries. The remaining CEY, after the other removals are subtracted, is the Fishery CEY which is the basis for the IPHC's determination of the annual combined catch limit (CCL) for Areas 2C and 3A. The IPHC considers the combined commercial and charter halibut Fishery CEY, staff analysis, harvest policy, and stakeholder input when it specifies the Area 2C and Area 3A annual CCL in net pounds.

Under the CSP, the IPHC specifies a CCL for Area 2C and for Area 3A at its annual meeting in January. Each area's annual CCL in net pounds is the total allowable halibut harvest for the directed commercial halibut fishery, plus the total allowable halibut harvest for the charter halibut fishery under the CSP, including an estimate of each sector's wastage.

Each year, the IPHC divides the annual CCL into separate annual catch limits for the commercial and charter halibut fisheries pursuant to the CSP's allocation formulas. A fixed percentage of the annual CCL is allocated to each fishery at most levels of the CCL (Table 4-1 and Table 4-2). The fixed percentage allocation to each fishery varies with halibut abundance. The charter sector's relative share is higher when the CCL is lower, but lower when the CCL is higher. This means the charter sector receives a smaller negative shock in bad years, and less of a windfall in the good years than the commercial sector. The charter halibut fishery receives a fixed poundage allocation at intermediate abundances to avoid a "vertical drop" in allocation as shown in Figure 4-3 and
Figure 4-4. The IPHC multiplies the CSP allocation percentages for each area by the annual CCL to calculate the commercial and charter halibut allocations in net pounds. Fishery-specific catch limits are calculated by deducting separate estimates of wastage from the commercial and charter halibut allocations (Figure 4-1). NMFS publishes the CCLs and associated allocations for the charter and commercial halibut fisheries in the *Federal Register* as part of the IPHC annual management measures pursuant to 50 CFR 300.62.

An overage by the charter or commercial sector in a year does not affect the other sector in that same year. An overage by any sector affects all users in the subsequent year, by increasing fishery removals that result in a lower estimated initial biomass. The IPHC assessment considers an overage as a removal higher than the fishery's catch limit. That higher removal in a fishing year means that biomass is incrementally lower at the end of that year than it would be otherwise. Underages have a similar effect on biomass but in the opposite direction, i.e., biomass estimation for the subsequent year begins at a higher level than it would otherwise, and all sectors will benefit from this.

Figure 4-2 shows the expected sequence of events if an RQE is in place. After the IPHC sets and calculates the Commercial Catch Limit NMFS will issue the RQE IFQ and that IFQ will be included in the Charter Catch Limit and during the annual charter fishery regulation setting process.

Figure 4-1 Process for Setting Annual Combined Catch Limits, Charter and Commercial Allocations, and Charter and Commercial Catch Limits for Area 2C and Area 3A Under the Catch Sharing Plan

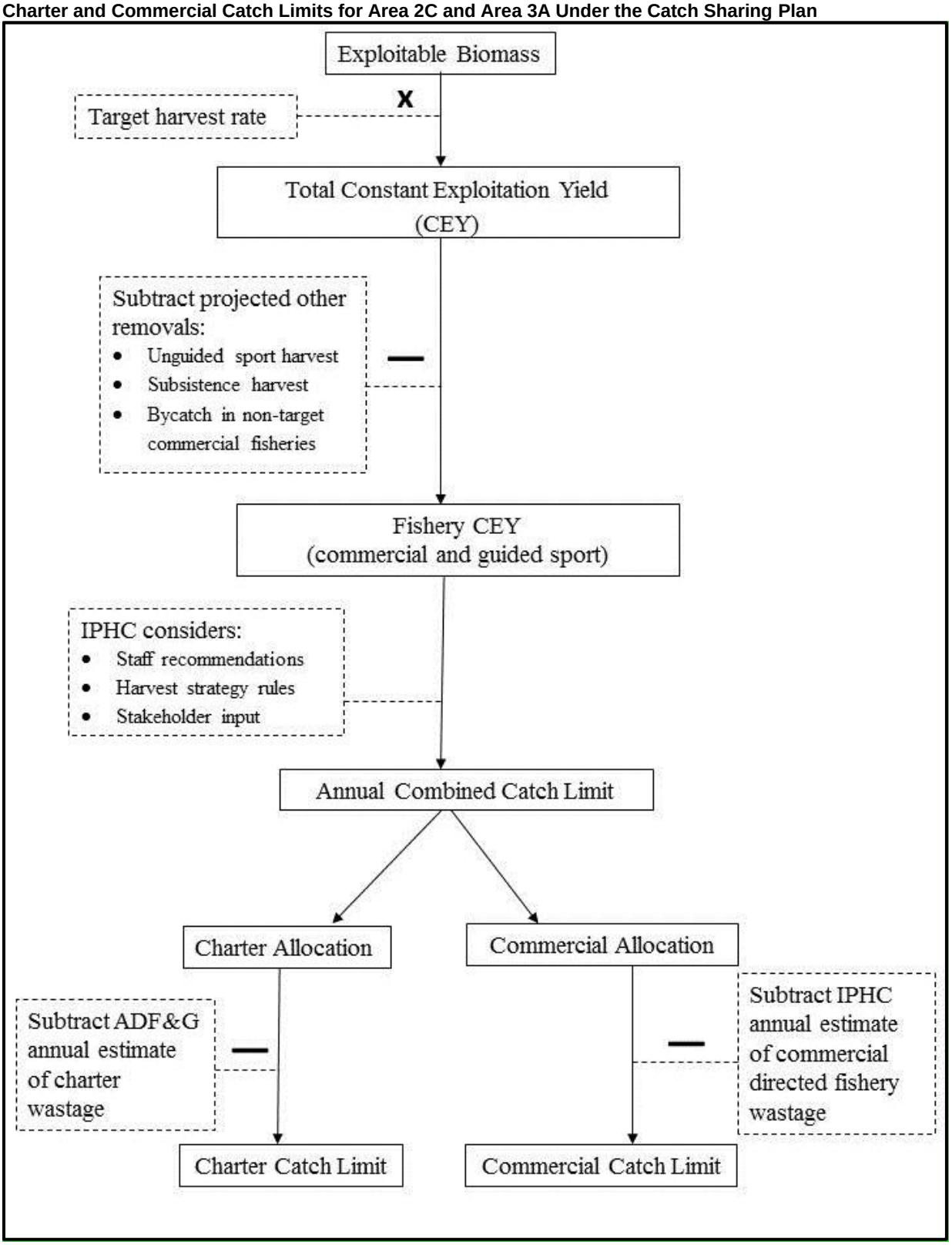
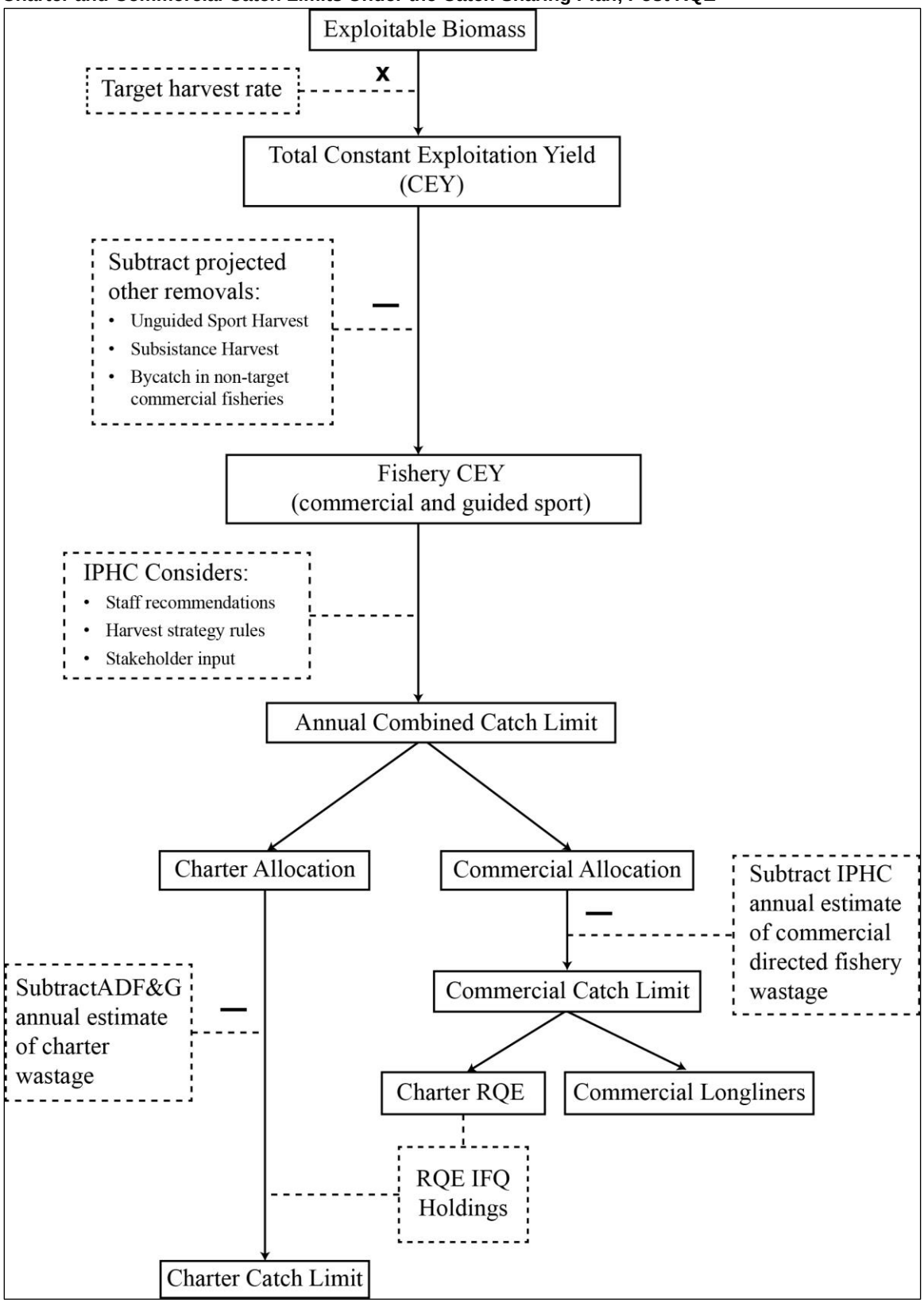


Figure 4-2 Process for Setting Annual Combined Catch Limits, Charter and Commercial Allocations, and Charter and Commercial Catch Limits Under the Catch Sharing Plan, Post RQE



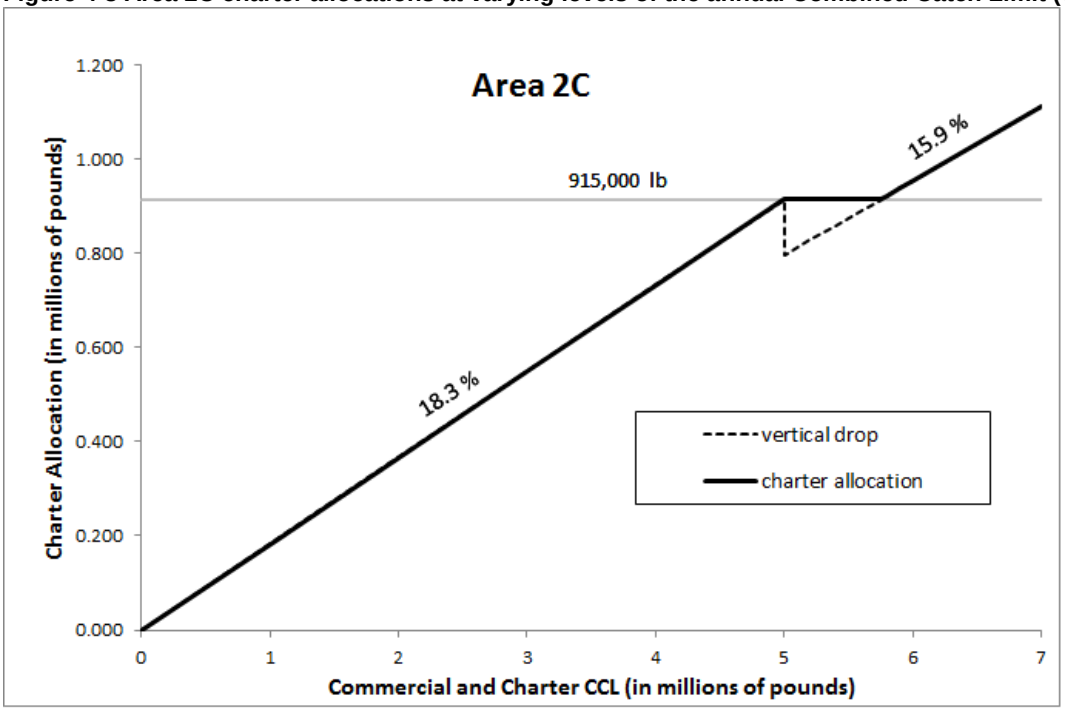
4.4.1.2.1.1 Area 2C Allocation

The CSP establishes three allocation tiers for Area 2C as shown in Table 4-1 and Figure 4-3 below.

Table 4-1 Area 2C Catch Sharing Plan (CSP) allocations to the charter and commercial halibut fisheries relative to the annual Combined Catch Limit (CCL)

Area 2C annual CCL for halibut in net lb.	Charter halibut fishery CSP allocation (% of annual CCL or net lb.)	Commercial halibut fishery CSP allocation (% of annual CCL or net lb.)
0 to 4,999,999	18.30%	81.70%
5,000,000 to 5,755,000	915,000 lb.	Area 2C CCL minus 915,000 lb.
5,755,001 and up	15.90%	84.10%

Figure 4-3 Area 2C charter allocations at varying levels of the annual Combined Catch Limit (CCL)



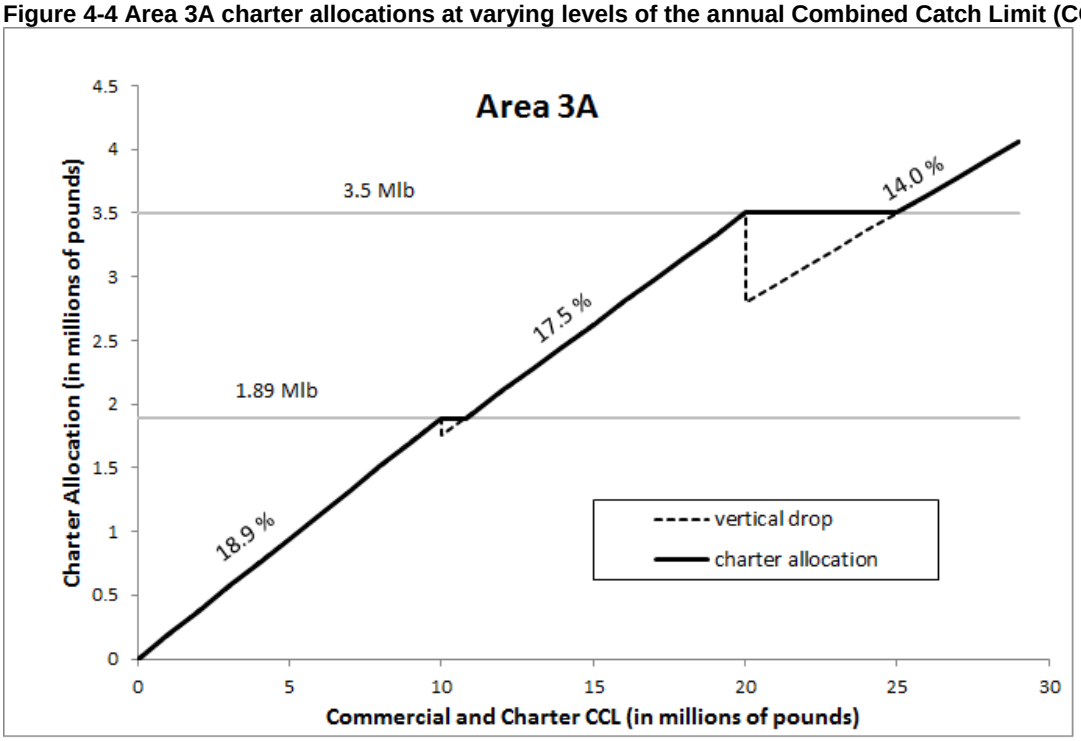
4.4.1.2.1.2 Area 3A Allocation

The CSP established five allocation tiers in Area 3A as shown in Table 4-2 and Figure 4-4 below.

Table 4-2 Area 3A Catch Sharing Plan (CSP) allocations to the charter and commercial halibut fisheries relative to the annual Combined Catch Limit (CCL)

Area 3A annual CCL for halibut in net lb.	Charter halibut fishery CSP allocation (% of annual CCL or net lb.)	Commercial halibut fishery CSP allocation (% of annual CCL or net lb.)
0 to 9,999,999	18.90%	81.10%
10,000,000 to 10,800,000	1,890,000 lb.	Area 3A CCL minus 1,890,000 lb.
10,800,001 to 20,000,000	17.50%	82.50%
20,000,001 to 25,000,000	3,500,000 lb.	Area 3A CCL minus 3,500,000 lb.
25,000,001 and up	14.00%	86.00%

Figure 4-4 Area 3A charter allocations at varying levels of the annual Combined Catch Limit (CCL)



4.4.1.2.2 Annual Process for Setting Charter Management Measures

Prior to 2012, charter management measures were recommended by the Council and implemented by NMFS through proposed and final rulemaking or implemented by the IPHC without specific recommendation from the Council. The CSP provides a more systematic, timely, and responsive process to address harvest overages or underages, using the best available and most recent data. Annual management measures for implementation in the Area 2C and Area 3A charter halibut fishery are set each year through a public process.

Each October, the Council's Charter Halibut Management Implementation Committee meets to review harvest in the current year in relation to the charter catch limit, and to discuss and make recommendations from a number of management measures for Areas 2C and 3A to be analyzed for the coming year. ADF&G staff then does an analysis to predict harvest under single alternatives and combinations of measures. There are a variety of management measures that have been used or considered in the past to manage the charter and other recreational halibut fisheries. Some of these measures directly restrict the number or size of fish allowed to be retained.[3] Examples include regulating:

- the number of halibut taken by an angler in a calendar day ("bag limit");
- the number of trips a charter operator may take in a calendar day ("trip limit");
- the number of halibut taken by an angler in a calendar year ("annual limit");
- the maximum size limit of halibut taken on a trip (for example, "U45", meaning a halibut must be under 45 inches);
- the minimum size limit of halibut taken on a trip (for example, "O68", meaning a halibut must be over 68 inches);
- a specified maximum/ minimum size limit halibut must fall outside of in order to be retained "reverse slot limit");

Some of these measures indirectly restrict in the number of halibut able to be retained by enforcing:

- a prohibition on charter fishing during selected day(s) of the week ("day of the week closure");
- a prohibition on skipper/ crew harvest (default under the CSP);

The Charter Halibut Management Implementation Committee considers combinations of these and possibly other measures and works with ADF&G to understand the projected impact given charter halibut trends as indicated in the logbook and port sampling data. Because regulations restricting the number or size of halibut taken could apply to either some or all of the halibut taken during a trip or season, there are many combinations of possible alternatives. In December each year, prior to Council consideration, ADF&G presents an analysis based on the combinations of management measures requested by the Committee. This analysis is based on a forecast of the upcoming year's harvest under the current year ("status quo") regulations and observed effects of various measures in past years. Projected harvests under alternative management measures are compared to the charter allocation associated with the IPHC's "blue line" [4] CCL for commercial and charter fisheries. The charter allocation is defined in

[3] A list of current and historical combinations of measures are detailed in Figure 4-3 and Figure 4-4 and further discussed in Section 4.4.2.2.

[4] The "blue line" is a proposed combined catch limit (CCL) for the commercial and charter sectors, based on the application of the current IPHC harvest policy results. The blue line catch limit is not the same as an overfishing limit (OFL) or acceptable biological catch (ABC) in the Alaska groundfish context. These are both biologically-based harvest limits that are not to be exceeded, within which the Council recommends annual TACs. The blue line represents a target level of removals from the application of the IPHC harvest policy, but the policy is not binding on

relation to the magnitude of this combined catch limit. Management measures are not modified mid-season, therefore the Council recommends management measures intended to keep charter harvest within the charter sector allocation in each area.

Given the diversity in charter operations and business structure, this suite of management measures can create disparate adverse economic impacts among operators. For instance, some charter businesses cater to anglers coming from a cruise ship, and thus, their demand is centered on the cruise ship schedule. A day of the week closure may provide greater economic burden on these businesses than on charter operations with a different client base. This diversity of operations is particularly evident between the two regulatory areas, Area 2C and 3A, and therefore representatives of each area work within the suite of management measures and area allocations to balance the impacts among all types of operations.

Additionally, these measures provide different management and enforcement considerations. For example, some of the measures proposed by Committee members and practical to implement may be very impractical to analyze with available data. The more difficult it is to predict angler behavior, given a set of constraints, the more risk and uncertainty associated maintaining the catch limit for a season. Likewise, some measures may have a high expectation of effectiveness, but present serious enforcement challenges. If measures cannot be properly enforced, this adds a component of uncertainty to both the projected effectiveness of measures and to the retrospective understanding of their effectiveness.

In December, the Council also reviews the ADF&G analysis of the expected outcome from the potential charter management measures for Area 2C and Area 3A charter halibut fisheries for the upcoming fishing year. It is the Council's discretion how to balance Charter Management Implementation Committee recommendations, with possible enforcement or analytical challenges. The Council considers these recommendations, as well as those from its other advisory bodies. The Council then identifies the charter halibut management measures to recommend to the IPHC at its annual meeting that will most likely constrain charter halibut harvest for each area to its catch limit, while considering economic impacts on charter operations.

The IPHC takes into account Council recommendations, along with the analyses on which those recommendations were based, and input from its stakeholders and staff. The IPHC then adopts charter halibut management measures designed to keep charter harvest in Area 2C and Area 3A to the catch limits specified under the CSP given the adopted CCL. Once accepted by the Secretary of State with the concurrence of the Secretary of Commerce, NMFS publishes in the *Federal Register* the charter halibut management measures for each area as part of the IPHC annual management measures. This process provides many opportunities for public input along the way.

4.4.1.2.3 Catch Monitoring and Estimation in the Sport Halibut Fisheries

As part of implementation of the CSP, the Council recommended using the ADF&G Saltwater Charter Logbook (i.e., logbook) as the primary data collection method for monitoring and managing the charter harvest. ADF&G developed the logbook program in 1998 to provide information on participation and harvest by individual vessels and businesses in charter fisheries for halibut, as well as other state-managed species. Logbook data are compiled to show where fishing occurs, the extent of participation, and the species and the numbers of fish caught and retained by individual charter anglers. This information is essential to estimate harvest for regulation and management of the charter halibut fisheries in Areas 2C and 3A.

Commissioners and is only one element of the staff advice. Therefore while the blue line estimate for a season is made public at the IPHC interim meeting, this number could change when the IPHC sets the CCL in January of the following year.

ADF&G estimates charter yield using reported logbook harvest combined with estimates of average weight from creel sampling. Fishery creel sampling occurs through onsite fishery monitoring programs in Southeast and Southcentral Alaska. Harvested halibut are measured and net weight is estimated from weights predicted for each fish using the IPHC length-weight relationship. This allows for estimates of average weight by sector and port (Meyer 2014).

4.4.1.2.4 Guided Angler Fish (GAF) Program

In 2014, also as part of the CSP, NMFS implemented the Guided Angler Fish (GAF) Program to authorize limited annual transfers of commercial halibut IFQ as GAF to qualified charter halibut permit holders to provide additional harvest opportunities by charter vessel anglers in excess of the annual charter allocation to the common pool (NPFMC 2013).[5] Using GAF, qualified charter halibut permit holders may offer charter vessel anglers the opportunity to retain halibut up to the limit for unguided anglers when the charter management measure in place limits charter vessel anglers to a more restrictive harvest limit. Participation in this program is voluntary.

NMFS issues GAF in numbers of halibut based on a conversion factor from IFQ pounds. In 2014, the first year of the GAF program, the conversion factors for each area were the average weight of all charter halibut harvested by area in the most recent year without a size limit in effect (Table 4-3). For 2015 and beyond, the conversion factors are the average net weights of GAF harvested in each area during the previous year. Average weights are determined from data that guides report directly to NMFS. These data are compared to those recorded from ADF&G creel sampling, but creel sampling is not used in the calculation. Guides must report the length of every GAF harvested and that is compared to the IPHC length-weight table. Because the conversion factor was the average of all charter halibut harvested in 2014, and on the average of only GAF halibut harvested in 2015 and thereafter, it is not surprising that the GAF conversion increased dramatically between the first and second years of the program. The conversion factors were similar between 2015 and the estimated 2016 values. The 2015 conversion factors were 67.3 lb IFQ per GAF in Area 2C and 38.4 lb IFQ per GAF in Area 3A.

Table 4-3 IFQ to GAF conversion factors

	(IFQ lb/GAF)	
Year	**Area 2C**	**Area 3A**
2014	26.4	12.8
2015	67.3	38.4
2016*	65.1	36.1

*estimated conversion factor

In a simple example, a CHP holder could lease 100 lb of commercial IFQ. NMFS would then convert the IFQ into GAF using the average weight of GAF fish (i.e., the conversion factor) from the previous year in that regulatory area. For example, if the conversion factor is 20lb, then the 100 lb of IFQ could be transferred to the CHP holder as 5 GAF (i.e., 5 halibut). If charter halibut regulations specify that each angler's daily bag limit is one fish of any size, while an unguided angler may harvest two fish of any size, then the CHP holder can use one GAF to allow one charter angler to harvest two fish of any size. That is, the GAF would be used to allow a charter angler to harvest halibut under the same regulations in place for unguided anglers, regardless of the management measure in place for charter anglers fishing in the common pool (e.g., one fish, one fish with a slot limit, or two fish with one of any size and the other with

[5] For a more detailed description of the GAF Program, its provisions, and the associated rationale behind the provisions see NPMFC (2014). In addition, NOAA NMFS AK Region responds to "frequently asked questions" about this program on its website http://alaskafisheries.noaa.gov.

a size restriction). If the unguided bag limit was one fish of any size and the charter angler bag limit was one fish of any size, there would be no reason to use GAF.

GAF is necessary for a charter angler to harvest a halibut that would be legal for an unguided angler to harvest, but not a charter angler in that year. If there is a size limit imposed on the charter sector and those regulations do not exist for the unguided angler, the charter operator/charter angler could use a GAF to harvest a halibut that falls outside the size limit. Depending on the structure of the payment, it could increase the total cost to the charter operator, the charter angler, or both.

GAF transfers can be done through separate entities or as a self-transfer if the CHP also holds IFQ. Transfers of IFQ to GAF may be agreed upon directly between halibut QS holders and CHP holders or facilitated through a broker.[6] However, a transfer of IFQ to GAF is not valid until NMFS has approved the application for transfer. In order to receive GAF, the IFQ holder and CHP holder receiving GAF must submit an application to NMFS, RAM Program, for review and approval. Upon approval of the transfer application, NMFS will issue a GAF permit to the holder of the CHP. At that point, the GAF permit holder may offer additional GAF harvest opportunities to anglers on board the vessel on which the operator's GAF permit and the assigned charter halibut permit are used. Once GAF is transferred to a CHP holder and assigned to a specific CHP, it may not be transferred to another charter halibut permit holder (i.e., no sub-leasing of GAF). Transfers cannot take place after fish have been harvested.

There are specific dates associated with transfers of GAF and the return transfer of unused GAF that were implemented with the program for practical reasons. Returns of unused GAF from the charter sector back to the commercial sector can occur in one of two methods:

1) a voluntary return of unused GAF from the GAF/CHP holder back to the IFQ holder,[7] or
2) a mandatory automatic return of GAF from the GAF/CHP holder back to the IFQ holder.

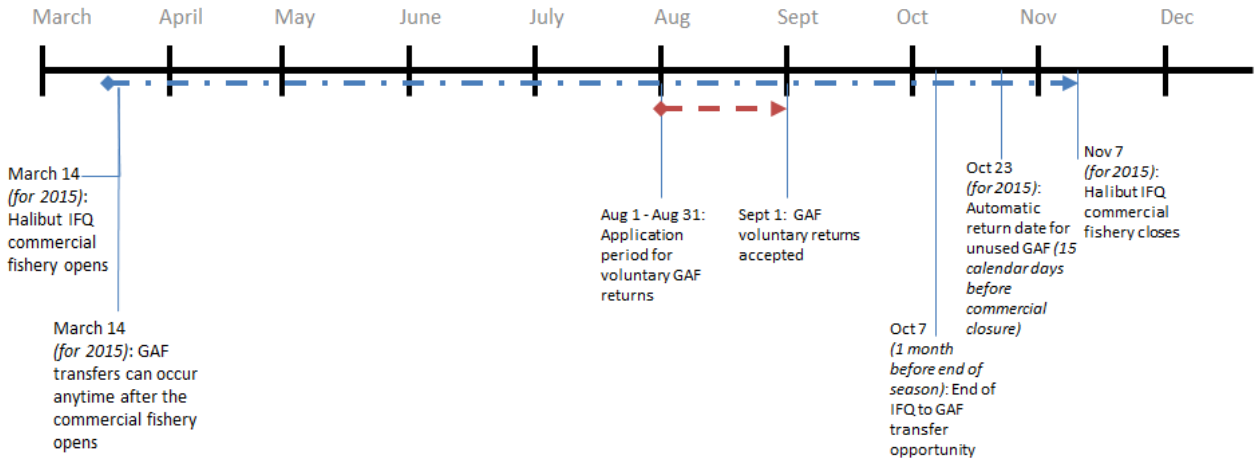
Voluntary returns of unused GAF can be arranged during the month of August (NMFS must receive application between August 1 through August 31). Returns will be processed on or after September 1. By this date, the majority of the charter season is complete and it allows the IFQ holder sufficient time to harvest that IFQ before the end of the season (usually in mid-November).

The automatic return date of unused GAF occurs 15 calendar days prior to the end of the commercial halibut season. Figure 4-5 shows an example of this timeline for the year 2015. Some of these dates could change annually, because they depend on the commercial IFQ season dates established by the IPHC.

Applications for transfers of IFQ to GAF will be accepted as soon as IFQ has been issued for the year and the conversion factor has been posted on NMFS' website until one month prior to the end of the commercial fishing season, to ensure that all GAF transactions are completed before the automatic return date.

[6] A list of both halibut QS holding entities as well as CHP holders are available on NMFS website.
[7] This transfer might be for compensation or not. Terms of these arrangements are private transactions between the GAF permit/ CHP holder and the commercial IFQ holders.

Figure 4-5 GAF Transfer Schedule Using 2015 as an Example



4.4.1.2.4.1 GAF Reporting Requirements

There are several unique Federal reporting and handling requirements associated with the use of GAF. Charter guides are required to mark retained GAF by removing the tips of the upper and lower lobes of the caudal fin. Additionally, charter vessel guides are required to retain the carcass showing the caudal fin clips until the halibut fillets are offloaded so that enforcement agents can verify the length and that the fish was retained and recorded as GAF.

The logbook is the primary reporting method for operators in the charter halibut fishery for GAF. In addition to general charter reporting requirements, vessel guides are required to report the GAF permit number and number of GAF retained in the logbook. For each halibut retained as GAF, charter vessel guides are also required to immediately record on the GAF permit log (on the back of the GAF permit), the date and total halibut length in inches. There are also requirements to enter GAF information into a NMFS-approved electronic reporting system by the end of the calendar day on the last day of a charter fishing trip in which a charter angler retained GAF. Complete reporting requirements can be found at 50 CFR 300.65(d)(4)(ii).

4.4.1.2.4.2 GAF Transfer Limits

Three restrictions on GAF transfers were implemented with the program. The restrictions on transfers of GAF are intended to prevent a particular individual, corporation, or other entity from acquiring an excessive share of halibut fishing privileges as GAF.

First, IFQ holders in Area 2C are limited to transferring up to 1,500 lb or 10 percent, whichever is greater, of their initially issued annual halibut IFQ for use as GAF. In Area 3A, IFQ holders may transfer up to 1,500 lb or 15 percent, whichever is greater, of their initially issued annual halibut IFQ for use as GAF. This restriction was intended to further the Council and the IFQ program's goal for an owner-on board IFQ fishery. IFQ holders in Area 3A are able to transfer up to 15 percent of their IFQ as GAF because IFQ holdings are generally larger in Area 3A than in Area 2C, and restricting Area 3A IFQ holders to leasing up to 10 percent of their IFQ holdings could limit the amount of IFQ available for lease as GAF.

The other transfer restrictions are intended to balance the GAF needs of different types of charter operations to maximize the opportunity for all charter operators to acquire GAF. Because holders of charter halibut permits endorsed for more than six anglers are likely to be larger charter operations, the

Council was concerned these larger charter operations would have more financial resources to acquire GAF than smaller operations unless a limit was placed on the number of GAF that could be assigned to a charter halibut permit. Depending on the supply of IFQ available to be transferred as GAF, this program could put different charter operations in direct competition with each other for GAF. These restrictions promote opportunity for charter operations of different types. Therefore, the second restriction for GAF transfers is that no more than a total of 400 GAF will be assigned during one year to a GAF permit assigned to a CHP that is endorsed for six or fewer anglers. The third restriction states that no more than a total of 600 GAF will be assigned during one year to a GAF permit assigned to a CHP endorsed for more than six anglers. This rule does not limit the amount of GAF transfers for military charter halibut permits. CQEs that hold quota share are allowed to transfer IFQ as GAF. The limits on these transfers depend on whether the GAF permit holder is a CQE, an eligible community resident, or a non-resident.

Details and rationale for GAF transfer restrictions are further described in the proposed rule for the CSP (78 FR 39122, July 25, 2013).

4.4.1.2.4.3 Cost Recovery for GAF

NMFS' costs associated with management, data collection, and enforcement of the GAF Program are recoverable through IFQ Program Cost Recovery fees. NMFS does not track fees associated with GAF separately from other IFQ Program fees. Even with the additional costs to develop and implement the GAF Program, total NMFS costs associated with the IFQ Program were less in 2014 than in 2013. NMFS collected cost information for the development of the database and electronic reporting systems for the GAF Program. These costs totaled $78,700 across multiple years and were subject to IFQ Program Cost Recovery fees.

4.4.1.2.5 Separate Accountability for Wastage

The CSP also includes a process of separate accountability for the commercial and charter halibut fishery wastage. Separate accountability means that each sector's wastage is included in their allocation.

Commercial wastage is considered the mortality of released sublegal fish, fish that die on lost or abandoned gear, and fish that die after being released for other regulatory reasons (e.g., exceeding a trip limit). Bycatch and wastage are estimated separately for halibut ≥26 (O26) and halibut <26 inches in length (U26). Prior to the CSP, this wastage estimate was accounted for in the 'other removals' category in the IPHC process. This estimate was deducted from the Total CEY, which ultimately could have impacted both commercial and charter sector allocations under the CSP structure, if the Council had not adopted separate accountability measures (see the flowchart in Figure 4-1). Under separate accountability in the CSP, commercial fishery wastage is estimated by the IPHC and O26 wastage is deducted directly from the commercial allocation, resulting in the commercial catch limit (CCL).

Until 2014, halibut discard mortality was not routinely estimated for the sport fishery or factored into the Fishery CEY or GHL. Release mortality in recreational fisheries has not historically been documented due to the lack of information on mortality rates and sizes of released fish. In March 2012, the IPHC asked all agencies that provide estimates of recreational halibut harvest coastwide to implement data collection programs that would allow estimation of release mortality. The IPHC began incorporating estimates of sport fishery release mortality in total halibut removals for purposes of stock assessment in 2014. Each fall, ADF&G provides the IPHC with final estimates of release mortality in the sport fishery (guided and unguided) for the previous year and preliminary estimates for the current year.

ADF&G first undertook estimation of sport fishery release mortality in 2007 (Meyer 2007), using available Statewide Harvest Survey estimates of the numbers of released fish, an assumed mortality rate based on hook use data, and modeling of the size distribution of released fish. Meyer provides a detailed

discussion of the methods that have been used to generate discard mortality rate estimates (2007; 2014). The CSP established the ADF&G charter logbook as the preferred accounting method for charter harvest. Based on this guidance, the numbers of released fish are currently estimated using logbook data (as of 2014). Discard mortality rates for guided and unguided recreational fisheries are consistent with previous estimation methods (Meyer 2007), and are dependent on the hook type (circle versus other) that is used. The rates were derived as weighted estimates, with 3.5 percent mortality rate for halibut released on circle hooks and a 10 percent mortality rate for halibut released upon all other hook types, weighted by the proportions of released fish caught on each hook type. Finally, in order to calculate estimated pounds of released mortality from the charter sector, an average weight of released fish is estimated by modeling the size distribution of released fish using creel sampling data on the size distribution of harvest and information from other fisheries (Meyer 2014). All calculations are done for multiple subareas within Areas 2C and 3A and then summed.

There is not a wastage estimate specifically for GAF; only a single wastage estimate for the charter halibut fishery in each area. ADF&G requires that charter vessel guides record the number of halibut kept and the number of halibut released in the logbook. Under the CSP, guides are also required to record in the logbook the number of GAF harvested. The number of halibut released in pursuit of GAF are not differentiated from the number of halibut released in pursuit of non-GAF halibut kept by charter vessel anglers.

4.4.1.3 Safety in the Charter Sector

Based on feedback from the Council in December 2015, this section is included to describe baseline characteristics of safety in the charter sector.[8]

USCG records on charter halibut boardings begin in 2008 (Table 4-4). From 2008 through 2015, 372 boardings were completed on charter halibut vessels, detecting 38 safety violations on 25 vessels. Most of the safety violations were related to insufficient lifejackets (PFDs) or missing vessel registration. In 2014 and 2015, units were directed to achieve a 20% contact rate with the charter halibut fleet to match the level of effort dedicated in the IFQ fleet. The increased focus on charter halibut may be a contributing factor to the number of safety violations detected.

Table 4-4 Safety violations in the charter halibut fishery, 2008 through 2015

Year	Vessels with safety violations	Total boardings	Type of violation						
			PFD	Registration	SPD	VDS	Life ring	Placards	Firefighting
2008	1	4	1	0	0	0	0	0	0
2009	0	20	0	0	0	0	0	0	0
2010	0	90	0	0	0	0	0	0	0
2011	3	59	1	1	0	0	1	1	1
2012	4	47	0	3	0	0	0	0	2
2013	0	9	0	0	0	0	0	0	0
2014	9	80	3	2	0	1	1	4	1
2015	8	63	3	3	1	4	1	0	1
Totals	25	372	8	9	1	5	3	5	5

Source: USCG database, accessed 2016

[8] A complimentary section on safety is not provided for the commercial halibut IFQ sector in this draft of the analysis. Including the baseline conditions in the charter sector was necessary in order to better consider impacts on safety from a potential increase in harvest in the charter section. A description of safety in the commercial halibut IFQ sector is schedule to be included in the IFQ Program review.

4.4.2 Current Charter Operations

This section presents current information about charter operations; with a focus in areas that may prove relevant to the proposed alternatives. Charter capacity and activity are highlighted in this section, as understood through CHP holdings and transfers. Active participation, as proposed by Alternative 3, is investigated in Section 4.9. The present section also describes historical catch limits, management measures, historical charter halibut harvest, GAF transfers and harvest under the recently implemented CSP, as well as a brief description of communities involved in charter activities.

4.4.2.1 CHP holdings and Transfer Prices

One way to consider capacity and activity in the charter fishery is through evaluation of the CHP holdings and markets.

Table 4-5 shows the current number of CHPs, CHP holders, and angler endorsements by fishing area and type of CHP. The total number of CHPs has changed since initial allocation. A number of CHPs were considered "interim"; some of which were later revoked upon completion of an appeals process. Additionally, the number of CHP holders continually changes as permits are transferred. An individual CHP holder may hold more than one CHP in more than one regulatory area.

Additionally, Community Quota Entity (CQE) and U.S. Military Morale, Welfare and Recreation Program (MWR) permits have been issued as part of the program. Community Charter Halibut Permits (CCHPs) are issued at no cost to a CQE representing communities that may not have a fully developed charter halibut fleet. A CQE may apply at any time through NMFS for CCHPs. A charter vessel operator who is using a CCHP is required to either begin or end the charter vessel fishing trip within the community designated on the permit. A CQE in Area 2C may receive a maximum of four CCHPs to provide to an ADF&G licensed charter vessel operator. The operator must have a current ADF&G Saltwater Logbook in possession. A CQE in Area 3A may receive a maximum of 7 CCHPs. All CCHPs issued to a CQE are non-transferable, designated for either Area 2C or 3A, and be endorsed for 6 anglers. CQEs may also receive CHPs (non-community designated CHPs) by transfer, but may not hold more than 8 permits in Area 2C and 14 permits in Area 3A.

Military Charter Halibut Permits are for any MWR program in Alaska operating a halibut charter vessel. The program must obtain a permit, which may be applied for through NMFS at any time at no cost. These permits are non-transferable, issued without angler endorsements, and may be used only in the regulatory area designated on the permit. NMFS reserves the right to limit the number of these permits. The holding entities for MWR permits tend to be military entities, e.g. Eielson Air Force Base. Both CQE permits and MWR permits are subject to the same annual management measures as CHP holders.

As shown in Table 4-5, 270 unique entities currently hold 535 unique CHPs in Area 2C, and 307 unique entities currently hold 439 CHPs in Area 3A. For this calculation, all CHP holders were counted once per area, even if he or she holds multiple permits. Across both areas, over 6,637 angler endorsements have been issued on CHPs (including community CHPs), suggesting this number is the maximum number of anglers that legally may charter fish for halibut each day.[9] However, unless annual management measure state otherwise, multiple charter trips per day per CHP may occur, increasing that maximum potential.[10] Conversely, not every angler endorsement on a CHP will be used each trip. Section 4.9 discusses active CHP use versus the unused or underutilized CHPs based on two thresholds.

[9] The active use of these permits is discussed in detail and by several definition of "active" in Section 4.9.
[10] In Area 3A for 2014 and 2015, charter operators were limited to one trip per day.

Table 4-5 Distinct CHP Holders, Permits, and Anglers as of August 25, 2015

Area	Permit Type	Count of unique permit holders	Count of unique permits	Largest number of permits per holder	Total angler endorsements	Average angler endorsement
2C	CHP	270	535	15	2746	5.1
	CQE	12	48	4	288	6
	MWR	1	1	1	not applicable	not applicable
3A	CHP	307	439	6	3225	7.3
	CQE	9	63	7	378	6
	MWR	3	6	4	not applicable	not applicable

Source: RAM Division, NMFS sourced through AKFIN
Table Notes: CHP=Charter halibut permit with angler endorsements, CQE=community quota entity permits, and MWR=U.S. Military Morale, Welfare and Recreation Program permits.
An individual CHP holder may hold more than one CHP in more than one regulatory area.

The determination of a "transferable" or "non-transferable" CHP is based on more stringent participation requirements than general CHP qualification requirements (See §300.67(d)(1)). Ownership for a CHP designated as transferable may be transferred through private acquisitions. In Area 2C, 70 percent of the CHPs are transferable. In Area 3A, 78 percent are transferable. All CHP holders may allow others to use their permits without permanently transferring them. NMFS does not track temporary loans of CHPs. CQE and MWR permits are non-transferable.

Table 4-6 illustrates CHP transfer counts and associated prices throughout the lifetime of the CHLAP. In reading Table 4-6 is it important to understand that there can be joint ownership of a CHP. For example one individual may sell a CHP to three joint investors. This example would represent one seller and three buyers. The number of transactions listed is the largest count of numbers listed because it will include these as three separate transactions.

The greatest number of CHP transfers took place in 2011, following CHLAP implementation. That year 33 CHPs in Area 2C and 48 CHPs in Area 3A were transferred. The seller to buyer count (Table 4-6) also demonstrates some consolidation among ownership in that first year.

As can also be seen in the table, there is a price differential based on area endorsement. Typically, CHPs endorsed for Area 3A are 50 to 80 percent more expensive than those for Area 2C (when considering median transaction prices). Additionally, not represented here, there is also a price differential based on angler endorsement numbers. This value is intuitive, typically the greater the angler endorsement on the CHP, the greater the transaction price.

Table 4-6: CHP transfer prices in Area 2C and 3A from 2011 through 2015

Area	Year	Transaction Count	Permit Count	Minimum Transaction Price[a]	Maximum Transaction Price	Average Transaction Price	Median Transaction Price	Seller Count	Buyer Count
				$					
2C	2011	41	33	10,000	165,000	26,817	28,000	29	27
	2012	14	14	20,000	200,000	40,214	29,500	14	12
	2013	10	10	14,000	39,000	19,650	21,250	9	10
	2014	17	16	20,000	120,000	28,735	25,000	16	17
	2015	13	13	20,000	125,000	37,538	29,000	11	12
Total 2011 - 2015 for 2C		**95**	**80**	**10,000**	**200,000**	**29,847**	**28,000**	**72**	**76**
3A	2011	49	48	9,000	230,000	57,023	60,000	47	38
	2012	24	22	25,000	140,000	42,654	41,500	23	22
	2013	21	20	15,000	50,000	31,721	32,000	19	21
	2014	24	23	1	126,500	28,354	30,000	23	17
	2015	14	14	20,000	115,000	54,679	40,500	12	12
Total 2011 - 2015 for 3A		**132**	**110**	**1**	**230,000**	**44,924**	**40,000**	**121**	**97**

Source: NOAA RAM Division, sourced through AKFIN
Table notes: Data from 2015 is current as of 9/10/2015. Three questionable outliers were removed from the dataset (with transfer prices at or greater than $1,000,000). Minimum price is listed as the lowest price that is not $0. Transfer prices listed as $0 are still included in the calculation of average and median transaction price. Transfer prices of $0 are assumed to be loans, trades, inter-business transfers, or gifts.

It is also relevant to illustrate the overlap between individuals (or businesses/entities) that hold both a CHP as well as commercial IFQ. These statistics are important in understanding the interaction of these user groups. Diversification for the charter fleet is difficult to quantify due to a lack of information linking charter and commercial revenues to individual entities. Table 4-7 and Table 4-8 demonstrate some of the diversification potential charter fishery participants may have in commercial operations. These statistics can also highlight the pool of entities that could have the option to self-transfer commercial quota for use as GAF.

Specifically, by linking NMFS ID for persons, Table 4-7 demonstrates the number of unique CHP holders that have access to IFQ. In some cases one holder will hold multiple CHPs. Additionally, some CHPs are linked to groups of holders. For purposes of Table 4-7, the group would still be considered one "individual". If any of those individuals are linked to IFQ, that group is counted under "individual also holds IFQ". This table demonstrates that about 15 percent of CHP holding "individuals" are also associated with commercial IFQ for Area 2C and 11 percent of CHP holding individuals are associated with commercial IFQ for Area 3A.

Table 4-7 Individuals that hold at least one CHP that also hold IFQ; listed by IPHC regulatory area

	Individuals that hold at least 1 CHP		
Area	**Total individuals (count)**	**Individual also holds IFQ (count)**	**Individual also holds IFQ (%)**
2C	368	43	12
3A	416	37	9
Total	**784**	**80**	**10**

Source: NOAA RAM Division, sourced through AKR chp_owner chp_permit and ifq_permit tables
Table notes: "Individuals" in this table means individual person or business.
This table does not make the distinction of whether the IFQ the CHP holder has access to is in the same regulatory area or not.

Since some CHP holders hold more than one CHP, another way to consider the interaction between user groups is illustrated by counting the number of permits (rather than the number of individuals) associated with IFQ. Table 4-8 demonstrates the count and percentage of permits that could have access to IFQ through the holder. A comparison of these two tables exhibits the difference in the "total individuals" column from Table 4-7 and "total CHP" column from Table 4-8 validating that some CHP holders hold multiple CHPs. Since some CHP are held by multiple holders, Table 4-8 considers that CHP associated with IFQ if *any* of the holders in the group also have IFQ.

Table 4-8 Number of CHP held by individuals with IFQ; listed by IPHC regulatory area

Area	**Total CHP (count)**	**CHP held by an individual with IFQ (count)**	**CHP held by an individual with IFQ (%)**
2C	535	54	10
3A	439	52	12
Total	**974**	**106**	**11**

Source: NOAA RAM Division, sourced through AKR chp_owner chp_permit and ifq_permit tables
Table notes: "Individuals" in this table means individual person or business.

Despite lack of revenue data able to link entities across Federal and State fisheries, diversification can also be shown by linking vessels that participate in the charter fishery with other commercial fisheries they may take part in. Individuals that hold both a CHP and commercial halibut IFQ are prohibited from fishing for commercial and charter halibut on the same vessel during the same day in Area 2C and Area 3A. This provision is in place to facilitate enforcement, as different regulations apply to charter caught and commercially caught halibut. However, some individuals that participate in charter fishing operations may participate in commercial fishing using the same vessel during other parts of the year.

This vessel diversification is illustrated in Table 4-9 by linking valid Department of Motor Vehicle (DMV) numbers in the logbook, through NOAA RAM's vessel list, and then to ADF&G Fish Tickets.[11] Out of 574 charter vessels that were able to be verified by DVM number, Table 4-9 illustrates the types of commercial fishing operations these vessels may also have been a part of in 2014.[12] This table demonstrates that in 2014, 75 commercial fishing vessels also participated in charter operations. This represents 51 unique vessels over all these seven types of fisheries for 2014. Of the vessels used in charter operations in 2014, a verified 97 unique vessels had been used in commercial fisheries in the past five years.

[11] It is important to note that considering vessel diversification may not necessarily represent diversification of the individuals that participate in the charter operations. Conversely, individuals that participate in charter operations may be diversified in other commercial fisheries using a different vessel.
[12] Vessel counts reported in this table and section are expected to be an underestimate due to the level of assumed error in properly self-reporting vessel ID number in a charter logbook.

Table 4-9 Count of vessels that participated in both charter halibut and commercial fishing operations in 2014

Commercial Fishery	Vessels in this fishery that are also used in charter fishery (count)
Salmon	24
Other	16
Halibut	13
Groundfish	10
Shellfish	7
Other crab	3
Sablefish	2

Source: ADF&G fish tickets and Charter Halibut Saltwater Logbook, sourced through AKFIN
Table notes: Numbers are expected to be an underestimate due misreported vessel ID number. These are not unique vessel counts.

4.4.2.2 Historical Catch Limits, Regulations, and Harvest in the Charter Fishery

In recognition of the growing halibut charter sector, since the early 1990s, the Council has been developing proposals to limit harvests and establish a timely and accountable management regime for the charter halibut fisheries in Area 2C and Area 3A. Charter operators in both areas were subject to a GHL that identified a harvest limit for the sector based on the total constant exploitation yield (TCEY). Management measures in the fisheries were intended to maintain charter harvests at the GHL.

In Area 2C, charter anglers have only been allowed to harvest a bag limit of one halibut per person, per day, since June 5, 2009 (Table 4-10). This rule transpired after a sequence of years in which charter harvest exceeded the GHL in Area 2C (from 2004 through 2008). Implementation of a one-halibut daily bag limit was intended to keep the harvest of charter vessel anglers to approximately the GHL.

Also beginning in 2009, charter captains and crew were prohibited from retaining fish in Area 2C while engaged in a charter trip. This prohibition was considered by the Council and NMFS, in working with stakeholder groups, as a preferred first tool for restricting harvest in the guided fishery. It was determined that captains, guides, and crew are on guided charter vessels in their commercial capacity to operate the charter vessel and to direct charter vessel anglers on fishing expeditions, and their commercial status was fundamentally different from other individuals doing non-guided sport fishing. These individuals are not considered charter anglers under current Federal regulations. In a NMFS final rule submitted in 2009 (74 FR 21194, May 6, 2009), NMFS said that it was not appropriate for halibut harvested by these persons to be counted toward the charter halibut fishery harvest. Additionally, halibut harvested by charter operators, guides, and crew are difficult for enforcement agents to distinguish from halibut caught by charter clients. Therefore, along with other restrictions,[13] a prohibition on operator, guide, and crew retention of halibut in Area 2C was established and has persisted after the implementation of the CSP in recent years.

In addition to the implementation of these management measures (i.e., one-fish bag limit, prohibition against halibut retention for charter captains and crew, and line limits), the GHL for Area 2C dropped in 2009 from 931,000 lb to 788,000 lb. Area 2C continued to exceed the GHL in 2009 and 2010 (Table 4-10).

In 2011, a maximum size limit of 37 inches was added to the one-fish bag limit. This became the first year the charter sector's harvest was within their GHL since 2004, but the limit proved to be overly constraining and the charter sector harvest was well below the GHL.

[13] The final rule (74 FR 21194, May 6, 2009), includes the one-fish limit for anglers in 2C as well as a line limit.

In 2012, a "reverse slot limit" (or “protected slot”) was implemented as an annual management measure for Area 2C that limited the size of the retained halibut to less than or equal to 45 inches, or greater than or equal to 68 inches in length. This rule provided anglers with an opportunity to retain a trophy fish – a halibut larger than 68 inches in this case. The Charter Halibut Management Implementation Committee and charter fishery participants recommended the reverse slot limit to keep total harvests in Area 2C charter fisheries within the IPHC’s 2012 recommended GHL of 931,000 lb, while providing a reasonable charter fishing opportunity. The Area 2C charter fleet maintained harvest under their limit in 2012, and in 2013 the same management measures were proposed.

In 2014, the first year of the CSP, the Council maintained the one fish daily bag limit in Area 2C. In addition, the reverse slot limit was modified to require that the retained halibut must be less than or equal to 44 inches or greater than or equal to 76 inches in length. In 2015, the slot increased several inches on either side, requiring retained halibut to be either less than or equal to 42 inches or greater than or equal to 80 inches. This reverse slot limit translates into a halibut less than approximately 26 pounds and greater than 208 pounds, after the head and guts have been removed. Preliminary estimates of 2015 charter harvest demonstrate that Area 2C was 3,000 lb under the harvest limit.

Table 4-10 Charter management measures and halibut harvest for Area 2C, 1995 through 2015

Year	Mgmt Type	Area 2C Charter Regulation	Harvest Limit (Mlb)	Guided Harvest (Mlb)	Guided Harvest (% of harvest limit)
1995	No GHL	Two-fish bag limit (no size restrictions); no limit on crew retention	NA	0.986	NA
1996	No GHL	Two-fish bag limit (no size restrictions); no limit on crew retention	NA	1.187	NA
1997	No GHL	Two-fish bag limit (no size restrictions); no limit on crew retention	NA	1.034	NA
1998	No GHL	Two-fish bag limit (no size restrictions); no limit on crew retention	NA	1.584	NA
1999	No GHL	Two-fish bag limit (no size restrictions); no limit on crew retention	NA	0.939	NA
2000	No GHL	Two-fish bag limit (no size restrictions); no limit on crew retention	NA	1.13	NA
2001	No GHL	Two-fish bag limit (no size restrictions); no limit on crew retention	NA	1.202	NA
2002	No GHL	Two-fish bag limit (no size restrictions); no limit on crew retention	NA	1.275	NA
2003	GHL	Two-fish bag limit (no size restrictions); no limit on crew retention	1.432	1.412	99
2004	GHL	Two-fish bag limit (no size restrictions); no limit on crew retention	1.432	1.75	122
2005	GHL	Two-fish bag limit (no size restrictions); no limit on crew retention	1.432	1.952	136
2006	GHL	Two-fish bag limit (no size limit); state EO prohibiting crew harvest 5/26-12/31	1.432	1.804	126
2007	GHL	Two-fish bag limit (1 U32 inches, effective June 1); no crew retention 5/1-12/31 (State EO and Federal Rule)	1.432	1.918	134
2008	GHL	Two-fish bag limit (1 U32 inches); except one-fish bag limit Jun 1-10 (halted by injunction)	0.931	1.999	215
2009	GHL	One fish (no size limit); no harvest by skipper & crew; line limit (effective 6/5)	0.788	1.249	158
2010	GHL	One fish (no size limit); no harvest by skipper & crew; line limit	0.788	1.086	138
2011	GHL	One fish with a maximum of 37 inches; no harvest by skipper and crew; line limit	0.788	0.344	44
2012	GHL	One fish U45 inches or O68 inches; no harvest by skipper and crew; line limit	0.931	0.605	65
2013	GHL	One fish U45 inches or O68 inches; no harvest by skipper and crew; line limit	0.788	0.762	97
2014	CSP	One fish U44 inches or O76 inches; no harvest by skipper and crew; line limit	0.761	0.827	109
2015	CSP	One fish U42 inches or O80 inches; no harvest by skipper and crew; line limit	0.851	*0.848*	*0*

Source: From NPFMC (2014) and ADF&G (2015).
Table notes: All pounds are in net weight. The guided harvest removal for 2015 (italicized) is based on preliminary estimates from ADF&G (2015). Harvest limit and guided harvest include discard mortality associated with O26 halibut released beginning with the CSP in 2014.

For Area 3A, charter anglers fished under the same two-fish of any size bag limit as unguided anglers from 1995 until 2013 (Table 4-11). The GHL was set at 3.56 Mlb from 2003 through 2012. During years in which Area 3A operated under a GHL, they were able to stay below or near the GHL in all years with a maximum overage of 10 percent in one year.

The only management measures in Area 3A that changed between 1995 and 2014, was a prohibition on crew retention of halibut on a charter trip. A State Emergency Order was in effect for parts of the 2007, 2008, and 2009 that limited charter crew retention of halibut after the early part of the fishing year. This restriction was lifted in 2009, and implemented again in 2014, with the inception of the CSP.

In 2014, under the first year of the CSP, the catch limit fell for Area 3A by almost one million pounds. Consistent with the CSP-specified process, the Charter Halibut Management Implementation Committee recommended, and the Council and IPHC supported, modifications to Area 3A management measures. While many 3A stakeholders maintained that the two-fish bag limit was vital to their operations, management measures in 2014 included a size restriction for one of the two halibut. In addition, the Federal regulations established a one-trip per calendar day limit for vessels and a prohibition against halibut retention by charter captain and crew.

Estimates show that Area 3A decreased overall yield from 2013 to 2014 by 15 percent; however, it still exceeded the charter allocation set for 2014 by 16 percent. Is it expected the restrictive measures were responsible for the decline; however, and the non-guided halibut sport sector harvest remained consistent with the previous years. ADF&G reported that fewer fish were landed in 2014, but they were larger than expected. Thus, average weight was higher than projected, which is one factor used to calculated total charter yield. This might not necessarily indicate that available halibut were larger, if fewer anglers decided to retain a second fish, then they may have high-graded their first fish, which did not have a size limit.

In 2015, despite a small increase in Area 3A charter allocation, the Council approved stricter management measures because the analysis projected that 2015 charter harvest would increase slightly under the status quo management measures (2014 measures) and exceed the allocation. In 2015, an additional measure was established that would prohibit all halibut charter fishing activity on Thursdays during a specified time period, and an annual limit of five fish per person. Preliminary estimates from 2015 demonstrate an overage of nine percent in Area 3A.

Table 4-11 Charter management measures and halibut harvest for Area 3A, 1995 through 2015

Year	Mgmt Type	Area 3A Charter Regulation	Harvest Limit (Mlb)	Guided Harvest (Mlb)	Guided Harvest (% of harvest limit)
1995	No GHL	Two-fish bag limit (no size restrictions); no limit on crew retention	NA	2.845	NA
1996	No GHL	Two-fish bag limit (no size restrictions); no limit on crew retention	NA	2.822	NA
1997	No GHL	Two-fish bag limit (no size restrictions); no limit on crew retention	NA	3.413	NA
1998	No GHL	Two-fish bag limit (no size restrictions); no limit on crew retention	NA	2.985	NA
1999	No GHL	Two-fish bag limit (no size restrictions); no limit on crew retention	NA	2.533	NA
2000	No GHL	Two-fish bag limit (no size restrictions); no limit on crew retention	NA	3.14	NA
2001	No GHL	Two-fish bag limit (no size restrictions); no limit on crew retention	NA	3.132	NA
2002	No GHL	Two-fish bag limit (no size restrictions); no limit on crew retention	NA	2.724	NA
2003	GHL	Two-fish bag limit (no size restrictions); no limit on crew retention	3.65	3.382	NA
2004	GHL	Two-fish bag limit (no size restrictions); no limit on crew retention	3.65	3.668	100
2005	GHL	Two-fish bag limit (no size restrictions); no limit on crew retention	3.65	3.689	101
2006	GHL	Two-fish bag limit (no size restrictions); no limit on crew retention	3.65	3.664	100
2007	GHL	Two-fish bag limit (no size restrictions); state EO prohibiting crew harvest 5/1-12/31.	3.65	4.002	110
2008	GHL	Two-fish bag limit (no size restrictions); state EO prohibiting crew harvest 5/24-9/1.	3.65	3.378	93
2009	GHL	Two-fish bag limit (no size restrictions); state EO prohibiting crew harvest 5/23-9/1.	3.65	2.734	75
2010	GHL	Two-fish bag limit (no size restrictions); no limit on crew retention	3.65	2.698	74
2011	GHL	Two-fish bag limit (no size restrictions); no limit on crew retention	3.65	2.793	77
2012	GHL	Two-fish bag limit (no size restrictions); no limit on crew retention	3.103	2.284	74
2013	GHL	Two-fish bag limit (no size restrictions); no limit on crew retention	2.734	2.514	92
2014	CSP	Two-fish bag limit (One fish U29 inches); one trip per day; no harvest by skipper and crew	1.78	2.066	116
2015	CSP	Two-fish bag limit (One fish U29 inches); one trip per day, five-fish annual limit; Thursday closure; no harvest by skipper and crew	1.89	*2.063*	*109*

Source: From NPFMC (2014) and ADF&G (2015).
Table notes: All pounds are in net weight. The guided harvest removal for 2015 (italicized) is based on preliminary estimates from ADF&G (2015). Harvest limit and guided harvest include discard mortality associated with O26 halibut released beginning with the CSP in 2014.

4.4.2.3 GAF Transfers and Harvest

In 2014, the first year of the GAF Program, management measure for charter vessel anglers in Area 2C were limited to one halibut per day that was less than or equal to 44 inches or greater than or equal to 76 inches total length. In Area 3A, charter vessel anglers were allowed to keep two fish per day, one of which had to be less than or equal to 29 inches total length. Using GAF, charter vessel anglers were able to harvest up to two halibut of any size per day in either area, as is the current regulation for unguided anglers. The 2014 conversion factors were 26.4 net lb IFQ per GAF in Area 2C, and 12.8 net lb IFQ per GAF in Area 3A. This means that for each additional GAF a charter operator wishes to provide to an angler, they must transfer the product of that number times the conversion factor. Some limits to these transfers apply and are detailed in Section 4.4.1.2.4.1.

For 2015 and future years, the conversion factor was and will be based on the average net weight of GAF harvested by area. The average length of GAF harvested in 2014 was 55 inches in Area 2C and 45 inches in Area 3A (Table 4-13 and Figure 4-6). Using the IPHC halibut length weight conversion table, the estimated average net weights were 67.3 lb in Area 2C and 38.4 lb in Area 3A. These average net weights were the values used for the 2015 conversion factors (see Table 4-3).

In 2014, NMFS processed 111 transfers totaling 41,152 lb of IFQ to 43 different CHP holders. These transfers allowed the harvest of up to 2,027 additional halibut as GAF by charter vessel anglers (Table 4-12). Overall, nearly 20 percent of all GAF transfers were "self-transfers," i.e., the same person held both the IFQ and the CHP and transferred the IFQ to themselves (Table 4-12). In Area 3A, 47 percent of all transfers were self-transfers, while only 14 percent were self-transfers in Area 2C. No transfers of IFQ to GAF occurred after September 15.

Despite the large increase in the conversion factor from 2014 to 2015, 36,934 lb of IFQ were transferred to 548 GAF in Area 2C, and 10,337 lb of IFQ were transferred to 269 GAF in Area 3A (Table 4-12). In total across areas, NMFS processed 144 transfers totaling 47,271 lb of IFQ to 40 different CHP holders. These transfers allowed the harvest of up to 817 additional halibut as GAF by charter vessel anglers. The number of transfers and pounds of IFQ transferred increased compared to 2014; however, because the IFQ to GAF conversion factor increased from 2014 to 2015, the number of fish that GAF permit holders were allowed to harvest decreased in 2015. The number of CHP holders who obtained GAF permits decreased only slightly from 2014 to 2015, from 43 to 40.

The percentage of GAF transfers that were "self-transfers," i.e., the same person held both the IFQ and the CHP and transferred the IFQ to himself or herself, decreased from 20 percent in 2014 to 12 percent in 2015 (Table 4-12). In Area 3A, 40 percent of all transfers were self-transfers, while only 7 percent were self-transfers in Area 2C.

GAF participants are given the option of self-reporting cost information for GAF transfers. Of the transfers for which price information was reported, and excluding self-reported prices for self-transfers, lease prices averaged $5.62/lb in Area 2C and $4.66/lb in Area 3A (weighted averages) in 2015. The overall weighted average price per pound of IFQ leased was $5.48, about the same as in 2014 (Table 4-12).

Charter vessel anglers harvested 571 GAF (70 percent) in 2015, mostly in Area 2C (Table 4-13). In 2014 only 53 percent of available GAF were harvested. The increased cost of GAF in 2015 and increased familiarity with the program likely increased the percentage of GAF used because CHP holders only transferred as much as they thought they could use. The higher percentage of self-transfers in Area 3A may partially explain why a lower proportion of GAF were harvested in Area 3A. The GAF/IFQ holder

would still have an opportunity to harvest those pounds in the commercial fishery after the automatic return date. Twenty three voluntary returns of GAF to IFQ totaling 7,016 lb were processed in September 2015, compared to only 3 voluntary returns totaling 2,140 lb in 2014. Again, this is likely due to increased familiarity with the rules governing the program. Unused GAF were automatically returned to the IFQ account from which they originated on October 23, 2015. Approximately 3,855 lb of Area 2C IFQ and 2,194 lb of Area 3A IFQ were returned from the charter sector to the commercial sector under the automatic return provision.

The average length of GAF harvested in 2015 was 53.5 inches in Area 2C (Table 4-13 and **Figure** 2-1) and 44.5 inches in Area 3A (Table 4-13 and **Figure** 2-1). Using the IPHC halibut length weight conversion table, the estimated average net weights were 65.1 lb in Area 2C and 36.1 lb in Area 3A. The conversion factors are based on these average net weights and will therefore decrease slightly in 2016 compared to 2015. NMFS will announce the official GAF conversion factors early in 2016.

NMFS' costs associated with management, data collection, and enforcement of the GAF Program are recoverable through IFQ Program Cost Recovery fees. NMFS does not track fees associated with GAF separately from other IFQ Program fees.

Table 4-12 Summary of IFQ to GAF transfers for 2014 and 2015

Area	Year	IFQ pounds transferred	Number of GAF transferred	Number of transfers (permits issued)	Weighted average price per pound	Percentage of self-transfers
2C	2014	29,498	1,117	92	5.62	14
	2015	36,934	548	119	5.62	7
3A	2014	11,654	910	19	5.01	47
	2015	10,337	269	25	4.66	40
Total 2014		**41,152**	**2,027**	**111**	**5.46**	**20**
Total 2015		**47,271**	**817**	**144**	**5.48**	**12**

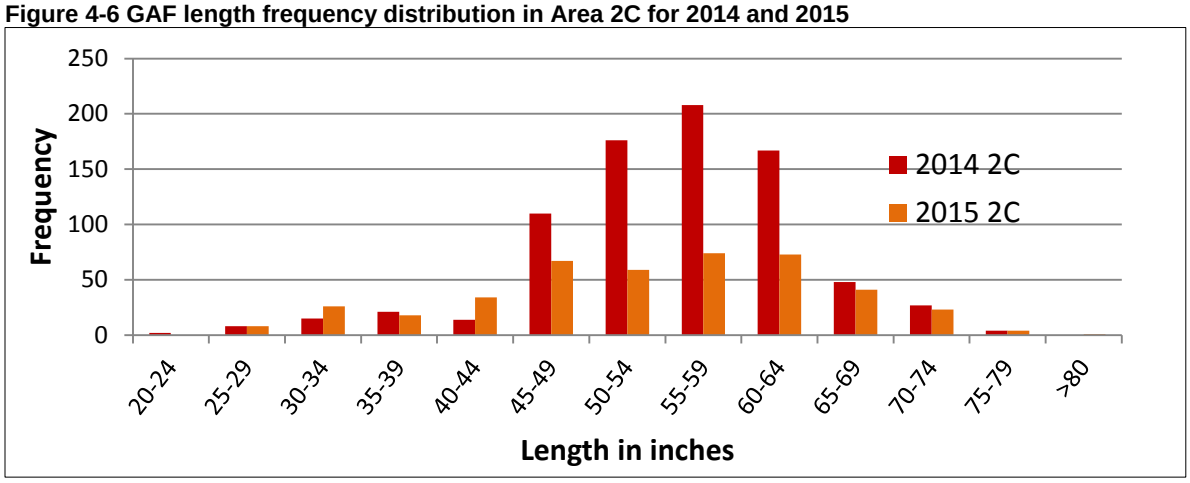
Source: NMFS GAF Program 2015 Annual Report
Table note: weighted average price per pound is only represents those transfers that voluntarily report price

Table 4-13 GAF harvest summary for 2014 and 2015

Area	Year	Number of GAF harvested	Percent of GAF harvested	Average Length in inches (range)
2C	2014	800	72	55 (18-77)
	2015	269	30	45 (30-75)
3A	2014	269	30	45 (30-75)
	2015	143	53	44.5 (31-84)
Total 2014		**1,069**	**53**	
Total 2015		**571**	**70**	

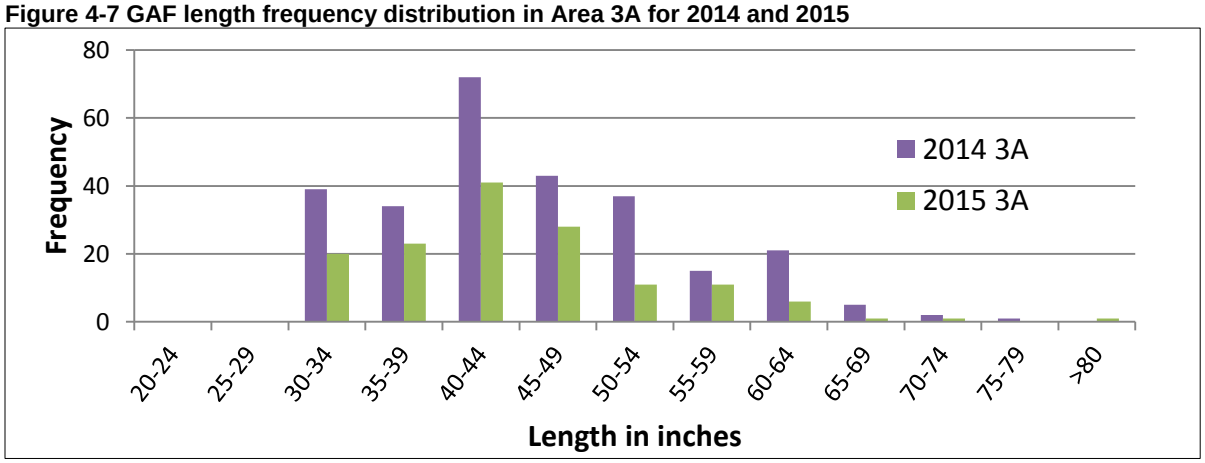
Source: NMFS GAF Program 2015 Annual Report

Figure 4-6 GAF length frequency distribution in Area 2C for 2014 and 2015



Source: NMFS GAF Program 2015 Annual Report

Figure 4-7 GAF length frequency distribution in Area 3A for 2014 and 2015



Source: NMFS GAF Program 2015 Annual Report

4.5 Description of Commercial Halibut Fishing

Particularly for the assessment of Alternative 2, the development of an RQE, it is important to provide some background information on the commercial halibut IFQ fishery. This section contains a description of the relevant elements of management for the commercial halibut IFQ fishery, as well as information on current commercial operations and participants, particularly in Area 2C and 3A. For more specific details on the creation of the program see NMFS' final rule implementing the IFQ Program (November 9, 1993; 58 FR 59375). For more information on current operations see NOAA RAM transfer report (NOAA 2015a) and the NOAA RAM Report to the Fleet (NOAA 2012).

4.5.1 Management of Commercial Halibut Fishing

The Council recommended a limited access system for the fixed gear halibut and sablefish fisheries off Alaska, in 1992. NMFS approved the halibut and sablefish IFQ program in January 1993, and implemented the program on November 9, 1993 (58 FR 59375). Fishing under the IFQ Program began on March 15, 1995. The IFQ Program applies to the management of the fixed gear sablefish and halibut fisheries off of Alaska. For halibut, fixed gear was defined to include all fishing gear comprised of lines

with hooks attached, including one or more stationary, buoyed, and anchored lines with hooks attached. Longlines, jigs, handlines, and troll gear are examples of halibut fixed gear.

The IFQ Program limits access to the commercial directed halibut and sablefish fisheries to those persons holding quota share (QS) in specific management areas. (An expanded discussion on how QS units apply is included in Section 4.8.). QS was assigned based on certain thresholds of historical participation in the fishery (see §679.40(a)). It includes a designation of species (either halibut or sablefish) and one of eight IPHC-established halibut management areas throughout the BSAI and GOA. It equates to individual harvesting privileges, given effect on an annual basis through the issuance of IFQ permits. An annual IFQ permit authorizes the holder to harvest a specified amount of an IFQ species in a designated IPHC regulatory area. The specific amount (in pounds) is determined by the number of QS units held for that species, the total number of QS units issued for that species in a specific regulatory area, and the total amount of the species allocated for IFQ fisheries in a particular year. If the abundance of halibut or sablefish decreases over time, the catch limit for that species will decrease and, subsequently, the number of pounds on a person's annual IFQ permit also will decrease. By ensuring access to a certain amount of the catch limit at the beginning of the season, and by extending the season over a longer period, QS holders may determine where and when to fish, how much gear to deploy, and how much overall investment to make in harvesting.

The Council and NMFS developed the IFQ Program to resolve the conservation and management problems commonly associated with open access fisheries, as well as to provide economic stability to the commercial halibut and sablefish fixed gear fisheries. The preamble to the proposed rule, published on December 3, 1992 (57 FR 57130), describes the issues leading to the Council's recommendation for the IFQ Program to the Secretary.

The Council and NMFS also intended the IFQ Program to improve the long-term productivity of halibut and sablefish fisheries, by further promoting the conservation and management objectives of the Magnuson-Stevens Act and the Halibut Act, while retaining the character and distribution of the fishing fleets, as much as possible. During the development of the IFQ Program, the Council built in several provisions to address concerns regarding transferability and the goal of preserving an owner-operated fleet. Among other things, the Council was concerned about consolidation of ownership and divestiture of QS by coastal Alaskans, removing small community access to and participation in the fisheries.

Ultimately, the Council provided a design which was intended to control transferability through: (1) limits on the amount of QS which could be owned or controlled by individuals and companies (QS use caps: Table 4-14); (2) establishment of vessel size categories (QS class: Table 4-16); (3) restrictions on who could purchase catcher vessel QS; and (4) limitations on leasing certain categories of QS (Pautzke & Oliver 1997). A report on the development of the program from Pautzke and Oliver states, "The primary intent of the Council in adopting these provisions was to maintain a diverse, owner-operated fleet and prevent a 'corporate', absentee ownership of the fisheries" (p. 14).

Provisions that encourage an owner-operated fleet include a **limitation on the transfer of QS,** or the IFQ resulting from it, to only persons who are IFQ crew members, or who were initially issued QS assigned to vessel categories B, C, or D (§679.41(g)). A **hired master** cannot be used to fish catcher vessel IFQ, if the corresponding QS was received by transfer, unless it is held by an initial issuee and was transferred before February 12, 2010 (79 FR 43679, July 28, 2014; resulting in regulations at §679.42(i) and (j)).

A **QS use cap** (also referred to as "ownership caps" in some programs) is applied to holders (individual or collective) of a long-term QS privilege. It limits the holder from exceeding a certain number of QS

units. QS use caps in the IFQ fisheries have been constant, based on the 1996 QS pool.[14] They are determined "individually and collectively;" that is, by QS held in an individual's name, plus the part of QS held by any entity in which the individual is an owner (collectively). Regulations at §679.42 (f) list the QS use caps are for halibut QS. Table 4-14 provides an example of the QS use caps applied to the halibut IFQ catch limits for 2015.

Table 4-14 Halibut QS use caps and corresponding pounds for 2015

Applicable %	Size of relevant QS pool	QS Use Cap	In 2015 IFQ pounds[a]
1 % of Area 2C QS pool	59,979,977 QS units	599,799 QS units	37,101 lb if all 2A QS
0.5% of Area 2C, 3A, and 3B QS pool	300,564,647 QS units	1,502,823 QS units	63,318 lb if all 3A QS; or 73,476 lb if all 3B QS
1.5% of all Area 4 QS pool	33,002,937 QS units	495,044 QS units	47,176 lb if all 4A QS; 48,626 lb if all 4B QS; 36,768 lb if all 4C QS; or 41,696 lb if all 4D QS

Source: NOAA, RAM Division, Quota Share Use Caps & Vessel IFQ Caps 2015; 2015 Quota Share Pools (QSPs) and Total Allowable Catches (TACs) for IFQ

[a] QS units are converted into IFQ pounds based on the annual QS/ IFQ ratio prescribed to each regulatory area. See Section 4.8 for a more detail description of this process and a list of the ratios over time and by area.

In addition to a cap on the individual QS holder, the IFQ program also includes a cap which applies to the vessels participating in the harvest of an IFQ species. The **vessel IFQ cap** (also referred to as "vessel cap" or "vessel use cap") restricts the amount of IFQ that can be consolidated and accounts for the IFQ species harvest on one vessel during a season. The vessel IFQ cap is specified as a percent of the annual catch limit. Regulations outline the specific vessel IFQ caps at §679.42(h)(1) for halibut. Table 4-15 demonstrates an example of the halibut vessel IFQ caps for 2015.

Table 4-15 Halibut vessel IFQ caps for 2015

Vessel use cap %	Annual catch limit	Vessel use cap
1 % of halibut 2C catch limit	3,679,000 net pounds	36,790 net pounds
0.5% of halibut IFQ catch limit	17,136,920 net pounds	85,685 net pounds

Source: NOAA, RAM Division, Quota Share Use Caps & Vessel IFQ Caps 2015

Halibut QS is designated as one of four **QS classes** (also called "vessel category" or "size category" of QS). These classes include: freezer (catcher processor) category (Category A); greater than 60' LOA (Category B); 36' to 60' LOA (Category C); and 35' or less LOA (Category D). However, amendments to the IFQ Program allow an IFQ permit holder to "Fish up" or "Fish down" in some cases. "Fish up" and "Fish down" provisions allow an IFQ permit holder to harvest IFQ halibut or sablefish outside of the originally assigned QS vessel category. Table 4-16 demonstrates the use restrictions by share category and how "Fish up" and "Fish down" adds flexibility for QS/ IFQ holders.

[14] The total QS pool has changed slightly over the years based on the rare occurrence of newly created or revoked QS. However, the specific QS use caps have continued to be applied to the 1996 QS pool. This number of units is established in federal regulation at §679.42 (f).

Table 4-16 QS/ IFQ use restrictions by QS class

Class	Use Restriction
A	Authority to harvest and process **IFQ species** on a vessel of any length (freezer longliners)
B	Authority to harvest **IFQ species** on a vessel of any length
C	Authority to harvest **IFQ species** on a vessel ≤ 60-ft LOA
D*	Authority to harvest **IFQ halibut** on a vessel ≤ 35-ft LOA

*Under the "fish up" provision, halibut IFQ Category D shares are able to be used on vessel ≤ 60 ft LOA in Areas 3B, 4C, and 4B.

The QS initially issued was permanently transferable, with several **restrictions on leasing and permanent transfer**. As previously stated, the Council developed leasing and other restrictions in order to achieve some benefits associated with IFQ management, but also to retain the owner-operator nature of the fisheries and limit consolidation of quota share. To that end, the Council only allowed persons who were originally issued catcher vessel quota share (B, C, and D category) or who qualify as an IFQ crew member[15] to hold or purchase catcher vessel quota share. Thus, only individuals and initial recipients could hold catcher vessel quota share, and with few exceptions, they are required to be on the vessel (i.e., actively fish) the QS.

Halibut QS also has a **designation of "blocked" or "unblocked".** Any initial allocation of halibut or QS that translated into less than 20,000 pounds (based on the 1994 TAC) was identified as "blocked," meaning that it must be sold as a unit, and cannot be separated. No person, individually or collectively, may hold more than three blocks of halibut QS in any IFQ regulatory area. Allocations greater than or equal to 20,000 pounds were considered "unblocked". If that individual holds unblocked halibut QS, they may only hold one halibut QS block for that area.

The purpose of the QS block provision was to ensure that the smallest, most affordable QS would remain available to a part-time fleet of smaller operators in order to maintain some of the fleet diversity that existed under open access, and thereby make the IFQ program less disruptive to isolated Alaska fishing communities (CFEC 1999). A "sweep-up" provision allowed very small blocks to be combined into a more economically fishable amount if the total combined QS was less than a certain amount. The sweep-up consolidation limit was raised in 1996, and then again in 2004 and 2006 (see regulations at § 679.41(e)(2) and (e)(3)).

A final element of the halibut IFQ fishery, important for the present analysis, is the **overage/ underage adjustments** provided for an IFQ permit holder in regulations (§679.40(e)). These provisions provide for administrative adjustment of IFQ permits as a result of under- and overfishing the prior year up to a certain amount. If IFQ pounds remain unfished, a regulatory provision allows up to ten percent of the pounds remanding at the time of landing may be carried over to the following year. If a person exceeds an IFQ permit by some amount, not greater than ten percent, the next year the holder of the QS may see a deduction in their permit account. If the overage exceeds ten percent, this would require enforcement action without future administrative adjustment. NMFS applies administrative adjustments at the beginning of each fishing year when annual IFQ accounts are created and IFQ pounds are allocated to QS holders. Administrative adjustments "follow the QS" so that the adjustment is computed for the permit of the person who, at the beginning of a year, holds the QS associated with the IFQ that was under- or overfished the prior year.

[15] IFQ crew member means any individual who has at least 150 days experience working as part of the harvesting crew in any U.S. commercial fishery, or any individual who receives an initial allocation of QS (50 CFR 679.2).

For example, in 2014, 1,899 permit accounts (out of a total of 3,592 total halibut permits accounts) received underage adjustments totaling 623,293 pounds in all Alaska regulatory areas. In 2014, 633 permit accounts had overage adjustments totaling 142,425 pounds of IFQ (NOAA 2015b). This example is consistent with every other year since the beginning of the program, in that adjustments from underages (including permits entirely unfished) have exceeded those from overages, resulting in net positive adjustments to IFQ permits.

4.5.2 The CQE program

Although the IFQ Program has resulted in significant benefits for many fishermen with historical participation in the fishery, like other limited entry programs, its implementation increased the cost of entry into or expansion in the commercial halibut and sablefish fisheries (NPFMC 2004; NPFMC 2010). Moreover, many QS holders in Alaska's smaller coastal communities have chosen to transfer their QS to others, for various reasons, or have moved out of these communities. Location, local conditions, and market forces were likely factors in the sale of QS originally held by residents of small communities. More specifically, some of these conditions and market influences include: the cost of access to markets is greater to fishermen landing fish in remote communities; fishermen based in remote communities tend to fish smaller amounts of QS using smaller, less efficient vessels, which result in lower profit margins than larger operations; fishing infrastructure in remote communities tends to be less complete; and residents tend to have less capital with which to purchase economically viable amounts of QS (McDowell Group 2005).

As a result of quota transfers, the total amount of quota held by residents of small, coastal communities and the number of IFQ holders, substantially declined since the inception of the IFQ Program. As this trend could have had a severe effect on unemployment and related social and economic impacts in rural communities, the Council took action in 2002 to attempt to alleviate this issue. Under Amendment 66 to the Fisheries Management Plan (FMP) for GOA groundfish, the Council revised the IFQ program to allow a distinct set of remote coastal communities with few economic alternatives to purchase and hold catcher vessel QS in Areas 2C, 3A, and 3B. This action was implemented in order to help ensure access to and sustain participation in the commercial halibut and sablefish fisheries. Eligible communities can form non-profit corporations called Community Quota Entities (CQEs) to purchase catcher vessel QS, and the IFQ resulting from the QS must be leased to community residents annually.

In effect, the CQE remains the holder of the QS, creating a permanent asset for the community to use to benefit the community and its residents. The QS can only be sold in order to improve the community's position in the program, or to meet legal requirements, thus, the QS must remain with the CQE.[16] The CQE Program was also intended as a way to promote ownership by individual residents, as individuals can lease annual IFQ from the CQE and gradually be in a position to purchase their own QS. In effect, it was noted that both community and individually-held quota were important in terms of fishing access and economic health. This amendment was approved by the Secretary of Commerce and effective in June 2004 (69 FR 23681; April 30, 2004).

The CQE Program includes several elements which make CQEs subject to different constraints than individual quota shareholders in the IFQ program with regards to halibut.

1) Each eligible community may designate **only one CQE to hold QS on behalf of that community** at any one time (§679.41(l)(2)).

[16] If the CQE sells its QS for any other reason, NMFS will withhold annual IFQ permits on any remaining QS held, and will disqualify the CQE from holding QS on behalf of that community for three years. It also requires that the CQE divest itself of any remaining QS on behalf of that community.

2) There are restrictions on the **transferability of QS by area** (§679 Table 21).

- A CQE in Area 2C can only hold halibut QS designated as Area 2C or 3A
- A CQE in Area 3A can only hold halibut QS designated as Area 3A and 3B
- A CQE in Area 3B can only hold halibut QS designated as Area 3A and 3B
- A CQE in Area 4B can only hold halibut QS designated as Area 4B QS

3) No CQE may hold halibut QS in the IFQ Regulatory Areas 4A, 4C, 4D, and 4E (§679.42(f)(3)).

4) There are restrictions on the **acquisition of QS by classes** (i.e., vessel category or size category) (§679 Table 21).

- A CQE in Area 2C may not hold D class halibut QS in Area 2C or 3A (§679.41(g)(5) and (g)(5)(i)).
- A CQE in Area 3A does not have QS class restrictions in Area 3B.[17]
- A CQE in Area 3B may not hold D class halibut QS in 3A (§679.41(g)(5)(i)). Area 3B CQEs may hold D class halibut QS in 3B.
- A CQE in Area 4B does not have QS class restrictions in Area 4B.

5) **QS classes** do not apply to IFQ derived from QS held by a CQE while the QS is owned and leased by the community. IFQ derived from QS held by a CQE may be used to harvest IFQ species from a vessel of any length, with the exception of IFQ derived from QS in IFQ regulatory Areas 3A and 4B that are assigned to vessel class D QS (§679.42(a)(2)(iii)).

6) The only **QS use caps by QS class** stipulates that, in aggregate, a CQE may not hold D class halibut QS designated for Area 3A in excess of 1,233,740 QS units (§679.41(g)(5)(ii)).

7) **QS use caps** (i.e., ownership caps) **by area** prohibit the CQE from holding more than 599,799 QS units in Area 2C (one percent), and 1,502,823 QS units (0.5 percent) of the combined Area 2C, 3A, and 3B total halibut QS pool. Area 4B has a QS use cap of 1,392,716 QS units (§679.42(f)(2)).

8) Similar to **vessel IFQ caps**, no vessel may be used, during any fishing year, to harvest more than 50,000 lb of IFQ halibut derived from quota share held by a CQE (§679. 42(h)(1)(ii)).[18]

9) **Cumulative QS use caps** limit communities in aggregate to 21 percent of the total QS in each regulatory area (§679.42(f)(5)(i)).[19]

10) CQE can purchase either **blocked or unblocked halibut QS**; however, communities are limited to holding, at any point in time, a maximum of 10 blocks of halibut QS in any IFQ regulatory

[17] GOA Amendment 94 modified the original CQE program to allow for the acquisition of class D QS by CQEs in Area 3A.

[18] GOA Groundfish Fisheries Management Plan Amendment 94 revised this restriction to dictate that only IFQ derived from CQE-held QS will count towards the vessel use cap. Prior to this amendment, the 50,000lb limit included both IFQ derived from a CQE as well as, (summed with) IFQ privately held (78 FR 33243, June 4, 2013).

[19] When implemented, the CQE program also contained a cumulative community use cap that limited the communities in a region as a whole from acquiring and using more than three percent of the Area 2C, 3A, or 3B halibut QS in the first seven years of the program.

area (§679.42(g)(1)(ii)). CQEs are unrestricted in minimum block size (§679.42(g)(ii)).[20] QS blocks cannot subdivided.

11) CQE's must produce an **annual report** (§679.5(t)) on CQE's administrative activities, business operation, and community fishing activities for each calendar year when it holds any of the following: community CHP, IFQ/QS, and/ or community Pacific cod endorsed non-trawl groundfish license limitation program (LLP) licenses.

12) Once held, there are **restrictions on the sale of its QS by CQE**. Communities may only sell their QS for the purpose of a) generating revenues to sustain, improve, or expand the program; or b) liquidating the entity's QS assets for reasons outside the program (§679.41(g)(7)). In that event, NMFS would not qualify that entity or another entity to hold QS for that community for a period of three years.

For more details on the structure of the program and the rationale behind these decision points, see the final analysis (NPFMC 2004) or the program review (NPFMC 2010).

In some cases, the CQE is subject to the same limitations as individual users in the IFQ program, as if the CQE is simply another category of eligible person. For example, an individual CQE is held to the same QS use cap (i.e., ownership caps) as an individual holder. In other cases, the CQE is subject to less restrictive measures, in order to provide for the differing purpose and use of the QS when held by communities. For example, the vessel size classes do not apply to QS when held by CQEs.[21] In yet other cases, the CQE is subject to more restrictive measures than individuals, in part to protect existing holders and preserve entry-level opportunities for fishermen residing in other (non-eligible) fishery-dependent communities. For example, CQEs cannot purchase D category halibut QS in Area 2C. In addition, there are caps on the amount of QS that all CQEs combined can purchase, and CQEs cannot lease more than 50,000 lb of halibut to an individual resident.

Although fundamentally different in intent, the Council can and has used considered the structure of the CQE program in the development of an RQE program. Some of these elements could be applicable to an RQE and some are not. Section 4.8.1.3 considers this restrictions and elements in the context of Alternative 2; the proposed RQE.

To be determined eligible as a CQE, each community must have met the following criteria: fewer than 1,500 people; documented historical participation (at least one landing) of halibut or sablefish; direct access to saltwater on the GOA coast; no road access to a larger community; and listed in Federal regulation. A set of 42 remote coastal communities were determined eligible at program implementation. Amendment 94 later added three eligible communities in the GOA[22] and Amendment 102 expanded the program to include one community in Area 4B of the BSAI.[23]

Three communities have successfully acquired QS: Old Harbor, Ouzinkie, and Adak. These communities have exclusively purchased B and C class QS, despite recent amendment to permit the acquisition of D

[20] Amendment 96 modified the CQE program to relax the minimum block size held by CQE groups in 2C and 3A from 33,320 QS units and 46, 520 QS units, respectively, to unrestricted (79 FR 46241, August 7, 2014).
[21] With the exception of D class QS in Area 3A.
[22] Amendment 94 of the GOA Groundfish Fisheries Management Plan added three communities to the list of communities eligible to form CQEs: Game Creek, Naukati Bay, and Cold Bay (78 FR 33243, June 4, 2013).
[23] In 2014, Amendment 102 for the Groundfish Fisheries Management Plan in the BS/AI expanded the program to include eligible communities in Area 4B, which currently includes Adak (79 FR 8870, February 14, 2014).

shares in some circumstances. See Table 4-17 for the amount of QS units transferred. Acquisition of funding has been cited as one of the primary obstacles in purchasing QS.

Table 4-17 Current CQE QS holdings

Entity	Representing	Area	Total QS units	2015 QS:IFQ ratio	Pounds of IFQ (2015)
Adak Community Development Corporation	Adak	4B	615,956	10.1807	60,502
Cape Barnabas, Inc.	Old Harbor	3A	43,362	23.4347	1,850
		3B	151,234	20.4533	7,394
Ouzinkie Community Holding Corporation	Ouzinkie	3A	281,593	23.4347	12,016

Source: NOAA, RAM Division

4.5.3 Current Commercial Operations

The following section provides a wide range of relevant information on the commercial halibut IFQ fishery, particularly in Area 2C and 3A. The following information was specifically identified to be of interest to later discussions of impacts under the action alternatives. However, significantly more information is available on the current operations of the commercial fishery. For additional information, refer to NOAA RAM division transfer report (NOAA 2015a) or the NMFS report to the fleet (NOAA 2012).

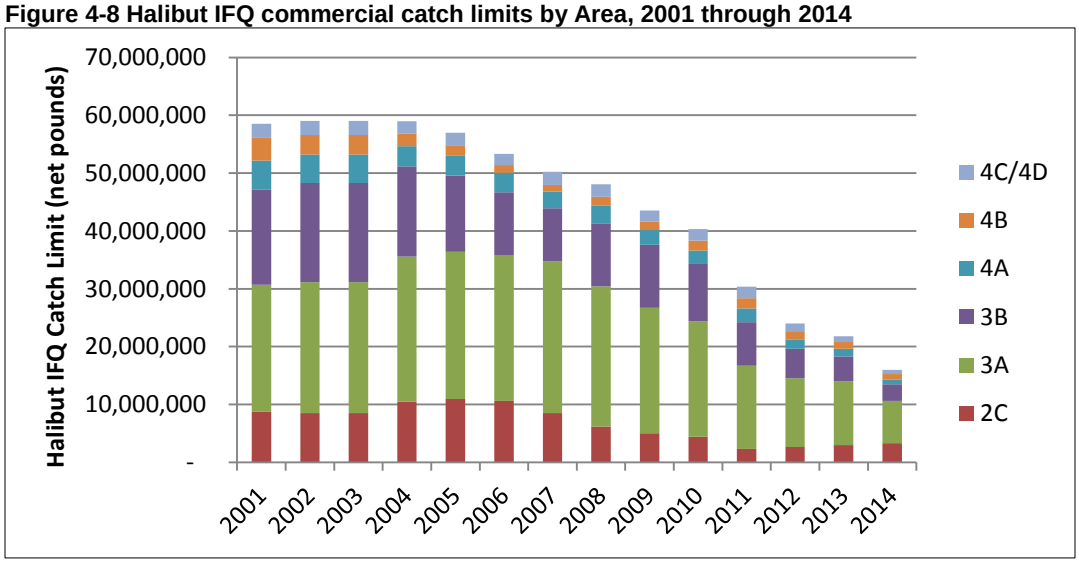
4.5.3.1 IFQ seasons and seasonal harvest

Under the authority of the Halibut Act, the IPHC establishes season dates for the commercial IFQ and CDQ halibut fisheries. Historically, the commercial halibut IFQ season runs from about March 15 to November 15. In 2015, the commercial season ended on November 7. While the season is open most of the year, the actually prosecution of the commercial fishery can be truncated due to many factors such as weather and ocean conditions, markets, processor availability, opportunity cost of other fisheries, as well as when the full amount of IFQ is caught.

4.5.3.2 Total Catch Limits

In 2014, Area 3A alone made up 47 percent of total commercial halibut IFQ harvest off Alaska, and Areas 3A, 3B, and 2C combined made up 85 percent of the total commercial halibut IFQ harvest off Alaska. As clearly illustrated in Figure 4-8, the total catch limit for halibut IFQ has declined dramatically in Alaska from 2004 to 2014. More discussion on the health of the Pacific halibut stock is discussed in the EA (Section 6.1).

Figure 4-8 Halibut IFQ commercial catch limits by Area, 2001 through 2014



Source: NOAA RAM Division, 2014 Report to Fleet, (NOAA 2015a)

4.5.3.3 QS Holdings and QS/ IFQ Ratio

Each year, the amount of QS in an area's pool as of January 31 and the catch limit allocated to the area's IFQ fishery determines the basic **QS/ IFQ ratio** that will be used in each management area for the year. Table 4-18 illustrates the QS pool, catch limit, and the ratio set for that year that allow for conversion between the two. The QS pool and QS/ IFQ ratio over time may be useful in considering different transfer restrictions in other sections of the analysis.

Table 4-18 Area 2C and 3A QS pool, QS to IFQ ratio, and annual IFQ, from 1995 through 2015

	Area 2C			Area 3A		
Year	QS Pool (units)	IFQ (net pounds)	Ratio of QS/ IFQ	QS Pool (units)	IFQ (net pounds)	Ratio of QS/ IFQ
1995	59,853,126	9,000,000	6.65	185,818,173	20,000,000	9.29
1996	59,979,977	9,000,000	6.66	186,079,384	20,000,000	9.30
1997	59,100,570	10,000,000	5.91	184,935,642	25,000,000	7.40
1998	59,551,075	10,500,000	5.67	184,924,431	26,000,000	7.11
1999	59,551,257	10,490,000	5.68	184,907,401	24,670,000	7.50
2000	59,555,379	8,400,000	7.09	184,920,851	18,310,000	10.10
2001	59,633,843	8,780,000	6.79	184,902,586	21,890,000	8.45
2002	59,633,843	8,500,000	7.02	184,873,475	22,630,000	8.17
2003	59,635,055	8,500,000	7.02	184,930,966	22,630,000	8.17
2004	59,556,591	10,500,000	5.67	184,930,966	25,060,000	7.38
2005	59,556,591	10,930,000	5.45	184,910,103	25,470,000	7.26
2006	59,552,039	10,630,000	5.60	184,911,315	25,200,000	7.34
2007	59,552,039	8,510,000	7.00	184,911,315	26,200,000	7.06
2008	59,552,039	6,210,000	9.59	184,911,315	24,220,000	7.63
2009	59,552,039	5,020,000	11.86	184,911,315	21,700,000	8.52
2010	59,552,039	4,400,000	13.53	184,911,315	19,990,000	9.25
2011	59,552,039	2,330,000	25.56	184,911,315	14,360,000	12.88
2012	59,552,039	2,624,000	22.70	184,911,315	11,918,000	15.52
2013	59,536,185	2,970,000	20.05	184,893,008	11,030,000	16.76
2014	59,536,185	3,318,720	17.94	184,893,008	7,317,730	25.27
2015	59,477,396	3,679,000	16.17	184,893,008	7,790,000	23.73

Source: NMFS Alaska Region RAM data provided by AKFIN

Table 4-19 Year-end 2014 QS and QS holders by area and QS class

Area	QS vessel class	2014 number of QS holders	2014 percent of area QS holders	2104 amount of QS (QS units)	2014 percent of area QS	Average QS holdings (QS units)
2C	Catcher/ Processor	27	2.50	1,249,141	2.10	46,264
	GT 60 ft.	66	6.10	2,655,243	4.50	40,231
	36-60 ft.	632	58.50	46,677,536	78.50	73,857
	LE 35 ft.	355	32.90	8,895,476	15.00	25,223
2C Total		**1,080**	**100.00**	**59,477,396**	**100.10**	**46,394**
3A	Catcher/ Processor	33	2.30	4,773,918	2.60	144,664
	GT 60 ft.	271	18.70	68,568,976	37.10	253,022
	36-60 ft.	775	53.30	98,876,488	53.50	127,583
	LE 35 ft.	374	25.70	12,673,626	6.90	33,887
3A Total		**1,453**	**100.00**	**184,893,008**	**100.10**	**139,789**

Source: NMFS RAM Division, QS Transfer Report, 2015
Table notes: GT=greater than, LE=less than or equal to

4.5.3.4 Harvesting Vessels and Harvest Rates

Prior to implementation of the IFQ program, "overages", or catches that exceeded the catch limits, were common (NOAA 2015a). The program did an effective job of reducing catch below the catch limits. Since program implementation Area 2C and 3A have consistently stayed within the upper 80 to 100 percent of the catch limit. Harvest rates have been particularly close to the catch limits more recent years, given the declining pounds of halibut able to be harvested. Table 4-20 demonstrates that by the end of the 2014 season, halibut permits had been used by IFQ holders to report 3,558 landings over all eight regulatory areas. Area 2C had less than half the halibut IFQ harvest that Area 3A landed; however, they had only one sixth less vessel landings. This is indicative of an overall fleet made up of smaller vessels in Area 2C compared to Area 3A. Area 2C harvested 97 percent of the available pounds and Area 3A harvested up to its limit

Table 4-20 Halibut IFQ allocation and landings for 2014

Area	Vessel Landings (count)	Area IFQ TAC (pounds)	Total Harvest (pounds)	Percent Harvested
2C	1,280	3,318,720	3,215,413	97
3A	1,475	7,317,730	7,353,833	100
3B	461	2,840,000	2,823,737	99
4A	145	850,000	827,075	97
4B	93	912,000	864,227	95
4C/4D	104	715,920	688,225	96
Total	**3,558**	**15,954,370**	**15,772,510**	**99**

Source: NOAA RAM Division, 2014 Report to Fleet, Available at:
http://alaskafisheries.noaa.gov/ram/ifq/14ifqland.pdf
Notes: Vessel landings include the number of reported landings by participating vessel by IFQ regulatory area; each landing may include harvest from multiple permit holders. At sea discards are excluded and confiscations are included in this table. Halibut weights are reported in net (headed and gutted) pounds. Due to over- or under harvest of catch limit, percentages may not total 100 percent. Permit holders may fish IFQ designated for Area 4C in either Areas 4C or 4D.

Table 4-21 provides additional information on the number of harvesting vessels and the number of unique persons with IFQ identifiers that reported landings. These persons may be QS owners, hired skippers, or persons leasing QS. This table demonstrates both consolidation among vessels as well as consolidation of QS among individuals.

Before the IFQ program began in 1995, it was not uncommon for more than one CFEC permit holder to make landings off one vessel in the halibut fishery. After the IFQ fisheries were implemented, two or more IFQ permit holders might join together to fish their IFQ off one vessel. The ratio of the number of unique persons with landings to the number of unique vessels has risen in Area 2C and 3A substantially over the 1990-1994 average, which provides some evidence that the practice of multiple persons recording landings off a single vessel has increased since inception of the program in parts of Alaska.

Table 4-21 Halibut IFQ harvest and participation for Area 2C and 3A, 1995 through 2014

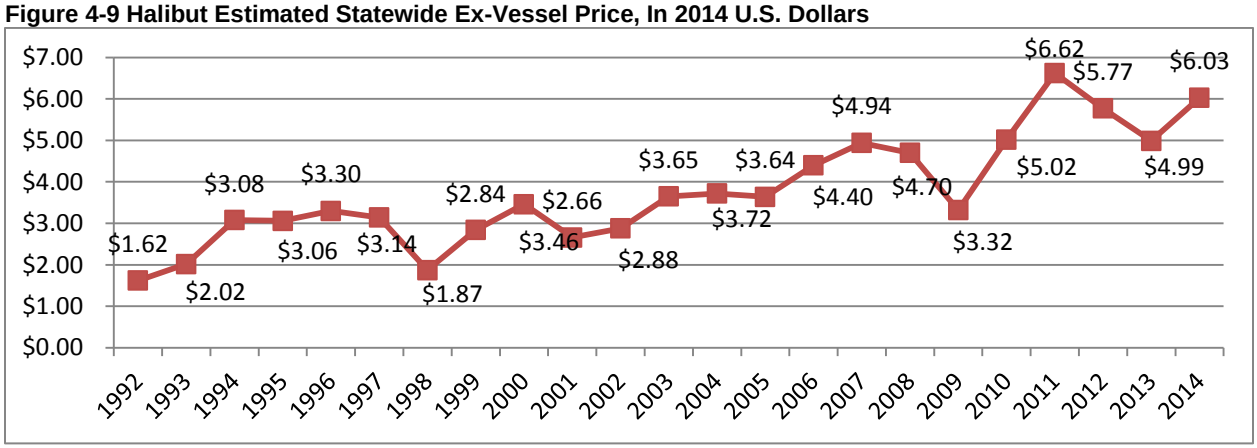
	2C					3A				
Year	Total harvest (pounds)	Persons with landings	Vessels with landings	Pounds per vessel	Person per vessel	Total harvest (pounds)	Persons with landings	Vessels with landings	Pounds per vessel	Person per vessel
1995	7,787,475	1,319	1,105	7,047	1.19	17,978,081	1,537	1,145	15,701	1.34
1996	8,533,743	1,321	1,024	8,334	1.29	19,365,600	1,553	1,101	17,589	1.41
1997	9,637,918	1,275	989	9,745	1.29	24,276,533	1,501	1,072	22,646	1.4
1998	9,528,878	1,116	826	11,536	1.35	24,519,052	1,314	891	27,519	1.47
1999	9,896,079	1,107	826	11,981	1.34	24,310,879	1,309	890	27,316	1.47
2000	8,191,769	1,142	864	9,481	1.32	18,066,096	1,400	992	18,212	1.41
2001	8,170,172	1,076	790	10,342	1.36	21,071,467	1,358	958	21,995	1.42
2002	8,432,413	1,114	784	10,756	1.42	22,560,168	1,383	904	24,956	1.53
2003	8,242,583	1,110	789	10,447	1.41	22,281,887	1,362	867	25,700	1.57
2004	10,088,931	1,101	749	13,470	1.47	24,601,516	1,332	870	28,278	1.53
2005	10,459,446	1,064	745	14,040	1.43	25,053,063	1,326	838	29,896	1.58
2006	10,339,799	1,069	749	13,805	1.43	24,953,482	1,325	818	30,505	1.62
2007	8,304,159	1,051	731	11,360	1.44	25,957,340	1,311	805	32,245	1.63
2008	6,106,851	987	695	8,787	1.42	24,020,377	1,293	783	30,677	1.65
2009	4,832,092	931	646	7,480	1.44	21,354,893	1,254	752	28,397	1.67
2010	4,350,002	937	659	6,601	1.42	20,092,309	1,234	723	27,790	1.71
2011	2,292,926	901	629	3,645	1.43	14,268,030	1,209	742	19,229	1.63
2012	2,527,243	879	609	4,150	1.44	11,688,285	1,175	710	16,462	1.65
2013	2,861,611	873	598	4,785	1.46	10,824,476	1,093	680	15,918	1.61
2014	3,215,399	849	582	5,525	1.46	7,353,550	1,075	647	11,366	1.66

Source: NMFS RAM Division, QS Transfer Report, 2015

4.5.3.5 Ex-vessel Value

The term "ex-vessel" refers to activities that occur when a commercial fishing vessel lands or offloads a catch. For example, the price received by a captain (at the point of landing) for the unprocessed catch is an *ex-vessel* price. Figure 4-9 demonstrates the trend in statewide ex-vessel halibut prices, which mirrors the recent trends in Area 2C and Area 3A halibut ex-vessel price. While general on the rise, there was a decline in 2008 and again in 2011, which lasted two years for both Area 2C and Area 3A. In 2014, ex-vessel price reached $6.07/ pound in Area 2C and $6.26/ pound in Area 3A (NOAA 2015a).

Figure 4-9 Halibut Estimated Statewide Ex-Vessel Price, In 2014 U.S. Dollars



Source: CFEC and AKFIN
Table notes: Estimated prices reflect weighted average ex-vessel prices reported for all fixed gear. Estimates reflect deliveries by catcher vessels to shore side processors. Estimates are for commercial catches only.

4.5.3.6 QS Transfer Rates

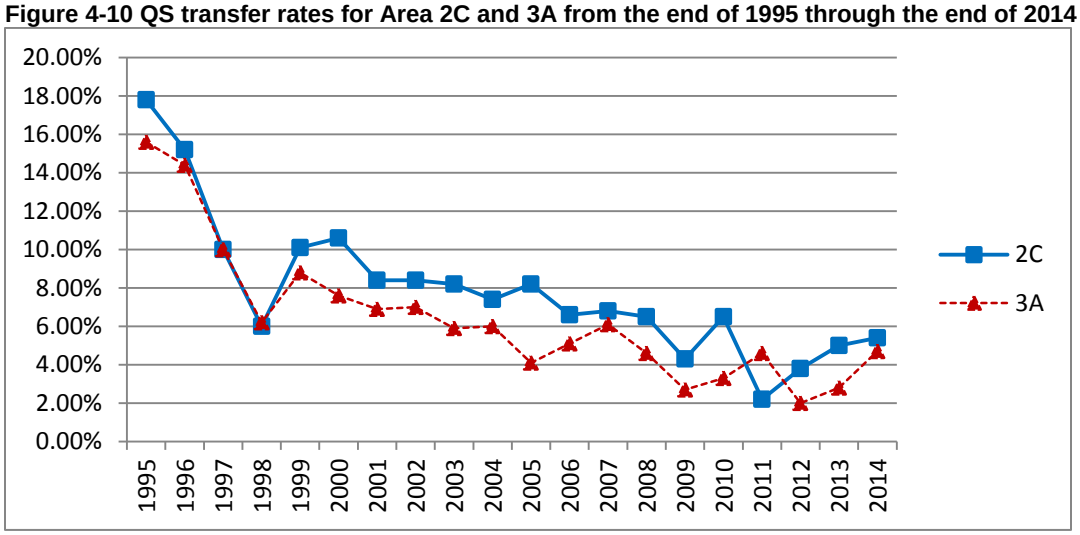
As demonstrated in Table 4-22 and illustrated more clearly in Figure 4-10, there has been a stark decreasing trend in transfers for both areas between 2000 and 2012, with a slight increase for both areas since 2011 (2C) and 2012 (3A).

Table 4-22 Halibut QS transfer rates by year for Area 2C and 3A

Year	2C			3A		
	Year-end total QS (QS units)	Year-end total QS Transferred (QS units)	QS Transfer Rate %	Year-end total QS (QS units)	Year-end total QS Transferred (QS units)	QS Transfer Rate %
1995	58,965,237	10,488,537	17.80%	182,683,910	28,557,489	15.60%
1996	59,025,567	8,970,321	15.20%	184,311,045	26,626,791	14.40%
1997	59,549,860	5,952,264	10.00%	184,740,655	18,560,798	10.00%
1998	59,551,257	3,602,291	6.00%	184,723,476	11,374,984	6.20%
1999	59,555,379	5,990,804	10.10%	184,806,828	16,247,898	8.80%
2000	59,633,843	6,293,229	10.60%	184,902,586	14,104,337	7.60%
2001	59,633,843	5,011,728	8.40%	184,873,475	12,824,496	6.90%
2002	59,635,055	4,983,251	8.40%	184,930,966	13,014,661	7.00%
2003	59,556,591	4,858,727	8.20%	184,930,966	10,957,094	5.90%
2004	59,556,591	4,419,506	7.40%	184,910,103	11,069,057	6.00%
2005	59,552,039	4,910,190	8.20%	184,911,315	7,631,332	4.10%
2006	59,552,039	3,939,219	6.60%	184,911,315	9,386,115	5.10%
2007	59,552,039	4,074,531	6.80%	184,911,315	11,330,694	6.10%
2008	59,552,039	3,889,590	6.50%	184,911,315	8,583,586	4.60%
2009	59,552,039	2,534,310	4.30%	184,911,315	5,081,707	2.70%
2010	59,552,039	3,882,076	6.50%	184,911,315	6,181,814	3.30%
2011	59,552,039	1,302,243	2.20%	184,911,315	8,430,949	4.60%
2012	59,536,185	2,238,095	3.80%	184,894,204	3,786,802	2.00%
2013	59,536,185	2,980,296	5.00%	184,893,008	5,202,286	2.80%
2014	59,477,396	3,198,620	5.40%	184,893,008	8,753,810	4.70%

Source: NMFS RAM Division, QS Transfer Report, 2015 (NOAA 2015a)

Figure 4-10 QS transfer rates for Area 2C and 3A from the end of 1995 through the end of 2014



Source: NMFS RAM Division, QS Transfer Report, 2015 (NOAA 2015a)

NMFS Transfer Reports document price of QS provided voluntarily to NMFS (NOAA 2015a). In both regulatory areas, reported QS price has held a fairly steady increase over the past decade, despite the fact that less IFQ pounds are associated with each QS unit. Typically, Area 2C and 3A has the most expensive QS. The average QS price for all areas was $26.34/ pound of IFQ in 2014.

Table 4-23 Annual prices for halibut QS and IFQ transfers in Area 2C, 2005 through 2014

Year	Mean Price $/IFQ	Standard Dev Price $/IFQ	Total IFQ transferred used for pricing	Mean Price $/QS	Standard Dev Price $/QS	Total QS transferred used for pricing	Number of transactions used for pricing
2005	18.06	5.01	311,907	3.31	0.92	1,699,765	72
2006	18.43	3.57	246,540	3.29	0.64	1,380,274	77
2007	19.62	4.95	183,297	2.8	0.71	1,282,693	76
2008	25.9	10.47	206,440	2.7	1.09	1,979,395	96
2009	20.14	4.94	75,636	1.7	0.42	897,261	30
2010	22.71	5.13	108,127	1.68	0.38	1,463,469	59
2011	32.42	13.42	11,562	1.27	0.53	295,435	27
2012	36.22	5.66	42,314	1.6	0.25	960,255	43
2013	41.46	4.47	64,525	2.07	0.22	1,293,594	43
2014	44.29	4.56	66,288	2.47	0.26	1,189,215	45

Source: NMFS RAM Division, QS Transfer Report, 2015 (NOAA 2015a)

Table 4-24 Annual prices for halibut QS and IFQ transfers in Area 3A, 2005 through 2014

Year	Mean Price $/IFQ	Standard Dev Price $/IFQ	Total IFQ transferred used for pricing	Mean Price $/QS	Standard Dev Price $/QS	Total QS transferred used for pricing	Number of transactions used for pricing
2005	18.07	4.83	385,893	2.49	0.66	2,803,054	96
2006	18.09	3.14	586,035	2.46	0.43	4,301,567	116
2007	20.53	6.72	814,949	2.91	0.95	5,750,520	169
2008	26.83	8.06	498,864	3.51	1.06	3,808,709	126
2009	24.47	8.34	244,224	2.87	0.97	2,081,104	71
2010	21.06	4.6	218,565	2.28	0.5	2,022,792	61
2011	32.46	6.73	250,484	2.52	0.52	3,225,433	72
2012	34.41	10.37	117,877	2.22	0.67	1,828,933	56
2013	30.99	4.65	79,112	1.85	0.28	1,326,640	30
2014	37.58	4.4	123,156	1.49	0.18	3,111,301	55

Source: NMFS RAM Division, QS Transfer Report, 2015 (NOAA 2015a)

The NMFS Transfer Reports also presents information of QS price by QS vessel class, however much of these data are confidential due to the limited number of transfers, particularly in recent years. Using 2011 information for Area 2C, the last year that did not include confidential data demonstrates that B shares are worth significantly more than other catcher vessel QS (an average of $42.94/ IFQ pound). Category C and D QS held about the same average price ($29.47/IFQ pound in C class, and $29.17/IFQ pound in D class QS). Using 2014 information for 3A, there is less variability in the price per IFQ pound. The average price per IFQ pound for class B QS was $38.15, for class C QS was $37.91, and for class D QS it was $34.59 (NOAA 2015a).

4.6 Background on Communities Involved in Charter and Commercial Fishing for Halibut

Many of the communities in Area 2C and 3A that are heavily involved in charter halibut fishing are also the communities heavily involved in commercial halibut fishing. Therefore this section is dedicated to describing the relationship of both sectors to the communities they are located in. There are a substantial amount of additional resources that provide information on community-level commercial halibut sector activities, as well as halibut charter sector activities.[24] The limited scope of background presented here is meant to frame available information that provides direct relevance to the proposed actions. Further analysis may expand this section if additional information is required for the Council to make decisions on the alternatives.

The impact of commercial and charter fishing activities on communities can be understood in many different ways. Typically impacts might be thought of in terms of where the harvesting or processing activities occur. However, the scope of communities under consideration expands extensively when also including the communities that QS or CHP holders live, the headquarters of a commercial or charter

[24] Examples include Appendix A to the EA/RIR/IRFA to the Catch Sharing Plan analysis (NPFMC 2013). This document includes as some basic statistical information on QS and CHP holdings by state and community as well as community profiles on Anchorage, Homer, Ketchikan, Kodiak, Petersburg, and Sitka.
Additionally AFSC has produced an interactive map for recreational and commercial fishing, as well as subsistence fishing activities in the state of Alaska (http://www.afsc.noaa.gov/REFM/Socioeconomics/Projects/CPU.php). The map displays statistics for on sportfishing licenses sold, sportfishing licenses held, charter guide licenses held, and active fishing business through 2011 (effort is current underway for an update of this information). This map links to individual community profiles produced by the science center. Detailed updated information on IFQ impacts on communities is planned for the IFQ Program review scheduled for either 2016 or 2017.

business, or even the communities that charter anglers are from. Community-level impacts of halibut industries may manifest in more than just coastal communities, where fisheries involvement is generally more visible. As will be later described in relation to the proposed action, (see Section 4.8.2 and Section 4.10), impacts can extend throughout the supply chain, reaching as far as the consuming public. For example, in the commercial sector QS holders, vessel owners, captains, crew, processing and support sectors are not always located in the community nearest harvesting activity or even port of landing. Similarly in the charter sector, the scope of community impacts related to fishing activity of this industry could reach captains, crew, all those involved in the business associated with charter operations, sport fishing processors and other support sectors, as well as other sectors in the community that rely on local tourism.

While the techniques to describe and quantify the many relationships a fishing sector can have with a community can be very sophisticated, a simple place to begin in understanding community involvement is by examining the registered address of halibut QS holders (Table 4-25 and Table 4-26). These data are often used as a proxy to indicate state and community "residency", although it should be noted that this is sometimes not the case. Registered address could represent a business address or a seasonal location. There is no residency requirement associated with receiving IFQ and therefore these data are not necessarily intended to represent permeant home address. The region, or community where the QS is registered, however, does provide a general indicator of the nature of ownership ties in the commercial halibut fishery and serves as a proxy for some associated economic activity in the absence of true QS holder residency.

Table 4-25 demonstrates that for both Area 2C and Area 3A the majority (84% and 60%, respectively) of the QS pool is associated with registered addresses in Alaska. For Area 2C there is also notable representation from Washington, and Oregon. In Area 3A there is wider state representation, including Washington, Oregon, California, and also 15 QS holders with addresses in Arizona.

Table 4-25 Area 2C and Area 3A QS holdings by registered state for 2016

Area 2C		Area 3A	
State	**Percent of QS pool**	**State**	**Percent of QS pool**
AK	83.8%	AB	0.1%
AR	0.3%	AK	60.0%
AZ	0.5%	AZ	0.5%
CA	0.4%	BC	0.0%
CO	0.0%	CA	1.9%
FL	0.2%	CO	0.6%
ID	0.5%	FL	0.0%
MA	0.0%	HI	0.6%
MI	0.3%	IA	0.1%
MO	0.1%	ID	0.0%
MS	0.2%	MA	0.0%
MT	0.2%	ME	0.0%
NV	0.3%	MI	0.0%
OR	1.7%	MN	0.3%
SD	0.1%	MS	0.0%
TX	0.1%	MT	0.6%
UT	0.2%	ND	0.0%
WA	11.1%	NH	0.0%
WI	0.0%	NM	0.2%
Total	100.0%	NV	0.1%
		OK	0.3%
		OR	8.4%
		PA	0.0%
		SD	0.1%
		TX	0.1%
		UT	0.2%
		VA	0.0%
		VI	0.0%
		VT	0.0%
		WA	25.7%
		WY	0.0%
		Total	100.0%

Source: NOAA, RAM Division QS holdings database

Alaskan communities with the most Area 2C QS representation includes: Petersburg, Sitka, Juneau, Wrangell, Ketchikan, Haines, and Craig (Table 4-26). Again, Area 3A has more widely dispersed representation of QS holders including notably high: Kodiak, Homer, Petersburg, Anchorage, Cordova, and Sitka.

Table 4-26 Area 2C and Area 3A QS holdings by registered Alaskan community or region (2016)

Area 2C	
AK Community	**Percent of QS pool**
ANCHOR POINT	0.2%
ANCHORAGE	0.1%
ANGOON	0.4%
AUKE BAY	1.0%
CHUGIAK	0.2%
COFFMAN COVE	0.2%
CORDOVA	0.0%
CRAIG	3.3%
DILLINGHAM	0.0%
DOUGLAS	1.6%
EDNA BAY	0.3%
ELFIN COVE	1.7%
FAIRBANKS	0.2%
GUSTAVUS	0.6%
HAINES	3.7%
HOMER	0.1%
HOONAH	1.4%
HYDABURG	0.1%
HYDER	0.1%
JUNEAU	11.2%
KAKE	1.1%
KASILOF	0.0%
KETCHIKAN	5.7%
KLAWOCK	0.0%
KODIAK	0.0%
KOTZEBUE	0.1%
METLAKATLA	0.5%
MEYERS CHUCK	0.0%
NAKNEK	0.0%
PELICAN	1.4%
PETERSBURG	34.0%
PILOT POINT	0.0%
POINT BAKER	0.3%
PORT ALEXANDER	0.2%
ST GEORGE ISLAND	0.0%
ST PAUL ISLAND	0.0%
SEWARD	0.0%
SITKA	19.5%
SKAGWAY	0.1%
SOLDOTNA	0.0%
TENAKEE SPRINGS	0.0%
THORNE BAY	0.3%
TOGIAK	0.0%
TWIN HILLS	0.0%
WARD COVE	0.6%
WASILLA	0.1%
WRANGELL	9.5%
YAKUTAT	0.0%
Total	100.0%

Area 3A	
AK Community	**Percent of QS pool**
ANCHOR POINT	0.8%
ANCHORAGE	6.6%
ANDERSON	0.0%
AUKE BAY	0.1%
CENTRAL	0.0%
CHIGNIK LAGOON	0.0%
CHINIAK	0.2%
CHUGIAK	0.1%
CLAM GULCH	0.5%
CORDOVA	6.5%
DELTA JUNCTION	1.0%
DILLINGHAM	0.6%
DOUGLAS	1.0%
DUTCH HARBOR	0.0%
EAGLE RIVER	0.8%
ELFIN COVE	0.2%
FAIRBANKS	0.2%
FRITZ CREEK	0.4%
GIRDWOOD	0.1%
GUSTAVUS	0.1%
HAINES	0.4%
HALIBUT COVE	0.3%
HOMER	12.1%
HOONAH	0.2%
INDIAN	0.0%
JUNEAU	3.4%
KASILOF	0.5%
KENAI	2.4%
KETCHIKAN	0.7%
KLAWOCK	0.1%
KODIAK	26.1%
KOTZEBUE	0.3%
LARSEN BAY	0.1%
MEKORYUK	0.3%
METLAKATLA	0.1%
MOOSE PASS	0.0%
NAKNEK	0.0%
NIKISKI	0.2%
NIKOLAEVSK	0.7%
NINILCHIK	0.5%
NOME	0.2%
NORTH POLE	0.2%
OLD HARBOR	0.2%
OUZINKIE	0.2%
PALMER	0.5%
PELICAN	0.7%
PETERSBURG	11.3%
PORT ALEXANDER	0.0%
PORT GRAHAM	0.1%
PORT LIONS	0.1%
ST GEORGE ISLAND	0.0%
ST PAUL ISLAND	0.0%
SELDOVIA	1.9%
SEWARD	3.4%
SITKA	5.7%
SOLDOTNA	2.0%
STERLING	0.4%
TENAKEE SPRINGS	0.2%
TWIN HILLS	0.0%
VALDEZ	0.4%
WASILLA	1.8%
WILLOW	0.1%
WRANGELL	0.4%
YAKUTAT	2.7%
Total	100%

Source: NOAA, RAM Division

As previously mentioned, QS holders registered address, does not necessary represent a community near where harvesting activity happens or processing occurs. There are however, substantial limitations on data that describe the local volume of halibut landings and shore-based processing activity, based on confidentiality restrictions. Confidentiality becomes an issue when a community is the site of a single processor, or even two processors. A prime example of this is Sitka, which has more than enough vessels making halibut IFQ landings to display volume of landings, but this information becomes confidential given Sitka was only home to two entities processing halibut in 2014. Table 4-27 is useful in illustrating the location of halibut IFQ deliveries to all communities, and landings data provided the location has more than two facilities accepting deliveries.

Table 4-27 Total IFQ landings by port for 2014

Port of landing	Vessel Landings	Pounds Landed
WASHINGTON		
BELLINGHAM	25	490,014
SEATTLE	***	***
ALASKA		
ADAK	***	***
AKUTAN	***	***
ATKA	***	***
COFFMAN COVE	***	***
CORDOVA	83	423,165
CRAIG	60	55,024
DUTCH HBR/UNALASKA	107	934,505
FALSE PASS	***	***
HAINES	3	4,670
HOMER	386	2,762,345
HOONAH	***	***
HYDER	***	***
JUNEAU	***	***
KAKE	***	***
KENAI	10	25,777
KETCHIKAN	65	128,604
KING COVE	***	***
KODIAK	505	2,614,268
PETERSBURG	321	1,166,005
PORT ALEXANDER	***	***
PORT PROTECTION	***	***
SAND POINT	***	***
SEWARD	277	1,753,893
SITKA	***	***
ST GEORGE	***	***
ST PAUL	***	***
VALDEZ	***	***
WHITTIER	22	55,451
WRANGELL	***	***
YAKUTAT	216	510,497
Total for 2014	3,442	15,772,510

Source: NOAA, RAM Division
Table notes: Halibut weights are reported in headed and gutted pounds. Asterisks denote confidential data based on vessel landings and processing

Charter operations interact with the communities they take place in in different ways depending on the type of operation. Some operations begin in one location, and transport the angler to the location of launch. Lodges are often, but not always located outside of a community and can provide for multi-day recreational fishing opportunities. These types of business may still rely on the goods and services of

nearby communities. In some communities with a large concentration of charter operations, prospective anglers can walk the docks to book a last minute charter trip. Charter events can also draw anglers into communities, for example the Homer halibut derby.

To complement tables of registered address of QS holders, Table 4-28 and Table 4-29 display registered address of CHP holders. Again, CHP registered address was not intended by NMFS to represent residency necessarily; this address could also be the location of a charter business, or a seasonally used address.[25] In addition, CHP are not reissued annually. Therefore the CHP holder's registered address is not updated unless there is a transfer or someone voluntarily informs RAM of this change. However, as stated previously these addresses represent a general proxy for some associated economic activity in the absence of true CHP holder residency.

Table 4-28 illustrates that the majority of CHP are registered to an Alaska address for both Area 2C and Area 3A (84% and 91%, respectively). Area 2C also has notable representation from Washington and Utah. Area 3A has notable representation from Washington as well. Sitka, Ketchikan, and Craig are the most cited registered Alaska communities among 2C CHP holders (Table 4-29). Area 3A has more widespread representation, with most CHP listed for Homer, Kodiak, Seward, Anchorage, Soldotna, and Ninilchik.

Table 4-28 Area 2C and Area 3A CHP holdings by registered state in 2016

Area 2C	
State	**Count of CHPs**
AK	448
AL	1
AR	2
AZ	2
CA	5
CO	1
FL	2
GA	2
ID	3
KY	1
ME	1
NV	1
OH	1
OR	5
PA	1
SD	2
UT	21
VA	1
WA	34
Total	534

Area 3A	
State	**Count of CHPs**
AK	400
CA	5
CO	3
ID	3
IN	1
KY	1
MI	2
MN	1
MO	1
NE	1
NV	1
NY	1
OR	4
TX	1
UT	1
WA	11
WY	2
Total	439

Source: NOAA, RAM Division

[25] ADF&G has specific thresholds they consider for defining an "Alaska resident" for certain permits. In future drafts, analysis may be able to consider residency by investigating state charter permits and business licenses.

Table 4-29 Area 2C and Area 3A CHP holdings by registered Alaska community or region in 2016

Area 2C		Area 3A	
AK Community	**Count of CHPs**	**AK Community**	**Count of CHPs**
ANCHORAGE	1	ANCHOR POINT	16
ANGOON	10	ANCHORAGE	43
AUKE BAY	16	ANDERSON	1
COFFMAN COVE	3	ANIAK	1
CRAIG	46	BIG LAKE	1
ELFIN COVE	15	CHUGIAK	4
FRITZ CREEK	1	CLAM GULCH	1
GUSTAVUS	3	CORDOVA	4
HAINES	2	EAGLE RIVER	6
HOONAH	4	ELFIN COVE	8
JUNEAU	22	FAIRBANKS	1
KETCHIKAN	129	FRITZ CREEK	1
KLAWOCK	14	GIRDWOOD	1
NAUKATI BAY	1	HOMER	61
PALMER	1	KASILOF	5
PELICAN	6	KENAI	7
PETERSBURG	16	KODIAK	57
PORT ALEXANDER	4	LARSEN BAY	1
SITKA	132	MOOSE PASS	1
SOLDOTNA	3	NINILCHIK	26
TENAKEE SPRINGS	2	NORTH POLE	4
THORNE BAY	4	OLD HARBOR	3
WARD COVE	9	OUZINKIE	1
WRANGELL	4	PALMER	3
Total	448	PEDRO BAY	1
		PELICAN	3
		PORT LIONS	5
		SALCHA	1
		SELDOVIA	1
		SEWARD	49
		SOLDOTNA	42
		STERLING	2
		VALDEZ	12
		WASILLA	8
		WHITTIER	6
		YAKUTAT	13
		Total	400

Source: NOAA, RAM Division

As discussed in Section 4.4.1.1 CQE's in Area 2C are able to receive up to four community CHPs to be used by their residents. Area 3A CQE's can hold up to seven community CHPs. Based on Table 4-5, 12 CQE's have acquired 48 community CHPs in Area 2C and nine CQEs in Area 3A have acquired 63 community CHPs.

Investigating the port site listed on charter logbooks presents a different perspective on where charter operations are occurring. Table 4-30 is meant to illustrate the diversity in ending port locations. Some of the port sites listed would not be considered communities, but represent a landmark harbor, bay, or island that a charter operation relies on. This diversity also helps illustrate the point that charter operations interact differently with communities. If a launch location is community with retail, food, accommodation, and other support industries, the charter operation is more likely to have a direct effect on the community. If the charter operation is a lodge located on remote island, charter anglers may still impact Alaskan communities while traveling to and from the lodge. However while they are residing at the lodge, they may have less direct impact on the economy of neighboring communities.

Table 4-30 Charter trips by landing port from 2011 through 2014

Port Site	Total Trips	Port Site	Total Trips	Port Site	Total Trips	Port Site	Total Trips
Southeast		Southeast Continued		Southeast Continued		Southcentral Continued	
Sitka	24,946	Tenakee	213	Hidden Inlet Lodge	5	Lowell Point	331
Ketchikan	8,335	Orr Island	189	Limestone Bay	5	Seldovia	268
Waterfall	6,826	False Island	180	Douglas	3	Raspberry Island	228
Craig	5,442	Shelter Island	177	Outer Point	3	Port Ashton	167
Gustavus	4,032	Cannery Cove	168	Rocky Point	3	Iliamna Bay	77
Elfin Cove	3,459	Gull Cove	163	Baranof	2	Ellamar	74
Auke Bay	3,307	Dove Island Lodge	127	Farragut Bay	2	Spruce Island	71
Yakutat	2,843	Sea Otter Sound	121	Hawk Inlet	2	Silver Salmon	62
Yes Bay	2,599	Sunnyside	109	Hood Bay	2	Williamsport	52
Petersburg	2,270	Sealing Cove	91	Snug Harbor	2	Chenega Bay	52
Angoon	1,803	Whalers Cove	85	Kodiak		Port Fidalgo	50
Klawock	1,603	Loring	73	Kodiak	3,276	Whiskey Gulch	42
Sportsman Cove	1,287	Keku Strait	68	Larsen Bay	1,387	Amalik Bay	39
Juneau	1,213	Shelter Cove Lodge	60	Port Lions	832	Icy Bay Lodge	23
El Capitan Lodge	1,174	Gut Bay	59	Old Harbor	822	Iliamna	20
Warm Springs Bay	1,101	Killisnoo	56	Seal Bay (Sc)	372	Anton Larsen Bay	17
Thorne Bay	1,058	Pybus Bay	50	Kiliuda Bay	281	Kukak Bay	14
Pybus Point	1,035	Kuiu Island	40	Uganik Bay	242	Eshamy Bay	8
Pelican	983	Gambier Bay	39	Zachar Bay	193	Kasitsna Bay	5
Hoonah	797	Funter Bay	34	Ugak Bay	188	Sheep Bay	3
Salmon Falls	772	Salmon Landing	30	Saltery Cove	166	Anchor River	3
Knudson Cove	707	Deep Cove	28	Port Wakefield	163	Tutka Bay	2
Apple Island	670	Holkham Bay	23	Parks Cannery	154	Sitkoh Bay	2
Wrangell	482	Boardwalk	18	Port Vita	132		
Point Baker	405	Saginaw Bay	17	Amook Pass	122		
Port St Nicholas	397	Kake	16	Uyak Bay	29		
Clover Pass	394	Crescent Harbor	15	Kaflia Bay	28		
Coffman Cove	389	Freshwater Bay	15	Amook Island	7		
S Kaigani Bay	388	Cosmos Cove	14	Southcentral			
Steamboat Bay	370	Portage Bay	14	Homer	19,626		
Port Alexander	312	Naukati	10	Seward	15,655		
Pybus Point Lodge	293	Phonograph Cove	10	Deep Creek	11,633		
Bay Of Pillars	282	Security Bay	10	Anchor Point	4,943		
Sarkar Cove	262	Excursion Inlet	9	Whittier	2,344		
Whale Pass	256	Morne Island	9	Valdez	2,179		
Clover Bay	241	Cedars Lodge	8	Ninilchik	1,289		
Kelp Bay	236	Hobart Bay	7	Happy Valley	1,045		
Haines	228	Port Walter	7	Iron Creek	415		
Bartlett Cove	213	Hobbit Hole	6	Cordova	339		

Source: ADF&G Saltwater Charter Logbooks, sourced through AKFIN

Table notes: Only ports where at least two landings were made are included.

4.7 Analysis of Alternatives: Alternative 1, No Action

In this analysis the no action alternative is the same as the status quo. That is, the CHLAP and the CSP would still be in place and apply the same rules and regulations (Section 4.4.1 and 4.4.1.2 describe the elements of these management programs in more detail) and CHP could continue to be held without requirements on activity.

Under current regulations (50 CFR 679.41) a person who is a U.S. citizen or U.S. corporation, partnership, association, or other entity is allowed to receive halibut QS/IFQ by transfer. No additional qualifications must be met for a person or entity to hold halibut QS assigned to Category A vessels, which represents 2.1 percent of the total halibut QS in Area 2C, and 2.6 percent of the total halibut QS in Area 3A (Table 4-19). Moreover, holders of Category A QS seldom sell their shares, preferring instead to lease them.

However, in order to hold other vessel categories of halibut QS, i.e., halibut QS assigned to vessel Categories B, C, or D, current restrictions require a person or entity to be (§679.41(c), (d), and (g)):

- An initial issuee of halibut and sablefish fixed gear fishery QS;
- A solely-owned corporation formed by an individual initial issuee for liability purposes;
- An individual eligible to receive an IFQ Crewmember Transfer Eligibility Certificate. An individual can receive a Certificate if (s)he demonstrates in an application to NMFS' satisfaction that (s)he has served at least 150 days as a member of a harvesting crew in any U.S. commercial fishery;
- The individual person who is the heir of a deceased individual QS holder;
- A Community Quota Entity; or
- Any other person, if QS is transferred as a result of a court order, operation of law, or as part of a security agreement. However, if NMFS approves the QS transfer "with restrictions," the agency will not assign IFQ resulting from the restricted QS to any person.

Therefore, current regulations do not allow for an RQE to form as an eligible entity to acquire, hold, or use commercial halibut QS in the recreational sector. There would be no way for the charter sector as a whole to bolster its allocation as suggested in the purpose and need statement of this analysis.

As demonstrated in Table 4-10 and Table 4-11, with the exception in 2011 in Area 2C, management measures have only become stricter during throughout the course of the GHL and CSP programs. The charter catch limit has dropped 0.581 Mlb (41 percent) in Area 2C from 2007 to 2015 and 1.76 Mlb (48 percent) in Area 3A between 2010 and 2015. Under status quo regulations, the charter sector is subject to these annual management measures, the only flexibly is the individual flexibility built into the GAF program.

Under the no action alternative charter operators that wish to provide more opportunity to their guided anglers than the established management measures allow for in their area, would be reliant on the current form of compensated transfer of IFQ: the GAF program. This program has received participation in the first years of implementation as can be seen in Table 4-12 and Table 4-13. Self-transfers accounted for 7 percent of GAF transfers in Area 2C and 40 percent of transfers in Area 3A in 2015. However, this program is new. If the Council takes no action, there may be increasing trends of CHPs seeking to purchase halibut QS as an individual (presuming they meet the eligibility requirements) in order to more easily facilitate GAF transfers.

According to Yamada and Flumerfelt (2014) some of the primary objections charter stakeholders have had towards the program thus far is their impression that it disenfranchises the smaller charter operators that do not also hold halibut QS and cannot afford to invest annually to lease IFQ. They have also stated that since charter trips are often booked in advance and IFQ availability is not known until sometimes later in the season, the GAF program does not provide intended stability at times of low-abundance. Additionally, despite the limitations on transfer, the ability to lease IFQ as GAF contributes to the concern some stakeholders have over active participation in the commercial IFQ fishery. Additionally, NMFS has worked with charter stakeholders that have expressed frustration with the numerous deadlines involved in the leasing program.

If the concerns with the GAF provision are primarily fundamental in nature and associated with a philosophical objection to the transfer of IFQ to an individual operator, these concerns might only be alleviated through Alternative 2, the development of some kind of entity that can legally hold harvesting privileges for the sector as a whole. However, if it turns out that many of the concerns about the GAF program are more logistical in nature, they could be address through specific regulatory amendments outside of any of the action alternatives proposed in the present analysis.

With regards to Alternative 3, no action would mean that trends in latent capacity would be excepted to remain the same; however there would be nothing to prevent a sudden change in activity should external forces prompt such a change. Stakeholders particularly concerned about the potential capacity of latent CHP becoming active could attempt to acquire these permits through compensation without any regulatory action.

4.8 Alternative 2, Establish a Recreational Quota Entity Program

4.8.1 The Proposed Program

Alternative 2 would allow a non-profit holding entity, a Recreational Quota Entity (RQE), to be established and be eligible to purchase and hold commercial QS. (The number of entities and its jurisdiction is addressed under **Element 1**.) This entity would be responsible for 1) maintaining the funding efforts in order to acquire halibut QS for the common angler pool, 2) identifying opportunities to acquire halibut QS from willing commercial halibut QS sellers, 3) negotiating the acquisition of halibut QS, and 4) completing necessary reporting requirements.

This analysis only investigates the possibility of a using a non-profit non-governmental entity to hold QS on behalf of guided recreational anglers. Other types of entity structures have been considered in the past. Several types of common-pool entities were evaluated in 2007, including 1) **a federally-held common pool of QS**, 2) **a state-held common pool of QS**, or 3) **a regional non-profit associate common pool.** In additional, the charter CATCH proposal describes variations on the QS holding entity, suggesting privileges could be held by either the charter operators/ CHP holders or the anglers themselves, and at either the individual or **aggregate level** (Yamada & Flumerflet 2014). A type of program in which a non-profit entity would hold QS on behalf of guided recreational anglers in common was recommended for consideration by the CATCH proposal and adopted by the Council as the entity structure for consideration.

This program structure, similar to a CQE, is considered for the charter sector for several reasons. It was noted that a non-profit, an entity independent of the Federal or state government, could be more flexible and might be able more quickly to take advantage of favorable market conditions for QS then a Federal or state administered program

In addition, there appears to be significant interest from charter stakeholders to consider a program that could benefit the group as a whole, rather than individual with the capital to acquire private benefits. This latter scenario represents the structure of the GAF program currently. Some charter stakeholders have testified to the philosophical desire for their sector to interact with the resource as a common pool (albeit with limited entry due to the CHP), rather than with private harvesting privileges. The benefit of acting as a single non-profit entity is that this entity could pool it resource (funds, intellectual capital, networks, etc) and potentially create more leverage than any individual on his or her own. A potential added benefit to association members is that the association could be used for purposes other than purchasing and holding QS; for example, it could engage in activities that promote the charter fishing industry such as preparing market research and developing advertising or sales promotion programs.

The downside to this approach is that in a private market, when an individual invests in something like QS, they generally directly see the returns. It is possible that CHP holders or anglers that invest in an RQE may never reap the benefits directly from their contribution. Or it could be that there is a lag time in which benefits may be realized.

Using a structure similar to a CQE, the RQE would be an eligible participant to purchase QS in the Alaska Halibut and Sablefish IFQ Program on behalf of all guided recreational anglers. Any commercial halibut QS purchased by the RQE would be held by this entity for the common pool of guided recreational anglers. Options are included in this analysis for restrictions on the amount of QS that could be transferred from the commercial sector in a given year, and overall (**Element 2, Options 1 through 3**). Options are also included to determine whether D class QS and/or small blocks of QS would be unavailable to the RQE (**Element 2, Option 4**). Two-way transfers would be allowed; the RQE would be responsible for managing any acquired halibut QS and facilitating transactions. This would include transactions of QS transferred back to the commercial halibut sector. Quota class and block designation would be retained if the QS would be transferred back to the commercial sector (Under proposed **Element 2**).

Under this alternative, the pounds of halibut IFQ assigned annually to QS holders would not be used directly for halibut harvest by the RQE or the anglers represented, as it is for the commercial sector. Instead, the pounds of IFQ that are derived from the QS held by the RQE would supplement the annual charter allocations and potentially result in less restrictive annual management measures. This alternative would not change the underlying allocations to the sectors or the total QS pool, and therefore the QS holders in the commercial fishery that did not transfer QS to the RQE would not have their IFQ pounds directly impacted by the transfer of other QS to the RQE.

Element 3 suggests that the RQE QS holdings as of October 1 of each year would be the basis with which to estimate IFQ pounds that would be added to the estimated guided recreational allocation under the CSP for the upcoming year. Currently staff use the catch limit resulting from the IPHC 'blue line' provided at the interim IPHC meeting on which to base the analysis of necessary management measures for the following year. Under Alternative 2, staff would use the catch limit resulting from the 'blue line' plus the estimate of the additional IFQ pounds on which to base an analysis of annual management measures and/ or as a buffer to account for uncertain conditions in charter harvest. The rest of the current procedural process steps and timeline would remain unchanged. This charter allocation and the corresponding management measures would be maintained for the following fishing year. Any further acquisitions for QS by the RQE during the fishing year would not contribute to the guided recreational harvest measures until the following year.

Element 4 would limit the use of RSE funds to the acquisition of commercial halibut quota; acquisition of charter halibut permits; halibut conservation/research; promotion of the halibut resource, and administrative costs. The RQE could not use to market the charter halibut sector or angler participation in the charter halibut sector.

Element 5 suggests the Council's desire for the RQE's Board to consist of a diversified group of stakeholders and individuals who can provide the organization with professional guidance, to hold regular board meetings, and to file regular annual reports.

4.8.1.1 Formation and Internal Management of Non-profit Entity (Element 1)

The CATCH proposal **describes two types of non-profit entities** that could be formed in order to represent charter anglers (Yamada & Flumerflet 2014). One type of non-profit entity (a Regional Non-Profit Association), would have the ability to self-tax, but would need to be established through legislative action. The other type of non-profit (a more traditional 501(c)(3) established by the Alaska Non-profit Corporation Act), would not need to be established through statutes, but could not receive funding through self-taxation. Since the appropriate type of non-profit structure will depend on the type of funding opportunities the charter sector is interested in pursuing, the Council's action is limited to determining the number of RQEs that could be formed.

Element 1 of Alternative 2 offers two options for the area of representation for an RQE. One RQE could be formed in order to represent both Area 2C and 3A. Under this option, each area would be managed separately; however there might be a subcommittee to represent each area with a Board of Directors to oversee each area's QS pool. The second option would be for two separate RQEs to form, one for each area. The Council could potentially select both of these options to be included in the regulations, and stakeholders could form the RQE using their optimal structure, understanding that no area can be represented by more than one non-profit entity.

NMFS has indicated that thus far, there are not specific management concerns with either of these options. There may be a marginal increase in administrative burden with processing required information from two entities, rather than one; however, this increase is expected to be small compared to the process of amending regulation and allowing for the opportunity for such an entity to form. Complications could occur if more than two entities were formed. If there were multiple entities per IPHC regulatory area, management could become increasingly burdensome, particularly if the Council chooses to adopt restrictions on transfer and each entity had separate caps on transfer. In addition, it could introduce competition for QS between RQEs in an area. Therefore, the Council might consider allowing the charter stakeholders and RQE committee to weigh-in on this decision point.

Based on stakeholder feedback, the CATCH proposal initially recommended forming one RQE to represent both regulatory Areas 2C and 3A, with each having its own separate QS management pool (Yamada & Flumerflet 2014).

4.8.1.2 Element 2: Transfer Provisions and Restrictions

The proposed program would provide a structure for two-way transfers to occur, should an RQE acquire QS and choose to sell it back to a participant in the commercial fishery. This attribute is an important element because it is expected that there would be variability from year to year in the amount of QS an RQE would be interested in using. Particularly if halibut biomass increases, there is a point where the charter sector may reach their least restrictive management measures, and be holding surplus QS. With only specific exceptions, the commercial sector could use every additional pound of halibut IFQ. In order for two-way transferring to occur, NMFS would need to track QS units, IFQ pounds, QS vessel class, and

block specification to ensure that the QS and IFQ could be transferred to an eligible commercial QS holder with the original QS designations. The QS would not be required to be sold back to the same individual that sold the QS to the RQE, it would just need to retain commercial designations.

In addition to a no restrictions option, **Element 2** describes a suite of potential transfer restrictions on commercial QS by an RQE including: 1) annual QS transfers by IPHC regulatory area, 2) a total sector QS use cap by regulatory area and, 3) a prohibition on the acquisition of class D QS and/or small blocks of QS. These three restrictions are not considered mutually exclusive. Similar transfer restrictions exist for the CQE program as well as the IFQ program as a whole.

4.8.1.2.1 Element 2, Option 1: No Restrictions

Element 2, Option 1 would implement an RQE program with no transfer restrictions. However an RQE could still only use commercial halibut QS for the IPHC regulatory area for which it is assigned. In other words, even under Option 1 with no transfer restrictions, 3A QS could only contribute to the 3A charter angler allocation.

4.8.1.2.2 Element 2, Option 2: Annual Transfer Restrictions

Element 2, Option 2 would establish area-specific annual limits for the transfer of commercial halibut QS to an RQE. Therefore, whether one RQE was formed with two-sub groups or two separate RQEs were formed, these restrictions would still operate at an individual regulatory area level. This option would have the intended effect of slowing down the (opportunity to) transfer halibut QS from the commercial sector to the charter sector. In doing so, this provision would be intended to slow the effect of any negative impacts that may be felt by halibut stakeholders due to this additional transfer opportunity. A restriction of this kind could allow users in the commercial sector, the charter sector, and other halibut user groups the time to adapt business plans and personal strategies, mitigating a potential shock to the characteristic of the fishery, should an impact be felt.

Halibut QS are a revocable privilege that allow the holder the opportunity to harvest a specific percentage of the TAC in the fishery. QS are measured in a fixed amount of "units". The annual commercial allocations, which are expressed in pounds, are referred to as IFQ. The size of each annual IFQ allocation is based on the amount of QS held in relation to the total QS pool for that regulatory area and the annual catch limit set for the regulatory area by the IPHC. The QS pool can vary from year to year based on revoked or newly re-created quota, but these are rare occurrences. Each year, after the IPHC sets the halibut catch limits by regulatory area, NOAA RAM calculates a QS/IFQ ratio; an exchange rate from QS units to IFQ pounds for each regulatory area. This exchange rate varies every year because both of these factors can vary (QS pool, but especially area-specific catch limits). The ratios are different by area particularly because catch limits do not change proportionately across regulatory areas each year (and also because QS pool, if it changes, may not change proportionately). Option 2 states:

> *Annual limit on transfers to the RQE in each regulatory area (Area 2C and Area 3A) of 1%-5% of commercial QS units in each area (2015).*

There are two primary questions which emerge with these restrictions reflecting the two primary constituent groups that would be affected by the proposed program. These questions are:

1. Can the RQE still be effective at liberalizing bag limits early in its existence with annual transfer limits?

2. To what extent will RQE purchases affect the existing QS market and will the annual transfer limits help mitigate those effects?

QS/IFQ ratios have varied greatly in recent years as the ratio has changed to accommodate lower stock abundance. While Option 2 would fix the amount of QS a RQE could buy in any given year, the value of those QS in IFQ vary with stock abundance. For example, if a RQE purchased the equivalent of one percent of the 2015 QS, that QS would have converted to 0.023 Mlb under 2011 conditions and 0.037 Mlb under 2015 conditions (see Table 4-31). In Area 3A, a one percent purchase of QS units would have resulted in 0.144 Mlb of IFQ under 2011 conditions and just 0.070 Mlb in 2014 when the QS/IFQ ratios were more than double 2011 ratios.

Table 4-31 Annual transfer allowance across a range of QS/IFQ ratios, 2011-2015 examples

Ratio Year	QS Units	QS/IFQ Ratio	Pounds of Annual Transfer Allowance (by Percent)				
			1	2	3	4	5
Area 2C							
2011	59,477,396	25.56	0.023	0.047	0.070	0.093	0.116
2012	59,477,396	22.70	0.026	0.052	0.079	0.105	0.131
2013	59,477,396	20.05	0.030	0.059	0.089	0.119	0.148
2014	59,477,396	17.94	0.033	0.066	0.099	0.133	0.166
2015	59,477,396	16.17	0.037	0.074	0.110	0.147	0.184
Area 3A							
2011	184,893,008	12.88	0.144	0.287	0.431	0.574	0.718
2012	184,893,008	15.52	0.119	0.238	0.357	0.477	0.596
2013	184,893,008	16.76	0.110	0.221	0.331	0.441	0.552
2014	184,893,008	26.27	0.070	0.141	0.211	0.282	0.352
2015	184,893,008	23.73	0.078	0.156	0.234	0.312	0.389

Source: Northern Economics, Inc. estimates from NOAA (2015a).

One way to understand the potential impact of any RQE QS holdings on annual management measures, is by considering the past analyses that estimate management measures required to constrain the charter sector to its catch limit. ADF&G produce these analyses of management measures on an annual basis (for example, Meyer & Powers 2014). These analyses projects charter removals based on the suite of management measures that the stakeholders of the charter sector request to have analyzed. The objective is to find a measure (or combination of measures) that will keep the sector at or below the total charter catch limit for that area, while also minimizing the economic impact to charter operators and anglers in that regulatory area. These analyses often include tables of different regulatory combinations to provide flexibility in the stakeholders' recommendations to the Council (refer to Section 4.4.1.2.2 for more background on this process and a list of measures previously considered). Table 4-32 and Table 4-33 are examples of this analysis demonstrating projected removals (in Area 2C and 3A, respectively) in 2015 under different catch limits.

Table 4-32 Area 2C projected charter removals (including release mortality) for 2015 under reverse slot limits ranging from U35O50 to U50O80 and annual limits ranging from zero to five fish.

No annual limit, harvest = 69,637 halibut

Lower Limit (in)	Upper length limit (in)															
	50	52	54	56	58	60	62	64	66	68	70	72	74	76	78	80
35	1.251	1.181	1.117	1.047	0.990	0.939	0.873	0.806	0.770	0.738	0.705	0.686	0.660	0.643	0.640	0.624
36	1.283	1.214	1.151	1.083	1.026	0.976	0.910	0.843	0.808	0.777	0.743	0.723	0.698	0.681	0.678	0.663
37	1.303	1.236	1.173	1.105	1.050	0.999	0.933	0.867	0.832	0.801	0.768	0.749	0.723	0.706	0.703	0.688
38	1.334	1.267	1.206	1.138	1.084	1.034	0.969	0.903	0.869	0.837	0.804	0.786	0.761	0.743	0.740	0.725
39	1.357	1.290	1.230	1.163	1.109	1.059	0.995	0.930	0.895	0.863	0.830	0.812	0.787	0.770	0.767	0.751
40	1.376	1.310	1.251	1.185	1.131	1.082	1.018	0.953	0.919	0.888	0.856	0.837	0.811	0.795	0.791	0.777
41	1.400	1.336	1.277	1.211	1.159	1.110	1.046	0.983	0.948	0.917	0.885	0.866	0.842	0.824	0.822	0.807
42	1.417	1.354	1.296	1.230	1.178	1.130	1.067	1.003	0.970	0.939	0.907	0.888	0.863	0.846	0.843	0.829
43	1.435	1.373	1.316	1.251	1.200	1.152	1.089	1.026	0.992	0.962	0.930	0.911	0.886	0.870	0.866	0.852
44	1.458	1.397	1.341	1.277	1.226	1.179	1.117	1.054	1.021	0.990	0.958	0.940	0.916	0.898	0.896	0.881
45	1.484	1.424	1.370	1.307	1.257	1.210	1.148	1.085	1.052	1.023	0.990	0.972	0.948	0.930	0.928	0.913
46	1.503	1.443	1.389	1.327	1.277	1.230	1.170	1.108	1.075	1.045	1.013	0.995	0.970	0.954	0.950	0.937
47	1.527	1.470	1.416	1.354	1.305	1.259	1.198	1.137	1.104	1.075	1.043	1.025	1.001	0.984	0.982	0.967
48	1.543	1.486	1.433	1.372	1.323	1.278	1.217	1.157	1.124	1.095	1.063	1.045	1.021	1.004	1.002	0.987
49	1.572	1.517	1.464	1.405	1.357	1.312	1.253	1.192	1.160	1.131	1.100	1.082	1.057	1.041	1.038	1.024
50	1.595	1.540	1.489	1.430	1.383	1.338	1.280	1.220	1.188	1.159	1.128	1.110	1.086	1.070	1.067	1.053

Source: Table 10 from Meyer and Powers (2014)

Table note: Values originally produced for this table rely on a method of predicting average weight that results in projections that *overestimate* removals by about 15 percent. Therefore values presented here are deflated by 15 percent to address this expected level and direction of prediction error in average weight (refer to Meyer and Powers (2014) for further explanation).

Table 4-33 Area 3A projected charter removals for 2015 including release mortality under a range of maximum size limits and annual limits (including no annual limit).

Projected total revmovals including release mortality

Size Limit on 2nd fish (in)	Annual Limit										
	1	2	3	4	5	6	7	8	9	10	None
26	0.856	1.633	1.798	1.939	1.981	2.016	2.029	2.040	2.044	2.047	2.056
27	0.874	1.666	1.834	1.979	2.022	2.058	2.071	2.081	2.086	2.089	2.098
28	0.901	1.716	1.891	2.039	2.084	2.120	2.134	2.145	2.149	2.153	2.162
29	0.918	1.749	1.926	2.078	2.124	2.160	2.174	2.186	2.191	2.194	2.204
30	0.944	1.800	1.981	2.136	2.184	2.222	2.236	2.248	2.253	2.256	2.266
31	0.961	1.834	2.019	2.176	2.225	2.264	2.279	2.291	2.295	2.299	2.308
32	0.984	1.878	2.066	2.228	2.278	2.316	2.333	2.345	2.349	2.353	2.364
33	0.998	1.905	2.095	2.260	2.309	2.349	2.366	2.378	2.382	2.387	2.396
34	1.013	1.933	2.127	2.294	2.345	2.386	2.401	2.414	2.419	2.424	2.433
35	1.024	1.953	2.148	2.316	2.368	2.409	2.426	2.438	2.444	2.447	2.458
36	1.036	1.978	2.176	2.347	2.399	2.440	2.456	2.469	2.474	2.479	2.489
37	1.042	1.991	2.189	2.361	2.413	2.455	2.472	2.485	2.489	2.494	2.505
38	1.052	2.007	2.208	2.381	2.434	2.476	2.493	2.506	2.511	2.515	2.526
39	1.059	2.021	2.224	2.398	2.451	2.494	2.511	2.524	2.528	2.533	2.544
40	1.065	2.032	2.235	2.411	2.464	2.507	2.524	2.536	2.541	2.546	2.556
41	1.069	2.041	2.246	2.422	2.475	2.519	2.535	2.548	2.554	2.558	2.569
42	1.074	2.049	2.255	2.432	2.485	2.528	2.545	2.558	2.564	2.568	2.579
43	1.080	2.061	2.267	2.445	2.499	2.542	2.559	2.573	2.578	2.582	2.593
44	1.084	2.067	2.274	2.452	2.506	2.549	2.567	2.580	2.585	2.589	2.601
45	1.087	2.075	2.284	2.461	2.515	2.560	2.576	2.589	2.595	2.600	2.611
46	1.091	2.081	2.288	2.468	2.522	2.566	2.584	2.596	2.601	2.606	2.618
47	1.094	2.088	2.298	2.478	2.532	2.575	2.593	2.606	2.612	2.616	2.627
48	1.096	2.093	2.302	2.482	2.536	2.581	2.598	2.612	2.616	2.621	2.633
49	1.102	2.105	2.315	2.495	2.551	2.595	2.612	2.626	2.631	2.635	2.647
50	1.107	2.113	2.324	2.506	2.561	2.605	2.622	2.635	2.641	2.646	2.658

Source: Table 17 from Meyer and Powers (2014)
Table note: Values originally produced for this table rely on a method of predicting average weight that results in projections that *underestimate* removals by about 15 percent. Therefore values presented here are inflated by 15 percent to address this expected level and direction of prediction error in average weight (refer to Meyer and Powers (2014) for further explanation).

Using the combination of ADF&G harvest predictions for conditions in 2015 from Table 4-34 (Area 2C) and Table 4-35 (Area 3A), Table 4-34 and Table 4-35 were created to show that under 2015 conditions, even small percentages of QS would have allowed the RQE to enable less restrictive fishing conditions. For example, in 2015 the charter sector in Area 2C was given a harvest limit of 0.851 Mlb, and ADF&G predicted that the best management measure to hold the sector within their allocation was a daily bag limit of one fish that was under 42 inches or over 80 inches in length (see Table 4-34). If a RQE had existed in Area 2C in 2015 and it held one percent of Area 2C QS, then the harvest limit would have been 0.888 Mlb and ADF&G could have recommended a daily bag limit of one fish under 44 inches or above 80 inches in length. The data seem to indicate that a RQE can be effective at liberalizing regulations within the first few years of operation even if there is a single-digit annual limit on QS purchase

Table 4-34 Projected 2015 fishing regulations based portion of QS held, Area 2C

		Portion of Area QS Held by RQE				
Category	**Status Quo**	**1**	**2**	**3**	**4**	**5**
Harvest Limit+IFQ	0.851	0.888	0.925	0.961	0.998	1.035
Regulation	1F-U42 O80	1F-U44 O80	1F-U45 O80	1F-U46 O80	1F-U48 O80	1F-U49 O80

Source: Northern Economics, Inc. estimates from NOAA (2015a).

The situation is slightly different in Area 3A, in part because QS ratios in 2015 were much higher than the historical average and because regulations are allowing the 3A sector to operate with regulations that are less restrictive than one would expect based on ADF&G's harvest tables (Table 4-33). With a harvest limit of 1.89 Mlb and a five fish annual limit, one would expect a daily bag limit of one fish of any size and the second fish to be restricted to less than 26 inches. However, the regulations were set at one fish of any size and the second fish restricted to less than 29 inches. As shown in Table 4-35, the Area 3A RQE would need to hold 4 percent of the QS to liberalize the restriction on the second fish to under 30 inches in length. This is largely driven by the high QS/IFQ ratio and lower ratios would make the RQE more effective in early years. Still, the data show that the RQE could be effective in liberalizing regulations, to a limited extent, relatively quickly and within the considered annual QS transfer limits.

Table 4-35 Projected 2015 fishing regulations based portion of QS held, Area 3A

		Portion of Area QS Held by RQE				
Category	**Status Quo**	**1**	**2**	**3**	**4**	**5**
Harvest Limit+IFQ	1.89	1.968	2.046	2.124	2.202	2.279
Regulation	2F-U29	2F-U29	2F-U29	2F-U29	2F-U30	2F-U32

Source: Northern Economics, Inc. estimates from NOAA (2015a).

As noted above, the second critical question posed by this element is, would the proposed annual transfer limits mitigate the potential effect of having a new, large buyer enter into the QS market? The market for halibut QS is composed of a number of smaller markets governed by QS share classes related to vessel size. In Area 2C, the 2015 QS count is 59,477,396 shares with 2.1 percent designated as A-Class QS, 4.5 percent designated as B-Class QS, 78.5 percent designated as C-Class QS, and 15.0 percent designated for the smallest vessels as D-Class. **Element 2, Option 4, Sub-option 1** would restrict the RQE from purchasing D-Class shares, which would mean that 92.3 percent of the RQE-eligible quota would be in C-Class shares. Thus, with or without D-Class QS, the QS pool is dominated by C-Class shares in Area 2C. In the 20-year history of the IFQ program for which RAM transfer reports are available, 64.3 million shares of C-Class QS has changed hands compared to 15.8 million, 8.4 million, and 1.4 million QS of D-Class, B-Class, and A-Class. In addition, on average A-Class and B-Class transfers number less than a dozen per year while more than 90 C-Class transfer take place each year. Thus, it's logical to presume

that the RQE will see the greatest number of purchasing opportunities and shares available in the C-Class market.

Table 4-36 2015 QS units by class, Area 2C

	Class			
Category	**A-Freezer**	**B-GT 60 ft.**	**C- 36-60 ft.**	**D- LE 35 ft.**
Total QS Units	1,249,141	2,655,243	46,677,536	8,895,476
Portion of All Units (%)	2.1	4.5	78.5	15.0
Portion Without Class D	2.5	5.2	92.3	N/A
20-Year Average Transfers	2.1	10.7	94.0	60.1
20-Year Average Transfer %	5.7	16.7	7.3	9.2

Source: Northern Economics, Inc. estimates from NOAA (2015a).

In Area 3A, the RQE will find the greatest number of opportunities in the B-Class and C-Class markets, which have a relatively high portion of units and frequency of transfers. B-Class shares represent just over 37 percent of all units and on average there are over 30 transfers, each representing more than 5 percent of outstanding units. As in Area 2C, the C-Class is the largest class in the area with 53.5 percent of all shares and each year, on average, there are 118 transfers accounting for 6.9 percent of all in-class shares. The D-Class shares are just 6.9 percent of all shares but they turn over at a relatively high rate with 10.6 percent of the class' units coming on the market in a typical year involving 68 transfers.

Table 4-37 2015 QS units by class, Area 3A

	Class			
Category	**A-Freezer**	**B-GT 60 ft.**	**C- 36-60 ft.**	**D- LE 35 ft.**
Total QS Units	4,773,918	68,568,976	98,876,488	12,673,626
Portion of All Units (%)	2.6	37.1	53.5	6.9
Portion Without Class D	2.8	39.8	57.4	N/A
20-Year Average Transfers	2.7	33.2	118.2	68.4
20-Year Average Transfer %	2.8	5.2	6.9	10.6

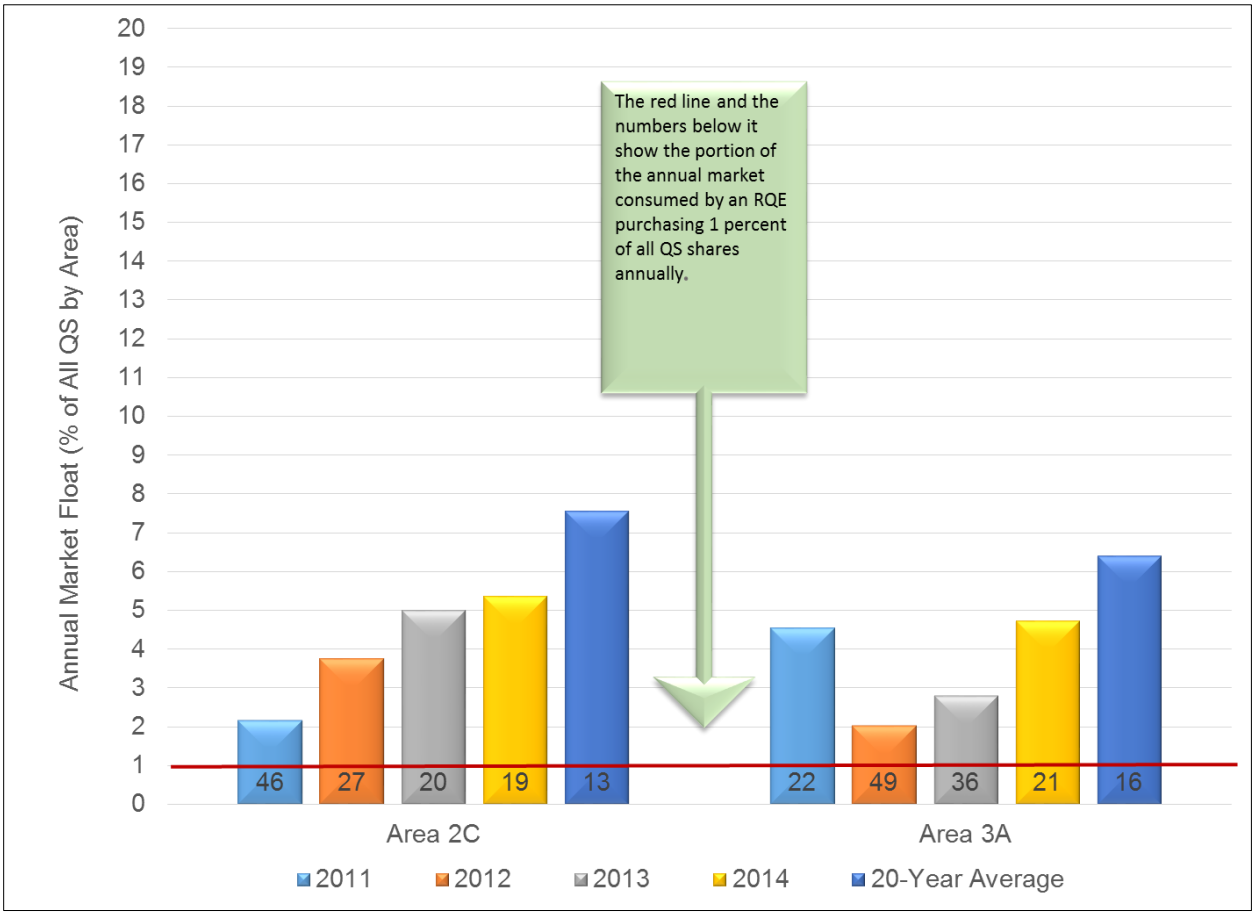
Source: Northern Economics, Inc. estimates from NOAA (2015a).

In recent years, the sizes of the annual QS markets have generally been smaller than the 20-year average market share size (see Figure 4-11). For example, in Area 2C the 20-year average of annual transfer rate was 8.5 percent of shares annually. However, between 2011 and 2014, the market saw transfer rates of 2.2 percent, 3.8 percent, 5.0 percent, and 5.4 percent. These data suggest that transfer rates slowed during times of low abundance and high uncertainty and have started to recover and move back towards the historical averages. The stock decline and recovery in Area 3A has lagged behind Area 2C, but overall, the size of the transfer market has increased from a low of 2.0 percent of units in 2012 to 4.7 percent in 2014. These rates compare to a long-term average of 6.4 percent of units transferred annually.

The red line in Figure 4-11 depicts a one percent annual transfer cap compared to the portion of all shares, including D-Class shares, transferred that year. The number below the line indicates what portion of the market in that year an RQE would have consumed if it purchased one percent of all QS units in each area. Historically, an entity purchasing one percent of all QS in an IPHC area would consume 13 percent of the annual market in Area 2C and 16 percent of the annual market in Area 3A. Under lower stock conditions, when it appears that QS transfer rates slow, the portion would be higher. For example, in 2011 in Area 2C, the RQE would have had to purchase 46 percent of all the shares that came onto the market. In recovery years, such as 2013 and 2014, the RQE would have had to purchase roughly one-fifth (20

percent) of the market to hit a one-percent cap. Higher transfer limits mean that the RQE could, but not necessarily would, consume more of the market than depicted in Figure 4-11.

Figure 4-11 Annual QS market size by year compared with a 1-Percent Annual Transfer Limit



Source: Northern Economics, Inc. estimates from NOAA (2015a).

The concern amongst many in the commercial halibut sector is that having a single large entrant into the QS markets could disrupt the equilibrium conditions in those markets and make it harder for new and existing entrants to purchase market share. The data clearly indicate that even if an RQE's annual ability to purchase QS is capped towards the lower end of the range, the Council is considering that the RQE will have the ability to purchase a not-insignificant portion of the annual amount of QS that comes onto the market. While there have been a number of studies of the halibut QS market (Herrmann & Criddle 2006; Szymkowiak 2014; Wilen & Brown), none have studied the effect of a new entrant such as the RQE. It could be expected that the RQE's entrance would raise prices of QS, at least for the period that it was actively in the market, and that it could increase the size of the market if potential sellers responded to the increase in prices. The duration and magnitude of these effects will depend on how the RQE manages its purchases and additional program elements such as those described in **Option 3** and **Option 4** of **Element 2**.

4.8.1.2.3 Element 2, Option 3: Total Cumulative Limits

Option 3 of **Element 2** would place a total (cumulative limit) on the amount of QS an RQE could hold. The option contains two sub-options:

1. 5 percent to 20 percent of 2015 commercial QS units

2. 5 percent to 20 percent of each class of QS units in 2015

Under **Sub-option 1** the RQE would be limited to maximum holdings between 5 and 20 percent, as selected by the Council, of 2015 QS units in each area. In Area 2C, the maximum amount of QS allowed ranges from 2,973,870 units to 11,895,479. The pounds of IFQ represented by the QS would shift based on the QS/IFQ ratio, which has varied significantly from historical averages in recent years. For example, a ten percent allowance would equal 5,947,740 units and the poundage-equivalent of these units in recent years ranged between 0.233 Mlb in 2011 to 0.368 Mlb in 2015. Historically, between 1995 and 2007, when the QS/IFQ ratio was lower, these units would have been worth an average of 0.941 Mlb annually.

Table 4-38 IFQ "Purchasing Power" by Cumulative allowance and QS/IFQ ratio, Area 2C

Cumulative Cap (Percent)	Maximum QS units Allowed	Scenario/QS Ratio					
		2011	2012	2013	2014	2015	Historical Abundance (1995-2007)
5	2,973,870	0.116	0.131	0.148	0.166	0.184	0.470
6	3,568,644	0.140	0.157	0.178	0.199	0.221	0.564
7	4,163,418	0.163	0.183	0.208	0.232	0.258	0.658
8	4,758,192	0.186	0.210	0.237	0.265	0.294	0.752
9	5,352,966	0.209	0.236	0.267	0.298	0.331	0.846
10	5,947,740	0.233	0.262	0.297	0.332	0.368	0.941
11	6,542,514	0.256	0.288	0.326	0.365	0.405	1.035
12	7,137,288	0.279	0.314	0.356	0.398	0.441	1.129
13	7,732,061	0.303	0.341	0.386	0.431	0.478	1.223
14	8,326,835	0.326	0.367	0.415	0.464	0.515	1.317
15	8,921,609	0.349	0.393	0.445	0.497	0.552	1.411
16	9,516,383	0.372	0.419	0.475	0.530	0.589	1.505
17	10,111,157	0.396	0.445	0.504	0.564	0.625	1.599
18	10,705,931	0.419	0.472	0.534	0.597	0.662	1.693
19	11,300,705	0.442	0.498	0.564	0.630	0.699	1.787
20	11,895,479	0.465	0.524	0.593	0.663	0.736	1.881
	QS/IFQ Ratio	25.56	22.70	20.05	17.94	16.17	6.32

Source: Northern Economics, Inc. estimates from NOAA (2015a).

The primary question for the analysis with regard to the purpose and need statement is how effective would these different allocations be in providing the Area 2C charter fleet with greater regulatory flexibility with respect to liberalized harvest opportunities. Estimates of allowance efficacy are dependent on a number of co-dependent factors including annual charter allocations, average fish weight, charter angler demand, the supply of seats on charter vessels, the daily bag limit regulations, etc. Working through all of the scenarios presented by these variables would mean an overwhelming number of tables for the reader, so this document only presents two scenarios based on Table 4-32 which includes a 2015 estimate of average fish weight and angler demand for trips. The two scenarios then use i) the 2015 QS/IFQ ratio and the 2015 charter halibut allocation, which stand as a proxy for fishing conditions under a modest recovery from low stock conditions, and then ii) the 2011 QS/IFQ ratio and 2011 charter halibut allocation, which stand as a proxy for low stock conditions. These two strawmen allow the reader to see how the allowances provide for more liberalized bag limits under low stock conditions, which is when the RQE's efforts would be needed most by the charter halibut sector.

Under 2015 IFQ/QS ratios and allocations, the chart halibut sector would need at least the 5 percent allocation to liberalize bag limits. The 2015 regulation, shown as the outlined cell, allowed for one fish per day under 42 inches and over 80 inches.

If the RQE had a five percent allowance, a manager could have allowed anglers to fish for one fish per day under 48 inches or over 74 inches or chosen among 72 other options (see Figure 4-12). A 10 percent allowance could have allowed one fish per day under 50 inches or over 60 inches. The current reverse slot limit balances allowing anglers to keep a trophy halibut, allowing anglers' access to halibut that are good to eat, and protecting prime reproductive age females. It is unclear going forward which reverse slot limits the charter industry would prefer, but it's clear that the range the Council is analyzing provides flexibility within the one-fish regime. Other key conclusion from the table include:

- None of the options provide for a 2-fish bag limit under 2015 stock conditions. Cells marked N/A are "not achievable" under 2015 conditions.
- Progressively higher allowances provide for marginally less flexibility. For example, a five percent allowance opens 73 regulatory options (cells) in a table, a six percent allowance opens 17 options, and a seven percent allowance opens 14 options. This pattern continues until the difference between the 19 percent allowance and the 20 percent allowance is the opening of just one regulatory option even though the poundage difference between a 5 percent allowance and a 6 percent allowance is the same as the poundage difference between a 19 percent allowance and a 20 percent allowance.

Figure 4-12 Area 2C Charter regulations achievable by cumulative limit based on 2015 estimates of harvest and average fish size and QS/IFQ Ratio

Lower Limit (in)	Upper length limit (in)															
	50	52	54	56	58	60	62	64	66	68	70	72	74	76	78	80
35	11	9	8	6	5	5	5	<5	<5	<5	<5	<5	<5	<5	<5	<5
36	12	10	9	7	5	5	5	<5	<5	<5	<5	<5	<5	<5	<5	<5
37	13	11	9	7	6	5	5	5	<5	<5	<5	<5	<5	<5	<5	<5
38	14	12	10	8	7	5	5	5	5	<5	<5	<5	<5	<5	<5	<5
39	14	12	11	9	8	6	5	5	5	5	<5	<5	<5	<5	<5	<5
40	15	13	11	10	8	7	5	5	5	5	5	<5	<5	<5	<5	<5
41	15	14	12	10	9	8	6	5	5	5	5	5	<5	<5	<5	<5
42	16	14	13	11	9	8	6	5	5	5	5	5	5	<5	<5	<5
43	16	15	13	11	10	9	7	5	5	5	5	5	5	5	5	5
44	17	15	14	12	11	9	8	6	5	5	5	5	5	5	5	5
45	18	16	15	13	12	10	9	7	6	5	5	5	5	5	5	5
46	18	17	15	13	12	11	9	7	7	6	5	5	5	5	5	5
47	19	17	16	14	13	12	10	8	7	7	6	5	5	5	5	5
48	19	18	16	15	13	12	10	9	8	7	6	6	5	5	5	5
49	20	19	17	16	14	13	11	10	9	8	7	7	6	6	6	5
50	N/A	19	18	16	15	14	12	11	10	9	8	8	7	6	6	6

Source: Source: Northern Economics, Inc. estimates from ADF&G (2015) and NOAA (2015a).

As expected, under lower stock conditions the allowances under consideration by the Council provide less flexibility to the charter sector but still provide greater flexibility than the current system. For example, a five percent allowance under 2011 conditions would have allowed for one fish under 44 inches or over 76 inches. This compares unfavorably to the one fish under 49 inches or over 80 inches bag limit under 2015 conditions, but would have been viewed much more favorably than the actual 2011 regulation which would was one fish under 37 inches (<5). As with the prior example, the number of options opened by the additional poundage provided by each additional percent maximum allowance decreases as one moves up the scale. In addition, under low stock conditions, there are 56 one-fish regulatory options that are "not achievable" within the range considered by the Council.

Figure 4-13 Area 2C Charter regulations achievable by cumulative limit based on 2015 estimates of harvest and average fish size and 2011 QS/IFQ ratio

Lower Limit (in)	Upper length limit (in)															
	50	52	54	56	58	60	62	64	66	68	70	72	74	76	78	80
35	20	17	15	12	9	7	5	5	<5	<5	<5	<5	<5	<5	<5	<5
36	N/A	19	16	13	11	9	6	5	5	<5	<5	<5	<5	<5	<5	<5
37	N/A	20	17	14	12	10	7	5	5	5	<5	<5	<5	<5	<5	<5
38	N/A	N/A	18	16	13	11	8	5	5	5	5	<5	<5	<5	<5	<5
39	N/A	N/A	19	17	14	12	9	7	5	5	5	5	<5	<5	<5	<5
40	N/A	N/A	20	18	15	13	10	8	6	5	5	5	5	5	5	<5
41	N/A	N/A	N/A	19	16	14	12	9	7	6	5	5	5	5	5	5
42	N/A	N/A	N/A	20	17	15	12	10	8	7	6	5	5	5	5	5
43	N/A	N/A	N/A	20	18	16	13	11	9	8	7	6	5	5	5	5
44	N/A	N/A	N/A	N/A	19	17	15	12	11	9	8	7	6	5	5	5
45	N/A	N/A	N/A	N/A	N/A	19	16	13	12	11	9	8	7	7	7	6
46	N/A	N/A	N/A	N/A	N/A	20	17	14	13	12	10	9	8	8	7	7
47	N/A	N/A	N/A	N/A	N/A	N/A	18	16	14	13	11	11	10	9	9	8
48	N/A	N/A	N/A	N/A	N/A	N/A	19	16	15	14	12	12	11	10	10	9
49	N/A	N/A	N/A	N/A	N/A	N/A	20	18	16	15	14	13	12	11	11	11
50	N/A	N/A	N/A	N/A	N/A	N/A	N/A	19	18	16	15	14	13	13	12	12

Source: Northern Economics, Inc. estimates from ADF&G (2015) and NOAA (2015a).

In Area 3A, the maximum amount of QS allowed ranged from 9,244,650 units to 36,978,602 units. As with all QS units, the pounds of IFQ represented by the QS would shift based on the QS/IFQ ratio, which has varied significantly from historical averages in recent years. In this case, a 10 percent allowance would equal 18,489,301 units and the poundage-equivalent of these units in recent years ranged between 0.845Mlb in 2014 to 1.723 Mlb in 2015. Historically, between 1995 and 2007, when the QS/IFQ ratio was lower these units would have been worth an average of 2.300 Mlb annually.

Table 4-39 IFQ "Purchasing Power" by Cumulative allowance and QS/IFQ ratio, Area 3A

Cumulative Cap (Percent)	Maximum QS units Allowed	Scenario/QS Ratio					
		2011	2012	2013	2014	2015	Historical Abundance (1995-2007)
5	9,244,650	0.718	0.596	0.552	0.352	0.389	1.150
6	11,093,580	0.861	0.715	0.662	0.422	0.467	1.380
7	12,942,511	1.005	0.834	0.772	0.493	0.545	1.610
8	14,791,441	1.148	0.953	0.883	0.563	0.623	1.840
9	16,640,371	1.292	1.072	0.993	0.633	0.701	2.070
10	18,489,301	1.436	1.191	1.103	0.704	0.779	2.300
11	20,338,231	1.579	1.310	1.213	0.774	0.857	2.530
12	22,187,161	1.723	1.430	1.324	0.845	0.935	2.760
13	24,036,091	1.866	1.549	1.434	0.915	1.013	2.990
14	25,885,021	2.010	1.668	1.544	0.985	1.091	3.219
15	27,733,951	2.153	1.787	1.655	1.056	1.168	3.449
16	29,582,881	2.297	1.906	1.765	1.126	1.246	3.679
17	31,431,811	2.440	2.025	1.875	1.196	1.324	3.909
18	33,280,741	2.584	2.144	1.986	1.267	1.402	4.139
19	35,129,672	2.727	2.264	2.096	1.337	1.480	4.369
20	36,978,602	2.871	2.383	2.206	1.408	1.558	4.599
	QS/IFQ Ratio	12.88	15.52	16.76	26.27	23.73	8.04

Source: Source: Northern Economics, Inc., estimates from NMFS RAM Transfer Report.

As with Area 2C, the analysis provides two "strawperson" scenarios based on 2015 average weight and 2015 projected angler harvest. Additionally, each scenario allows for the harvest of a second daily fish under a maximum size limit and with an annual harvest limit. The low stock condition in this case comes from 2015, while the analysis uses 2011 as a higher stock condition bookend. As with the Area 2C analysis, these estimates reference the ADF&G harvest estimates prepared for 2015. In this case, the analysis is referencing Table 4-33.

In 2015, the Area 3A charter halibut fishery regulations allowed anglers a daily bag limit of one fish of any size and a second fish under 29 inches in length plus a five fish annual limit. If an Area 3A RQE had been in place in October 2014 and had held five percent of the QS units in the area, then managers could have increased the size of the second fish to 32 inches from 29 inches (see Figure 4-14). Under a four fish annual limit, the maximum size on the second fish could have been increased to 33 inches.

The biggest difference in the figures for Area 2C and Area 3A is that allocations higher than 10 percent do not appear in the table prepared by ADF&G, which stops at a maximum length on the second fish of 50 inches. The average round weight of a 50-inch fish is 60 pounds, all of these fish are females, and as a portion of the population, fish larger than 50 inches are in the minority. The implication here is that an allowance maximum in the high-single digits to low teens would allow Area 3A anglers the opportunity to harvest a second fish that is substantially similar to that provided to unguided anglers, particularly when there is no restriction on the first fish in an angler's daily bag limit.

Figure 4-14 Area 3A Charter regulations achievable by cumulative limit based on 2015 estimates of harvest and average fish size and 2015 QS/IFQ Ratio

Size Limit on 2nd fish (in)	Annual Limit										
	1	2	3	4	5	6	7	8	9	10	None
26	<5	<5	<5	5	5	5	5	5	5	5	5
27	<5	<5	<5	5	5	5	5	5	5	5	5
28	<5	<5	5	5	5	5	5	5	5	5	5
29	<5	<5	5	5	5	5	5	5	5	5	5
30	<5	<5	5	5	5	5	5	5	5	5	5
31	<5	<5	5	5	5	5	5	6	6	6	6
32	<5	<5	5	5	5	6	6	6	6	6	7
33	<5	5	5	5	6	6	7	7	7	7	7
34	<5	5	5	6	6	7	7	7	7	7	7
35	<5	5	5	6	7	7	7	8	8	8	8
36	<5	5	5	6	7	8	8	8	8	8	8
37	<5	5	5	7	7	8	8	8	8	8	8
38	<5	5	5	7	7	8	8	8	8	9	9
39	<5	5	5	7	8	8	8	9	9	9	9
40	<5	5	5	7	8	8	9	9	9	9	9
41	<5	5	5	7	8	9	9	9	9	9	9
42	<5	5	5	7	8	9	9	9	9	9	9
43	<5	5	5	8	8	9	9	9	9	9	10
44	<5	5	5	8	8	9	9	9	9	9	10
45	<5	5	6	8	9	9	9	9	10	10	10
46	<5	5	6	8	9	9	9	10	10	10	10
47	<5	5	6	8	9	9	10	10	10	10	10
48	<5	5	6	8	9	9	10	10	10	10	10
49	<5	5	6	8	9	10	10	10	10	10	10
50	<5	5	6	8	9	10	10	10	10	10	10

Source: Northern Economics, Inc. estimates from ADF&G (2015) and NOAA (2015a).

Under higher stock/higher allowance conditions, such as those Area 3A saw in 2011, Area 3A would not even need a five percent allowance to provide the harvest opportunities considered in 2015. Even without an annual limit, the fishery could have operated with up to (and perhaps more than) a 50-inch limit on the second fish if it had a 5 percent or less allocation.

Figure 4-15 Area 3A Charter regulations achievable by cumulative limit based on 2015 estimates of harvest and average fish size and 2011 QS/IFQ Ratio

Size Limit on 2nd fish (in)	Annual Limit										
	1	2	3	4	5	6	7	8	9	10	None
26	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
27	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
28	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
29	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
30	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
31	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
32	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
33	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
34	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
35	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
36	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
37	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
38	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
39	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
40	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
41	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
42	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
43	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
44	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
45	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
46	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
47	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
48	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
49	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
50	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5

Source: Northern Economics, Inc. estimates from ADF&G (2015) and NOAA (2015a).

Sub-Option 2 of **Element 3** would allow the Council to select individual allowances by vessel class, which would then convert into a de facto weighted average cumulative allowance across the entire QS program. Ultimately, when it came time to set regulations the program would act just as it would under **Sub-Option 1**, but the RQE would have different abilities to purchase quota share from the different classes. As noted above, and shown in Table 4-40, the class composition varies substantially between IPHC areas, with C-Class shares predominating in Area 2C followed by D-Class shares. In Area 3A, C-Class shares and B-Class shares are the largest groups and D-Class shares are less than half the portion in Area 2C.

Table 4-40 2015 QS units by class, Area 3A

	Class			
Category	**A-Freezer**	**B-GT 60 ft.**	**C- 36-60 ft.**	**D- LE 35 ft.**
Area 2C				
Total QS Units	1,249,141	2,655,243	46,677,536	8,895,476
Portion of All Units (%)	2.1	4.5	78.5	15.0
Area 3A				
Total QS Units	4,773,918	68,568,976	98,876,488	12,673,626
Portion of All Units (%)	2.6	37.1	53.5	6.9

Source: Northern Economics, Inc. estimates from NOAA (2015a).

As noted above, individual class limits would convert into a weighted average allowance at the area level. For example, presume the Council limits the Area 2C RQE to 0 percent of A-Class shares, 5 percent of B-Class shares, 10 percent of C-Class shares, and 0 percent of D-class shares. These limits effectively mean the RQE has an 8.08 percent allowance of all QS units in the area. This mechanism would allow the council to protect certain class markets. The primary difference between this sub-option and **Option 4, Sub-Option 1** is that the Council could select individual limits for each class, while **Option 4, Sub-Option 1** simply prohibits the purchase of D-class shares.

The downside to the RQE of having individual class limits is that the limits may hinder the RQE's ability to purchase the lowest cost combination of QS shares. For example, in 2011, the last year in which both B-Class and C-Class prices were non-confidential in the RAM Transfer Report, B-Class units cost $42.94 per pound and C-Class cost $29.47 per pound. Continuing the prior example, at those prices the RQE would spend $143.3 million acquiring all of its shares versus $141.5 million if it could have simply purchased all the shares from the C-Class group. The difference is small, but could be exacerbated if the Council were to force the RQE to purchase more shares from the higher-cost and less liquid A-Class and B-Class shares. The confidential nature of many A-Class and B-Class transfers makes it difficult to fully quantify the financial implications of these limits.

4.8.1.2.4 Element 2, Option 4: D Class and Small Block Limits

Option 4 of **Element 2** considers a two sub-options:

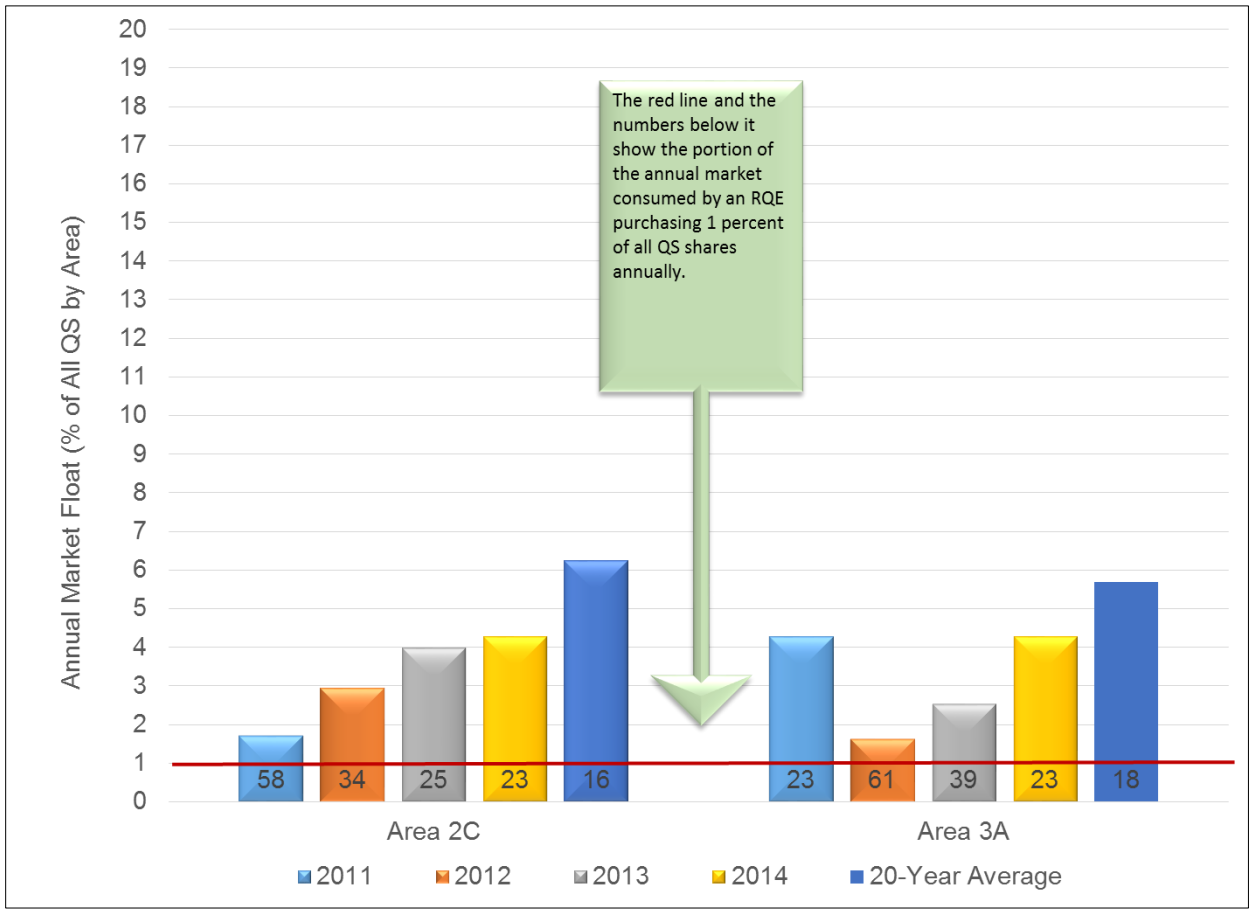
1. A prohibition on D-class commercial QS by an RQE.
2. Restricting (prohibiting) the purchase of blocked QS by class that equates to less than or equal to 1,500 pounds or 2,000 pounds in 2015 lb.[26]

[26] The Council's December 2015 motion references 2016 pounds but the staff interpret the Council's intent as 2015 pounds so that this section of the analysis is consistent with the rest of the analysis which frequently discusses 2015 IFQ.

The purpose of **Sub-Option 1** of **Option 4** is to reserve the D class halibut QS for new entrants to the commercial fishery. Allowing the RQE to purchase D class QS might work counter to this goal in the IFQ program. D-Class shares are frequently the cheapest shares in the halibut QS markets. In both Areas 2C and 3A, D-Class shares were cheaper than C-Class shares in every year from 2000–2014. This sub-option affects all of the results of the analysis for **Option 2** and **Option 3** as it reduces the number of shares available to the RQE in each area. The effect of this sub-option is greater in Area 2C than in Area 3A because D-Class shares are 15 percent of all QS units in Area 2C versus 6.9 percent in Area 3A. Here are the results of the analysis for options 2 and 3 adjusted for a prohibition on the purchase of D-class shares.

The prohibition on D-Class shares would protect the D-Class from direct effects of RQE purchases but it would exacerbate effects in other markets and indirectly effect the D-Class market by pushing commercial buyers into that market or delaying the move of D-Class QS holders to larger vessels. The figure below shows the portion of the annual QS market in each area which would have been absorbed by a one percent of QS purchase by an RQE. In Area 2C the 20-year average rises from 13 percent of the market to 16 percent of the market, while in Area 3A the average increases from 16 percent to 18 percent.

Figure 4-16 Annual QS market size by year compared with a 1-Percent Annual Transfer Limit, No D-Class Shares



Source: Northern Economics, Inc. estimates from NOAA (2015a).

4.8.1.2.5 Effects on Element 2, Option 3 on Total Cumulative Limits

The effect of this option on **Sub-option 1 of Option 3** of **Element 2** would be to reduce the cumulative maximum amount of QS the RQE could purchase. In Area 2C, the maximum amount of QS allowed ranges from 2.973,870 units to 11,895,479. The pounds of IFQ represented by the QS would shift based

on the QS/IFQ ratio, which has varied significantly from historical averages in recent years. For example, without restricting D-Class shares, a 10 percent allowance would equal 5,947,740 units and the poundage-equivalent of these units in recent years ranged between 0.233 Mlb in 2011 to 0.368 Mlb in 2015. With the D-Class restriction, the number of allowable units slips to 5,058,192, with an annual poundage-equivalent of 0.198 Mlb to 0.313 Mlb.

Table 4-41 IFQ "Purchasing Power" by Cumulative allowance and QS/IFQ ratio, Area 2C with D class restrictions

Cumulative Cap (Percent)	Maximum QS units Allowed	Scenario/QS Ratio					
		2011	2012	2013	2014	2015	Historical Abundance (1995-2007)
5	2,529,096	0.099	0.111	0.126	0.141	0.156	0.400
6	3,034,915	0.119	0.134	0.151	0.169	0.188	0.480
7	3,540,734	0.139	0.156	0.177	0.197	0.219	0.560
8	4,046,554	0.158	0.178	0.202	0.226	0.250	0.640
9	4,552,373	0.178	0.201	0.227	0.254	0.282	0.720
10	5,058,192	0.198	0.223	0.252	0.282	0.313	0.800
11	5,564,011	0.218	0.245	0.278	0.310	0.344	0.880
12	6,069,830	0.237	0.267	0.303	0.338	0.375	0.960
13	6,575,650	0.257	0.290	0.328	0.367	0.407	1.040
14	7,081,469	0.277	0.312	0.353	0.395	0.438	1.120
15	7,587,288	0.297	0.334	0.378	0.423	0.469	1.200
16	8,093,107	0.317	0.357	0.404	0.451	0.501	1.280
17	8,598,926	0.336	0.379	0.429	0.479	0.532	1.360
18	9,104,746	0.356	0.401	0.454	0.508	0.563	1.440
19	9,610,565	0.376	0.423	0.479	0.536	0.594	1.520
20	10,116,384	0.396	0.446	0.505	0.564	0.626	1.600
QS/IFQ Ratio		25.56	22.70	20.05	17.94	16.17	6.32

Source: Northern Economics, Inc. estimates from NOAA (2015a).

The elimination of D-Class shares from the available purchase pool would modestly reduce the efficacy of the overall program. For example, in the unrestricted scenario, the five percent allowance would have allowed the Area 2C charter fishery to reach one fish under 48 inches or over 72 inches. In the restricted scenario, the Area 2C fishery would have seen its reverse slot bottom stay at 48 inches but the upper slot being at 76 inches; a still a substantial improvement over the 2015 actual reverse slot bottom of 42 inches. The largest effect of eliminating D-Class shares is at the upper end of the considered allowance limits. In the unrestricted scenario, there was only one regulatory option which could not be reached by the maximum allowance of 20 percent. In the restricted scenario, there are 10 regulatory options which are "not achievable"

Figure 4-17 Area 2C Charter regulations achievable by cumulative limit based on 2015 estimates of harvest and average fish size and QS/IFQ Ratio, No D-Class

Lower Limit (in)	Upper length limit (in)															
	50	52	54	56	58	60	62	64	66	68	70	72	74	76	78	80
35	13	11	9	7	5	5	5	<5	<5	<5	<5	<5	<5	<5	<5	<5
36	14	12	10	8	6	5	5	<5	<5	<5	<5	<5	<5	<5	<5	<5
37	15	13	11	9	7	5	5	5	<5	<5	<5	<5	<5	<5	<5	<5
38	16	14	12	10	8	6	5	5	5	<5	<5	<5	<5	<5	<5	<5
39	17	15	13	10	9	7	5	5	5	5	<5	<5	<5	<5	<5	<5
40	17	15	13	11	9	8	6	5	5	5	5	<5	<5	<5	<5	<5
41	18	16	14	12	10	9	7	5	5	5	5	5	<5	<5	<5	<5
42	19	17	15	13	11	9	7	5	5	5	5	5	5	<5	<5	<5
43	19	17	15	13	12	10	8	6	5	5	5	5	5	5	5	5
44	20	18	16	14	12	11	9	7	6	5	5	5	5	5	5	5
45	N/A	19	17	15	13	12	10	8	7	6	5	5	5	5	5	5
46	N/A	19	18	16	14	13	11	9	8	7	6	5	5	5	5	5
47	N/A	20	19	17	15	14	12	10	9	8	7	6	5	5	5	5
48	N/A	N/A	19	17	16	14	12	10	9	8	7	7	6	5	5	5
49	N/A	N/A	20	18	17	15	13	11	10	9	8	8	7	7	6	6
50	N/A	N/A	N/A	19	17	16	14	12	11	10	9	9	8	7	7	7

Source: Northern Economics, Inc. estimates from ADF&G (2015) and NOAA (2015a).

Under lower stock conditions, the elimination of D-shares from the pool is moderated by the fact that the "lost" QS are worth fewer pounds. The Area 2C charter fishery would still have obtained one fish under 44 inches and over 80 inches or one fish under 43 inches/over 74 inch with a 5 percent allowance. That said, number of "not achievable" regulatory options increases from 56 to 76 between the "with" and "without" scenarios.

Figure 4-18 Area 2C Charter regulations achievable by cumulative limit based on 2015 estimates of harvest and average fish size and 2011 QS/IFQ ratio, No D-Class

Lower Limit (in)	Upper length limit (in)															
	50	52	54	56	58	60	62	64	66	68	70	72	74	76	78	80
35	N/A	20	17	14	11	8	5	5	<5	<5	<5	<5	<5	<5	<5	<5
36	N/A	N/A	19	15	13	10	7	5	5	<5	<5	<5	<5	<5	<5	<5
37	N/A	N/A	20	17	14	11	8	5	5	5	<5	<5	<5	<5	<5	<5
38	N/A	N/A	N/A	18	15	13	10	6	5	5	5	<5	<5	<5	<5	<5
39	N/A	N/A	N/A	19	17	14	11	8	6	5	5	5	<5	<5	<5	<5
40	N/A	N/A	N/A	N/A	18	15	12	9	7	6	5	5	5	5	5	<5
41	N/A	N/A	N/A	N/A	19	17	14	10	9	7	5	5	5	5	5	5
42	N/A	N/A	N/A	N/A	20	18	15	11	10	8	7	6	5	5	5	5
43	N/A	N/A	N/A	N/A	N/A	19	16	13	11	9	8	7	5	5	5	5
44	N/A	N/A	N/A	N/A	N/A	20	17	14	12	11	9	8	7	6	6	5
45	N/A	N/A	N/A	N/A	N/A	N/A	19	16	14	12	11	10	9	8	8	7
46	N/A	N/A	N/A	N/A	N/A	N/A	20	17	15	13	12	11	10	9	9	8
47	N/A	N/A	N/A	N/A	N/A	N/A	N/A	18	16	15	13	12	11	10	10	10
48	N/A	N/A	N/A	N/A	N/A	N/A	N/A	19	17	16	14	13	12	11	11	11
49	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	19	18	16	15	14	13	13	12
50	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	19	18	17	16	15	15	14

Source: Northern Economics, Inc. estimates from ADF&G (2015) and NOAA (2015a).

In Area 3A, the restriction of D-Class shares reduces the maximum amount of QS allowed from 9,244,650 –36,978,602 units to 8,610.969–34,443,876 units. In the case of the D-class restriction, a 10 percent allowance would equal 17,221,838 units and the poundage-equivalent of these units in recent years ranged between 0.656 Mlb in 2014 to 1.471 Mlb in 2015. Historically, between 1995 and 2007, when the QS/IFQ ratio was lower, these units would have been worth an average of 2.142 Mlb annually.

Table 4-42 IFQ "Purchasing Power" by Cumulative allowance and QS/IFQ ratio, Area 3A with D class restrictions

Cumulative Cap (Percent)	Maximum QS units Allowed	Scenario/QS Ratio					
		2011	2012	2013	2014	2015	Historical Abundance (1995-2007)
5	8,610,969	0.669	0.555	0.514	0.328	0.363	1.071
6	10,333,163	0.802	0.666	0.617	0.393	0.435	1.285
7	12,055,357	0.936	0.777	0.719	0.459	0.508	1.499
8	13,777,551	1.070	0.888	0.822	0.524	0.580	1.714
9	15,499,744	1.203	0.999	0.925	0.590	0.653	1.928
10	17,221,938	1.337	1.110	1.028	0.656	0.726	2.142
11	18,944,132	1.471	1.221	1.130	0.721	0.798	2.356
12	20,666,326	1.605	1.332	1.233	0.787	0.871	2.570
13	22,388,520	1.738	1.443	1.336	0.852	0.943	2.785
14	24,110,713	1.872	1.554	1.439	0.918	1.016	2.999
15	25,832,907	2.006	1.664	1.541	0.983	1.088	3.213
16	27,555,101	2.139	1.775	1.644	1.049	1.161	3.427
17	29,277,295	2.273	1.886	1.747	1.114	1.234	3.641
18	30,999,489	2.407	1.997	1.850	1.180	1.306	3.856
19	32,721,683	2.541	2.108	1.952	1.246	1.379	4.070
20	34,443,876	2.674	2.219	2.055	1.311	1.451	4.284
QS/IFQ Ratio		6.32	12.88	15.52	16.76	26.27	8.04

Source: Northern Economics, Inc. estimates from NOAA (2015a).

The effect of the D-Class restriction is modest but not insignificant. In the lower stock conditions of 2015, the RQE would need 10 percent of all QS to reach an "under 50" size limit on the second fish instead of needing nine percent of all QS. The nine percent allowance would provide for a 48-inch second fish instead of 50 inches.

Figure 4-19 Area 3A Charter regulations achievable by cumulative limit based on 2015 estimates of harvest and average fish size and 2015 QS/IFQ Ratio, No D-Class

Size Limit on 2nd fish (in)	Annual Limit										
	1	2	3	4	5	6	7	8	9	10	None
26	<5	<5	<5	5	5	5	5	5	5	5	5
27	<5	<5	<5	5	5	5	5	5	5	5	5
28	<5	<5	5	5	5	5	5	5	5	5	5
29	<5	<5	5	5	5	5	5	5	5	5	5
30	<5	<5	5	5	5	5	5	5	6	6	6
31	<5	<5	5	5	5	6	6	6	6	6	6
32	<5	<5	5	5	6	6	7	7	7	7	7
33	<5	5	5	6	6	7	7	7	7	7	7
34	<5	5	5	6	7	7	8	8	8	8	8
35	<5	5	5	6	7	8	8	8	8	8	8
36	<5	5	5	7	8	8	8	8	9	9	9
37	<5	5	5	7	8	8	9	9	9	9	9
38	<5	5	5	7	8	9	9	9	9	9	9
39	<5	5	5	7	8	9	9	9	9	9	10
40	<5	5	5	8	8	9	9	9	9	10	10
41	<5	5	5	8	9	9	9	10	10	10	10
42	<5	5	6	8	9	9	10	10	10	10	10
43	<5	5	6	8	9	9	10	10	10	10	10
44	<5	5	6	8	9	10	10	10	10	10	10
45	<5	5	6	8	9	10	10	10	10	10	10
46	<5	5	6	8	9	10	10	10	10	10	11
47	<5	5	6	9	9	10	10	10	10	11	11
48	<5	5	6	9	9	10	10	10	11	11	11
49	<5	5	6	9	10	10	10	11	11	11	11
50	<5	5	6	9	10	10	11	11	11	11	11

Source: Northern Economics, Inc. estimates from ADF&G (2015) and NOAA (2015a).

Under higher stock conditions, such as those experienced in 2011, the restriction of D-class does not change the analytical result that the RQE could effectively achieve up to a 50-inch limit on the second fish with less than 5 percent of the 3A QS pool.

Figure 4-20 Area 3A Charter regulations achievable by cumulative limit based on 2015 estimates of harvest and average fish size and 2011 QS/IFQ Ratio

Size Limit on 2nd fish (in)	Annual Limit										
	1	2	3	4	5	6	7	8	9	10	None
26	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
27	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
28	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
29	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
30	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
31	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
32	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
33	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
34	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
35	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
36	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
37	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
38	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
39	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
40	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
41	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
42	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
43	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
44	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
45	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
46	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
47	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
48	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
49	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
50	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5

Source: Northern Economics, Inc. estimates from ADF&G (2015) and NOAA (2015a).

The purpose of **Sub-Option 2** of **Option 4** would be to prohibit the RQE from purchasing the smaller blocks of QS with the idea of reserving those blocks for small business that are more likely to purchase those shares. Standing alone, the effect of this sub-option is similar to the effect of **Sub-Option 1** of **Option 4**, in part because many D-Class shares are in small blocks and because the total sum of block shares in ≤1,500 blocks is similar to the total sum of D-Class shares.

In Area 2C, the QS units in 1,500 pound blocks (2015) are 13.8 percent of all QS units compared to 15.0 percent for all D-Class units. If the standard is set at 2,000 pound blocks (2015), then the percentage of affected QC increases to 23.8 percent. If the Council implemented Sub-Option 1 with Sub-Option 2, the percentages increase to 22.6 percent with 1,500 pound blocks and then to 29.3 percent with 2,000 pound blocks (see Table 4-43).

Table 4-43 Blocked QS Less than or Equal to 1,500 lb or 2,000 lb in 2015, Area 2C

		QS from 2015 Blocks ≤		Percent of Class QS	
Class	**Total Shares**	**1,500 lb**	**2,000 lb**	**1,500 lb**	**2,000 lb**
A	1,249,141	41,280	151,533	3.3	12.1
B	2,655,425	176,366	367,404	6.6	13.8
C	46,677,536	4,357,464	7,999,184	9.3	17.1
D	8,895,294	3,603,482	5,384,115	40.5	60.5
All Classes	59,477,396	8,178,592	13,902,236	13.8	23.4
All D-Class+Blocks	59,477,396	13,470,404	17,413,415	22.6	29.3

Source: Northern Economics, Inc. estimates from NOAA (2015a).

In Area 3A, the QS units in 1,500 pound blocks (2015) are 7.2 percent of all QS units compared to 6.9 percent for all D-Class units. If the standard is set at 2,000 pound blocks (2015), then the percentage of affected QC increases to 13.2 percent. If the Council implemented Sub-Option 1 with Sub-Option 2, the percentages increase to 11.7 percent with 1,500 pound blocks and then to 15.7 percent with 2,000 pound blocks (see Table 4-44).

Table 4-44 Blocked QS Less than or Equal to 1,500 lb or 2,000 lb in 2015, Area 3A

		QS from 2015 Blocks ≤		Percent of Class QS	
Class	**Total Shares**	**1,500 lb**	**2,000 lb**	**1,500 lb**	**2,000 lb**
A	4,773,918	70,692	270,203	1.5	5.7
B	68,568,976	920,969	1,534,265	1.3	2.2
C	98,876,488	7,960,195	14,630,933	8.1	14.8
D	12,664,467	4,403,783	7,924,495	34.8	62.6
All Classes	184,883,849	13,355,639	24,359,896	7.2	13.2
All D-Class+Blocks	184,883,849	21,616,323	29,099,868	11.7	15.7

Source: Northern Economics, Inc. estimates from NOAA (2015a).

4.8.1.2.6 Effect of Element 2, Option 2 on Annual Transfer Limits

As one might expect based on the results discussed above, preventing the RQE from purchasing ≤1,500 pound blocks or ≤2,000 pound blocks reduces the poundages associated with annual transfer limits. For example, in an environment where purchases are not restricted by block or class, a one percent annual transfer limit was equal to 0.023 to 0.037 Mlb between 2011 and 2015. The introduction of the ≤1,500 pound block restriction would drop the amount the RQE could purchase to between 0.020 Mlb and 0.032 Mlb; these amounts are substantially similar to the effect of restricting D-Class units, which results in a range of between 0.020 Mlb and 0.031 Mlb. The ≤2,000 pound block restriction would further limit the

amount the RQE could purchase under annual transfer limits with the value of the one percent limit falling to between 0.018 Mlb and 0.028 Mlb under 2011 to 2015 conditions (see Table 4-45).

Table 4-45 Comparison of Sub-Option Effects on Annual Transfer Limits, Area 2C

Year	Available QS Units	QS/IFQ Ratio	Pounds of Annual Transfer Allowance (by Percent)				
			1	2	3	4	5
No Exclusions							
2011	59,477,396	25.56	0.023	0.047	0.070	0.093	0.116
2012	59,477,396	22.70	0.026	0.052	0.079	0.105	0.131
2013	59,477,396	20.05	0.030	0.059	0.089	0.119	0.148
2014	59,477,396	17.94	0.033	0.066	0.099	0.133	0.166
2015	59,477,396	16.17	0.037	0.074	0.110	0.147	0.184
Excluding D-Class							
2011	50,581,920	25.56	0.020	0.040	0.059	0.079	0.099
2012	50,581,920	22.70	0.022	0.045	0.067	0.089	0.111
2013	50,581,920	20.05	0.025	0.050	0.076	0.101	0.126
2014	50,581,920	17.94	0.028	0.056	0.085	0.113	0.141
2015	50,581,920	16.17	0.031	0.063	0.094	0.125	0.156
Excluding ≥1500 lb Blocks							
2011	51,298,804	25.56	0.020	0.040	0.060	0.080	0.100
2012	51,298,804	22.70	0.023	0.045	0.068	0.090	0.113
2013	51,298,804	20.05	0.026	0.051	0.077	0.102	0.128
2014	51,298,804	17.94	0.029	0.057	0.086	0.114	0.143
2015	51,298,804	16.17	0.032	0.063	0.095	0.127	0.159
Excluding ≥2000 lb Blocks							
2011	45,575,160	25.56	0.018	0.036	0.053	0.071	0.089
2012	45,575,160	22.70	0.020	0.040	0.060	0.080	0.100
2013	45,575,160	20.05	0.023	0.045	0.068	0.091	0.114
2014	45,575,160	17.94	0.025	0.051	0.076	0.102	0.127
2015	45,575,160	16.17	0.028	0.056	0.085	0.113	0.141

Source: Northern Economics, Inc. estimates from NOAA (2015a).

The same effect can be seen in Area 3A with the ≤1,500 pound blocks reducing the value to the RQE of a one percent annual transfer limit from 0.70 to 0.144 Mlb to 0.065 to 0.133 Mlb. This effect is again substantially similar to the effect of banning the RQE from holding D-class shares, which during the same time period would have resulted in annual limits ranging from 0.066 Mlb to 0.134 Mlb. A ≤2,000 pound block restriction reduces the RQE's allowed purchases slightly, moving the 2011-2015 historical range to 0.061 to 0.125 Mlb (see Table 4-46).

Table 4-46 Comparison of Sub-Option Effects on Annual Transfer Limits, Area 2C

Year	Available QS Units	QS/IFQ Ratio	Pounds of Annual Transfer Allowance (by Percent)				
			1	2	3	4	5
No Exclusions							
2011	184,893,008	12.88	0.144	0.287	0.431	0.574	0.718
2012	184,893,008	15.52	0.119	0.238	0.357	0.477	0.596
2013	184,893,008	16.76	0.110	0.221	0.331	0.441	0.552
2014	184,893,008	26.27	0.070	0.141	0.211	0.282	0.352
2015	184,893,008	23.73	0.078	0.156	0.234	0.312	0.389
Excluding D-Class							
2011	172,219,382	12.88	0.134	0.267	0.401	0.535	0.669
2012	172,219,382	15.52	0.111	0.222	0.333	0.444	0.555
2013	172,219,382	16.76	0.103	0.206	0.308	0.411	0.514
2014	172,219,382	26.27	0.066	0.131	0.197	0.262	0.328
2015	172,219,382	23.73	0.073	0.145	0.218	0.290	0.363
Excluding ≥1500 lb Blocks							
2,011	171,537,369	12.88	0.133	0.266	0.400	0.533	0.666
2,012	171,537,369	15.52	0.111	0.221	0.332	0.442	0.553
2,013	171,537,369	16.76	0.102	0.205	0.307	0.409	0.512
2,014	171,537,369	26.27	0.065	0.131	0.196	0.261	0.326
2,015	171,537,369	23.73	0.072	0.145	0.217	0.289	0.361
Excluding ≥2000 lb Blocks							
2011	160,533,112	12.88	0.125	0.249	0.374	0.499	0.623
2012	160,533,112	15.52	0.103	0.207	0.310	0.414	0.517
2013	160,533,112	16.76	0.096	0.192	0.287	0.383	0.479
2014	160,533,112	26.27	0.061	0.122	0.183	0.244	0.306
2015	160,533,112	23.73	0.068	0.135	0.203	0.271	0.338

Source: Northern Economics, Inc. estimates from NOAA (2015a).

4.8.1.2.7 Effects of Element 2, Option 3 on Total Cumulative Limits

Block restrictions would trickle through from annual transfer limits to total cumulative limits. Table 4-47 and Table 4-48 show the effect of QS/IFQ ratio and block size restrictions on the total cumulative limits in Area 2C. As expected, both restrictions results in smaller cumulative limits relative to the unrestricted scenario.

Table 4-47 Qs/IFQ Ratio Effect on Total Cumulative Limits, Area 2C with ≤1,500 pound block restrictions

Cumulative Cap (Percent)	Maximum QS units Allowed	Scenario/QS Ratio					
		Historical Abundance (1995-2007)	2011	2012	2013	2014	2015
5	2,564,940	0.406	0.100	0.113	0.128	0.143	0.159
6	3,077,928	0.487	0.120	0.136	0.154	0.172	0.190
7	3,590,916	0.568	0.140	0.158	0.179	0.200	0.222
8	4,103,904	0.649	0.161	0.181	0.205	0.229	0.254
9	4,616,892	0.730	0.181	0.203	0.230	0.257	0.286
10	5,129,880	0.811	0.201	0.226	0.256	0.286	0.317
11	5,642,868	0.892	0.221	0.249	0.281	0.315	0.349
12	6,155,856	0.973	0.241	0.271	0.307	0.343	0.381
13	6,668,845	1.055	0.261	0.294	0.333	0.372	0.413
14	7,181,833	1.136	0.281	0.316	0.358	0.400	0.444
15	7,694,821	1.217	0.301	0.339	0.384	0.429	0.476
16	8,207,809	1.298	0.321	0.362	0.409	0.458	0.508
17	8,720,797	1.379	0.341	0.384	0.435	0.486	0.539
18	9,233,785	1.460	0.361	0.407	0.461	0.515	0.571
19	9,746,773	1.541	0.381	0.429	0.486	0.543	0.603
20	10,259,761	1.622	0.401	0.452	0.512	0.572	0.635
QS/IFQ Ratio		6.32	25.56	22.70	20.05	17.94	16.17

Source: Northern Economics, Inc. estimates from NOAA (2015a).

Table 4-48 Qs/IFQ Ratio Effect on Total Cumulative Limits, Area 2C with ≤2,000 pound block restrictions

Cumulative Cap (Percent)	Maximum QS units Allowed	Scenario/QS Ratio					
		Historical Abundance (1995-2007)	2011	2012	2013	2014	2015
5	2,278,758	0.360	0.089	0.100	0.114	0.127	0.141
6	2,734,510	0.432	0.107	0.120	0.136	0.152	0.169
7	3,190,261	0.504	0.125	0.141	0.159	0.178	0.197
8	3,646,013	0.577	0.143	0.161	0.182	0.203	0.226
9	4,101,764	0.649	0.160	0.181	0.205	0.229	0.254
10	4,557,516	0.721	0.178	0.201	0.227	0.254	0.282
11	5,013,268	0.793	0.196	0.221	0.250	0.279	0.310
12	5,469,019	0.865	0.214	0.241	0.273	0.305	0.338
13	5,924,771	0.937	0.232	0.261	0.295	0.330	0.366
14	6,380,522	1.009	0.250	0.281	0.318	0.356	0.395
15	6,836,274	1.081	0.267	0.301	0.341	0.381	0.423
16	7,292,026	1.153	0.285	0.321	0.364	0.406	0.451
17	7,747,777	1.225	0.303	0.341	0.386	0.432	0.479
18	8,203,529	1.297	0.321	0.361	0.409	0.457	0.507
19	8,659,280	1.369	0.339	0.381	0.432	0.483	0.536
20	9,115,032	1.441	0.357	0.402	0.455	0.508	0.564
QS/IFQ Ratio			0.360	0.089	0.100	0.114	0.127

Source: Northern Economics, Inc. estimates from NOAA (2015a).

While the block restrictions reduce the total cumulative limits, within a certain range the Council could adjust for the block restrictions with higher total cumulative limits. For example, presume the Council wanted to ban RQE ownership of the ≤2,000 pound blocks, but wanted the Area 2C fishery to have access to an additional 0.250 Mlb of quota while operating under 2015 conditions. In a no restriction scenario the Council would need to select a 7 percent total cumulative limit. However, in a scenario where the Council restricted the ownership of ≤2,000 pound blocks, the Council would need to select a roughly nine percent total cumulative limit (see Table 4-49).[27]

Table 4-49 Comparison of Sub-Option Effects on Total Cumulative Limits, Area 2C and 2015 QS/IFQ Ratios

Cumulative Cap (Percent)	Maximum QS units Allowed	Scenario/QS Ratio			
		No Restrictions	No D-Class	No 1,500 lb Blocks	No 2,000 lb Blocks
5	2,564,940	0.184	0.156	0.159	0.141
6	3,077,928	0.221	0.188	0.190	0.169
7	3,590,916	0.258	0.219	0.222	0.197
8	4,103,904	0.294	0.250	0.254	0.226
9	4,616,892	0.331	0.282	0.286	0.254
10	5,129,880	0.368	0.313	0.317	0.282
11	5,642,868	0.405	0.344	0.349	0.310
12	6,155,856	0.441	0.375	0.381	0.338
13	6,668,845	0.478	0.407	0.413	0.366
14	7,181,833	0.515	0.438	0.444	0.395
15	7,694,821	0.552	0.469	0.476	0.423
16	8,207,809	0.589	0.501	0.508	0.451
17	8,720,797	0.625	0.532	0.539	0.479
18	9,233,785	0.662	0.563	0.571	0.507
19	9,746,773	0.699	0.594	0.603	0.536
20	10,259,761	0.736	0.626	0.635	0.564
QS/IFQ Ratio		16.17	16.17	16.17	16.17

Source: Northern Economics, Inc. estimates from NOAA (2015a).

Figure 4-21 and Figure 4-22 show the regulatory options that would have been available to an RQE in 2015 if an RQE existed and it had held between 5 and 20 percent of all Area 2C QS. As with the unrestricted and D-Class analysis, under 2015 conditions the RQE would have been able to liberalize the reverse slot limits. The authors note that at single digit cumulative limits, all of the scenarios are somewhat similar and really only differ once the reader begins comparing what higher cumulative limits could provide.

[27] The authors note that selecting the ≤2,000 block limit also has the effect of protecting 60.5 percent of the Area 2C D-Class share from being purchased by the RQE.

Figure 4-21 Area 2C Charter regulations achievable by cumulative limit based on 2015 estimates of harvest and average fish size and QS/IFQ Ratio, No ≤1,500 lb Blocks

Lower Limit (in)	Upper length limit (in)															
	50	52	54	56	58	60	62	64	66	68	70	72	74	76	78	80
35	13	11	9	7	5	5	5	<5	<5	<5	<5	<5	<5	<5	<5	<5
36	14	12	10	8	6	5	5	<5	<5	<5	<5	<5	<5	<5	<5	<5
37	15	13	11	9	7	5	5	5	<5	<5	<5	<5	<5	<5	<5	<5
38	16	14	12	10	8	6	5	5	5	<5	<5	<5	<5	<5	<5	<5
39	16	14	12	10	9	7	5	5	5	5	<5	<5	<5	<5	<5	<5
40	17	15	13	11	9	8	6	5	5	5	5	<5	<5	<5	<5	<5
41	18	16	14	12	10	9	7	5	5	5	5	5	<5	<5	<5	<5
42	18	16	15	12	11	9	7	5	5	5	5	5	5	<5	<5	<5
43	19	17	15	13	11	10	8	6	5	5	5	5	5	5	5	5
44	20	18	16	14	12	11	9	7	6	5	5	5	5	5	5	5
45	20	19	17	15	13	12	10	8	7	6	5	5	5	5	5	5
46	N/A	19	17	15	14	12	11	9	8	7	6	5	5	5	5	5
47	N/A	20	18	16	15	13	11	10	8	8	7	6	5	5	5	5
48	N/A	N/A	19	17	15	14	12	10	9	8	7	7	6	5	5	5
49	N/A	N/A	20	18	16	15	13	11	10	9	8	8	7	6	6	6
50	N/A	N/A	N/A	19	17	16	14	12	11	10	9	9	8	7	7	7

Source: Northern Economics, Inc. estimates from ADF&G (2015) and NOAA (2015a).

Figure 4-22 Area 2C Charter regulations achievable by cumulative limit based on 2015 estimates of harvest and average fish size and QS/IFQ Ratio, No ≤2,000 lb Blocks

Lower Limit (in)	Upper length limit (in)															
	50	52	54	56	58	60	62	64	66	68	70	72	74	76	78	80
35	15	12	10	7	5	5	5	<5	<5	<5	<5	<5	<5	<5	<5	<5
36	16	13	11	9	7	5	5	<5	<5	<5	<5	<5	<5	<5	<5	<5
37	17	14	12	10	8	6	5	5	<5	<5	<5	<5	<5	<5	<5	<5
38	18	15	13	11	9	7	5	5	5	<5	<5	<5	<5	<5	<5	<5
39	18	16	14	12	10	8	6	5	5	5	<5	<5	<5	<5	<5	<5
40	19	17	15	12	10	9	6	5	5	5	5	<5	<5	<5	<5	<5
41	20	18	16	13	11	10	7	5	5	5	5	5	<5	<5	<5	<5
42	N/A	18	16	14	12	10	8	6	5	5	5	5	5	<5	<5	<5
43	N/A	19	17	15	13	11	9	7	6	5	5	5	5	5	5	5
44	N/A	20	18	16	14	12	10	8	7	5	5	5	5	5	5	5
45	N/A	N/A	19	17	15	13	11	9	8	7	5	5	5	5	5	5
46	N/A	N/A	20	17	16	14	12	10	8	7	6	6	5	5	5	5
47	N/A	N/A	N/A	18	17	15	13	11	9	8	7	7	6	5	5	5
48	N/A	N/A	N/A	19	17	16	13	11	10	9	8	7	7	6	6	5
49	N/A	N/A	N/A	20	18	17	15	13	11	10	9	9	8	7	7	7
50	N/A	N/A	N/A	N/A	19	18	16	14	12	11	10	10	9	8	8	8

Source: Northern Economics, Inc. estimates from ADF&G (2015) and NOAA (2015a).

Under 2011 lower stock conditions, the effects of block restrictions are much more noticeable at both of the considered levels. For the Area 2C fishery to reach one fish measuring less than 48 inches or more than 80 inches requires a five percent cumulative allowance under 2015 stock conditions, but would require a 10 percent allowance with the ≤1,500 pound block restriction (see Figure 4-23) and 12 percent under the ≤2,000 pound block restriction (see Figure 4-24). The smallest reverse slot gap that the RQE could reach with a 20 percent cumulative limit would be an U50/O66 regime with the ≤1,500 pound block restriction and U50/O70 regime with the ≤2,000 pound block restriction.

Figure 4-23 Area 2C Charter regulations achievable by cumulative limit based on 2015 estimates of harvest and average fish size and 2011 QS/IFQ ratio, No ≤1,500 lb Blocks

Lower Limit (in)	Upper length limit (in)															
	50	52	54	56	58	60	62	64	66	68	70	72	74	76	78	80
35	N/A	20	17	13	11	8	5	5	<5	<5	<5	<5	<5	<5	<5	<5
36	N/A	N/A	19	15	12	10	7	5	5	<5	<5	<5	<5	<5	<5	<5
37	N/A	N/A	20	16	14	11	8	5	5	5	<5	<5	<5	<5	<5	<5
38	N/A	N/A	N/A	18	15	13	10	6	5	5	5	<5	<5	<5	<5	<5
39	N/A	N/A	N/A	19	16	14	11	8	6	5	5	5	<5	<5	<5	<5
40	N/A	N/A	N/A	20	18	15	12	9	7	5	5	5	5	5	5	<5
41	N/A	N/A	N/A	N/A	19	17	13	10	8	7	5	5	5	5	5	5
42	N/A	N/A	N/A	N/A	20	18	14	11	10	8	6	5	5	5	5	5
43	N/A	N/A	N/A	N/A	N/A	19	15	12	11	9	8	7	5	5	5	5
44	N/A	N/A	N/A	N/A	N/A	20	17	14	12	11	9	8	7	6	6	5
45	N/A	N/A	N/A	N/A	N/A	N/A	18	15	14	12	11	10	8	8	7	7
46	N/A	N/A	N/A	N/A	N/A	N/A	20	16	15	13	12	11	10	9	9	8
47	N/A	N/A	N/A	N/A	N/A	N/A	N/A	18	16	15	13	12	11	10	10	9
48	N/A	N/A	N/A	N/A	N/A	N/A	N/A	19	17	16	14	13	12	11	11	10
49	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	19	18	16	15	14	13	13	12
50	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	20	19	17	17	15	15	14	14

Source: Northern Economics, Inc. estimates from ADF&G (2015) and NOAA (2015a).

Figure 4-24 Area 2C Charter regulations achievable by cumulative limit based on 2015 estimates of harvest and average fish size and 2011 QS/IFQ ratio, No ≤2,000 lb Blocks

Lower Limit (in)	Upper length limit (in)															
	50	52	54	56	58	60	62	64	66	68	70	72	74	76	78	80
35	N/A	N/A	19	15	12	9	5	5	<5	<5	<5	<5	<5	<5	<5	<5
36	N/A	N/A	N/A	17	14	11	7	5	5	<5	<5	<5	<5	<5	<5	<5
37	N/A	N/A	N/A	18	15	12	9	5	5	5	<5	<5	<5	<5	<5	<5
38	N/A	N/A	N/A	20	17	14	11	7	5	5	5	<5	<5	<5	<5	<5
39	N/A	N/A	N/A	N/A	18	16	12	8	6	5	5	5	<5	<5	<5	<5
40	N/A	N/A	N/A	N/A	20	17	13	10	8	6	5	5	5	5	5	<5
41	N/A	N/A	N/A	N/A	N/A	19	15	11	9	8	6	5	5	5	5	5
42	N/A	N/A	N/A	N/A	N/A	20	16	13	11	9	7	6	5	5	5	5
43	N/A	N/A	N/A	N/A	N/A	N/A	17	14	12	10	8	7	6	5	5	5
44	N/A	N/A	N/A	N/A	N/A	N/A	19	15	14	12	10	9	8	7	7	6
45	N/A	N/A	N/A	N/A	N/A	N/A	N/A	17	15	14	12	11	9	8	8	8
46	N/A	N/A	N/A	N/A	N/A	N/A	N/A	18	17	15	13	12	11	10	10	9
47	N/A	N/A	N/A	N/A	N/A	N/A	N/A	20	18	17	15	14	12	12	11	11
48	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	19	18	16	15	14	13	12	12
49	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	20	18	17	16	15	15	14
50	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	20	19	17	16	16	15

Source: Northern Economics, Inc. estimates from ADF&G (2015) and NOAA (2015a).

Within Area 3A, the block restrictions would also trickle through from annual transfer limits to total cumulative limits. Table 4-50 and Table 4-52 show the effect of QS/IFQ ratio and block size restrictions on the total cumulative limits in Area 2C. As expected, both restrictions results in smaller cumulative limits relative to the unrestricted scenario.

Table 4-50 QS/IFQ Ratio Effect on Total Cumulative Limits with ≤ 1,500 Pound Block Restrictions, Area 3A

Cumulative Cap (Percent)	Maximum QS units Allowed	Scenario/QS Ratio					
		Historical Abundance (1995-2007)	2011	2012	2013	2014	2015
5	8,576,868	1.067	0.666	0.553	0.512	0.326	0.361
6	10,292,242	1.280	0.799	0.663	0.614	0.392	0.434
7	12,007,616	1.493	0.932	0.774	0.716	0.457	0.506
8	13,722,990	1.707	1.065	0.884	0.819	0.522	0.578
9	15,438,363	1.920	1.199	0.995	0.921	0.588	0.650
10	17,153,737	2.134	1.332	1.105	1.023	0.653	0.723
11	18,869,111	2.347	1.465	1.216	1.126	0.718	0.795
12	20,584,484	2.560	1.598	1.326	1.228	0.784	0.867
13	22,299,858	2.774	1.731	1.437	1.331	0.849	0.940
14	24,015,232	2.987	1.865	1.547	1.433	0.914	1.012
15	25,730,605	3.200	1.998	1.658	1.535	0.979	1.084
16	27,445,979	3.414	2.131	1.768	1.638	1.045	1.156
17	29,161,353	3.627	2.264	1.879	1.740	1.110	1.229
18	30,876,726	3.840	2.397	1.989	1.842	1.175	1.301
19	32,592,100	4.054	2.530	2.100	1.945	1.241	1.373
20	34,307,474	4.267	2.664	2.211	2.047	1.306	1.445
QS/IFQ Ratio		8.04	12.88	15.52	16.76	26.27	23.73

Source: Northern Economics, Inc. estimates from NOAA (2015a).

Table 4-51 QS/IFQ Ratio Effect on Total Cumulative Limits with ≤ 2,000 Pound Block Restrictions, Area 3A

Cumulative Cap (Percent)	Maximum QS units Allowed	Scenario/QS Ratio					
		Historical Abundance (1995-2007)	2011	2012	2013	2014	2015
5	8,026,656	0.998	0.623	0.517	0.479	0.306	0.338
6	9,631,987	1.198	0.748	0.621	0.575	0.367	0.406
7	11,237,318	1.398	0.872	0.724	0.670	0.428	0.473
8	12,842,649	1.597	0.997	0.827	0.766	0.489	0.541
9	14,447,980	1.797	1.122	0.931	0.862	0.550	0.609
10	16,053,311	1.997	1.246	1.034	0.958	0.611	0.676
11	17,658,642	2.196	1.371	1.138	1.054	0.672	0.744
12	19,263,973	2.396	1.496	1.241	1.149	0.733	0.812
13	20,869,305	2.596	1.620	1.345	1.245	0.794	0.879
14	22,474,636	2.795	1.745	1.448	1.341	0.856	0.947
15	24,079,967	2.995	1.870	1.552	1.437	0.917	1.015
16	25,685,298	3.195	1.994	1.655	1.533	0.978	1.082
17	27,290,629	3.394	2.119	1.758	1.628	1.039	1.150
18	28,895,960	3.594	2.243	1.862	1.724	1.100	1.217
19	30,501,291	3.794	2.368	1.965	1.820	1.161	1.285
20	32,106,622	3.993	2.493	2.069	1.916	1.222	1.353
QS/IFQ Ratio		8.04	12.88	15.52	16.76	26.27	23.73

Source: Northern Economics, Inc. estimates from NOAA (2015a).

As noted in the Area 2C discussion, while block restrictions reduce the total cumulative limits, within a certain range the Council could adjust for the block restrictions with higher total cumulative limits. For example, presume the Council wanted to ban RQE ownership of the ≤2,000 pound blocks, but wanted the Area 3A fishery to have access to an additional 0.500 Mlb of quota while operating under 2015 conditions. In a no restriction scenario the Council would need to select a six to seven percent total cumulative limit. However, in a scenario where the Council restricted the ownership of ≤2,000 pound blocks, the Council would need to select a roughly seven to eight percent total cumulative limit (see Table 4-49).[28]

[28] The authors' note that selecting the ≤2,000 block limit also has the effect of protecting 62.5 percent of the Area 3A D-Class share from being purchased by the RQE.

Table 4-52 Comparison of Sub-Option Effects on Total Cumulative Limits, Area 3A

Cumulative Cap (Percent)	Maximum QS units Allowed	Scenario/QS Ratio			
		No Restrictions	No D-Class	No 1,500 Blocks	No 2,000 Blocks
5	8,576,868	0.389	0.363	0.361	0.338
6	10,292,242	0.467	0.435	0.434	0.406
7	12,007,616	0.545	0.508	0.506	0.473
8	13,722,990	0.623	0.580	0.578	0.541
9	15,438,363	0.701	0.653	0.650	0.609
10	17,153,737	0.779	0.726	0.723	0.676
11	18,869,111	0.857	0.798	0.795	0.744
12	20,584,484	0.935	0.871	0.867	0.812
13	22,299,858	1.013	0.943	0.940	0.879
14	24,015,232	1.091	1.016	1.012	0.947
15	25,730,605	1.168	1.088	1.084	1.015
16	27,445,979	1.246	1.161	1.156	1.082
17	29,161,353	1.324	1.234	1.229	1.150
18	30,876,726	1.402	1.306	1.301	1.217
19	32,592,100	1.480	1.379	1.373	1.285
20	34,307,474	1.558	1.451	1.445	1.353
QS/IFQ Ratio		23.735	23.735	23.735	23.735

Source: Northern Economics, Inc. estimates from NOAA (2015a).

The analysis only shows figures of the effect of block restrictions for lower stock conditions similar to 2015. The analytical results for 2011 higher stock conditions indicate that the Area 3A fishery could reach any of the regulatory options in the figures, including no annual limit and a second fish under 50 inches, with 5 percent or less of the Area 3A QS (minus the restricted blocks). Under both the $\leq$1,500 pound and $\leq$2,000 pound restrictions, the Area 3A fishery is able to reach substantially larger second fish length maximums with 7 to 10 percent of the QS in Area 3A. Under 2015 stock conditions, the sector needs the five percent cumulative limit just to reach the status quo. This situation is whether the analysis is talking about the no restriction scenario, the D-Class scenario, or the block restrictions scenarios. The results of the analysis seems to suggest that in Area 3A, a five percent cumulative limit would leave the sector very well supplied in times of higher abundance (i.e., 2011 conditions), but would not significantly liberalize regulations under current conditions. At the same time, a 9 to 10 percent limit would give the fishery significant flexibility in lean times, but would result in significant return to the commercial sector in better times.

Figure 4-25 Area 3A Charter regulations achievable by cumulative limit based on 2015 estimates of harvest and average fish size and QS/IFQ Ratio, No ≤1,500 lb Blocks

Size Limit on 2nd fish (in)	Annual Limit										
	1	2	3	4	5	6	7	8	9	10	None
26	<5	<5	<5	5	5	5	5	5	5	5	5
27	<5	<5	<5	5	5	5	5	5	5	5	5
28	<5	<5	5	5	5	5	5	5	5	5	5
29	<5	<5	5	5	5	5	5	5	5	5	5
30	<5	<5	5	5	5	5	5	5	6	6	6
31	<5	<5	5	5	5	6	6	6	6	6	6
32	<5	<5	5	5	6	6	7	7	7	7	7
33	<5	5	5	6	6	7	7	7	7	7	8
34	<5	5	5	6	7	7	8	8	8	8	8
35	<5	5	5	6	7	8	8	8	8	8	8
36	<5	5	5	7	8	8	8	9	9	9	9
37	<5	5	5	7	8	8	9	9	9	9	9
38	<5	5	5	7	8	9	9	9	9	9	9
39	<5	5	5	8	8	9	9	9	9	9	10
40	<5	5	5	8	8	9	9	9	10	10	10
41	<5	5	5	8	9	9	9	10	10	10	10
42	<5	5	6	8	9	9	10	10	10	10	10
43	<5	5	6	8	9	10	10	10	10	10	10
44	<5	5	6	8	9	10	10	10	10	10	10
45	<5	5	6	8	9	10	10	10	10	10	10
46	<5	5	6	9	9	10	10	10	10	10	11
47	<5	5	6	9	9	10	10	10	10	11	11
48	<5	5	6	9	9	10	10	10	11	11	11
49	<5	5	6	9	10	10	10	11	11	11	11
50	<5	5	6	9	10	10	11	11	11	11	11

Source: Northern Economics, Inc. estimates from ADF&G (2015) and NOAA (2015a).

Figure 4-26 Area 3A Charter regulations achievable by cumulative limit based on 2015 estimates of harvest and average fish size and QS/IFQ ratio, No ≤2,000 lb Blocks

Size Limit on 2nd fish (in)	Annual Limit										
	1	2	3	4	5	6	7	8	9	10	None
26	<5	<5	<5	5	5	5	5	5	5	5	5
27	<5	<5	<5	5	5	5	5	5	5	5	5
28	<5	<5	5	5	5	5	5	5	5	5	5
29	<5	<5	5	5	5	5	5	5	5	5	5
30	<5	<5	5	5	5	5	6	6	6	6	6
31	<5	<5	5	5	5	6	6	6	6	7	7
32	<5	<5	5	6	6	7	7	7	7	7	8
33	<5	5	5	6	7	7	8	8	8	8	8
34	<5	5	5	6	7	8	8	8	8	8	9
35	<5	5	5	7	8	8	8	9	9	9	9
36	<5	5	5	7	8	9	9	9	9	9	9
37	<5	5	5	7	8	9	9	9	9	9	10
38	<5	5	5	8	9	9	9	10	10	10	10
39	<5	5	5	8	9	9	10	10	10	10	10
40	<5	5	6	8	9	10	10	10	10	10	10
41	<5	5	6	8	9	10	10	10	10	10	11
42	<5	5	6	9	9	10	10	10	10	11	11
43	<5	5	6	9	10	10	10	11	11	11	11
44	<5	5	6	9	10	10	11	11	11	11	11
45	<5	5	6	9	10	10	11	11	11	11	11
46	<5	5	6	9	10	10	11	11	11	11	11
47	<5	5	7	9	10	11	11	11	11	11	11
48	<5	5	7	9	10	11	11	11	11	11	11
49	<5	5	7	9	10	11	11	11	11	12	12
50	<5	5	7	10	10	11	11	12	12	12	12

Source: Northern Economics, Inc. estimates from ADF&G (2015) and NOAA (2015a).

4.8.1.2.8 Comparison of Element 2 Options and Combinations

The number of options and sub-options combined with the innate variability of charter harvests makes comparing the effect of options challenging. The following tables attempt to compare the effect of the sub-options under specific conditions on the "best" regulatory option achievable with different cumulative caps.[29] Table 4-53 compares the effect of the option sand sub-options of **Element 2** in Area 2C under 2015 stock conditions and projected angler demand. Under a five percent cumulative allowance cap, the RQE could have achieve a 1 fish under 49 inches or above 80 inches (U49-O80). This compares to the actual regulation of U42-O80. If the RQE were banned from buying D-Class shares or blocks with 1,500 pounds or less, the RQE could have managed a U48-O76 scenario. Combining these two restrictions would lead to a U48-O80 scenario. This U48-O80 scenario would also have been achievable with the restriction on 2,000 pounds or smaller blocks, but the combination of this block restriction with the D-Class restriction would have reduced the best available option to U47-O80. In essence, the modeling shows that while the restrictions have effects, the RQE would still be able to make substantial progress, in a recovering stock scenario, in liberalizing daily bag limits.

Table 4-53 Comparison of Element 2 Options and Sub-Options, Area 2C 2015 Stock Conditions/2015 Demand

Cumulative Cap (Percent)	No Restrictions	No D-Class	≤1,500 lb Blocks		≤2,000 lb Blocks	
			No Blocks	No Blocks and D-Class	No Blocks	No Blocks and D-Class
5	U49-O80	U48-O76	U48-O76	U48-O80	U48-O80	U47-O80
6	U50-O76	U49-O78	U49-O76	U48-O74	U48-O76	U48-O76
7	U50-O74	U50-O76	U50-O76	U49-O76	U49-O76	U49-O80
8	U50-O70	U50-O74	U50-O74	U50-O76	U50-O76	U50-O80
9	U50-O68	U50-O72	U50-O70	U50-O74	U50-O74	U50-O76
10	U50-O66	U50-O68	U50-O68	U50-O70	U50-O70	U50-O74
11	U50-O64	U50-O66	U50-O66	U50-O68	U50-O68	U50-O70
12	U50-O62	U50-O64	U50-O64	U50-O66	U50-O66	U50-O68
13	U49-O60	U49-O62	U49-O62	U50-O64	U49-O64	U50-O66
14	U50-O60	U50-O62	U50-O62	U46-O60	U50-O64	U49-O64
15	U50-O58	U49-O60	U49-O60	U49-O62	U49-O62	U50-O64
16	U50-O56	U50-O60	U50-O60	U50-O62	U50-O62	U49-O62
17	U49-O54	U50-O58	U50-O58	U49-O60	U49-O60	U50-O62
18	U50-O54	U49-O56	U49-O56	U50-O60	U50-O60	U49-O60
19	U50-O52	U50-O56	U50-O56	U50-O58	U50-O58	U50-O60
20	U49-O50	U49-O54	U49-O54	U49-O56	U49-O56	U49-O58

Source: Northern Economics, Inc. estimates from ADF&G (2015) and NOAA (2015a).

Table 4-54 provides the same comparison as Table 4-53 for Area 2C, but under 2011 stock conditions. With no restrictions the best option would a U55-O76 regulation with a five percent allowance. As the restrictions on RQE purchases increase this slips to a U44-O80 regulation and then to a U43-O76 regulation. The effect of the restrictions are more visible at higher allowances. Under a 20 percent allowance the restrictions cause the best option to fall from a U49-O62 to a U50-O70 option.

[29] At times it is unclear which regulatory option would be preferred by the charter sector and fishery managers. In the case of these tables the authors have prioritized raising the maximum size (i.e., the lower length limit) over lowering the minimum size of trophy fish (i.e., the upper length limit) or raising the annual limit. The authors made this assumption as raising the minimum length gives the most anglers access to the most fish.

Table 4-54 Comparison of Element 2 Options and Sub-Options, Area 2C 2011 Stock Conditions/2015 Demand

Cumulative Cap (Percent)	No Restrictions	No D-Class	≤1,500 lb Blocks		≤2,000 lb Blocks	
			No Blocks	No Blocks and D-Class	No Blocks	No Blocks and D-Class
5	U44-O76	U44-U80	U44-O80	U43-O76	U43-O76	U43-O76
6	U44-O74	U44-U76	U44-O76	U44-O78	U44-O80	U44-O80
7	U46-O78	U45-O80	U45-O78	U45-O80	U44-O76	U44-O76
8	U47-O80	U46-O80	U46-O80	U45-O76	U45-O76	U45-O80
9	U48-O80	U46-O76	U47-O80	U46-O80	U46-O80	U45-O76
10	U48-O76	U47-O76	U48-O80	U47-O80	U46-O76	U46-O78
11	U49-O76	U48-O76	U48-O76	U47-O76	U47-O78	U47-O80
12	U50-O78	U49-O80	U49-O80	U48-O80	U48-O78	U47-O76
13	U50-O74	U49-O76	U49-O76	U48-O74	U48-O76	U48-O78
14	U50-O72	U50-O80	U50-O80	U49-O78	U49-O80	U48-O76
15	U50-O70	U50-O76	U50-O74	U50-O80	U50-O80	U49-O80
16	U50-O68	U50-O74	U49-O70	U50-O76	U50-O76	U49-O76
17	U46-O62	U50-O72	U50-O70	U50-O74	U50-O74	U50-O78
18	U50-O66	U50-O70	U49-O68	U50-O72	U49-O70	U50-O76
19	U50-O64	U50-O68	U50-O68	U50-O70	U50-O72	U50-O74
20	U49-O62	U46-O62	U50-O66	U49-O68	U50-O70	U50-O72

Source: Northern Economics, Inc. estimates from ADF&G (2015) and NOAA (2015a).

For Area 3A, the analysis shows low stock conditions of 2015. Under higher stocks and similar demand conditions the sector would need less than the 5 percent minimum allowance under consideration by the Council. Under 2015 conditions, an unrestricted 5 percent allowance would allow the sector to have a 32-inch maximum size limit on the second fish while the most restrictive option would only allow a 30-inch maximum size limit. Another way of looking at the sub-options is the minimum allocation needed to reach a selected size limit. For example, a U50 size limit would require a 9 percent cumulative allowance in a no restrictions scenario, but an 11 percent allowance when the RQE is restricted from purchasing blocks of 2,000 pounds or less and D-Class.

Table 4-55 Comparison of Element 2 Options and Sub-Options, Area 3A 2015 Stock Conditions/2015 Demand

Cumulative Cap (Percent)	No Restrictions	No D-Class	≤1,500 lb Blocks		≤2,000 lb Blocks	
			Only Blocks	Blocks and D-Class	Only Blocks	Blocks and D-Class
5	U32	U31	U31	U31	U31	U30
6	U34	U33	U33	U32	U32	U32
7	U38	U35	U35	U35	U34	U34
8	U44	U40	U40	U38	U37	U37
9	U50	U48	U48	U44	U42	U41
10		U50	U50	U50	U50	U48
11						U50
12						
13						
14						
15						
16						
17						
18						
19						
20						

This blue shaded area indicated allowances that would allow managers to select a maximum size on the second fish larger than 50" in length or relax the 5-fish annual limit or eliminate the day of the week closure.

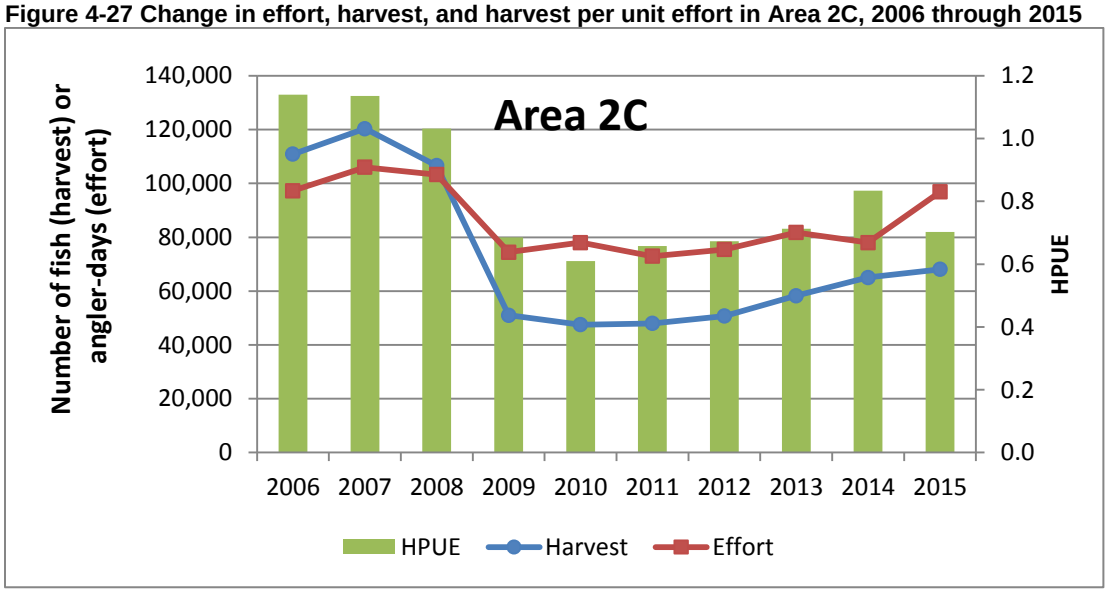
Source: Northern Economics, Inc. estimates from ADF&G (2015) and NOAA (2015a).

Angler demand is held constant at 2015 levels in Table 4-53 through Table 4-55 in order to isolate the impact of stock conditions. However, changes in angler effort could greatly affect an RQE's demand for halibut QS in a way that is difficult to predict. While new entry into the halibut charter business is capped in the fishery with a limited number of CHPs in circulation, without additional harvest restrictions this does not directly cap angler effort.[30] Variability in angler effort itself depends on a suite of other exogenous factors, for example changes in angler demand, ocean and weather conditions, the management measures chosen (e.g. day of the week closure). In addition, as further analyzed under **Alternative 3** in Section 4.9, there is significant unused and underutilized capacity under the existing CHPs, although it is unlikely that capacity will ever be fully realized due to seasonal trends.

Change in effort has often been considered in terms of a change in angler-trips. This change is shown for Area 2C in Figure 4-27. Both Area 2C and Area 3A demonstrates a noteworthy decline in effort (as well as harvest) between 2008 and 2009. One likely culprit was the declining state of the U.S. economy in after 2008, which could particularly impact non-Alaskan charter anglers. Area 3A had the same management measures for 2008 and 2009; however, another likely factor for Area 2C could have been the shift in regulations from a two fish bag-limit (1 U32) to a one fish of any size management regime. This may have contributed to the reduced harvest, and potentially effort due to an aversion to the lower bag limit. Section 4.8.2.1.1 continues the discussion of impacts on charter anglers and angler effort.

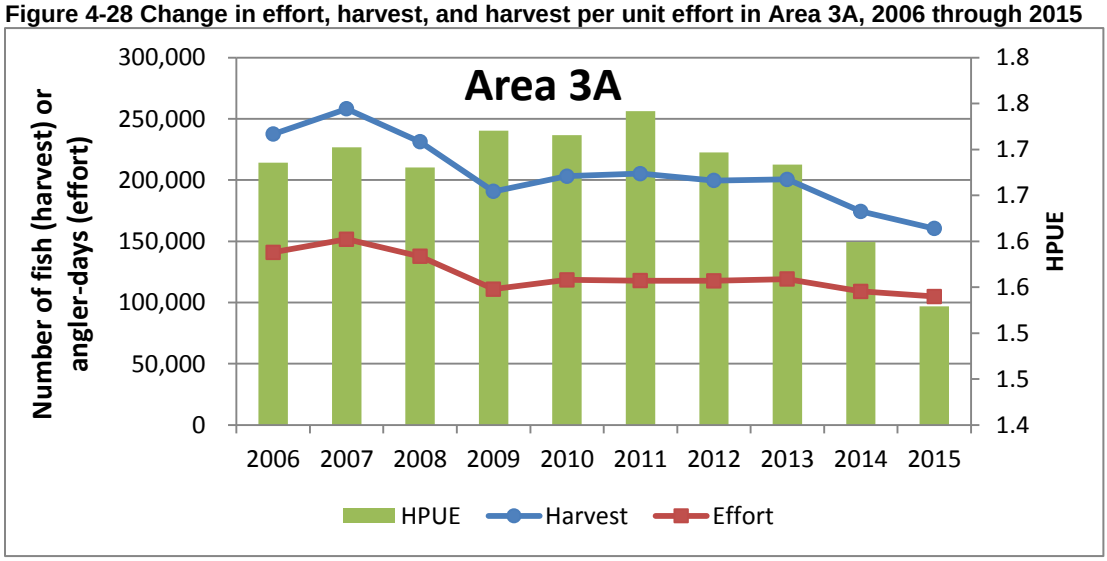
[30] CHPs do have a designated number of anglers that are endorsed to fish halibut on their vessel in a given trip. However, absent other management measure, theoretically, this would not preclude an angler from taking multiple trips in a day.

Figure 4-27 Change in effort, harvest, and harvest per unit effort in Area 2C, 2006 through 2015



Source: Logbook sourced through ADF&G
Figure notes: Harvest is measured in number of fish. Effort is number of bottomfish angler-trips with halibut harvest. 2015 values are preliminary.

Figure 4-28 Change in effort, harvest, and harvest per unit effort in Area 3A, 2006 through 2015



Source: Logbook sourced through ADF&G
Figure notes: Harvest is measured in number of fish. Effort is number of bottomfish angler-trips with halibut harvest. 2015 values are preliminary.

4.8.1.3 Element 3: Annual Reversion in Times of High Abundance

Element 3 of **Alternative 2** sets the timing of the use of RQE shares plus conditions for the temporary redistribution of RQE holdings back to the commercial sector when an RQE has holdings in excess of the amount of QS needed to provide charter clients with harvest opportunities greater than the unguided recreational bag limit in either area. As stated in the Council's December 2015 motion:

> *Setting of annual charter management measures. Use RQE quota share holdings as of October 1 each year as the basis to estimate IFQ pounds to add to the estimated guided recreational allocation under the catch sharing plan for the upcoming year. This amount must be maintained*

for the following fishing year. This estimated combined allocation would be used to recommend the guided recreational harvest measures for the following year. The procedural process steps and timeline would remain unchanged.

If the RQE holdings provide a charter harvest opportunity greater than the unguided recreational bag limit in either area, NMFS would not issues annual IFQ in excess of the amount needed for the charter sector to obtain the unguided recreational bag limit to the RQE for that area. Unallocated RQE IFQ would be reallocated as follows:

- ***Sub-option 1****-Equally to all catcher vessel QS holders which hold not more than 1,500 to 3,000 pounds in 2016 pounds (by area, proportional to QS holdings)*[31]
- ***Sub-option 2****-Equally to all catcher vessel QS holders (by area, proportional to QS holdings)*
- ***Sub-option 3****-CQEs actively participating in Area 2C/Area 3A*
- ***Sub-option 4****-Unallocated RQE IFQ would not be allocated (left in the water)*

As specified by the option, the analysis focus on the reallocation when halibut are abundant including under what conditions a reallocation would be triggered. Under recent stock conditions, none of the considered allocations in Area 2C would result in a bag limit of two fish of unrestricted size. The ability to reach this type of daily bag limit in Area 3A could likely occur with a high allocation and low annual limit.

Sub-option 1 would reallocate excess QS to all catcher vessel QS holders holding not more than 1,500 pounds to 3,000 pounds while **Sub-option 2** would reallocate the QS to all catcher vessel QS holders. As these two options are very similar, the analysis presents them together. Table 4-56 depicts the number of 2015 QS holders in Area 2C, the portion of all QS holders represented by each sub-group, their relative portion of all QS held, and the average and median pounds of IFQ in 2015. In 2015, there were 993 QS holders averaging 3,704 pounds of IFQ each. However, the median IFQ holder held just 2,561 pounds of IFQ, indicating the presence of relatively few large QS owners and many owners of smaller amounts (see Table 4-56). For the other groups:

- There were just over 376 QS owners who held 1,500 pounds or less in 2015. This group represented 37.9 percent of all QS owners by held just 5.5 percent of all QS units. Their average 2015 poundage was 537 pounds while their median poundage was 417 pounds.
- QS owners with the 2015 equivalent of 2,000 pounds or less of IFQ numbered 436, representing 43.9 percent of all owners and holding 8.3 percent of QS. On average, they held 703 pounds of QS with a median holding of 544 pounds.
- The 2,500 pounds or less group represents 49.6 percent (493 owners) of all QS owners, and they held 11.8 percent of all QS units. On average those units were worth 882 pounds in 2015, while the median holding was 717 pounds.
- Owners with 3,000 pounds or less represent 55.4 percent of all holders and they hold 16.8 percent of all QS. Average holdings were 1,077 pounds while median holding 856 pounds.

[31] The analysis uses 2015 data from NMFS.

Table 4-56 2015 QS and IFQ Holders in Area 2C, 2015 data[32]

Group	Holders (N)	Holders (%)	QS (%)	Average IFQ (Pounds)	Median IFQ (Pounds)
All QS Holders	993	100.0	100	3,704	2,551
≤1,500 Pounds	376	37.9	5.5	537	417
≤2,000 Pounds	436	43.9	8.3	703	544
≤2,500 Pounds	493	49.6	11.8	882	717
≤3,000 Pounds	550	55.4	16.1	1077	856

Source: NMFS 2015(a)

It is difficult at this stage to determine how much, if any, QS would be reallocated back to the commercial sector. Under 2015 conditions, ADF&G estimated that a one-fish bag limit with unrestricted size would require a 1.5 Mlb allocation to the 2C charter sector. Assuming that roughly 60 percent of anglers kept a second fish, a two-fish allocation would require 2.4 Mlb. Without the RQE, this poundage could only be reached if total combined catch limit reached 15 Mlb (see Table 4-56). The Area 2C charter fishery's ability to reach the equivalent of 2.4 Mlb to allow for a two fish of any size daily bag limit will depend on abundance and the cumulative allowance set by the Council. Table 4-56 shows the base charter allocation by Annual Combined Catch Limit level and the RQE catch limit (base allocation plus value of QS holdings) by allowance scenario. For example, if the Council allowed the RQE to purchase up to 20 percent of all QS (unrestricted) then, assuming current demand and average weights, we could expect overage allocations to start occuring around the 7.5 Mlb ACCL. The shaded cells indicate when the RQE's catch limit would exceed 2.4 Mlb. The dotted box represents the equivalent of the ACCL during the years the GHL was in place and halibut were more abundant. The table shows that a 20 percent allowance (and ownership) would likely result in reallocations before abundance reaches historical levels. A 15 percent allowance or a 10 percent allowance would likely result in some reallocations at historical levels, while a 5 percent allowance and owership means that reallocations would likely only occur at very high abundance levels.

[32] Unique holders are identified by NMFS ID. The authors acknowledge that some partnerships/spousal arrangements might be considered individual small holders for the purposes of this discussion but may actually function like a larger entity in practice.

Table 4-57 Conditions for Triggering a Reallocation, Area 2C

Annual Combined Catch Limit (Mlb)	Base Charter Allocation (Mlb)	Commercial Catch Limit Ex Incidental Mortality (Mlb)	Est QS/IFQ Ratio	RQE CL at 20 Percent RQE Allowance	RQE CL at 15 Percent RQE Allowance	RQE CL at 10 Percent RQE Allowance	RQE CL at 5 Percent RQE Allowance
1.5	0.275	1.19	50.0	0.512	0.453	0.39	0.334
2.0	0.366	1.59	37.5	0.683	0.604	0.52	0.445
2.5	0.458	1.98	30.0	0.854	0.755	0.66	0.557
3.0	0.549	2.38	25.0	1.025	0.906	0.79	0.668
3.5	0.641	2.77	21.4	1.195	1.057	0.92	0.779
4.0	0.732	3.17	18.8	1.366	1.208	1.05	0.891
4.5	0.824	3.57	16.7	1.537	1.359	1.18	1.002
5.0	0.915	3.96	15.0	1.708	1.510	1.31	1.113
5.5	0.915	4.45	13.4	1.805	1.582	1.36	1.137
6.0	0.954	4.90	12.1	1.933	1.688	1.44	1.199
6.5	1.034	5.30	11.2	2.094	1.829	1.56	1.299
7.0	1.113	5.71	10.4	2.255	1.970	1.68	1.399
7.5	1.193	6.12	9.7	2.417	2.111	1.80	1.499
8.0	1.272	6.53	9.1	2.578	2.251	1.92	1.598
8.5	1.352	6.94	8.6	2.739	2.392	2.05	1.698
9.0	1.431	7.34	8.1	2.900	2.533	2.17	1.798
9.5	1.511	7.75	7.7	3.061	2.673	2.29	1.898
10.0	1.590	8.16	7.3	3.222	2.814	2.41	1.998
10.5	1.670	8.57	6.9	3.383	2.955	2.53	2.098
11.0	1.749	8.98	6.6	3.544	3.095	2.65	2.198
11.5	1.829	9.38	6.3	3.705	3.236	2.77	2.298
12.0	1.908	9.79	6.1	3.867	3.377	2.89	2.398
12.5	1.988	10.20	5.8	4.028	3.518	3.01	2.498
13.0	2.067	10.61	5.6	4.189	3.658	3.13	2.597
13.5	2.147	11.02	5.4	4.350	3.799	3.25	2.697
14.0	2.226	11.42	5.2	4.511	3.940	3.37	2.797
14.5	2.306	11.83	5.0	4.672	4.080	3.49	2.897
15.0	2.385	12.24	4.9	4.833	4.221	3.61	2.997

Apparent from Table 4-56 is that reallocations will likely only be reached under certain specific stock, RQE QS ownership, and angler demand conditions. Additionally, reallocations could range from less than 50,000 pounds to several hundred thousand pounds or millions of pounds in the right (albeit very rare) conditions. It is impossible to predict from whom and from how many the RQE will purchase QS or how those purchases will change median or average holdings. However, it is most likely that there will be fewer commercial QS owners. For discussion purchases, Table 4-58 shows the effect of redistributing a range of additional poundage across the *existing* QS owners. The table shows that even modest reallocations could be a potential boon to the small QS holders. For example, redistributing 100,000 pounds across the 266 holders of 1,500 pounds or less would increase holdings by 266 pounds each or a 64 percent increase for the median holder. The authors note that included in this group of 376 QS owners are 100 owners who held less than 100 pounds of QS in 2015. For these individuals, the addition of 266 pounds would more than treble their holdings and might raise question about whether the QS is being distributed to individuals who actually invest significantly in the fishery.

Table 4-58 Effect of High Abundance Re-allocation on QS Holders, Area 2C

	Pounds Reallocated			
Distribution Group	**100,000**	**250,000**	**500,000**	**1,000,000**
Pounds of Additional Quota				
All QS Holders	101	252	504	1,007
≤1,500 Pounds	266	665	1,330	2,660
≤2,000 Pounds	229	573	1,147	2,294
≤2,500 Pounds	203	507	1,014	2,028
≤3,000 Pounds	182	455	909	1,818
Percent Increase in Median Quota				
All QS Holders	4	10	20	39
≤1,500 Pounds	64	159	319	638
≤2,000 Pounds	42	105	211	422
≤2,500 Pounds	28	71	141	283
≤3,000 Pounds	21	53	106	212

Source: Northern Economics, Inc. estimates from NMFS 2015(a).

In Area 3A in 2015, there were 1,257 QS holders averaging 6,198 pounds of IFQ each. However, the median IFQ holder held just 3,399 pounds of IFQ, indicating the presence of relatively few large QS owners and many owners of smaller amounts (see Table 4-56). For the other groups:

- There were just over 370 QS owners who held 1,500 pounds or less in 2015. This group represented 29.6 percent of all QS owners, but held just 2.3 percent of all QS units. Their average 2015 poundage was 477 pounds while their median poundage was 279 pounds.
- QS owners with the 2015 equivalent of 2,000 pounds or less of IFQ numbered 448 representing 35.6 percent of all owners and holding 4.0 percent of QS. On average, they held 658 pounds of QS with a median holding of 445 pounds.
- The 2,500 pounds or less group represents 41.9 percent (527 owners) of all QS owners and they held 6.2 percent of all QS units. On average, those units were worth 919 pounds in 2015 while the median holding was 794 pounds.
- Owners with 3,000 pounds or less represent 45.6 percent of all holders and they hold 7.8 percent of all QS. Average holdings were 1,064 pounds while median holding 938 pounds.

Table 4-59 2015 QS and IFQ Holders in Area 3A

Group	Holders (N)	Holders (%)	QS (%)	Average IFQ	Median IFQ
All QS Holders	1,257	100.0		6,198	3,399
<1,500 Pounds	372	29.6	2.3	477	279
<2,000 Pounds	448	35.6	4.0	658	445
<2,500 Pounds	527	41.9	6.2	919	794
<3,000 Pounds	573	45.6	7.8	1064	938

Source: NMFS 2015(a).

Under current conditions in Area 3A, we expect that a two fish of any size daily bag limit could be reached somewhere between 2.8 Mlb and 3.4 Mlb depending on demand and average fish size. The Area 3A charter sector used to regularly take an amount of halibut near the GHL, but a combination of economic factors (i.e., strength of the economy, cost of charters, etc.), smaller fish sizes, and regulatory pressures have lowered overall demand potential. Table 4-60 shows that reallocations are more likely in

Area 3A and are likely to occur even at ACCL levels below historical combined catch levels (as displayed by the dotted box. Even under 5 to 10 percent allowances, reallocations could occur between ACCLs of 11 to 15 Mlb.

Table 4-60 Conditions for Triggering a Reallocation, Area 3A

Annual Combined Catch Limit (Mlb)	Base Charter Allocation (Mlb)	Commercial Catch Limit Ex Incidental Mortality (Mlb)	Est QS/IFQ Ratio	RQE CL at 20 Percent RQE Allowance	RQE CL at 15 Percent RQE Allowance	RQE CL at 10 Percent RQE Allowance	RQE CL at 5 Percent RQE Allowance
1.0	0.189	0.79	235.0	0.346	0.307	0.268	0.228
2.0	0.378	1.57	117.5	0.693	0.614	0.535	0.457
3.0	0.567	2.36	78.3	1.039	0.921	0.803	0.685
4.0	0.756	3.15	58.7	1.386	1.228	1.071	0.913
5.0	0.945	3.93	47.0	1.732	1.535	1.338	1.142
6.0	1.134	4.72	39.2	2.078	1.842	1.606	1.370
7.0	1.323	5.51	33.6	2.425	2.149	1.874	1.598
8.0	1.512	6.30	29.4	2.771	2.456	2.142	1.827
9.0	1.701	7.08	26.1	3.117	2.763	2.409	2.055
10.0	1.890	7.87	23.5	3.464	3.070	2.677	2.283
11.0	1.925	8.81	21.0	3.686	3.246	2.806	2.365
12.0	2.100	9.61	19.2	4.021	3.541	3.061	2.580
13.0	2.275	10.41	17.8	4.356	3.836	3.316	2.795
14.0	2.450	11.21	16.5	4.691	4.131	3.571	3.010
15.0	2.625	12.01	15.4	5.027	4.426	3.826	3.225
16.0	2.800	12.81	14.4	5.362	4.721	4.081	3.440
17.0	2.975	13.61	13.6	5.697	5.016	4.336	3.655
18.0	3.150	14.41	12.8	6.032	5.311	4.591	3.870
19.0	3.325	15.21	12.2	6.367	5.606	4.846	4.085
20.0	3.500	16.01	11.5	6.702	5.902	5.101	4.301
21.0	3.500	16.98	10.9	6.896	6.047	5.198	4.349
22.0	3.500	17.95	10.3	7.090	6.193	5.295	4.398
23.0	3.500	18.92	9.8	7.284	6.338	5.392	4.446
24.0	3.500	19.89	9.3	7.478	6.484	5.489	4.495
25.0	3.500	20.86	8.9	7.672	6.629	5.586	4.543
26.0	3.640	21.70	8.5	7.979	6.894	5.810	4.725
27.0	3.780	22.53	8.2	8.286	7.160	6.033	4.907
28.0	3.920	23.37	7.9	8.593	7.425	6.257	5.088

As in Area 2C, reallocations could range from less than 50,000 pounds to several hundred thousand pounds or millions of pounds in the right conditions. It is impossible to know from whom and from how many the RQE will purchase QS or how those purchases will change median or average holdings. However, it is most likely that there will be fewer commercial QS owners. For discussion purchases, Table 4-58 shows the effect of redistributing a range of additional poundage across the *existing* QS owners. The table shows that, as in Area 2C, even modest reallocations could be a potential boon to the small QS holders.

Table 4-61 Effect of High Abundance Re-allocation on QS Holders, Area 3A

	Pounds Reallocated			
Distribution Group	**50,000**	**100,000**	**150,000**	**200,000**
Pounds of Additional Quota				
All QS Holders	101	252	504	1,007
<1,500 Pounds	266	665	1,330	2,660
<2,000 Pounds	229	573	1,147	2,294
<2,500 Pounds	203	507	1,014	2,028
<3,000 Pounds	182	455	909	1,818
Percent Increase in Median Quota				
All QS Holders	4	10	20	39
<1,500 Pounds	64	159	319	638
<2,000 Pounds	42	105	211	422
<2,500 Pounds	28	71	141	283
<3,000 Pounds	21	53	106	212

Source: Northern Economics, Inc. estimates from NMFS 2015(a).

Under **Sub-option 3**, reallocated halibut would flow to CQEs operating in Area 2C/Area 3A. As of December 31, 2015, NMFS data indicate that there were no CQEs operating with QS holdings in Area 2C and two CQEs operating with QS holdings in Area 3A. These CQEs fished less held less than 20,000 pounds of halibut IFQ in 2015 (see Table 4-17). As shown above, overages in Area 3A could be many times the current holdings of these CQEs and might exceed their ability to fish the reallocation in the space of one season.

Under **Sub-option 4**, NMFS would not issue any IFQ related to QS above the amount required for the charter sector to provide the same daily bag limit as unguided anglers. Thus, the associated halibut stock would remain in the water. As shown above, the amount of catchable halibut that could be left in the water could be as low as several thousand pounds or it could be as high as several million pounds. Leaving halibut biomass in the water could balance years when the charter fishery inadvertently exceeds its allocation. However, the unfished halibut are economically valuable and would represent "foregone revenues" for the commercial sector and associated support sector.

4.8.1.4 Element 4: Limit on use of the RQE Funds

Element 4 would limit the use of RQE funds to the acquisition of commercial halibut quota; acquisition of charter halibut permits; halibut conservation/research; promotion of the halibut resource, and administrative costs. The RQE could not use funds to market the charter halibut sector or angler participation in the charter halibut sector. The analysis does not see significant implication of this element with the exception that the Council may wish to make clear that whether angler education, a potentially important part of long-term conservation, is expressly allowed under these limits.

4.8.1.5 Element 5: RQE Board Composition

Element 5 suggests the Council's desire for the RQE's Board to consist of a diversified group of stakeholders and individuals who can provide the organization with professional guidance, to hold regular board meetings, and to file regular annual reports. This element states:

> *RQE Organizational Structure. The RQE shall consist of a board of seven people and shall include the following: 4 CHP holders, 1 commercial halibut quota share holder, 1 community*

representative (not a holder of a CHP or commercial QS), and Commissioner of Alaska Department of Fish and Game, or designee.

Option 1. *A representative of the Alaska Department of Revenue shall sit as an ex-officio member of the RQE board.*

Option 2. *RQE board terms shall be for [Options: 3 or 5 years].*

Option 3. *The RQE shall hold no less than two board meetings annually.*

Option 4. *The RQE shall file an annual report detailing RQE activities during the prior year.*

NMFS staff early review of this provision indicates that the Council is within its authority to define the organizational structure. However, staff noted that the current wording goes beyond the specificity provided for under other programs. For example, the CQE program regulations state:

> *Regulations at § 679.41(l) specify that CQE applications must include articles of incorporation and management organization information, including 1) bylaws and 2) a list of key personnel including, but not limited to, the board of directors, officers, representatives, and any managers.*

If the Council is as specific about the structure of the organization as outlined in the current motion, NMFS would likely 'enforce' the language by requiring the RQE to submit an annual report specifying their organizational structure. NMFS would then verify that the listed members are consistent with the requirements. In effect, the annual report would serve as the RQE's attestation that it meets the Council's requirements.

4.8.1.6 Additional IFQ and CQE Program Elements and Restrictions

The following sub-sections go into more detail on issues that are not explicitly addressed in previous Council motions, yet are still relevant to a potential RQE program. Specifically, these sub-sections include discussions of the overage-underage provisions in the commercial sector, cost recovery for the development, management and monitoring of an RQE, and a short discussion on the funding avenues that may be considered by the charter sector.

4.8.1.6.1 Overage-underage provision

Section 4.5.1 describes the overage-underage program that exists in in the commercial halibut fishing for IFQ participants. The Council has not created alternatives or options around this potential aspect of the program. However, the CATCH proposal recommended that this flexibility also apply in the case of an RQE (Yamada & Flumerflet 2014). In Feb 2014, Gregg Williams (former staff) of the IPHC weighed in on the challenges of applying the overage-underage provision that exists in the commercial halibut IFQ fishery to the charter sector as recommended in the CATCH proposal. He emphasized the difference in pounds between a ten percent overage of an individual IFQ holder and a whole halibut charter sector for one regulatory area.

4.8.1.6.2 Cost Recovery

Statutory provisions set forth by section 304(d)(2) of the Magnuson-Stevens Act give the Secretary of Commerce authority to collect fees to recover the actual costs directly related to the management, data collection, and enforcement of any limited access privilege programs. This section of Magnuson-Stevens Act also dictates that this fee is not to exceed three percent of the ex-vessel value of the fish harvested under any such program. Therefore, as participants in a limited access privilege program, IFQ participants pay a fee that is three percent or less of the ex-vessel value of the halibut harvested to recover IFQ program costs. In the GAF program, the commercial QS holder is responsible for paying cost recovery

fees on the IFQ that he or she leases to a charter operator as GAF. It is assumed that some or all of that cost is passed onto the GAF user.

NMFS anticipates increased costs associated with managing IFQ accounts for an RQE. Specifically, there would be costs involved with restructuring the IFQ transfer database to allow for QS transfers to an RQE, particularly the more complex any transfer restrictions become. Potential cost recovery for the proposed RQE is an area in need of further investigation.

If QS is transferred to an RQE, there is no current mechanism for costs associated with that IFQ to be passed on to the entity. It is unclear if NMFS has authority for cost recovery in the charter sector and there are no ex-vessel fees with which base costs. Moreover, if an RQE is unable to obtain funding, administrative costs will be incurred with no outlet for revenue. This area is currently under further consideration.

4.8.1.7 Funding Considered by Charter Groups

As previously mentioned, Alternative 2 and the current analysis does not propose or analyze funding sources for a potential RQE to use in order to permanently transfer quota for use in the charter sector. This scoping decision was a deliberate choice by the Council in order to focus analytical effort toward how an RQE may be structured, and impacts under the assumption that an RQE would have the means to acquire QS. Similar to the CQE, the Council does not have jurisdiction over the potential avenues considered for funding sources by charter stakeholders. Moreover, the source of funding and practical ability to acquire quota will likely depend on the type of management provisions set up by the Council and NMFS. In light of this inter-connected relationship between program structure and funding, the Council has requested this analytical scope, acknowledging that source and ability of an RQE to generate funding are important components to monitor throughout the analytical process. If the draft analysis moves forward and regulatory issues are identified pertaining to the type of funding that may be employed, the Council might identify issues to engage in the analysis.

Therefore, while the Council has not established alternatives or options specific to a funding mechanism, this section briefly describes the top two funding options analyzed in the CATCH proposal (Yamada & Flumerflet 2014). Overall, the CATCH proposal states that an RQE would seek out a variety of funding sources. Among these sources would include grants, loans, and a source that could provide a long-term revenue stream.

The CATCH proposals states the non-profit entity should give priority to creating a new type of recreational fishing stamp through the state, similar to the state of Alaska run king salmon stamp. This stamp would be specific for those intending to target halibut on a guided trip, and would be paid for by this specific sub-group of recreational anglers. The proposal notes that this plan would not require Congressional Action but would likely require legislative action (Davis, Sylvia, & Cusack 2013; Yamada & Flumerflet 2014).

The second choice for a long-term funding mechanism was stated to be a charter halibut tax. This plan may be a might more complex to establish because the non-profit would need to be established in such a way that it could self-tax, i.e. it would need to be formed as a Regional Non-profit Association. This method would also require legislative action in order for these funds to be collected and paid to the Alaska Department of Revenue. The proposal also discusses what this tax would be based off of. It would likely be a proportion of gross revenue or number of fish harvested rather than just a lump sum transfer in order to not disadvantage smaller operations. For more information on financing option for an non-profit charter entity see Yamada & Flumerflet (2014) and Davis, Sylvia, & Cusack (2013).

4.8.2 Economic and Social Effects of the Proposed Program

The following sub-sections examine expected social and economic impacts from **Alternative 2,** allowing for the development of an RQE.[33] This section does not address social and economic impacts by each element of the Council's motion as these technical discussions can be found in the previous Section 4.8.1. The following sub-sections include expected effect on the halibut charter fishery, including guided anglers and charter operators. It also includes expected effect on the commercial halibut fishery in Area 2C and 3A, including QS holders, commercial skippers and crew, CQEs, processors, the commercial QS market, and consumers of halibut. This section also considers potential impacts on non-guided halibut anglers and on subsistence fishing and communities. Finally this section considers potential changes to vessel and crew safety based on the action alternative.

One of the primary considerations about the proposed **Alternative 2**, centers around the concept of economic efficiency. Economic efficiency is promoted in National Standard 1 and National Standard 5 as one of the goals that the Council balances amongst a suite of others. A market is considered "economically efficient" if resources are allocated to the place in which they generate the greatest economic value. Economic values include more than just accounting costs; they can represent both use value (such as the productive capacity of QS) and non-use values (for example, the benefits someone in Minnesota may derive from knowing there is a healthy halibut charter fishing sector in Alaska), as well as opportunity costs (the value of the next highest valued alternative use of a resource). In theory, the greatest economic value represents the greatest net economic benefit.

For purposes of this initial review analysis, economic efficiency is discuss qualitatively, at three different levels of scope: 1) at an individual transaction level, between a commercial QS holder and an RQE; 2) at a sector level, between the commercial halibut sector and the halibut charter sector; and 3) at a National level, when more social and non-market considerations are included in a broader perspective. Discussing economic values at these different levels can highlight some of the distributional effects that may not be revealed when just considering an action's net benefits to the Nation. The following sections consider economic values and effects at this first and second level of scope. Net benefits to the Nation are further discussed in Section 4.10.

4.8.2.1 Effects on the Halibut Charter Fishery

An analysis of the effects on the charter fishery begins by discussing the first scope of economic efficiency. One of the advantages of the pursuit of economic efficiency at the individual transaction level, is that it does not require the Council or any other governmental agency determine where the greatest net economic benefit lies, but would allow the players to determine this equimarginal point by identifying their own opportunities to gain in the market place. This "natural calculation" exists every day in an open market place. When a willing seller and a willing buyer come to terms on a price for the exchange or goods or services, the economic value of that good is represented in the willingness-to-pay of the buyer. Some social values may be represented in that transaction price. For example an individual in either sector may be willing to pay more than the productive capacity of that QS because they understand it to have a positive effect on the community they live in. Another example could be the increased price that a commercial halibut QS holder is willing to accept, due to the social stigma attached to doing business with participants in another halibut sector. These values could be represented in the transaction price. Economists have techniques to estimate where the greatest economic value could manifest.[34]

[33] Note: This section has not been substantially edited from the December 2015 analysis. If the analysis moves forward for further action, the authors intend to update this section after the SSC, AP, the Council, and the public have a chance to comment on the preceding sections.

[34] Some examples include the travel cost model, which evaluates marginal willingness-to-pay (WTP) based on how much it cost a person in order to travel and participate in an activity (including the opportunity cost of their time),

Allowing for this willing seller, willing buyer opportunity is something that the Council has considered to be a "long-term solution" to the tension between commercial and charter halibut allocation discussion since before the CSP was implemented (NPFMC 2007). It was noted in the analysis for the CSP, during the consideration of sector allocations, that in order to maintain an optimal allocation, managers would need to adjust that allocation whenever economic or biological conditions changed (NPFMC 2013; Criddle 2008). While it is unreasonable to assume that the optimal net economic benefits could be sustained over time by a management agency altering the allocation, the ability to transfer QS freely between sectors could allow the market to contribute to a determination of an economically efficient point for optimal allocation (from the perspective of this first scope of economic efficiency).

In a world of perfect information, the option of compensated reallocation would be expected to increase economic efficiency between the commercial QS holder and the charter halibut sector. Overall, between these two halibut user groups, entities would be expected to act in their own best interest and net benefits would be maximized. With a mechanism to authorize transfer, and with limited transaction costs, economic efficiency would be expected to promote reallocation to the sector (or individual) with the greater marginal willingness-to-pay,[35] until the marginal willingness-to-pay was equal across sectors (or individuals) and the net economic benefits are maximized for those entities. Some of the economic literature has pointed out the gains in economic efficiency that may be realized given more open and perpetual transferability of fishing privileges (Call & Lew 2015; Davis, Sylvia & Cusak 2013; Kroetz, Sanchirico, & Lew 2015).

If it is discovered that the funds are not available to purchase QS, or that while some funds are available, the amount of money it would take to make a meaningful positive impact on the charter sector exceeds additional compensation they would receive from the existing angler pool or new angler demand, the sector still has that opportunity to purchase QS should willingness-to-pay change in future conditions. The benefits of opportunity should not be overlooked.

Economic efficiency at the individual level could potentially be gained through a compensated reallocation using common pool or by from compensation by individual operators, as discussed in Section 4.8.1.1. So far in the developmental process, the idea of seeking compensated reallocation for a common pool of anglers appears to be the most supported method among the charter sector.[36] However, opposition from members of the charter sector could be a large hurdle in implementation of such a program. Under Alternative 2, all guided anglers would have equal access to the sport halibut fishery the same management measures established for that area. The current proposal does not provide for a situation in which some guided anglers could take advantage of the increase in the charter allocation and the correspondingly less strict management measures, while other in the fishery were restricted by the annual charter allocation amount without access to pounds of IFQ acquired under a guided angler pool of QS. If such a situation were permitted, it would create serious implementation, accounting, and enforcement challenges in the halibut charter fishery.

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hedonic models which evaluates marginal WTP for different attributes of a good, based on the different prices paid in an aggregated number of market transaction for that good, and choice experiments (CE) in which a person indicates their preference for one good over another (or series of options), given different price levels. Aggregated among other individuals' preferences, the CE is able to estimate a marginal WTP for each attribute of a good. For the commercial sector, WTP could be estimated more easily using price per pound of QS and understanding that there may be some additional transactions costs associated with selling QS across sectors. While estimating equilibrium point is outside of the current analytical scope, it could be an area for future discussion.

[35] Marginal willingness-to-pay is the additional amount consumers are willing to pay for one more unit of a particular good.

[36] A study is currently underway by the Alaska Fisheries Science Center on attitudes towards an RQE program (Dan Lew, 11/10/2015, personal communications) and is expected to have preliminary results by January 2016.

Thus, while the RQE would be seeking to maximize net benefits for the sector, there may be some specific individuals related to the charter sector that are not benefited. Even if in aggregate, charter anglers are willing to pay the amount it requires to purchase QS and relax annual management measures (in a scenario where costs are passed on to the angler), there will most likely be some anglers that will not meet that threshold. Even if in aggregate, charter operators benefit from increased angler demand or increased prices from relaxed management measures, there will most likely some charter operators whose clients are too sensitive to changes in prices, or who operate too close to the margin, to remain in business. These represent distributional effects. In terms of strict economic efficiency, the cost associated with these losses would be balanced by the greater amount of benefits realized through the transfers.

4.8.2.1.1 Halibut Charter Anglers

To the extent that an RQE was able to obtain funding outlets and identify QS for transfer, Alternative 2 would be expected to have an effect on charter halibut anglers. Regardless of the funding source there is a high likelihood that some or all of the additional cost will be passed on to the charter anglers. The magnitude of where the increased cost would be absorbed depends on the funding mechanism (i.e., a charter halibut stamp would be a direct costs to the angler, but a grant may not) and how much the charter operation is financially able and willing to absorb.

The economic effects to the charter anglers under an RQE program would be an increased price associated with a charter halibut fishing trip. If angler demand (as well as effort and harvest) is assumed to be held constant, this increased price would be in exchange for a relaxation of management measures. For instance, it could provide anglers the ability to retain more halibut on a trip (relaxing bag limit), during a year (relaxation of annual limit), in more varied sizes (relaxation of reverse slot limit), and/ or on all the days of the week (no day or the week closure).

If angler demand changes, as is very likely given the many factors that impact angler demand, the relationship can become much more complex. Including a multitude of exogenous factors, angler demand may respond to price increases on a trip and it may also respond to any relaxation of annual management measures.[37] In this case there could be both movement along the demand curve (by changing price) as a shift in the demand curve (by changing the underlying product being sold). For example, assume halibut abundance remains at status quo, and halibut charter prices increase (in some form, depending on the funding mechanism) to compensate a QS purchase for the RQE. Particularly under the same management regime, this may prompt a decrease in angler demand. The increase in trip price would have to be enough to compensate charter operators for this loss in clients,[38] or charter operators would have to trust in the future benefits associated with relaxation of annual management measures.

If the price increase occurred at the same time as a relaxation of annual management measures, (if an RQE was able to initiate QS purchase using loans, but needed a long-term revenue stream in order to retire loans) it is difficult to predict direction of effects for charter anglers and operators. Some anglers may be responding to the increase in price by exiting the market, other anglers may be enticed into the market by the increased opportunity for halibut fishing.

Angler demand in for charter halibut fishing in Alaska has been the subject of a number of economic analyses (e.g. Criddle, Hermann, Lee & Hamel 2003; Lew & Larson 2015; Lew & Larson 2012). In one example, a 2015 stated preference study evaluated the impact of size and bag limits on the willingness-to-pay of charter anglers in Alaska provided further explanation for this low harvest season in Area 2C.

[37] If there is significant consumer surplus associated with halibut charter fishing and charter halibut anglers have a very high WTP, there may a very slow response to either of these factors.
[38] This would be an increase in price in addition to the costs set aside for purchasing halibut QS.

Based on responses to a series of choice questions, the study determined that the opportunity to catch at least one large fish (i.e., a "trophy fish") is very valuable to non-resident charter anglers. Without that possibility, the willingness-to-pay for a halibut charter trip by an average non-resident angler was indistinguishable from zero. This result is particularly relevant for Area 2C, in which a large proportion of the demand is made up of non-resident anglers (Lew & Larson 2015).

While holding other charter trip characteristics constant (e.g., location of trip, number of fishing days, salmon harvested), Lew and Larson's stated preference study observed no statistical significance in non-resident anglers' willingness-to-pay estimates for stricter reverse slot limits in Area 2C (2015). They tested varying the lower limit in Southeast Alaska on a one fish bag limit between 35, 40, and 43 pounds, with an upper limit of 130 pounds.[39]

An RQE would strive to plan long-term for the charter sector. Therefore if there was a short-term decrease in angler demand, representing less overall effort and requiring less QS in order to relax halibut management measures, an RQE would not necessarily be expected to adjust funding needs to meet this new demand. If it did, less QS could mean lower prices for anglers, and in a cyclical fashion, the angler demand may grow again. An RQE would need to be informed of and monitoring the relationship between changes in management measures, changes in charter fishing trip cost associated with the chosen funding mechanism, and changes in angler demand.

Additionally an RQE would need to be sensitive to the fact that these relationships could be different for different charter operators. If an operation depends heavily on cruise ship passengers, for example, and these passengers are not as interested in trying to stock their freezer as they are interested in some type of fishing or small boat excursion, they may be more sensitive to price given the available substitute options.

4.8.2.1.2 Halibut Charter Operators and Support Sectors

Charter operators, including deckhands, any other individuals involved in the business of charter fishing, sport fish processors, or other charter support sectors may or may not be economically affected by the development of an RQE. If the number of charter anglers participating in the fishing was held constant, and the funding mechanism chosen was a halibut stamp with a fee that went directly to an RQE for the acquisition of QS, there might be no change in compensation to the charter operators. However, changes in angler demand based on either changes in charter prices or changes in annual management measures are likely. The effect on charter operators depends on the specific scenario. If there was significant willingness-to-pay among anglers for relaxed management measures, and an RQE was able to attain QS through that fee, this may even increase the number of individual seeking halibut charter fishing opportunities. This additional demand could benefit charter operators. Also, if the willingness-to-pay was significantly high enough, anglers may be willing to pay above the straight fee that would be required to purchase QS from the commercial sector. This additional compensation could also benefit the charter operators. If the number of anglers leaving the market due to increased price was equal to the number of anglers entering the market due to increased halibut fishing opportunity, there may be no change in benefits to charter operators.

Presumably, an RQE would be striving to benefit the charter sector as a whole in that regulatory area, and this entity would be considering QS acquisitions based on an understanding of angler demand, angler willingness-to-pay for relaxed management measures, and its distributional impact on the charter operators.

[39] They noted the caveat that since 2012, the upper reverse slot limit has consistently been greater than 130 pounds (approximately 63 inches). Also, it should be noted that resident angler behavior may differ from these results.

4.8.2.2 Effects on the Commercial Halibut Fishery and Halibut QS Market

The development of an RQE(s) would be expected to have an economic effect on the commercial halibut fishery and the market for halibut QS. In this Initial Review Draft effects are discussed qualitatively, however, there is opportunity in future drafts to more rigorously tease out the magnitude of some of these effects, given for example, different total QS transfer caps.

The commercial halibut fishery could experience some distributional benefits from the proposed RQE. Individual QS holders may benefit from an increase in economic efficiency available through transactions with an RQE. If an RQE is able to acquire the funding, they may be able to offer QS holders a premium price for their QS. Any entity that currently holds QS could benefit as the value of their QS increases with expanded pool of interested buyers. If an individual QS holder would not benefit from engaging in a QS transaction with the RQE, they would not be required to participate in the exchange. Therefore QS holders are expected to act in their best interest and maximize their own net benefits (i.e., the first scope of economic efficiency discussed in Section 4.8.2).

While there is certainly not a surplus of Area 2C and 3A halibut QS available in the open market (refer to Table 4-22 and Figure 4-10 demonstrating the downward trend of Area 2C and Area 3A QS transfers), there are a number of reasons why some QS holders may be considering selling their QS under current conditions. As halibut has been at low abundance in recent years, some QS holders with a small number of units struggle to find a vessel to fish on. Vessels might reach their vessel IFQ caps quicker during years of low halibut abundance and so they may be less willing to take on small amounts of QS. QS holders in this situation may be interested to sell QS.

In addition, a regulatory amendment effective December 1, 2014, changed some of the rules governing the use of hired skippers to fish commercial CV IFQ. This amendment no longer allows initial QS issuees the ability to have a hired master fish their CV IFQ for any QS they received by transfer after February 12, 2010 (see Section 4.5.1). If the QS holder does not want to or cannot fish this QS themselves, they may be in the market to sell.

Considering economic efficiency at the sector level (scope 2) conveys a different story. While an individual with QS would be expected to act in their own best interest when deciding whether and at what price to sell their QS, this decision may not necessarily maximize the net benefits from a sector-level perspective.

The commercial sector has voiced concerns over the potential RQE program. One of the primary concerns is the potential to further consolidate the fleet, which can negatively impact captains, crew, processors, and support sectors. As demonstrated in Table 4-21, the number of vessels participating in the halibut IFQ fishery has dropped fairly consistently every year in both areas since program inception, with only a few exceptions representing small increases. While limiting participation in order to promote economic stability for the fisheries and communities was one of the goals of the IFQ program, another one of the program goals was to limit the concentration of QS ownership and IFQ usage that would occur over time. This inherent contradiction represents the fact that the Council understood that some unidentified threshold would be considered "too much consolidation". This threshold is subjective to a stakeholder's perspective, and it provides a constant balancing act of consideration for most amendments to the IFQ program.

Specifically under action Alternative 2, some commercial halibut fishery stakeholders are concerned that a transfer of QS from a commercial halibut participant to the charter sector may displace crew members and potentially eliminate the need for some vessels. Both of these changes could have an impact on support sectors as well.

The extent to which consolidation would be expected to occur, depends on the magnitude of QS transferred. The magnitude of QS transferred is likely to be highly influenced by the availability of RQE funds and QS available for transfer. However, these elements are outside of the Council's decision-making scope. If the Council chose to allow for the formation of RQE(s) and it was concerned about the potential for over-consolidation, the Council would focus on transfer restrictions in order to mitigate this impact. In particular, total QS caps for the RQE could be used as tool to limit consolidation.

Despite the provisions for two-way transfers (i.e., the RQE could sell QS back to participants of the commercial halibut fishery), commercial sector stakeholders may be concerned that QS would never return to be used in the commercial sector. In a scenario where an RQE has holdings in excess of the amount of QS needed to provide charter clients with harvest opportunities greater than the unguided recreational bag limit, if transfers did not occur and there was no mechanism to redistribution QS, optimal yield might not be achieved. However, even in times of high halibut abundance, an RQE may be unmotivated to sell QS back into the commercial sector, due to the potential of low abundance in the future.

With less QS being used in the commercial fishery, vessel owners and crew may lose out in this exchange. Any level of consolidation means that there would be less vessels needed and less crew jobs. Restrictions on total transfers to an RQE by area may be one way to alleviate some of this concern. For example, Element 2, Option 3, Sub-option 3 would dictate that no more than 10 percent of the Area 2C QS could be transferred to the charter sector and that no more than 15 percent of the Area 3A QS could be transferred to the charter sector. Some consolidation may still occur if the RQE transferred up to these levels; however, total transfer caps could control how much of that consolidation could occur.

The acquisition of halibut QS by an RQE could also have a negative distributional impact on halibut processors. Depending on the magnitude of QS transferred and rate of transfer, as well as the diversification of the processor, the processing plant could end up in a place where it is not economically feasible to stay open during certain times of the year or at all. This could negatively impact employees at processing plants and support sectors. Again here, total sector caps for each area could mitigate some of this negative effect. In addition, annual caps may keep any rate of change at a relatively slow pace allowing the businesses to adapt to a shift in total commercial QS. This type of restriction may provide the processor time to consider diversification opportunities.

A rising QS price is good for sellers but bad for any individual looking to acquire QS. The change in the QS market could negatively impact new entrants or those seeking to expand current commercial halibut fishing operations. A prohibition on D class QS could be one way to mitigate some of the effect on new entrants as explained further in Section 4.8.1.2. A wider pool of QS buyers could also impact the CQE's acquisition of QS and in turn this could impact the communities that they represent. Total and annual QS use caps could also diminish the shock to the market.

More practically speaking, even at high price, the availability of QS is often one of the biggest challenges. Halibut QS holders understand the value of their privilege in perpetuity, and many would be unwilling to sell at any reasonable price. This can make finding QS on the market, particularly of the appropriate vessel class, block status, and quantity, a challenge. This would be the case for both the historical players in the market: individuals in the commercial fishery, as well as CQEs, but also for an RQE. Particularly if an RQE has restrictions through QS use caps by QS vessel class, identifying available QS will likely be a challenge.

4.8.2.3 Effects on Subsistence/ Personal Use Fishing, Non-guided Sport Fishing, and Communities

In 2014, subsistence/ personal use fishing produced 0.40 Mlb of harvest, non-charter sport fishing made up 1.14 Mlb of harvest, and charter halibut fishing (plus wastage) contributed 0.76 Mlb of harvest in Area 2C. In Area 3A, subsistence fishing contributed 0.25 Mlb of harvest, non-charter sport fishing harvested 1.49 Mlb, and charter fishing (plus wastage) contributed 1.78 Mlb (IPHC 2014). In Area 2C and 3A, non-charter sport fishing and subsistence fishing halibut removals are not included in the FCEY. Instead removals are subtracted from the subsequent year's total CEY (see Figure 4-1).

Because authorized subsistence/ personal use and non-guided halibut fishing effort are not directly linked to the harvest intensity of the charter sector, a shift in harvest intensity from the commercial sector to the charter sector does not affect how these user groups are managed. However, in many regions these halibut users tend to concentrate effort in around the same general area close to a port or public access. A shift in relative harvest intensity from the commercial sector to the charter sector could concentrate angler activity further. This could impact subsistence and non-guided sport users to the extent that localized depletions may occur. Localized depletion of halibut grounds is also a point of discussion in Section 6.3.2. To the extent that localized depletion may occur, annual QS caps on QS transfer may moderate some of this negative impact.

Distributional impacts to communities would not necessarily be represented in economic values associated with a transaction from an individual IFQ holder to an RQE. Communities could be impacted in both positive and negative ways from the development of an RQE program. Both commercial and charter fishing can have a significant economic impact in Alaskan communities. Commercial fishing relies on inputs from a multitude of support sectors: fuel, bait, vessel parts and maintenance, food, ice, labor, etc. It prompts activity from intermediate demand sectors like seafood dealers and processors. This economic activity can create local employment opportunity. A percent of ex-vessel revenue is taxed by the state and also contributes to some municipality taxes.

Similarly, the charter sector propagates economic activity for a community as a tourist industry; by catering to resident and non-resident visitors. The charter sector relies on some of the same types of input industries: fuel, bait, vessel parts and maintenance, food, labor, etc. Some charter fishing operations rely on sport processing sectors. There are also several types of taxes specific to charter sector, for example fish box tax and a tax on all sport fishing gear. Additionally, as a tourist industry, it also encourages other types of non-fisheries economic activity among retail businesses, restaurants, and accommodations services that benefit from the presence of non-local charter anglers visiting their community. It would be inappropriate to contribute all tourism-related economic activity in a community to halibut charter fishing, as there are often many other substitute activities. There are some types of economic analyses that specialize in estimating overall economic impact.[40]

These methods are currently outside the scope of this analysis. The challenge that these methods would need to overcome, would be in teasing out the explicit effect of halibut charter fishing compared to all other substitutes. It may be that an individual purchased a cruise, and would have visited the community, eaten at a restaurant, and spent a given amount on retail, regardless of the opportunity to fish. It may be that an individual is passionate about fishing, but would just as easily visit an Alaskan community to take

[40] The Input/ Output (I/O) model and the social accounting matrix (SAM) model are two examples of economic models used to estimate regional economic impacts. Both of these models seek to capture the impact of a shock to a regional economy based on inter-industry transactions between businesses and final consumers in an economy. These models do not measure specific benefits, but rather changes in overall economic activity in a region. In Appendix III of the 2007 Council analysis investigating compensated reallocation as a component of the catch sharing plan, Chang and Waters review the available literature on Pacific halibut economic impact studies (NPFMC 2007).

part in charter salmon fishing exclusively. Or it may be that an individual specifically sought the opportunity to charter halibut fish, and would not have come to the community otherwise. In any scenario, the opportunity for visitors to charter halibut fish is a benefit to the community's tourism economy because it diversifies the community's opportunities for recreational activities, making it more appealing for visitors.

There is also a multiplier effect associated with the wage that participants in the commercial sector (QS holders, vessel owners, vessel operators, crew) and charter operations (CHP holder, vessel operators, crew, administration, lodge employees) receive. To the extent that these individuals are residents of the community or chose to spend their income in the community, this could provide additional positive impact in the community. Both halibut harvesting sectors can constitute seasonal work; therefore, participants in both sectors have the opportunity to spend part of their residency living outside the community, and spending their money outside of the community.

Overall, impacts of an RQE would be to expected differ across communities and in part would depend on how engaged the communities are in the two different sectors. Setting total and annual QS caps could significantly slow impact and alert the Council to any communities which are shifting from a primarily commercial fishing community to a charter community.

4.8.2.4 Safety Considerations

The primary change resulting from Alternative 2 is the potential for a shift in harvest intensity from the commercial sector to the charter sector. Safety conditions are expected to be consistent with the status quo, as neither commercial nor charter sectors would be expected to change the way they catch fish or run their operations.

4.9 Alternative 3, Purchase of Charter Halibut Permits

Alternative 3 states:

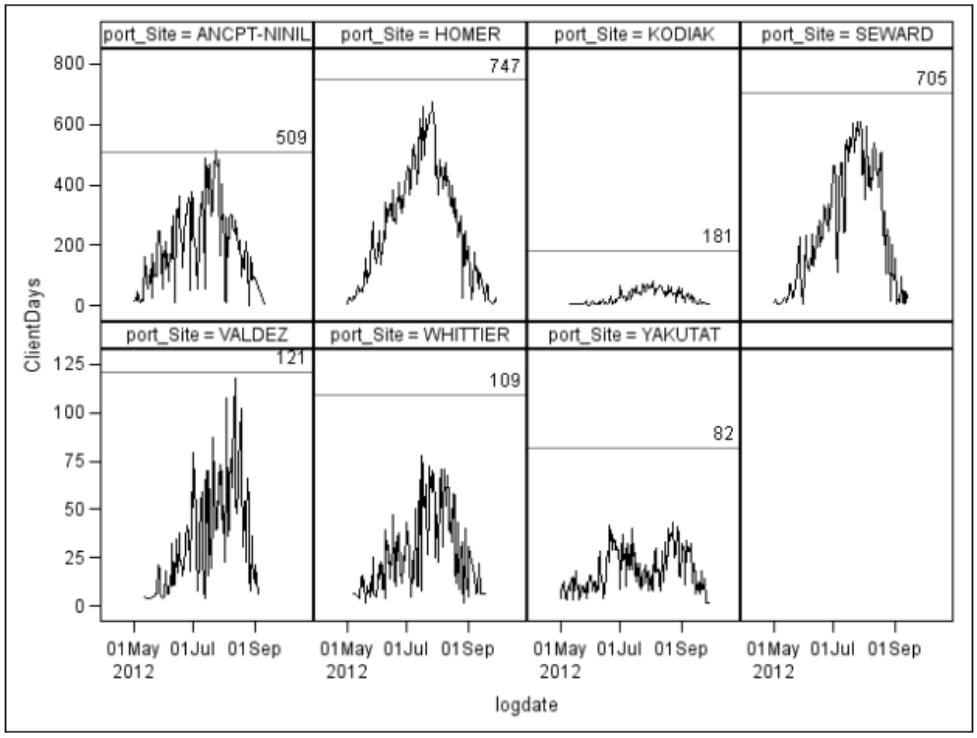
> *RQE purchase of charter halibut permits. The RQE shall be limited in the purchase of charter halibut permits to [options:10%-30%] of the permits in each area.*

This alternative would allow the RQE to purchase CHPs from CHP holders. The RQE would want to purchase CHPs if it felt that purchasing the CHPs could provide remaining permit holders with a more stable and predictable operating environment. Economically, we might expect that permits which are being used less frequently would be less valuable to their owners than the permits used by charter businesses that take paying clients out on trips more frequently. In addition, the destabilizing effect that unused (latent) and underutilized CHP endorsements could have depends on both the magnitude of latent effort as well as the likelihood of this effort actually being realized. The reasons these CHP are unused or underutilized are unknown and expected to be as diverse as the holders themselves. This makes it difficult to predict the risk of a sudden spike in angler-effort or harvest-per-unit effort. One extreme way to calculate this would be to multiply the total number of angler endorsements by the number of days in the season and compare this to current angler-days in the fishery.[41] This would result in a very unrealistic representation of latent effort because while the full charter halibut season is open from February 1 to December 31, actual fishing tends to occur mid-May to early September. The number of days could be truncated to just the 100 days representing peak season, multiplied by total number of angler

[41] Anglers technically could fish more than one trip in a day, but this is found to be a rare occurrence. Therefore it is assumed anglers would only take one halibut trip a day for purposes of this discussion. Regulations in 3A also prevent a CHP from being used on one vessel more than once a day; however this is not necessarily the case in 2C. An assumption is also made for this discussion that a CHP, with its corresponding angler endorsements is only used once a day.

endorsements, and then compared to realized angler-days during those 100 days. An example using a very similar method, illustrating underutilized effort can be seen in a figure on Area 3A from a December 2013 report to the Council on Management Options for the charter halibut fisheries in 2014 (Meyer & Powers 2013).

Figure 4-29 Daily charter client effort (angler-days) relative to total angler endorsements at major ports in Area 3A, 2012



Source: Meyer & Powers (2013).
Table notes: Reference lines and values indicated the total angler endorsements for the corresponding vessels. Port site "ANCPT-NINIL" represents Anchor Point, Ninilchik, and Deep Creek.

This figure demonstrates the difference between the number of angler endorsements specified on a CHP and anglers-days. Theoretically, the total number of angler endorsements represents the number of anglers that could fish on a particular day.[42] Logbook data and charter halibut permit data for 2012 were combined to examine the amount of effort that occurred in relation to the potential effort for major ports of landings in Area 3A.

This figure is a useful illustration of what effort could theoretically look like, and in what parts of the season is capacity close to using all angler endorsements. However the risk of full angler effort that this calculation (100 days * total angler endorsements - realized angler-days) would produce is unrealistic. Not every vessel is going to be at capacity during every trip. The charter halibut fishery has distinct seasonal patterns that peak mid-summer, as illustrated in Figure 4-29. This pattern is expected to continue due to angler demand; it is unlikely that shoulder seasons will ever reach the harvest intensity of peak season.

An additional challenge in predicting changes in charter effort involves the leasing behavior of CHPs. Even if the supply of permits is constrained, effort may not change if the leasing behavior increases.

[42] Given the previous assumptions.

There is no prohibition on leasing CHPs. While non-transferable permits were not intended to be leased, the lack of options to enforce such a prohibition has inhibited the creation of regulations. Such a prohibition would likely require an owner-on-board provision, which could have significant negative consequences on the structure of certain types of charter operations. The topic of CHP leasing will be the subject of a forthcoming discussion paper.

4.9.1 Charter Sector Participation in Area 2C, 2014

In 2014 there were a substantial number of CHPs which did not report any logbook trips where halibut was kept. The data indicate that 122, or 21 percent of all CHPs, did not record a logbook trip that year where halibut was kept. Additionally, another 19 percent of CHPs (110 permits) took 15 or fewer trips during the entire 2014 season. These permits averaged just 6 trips and harvested roughly 3 percent of all charter halibut kept in 2014. Thus, the bottom 40 percent of CHPs are responsible for just 3 percent of overall harvest. At the other end of the spectrum are the top 10-11 percent of all CHPs. This group averaged 85 trips during what is functionally a 90-day prime season. The top permit in this group took 156 trips between April and October. This group is just 11 percent of permits, but accounted for 29 percent of all trips and 32 percent of the harvested halibut. The next ten percent (i.e., the second decile) averaged 63 trips in season and accounted for 21 percent of all trips and 22 percent of all halibut. Thus, the top 20 percent of all CHPs (124 permits) as measured by trip activity account for 54 percent of all harvest. The next 20 percent, permits used 3-4 times per week, account for 30 percent of all trips and 28 percent of all harvest. If this group were to increase its average frequency from 49 trips in a season to the second decile's average of 63 trips per season then total sector harvest would increase by 8 percent assuming static CPUE.

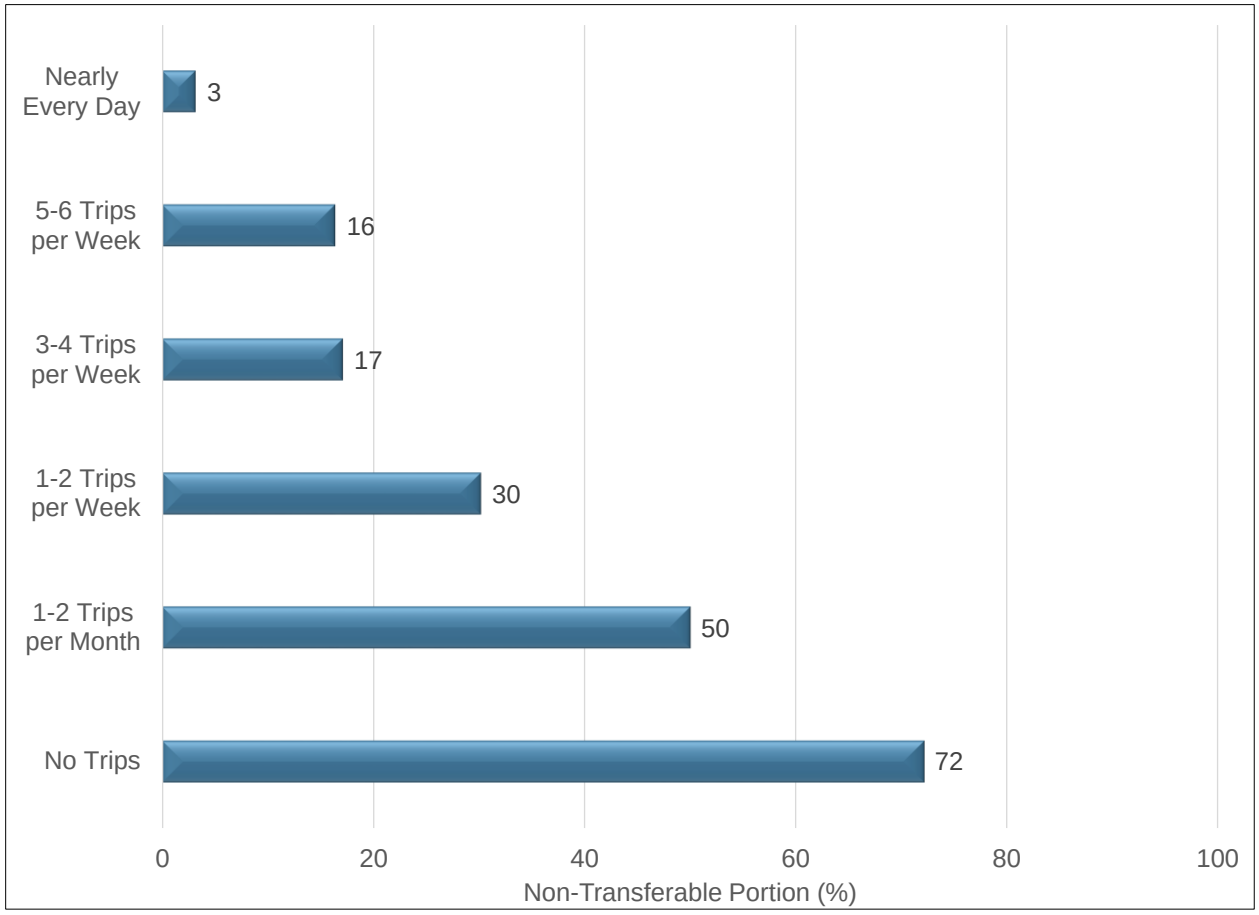
Table 4-62. 2014 Area 2C Charter Halibut Participation Statistics

Usage Group	Number of Permits	2015 Trips	2015 Halibut Kept	Average Number of Trips	Portion of Permits	Portion of Trips (%)	Portion of Halibut Kept (%)
No Trips	122	0	0	0	21	0	0
1-2 Trip per Month	110	636	2,027	6	19	3	3
1-2 Trips per Week	116	3,102	9,298	27	20	17	15
3-4 Trips per Week	111	5,442	17,924	49	19	30	28
5-6 Trips per Week	61	3,831	14,284	63	10	21	22
Nearly Every Day	63	5,377	20,324	85	11	29	32

Source: ADFG Logbook Data, 2014.

The data make it abundantly clear that, at least for 2014, there is substantial latency and underutilization within the Area 2C charter sector. An underlying factor in latency appears to the non-transferrable permits which NMFS issued to businesses "with relatively low participation in the qualifying years." So that these business could continue operation in the short-run while reducing capacity in the long run. Non-transferrable permits are invalidated upon holder death, the dissolution of the business entity, or with the addition of new business partners. Analyzing the logbook data and CHP database indicate that non-transferrable permits accounted for 72 percent of all of the CHPs which did not record a halibut trip in 2014. They also accounted for 50 percent of the group which averaged 1-2 trips per month while accounting for just three percent of decile that fishes nearly every day and 16 percent of the decile that takes five to six trips per week.

Figure 4-30 Non-Transferrable Permits by Participation Group



Source: ADFG Logbook Data, 2014 and NMFS CHP Permit Holder Database, 2016.

4.9.2 Charter Sector Participation in Area 3A, 2014

The 2014 participation statistics in Area 3A are very similar to those in Area 2C:

- Roughly 25 percent of all CHPs did not record a trip where halibut was kept in 2014 while another 13 percent of permits took an average of just 4 trips. In summary, nearly 4 in 10 CHP permits is functionally latent.
- Another 21 percent of permits took just 1-2 trips per week across the season and while these permits are active they are substantially underutilized.
- The remaining 41 percent of CHPs are fished at least 3-4 times per week with the top twenty percent of CHPs fishing most days of the week with relatively few days off. The top 40 percent of permits caught 89 percent of all Area 3A charter halibut in 2014.

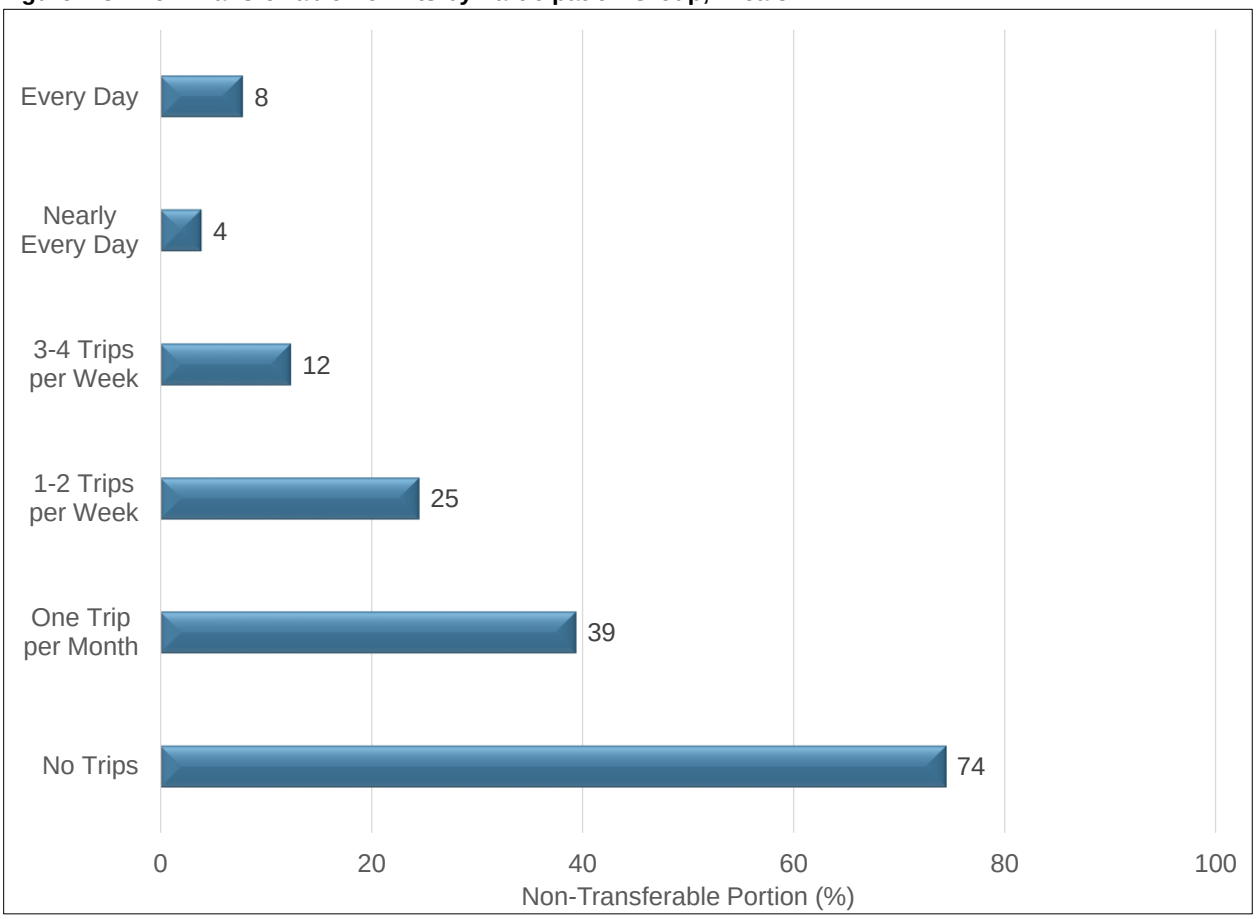
Table 4-63. 2014 Area 2C Charter Halibut Participation Statistics

Usage Group	Number of Permits	2015 Trips	2015 Halibut Kept	Average Number of Trips	Portion of Permits	Portion of Trips (%)	Portion of Halibut Kept (%)
No Trips	129	0	0	0	25	0	0
One Trip per Month	66	251	1,711	4	13	2	1
1-2 Trips per Week	106	2329	18,315	22	21	14	10
3-4 Trips per Week	105	5315	54,942	51	21	32	30
5-6 Trips per Week	51	3551	40,607	70	10	21	22
Nearly Every Day	51	5206	70,583	102	10	31	38

Source: ADFG Logbook Data, 2014.

The data also show a similar pattern within participation by owners of the non-transferable permits. Non-transferable permits comprised 74 percent of the 129 permits without a recorded 2014 trip while comprising 39 percent of the group that took just an average of roughly one trip per month. Of the top, 102 permits in the fishery (i.e., the top quintile) just 6 of the permits charter businesses used were non-transferable.

Figure 4-31 Non-Transferrable Permits by Participation Group, Area 3A



Source: ADFG Logbook Data, 2014 and NMFS CHP Permit Holder Database, 2016.

4.10 Summation of the Alternatives with Respect to Net Benefit to the Nation

The calculation of net benefits to the Nation from the two action alternatives proposed would require a summation of the welfare change to all groups impacted by action. This analysis does not attempt to provide that calculation for either action alternative. Instead, at this stage in the analytical draft, this section qualitatively discusses three possible general outcomes of the proposed action under **Alternative 2**, each of which would be expected to result in different net National benefits. This is followed by a discussion of the net benefits to the Nation under **Alternative 3.**

The first possible outcome under adoption of **Alternative 2** is that no RQE would purchase QS. Net benefits will not change under this outcome as the market for QS is unchanged and any administrative expenses are close to zero in terms of National net benefits. The second scenario is that an RQE purchases a moderate amount of QS in order to make incremental changes in the management measures the charter sector is willing to pay for. The third possible outcome is that RQEs purchase a substantial share of the QS in the market. This last possible outcome overlaps with the second, as small scale purchases of QS are likely to precede any larger purchases that would substantially affect the market price of QS.

In the previous section on effects of an RQE, the net benefits from action were first discussed in terms of an individual commercial halibut QS holder and the charter halibut sector. This approach relies primarily on private benefits and private costs. This relatively narrow analysis suggests that an RQE program would result in positive net benefits regardless of the level of QS transfer that was achieved. The RQE would purchase QS from a willing seller, relieving the management measures that it understands are most burdensome on angler demand, until the point where the cost of an additional unit of QS would reach the benefits it could provide the charter sector. A mechanism for transfer is not currently in place, so from an individual commercial halibut QS holder and the charter halibut sector scope, there could be inefficiencies in this missed opportunity for transfer.

Brining the scope of net benefits out to both of the sector-levels (commercial and charter) introduces more uncertainty into the magnitude and even direction of net benefits. While an RQE would be expected to act in the best interests of the whole charter sector for the regulatory area which it represents, an individual halibut QS holder may not act in the best interests of the whole commercial sector. Considering the net benefits at the sector level introduces new costs, such as the effect on the QS market for the QS holders that did not choose to sell to an RQE. Particularly in a scenario in which a substantial quantity of QS is transferred to an RQE, net benefits may turn out negative at the sector level. A substantial decrease in catcher vessel IFQ being landed at a processor that relies on this species, could potentially put this processor out of business. If active QS holders rely on that processor, they will be disadvantaged as well.

Evaluating the net benefits at a National level, as is the task of this section, presents additional social benefits and costs for consideration, that may not be in individual-level or sector-level transactions decisions. This perspective introduces the consideration of halibut consumers. Consumers benefits around the Nation (also world-wide) from the ability to purchase a quality halibut product 12 months out of the year. As an extreme example, regardless of the individual private efficiency gains in open-access to QS transfers, the total dissolution of one of these fishing sectors would arguably result in negative net benefits to the Nation.

National net benefits could be negative if there was a scenario in which halibut was left unharvested. If an RQE purchased a substantial amount of QS, halibut abundance increased and either the RQE was not inclined to sell QS, or there was no temporary transfer mechanism to bring this QS back into the commercial market, optimal yield might not be achieved.

Whether Council action on Alternative 2 would result in an overall increase in net National benefits if a moderate level of QS is transfer is undetermined. It is likely action would produce a negative net benefit to the Nation if substantial transfers occurred. This reinforces the ideas that total and annual transfer restrictions may be an important tool if the Council takes action on Alternative 2.

The net benefits to the Nation from **Alternative 3**, allowing an RQE to purchase CHPs, are expected to be very minor. This action may benefit current active CHP holders that are seeking greater stability and long-term planning by limiting the number of latent CHP that could suddenly because active (through purchase by an active holder or increased usage by current holder). However changes in effort in the halibut charter fishery could still occur through increased utilization of active CHPs. Furthermore, there are other external factors that may detract from the ability of this action to provide stability on its own. For example, changes in halibut biomass, particularly without a sector-wide mechanism to adjust the charter catch limit.

Alternative 3 is expected to disadvantage new entrants or those looking to expand operations in the halibut charter fishery, as less CHP are available for transfer. This may in turn disadvantage charter anglers as, particularly in peak season, they may have more difficulty booking a halibut charter trip.

This action would be expected to have limited indirect impact on other halibut user groups, and the welfare of the majority of the general public. This option does not propose any change to the annual combined catch limit set by the IPHC for the charter and commercial sectors. The footprint of the fishery, relative timing, seasons, gear type, and localized harvest intensity would remain consistent with status quo.

Overall, it is difficult to say with certainty which direction the net benefits to the Nation would result in from action in Alternative 3; however, it is presumed this effect would be insignificant.

5 INITIAL REGULATORY FLEXIBLITY ANALYSIS

5.1 Introduction

This Initial Regulatory Flexibility Analysis (IRFA) addresses the statutory requirements of the Regulatory Flexibility Act (RFA) of 1980, as amended by the Small Business Regulatory Enforcement Fairness Act of 1996 (5 U.S.C. 601-612). This IRFA evaluates the potential adverse economic impacts on small entities directly regulated by the proposed action.

The RFA, first enacted in 1980, was designed to place the burden on the government to review all regulations to ensure that, while accomplishing their intended purposes, they do not unduly inhibit the ability of small entities to compete. The RFA recognizes that the size of a business, unit of government, or nonprofit organization frequently has a bearing on its ability to comply with a federal regulation. Major goals of the RFA are: (1) to increase agency awareness and understanding of the impact of their regulations on small business, (2) to require that agencies communicate and explain their findings to the public, and (3) to encourage agencies to use flexibility and to provide regulatory relief to small entities.

The RFA emphasizes predicting significant adverse economic impacts on small entities as a group distinct from other entities, and on the consideration of alternatives that may minimize adverse economic impacts, while still achieving the stated objective of the action. When an agency publishes a proposed rule, it must either 'certify' that the action will not have a significant adverse economic impact on a substantial number of small entities, and support that certification with the 'factual basis' upon which the decision is based; or it must prepare and make available for public review an IRFA. When an agency publishes a final rule, it must prepare a Final Regulatory Flexibility Analysis, unless, based on public comment, it chooses to certify the action.

In determining the scope, or 'universe', of the entities to be considered in an IRFA, NMFS generally includes only those entities that are directly regulated by the proposed action. If the effects of the rule fall primarily on a distinct segment, or portion thereof, of the industry (e.g., user group, gear type, geographic area), that segment would be considered the universe for the purpose of this analysis.

5.2 IRFA Requirements

Until the North Pacific Fishery Management Council (Council) makes a final decision on a preferred alternative, a definitive assessment of the proposed management alternatives cannot be conducted. In order to allow the agency to make a certification decision, or to satisfy the requirements of an IRFA of the preferred alternative, this section addresses the requirements for an IRFA. Under 5 U.S.C., section 603(b) of the RFA, each IRFA is required to contain:

- A description of the reasons why action by the agency is being considered;
- A succinct statement of the objectives of, and the legal basis for, the proposed rule;
- A description of and, where feasible, an estimate of the number of small entities to which the proposed rule will apply (including a profile of the industry divided into industry segments, if appropriate);
- A description of the projected reporting, record keeping, and other compliance requirements of the proposed rule, including an estimate of the classes of small entities that will be subject to the requirement and the type of professional skills necessary for preparation of the report or record;
- An identification, to the extent practicable, of all relevant federal rules that may duplicate,

overlap, or conflict with the proposed rule;

- A description of any significant alternatives to the proposed rule that accomplish the stated objectives of the proposed action, consistent with applicable statutes, and that would minimize any significant economic impact of the proposed rule on small entities. Consistent with the stated objectives of applicable statutes, the analysis shall discuss significant alternatives, such as:

1. The establishment of differing compliance or reporting requirements or timetables that take into account the resources available to small entities;
2. The clarification, consolidation, or simplification of compliance and reporting requirements under the rule for such small entities;
3. The use of performance rather than design standards;
4. An exemption from coverage of the rule, or any part thereof, for such small entities.

In preparing an IRFA, an agency may provide either a quantifiable or numerical description of the effects of a proposed action (and alternatives to the proposed action), or more general descriptive statements, if quantification is not practicable or reliable.

5.3 Definition of a Small Entity

The RFA recognizes and defines three kinds of small entities: (1) small businesses, (2) small non-profit organizations, and (3) small government jurisdictions.

Small businesses. Section 601(3) of the RFA defines a 'small business' as having the same meaning as 'small business concern', which is defined under Section 3 of the Small Business Act (SBA). 'Small business' or 'small business concern' includes any firm that is independently owned and operated and not dominant in its field of operation. The SBA has further defined a "small business concern" as one "organized for profit, with a place of business located in the United States, and which operates primarily within the United States or which makes a significant contribution to the U.S. economy through payment of taxes or use of American products, materials or labor…A small business concern may be in the legal form of an individual proprietorship, partnership, limited liability company, corporation, joint venture, association, trust or cooperative, except that where the firm is a joint venture there can be no more than 49 percent participation by foreign business entities in the joint venture."

The SBA has established size criteria for all major industry sectors in the United States, including fish harvesting and fish processing businesses. Effective July 14, 2014, a **business involved in *finfish harvesting*** is a small business if it is independently owned and operated and not dominant in its field of operation (including its affiliates) and if it has combined annual gross receipts not in excess of **$20.5 million** for all its affiliated operations worldwide. A business that ***both harvests and processes*** fish (i.e., a catcher/processor) is a small business if it meets the **criteria for the applicable fish harvesting operation (i.e., finfish or shellfish)**. A **wholesale business** servicing the fishing industry is a small business if it **employs 100 or fewer persons** on a full-time, part-time, temporary, or other basis, at all its affiliated operations worldwide. Charter operators would fit under the category of ***other marine fishing,*** and would have a threshold in which combined annual gross receipts not in excess of **$7.5 million** for all its affiliated operations worldwide.

The SBA has established "principles of affiliation" to determine whether a business concern is "independently owned and operated." In general, business concerns are affiliates of each other when one concern controls or has the power to control the other, or a third party controls or has the power to control

both. The SBA considers factors such as ownership, management, previous relationships with or ties to another concern, and contractual relationships, in determining whether affiliation exists. Individuals or firms that have identical or substantially identical business or economic interests, such as family members, persons with common investments, or firms that are economically dependent through contractual or other relationships, are treated as one party with such interests aggregated when measuring the size of the concern in question. The SBA counts the receipts or employees of the concern whose size is at issue and those of all its domestic and foreign affiliates, regardless of whether the affiliates are organized for profit, in determining the concern's size. However, business concerns owned and controlled by Indian Tribes, Alaska Regional or Village Corporations organized pursuant to the Alaska Native Claims Settlement Act (43 U.S.C. 1601), Native Hawaiian Organizations, or Community Development Corporations authorized by 42 U.S.C. 9805 are not considered affiliates of such entities, or with other concerns owned by these entities solely because of their common ownership.

Affiliation may be based on stock ownership when (1) a person is an affiliate of a concern if the person owns or controls, or has the power to control 50 percent or more of its voting stock, or a block of stock which affords control because it is large compared to other outstanding blocks of stock, or (2) if two or more persons each owns, controls or has the power to control less than 50 percent of the voting stock of a concern, with minority holdings that are equal or approximately equal in size, but the aggregate of these minority holdings is large as compared with any other stock holding, each such person is presumed to be an affiliate of the concern.

Affiliation may be based on common management or joint venture arrangements. Affiliation arises where one or more officers, directors, or general partners, controls the board of directors and/or the management of another concern. Parties to a joint venture also may be affiliates. A contractor and subcontractor are treated as joint venturers if the ostensible subcontractor will perform primary and vital requirements of a contract or if the prime contractor is unusually reliant upon the ostensible subcontractor. All requirements of the contract are considered in reviewing such relationship, including contract management, technical responsibilities, and the percentage of subcontracted work.

Small organizations. The RFA defines "small organizations" as any not-for-profit enterprise that is independently owned and operated, and is not dominant in its field.

Small governmental jurisdictions. The RFA defines "small governmental jurisdictions" as governments of cities, counties, towns, townships, villages, school districts, or special districts with populations of fewer than 50,000.

5.4 Reason for Considering the Proposed Action

In December 2015 the Council developed the following purpose and need:

> *Alaska's guided halibut anglers have seen recent increases in regulatory restrictions due to declining halibut stocks and guided recreational allocations. A market-based mechanism for the guided halibut recreational sector may be an effective means to supplement their annual allocations. Allowing an RQE (Recreational Quota Entity) to hold a limited amount of commercial halibut QS on behalf of guided recreational halibut anglers under a "willing seller and willing buyer" approach may result in less restrictive annual harvest measures for guided recreational anglers in times of low halibut abundance, while complying with total halibut removals under the guided halibut catch limits determined by the International Pacific Halibut Commission. The guided recreational halibut allocation under the Halibut Catch Sharing Plan would be combined with the halibut quota share held by the RQE to determine the annually*

adjusted total guided halibut allocation. The total allocation would be the basis for the determination of appropriate management measures for the guided halibut sector each year. The intent is to consider such a mechanism without undermining the goals of the halibut IFQ Program or significant adverse impacts to other halibut sectors.

5.5 Objectives of Proposed Action and its Legal Basis

The principal objectives of the proposed actions are to promote long-term planning, as well as social and economic flexibility in the charter halibut sector. Under Alternative 2, the purpose is to allow for the development of an entity that can represent halibut charter guided anglers in order to seek out halibut QS for transfer from the commercial halibut sector in Areas 2C and 3A. This action may promote long-term efficiency in the use of the halibut resource. The objective of Alternative 3 is to create stability in the halibut charter fishery by seeking to reduce the risk of a sudden increase in charter halibut effort from latent CHPs. This alternative proposes to reach this objective by allowing an RQE to purchase CHPs, temporarily removing them from use.

The Halibut Act grants the Council the authority to oversee allocations of the halibut fishery in Alaskan and Federal waters. Setting overall removals of halibut is under the authority of the International Pacific Halibut Commission. The proposed action would require amendments to a number of Federal regulations.

5.6 Number and Description of Directly Regulated Small Entities

This section provides estimates of the number of *small, directly regulated entities*. The operative action in **Alternative 2** is to allow for an RQE(s) to be an eligible entity to transfer, hold, and use commercial halibut QS on behalf of charter angler in that area. As described in Section 4.8.2, there are many types of entities that would be expected to experience indirect, induced, secondary, and distributive economic impacts from **Alternative 2**. However, based on guidance from the NMFS Regional Economist (Queirolo 2011), the threshold for small entities to be considered directly regulated for purposes of the RFAA, means the action must require some specific affirmative action on the part of the specific entity. In light of that, the universe of entities that might be directly regulated by **Alternative 2** is limited to those entities that would be engaging in QS transfer (i.e., QS holders and an RQE).[43]

Under action in **Alternative 3**, entities that would be considered directly regulated include CHP holders that may choose to sell their CHP to an RQE.[44]

The thresholds that define a small entity are described in Section 5.3. The following section estimates the number of directly regulated entities that are considered to be small. The RFA requires a consideration of affiliations between entities for the purpose of assessing if an entity is small. There is not a strict one-to-one correlation between vessels and entities; many persons and firms are known to have ownership interests in more than one vessel, and many of these vessels with different ownership, are otherwise affiliated with each other. The estimates cannot always take into account all affiliations between entities, based on available data. Therefore, these estimates may overstate the number of small entities (and conversely, understate the number of large entities).

QS holders in the commercial halibut fishery would be directly regulated in **Alternative 2** of this action, as regulatory amendments would be made to expand the QS market that they would have the opportunity to participate in. According to Table 4-19, there were 1,080 halibut QS holders at the end of 2014 in Area

[43] As an RQE is still a proposed entity at this time, it is not further considered in the IRFA.
[44] Since CQE and MWR charter permits are available to these entities free of charge, it is assumed an RQE would not be actively buying these permits.

2C. There were 1,453 QS holders at the end of 2014 in Area 3A. Depending on the Council's preferred alternative the number of entities may be truncated. If an RQE was not able to purchase D class QS, this would exclude some QS holder from being directly regulated by this action (although that is not to say they might not be indirectly impacted). Table 4-19 illustrates that if D class halibut QS was not able to be held by an RQE, the number of halibut QS holders drops to 725, and 1079 for Area 2C and 3A, respectively.

Because there are no data to directly link QS holders with all other fishery revenue they may generate, it is not possible to determine the number of small entities with certainty. Vessels that are used to harvest IFQ are examined as a proxy. While vessels are not the entity directly regulated by this action more than one QS holder will often consolidate their IFQ on one vessel. For example, in Table 4-19 it is illustrated that there are 1,080 commercial QS holders in Area 2C and 1,453 QS holders in Area 3A (in 2014). However, in 2014, 901 vessels reported IFQ landings. Therefore, it is very likely that most of the QS holders' total gross revenues are less than this amount and would be considered small entities. To the extent that a QS holder uses several vessels to harvest their IFQ (this may be the case if they hold QS in multiple regulatory areas), there may be entities greater than the threshold.

Of the 901 vessels that targeted halibut IFQ in 2014, revenue from five of these vessels are understood to exceed the $20.5 million threshold. This number includes vessel from all regulatory areas, although only QS holders from Area 2C and 3A would be directly impacted. Therefore, less than five entities are expected to be considered "large entities" in the commercial halibut fishery, while the vast majority are considered small.

For **Alternative 3**, the number of CHP holders is listed in Table 4-5. This table indicates that of the CHPs in Area 2C there are 368 unique CHP holders for 535 unique CHPs. For Area 3A, there are 416 unique CHP holders for 439 unique CHPs.

The analysis for the CSP determined that charter halibut businesses regulated under that action were all or almost all expected to be small entities, based upon SBA criteria that their annual gross revenue, from all sources, does not exceed $7.5 million (NPFMC 2013). This analysis provides some estimates of gross revenue earned by an average charter operator in Area 2C (for example Table 2-59 in the RIR, NPFMC 2013). These data indicate that an average permit holder would need to hold more than 140 CHPs to generate $7.0 million in gross revenue (from only the charter fees). Since that time the threshold for a small entity category "other marine fishing" has increased by 0.5 million. Regardless, this threshold would be considerably high for an operation that just provided charter tours. While it is not uncommon in this sector for a single entity to hold and operate multiple charter vessels, the analysis concludes that all operators are likely to be small businesses, based upon the $7.5 million SBA threshold for RFA, and assumes this is the case.

Considering the 1,080 commerical halbiut QS holders in Area 2C, the 1,453 commerical halbiut QS holders in Area 3A, and the counts of CHP holders, it is important to note that there is also assumed overlap in these counts of assumed small entities. This is expected to be the case between commercial halibut QS holders in Area 2C and 3A and also between those who may hold both commercial halibut QS and a CHP (those who self-transfer GAF, for example). Table 4-7 indicates that there are 43 individuals in Area 2C and 37 individuals in Area 3A that hold at least one CHP and also hold QS.

5.7 Recordkeeping and Reporting Requirements

Once the Council identifies a preliminary preferred alternative (PPA) this analysis will determine any reporting, record keeping and other compliance requirements of the alternatives, and if these reporting

requirements necessitate specialized skills. The analysis will ultimately estimate the public reporting burden to comply, measured in time, across all directly regulated small entities, and multiply by a 'reasonable' wage rate to derive a crude estimate of the labor costs of compliance. These costs are then added to any capital costs (e.g., electronic broadcast costs, fax or phone costs), across the directly regulated entities.

5.8 Federal Rules that may Duplicate, Overlap, or Conflict with Proposed Action

Once the Council identifies a PPA this analysis will determine if any Federal rules have been identified that would duplicate or overlap with the proposed action.

5.9 Description of Significant Alternatives to the Proposed Action that Minimize Economic Impacts on Small Entities

After the Council has identified a PPA analysis will describe any significant alternatives to the proposed actions that accomplish the stated objectives, are consistent with applicable statutes, and that would minimize any significant economic impact of the proposed rule on small entities.

6 ENVIRONMENTAL ASSESSMENT

There are four required components for an environmental assessment (EA). Some of these components are addressed in other sections of this document. The need for the proposed action is described in Section 2.1, and the alternatives in Section 3. This EA addresses the probable environmental impacts of the proposed action and alternatives. A list of agencies and persons consulted is included in Section 8.

The purpose of this EA is to analyze the environmental impacts of the proposed federal action to allow a representative entity hold commercial halibut QS for a guided angler common pool in Area 2C and Area 3A, and to provide sufficient evidence to determine the level of significance of any potential impacts. This section evaluates the impacts of the alternatives and options on the various environmental components. The socio-economic impacts of this action are described in detail in the Regulatory Impact Review (RIR) and Initial Regulatory Flexibility Analysis portions of this analysis (Sections 4 and 5).

Recent and relevant information, necessary to understand the affected environment for each resource component, is summarized in the relevant subsection. For each resource component, the analysis identifies the potential impacts of each alternative, and uses criteria to evaluate the significance of these impacts. If significant impacts are likely to occur, preparation of an Environmental Impact Statement (EIS) is required. Although an EIS should evaluate economic and socioeconomic impacts that are interrelated with natural and physical environmental effects, economic and social impacts by themselves are not sufficient to require the preparation of an EIS (see 40 CFR 1508.14).

The National Environmental Protection Act (NEPA) also requires an analysis of the potential cumulative effects of a proposed action and its alternatives. An EA or EIS must consider cumulative effects when determining whether an action significantly affects environmental quality. The Council on Environmental Quality (CEQ) regulations for implementing NEPA define cumulative effects as:

> *"the impact on the environment, which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time" (40 CFR 1508.7).*

The cumulative impact of reasonably foreseeable future actions will be discussed in Section 6.4.

6.1 Documents incorporated by reference in this analysis

This EA relies heavily on the information and evaluation contained in previous environmental analyses, and these documents are incorporated by reference. The documents listed below contain information about the fishery management areas, marine resources, ecosystem, social, and economic elements of the groundfish and halibut fisheries. They also include more comprehensive analysis of the effects of the fisheries on the human environment, and are referenced in the analysis of impacts throughout this chapter.

Final EA: Regulatory Amendment for a Pacific Halibut Catch Sharing Plan for the Charter Sector and Commercial Setline Sector in International Pacific Halibut Commission Regulatory Area 2C and 3A (November 2013).

This EA was produced in during the development of the CSP for halibut in Areas 2C and 3A. It provides thorough background on the Pacific halibut stock: the life history, removals, stock status, harvest policy, coast-wide stock assessment and specific fisheries. The CSP was considered to be an action that promoted

long-term conservation of the halibut stock by establishing a more stable allocation between the sectors and fostering a more easily managed charter halibut fishery. Separate accountability for wastage, implemented under the CSP, also promotes conservation by encouraging better handling of discarded fish by both the commercial and charter sectors (78 FR 39122). This document is available from: http://alaskafisheries.noaa.gov/analyses/halibut/eariririfa_halibut_csp1113.pdf

Final EA: For Amendment 66 to the Fishery Management Plan for Gulf of Alaska Groundfish To Allow Eligible Gulf of Alaska Communities to Hold Commercial Halibut and Sablefish Quota Share for Lease to Community Residents (March 2004).

This EA was produced during the development of the Community Quota Entity (CQE) program to examine environmental effects that may be expected from allowing a community entity to hold and lease QS to community residents. While the CQE has a very different practical intent than the proposed RQE, there is overlap in the structure used to develop such an entity. Therefore it is worthwhile to consider the CQE as a reference for impacts on the environment. This document is available from: http://alaskafisheries.noaa.gov/analyses/amend66/AM66_finalea.pdf

International Pacific Halibut Commission Report of Assessment and Research Activities (RARA) for 2015 (January 2016)

This document is produced annually by the International Pacific Halibut Commission (IPHC) and contains a description of the fishery and changes to regulations, population assessments, incidental catch assessments, and a description of recent research and survey work done by the IPHC. This document serves as a reference for latest status of the halibut stock and is used throughout this EA. This document is available from: http://www.iphc.int/library/raras.html

Alaska Groundfish Harvest Specifications Final Environmental Impact Statement (NMFS 2007).

This EIS provides decision makers and the public an evaluation of the environmental, social, and economic effects of alternative harvest strategies for the federally managed groundfish fisheries in the GOA and the Bering Sea and Aleutian Islands management areas and is referenced here for an understanding of the groundfish fishery. The EIS examines alternative harvest strategies that comply with Federal regulations, the Fishery Management Plan for Groundfish of the GOA, the BSAI FMP, and the MSA. These strategies are applied using the best available scientific information to derive the total allowable catch (TAC) estimates for the groundfish fisheries. The EIS evaluates the effects of different alternatives on target species, non-specified species, forage species, prohibited species, marine mammals, seabirds, essential fish habitat, ecosystem relationships, and economic aspects of the groundfish fisheries. This document is available from: http://alaskafisheries.noaa.gov/analyses/specs/eis/default.htm.

6.2 Analytical Method

The two proposed action alternatives, allowing for a recreational quota entity (RQE) to purchase and hold commercial halibut quota share (**Alternative 2**) and allowing for an RQE to purchase charter halibut permits (CHPs) (**Alternative 3**) are chiefly motivated by social and economic concerns. Extensive environmental analysis is not necessary for many environmental components. This section identifies the components of the environment that may be affected by Council action and warrant further discussion. Table 6-1 shows the eight components of the human environment and whether the proposed action or its alternatives may have an impact on the component and require further analysis. No effects over the status quo are anticipated for ecosystem, benthic community, seabirds, groundfish, or marine mammals. Table 6-1 shows the potentially affected components: Pacific halibut and socioeconomic components of the human environment.

Table 6-1 Resources potentially affected by the proposed action and alternatives

	Potentially affected component						
Alternatives	Pacific halibut	Seabirds	Ecosystem	Benthic Community	Groundfish	Marine Mammals	Socio-economic
Alt 1: No Action	N	N	N	N	N	N	N
Alt 2: Development of RQE Program	**Y**	N	N	N	N	N	**Y**
Alt 3: Retirement of latent CHP	N	N	N	N	N	N	**Y**

N = no impact beyond status quo anticipated by the option on the component.
Y = an impact beyond status quo is possible if the option is implemented.

In order to consider which environmental components may be impacted by the proposed alternatives, it is necessary to understand how the fishery could change, compared to the status quo. (See Section 3 for a more thorough description of the two action alternates.) Alternative 2 in this analysis discusses a resource allocation issue: whether or not to allow an entity to be developed on behalf of charter halibut anglers, with the opportunity to purchase commercial halibut QS. No combination of the elements and options under Alternative 2 would influence the annual combined catch limit set by the IPHC for the charter and commercial sectors. Both sectors would still be constrained by the total catch limits set for each regulatory area based on halibut abundance. As both types of fishing occur under the status quo, the footprint of the fishery and relative timing of the fisheries would be expected to remain the same; as would regulations around seasons and gear type. The primary change that would occur would be related to size selectivity and the opportunity to shift in harvest intensity from the commercial halibut IFQ fishery in Area 2C and Area 3A to the charter halibut fishery in the corresponding area. The level of harvest intensity shifting sectors will depend on many factors, including the elements and options under Alternative 2. Along with the change in relative intensity of halibut harvest by each sector, there could be a possible change in the intensity halibut is harvested in specific locations (e.g., nearshore versus further off-shore).

Given this potential movement of halibut harvest opportunity between user groups within a regulatory area under Alternative 2, it is important to consider the effects that changes in the distribution and selectivity of fishing may have on the halibut stock. Using available information, Section 6.3.2 of this analysis examines the potential implications of this shift in sector harvest in terms of the halibut conservation efforts and accountability.

No effects are expected on ecosystems, benthic community, sea bird, groundfish, and marine mammal components of the environment from the proposed Alternative 2 (including its elements and options). No effects are presumed for these components because, as mentioned, the current manner in which the fish are harvested would remain unchanged from the status quo.

- No effects on the **ecosystem** are anticipated because the seasons, gear type, harvest limits and regulations protecting habitat and important breeding areas would remain the same. The impact of current fishing patterns on ecosystems are analyzed in in previous NEPA documents (NOAA 2007) and would not be changed by this alternative.

- Similarly the **benthic community** would not be affected from a shift in the intensity of hook-and-line halibut fishing from the commercial to the charter sector as proposed in Alternative 2. The footprint of these fisheries would be expected to remain consistent with the status quo and the levels of intensity would not reach a higher degree than they have in the past. That is, regardless of QS acquired by a potential RQE, guided anglers would not be able to exceed harvest limits above the current limits for the unguided sector (i.e., two halibut of any size).

- No impacts are expected on **seabirds** because the proposed action Alternative 2, would not introduce a new gear type or change fishing pattern in a way that would be more likely to result in the incidental take of seabirds. This alternative also would not affect the availability of forge fish for prey or their benthic habitat because the overall harvest allocation of halibut would not be changed by this action and the hook-and-line gear types used by both sectors would not change due to this action.

- Effects on **groundfish** under **Alternative 2** are difficult to precisely specify due to the nature of the different fisheries and multitude of state and federal regulations that apply. In the commercial sector, groundfish is considered bycatch. In some instances in federal water, groundfish is required to be retained, in some instances it is required to be discarded, and in some instances it can be retained up to a certain maximum retainable amount (MRA). An MRA is ratio of incidentally caught species (groundfish species) compared to a basis species (halibut) calculated on an instantaneous basis. In GOA, there is a prohibition against discarding rockfish when halibut or sablefish IFQ is onboard, and the vessel operator has a Federal Fisheries Permit[45] (§679.7(8)). There is a similar mechanism in place for commercial halibut fisheries in state waters. In Central and Southeast state waters, all rockfish caught in the commercial halibut fishery must be retained and the portion above the bycatch allowance is surrendered to the state. In most state waters of the GOA, most rockfish are defined as bycatch only. For example, in Central Region, the only rockfish that can be targeted is black rockfish (Scott Meyer, 11/6/2015, personal communications).

  If halibut QS was moved from the commercial sector to the charter sector, it might be expected that groundfish bycatch would decrease proportionately. However, depending on the species, this amount of groundfish could be reallocated to the directed fishery if that target fishery were nearing the TAC.

  Groundfish catch in the charter sector is difficult to compare to bycatch rates in the commercial sector, because in many cases it is not bycatch. Anglers will often target groundfish simultaneously or sequentially to targeting halibut. Certain groundfish species can be caught in the same areas, at about the same depth, using the same bait as halibut (for example, some types of rockfish and Pacific cod). While fishing for halibut, anglers (or their charter operators) know that the gear is effective for other groundfish and fully intend to keep the other groundfish if caught (up to the daily bag limit set by the state). If halibut fishing is poor, anglers may switch to groundfish fishing sooner. If the area has less strict management measures due to QS moved from the commercial sector to the charter sector there may be variable impacts on amount of groundfish caught as "bycatch" and the amount of time spend targeting groundfish.

[45] An FFP is free of charge and unrestricted in number. It is required for the harvest of any groundfish species in Federal waters.

Overall this is an area of research that could be expanded in effort to demonstrate a more precise impact on groundfish; however, a shift of halibut fishing intensity from the commercial sector to the charter sector is not expected to result in greater groundfish wastage, impact groundfish prey, effect stock biomass, or spatial or temporal distribution of groundfish in any significant way.

- In addition to the components listed above, it is not anticipated that Alternative 2 will affect **marine mammals** present in Area 2C or 3A. As the footprint of the fisheries and the gear types remain unchanged from the status quo, no changes in incidental takes or disturbance of marine mammals would be expected under action Alternative 2.

  Halibut is not a primary prey species for the majority of marine mammals in Area 2C and 3A. While a small halibut may occasionally contribute to the diet of the Steller sea lion, primary prey species include pollock, Pacific cod, and Atka mackerel. Halibut contributes to the diet of some cetaceans in Area 2C and 3A, such as killer whales; however, it is not considered a primary prey species. Killer and sperm whale depredation on halibut long-line vessels has become increasingly common as these whales have learned to track these vessels based on sounds of their acoustic signatures. While a potential shift in harvest intensity between commercial and charter halibut fisheries may slightly impact the accessibility of halibut to whales, due to the use of long-line gear in the commercial sector, it is not expected to impact the overall availability of halibut to whales.[46] An incremental reduction in the availability of Pacific halibut on longlines may result in incremental changes in the energy budget of a few whales, but killer and sperm whale behavior is sufficiently plastic to allow them to forage effectively for prey without depredating longline gear. Moreover, any potential localized depletion that may occur from changes in harvest intensity of halibut from the commercial sector to the charter sector would be unlikely to create significant adverse effects for a predator as mobile as a killer or sperm whale.

Alternative 3 would not expand an existing fishery: this alternative would allow the RQE the option of purchasing CHPs with the intention of temporarily removing some charter harvest capacity within the fishery, in order to mitigate sudden spikes in angler effort. Similarly to **Alternative 2**, under this alternative no combination of the elements and options would change the annual combined catch limit set by the IPHC for the charter and commercial sectors. The footprint of the fishery, relative timing, seasons, gear type, and localized harvest intensity would remain consistent with status quo. The potential changes in size selectivity and potential shift in harvest intensity possible with the creation of the RQE is analyzed under Alternative 2. Therefore, this alternative is not expected to contribute any additionally on the environmental components. This alternative is socio-economic in nature. Continued discussion about the impacts of **Alternative 3** on the human environment are found in Section 4 and Section 5.

6.3 Pacific halibut

6.3.1.1 Life History, Development, and Feeding Behavior

Pacific halibut (*Hippoglossus stenolepsis*) are among the largest teleost fish in the world, with individuals growing up to eight feet in length and over 500 lb. IPHC studies show that female halibut typically grow faster and attain much larger sizes than males. For this reason the commercial catch, which has a minimum size limit, is predominantly female. The North American catch of Pacific halibut, mostly by longline gear, consists of individuals chiefly from 10 to 200 lb. Few males reach greater than 80 lb, and nearly all halibut over 100 lb are females (IPHC 2014).

[46] Although studies have been done on whale depredation in the commercial long-line sector, no comparable studies where identified for the charter sector. It is assumed that in the charter sector, where anglers use jig gear, whale depredation is a significantly limited issue.

While female halibut tend to grow faster than the males, they are also shown to mature slower. Most male halibut are sexually mature by about eight years of age, while half of the females are mature by about age twelve. At this age, most females are generally large enough to meet the minimum size limit for the commercial fishery of 32 inches.

The number of eggs produced by a female is related to its size. A 50 lb female will produce about 500,000 eggs, whereas a female over 250 lb may produce four million eggs. Eggs are fertilized externally by the males. Halibut are believed to be "batch spawners", meaning that only a portion of a female's eggs are hydrated at a time and released, and this process is repeated several times over the spawning season until all the eggs have been expelled. Halibut range from depths up to 250 fathoms for most of the year and up to 500 fathoms during the winter spawning months. During the winter spawning months (November through March), the eggs are released, slowly move up in the water column, and are caught by ocean currents. Prevailing currents carry the eggs north and west. By the age of 6 months, young halibut settle to the bottom in shallow nearshore areas such as bays and inlets. Research has shown that the halibut then begin what can be called a journey back. This movement runs counter to the currents that carried them away from the spawning grounds and has been documented at over 1,000 miles for some fish.

Larvae begin life in an upright position with an eye on each side of the head. When the larvae are about an inch long, an extraordinary transformation or metamorphosis occurs: the left eye moves over the snout to the right side of the head and pigmentation on the left side fades. When the young fish are about six months old, they have the characteristic adult form and settle to the bottom in shallow inshore areas. The survival of young halibut, and the varying strength of each year class, may be driven by food availability, proximity to predators, temperature or other environmental factors, or a combination of these. Recruitment of juvenile halibut to the stock has been highly variable over the historical record, with apparently strong links to the productivity cycles of the north Pacific (i.e., the Pacific Decadal Oscillation).

Halibut feed on plankton during their first year of life. Young halibut (one to three years old) feed on euphausiids (small shrimp-like crustaceans) and small fish. As halibut grow, fish make up a larger part of their diet. Larger halibut eat other fish, such as herring, sand lance, capelin, smelt, pollock, sablefish, cod, and rockfish. They also consume octopus, crabs, and clams.

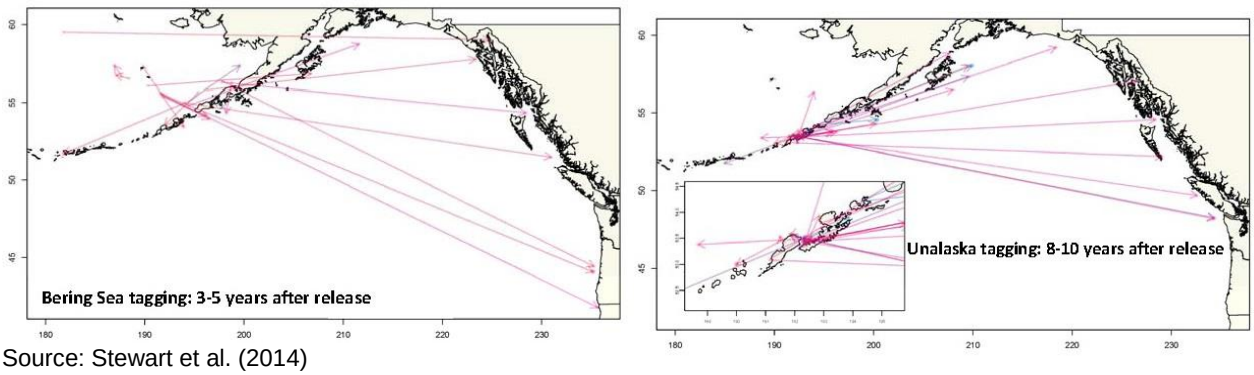
6.3.1.2 Distribution and Migration

The range of Pacific halibut that the IPHC manages, covers the continental shelf from northern California to the Aleutian Islands and throughout the Bering Sea. Pacific halibut are also found along the western north Pacific continental shelf of Russia, Japan, and Korea. Research shows that Pacific halibut form a single genetic stock across their entire range, and abundance estimates are therefore derived for the coast-wide population (IPHC 2014). However, management of the resource is conducted on a regulatory area basis (see Figure 2-1).

Stewart et al. (2014) provides a general understanding of Pacific halibut distribution, indicating that the bulk of the pelagic juvenile halibut occurs in the western GOA, Aleutian Islands and southeastern Bering Sea. Densities of one to four year old halibut (not frequently encountered in setline surveys or the directed fishery) are typically also very high in these areas; this has been observed in trawl surveys, directed IPHC trawl investigations, and in the length-frequencies of halibut captured as bycatch in various trawl fisheries operating in these areas. One- and two-year-old Pacific halibut are commonly found in inshore areas of central and western Alaska, but are virtually missing from southeast Alaska and British Columbia (IPHC 2014).

The IPHC has tagged almost 450,000 halibut since 1925 and over 50,000 tagged fish have been recovered. Traditionally, the tags are attached on the outside of the fish, where they will be seen by fishers and processors. A reward is paid for their return. The aggregate result of historical IPHC tagging programs indicates that the Bering Sea is a net exporter of halibut of all sizes to all other regulatory areas. New analysis of historical tagging projects conducted by the IPHC in the BSAI has recently been undertaken (Webster 2015). Results of this analysis indicate that juvenile halibut tagged in the BSAI and near Unalaska tend to remain near the area of tagging for the first year at large, but then distribute broadly to the Aleutian Islands, Gulf of Alaska (70 to 90 percent), and Area 2 (Figure 6-1). This would imply that by the time they enter the directed fishery (and are fully selected by the setline survey), halibut spending their first few years of life in the Bering Sea could be in virtually any regulatory area.

Figure 6-1 Release and recovery locations for juvenile halibut tagged in the Bering Sea, and near Unalaska



Source: Stewart et al. (2014)

It was long believed that most adult halibut tend to remain on the same grounds year after year, making only a seasonal migration from the more shallow feeding grounds in summer to deeper spawning grounds in winter, sometimes covering large distances. Recent research, however, has demonstrated that a measurable proportion of the adult population continues to migrate, generally, though not entirely, eastward, even at large sizes and older ages (IPHC 2014).

By the time Pacific halibut become large enough to be caught by the commercial fishery, much of the extensive counter-migration to balance egg and larval drift has apparently taken place. However, many adult halibut continue to migrate along the continental shelf and also migrate across the shelf annually, moving to deeper depths on the slope during the winter for spawning, and returning to shallow coastal waters in the summer months for feeding. Although halibut have been caught as deep as 4,000 ft., they are most often caught between 90 and 900 ft. (IPHC 2014).

Halibut also move seasonally between shallow waters and deep waters. Mature fish move to deeper offshore areas in the fall to spawn, and return to nearshore feeding areas in early summer.

6.3.1.3 Biomass, Abundance, and Assessment

The IPHC is responsible for monitoring and promoting the health of the Pacific halibut resource and engages in basic scientific research, fishery-dependent and fishery-independent sampling, as well as quantitative analyses to support management decisions. These scientific results are provided annually to the IPHC and stakeholders for decision-making during the Annual Meeting process, which typically occurs in January each year.

The process relies on several key steps: 1) the annual stock assessment integrates available data into a statistical framework which produces coastwide stock estimates and a decision table-based risk assessment; 2) coastwide stock estimates are apportioned by regulatory area; 3) the current harvest policy

is applied to these area-specific estimates to produce yield estimates; and 4) these estimates, along with the coastwide risk assessment and input from stakeholder groups are used by the Commissioners to set annual catch levels for the upcoming year (IPHC 2014).

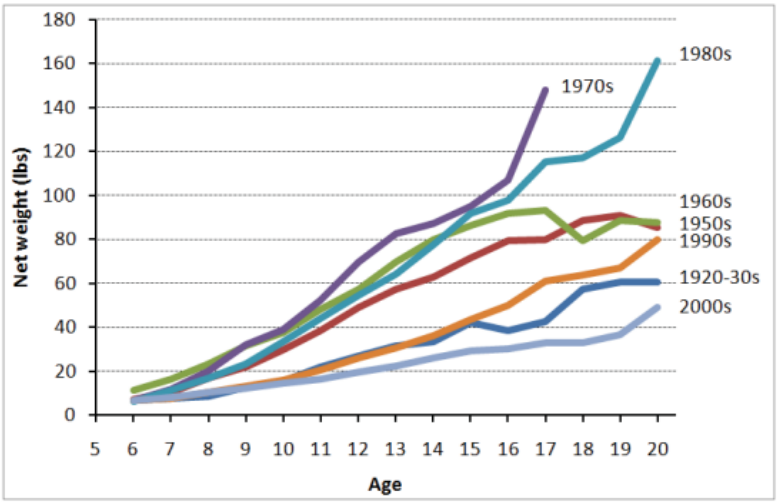
The annual stock assessment produced by the IPHC integrates observed data on removals from all directed and non-directed fisheries and the setline survey, along with the current understanding of biological processes such as maturity, natural mortality, and growth, in order to estimate the relative trend and abundance level of the resource coastwide. The stock assessment procedure underwent a major change in the mid-2000s to reflect a new understanding of halibut movements. As previously mentioned, until the mid-2000s, it was believed that halibut over 65 cm in length were essentially non-migratory, and the IPHC assessed the halibut stock in each regulatory area separately. Since tagging studies in the mid-2000s demonstrated that a substantial portion of the adult stock is migratory, the IPHC has assessed the halibut population as a single stock since 2006 (Meyer 2014). The IPHC combines directed and non-directed fishery and longline survey data coastwide in a single age and sex structured model of halibut abundance. For more rigorous description of the process the IPHC uses to model and predict risk neutral levels of halibut removal see Stewart and Martell (2015).

The halibut stock has undergone many fluctuations in abundance with consequent effects on the commercial fishery removals. These fluctuations are understood to be linked to changes in recruitment (the number of young halibut entering the population each year), which appears to be linked to the productivity of the northeastern Pacific Ocean, specifically, the Pacific Decadal Oscillation (an El Niño-like pattern of Pacific climate variability) (IPHC 2014).

In addition to changes in population, the Pacific halibut stock has experienced significant change in biomass due to changes in average size-at-age. In 2012, the coastwide average size in the commercial catch was was 23.2 lb. This is a large decrease from 20 to 30 years before when the coastwide average weights in the catch were 30 to 40 lb. For the past 25 years, weight at a given age has been decreasing. Similarly low weight-at-age was seen in the 1920s, but subsequently increased to a maximum in the 1980s (Figure 6-2).

The mechanisms creating these changes are poorly understood, but may represent a combination of density-dependent competition for food, ocean productivity, fishing effects, and other natural and anthropogenic factors. Such changes in size-at-age can result in fluctuations in the catch, even when similar numbers of fish are being removed from the stock. These changes in stock abundance have not been identical among all regulatory areas, with some showing much more pronounced trends and others more stability. To better understand the role of environment on the halibut stock, the IPHC began an environmental monitoring program aboard its setline survey in 2009, which provides an annual summer snapshot of conditions along the continental shelf of the eastern north Pacific and Bering Sea (IPHC 2014).

Figure 6-2 Changes in weight-at-age of Pacific halibut from the 1920s – 2000s

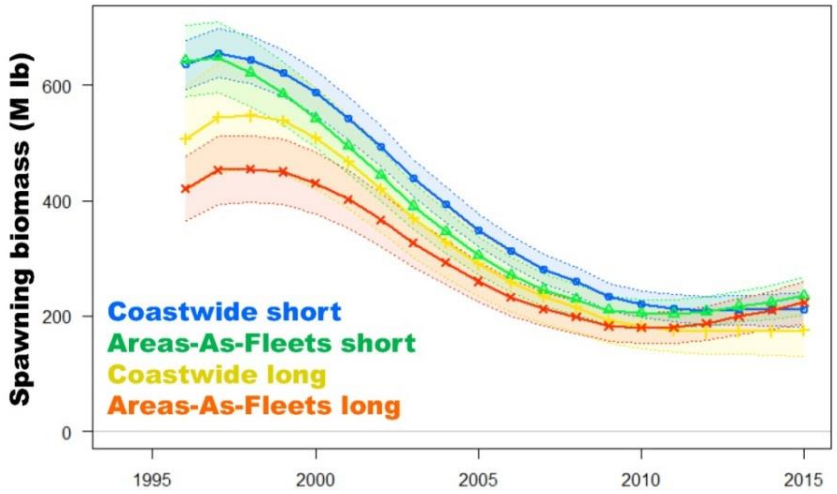


Source: The Pacific Halibut: Biology, Fishery, and Management, Tech Memo No. 59 (IPHC 2014).

For the past two years, the IPHC has used an ensemble approach to its coastwide stock assessment for the Pacific halibut stock, described in Stewart and Martell (2015). In this approach, multiple models are included in the estimation of management quantities, and uncertainty about these quantities. For 2014, these included two coastwide models and two areas-as-fleets models, in each case one using more comprehensive data available only since 1996, and the other using the full historical record (Figure 6-3). The results of the 2014 assessment indicate that the stock declined continuously from the late 1990s to around 2010. That trend is estimated to have been a result of decreasing size-at-age, as well as recent recruitment strengths that are much smaller than those observed through the 1980s and 1990s.

Since that time period, the estimated female spawning biomass appears to have stabilized near 200 Mlb, with flatter trajectories estimated in coastwide models and slightly increasing trends in areas-as-fleets models (Stewart & Martell 2015).

Figure 6-3 Trend in spawning biomass estimated from each of the four models included in the 2014 stock assessment ensemble



Source: Stewart & Martell 2015
Figure notes: Series indicate the maximum likelihood estimates, shaded intervals indicate approximate 95% confidence intervals

The ensemble model approach was developed to more accurately convey the uncertainty in the estimation of stock status and as a more robust assessment tool to avoid abrupt changes in the halibut stock assessment, such as that occurring between annual cycles in 2011 and 2012. In 2012, IPHC staff reported that then-recent stock assessments for Pacific halibut had consistently overestimated biomass and underestimated harvest rates due to a retrospective bias in the stock assessment. While the 2012 assessment was corrected for the retrospective bias and the assessment results were found to track observed halibut trends, estimates of stock size were decreased by approximately 30 percent compared to previous assessments.

Following the correction of the retrospective bias, historical female spawning and coastwide exploitable biomass of halibut have again been hindcast in the stock assessment. Table 6-2 provides biomass estimates from 1996 through 2015, and also identifies estimates of halibut fishing intensity (from all sources of estimated removals) during that time period. Fishing intensity (F) is the calculated fishing mortality rate at which the equilibrium spawning biomass per recruit is reduced to x percent of its value in the equivalent unfished stock.

Generally, studies of similar BSAI groundfish have confirmed that an exploitation rate of $F_{35\%}$ is an adequate proxy for the level of fishing that will achieve maximum sustainable yield (F_{MSY}; Goodman et al. 2002), commonly used as an "overfishing level" in Alaskan flatfish and other groundfish fisheries. Catch that corresponds to an $F_{40\%}$ rate provides a safety buffer to account for uncertainty in the stock assessment and catch estimates. An $F_{40\%}$ harvest rate is considered a conservative maximum catch limit in Alaskan fisheries (established in the Council's formulas for setting acceptable biological catch (ABC)). In the past three years, the IPHC has set catch limits that result in a total fishing impact that would be considered conservative by fishery management scientists (Table 6-2). However, the IPHC harvest policy is not an equilibrium MSY-based harvest policy like that for BSAI groundfish. Instead the IPHC policy is a dynamic policy including environmental influence on recruitment and target harvest rates that are less that MSY rates.

Table 6-2 Median population (millions of pounds, net weight) and fishing intensity estimates (based on median spawning potential ratio)

Year	Female Spawning Biomass	Fishing Intensity ($F_{xx}\%$)	Coastwide Exploitable Biomass
1996	584.6	49%	779.2
1997	605.7	43%	809.6
1998	591.4	42%	762.7
1999	567.1	40%	746.8
2000	529.5	40%	688.3
2001	483.9	38%	603
2002	434.5	34%	532.2
2003	382.6	30%	460.5
2004	339.5	28%	403.6
2005	299.5	26%	352.6
2006	266.7	26%	307.9
2007	241.5	25%	266.9
2008	224.4	25%	236.3
2009	204.6	26%	203.9
2010	197.8	27%	186.4
2011	195.3	31%	175.6
2012	197.2	35%	169.2
2013	203.9	38%	168.8
2014	208.5	43%	169.7
2015	215.1	44%	180.6

Source: Stewart & Martell 2015.

The IPHC's harvest policy is based on the coastwide exploitable biomass of halibut, or fish that are accessible in the IPHC setline survey and to the commercial halibut fishery (generally over 26 inch halibut (O26)). The resulting coastwide estimates of biomass are apportioned to regulatory areas based on the area-specific setline survey weight per unit effort, weighted by the area of bottom habitat (0-400 fathoms) in each area. There are additional adjustments for harvest taken prior to the average survey date in each area and hook competition by other species (see Webster and Stewart 2015). Section 4.4.1.2.1 discusses the process by which the IPHC will then set the annual combined catch limit (CCL) for the charter and commercial allocation in Area 2C and Area 3A.

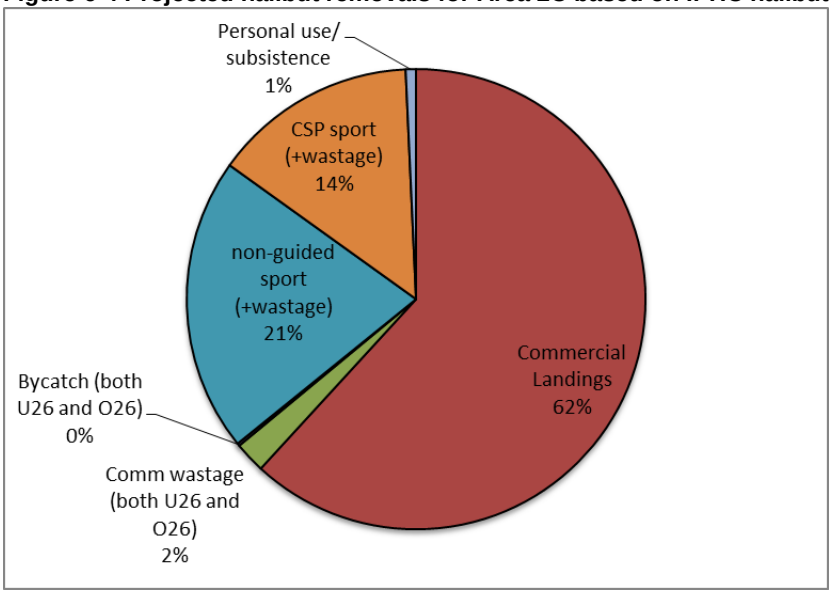
6.3.1.4 Removals

In the last four years, there is no information to suggest that halibut is subject to "overfishing," as that term is commonly applied to stocks managed under the Magnuson-Stevens Act. The Halibut Act does not define "overfishing" or require that an overfishing limit be defined. The halibut stock is currently managed conservatively, in a manner that is not likely to result in a chronic long term decline in the halibut resource due to fishing mortality (from all sources of removals) (NPMFC 2015).

However, the exploitable biomass of halibut is fully utilized. Five major categories of use occur in Alaska: commercial landings, sport (guided and unguided), subsistence and personal use, discard mortality in halibut targeted fisheries, and discard mortality in non-halibut directed fisheries. Sport removal of halibut (including the unguided sector) is an important proportion of halibut removals (Figure 6-4 and Figure 6-5). In Area 2C, the IPHC catch table for 2015 allocated 0.79 mt to the guided halibut sport fishing sector and its wastage (i.e. 14 percent of the total removals). As prescribed in the CSP, this

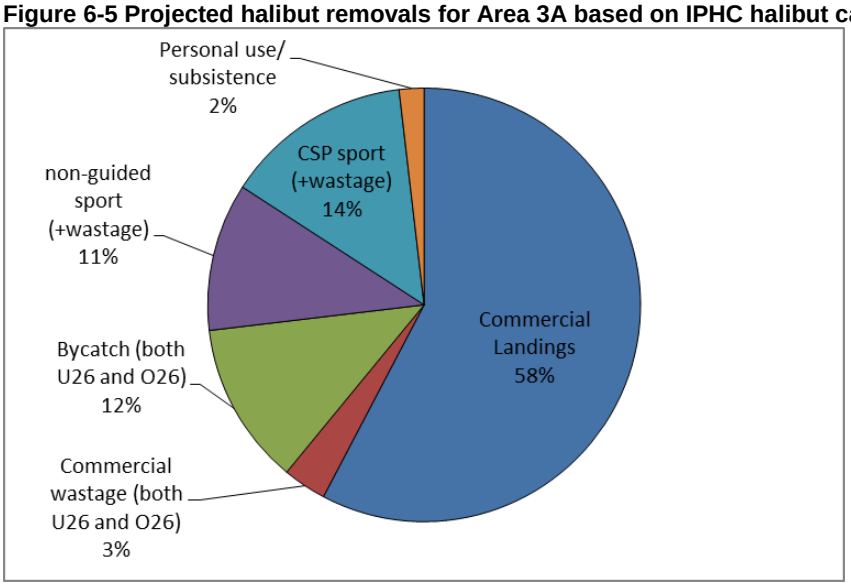
represents 18.3 percent of the total O26 FCEY. Area 3A guided halibut sport fishing sector was allocated 1.49mt (14 percent of the total projected removals for 2015).

Figure 6-4 Projected halibut removals for Area 2C based on IPHC halibut catch for the 2015 blue line values



Source: IPHC (2015) Final decision table, available at:
http://www.iphc.int/meetings/2015am/Final_Adopted_catch_limits_1_30_15.pdf

Figure 6-5 Projected halibut removals for Area 3A based on IPHC halibut catch for the 2015 blue line values



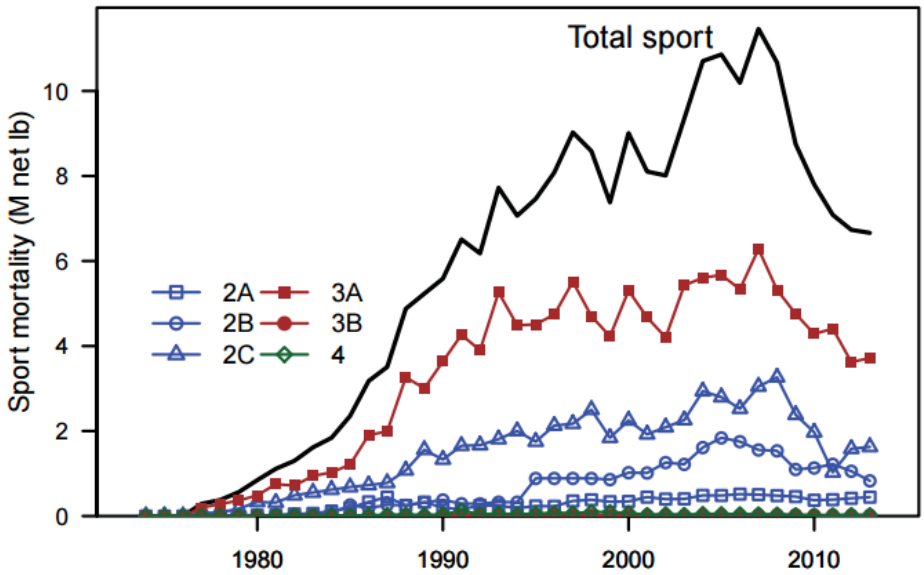
Source: IPHC (2015) Final decision table, available at:
http://www.iphc.int/meetings/2015am/Final_Adopted_catch_limits_1_30_15.pdf

The coastwide sport harvest of halibut (including guided and unguided) has grown considerably since IPHC began keeping sport catch statistics in the late 1970s (Figure 6-6). The sport harvest first reached one Mlb in 1981 and continued to grow, surpassing five Mlb in 1989 and 10 Mlb in 2004. Sport harvest peaked at 11.5 Mlb in 2007 and has since declined somewhat to 7.5 million pounds in 2011.

In Alaska, the harvest by the sport fishery has followed a similar trend, in part because it makes up the vast majority of coastwide sport halibut fishing. Alaska sport fishing harvest of halibut peaked at 9.4 Mlb

in 2009. Increased fishery restrictions coupled with declines in abundance have resulted in the harvest in 2012 of 6.87 Mlb Figure 6-6 reinforces the fact that all nearly all of Alaskan sport halibut harvest comes from Area 3A and Area 2C.

Figure 6-6 Sport catch removals (millions of pounds, net weight) since accounting began, 1977-2012



Source: The Pacific Halibut: Biology, Fishery, and Management, Tech Memo No. 59 (IPHC 2014).

Estimates of removals include estimates of wastage in the guided sport fishery. As described in Section 4.4.1.2.5, ADF&G has estimated wastage (i.e., discard mortality) for the guided sport halibut fishery in Areas 2C and 3A since 2007. These estimates rely on available Statewide Harvest Survey estimates of the numbers of released fish, an assumed mortality rate based on hook use data, and modeling of the size distribution of released fish. Discard mortality rates for guided and unguided recreational fisheries are dependent on the hook type (circle versus other) that is used. The rates were derived as weighted estimates, with 3.5 percent mortality rate for halibut released on circle hooks and a 10 percent mortality rate for halibut released on all other hook types, weighted by the proportions of released fish caught on each hook type.

Table 4-10 and Table 4-11 in Section 4.4.2.2 illustrate harvest limits and guided angler harvest for the past twenty years in Area 2C and Area 3A. Since the second year the guideline harvest limit (GHL) was in place (2004), Area 2C exceeded its harvest limit from between 15 to 58 percent up until 2010. Management measures became stricter and Area 2C was able to stay within its GHL/ allocation until 2014, the first year of the CSP. Under the first year of the CSP, the 2C charter sector was estimated to be nine percent over its allocation. Preliminary estimates indicate the 2C charter sector to be 0.4 percent under its allocation for 2015, the second year of the CSP.

Between 2003 to 2013, Area 3A was able to stay very near or below its GHL, with one year contributing an overage of 10 percent. In the first year of the CSP, Area 3A was estimated at 16 percent over the catch limit, which was cut by almost one Mlb from 2013. Preliminary estimates for 2015 demonstrate that with increase management restrictions and a 100,000 lb increase in the harvest limit, Area 3A was nine percent over the charter catch limit for this area.

6.3.2 Effects of the Alternatives

The analysis of environmental effects is focused around **Alternative 2**, as **Alternative 1** represents status quo environmental conditions, and **Alternative 3** is socio-economic in nature, and not focused around conservation concerns. **Alternative 2** would allow for the formation of a non-profit RQE, for Area 2C and Area 3A. This alternative would provide an RQE(s) with the opportunity to purchase commercial halibut QS for use in a common pool for charter anglers in the regulatory area it represents.

The overall effects of the Pacific halibut directed fishing and other removals on the halibut stock is assessed annually in the IPHC's RARA (e.g., IPHC 2015). Table 6-3 describes the criteria used to determine whether the impacts on target fish stocks are likely to be significant. As described in Section 6.3.1.4, while the Halibut Act does not define "overfishing" or require such a limit to be defined, no information suggests that the Pacific halibut stock is subject to "overfishing". It is estimated that the Pacific halibut fishery under the status quo is sustainable as defined by IPHC harvest policy.

Table 6-3 Criteria used to determine significance of effects on target Pacific halibut stock

Effect	Criteria			
	Significantly Negative	Insignificant	Significantly Positive	Unknown
Stock Biomass: potential for increasing and reducing stock size	Changes in fishing mortality are expected to jeopardize the ability of the stock to sustain itself at or above its CEY	Changes in fishing mortality are expected to maintain the stock's ability to sustain itself above its CEY	Changes in fishing mortality are expected to enhance the stock's ability to sustain itself at or above its CEY	Magnitude and/or direction of effects are unknown
Fishing mortality	Reasonably expected to jeopardize the capacity of the stock to yield sustainable biomass on a continuing basis.	Reasonably expected not to jeopardize the capacity of the stock to yield sustainable biomass on a continuing basis.	Action allows the stock to return to its unfished biomass.	Magnitude and/or direction of effects are unknown
Spatial or temporal distribution	Reasonably expected to adversely affect the distribution of harvested stocks either spatially or temporally such that it jeopardizes the ability of the stock to sustain itself.	Unlikely to affect the distribution of harvested stocks either spatially or temporally such that it has an effect on the ability of the stock to sustain itself.	Reasonably expected to positively affect the harvested stocks through spatial or temporal increases in abundance such that it enhances the ability of the stock to sustain itself.	Magnitude and/or direction of effects are unknown
Change in prey availability	Evidence that the action may lead to changed prey availability such that it jeopardizes the ability of the stock to sustain itself.	Evidence that the action will not lead to a change in prey availability such that it jeopardizes the ability of the stock to sustain itself.	Evidence that the action may result in a change in prey availability such that it enhances the ability of the stock to sustain itself.	Magnitude and/or direction of effects are unknown

As discussed in the environmental scan (Section 6.2), there are many characteristics of the halibut fisheries that would not change under **Alternative 2**. The framework for the CCL, as described in Section

4.4.1.2.1, would not change with this action and the allocation tiers would still be determined by the thresholds detailed in Table 4-1 for Area 2C and Table 4-2 for Area 3A. Both sectors would still be constrained by the total catch limits set for each regulatory area based on halibut abundance. While there are differences in the way each sector is managed (i.e., the commercial halibut IFQ fishery is subject to in-season closure upon reaching the commercial catch limit by area, whereas the charter sector is not), an overage or an underage from either sector is accounted for in the subsequent year by increasing fishery removals that result in a lower estimated initial biomass. On average, over the past five years (2010-2014), Area 2C was approximately 580,000 lb under its harvest limit, and Area 3A was approximately 86,000 lb under its harvest limit. Therefore, despite variability in harvest rates compared to harvest limit (particularly for these year in the charter sector), these removals are still accounted for. Under the currently proposed alternatives and options **it can be reasonably expected that the ability of stock to yield sustainable biomass by IPHC regulatory area on a continuing basis will not be significantly impacted by action under Alternative 2.**

One element that has been discussed outside of the proposed action could influence the magnitude of expected impacts on halibut biomass. At the Council meeting in February 2014, Gregg Williams of the IPHC staff spoke to the possible conservation and biological issues that could arise if an RQE was able to participate in the same **overage/ underage adjustment** that currently applies in the commercial halibut IFQ fishery. As described in Sections 4.5.1 the IFQ provisions provide for administrative adjustment of IFQ permits as a result of under-and over- fishing the prior year up to ten percent. If IFQ pounds remain unfished, a regulatory provision allows up to ten percent of the pounds remaining at the time of landing may be carried over to the following year. If a person exceeds an IFQ permit by some amount, not greater than ten percent, the next year the holder of the QS may see a deduction in their permit account. Mr. Williams highlighted that while the amount of IFQ rolled-over from QS holders has essentially been a wash in the long-run (i.e., a small amount over, a small amount under), the ability for an entity that represents a much larger pool of individuals to impact the stock, could be much greater due to the amount of halibut this represents. In the case of the recreational sector, there would be no individual accountability for such overage/underage. The Council's current list of alternatives and options does not include this potential flexibility, and the Council should be clear whether it warrants further IPHC investigation.

It is not anticipated that Alternative 2 would have significantly adverse impacts on status quo levels of fishing mortality or wastage. In the IFQ fishery, vessel operators are prohibited from discarding any halibut (above the legal size limit) for which anyone aboard the vessel has available quota for.

In the halibut sport fishery, discarding can occur up to a certain period of time. With recent management measures designed to limit the charter sector harvest and change size selectivity, the charter anglers have likely changed their patterns of discarding. For example, under the reverse slot limit restrictions for Area 2C in 2015, charter anglers were required to discard halibut between 42 and 80 inches in length. However, these discards to not all constitute wastage. Halibut released by charter anglers have very high survival rates, depending on the type of hook used. A discard mortality rate has been estimated by ADF&G since 2007. The CSP introduced separate accountability for wastage (Section 4.4.1.2.5), and applies it to the total charter removal under the charter allocation. From a conservation perspective, benefits may change as slot limits and minimum size limits require the discard of halibut in different size thresholds.

Under **Alternative 2**, the primary environmental consideration with regards to the sustainability of the halibut resource includes the consideration of what could result from the opportunity to shift some harvest intensity from the commercial halibut IFQ fishery to the charter halibut fishery. **Will there be effects on the spatial or temporal distribution of the halibut stock? Will there be localized depletion?**

This is a challenging impact to assess, because there are some pieces of information that are unavailable, including halibut biomass estimates by sub-areas and migratory patterns of halibut by sub-area.

While biomass information is not available at a localized level, creel sampling occurs at the major ports, so harvest-per-unit-effort can be understood in terms of number of retained halibut (harvest) and angler-days (effort). Figure 4-27and Figure 4-28 and demonstrate these trends for by Area. As part of the assessment of annual management measures, ADF&F often produces this type of information on harvest, effort, and harvest-per-unit effort in sub-areas of 2C and 3A. This continuous monitoring can aid management in tracking significant changes in number of fish, average weight of halibut, number of angler days, and overall effort relative to the management measures set each year.

IPHC has conducted general research on localized depletion of halibut. One of their studies occurred in 1988, published in the 1992 RARA, before the IPHC considered the Pacific halibut population to be of one stock (Greernaert et al. 1992). In this early work, the IPHC conducted a depletion and tagging study in the northern portion of Area 2B, Graham Island. Two research trips were made, the first between May 31 and June 20, and the second July 17 through July 27. This made a combined 21 days fishing. They fished an area of about 1 by 2.5 miles with depths ranging between 87 and 105 fathoms. The same fishing patterns were repeated, the same bait used, time and number of hooks that were set. Halibut catch was reported to vary, but depletion never occurred.

More recent research on localized depletion occurred from the IPHC in 2008 (Webster 2008). The intent of this study was to model factors affecting catchability of Pacific halibut. The probability of capture is one factor that impacts catch per unit effort (CPUE) in IPHC setline surveys. This probability can be influenced by environmental covariates (depth, temperature), individual covariates (sex, maturity, size prior injuries), and fishing design variables (location of set, time of day or year, length of soak).

The study took place in the eastern part of Area 3A. Five clusters were selected for this study, three in the Yakutat setline survey region, and two in the Prince William Sound survey region. Fishing occurred in each area over five days. The technique is called removal sampling, in which a closed population is repeatedly sampled over multiple occasions in quick succession. The basic idea was that the catch at a station will decline on each successive set as more of the local population is removed, and modeling the rate of decline will allow the researchers to estimate the number of fish that were present prior to the first set. Successful modelling of catch probability depended on observing a declining catch and on the rate of migration not being too high. As the rate of migration approaches 1, it becomes harder to distinguish high catchability and low local abundance from low catchability and high local abundance.

The results of this research showed daily catches of legal-sized halibut had declined little over the five days, with some clusters showing no decline at all. IPHC researchers determined that with such large daily movement of animals into the catchable population, they would not be able to obtain useful estimation of catch probabilities. It is also noteworthy that the amount of fishing effort applied in this study is relatively low compared with season-long fishing effort. An alternative conclusion could be that the catch rates were not high enough to affect the local population. Catch rates and migration may be confounded in these studies. Relatively speaking, the fishing effort applied is quite small compared with a season-long effort of multi-year localized fishing such as might happen in some sport fisheries.

However importantly, as discussed in Section 6.3.1.3 , based on research around the migratory nature of the adult halibut, the IPHC considers Pacific halibut to be a single stock, and assesses it as such. Therefore, it can be concluded **that Alternative 2 is unlikely to affect the distribution of harvested**

stock either spatially or temporally such that it has an effect on the ability of the stock to sustain itself.

This is not to say that there could not be localized effects under **Alternative 2**. The Council has received numerous public comments in the past on the perceived impact or expected impacts of localized depletion. Depending on the type of charter operation (lodge versus day trips), vessel operators typically do not travel more than two to three hours from a home port. In many sub-areas for both Area 2C and 3A, the footprint of the halibut charter fishery overlaps with the footprint of the other halibut user groups, such as non-guided sport anglers and subsistence users.[47] Any potential localized depletion resulting from a shift in harvest intensity to more nearshore areas could impact these user groups. Given the importance of this resource, this could also be an important area of future research.

It should also be noted that one effect not analyzed here are the different size compositions of halibut that the commercially harvested halibut IFQ and recreationally harvested halibut may have. Depending on the amount transferred, effects of this difference might be evident. Particularly if there were annual transfer limits in place, this type of effect may be noted early on the program's development.

Finally, **Alternative 2 is not expected to have an impact on prey availability** such that it jeopardizes the health of the halibut stock. Both sectors of halibut fishing occur under the status quo. The footprint of the fishery and relative timing of the fisheries would be expected to remain the same; as would regulations around seasons and gear type. Therefore, prey availability is not expected to be jeopardized by the potential for some redistribution of commercial halibut QS to the charter sector.

6.4 Cumulative Effects

NEPA requires an analysis of the potential cumulative effects of a proposed federal action and its alternatives. Cumulative effects are those combined effects on the quality of the human environment that result from the incremental impact of the proposed action when added to other past, present, and reasonably foreseeable future actions (RFFA), regardless of which federal or non-federal agency or person undertakes such other actions (40 CFR 1508.7, 1508.25(a) and 1508.25(c)). Cumulative impacts can result from individually minor, but collectively significant, actions taking place over a period of time. The concept behind cumulative effects analysis is to capture the total effects of many actions over time that would be missed if evaluating each action individually. Concurrently, the Council on Environmental Quality (CEQ) guidelines recognize that it is most practical to focus cumulative effects analysis on only those effects that are truly meaningful. Based on the preceding analysis, the effects that are meaningful are potential effects on Pacific halibut. The cumulative effects on the other resources have been analyzed in numerous documents and the impacts of this proposed action and alternatives on those resources is minimal, therefore there is no need to conduct an additional cumulative impacts analysis.

This section will provide a review of the cumulative effects of each alternative and the effects of past, present, and RFFA that may result in cumulative effects on the Pacific halibut stock. Actions are understood to be human actions (e.g., a proposed rule to designate northern right whale critical habitat in the Pacific Ocean), as distinguished from natural events (e.g., an ecological regime shift). CEQ regulations require consideration of actions, whether taken by a government or by private persons, which are reasonably foreseeable. This requirement is interpreted to indicate actions that are more than merely possible or speculative. In addition to these actions, this cumulative effects analysis includes climate change.

[47] This is a prime motivator for the Sitka Sound Local Area Management Plan (LAMP). This LAMP restricts commercial fishing vessels and charter vessels from halibut fishing in Sitka Sound to allow personal use fishermen and non-guided sport fishermen greater opportunity to catch halibut in waters near Sitka.

Actions are considered reasonably foreseeable if some concrete step has been taken toward implementation, such as a Council recommendation or NMFS's publication of a proposed rule. Actions only "under consideration" have not generally been included because they may change substantially or may not be adopted, and so cannot be reasonably described, predicted, or foreseen. Identification of actions likely to impact a resource component within this action's area and time frame will allow the public and Council to make a reasoned choice among alternatives.

The following RFFAs are identified as likely to have an impact on a resource component within the action area and timeframe:

1) Regulatory amendment published in 79 FR 43679, limiting the use of hired masters to fish IFQ that was transferred after December 10, 2014.

2) Recent amendment to the GOA groundfish FMP: Allowing the use of pot gear in the GOA sablefish fishery, with expectations.

As this analytical process develops, this section will be expanded to analyze any direct and indirect potential environmental impacts of Alternative 2 in the context of these recently implemented or pending actions. This section will evaluate the potential significance of the impacts from **Alternative 2** and the RFFA listed above, cumulatively.

7 PACIFIC HALIBUT ACT CONSIDERATIONS

7.1 Northern Pacific Halibut Act

The fisheries for Pacific halibut are governed under the authority of the Northern Pacific Halibut Act of 1982 (Halibut Act, 16 U.S.C. 773-773k). For the United States, the Halibut Act gives effect to the Convention between the United States and Canada for the Preservation of the Halibut Fishery of the North Pacific Ocean and Bering Sea. The Halibut Act also provides authority to the Regional Fishery Management Councils, as described in § 773c:

(c) Regional Fishery Management Council involvement

The Regional Fishery Management Council having authority for the geographic area concerned may develop regulations governing the United States portion of Convention waters, including limited access regulations, applicable to nationals or vessels of the United States, or both, which are in addition to, and not in conflict with regulations adopted by the International Pacific Halibut Commission. Such regulations shall only be implemented with the approval of the Secretary, shall not discriminate between residents of different States, and shall be consistent with the limited entry criteria set forth in section 1853(b)(6) of this title. If it becomes necessary to allocate or assign halibut fishing privileges among various United States fishermen, such allocation shall be fair and equitable to all such fishermen, based upon the rights and obligations in existing Federal law, reasonably calculated to promote conservation, and carried out in such manner that no particular individual, corporation, or other entity acquires an excessive share of the halibut fishing privileges.

It is necessary for the Council to consider the directions in the Halibut Act about the regulations that may result from this action. Much of the direction listed in § 773c(c) is duplicative with the Magnuson-Stevens Act's National Standard 4, requiring that regulations not discriminate between residents of different States, and directing that if halibut fishing privileges are allocated or assigned among fishermen, such allocation shall be fair and equitable.

The Halibut Act also directs regulations to be consistent with the limited entry criteria set forth in the Magnuson-Stevens Act. These are criteria that the Council and the Secretary must take into account when establishing a limited access system for a Magnuson-Stevens Act fishery. The criteria are listed below.

(A) present participation in the fishery;
(B) historical fishing practices in, and dependence on, the fishery;
(C) the economics of the fishery;
(D) the capability of fishing vessels used in the fishery to engage in other fisheries;
(E) the cultural and social framework relevant to the fishery and any affected fishing communities;
(F) the fair and equitable distribution of access privileges in the fishery; and
(G) any other relevant consider actions.

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10 APPENDICES

Appendix A: Discussion of Observer Coverage and Fees

At the December 2015 Council meeting, testifiers had concerns about the potential for reduced funding contributions to the observer program if QS was transferred to, and used in a sector that is not subject to observer coverage requirements and would therefore not be liable for observer coverage fees. The Council included a statement in the RQE motion requesting further evaluation of the effects of transferring commercial IFQ shares to the charter sector on observer fee revenues, IFQ administrative fees, and other related expenses. Section 4.8.1.6.2 contains a short discussion of potential cost recovery fees, this section focuses on the observer coverage and fees.

Catcher vessels participating in the commercial halibut IFQ fishery are in the partial coverage observer category.[48] In the partial coverage category, NMFS has the flexibility to assign observer coverage when and where it is needed as described in the annual deployment plan (ADP) developed in consultation with the Council. The ADP describes how NMFS plans to assign observer coverage to vessels (and processors) in order to meet scientifically based catch estimation needs while accommodating the realities of a dynamic fiscal environment. NMFS's goal is to achieve a representative sample of fishing events. The ADP for 2016 describes the 3 partial coverage deployment pools, or "strata" (NMFS 2015a):[49]

- No selection pool: The "no selection" pool is comprised of vessels that will have no probability of carrying an observer on any trips for the 2016 fishing season. These vessels are divided into two categories:
    - **Fixed-gear vessels less than 40 ft LOA** and vessels fishing with jig gear, which includes handline, jig, troll, and dinglebar troll gear.
    - Electronic Monitoring (EM) selection pool: Fixed gear vessels that have opted into the EM selection pool. For 2016, 58 fixed-gear vessels 40- 57.5 ft LOA have chosen to participate in the EM selection pool and will carry EM systems as described in the EM Pre-Implementation Plan. An additional 3 vessels >57.5 ft LOA have volunteered to carry stereo camera equipment and will also be placed in the no selection pool.

- Trawl trip-selection pool: This pool is comprised of all catcher vessels in the partial coverage category fishing trawl gear.

- **Hook-and-line trip-selection pool: This pool is comprised of vessels in the partial coverage category that are greater than or equal to 40 ft LOA that are fishing hook-and-line gear.**

- Pot trip-selection pool: This pool is comprised of vessels in the partial coverage category that are greater than or equal to 40 ft, LOA that are fishing pot gear.

Under the 2016 ADP, vessels that participate in the halibut IFQ fishery fall into the hook-and-line selection pool by definition, or the no selection pool. All vessels in the partial observer coverage category,

[48] Freezer longliners, that use A shares, fall into the full observer coverage category. Vessels and processing plants in the full coverage category pay observer providers directly for the observer on their vessel or in their plant. Therefore to the extent that an RQE could obtain A shares, any impact on the observer program would be directly linked with the decreased demand for full observer coverage. There would be no impact on partial observer coverage fee revenues or observer coverage days.

[49] Note that the sampling strata outlined in the ADP can change each year. In the 2014 ADP the partial coverage pools were: 1) no selection, 2) vessel selection, and 3) trip selection. Under the 2015 ADP the partial coverage pools were: 1) no selection, 2) small-vessel trip selection, and 3) large-vessel trip selection.

including those in the "no selection pool," pay the observer fee, thus sharing the cost burden of funding observer deployment under the partial observer coverage category.

Since the restructuring of the observer program in 2013, processors and registered buyers are required to pay an ex-vessel value-based fee to NMFS to support the funding and deployment of observers on vessels and in processing plants in the partial coverage category. The observer fee is 1.25 percent of the ex-vessel value of the groundfish and halibut subject to the fee. The intent is for owners and operators of catcher vessels delivering to shoreside processors or stationary floating processors to split the fee liability 50/50 with the processor, such that each operation pays 0.625 percent of the total ex-vessel value of the landing. Ex-vessel value used in this calculation is based on standard ex-vessel price from prior years of landings that did not occur in the full coverage category.[50] Standard ex-vessel prices for halibut IFQ or CDQ, sablefish IFQ, and sablefish accruing against the fixed gear sablefish CDQ reserve are based on the volume and value data collected on the annual IFQ Buyer Report from the previous year.[51]

Fees collected on landings made by vessels in the partial coverage observer category contribute to the overall partial observer coverage budget. Therefore the fee liability is used to place observers on all participating vessels in all sectors of the partial observer coverage category. The process of creating an ADP allows NMFS to adjust deployment in each year so that sampling can be achieved throughout groundfish and halibut fisheries, but within financial constraints. Changes in observer fee revenue or projected fishing effort in the partial observer coverage category impact the selection rates set in the ADP. The amount of observer coverage in the partial coverage category for any given year is dependent on available revenue generated from fees on groundfish and halibut landings in the prior year.[52] The budget is converted from dollars to observer days as derived from confidential information in the partial coverage contract. NMFS estimates anticipated fishing effort in the upcoming year and using the available sea-day budget as the primary input into simulation models used to generate anticipated outcomes from different selection rates.

The proposed RQE raises a two-part question with regard to observer coverage and fees:

1) **How much observer fee liability would be foregone if halibut IFQ were used in the halibut charter sector rather than the commercial halibut IFQ sector?**
2) **How would the proposed RQE change the demand for the number of observer-days in the partial coverage fleet?**

Changes in observer fee liability

The first question is analyzed in the context of the current proposal, specifically taking into account the transfer restrictions under **Alternative 2, Element 2**. If no transfer restrictions were set, it would be difficult to estimate impacts on observer fee revenues, because there would be no basis to estimate how much QS an RQE might acquire. The total observer coverage fee liability for all hook-and-line vessels landing halibut in GOA amounted to $855,533 in 2014 (NMFS 2015b).

[50] Vessels may be in full coverage for some fisheries, and in partial coverage for others.
[51] It is not possible to use the current year IFQ halibut and sablefish standard prices because Registered Buyers collect the harvester's portion of the fee liability throughout the year and the standard price for the year is not known until the end of the year.
[52] Note that since 2013, Federal dollars have also used to fund observer some coverage days (NMFS 2015b). However, these additional funds are not guaranteed and are not likely to be available from NMFS in the future. Therefore this analysis is based on fees that are available from the observer fee liability.

Considering the different types of transfer restrictions provides clear benchmarks for understanding the maximum observer fee liability that may be displaced from a non-commercial entity holding halibut QS. This analysis first applies to the range of total cumulative transfer restrictions for each regulatory area listed under **Alternative 2, Element 2, Option 3, Sub-option 1** (i.e., restricting total transfers to 5-20 percent of commercial QS units, in 2015 units, in each Area 2C and 3A). The range of proposed total cumulative caps translate into the pounds represented in Table 4-38 (Area 2C) and Table 4-39 (Area 3A).

The range of pounds represented in Table 4-38 and Table 4-39 can be multiplied by the standard ex-vessel price that is set based off the IFQ buyers report for purposes of observer program fees. The product is a measure of ex-vessel revenue displaced from the commercial fishery in the transaction. Table 10-1 and Table 10-2 apply the 1.25 percent observer fee to the range of ex-vessel revenue represented in each scenario of total transfer restrictions to illustrate the reduction in observer fee revenue associated with the maximum amount of QS being purchased by an RQE under each scenario.

In Area 2A, the values range from a reduction of about $11,000 under a 5 percent cap in 2013, up to a reduction of about $56,500 of observer fee liability in 2015 under a 20 percent cap. In Area 3A, a 5 percent cap would have amounted to about a $22,000 reduction in observer fee revenue in 2014, ranging up to $166,000 reduction in observer fee revenue in 2013 using a 20 percent cap. Note that the table only extends back to 2013 because these standard ex-vessel values have only been used since the restructuring of the observer program implemented in 2013.

Table 10-1 and Table 10-2 go a step further to estimate the number of observer days that would not have been funded in each year. The tables use an average cost per day of $1,067, for observers in partial coverage category as listed in most recent annual report (NMFS 2015b). If RQE transfers were restricted to Area 2C, this reduction ranges from 10 to 53 observer days (Table 10-1). If RQE transfers were restricted to Area 3A, the number of observer days that would not have been funded ranges from 21 to 156 (Table 10-2).

Alternative 2, Element 2, Option 3, Sub-option 2 (restricting total RQE transfers to 5-20 percent of *each class of QS units*) could ultimately reach the same place in terms of reduced observer fees revenue and budget for observer days, because maxing out on these restrictions would effectively be the same total amount of IFQ pounds transfers as **Alternative 2, Element 2, Option 3, Sub-option 1**. Therefore an additional table is not provided for transfer restrictions by vessel class.

Table 10-1 Reduction in observer fee revenue under Alternative 2, Element 2, Option 3, Su-option 1 with RQE transfers in Area 2C

Cumulative Cap (Percent)	Maximum QS units Allowed	Foregone observer fee liability			Converted into observer days		
		2013	2014	2015	2013	2014	2015
5	2,973,870	$11,137	$10,458	$14,122	10	10	13
6	3,568,644	$13,395	$12,537	$16,962	13	12	16
7	4,163,418	$15,652	$14,616	$19,802	15	14	19
8	4,758,192	$17,834	$16,695	$22,565	17	16	21
9	5,352,966	$20,092	$18,774	$25,404	19	18	24
10	5,947,740	$22,349	$20,916	$28,244	21	20	26
11	6,542,514	$24,532	$22,995	$31,084	23	22	29
12	7,137,288	$26,789	$25,074	$33,847	25	23	32
13	7,732,061	$29,047	$27,153	$36,687	27	25	34
14	8,326,835	$31,229	$29,232	$39,526	29	27	37
15	8,921,609	$33,486	$31,311	$42,366	31	29	40
16	9,516,383	$35,744	$33,390	$45,206	33	31	42
17	10,111,157	$37,926	$35,532	$47,969	36	33	45
18	10,705,931	$40,184	$37,611	$50,809	38	35	48
19	11,300,705	$42,441	$39,690	$53,648	40	37	50
20	11,895,479	$44,623	$41,769	$56,488	42	39	53
Southeast Alaska IFQ buyers price per pound:		$6.02	$5.04	$6.14	Average cost per observer day:		$1,067

Source: Observer fee standard ex-vessel prices based on 2012, 2013, and 2014 IFQ Buyers Reports,

Table 10-2 Reduction in observer fee revenue under Alternative 2, Element 2, Option 3, Su-option 1 with RQE transfers in Area 3A

Cumulative Cap (Percent)	Maximum QS units Allowed	Foregone observer fee liability			Converted into observer days		
		2013	2014	2015	2013	2014	2015
5	9,244,650	$41,538	$22,176	$29,856	39	21	28
6	11,093,580	$49,816	$26,586	$35,842	47	25	34
7	12,942,511	$58,093	$31,059	$41,829	54	29	39
8	14,791,441	$66,446	$35,469	$47,815	62	33	45
9	16,640,371	$74,723	$39,879	$53,802	70	37	50
10	18,489,301	$83,001	$44,352	$59,788	78	42	56
11	20,338,231	$91,278	$48,762	$65,775	86	46	62
12	22,187,161	$99,631	$53,235	$71,761	93	50	67
13	24,036,091	$107,909	$57,645	$77,748	101	54	73
14	25,885,021	$116,186	$62,055	$83,734	109	58	78
15	27,733,951	$124,539	$66,528	$89,644	117	62	84
16	29,582,881	$132,816	$70,938	$95,631	124	66	90
17	31,431,811	$141,094	$75,348	$101,617	132	71	95
18	33,280,741	$149,447	$79,821	$107,604	140	75	101
19	35,129,672	$157,724	$84,231	$113,590	148	79	106
20	36,978,602	$166,002	$88,704	$119,577	156	83	112
GOA except SEAK IFQ buyers price per pound		$6.02	$5.04	$6.14	Average cost per observer day:		$1,067

Source: Observer fee standard ex-vessel prices based on 2012, 2013, and 2014 IFQ Buyers Reports.
Table notes: Standard prices for Area 3A are made of three port groupings: Central GOA, Western GOA and Eastern GOA except SEAK (Southeast Alaska). For these three years the standard prices happened to be the same for all sub-areas, therefore this price was applied to the region.

Table 10-3 and Table 10-4 use the same technique as the previous tables to identify the reduction in observer fee revenue translated to observer days under **Alternative 2, Element 2, Option 4, Sub-options 1 and 2** (restrict purchase of D class QS and restrict purchase of certain blocked QS, respectively). Since both of these sub-options mean there is less QS units available for transfer (i.e. the cumulative cap is applied to the QS pool without the units associated with D class or blocked units being included in the calculation), they naturally correspond to smaller reductions in observer fee revenues and a greater budget for observer days.

Table 10-3 Reduction of observer fee revenues and observer days under Alternative 2, Element 2, Option 4 if RQE transfers were limited to Area 2C.

Cumulative Cap (Percent)	Maximum QS units Allowed	Foregone observer fee liability				Converted into observer days			
			No D-Class	No 1,500 Blocks	No 2,000 Blocks	No Restrictions	No D-Class	No 1,500 Blocks	No 2,000 Blocks
5	2,564,940	$14,122	$11,973	$12,203	$10,822	13	11	11	10
6	3,077,928	$16,962	$14,429	$14,583	$12,971	16	14	14	12
7	3,590,916	$19,802	$16,808	$17,039	$15,120	19	16	16	14
8	4,103,904	$22,565	$19,188	$19,495	$17,346	21	18	18	16
9	4,616,892	$25,404	$21,644	$21,951	$19,495	24	20	21	18
10	5,129,880	$28,244	$24,023	$24,330	$21,644	26	23	23	20
11	5,642,868	$31,084	$26,402	$26,786	$23,793	29	25	25	22
12	6,155,856	$33,847	$28,781	$29,242	$25,942	32	27	27	24
13	6,668,845	$36,687	$31,237	$31,698	$28,091	34	29	30	26
14	7,181,833	$39,526	$33,617	$34,077	$30,316	37	32	32	28
15	7,694,821	$42,366	$35,996	$36,533	$32,465	40	34	34	30
16	8,207,809	$45,206	$38,452	$38,989	$34,614	42	36	37	32
17	8,720,797	$47,969	$40,831	$41,368	$36,763	45	38	39	34
18	9,233,785	$50,809	$43,210	$43,824	$38,912	48	40	41	36
19	9,746,773	$53,648	$45,590	$46,280	$41,138	50	43	43	39
20	10,259,761	$56,488	$48,046	$48,736	$43,287	53	45	46	41
		Southeast Alaska IFQ buyers price per pound:			$6.14	Average cost per observer day:			$1,067

Source: Observer fee standard ex-vessel prices based on 2012, 2013, and 2014 IFQ Buyers Reports.

Table 10-4 Reduction of observer fee revenues and observer days under Alternative 2, Element 2, Option 4 if RQE transfers were limited to Area 3A

Cumulative Cap (Percent)	Maximum QS units Allowed	Foregone observer fee liability				Converted into observer days			
		No Restrictions	No D-Class	No 1,500 Blocks	No 2,000 Blocks	No Restrictions	No D-Class	No 1,500 Blocks	No 2,000 Blocks
5	8,576,868	$29,856	$27,860	$27,707	$25,942	28	26	26	24
6	10,292,242	$35,842	$33,386	$33,310	$31,161	34	31	31	29
7	12,007,616	$41,829	$38,989	$38,836	$36,303	39	37	36	34
8	13,722,990	$47,815	$44,515	$44,362	$41,522	45	42	42	39
9	15,438,363	$53,802	$50,118	$49,888	$46,741	50	47	47	44
10	17,153,737	$59,788	$55,721	$55,490	$51,883	56	52	52	49
11	18,869,111	$65,775	$61,247	$61,016	$57,102	62	57	57	54
12	20,584,484	$71,761	$66,849	$66,542	$62,321	67	63	62	58
13	22,299,858	$77,748	$72,375	$72,145	$67,463	73	68	68	63
14	24,015,232	$83,734	$77,978	$77,671	$72,682	78	73	73	68
15	25,730,605	$89,644	$83,504	$83,197	$77,901	84	78	78	73
16	27,445,979	$95,631	$89,107	$88,723	$83,044	90	84	83	78
17	29,161,353	$101,617	$94,710	$94,326	$88,263	95	89	88	83
18	30,876,726	$107,604	$100,236	$99,852	$93,405	101	94	94	88
19	32,592,100	$113,590	$105,838	$105,378	$98,624	106	99	99	92
20	34,307,474	$119,577	$111,364	$110,904	$103,843	112	104	104	97
		GOA except SEAK IFQ buyers price per pound:			$6.14	Average cost per observer day:			$1,067

Source: Observer fee standard ex-vessel prices based on 2012, 2013, and 2014 IFQ Buyers Reports.

Not currently depicted in this analysis, are the effects that an annual transfer cap may have in slowing the impacts to observer fee revenues. This could be done in a very similar fashion to what is depicted for total transfer caps. However, concerns about the impacts to the observer fee revenue represent a longer-term issue; therefore, effort was focused around the types of cumulative caps under consideration.

Changes in the demand for observer-days in the partial coverage fleet

Halibut QS held by an RQE and used in the charter sector could also result in a reduction in the number of commercial fishing days and therefore lower the demand for observer days. Compared to estimating the amount of displaced observer fee liability, this calculation is not straightforward. The challenge is in understanding who would transfer QS and how it would affect current commercial fishing operations. Less QS available for commercial operations could impact whether a vessel takes any trips in a season, it could reduce the number of trips they take, shorten the duration of a trip, or there could be a scenario where it does not impact operations at all. If there are fewer vessels fishing the remaining QS or vessels take shorter duration trips, this could result in fewer observer days used to monitor this sector. The expectation is that there would be variability in how QS transfers would impact specific operations.

The greatest impact to the observer program budget would be if an RQE obtained only halibut QS that was traditionally used on vessels less than 40ft LOA. Recall that these vessels fall into the "no selection pool". Therefore, their observer fees are included in the budget to fund at-sea observer days, but these vessels do not use any observer days. If these vessels were to scale back their operations or not take any trips in a year, there would be no reduced demand in observer coverage to offset the reduced revenue from observer fees. Since observer fee revenue is used to deploy observers on all sectors in the partial coverage category, a reduction in fees from the less than 40ft LOA sector could impact the overall selection rates set for all sectors in the ADP.

However it is expected that an RQE would attempt to acquire QS from several vessel classes, based on market availability, which would include QS that is traditionally harvested on vessels greater than or equal to 40ft LOA. Particularly if the Council adopted either of the sub-options under **Alternative 2, Element 2, Option 4** (restrictions on purchasing D class QS and/ or restrictions on purchasing blocked QS) the RQE's effort in the market for QS would be directed towards those QS more traditionally harvested on vessels greater than 35ft LOA, and likely in the trip selection pool (vessels greater than or equal to 40ft LOA).

Given the uncertainly of where the QS would come from, the following exercises use some assumptions to consider scenarios that might result in the lowest negative impact (even a positive impact) to the observer program.

As one example, imagine Area 2C RQE had a 10 percent cumulative transfer cap and a prohibition on D class QS: [53]

- This would result in a maximum of 313,000 pounds of halibut IFQ it could hold in 2015 (as established in Table 4-38).
- Assume that all (because this is a low impact scenario) of this market pressure went to acquiring QS that had been previously fished on vessel greater than 40 ft LOA; QS that was used on vessels in the hook-and-line trip selection strata under the 2016 ADP (NMFS 2015a).
- Based on eLandings, sourced through AKFIN, the median halibut IFQ landing of vessels greater than or equal to 40 ft LOA was about 5,000 pounds (in 2014).[54]
- If each trip landed the median amount of pounds, dividing the potential 313,000 pounds of 2C RQE holdings by 5,000 pounds per trip, results in a potential reduction of 62.6 halibut IFQ trips.
- According the ADP for 2016 there is a 15 percent selection probably for hook-and-line vessel in the hook-and-line trip selection pool (NMFS 2015a).
- Therefore an estimated 9.4 of these 62.6 trips would have been selected for coverage.
- The average trip duration is between 3 to 5 days based on the 2014 Annual Report (NMFS 2015b) resulting in a range between 28 and 47 of the number of observer sea-days that are no longer needed.[55]
- This can be compared to the 23 observer sea-days that are no longer afforded due to the reduced observer fee liability (Table 10-3).

Using the same method for Area 3A, imagine the Council set a 10 percent cumulative transfer cap for Area 3A and a prohibition on D class QS:[56]

- This would result in a maximum of 726,000 pounds of halibut IFQ it could hold in 2015 (refer to Table 4-39).

[53] This example of transfer restrictions was chosen for ease of calculation. A similar exercise could be done with any of the transfer restrictions.

[54] One of the caveats of this example analysis is that hook-and-line vessels fishing halibut IFQ have significantly different levels of capacity. Halibut landings from 2014 demonstrate a much higher mean that median indicating that there are many smaller deliveries below the average landing size, with several larger deliveries pulling the average much higher than the median. Deliveries range from 20 pounds to more than 70,000 pounds. In this example, capacity is just represented as a single number (median). While capacity could be split out by different categories based on vessel size, this would require more assumptions about where the RQE QS holdings had been historically fished.

[55] It should be noted that these examples are simplified. In reality, the unused observer days and the reduction in fee revenue do not impact the same year. The reduced budget would impact the observer fees that are available for the next year.

[56] This example of transfer restrictions was chosen for ease of calculation. A similar exercise could be done with any of the transfer restrictions.

- The 726,000 pounds of holdings divided by the median halibut IFQ landing of vessels greater than 40ft LOA (5,000 pounds in 2014), could amount to about 145 trips.
- With a 15 percent selection probability for hook-and-line vessels in the trip selection pool (NMFS 2015a), an estimated 21.8 of these 145 trips would be selected for coverage.
- This number of trips can be multiplied by the same 3 to 5 days for trip duration (NMFS 2015b) resulting in a range of about 65 to 109 observer sea-days that are no longer needed.
- Again, this can be compared to the 52 observer days that are no longer afforded due to the reduced observer fee liability (Table 4).

These examples leave the unsatisfying conclusion that the impacts are difficult to quantify and will depend on who sells QS to an RQE, and how it affects current commercial operations. On one hand, the proposed action could result in an overall decrease in the observer fee revenue and budget for observer coverage, which would have spillover effects into the coverage rates that can be afforded in other fisheries. On the other end of the spectrum the action could provide a net benefit by removing more demand for observer sea-days than observer fee revenue.

References

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NMFS. 2015a. 2016 Annual Deployment Plan for Observers in the Groundfish and Halibut Fisheries off Alaska. National Oceanic and Atmospheric Administration, Juneau, Alaska.

NMFS. 2015b. North Pacific Groundfish and Halibut Observer Program 2014 Annual Report. National Oceanic and Atmospheric Administration, Juneau, Alaska.

Appendix B: Cumulative GAF and RQE Transfer Limits

The December 2015 Council RQE motion requested that further analysis evaluate the mechanics of creating RQE transfer limits that are additive to the current GAF transfer restrictions. Specifically the motion stated:

> *Staff should also evaluate the mechanics of a concept by which the Guided Angler Fish (GAF) limit is reduced in accordance with RQE quota holdings to meet a cumulative limit. [For example, under status quo, commercial QS holders in Area 2C can lease up to 10% of their IFQ as GAF. If the cumulative limit for RQE purchases of commercial quota was 15% of the Area 2C catcher vessel QS pool, then if by October 1 the RQE holds up to 5% of the Area 2C catcher vessel QS pool, the GAF limit remains at 10% for the upcoming year. If by October 1 the RQE holds 6% of the Area 2C catcher vessel QS pool, the GAF limit is reduced to 9% for the upcoming year. Any example could be used within the range of the cumulative limits under Element 2, Option 3.]*

Therefore this section begins to evaluate the regulatory and practical implications of connecting the transfer limits of the GAF program with any potential RQE transfer restrictions as a cumulative transfer limit.

Section 4.4.1.2.4 describes the GAF program. As alluded to in the Council motion, current regulations for the GAF program have several restrictions on use (listed at 50 CFR 300.65(c)(5)(iv)(H)). These include:

- No more than 400 GAF may be assigned to a GAF permit in a year that is assigned to a CHP or community CHP[57] endorsed for six or fewer anglers

- No more than 600 GAF may be assigned to a GAF permit in a year that is assigned to a CHP endorsed for more than six charter vessel anglers in a year

- In Area 2C, a maximum of 1,500 pounds or ten percent, whichever is greater, of the start year fishable IFQ pounds for an IFQ permit, may be transferred from IFQ to GAF

- In Area 3A, a maximum of 1,500 pounds or fifteen percent, whichever is greater, of the start year fishable IFQ pounds for an IFQ permit, may be transferred from IFQ to GAF

In other words, there are use restrictions for how many GAF a CHP holder can have access to in a year and there are restrictions on how much a halibut QS holder can lease in a year. It also means that, theoretically, if every halibut QS holder leased up to the maximum for their regulatory area, ten and fifteen percent of the halibut QS would be available for use in charter fisheries in Area 2C and Area 3A (respectively).

The program has been in place for two full seasons (2014 and 2015) and has been far from the maximum transfer caps in both regulatory areas thus far (Table 10-5). The average number of GAF transferred per GAF permit was low in 2014, and was further reduced in 2015 when then IFQ to GAF conversion factor increased (refer to Table 4-3). In 2014 and 2015, about one percent of the total Area 2C IFQ allocation was transferred as GAF. In Area 3A, less than a quarter of a percent of the total Area 3A IFQ allocation was transferred as GAF during the first two seasons of the program.

[57] There are additional regulations specifying how use restrictions apply to CQEs. For instance, if a CQE transfers IFQ as GAF to a GAF permit that is assigned to a community CHP or another CHP held by a CQE, the use restrictions do not apply. For more details, refer to 50 CFR 300.65(c)(5)(iv)(H).

Table 10-5 GAF transfers in 2014 and 2015

Area	Year	Average GAF transferred per GAF permits issued	IFQ pounds transferred	Total IFQ allocation	Percent of area IFQ transferred
2C	2014	12	29,498	3,318,720	0.89%
	2015	5	36,934	3,679,000	1.00%
3A	2014	48	11,654	7,317,730	0.16%
	2015	11	10,337	7,790,000	0.13%

Source: NMFS GAF Program 2015 Annual Report and NMFS RAM.

The Council has not currently proposed to revoke the GAF program if the RQE program were to be implemented. A Council discussion paper in October 2014, suggested the merits of retaining the program even in the event of RQE program development (NPFMC 2014). Despite the low rate of participation displayed in Table 10-5, there are a number of reasons why the program has not been proposed to be revoked. If the Secretary of Commerce approves an RQE as an eligible entity to hold commercial halibut QS there are several more steps interested stakeholders would need to achieve in order to establish such an entity (e.g. establish a source of funding). There is no basis to know if and when an RQE would be a functioning non-profit group. In the meantime, some charter stakeholders may still be interested in the opportunity of the GAF program.

Additionally, the objective and product of the GAF program and a potential RQE are different. The GAF program provides individual charter operators the chance to provide their clients, or certain clients, the opportunity to retain a halibut they would not have had under the existing management regime. Participation in this program is voluntary and determined at the individual-level. Considering the cost of the additional fish, this generally means the charter angler using GAF places a very high value on this additional opportunity. For example, in the case of Area 2C, GAF may be used when an angler highly values keeping a second fish. Charter operators have also testified that GAF is sometimes used when an angler catches a trophy halibut that they would not otherwise be able to keep.

The proposed RQE would be seeking to purchase halibut QS on behalf of all charter anglers as a whole by allowing for the adjustment of annual management measures. This could mean inches on a fish, or a change in the daily bag or annual limit. While this might be an objective that charter stakeholders are interested in pursuing, it does not necessarily have the same effect as the GAF program. Some charter stakeholders may rely on the nature of the GAF opportunity for their operations, and this type of opportunity might not be available under just an RQE.

However, other stakeholders have requested the consideration of cumulative transfer limit for these programs stating that these programs have similar consequences at the commercial sector level, i.e. halibut IFQ is not being used in the commercial fishery. These stakeholders provided testimony at the December 2015 meeting that transfer caps made for the RQE should be additive to those limits currently in place for the GAF program in order to account for the cumulative impacts of IFQ that is not being harvested in the commercial sector.

Regulations, Implementation, and Enforcement

If total transfer restrictions were additive between GAF and RQE, establishing a cumulative transfer limit for halibut available for use in the charter sector, several Federal regulations around the GAF program would need to be amended (in addition to the regulations created for establishing an RQE).

Primarily, regulations would need to establish a formula for how a cumulative transfer limit would apply. There are several inconsistencies between the current regulations for GAF and the proposed transfer restrictions for an RQE that create complexities in the implementation of a cumulative transfer limit.
Thus far, the proposed RQE transfer restrictions examined in this analysis have been applied **as a percentage of the 2015 QS pool**. In other words, the analysis has considered a proportion of the QS pool for a specific year (which provides a set number of units) that could be transferred, rather than a proportion of the QS pool (allowing the units to change if the QS pool changes).

This small distinction can make a difference. The QS pool does not change very often or very much, but it has changed over time. Specifically, the QS pool can change if QS is revoked or added. For example, say 10,000 units of QS were revoked. This would make all other QS holders units more valuable; they would be worth slightly more pounds of IFQ the next year. Therefore, RAM would not necessarily know that 5% of the QS pool one year would be the same as 5% of the QS pool the next year, if they were approving a transfer. Establishing a transfer cap for the acquisition of QS by using a proportion of the QS pool for a specific year (using a set number of QS units), means that if QS is removed from the pool, it would not bump a QS holder into a position where they are suddenly over the cap. If caps are established as a percentage of the pool, theoretically, that could happen. Thus, regulations that apply to the underlying holdings of QS, are often based on a proportion of the QS pool for a specific year rather than a general a proportion of the QS pool.[58]

In contrast, transfer restrictions that are applied seasonally are often established as a percentage of the available IFQ for that year. For example, vessel IFQ caps limit the amount of pounds an individual vessel can harvest in a given season. This type of cap is more appropriate for decisions an IFQ user would make on an annual basis, once the QS:IFQ ratio is established. Since GAF transfers are seasonal leasing arrangements, the current regulations are applied **as a percentage of an individual's fishable IFQ**. At the point leasing takes place or harvesting occurs, the QS:IFQ ratio for the year is known. Establishing caps by pounds (rather than a set number of units) is more relatable to the participants, which helps with annual planning, and seems appropriate if there is no difference in the effect.

A percentage of an individual's fishable IFQ should be equivalent to the corresponding percentage of the QS pool in that year; i.e., *in a given year*, six percent of the IFQ for an area is the same as six percent of the QS pool in an area. However, as mentioned, the QS pool can change overtime. Given the proposed timeline for an RQE this could create problems for approving RQE transfers. **Alternative 2, Element 3** states, "…*Use October 1 each year as the basis to estimate IFQ pounds to add to the estimated guided recreational allocation under the catch sharing plan for the upcoming year. This amount must be maintained for the following fishing year*…".

The RQE's holdings would be established by October 1 for the subsequent fishing season. This is necessary because at this point in time ADF&G begins to analyze options for charter management measures for the subsequent year. Under this proposal, ADF&G will estimate the charter sector allocation for each areas under the catch sharing plan based on the catch limits that result from the stock assessment and the application of the IPHC's harvest policy. ADF&G will need to add the approximate IFQ equivalent of any RQE holdings to the catch sharing plan allocation to determine the total allocation to the charter sector in each area. However, the catch limits and corresponding QS:IFQ ratio for the following season have not yet been determined by the IPHC by October 1. The amount of pounds that any

[58] For example, the halibut QS use caps in the IFQ program apply a limit to the underlying holdings of QS by an individual. They are established as a percentage of the 1996 QS pool. For Area 2C, the QS use cap is 1% of the 1996 QS pool and for Area 2C, 3A, and 3B the QS use cap is 0.5% of the 1996 QS pool. For more detail about this example, refer to: https://alaskafisheries.noaa.gov/sites/default/files/reports/limits-on-quotashares0113.pdf

RQE QS holdings would represent would be undetermined as this point in time. Therefore applying a cumulative transfer limit in terms of fishable IFQ would be problematic when being compared against an entity that could potentially hold QS in perpetuity.

In sum, creating a cumulative transfer limit that encompasses both a restriction on leasing in the GAF program as well as restrictions on the holdings of an RQE creates an additional complexity by applying a mismatched unit of measure in regulations. The ultimate effect is straightforward (limiting the total amount of halibut that can be transferred from the commercial sector to be used in the charter sector), but the regulatory formula that implements such a restriction could be convoluted.

The second inconsistency between the current GAF regulations and the transfer restrictions that have been proposed for the RQE, is that the GAF transfer restrictions are currently set at the individual level, rather than the regulatory area level. An individual in Area 2C cannot transfer more than 10 percent of their annual IFQ (or 1500 pounds, whichever is greater) as leased GAF, and individual in Area 3A cannot transfer more than 15 percent of their annual IFQ (or 1500 pounds, whichever is greater) as leased GAF in a year. Therefore the Council would need to determine whether the cumulative transfer limits would be *in addition* to the individual IFQ transfer limits of the GAF program or if they would *replace* these transfer restrictions.[59]

Therefore there are two ways in which a cumulative transfer limit between GAF and RQE could be implemented:

RAM would approve RQE transfers up until the cumulative transfer limit (also considering any annual transfer limits that may have been set). NMFS would be able to identify the cumulative transfer opportunity that remains for the GAF program during that fishing season. In practice, RQE holdings would preempt GAF leasing because they would be carried over year-to-year, whereas GAF transfers must be re-established on an annual basis, after the fishing season begins.

1) The remaining opportunity for transfer for the GAF program under the cumulative limit would apply as a percent of the **total IFQ available for harvest in a regulatory area** and **be in addition to** individual halibut IFQ transfer caps currently in place (at §300.65(c)(5)(iv)(H)).
    - For example, if the Area 2C cumulative limit for GAF and RQE holdings was 10 percent of the combined Area 2C halibut 2015 QS pool, and the RQE had acquired 6 percent of the QS pool by October 1 of 2020, then in 2021, the GAF transfers would be restricted to leasing the IFQ that results from 4 percent of the total Area 2C halibut QS pool.[60] This would function as a "first-come-first-serve" opportunity, since this additional restriction would not allow for a circumstance where all IFQ holders could lease 10 percent of their annual IFQ. Transfer applications that were submitted after the cumulative limit was reached would not be approved by RAM.
    - The likelihood of the cumulative limit acting as a real constraint on GAF use depends on the ability of an RQE to acquire QS. Given the current use the GAF program, this would not

[59] A third option would be a cumulative transfer restriction at the individual level. However, RQE transfer restrictions would not be practical at the individual level. In effect, if regulations attempted to limit QS holders to only selling x percent of their QS holding to an RQE, there would be nothing to stop that individual from selling x percent again in a different transaction under their adjusted QS holdings.

[60] This example could be applied to any combination of cumulative transfer caps under Alternative 2, Element 2, Options 2 through 4.

produce negative effects on GAF users unless an RQE acquires a substantial proportion of the available QS.

- With the expectation that an RQE would require additional time after the Council and regulatory process in order to develop, all harvest opportunity under the cumulative limit would be available to the GAF program participants during this time.
- Any annual QS transfer restrictions for the RQE would slow the rate of acquisition, and allow more time for the GAF program to have more access to transfer opportunities.
- If an RQE is able to obtain funding and identify and purchase QS, this would restrict the GAF as demonstrated in the example.
- If an RQE is never able to develop a funding mechanism, all harvest opportunity under the cumulative limit would be available for GAF users.
- If the natural abundance of halibut, or the charter allocation plus RQE holdings were able to bring halibut charter management measures equal to those of the non-guided sector, there would be no use for GAF, regardless of the harvest opportunity still available under the cumulative transfer limits.

2) The remaining opportunity for transfer under the cumulative transfer limits would apply as a percent of the **total IFQ for each regulatory area** and **replace** the individual halibut IFQ transfer caps currently in place (at §300.65(c)(5)(iv)(H)).

    - Implementation would be consistent with previously described example.
    - The implications of this distinction could be important. The current GAF regulations prevent a person with 150 days at sea from purchasing halibut QS with the sole intention of leasing it all as GAF (either to themselves or others). When aggregated to the regulatory area level, the current rates of GAF usage are nowhere near the transfer restrictions. However, some individuals may have reached their limits. As mentioned earlier, theoretically, if every halibut QS holder leased up to the maximum allowable as GAF, the regulatory areas could reach the same percent as the individual transfer restrictions. Practically speaking, that is very unlikely to happen.

Assuming the IFQ transfer database is able to be modified as needed, enforcement of this program would be straight-forward. If a requested GAF transfer went over the cumulative IFQ transfer limit, RAM would not approve this transfer. Although straight-forward, this additional uncertainty may cause additional concern from charter operators using the GAF program as transfer application already can take up to ten days to process. There would be additional uncertainty for purpose of planning out their fishing season associated with the RQE holdings.

There is no other aspect of the IFQ Program that establishes a sliding restriction as currently proposed under the cumulative transfer limits. It is possible that NMFS would need to make annual programming changes to the already complex IFQ transfer system. At a minimum, RAM would need to make fairly significant one-time programming changes. The process could be complex and NMFS might need to annually post the calculations of the GAF limits based the RQE holdings as of October 1 of the previous year. These components all add management costs, which would be recoverable under the cost recovery program.

References

North Pacific Fisheries Management Council [NPFMC]. 2014. Discussion paper on the CATCH proposal for a recreational quota entity in the commercial halibut IFQ Program. (September 2014). Anchorage, AK.