

PUBLIC 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 measure under consideration seeks to promote long-term planning and greater stability in the charter halibut fishery. The 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 quota share (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.

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	<i>Federal Register</i>
FTE	Full Time Equivalent
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
MM	million
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 the charter catch limits, and ultimately impact the management measures annually recommended by the Council, approved by the IPHC, and implemented by NMFS through federal regulations.

Purpose and Need

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

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.

The alternatives that are analyzed in this package were first adopted by the Council in December 2015, then expanded and revised in April 2016. In April 2016, the Council identified **Alternative 2** as its preliminary preferred alternative (PPA); represented below in bold. Both the no action alternative and **Alternative 2** are listed here and described in further detail in Sections 3.1 and 3.2. Section 3.3 describes alternatives that were considered but not further analyzed.

The action alternative (**Alternative 2**) proposes regulation changes that would apply exclusively to the charter and commercial setline fisheries in IPHC Regulatory Areas 2C (Southeast Alaska) and 3A (Southcentral Alaska).

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 (PPA)

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 0.5% - 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 3A. Total (cumulative) limit on amount of commercial quota share held by RQE and leased under GAF. Ten percent of the 2015 commercial QS pool may be held as RQE and GAF combined in Area 2C, and 15% of the 2015 commercial QS pool may be held as RQE and GAF combined in Area 3A. The cumulative cap will be managed annually on a sliding scale between RQE and GAF, with GAF transfers restricted to accommodate RQE QS holdings.

Sub-option 1. GAF shall not be reduced below a range of 1%-3% of the 2015 commercial QS pool for Area 2C and 3A.

Sub-option 2. GAF shall not be reduced below 1.15 times the previous year's GAF transfers for either Area 2C and Area 3A.

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 2015 lb)

Sub-option 3. Prohibit an RQE from purchasing a percent of blocked QS above the $\leq 1,500$ lb or $\leq 2,000$ lb in 2015 lb for each class of QS for each of the Area 2C and 3A, (25%, 50%, 75%, or 100%).

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 issue 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 2015 pounds (by area, proportional to QS holdings)

Sub-option 2. Equally to all catcher vessel QS holders (by area, proportional to QS holdings) and based on the percent of each class of QS purchased by the RQE.

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

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

***Sub-option 5.* 50% equally to all CQEs actively participating in Area 2C/3A and either 1) 50% equally to all catcher vessel QS holders which hold not more than 1,500 to 3,000 pounds in 2015 pounds (by area, propositional to QS holdings); or 2) equally to all catcher vessel QS holders (by area, propositional to QS holdings and based on the percent of each class of QS purchased by the RQE).**

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. RQE funds shall not be used directly or indirectly to lobby local, state, or federal officials.

Option 1. RQE will be responsible for associated IFQ program fees (Observer fees and administrative fees) and fish taxes that are collectible.

Element 5. RQE Organizational Structure. The RQE shall consist of a board of eleven people and shall include the following: 6 CHP holders, 3 from each management area (2C/3A); 2 commercial halibut quota shareholders, 1 from each area (2C/3A); 2 community representatives (not a holder of a CHP or commercial QS), 1 from each management area (2C/3A); 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 to NMFS detailing RQE activities during the prior year.

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 analysis in a way that focuses on the primary concerns 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 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, and assuming angler demand does not increase. 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, which could increase the charter catch limit and potentially relax 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 holdings by the RQE would have allowed 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 1-1). If an 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

Category	Status Quo	Portion of Area QS Held by RQE					
		0.5	1	2	3	4	5
Harvest Limit+IFQ	0.851	0.870	0.888	0.925	0.961	0.998	1.035
Regulation	1F-U42 O80	1F-U43 O76	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 in part because the IPHC allowed 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 1-2, the Area 3A RQE would have needed to hold 3 percent of area-wide QS to remove the day of the week restriction and 4 percent of the QS to liberalize the size restriction on the second fish.

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

Category	Status Quo	Portion of Area QS Held by RQE					
		0.5	1	2	3	4	5
Harvest Limit+IFQ	1.89	1.929	1.968	2.046	2.124	2.202	2.279
Regulation	2F-U29	2F-U29	2F-U29	2F-U29	2F-U29 W/O DOW Restriction	2F-U30 W/O DOW Restriction	2F-U32 W/O DOW Restriction

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

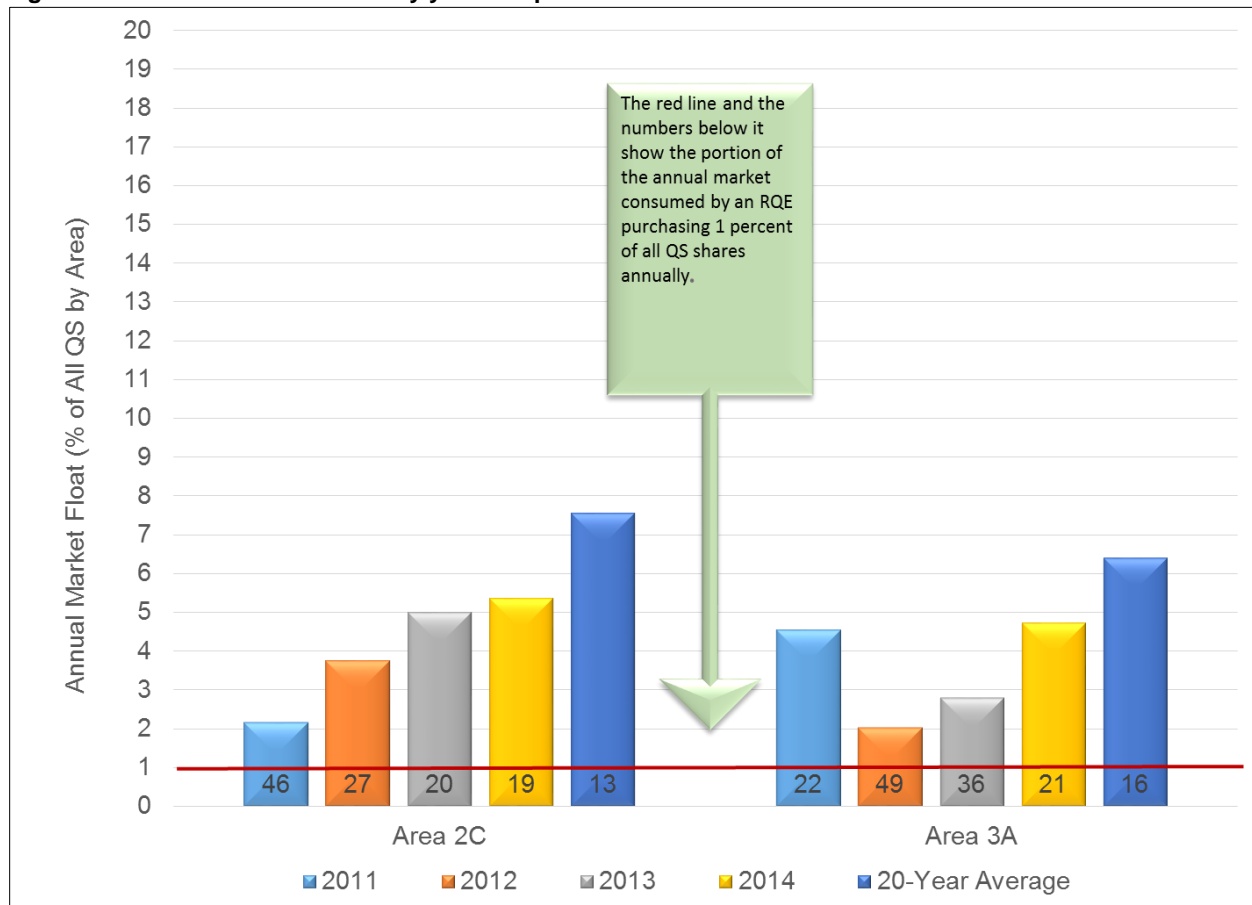
The ranges shown in these tables are below the 5 percent to 20 percent cumulative caps considered in the Council's options.

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. NMFS Restricted Access Management Program (RAM) data show that even at a

one percent annual purchase limit, the RQE would be the largest individual player in the quota market. The red line in Figure 1-1 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 1-1.

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



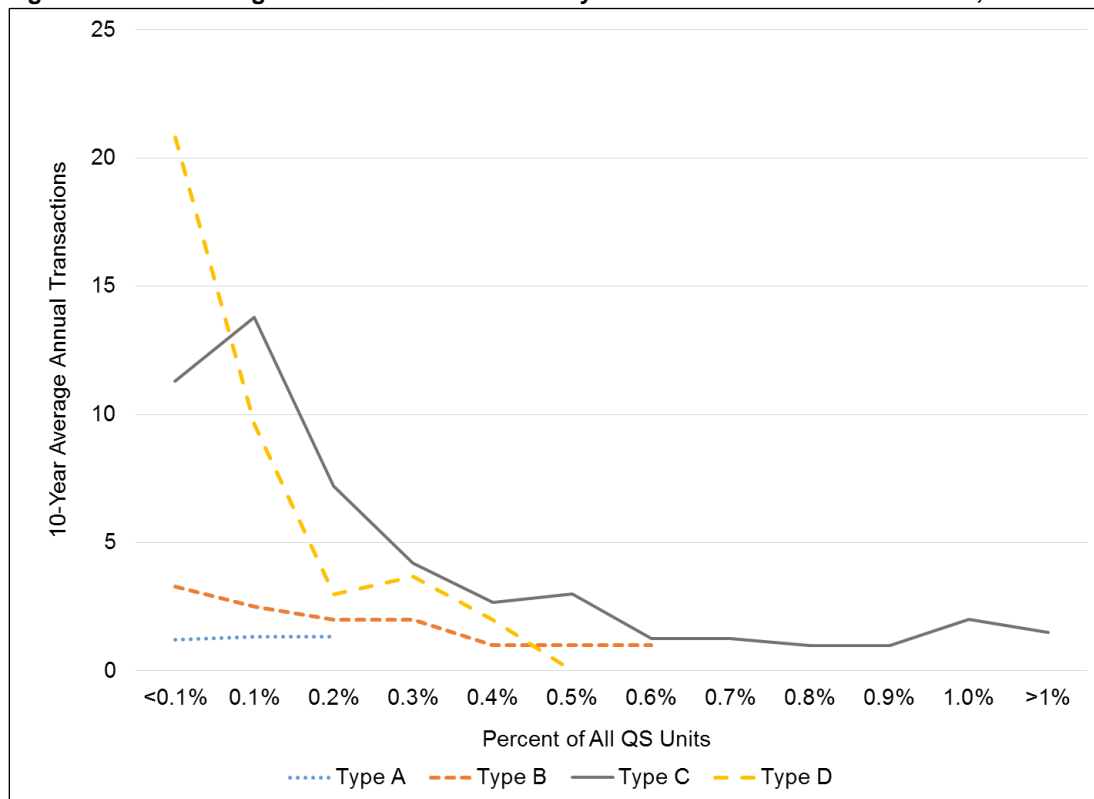
Source: Northern Economics, Inc. estimates from NOAA (2015a).

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.

The structure of the halibut market is also something for the Council to consider. NMFS transaction data from the past 10 years show that halibut QS markets vary by QS unit type. For example, the most frequent trade is a D-class trade with less than 0.1 percent changing hands. Over the last 10 years, trades of this type occurred, on average, more than 20 times per year. The number of D-class trades involving larger trade amounts declines rapidly with just a single annual trade accounting for 0.5 percent of all QS units. On the

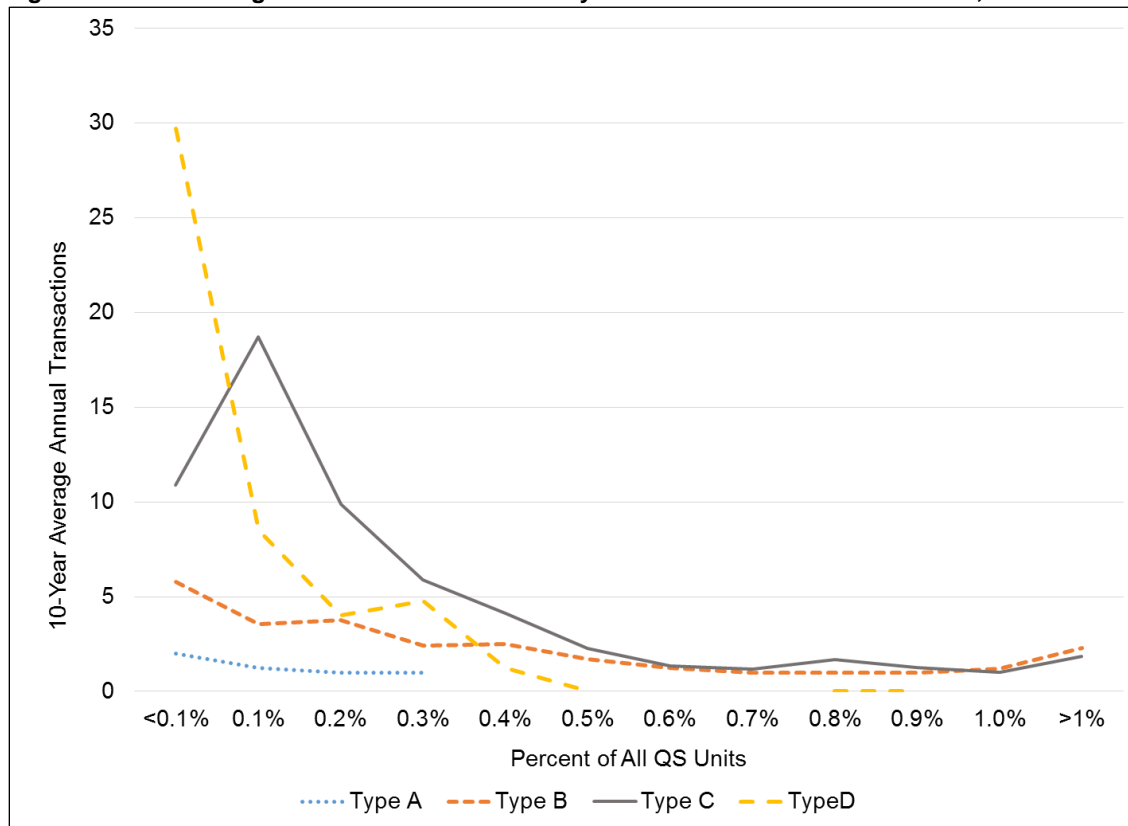
other hand, the most common C-Class trade is between 0.1 percent and 0.2 percent of all QS units with 1 to 2 trades per year occurring for each tenth of a percentage point above 0.5 percent. A-Class shares trade very infrequently with a handful of trades each year which tend to be between 0 and 0.3 percent of all Area QS. B-Class is more frequently traded than A-class, but doesn't have the larger trades of C-Class (see Figure 1-2 and Figure 1-3). The market data show that while an RQE shouldn't expect to fulfill all of its needs with a small handful of opportunities, there are sufficient trading opportunities to access the market even if, for example, D-class shares were prohibited from being purchased. The Area 3A quota markets are larger and more robust than the Area 2C quota markets with more opportunities for an RQE to purchase quota share and more opportunities to purchase larger percentages of Area QS. An RQE operating in Area 3A will have a significantly easier time than an RQE in Area 2C. Smaller portions of Area QS make larger differences in Area 3A, the need is lower, and there are more and greater opportunities to purchase QS (see Figure 1-2 and Figure 1-3).

Figure 1-2 10-Year Avg. Annual QS Transactions by Vessel Size and Transaction Size, Area 2C



Source: RAM Division, NMFS sourced through AKFIN

Figure 1-3 10-Year Avg. Annual QS Transactions by Vessel Size and Transaction Size, Area 3A



Source: RAM Division, NMFS sourced through AKFIN

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, is very difficult to answer because it is unclear how charter anglers react to bag limit changes and potentially increased costs associated with a halibut charter trip. Considering past scenarios of angler demand and halibut abundance allows the analysts to provide examples how management measures could have been liberalized given those conditions.

In 2011, the Area 2C charter sector operated under a one fish with a maximum size of 37 inches daily bag limit. Under similar 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 (see Table 1-3). 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 10 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).

Program efficacy falls further when large blocks (in this case large C-blocks because they are the vast majority of large blocks) are excluded from the eligible purchase pool. Note that when the Council considers excluding a certain type, or a proportion of a certain type of QS, the pool from which the 10 percent is calculated becomes smaller. Focusing on a 10-percent cumulative cap example, the addition of excluding large C-block results in a wider reverse slot limit with the maximum lower size limit slipping from U48 in the unrestricted scenario down to U47 in the small block/D-class exclusion scenario down to U46 (at 25 percent), U45 (50 percent), U44 (75 percent), and then down to U43 at 100 percent exclusion (see Table 1-4).¹

¹ It is important to note that if the C-block exclusion does not apply to the cumulative cap calculation, then Table 1-4 can be ignored and the negative issues associated with large block exclusion apply primarily to market effects. The analysts request the Council clarify whether or not the sub-option applies to the cumulative cap calculation.

Table 1-4 Program Efficacy Element 2, Sub-Option 3, Area 2C 2011 Stock Conditions/2015 Demand

Cumulative Cap (Percent)	No Restrictions	No Small Blocks and D-Class	Large C-Block Exclusion Rate (%)			
			25	50	75	100
5	U44-O76	U43-O76	U43-O78	U43-O80	U42-O78	U42-O80
6	U44-O74	U44-O78	U44-O80	U43-O78	U43-O80	U42-O79
7	U46-O78	U45-O80	U44-O78	U44-O80	U43-O78	U42-O76
8	U47-O80	U45-O76	U45-O80	U44-O79	U43-O76	U43-O80
9	U48-O80	U46-O80	U45-O78	U44-O78	U44-O80	U43-O78
10	U48-O76	U47-O80	U46-O80	U45-O80	U44-O76	U43-O76
11	U49-O76	U47-O76	U46-O76	U45-O76	U44-O75	U44-O80
12	U50-O78	U48-O80	U47-O80	U46-O80	U45-O80	U44-O79
13	U50-O74	U48-O74	U48-O80	U46-O76	U45-O76	U44-O76
14	U50-O72	U49-O78	U48-O76	U46-O80	U46-O80	U44-O76
15	U50-O70	U50-O80	U48-O74	U47-O76	U46-O76	U45-O80
16	U50-O68	U50-O76	U49-O78	U48-O78	U46-O75	U45-O76
17	U46-O62	U50-O74	U49-O76	U48-O76	U47-O80	U46-O80
18	U50-O66	U50-O72	U50-O76	U49-O80	U48-O80	U46-O79
19	U50-O64	U50-O70	U50-O74	U49-O76	U48-O79	U46-O76
20	U49-O62	U49-O68	U49-O70	U50-O80	U48-O76	U46-O75

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 (see Table 1-5). A 10 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 1-5 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).

While excluding large blocks would also affect program performance in Area 3A, the effects are not as significant as in Area 2C with the exception of at lower cap ownership levels. For example, with a 100 percent exclusion on large C-block ownership an RQE at a 5 percent ownership level would need that 5 percent simply to provide the 2015 maximum size limit on the second fish of 29 inches. If the RQE is able to own 12 percent or more of the allowable QS pool, and owns that amount, then the RQE can come close to a 50-inch size limit on the second fish even if large portions of C-Class are restricted (see Table 1-6).

Table 1-6 Program Efficacy Element 2, Sub-Option 3, Area 3A 2011 Stock Conditions/2015 Demand

Cumulative Cap (Percent)	No Restrictions	No Blocks and D- Class	Large C-Block Exclusion Rate (%)			
			25	50	75	100
5	U32	U31	U30	U30	U30	U29
6	U34	U32	U32	U31	U31	U30
7	U38	U35	U34	U33	U32	U32
8	U44	U38	U37	U35	U34	U33
9	U50	U44	U41	U38	U37	U35
10	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.	U50	U48	U44	U41	U38
11			U50	U50	U48	U43
12					U50	U49
13						U50
14						
15						
16						
17						
18						
19						
20						

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, Option 4)?

As shown above, the block and class restrictions noted in Elements 2 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.

As shown above, it becomes harder for an RQE to provide the same liberalized bag limit the more restrictions are placed on which QS units it can buy. While the number of units need to provide the same result stays constant, the portion of the eligible quota that is needed increases. If the Council extends block limits and class limits beyond the small blocks and D-class shares as discussed above (and proposed in **Alternative 2, Element 2, Option 4, Sub-option 3**), the effects on the program become more pronounced. Excluding large block C-Class shares would have a more pronounced effect on program efficacy and the remaining QS market given that the eligible pool of QS will be much smaller. For example, In looking at the unshaded cells in Table 1-7, which shows quota remaining after small block and D-Class restrictions, it is evident that the only major sources of QS left in Area 2C are blocked C-Class QS which do not meet the small block standards and unblocked C-Class. Non-qualifying blocked C-class is 39.1 percent or 45.2 percent of Area QS, while the unblocked C-Class QS is 25.9 percent of all Area QS. (See Table 1-7).

Table 1-7 Distribution (%) of 2015 Area 2C QS by Vessel Class and Block Status

Vessel Class	Blocked, but Not Small	Small Blocks	Unblocked	Total
≤1,500 lb Small Block Standard				
A	1.0	0.1	1.0	2.1
B	2.1	0.3	2.1	4.5
C	45.2	7.3	25.9	78.5
D	8.8	6.1	0.1	15.0
<i>Total</i>	<i>57.0</i>	<i>13.8</i>	<i>29.2</i>	<i>100.0</i>
≤2,000 lb Small Block Standard				
A	0.8	0.3	1.0	2.1
B	1.7	0.6	2.1	4.5
C	39.1	13.4	25.9	78.5
D	5.8	9.1	0.1	15.0
<i>Total</i>	<i>47.4</i>	<i>23.4</i>	<i>29.2</i>	<i>100.0</i>

Source: RAM Division, NMFS sourced through AKFIN

How would class and block restrictions affect the QS share market (Alternative 2, Element 2, Option 4)?

The Council faces a tradeoff between protecting certain groups of commercial operators, via class and block restrictions, from RQE competition in the QS market, and exacerbating market effects in the remaining markets for QS, as well as threatening the efficacy of the RQE Program (i.e. the ability of an RQE to provide meaningful changes to angler bag limits). For the RQE, regardless of block and class restrictions, obtaining a desired effect at a given biomass level is going to require a generally set amount of QS. However, the more QS that the Council declares ineligible for the program, the higher percentage that set amount is of the remaining QS market. The smaller the size of the eligible market the greater the likelihood of significant market effects on those eligible QS units.

There will be both winners and losers amongst commercial operators depending on the Council's decision. For example, suppose the Council prohibits an RQE from holding D-Class QS, small block QS, and all large block C-Class QS. With these restrictions, less than one-third of the original QS pool would be eligible for RQE purchase. Commercial operators looking to buy unblocked C-Class will find that the market effects which could have been distributed across the entire QS pool have now been largely concentrated into one portion of the broader market. Their competition will likely increase, as will the associated price they may have to pay for that type of QS. At the same time, current holders of unblocked C-Class would find their QS shares more valuable.

The Council should not presume that making QS shares ineligible for purchase by an RQE will isolate those shares from market effects. It will only isolate those shares from RQE purchase. In the prior example, individuals who wanted unblocked C-Class shares might find themselves locked out of the market and they may then divert their market demand to other class and block groups such as blocked C-Class shares. These indirect effects are unknown at this time, but should be recognized as a possibility.

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) higher abundance levels and a very high (≥10 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 could 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.

“NMFS recommends that the Council select Sub-option 4 to leave any surplus IFQ in the water....NMFS recommends that the Council reconsider a redistribution option under a separate regulatory action after an RQE is established, the trend in halibut stock abundance is clearer, and the rate of QS acquisitions by the RQE can be determined. If, after the RQE is established, it appears that a redistribution provision may be necessary, the Council could determine how that redistribution should occur in a future regulatory amendment.”

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 RQE’s organizational structure and limit expenditures to certain categories. That said, the current wording goes beyond the specificity provided 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 selects Option 4, NMFS recommends that the Council specify what information should be included in the annual report, and to whom and by when it should be submitted each year.”

Does NMFS provide a specific recommendation regarding Observer Program Fees, IFQ Cost Recovery, and lost state and municipal taxes (Alternative 2, Element 4)?

Element 4, Option 1 states: “RQE will be responsible for associated IFQ program fees (Observer fees and administrative fees) and fish taxes that are collectible.” A review of this language and implications by NMFS found that

- NMFS has the authority and ability to collect IFQ cost recovery fees from an RQE if they acquire QS. This is not a Council decision point. NMFS will determine if administrative fees that are incurred are considered part of the management, data collection, and/ or enforcement of the IFQ Program. If so, these costs will be made recoverable under the authority provided in §304(d)(2) of the Magnuson-Stevens Act through the already established IFQ Cost Recovery Program. If an RQE holds QS it would be considered liable for cost recovery fees.

- Section 313 of the Magnuson-Stevens Act authorizes the Council to develop a fisheries research plan for any fishery under the Council's jurisdiction, which includes the deployment of observers and the collection of fees. Observer fees can only be collectible under this authority. While there appear to be no legal barriers to including the charter halibut fishery in the research plan, there are significant implementation challenges in dictating how that would occur, given the substantially different nature of the fishing effort. There is a need of further investigation of the path to implementation, including a consideration of whether the RQE or all vessels participating in the charter halibut fishery would need to be included in the fisheries research plan to assess or collect the observer fee from the RQE, even if there is no intention to station observers or electronic monitoring on the charter halibut vessels. As noted in Section 4.8.1.5:

"Given the complexity of assessing the observer fee on the RQE, and the relatively small amount of money and number of observer days that would be foregone if the RQE were not assessed observer fees on their holdings, NMFS does not recommend that the Council adopt a preferred alternative that includes assessing observer fees on the RQE at this time."

- NMFS and the Council do not have the authority to levy a state or local tax or make an RQE pay taxes under state and municipal tax programs which do not cover an RQE by code. The state and municipalities have the taxing authority to make up lost raw fish taxes through sales taxes, fish box taxes, bed taxes, meal taxes, and other types of taxes allowed for under Alaska Constitution. The Council should take these displaced revenues into consideration when evaluating program efficacy.

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 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 change in harvest intensity 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.

Under **Alternative 2**, the primary environmental consideration with regards to the sustainability of the halibut resource includes the consideration of changes in the spatial or temporal distribution of the fish and the size selectivity that could occur under the PPA with a shift in relative harvest intensity between the commercial and charter sectors. 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 coast-wide stock, and assesses it as such. Given the limited amount of QS that may be transferred to and used in charter sector, particularly under the PPA transfer restrictions (**Alternative 2, Element 2**), relative to the coast-wide commercial halibut harvest, **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.**

Although any local impacts to the halibut resource that may occur from this action would not jeopardize the halibut stock, the Council has received public comments on the current perceived or expected impacts of localized depletion based on the harvest intensity of different halibut user groups. Understanding regions that may be more sensitive to changes in halibut harvest intensity or size selectivity is challenging for analysts to assess with available information. Analysts do not have halibut biomass estimates by sub-areas, over time or migratory patterns of halibut by sub-area. Therefore, it is difficult to describe even the status quo of localized effects based on pressure from different halibut user groups.

The analysis has been expanded to include details on the type of information that is available at a finer scale, including IPHC longline surveys, harvest, effort, harvest per unit effort, and average weight. IPHC survey data is collected on a 10 nm x 10 nm grid in water depths of 20-275 fathoms. The survey provides a relative abundance index of halibut comparable on a year over year basis. The large spatial placement of stations is valuable in capturing a big picture (large scale) of the halibut population as a whole (coast-wide), but is poor in its ability to detect localized depletion changes. While harvest, effort, harvest per unit effort, and average weight can help to identify changes in charter fishing pressure and changes in the size composition of the catch, these metrics are strongly influenced by the annual charter management measures and therefore also do not provide a good measure of the local halibut resource.

It should be noted that while relative harvest intensity may decrease in the commercial sector with an RQE holding commercial QS, the shift in the charter sector would primarily be in the size composition of the catch. In other words, less fish may be harvested commercially. In the charter sector, available IFQ would likely influence the size of the fish retained rather than the number of fish retained. Exceptions include getting rid of management measures, like day of the week closure and the annual limit, currently utilized in Area 3A. If these measures were removed, the charter sector may be harvesting a relatively greater number of fish.

In some sub-areas, particularly where commercial operations occur near port, the footprint of commercial and charter overlaps. In these locations, localized effects from Alternative 2 would be expected to be minimal as fishing pressure shifts from the commercial sector to the charter section in the same area. To the extent that these operations have different footprints, localized effects to the user groups in these areas could occur.

2 INTRODUCTION

This document analyzes a proposed management action 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 seek to promote long-term planning and greater stability in the charter halibut fishery. The first alternative under consideration is the status quo, 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.

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 statement:

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.

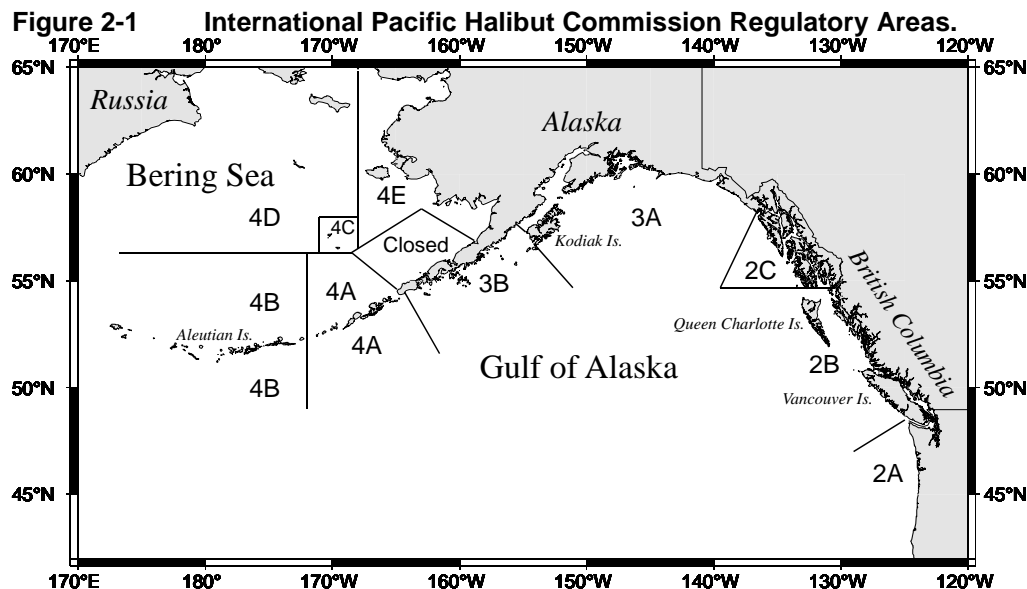
In October 2014, the Council reviewed a discussion paper (NPFMC 2014) that presented and addressed a series of questions related to a CATCH project. The Council initiated an analysis of an action to allow an RQE to hold commercial halibut QS on behalf of charter anglers. The Council also established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

A second Initial Review draft analysis was brought the RQE committee, SSC, AP, and Council in April 2016 for consideration. The Council established **Alternative 2** as the preliminary preferred alternative (PPA), as well as identifying some elements and options under **Alternative 2** as the PPA. The Council dropped **Alternative 3**, which had considered allowing an RQE to purchase charter halibut permits (CHP). With the changes made to the motion, and further direction for analysis, the Council recommended the document be released for Public Review with the stated 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.



2.4 Relationship of this Action to Federal Law

The Pacific halibut fishery in convention waters 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 the alternatives are listed in Section 3 and with potential impacts examined in Section 4.8, 4.9, and 6.3.2.

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 Environmental Assessment (EA) analyze a reasonable range of alternatives, consistent with the purpose and need for the proposed action. The action alternative in this analysis was designed to accomplish the stated purpose and need for the action, described in Section 2.1 and was chosen over other action alternatives considered (see Section 3.3). The development of an RQE under **Alternative 2**, would provide a market-based mechanism for the guided halibut recreational sector to supplement their annual allocations as was requested in the purpose and need.

The alternatives that are analyzed in this package were first adopted by the Council in December 2015, then expanded and revised in April 2016. In April 2016, the Council identified **Alternative 2** as its preliminary preferred alternative (PPA); represented below in bold. Both the no action alternative and **Alternative 2** are listed here and described in further detail in Sections 3.1 and 3.2. Section 3.3 describes alternatives that were considered but not further analyzed.

The action alternative (**Alternative 2**) proposes regulation changes that would apply exclusively to the charter and commercial setline fisheries in IPHC Regulatory Areas 2C (Southeast Alaska) and 3A (Southcentral Alaska).

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 (PPA)

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 0.5% - 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 3A. Total (cumulative) limit on amount of commercial quota share held by RQE and leased under GAF. Ten percent of the 2015 commercial QS pool may be held as RQE and GAF combined in Area 2C, and 15% of the 2015 commercial QS pool may be held as RQE and GAF combined in Area 3A. The cumulative cap will be managed annually on a sliding scale between RQE and GAF, with GAF transfers restricted to accommodate RQE QS holdings.

Sub-option 1. GAF shall not be reduced below a range of 1%-3% of the 2015 commercial QS pool for Area 2C and 3A.

Sub-option 2. GAF shall not be reduced below 1.15 times the previous year's GAF transfers for either Area 2C and Area 3A.

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 2015 lb)

Sub-option 3. Prohibit an RQE from purchasing a percent of blocked QS above the $\leq 1,500$ lb or $\leq 2,000$ lb in 2015 lb for each class of QS for each of the Area 2C and 3A, (25%, 50%, 75%, or 100%).

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 issue 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 2015 pounds (by area, proportional to QS holdings)

Sub-option 2. Equally to all catcher vessel QS holders (by area, proportional to QS holdings) and based on the percent of each class of QS purchased by the RQE.

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

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

Sub-option 5. 50% equally to all CQEs actively participating in Area 2C/3A and either 1) 50% equally to all catcher vessel QS holders which hold not more than 1,500 to 3,000 pounds in 2015 pounds (by area, propositional to QS holdings); or 2) equally to all catcher vessel QS holders (by area, propositional to QS holdings and based on the percent of each class of QS purchased by the RQE).

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. RQE funds shall not be used directly or indirectly to lobby local, state, or federal officials.

Option 1. RQE will be responsible for associated IFQ program fees (Observer fees and administrative fees) and fish taxes that are collectible.

Element 5. RQE Organizational Structure. The RQE shall consist of a board of eleven people and shall include the following: 6 CHP holders, 3 from each management area (2C/3A); 2 commercial halibut quota shareholders, 1 from each area (2C/3A); 2 community representatives (not a holder of a CHP or commercial QS), 1 from each

management area (2C/3A); 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 to NMFS detailing RQE activities during the prior year.

3.1 Alternative 1, No Action

Under the no action alternative, 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 (PPA)

Alternative 2 is the Council's PPA. This action 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 half a percent and five percent of the commercial QS units in each area.
- **Option 3** places cumulative limits on the amount of QS that could be 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 5 to 20 percent of each class of QS units.
- **Option 3A** places cumulative limits on the amount of QS held by the RQE by regulatory area as 10 percent of the 2015 Commercial QS in Area 2C and 15 percent in Area 3A. In addition, **Sub-option 1** sets aside 1 percent to 3 percent of the QS pool for the GAF program and **Sub-Option 2** provides no cap for GAF, but sets aside annually 115 percent of what was utilized for GAF the year before.
- **Option 4** places class and block restrictions. **Sub-option 1** would prohibit the purchase of D class quota shares by an RQE. **Sub-option 2** would prohibit the RQE's ability to purchase blocked QS by class to either $\leq 1,500$ pounds or $\leq 2,000$ pounds. **Sub-option 3** constrains the proportion of blocked QS that an RQE would be eligible to purchase above the $\leq 1,500$ pounds or $\leq 2,000$ pounds-sized blocks. This sub-option would establish restrictions on the remaining blocked QS of 25 percent, 50 percent, 75 percent, or 100 percent, by class and area. So for example, if the Council adopted Sub-option 2 and Sub-option 3 and 100 percent, an RQE would not have market access to any blocked QS.

Options 2, 3, and 4 are not mutually exclusive of each other, but **Option 1** is exclusive of the other options. **Option 3A** is the Council's PPA and is exclusive of **Option 3**.

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 1** of **Element 3** 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 pounds in 2015 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.
- **Sub-option 4** would not allocate the excess QS and that QS 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.

- **Sub-option 5** would allocate 50 percent of excess QS equally to all CQEs actively participating in Area 2C/3A and either 1) 50% equally to all catcher vessel QS holders which hold not more than 1,500 to 3,000 pounds in 2015 pounds (by area, propositional to QS holdings); or 2) equally to all catcher vessel QS holders (by area, propositional to QS holdings and based on the percent of each class of QS purchased by the RQE).

Element 4 places limits on how the RQE can use its funds. Under the element RQE funds are limited to acquisition of commercial halibut quota, acquisition of charter halibut permits, halibut conservation/research, promotion of the halibut resource, and administrative costs. Funds would not be intended to be used to directly or indirectly lobby local, state, or federal officials. **Element 4** also asks NMFS to look at the feasibility of recovering Observer Program fees, IFQ management fees, and lost state and local taxes from the RQE.

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. RQE funds shall not be used directly or indirectly to lobby local, state, or federal officials.

Element 5 defines the RQE's organizational structure establishing a eleven member Board of Directors including six CHP holders, two commercial halibut QS holder, two community members who does not hold a CHP or 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** requires 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 Alternatives Considered but Not Analyzed Further

The Council had originally (for the Initial Review analysis produced for December 2015) established an Alternative 3 that would have retired a CHP that met a certain definition of "latent". Specificity, latent was defined as either 1) a CHP that has been fished less than 50 angler days in the previous 5 years; or 2) a CHP that has not been used by the CHP holder in the previous 3 years. This alternative would have sought to reduce the pressure from new or increased charter operations, which in turn could have increased angler-days, and generated a sudden spike in the estimated pounds of charter catch harvested in a given year.

The Council changed Alternative 3 in the next round of Initial Review (produced for April 2016) to state that an RQE could purchase CHP (thereby temporarily removing them from use) at different percentage levels. 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.

In April 2016, the Council chose to remove Alternative 3 from the analysis based on recommendations from the RQE committee and public testimony, as well as concern expressed at the SSC. Given the significant latent and underutilized capacity, paired with current leasing patterns of CHP, the Council determined this alternative in its current state would be unlikely to achieve the purpose and need identified. The Council felt that concern around the use of CHPs, including the quantity of information about CHP use and holders, the leasing of non-transferable permits, and latent capacity was better addressed in a separate discussion paper.

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 statement:

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 Environmental Assessment (EA) analyze a reasonable range of alternatives, consistent with the purpose and need for the proposed action. The action alternative in this analysis was designed to accomplish the stated purpose and need for the action, described in Section 2.1 and was chosen over other action alternatives considered (see Section 3.3). The development of an RQE under **Alternative 2**, would provide a market-based mechanism for the guided halibut recreational sector to supplement their annual allocations as was requested in the purpose and need.

The alternatives that are analyzed in this package were first adopted by the Council in December 2015, then expanded and revised in April 2016. In April 2016, the Council identified **Alternative 2** as its preliminary preferred alternative (PPA); represented below in bold. Both the no action alternative and **Alternative 2** are listed here and described in further detail in Sections 3.1 and 3.2. Section 3.3 describes alternatives that were considered but not further analyzed.

The action alternative (**Alternative 2**) proposes regulation changes that would apply exclusively to the charter and commercial setline fisheries in IPHC Regulatory Areas 2C (Southeast Alaska) and 3A (Southcentral Alaska).

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 (PPA)

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 0.5% - 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 3A. Total (cumulative) limit on amount of commercial quota share held by RQE and leased under GAF. Ten percent of the 2015 commercial QS pool may be held as RQE and GAF combined in Area 2C, and 15% of the 2015 commercial QS pool may be held as RQE and GAF combined

in Area 3A. The cumulative cap will be managed annually on a sliding scale between RQE and GAF, with GAF transfers restricted to accommodate RQE QS holdings.

Sub-option 1. GAF shall not be reduced below a range of 1%-3% of the 2015 commercial QS pool for Area 2C and 3A.

Sub-option 2. GAF shall not be reduced below 1.15 times the previous year's GAF transfers for either Area 2C and Area 3A.

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 2015 lb)

Sub-option 3. Prohibit an RQE from purchasing a percent of blocked QS above the $\leq 1,500$ lb or $\leq 2,000$ lb in 2015 lb for each class of QS for each of the Area 2C and 3A, (25%, 50%, 75%, or 100%).

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 issue 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 2015 pounds (by area, proportional to QS holdings)

Sub-option 2. Equally to all catcher vessel QS holders (by area, proportional to QS holdings) and based on the percent of each class of QS purchased by the RQE.

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

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

Sub-option 5. 50% equally to all CQEs actively participating in Area 2C/3A and either 1) 50% equally to all catcher vessel QS holders which hold not more than 1,500 to 3,000 pounds in 2015 pounds (by area, propositional to QS holdings); or 2) equally to all catcher vessel QS holders (by area, propositional to QS holdings and based on the percent of each class of QS purchased by the RQE).

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. RQE funds shall not be used directly or indirectly to lobby local, state, or federal officials.

Option 1. RQE will be responsible for associated IFQ program fees (Observer fees and administrative fees) and fish taxes that are collectible.

Element 5. RQE Organizational Structure. The RQE shall consist of a board of eleven people and shall include the following: 6 CHP holders, 3 from each management area (2C/3A); 2 commercial halibut quota shareholders, 1 from each area (2C/3A); 2 community representatives (not a holder of a CHP or commercial QS), 1 from each management area (2C/3A); 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 to NMFS detailing RQE activities during the prior year.

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.

Data from ADF&G Saltwater Charter Logbooks 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) program 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).

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.

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 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

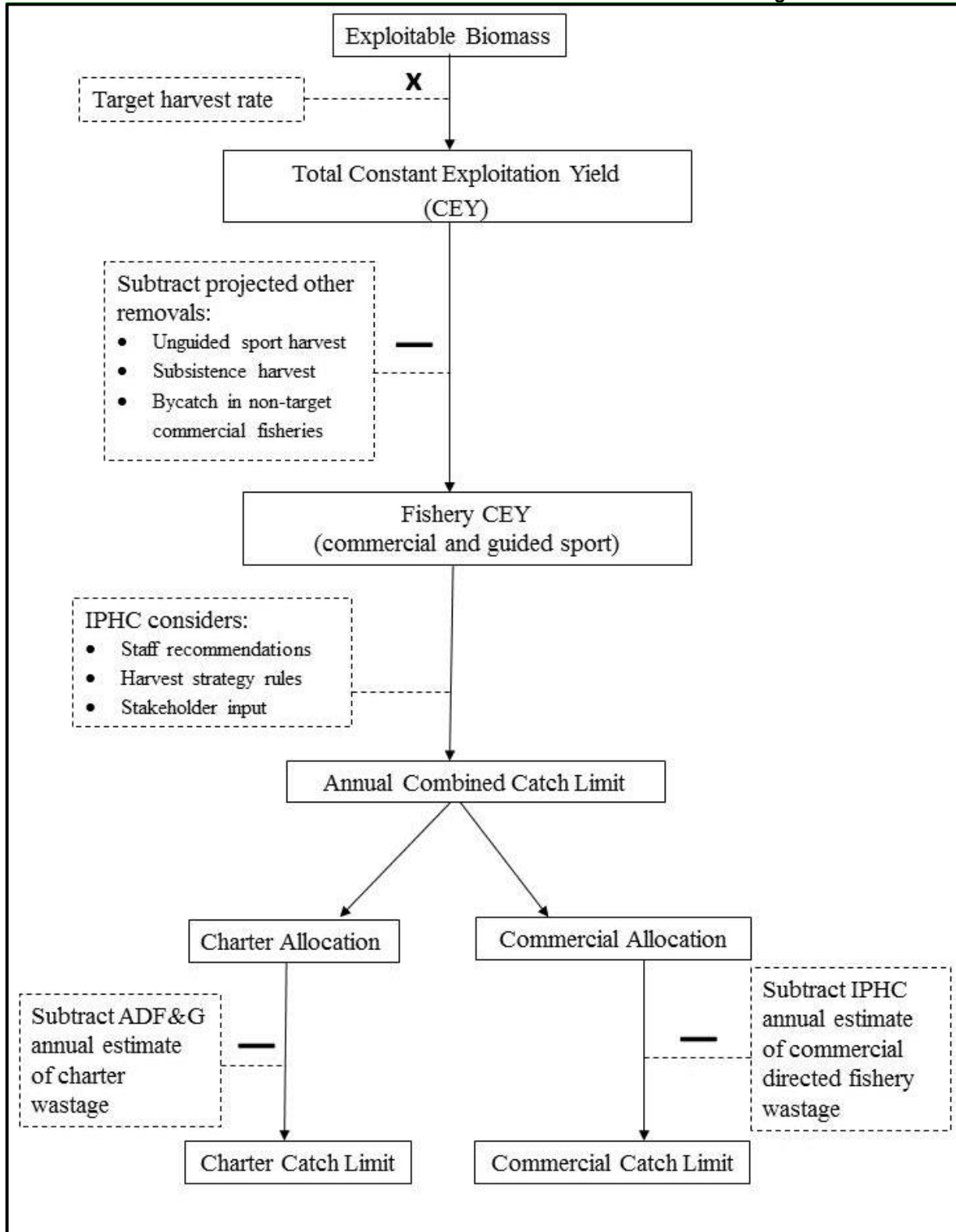
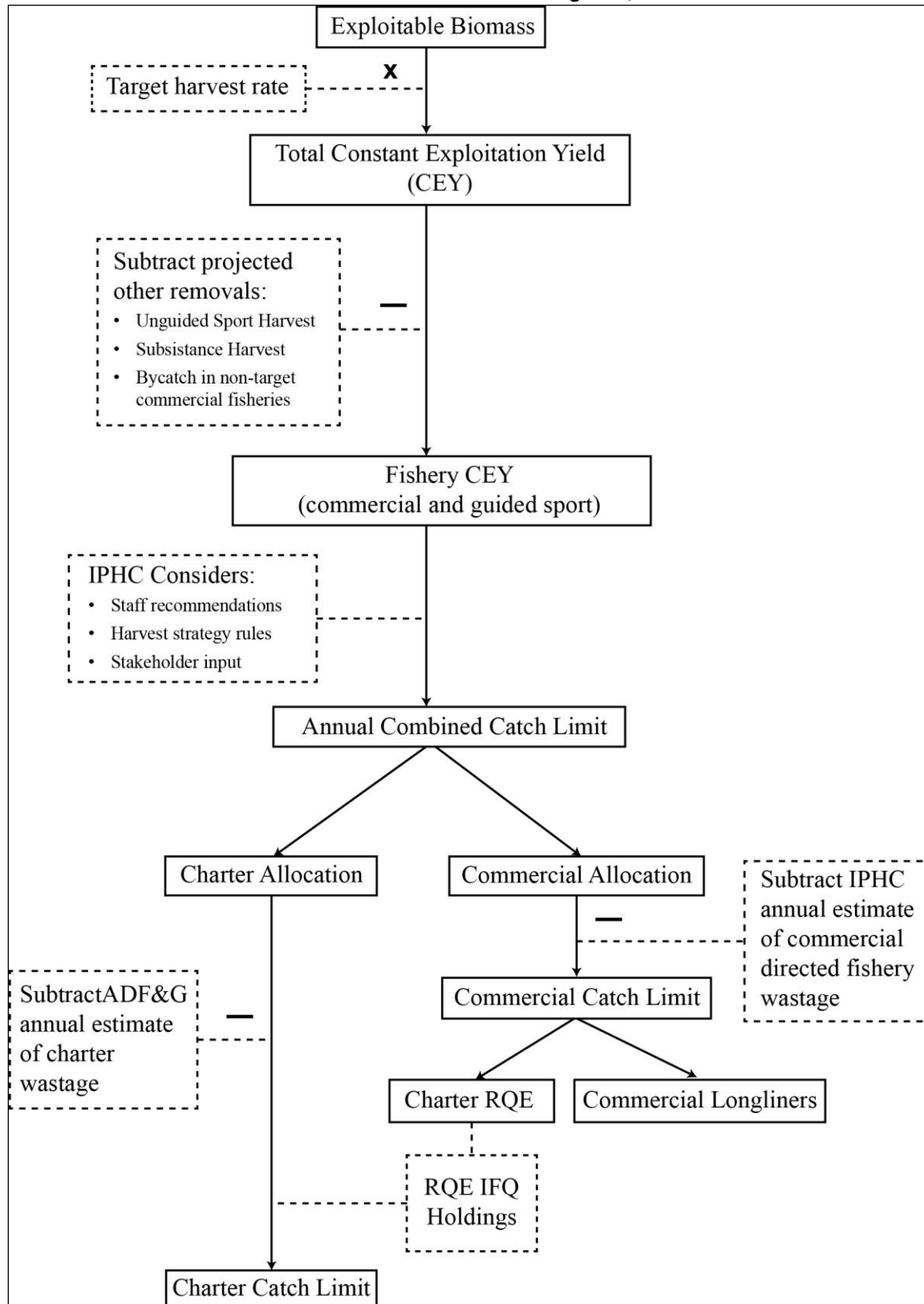


Figure 4-2 Process for Setting Annual Combined Catch Limits, Charter and Commercial Allocations, and Charter and Commercial Catch Limits Under the Catch Sharing Plan, Post RQE



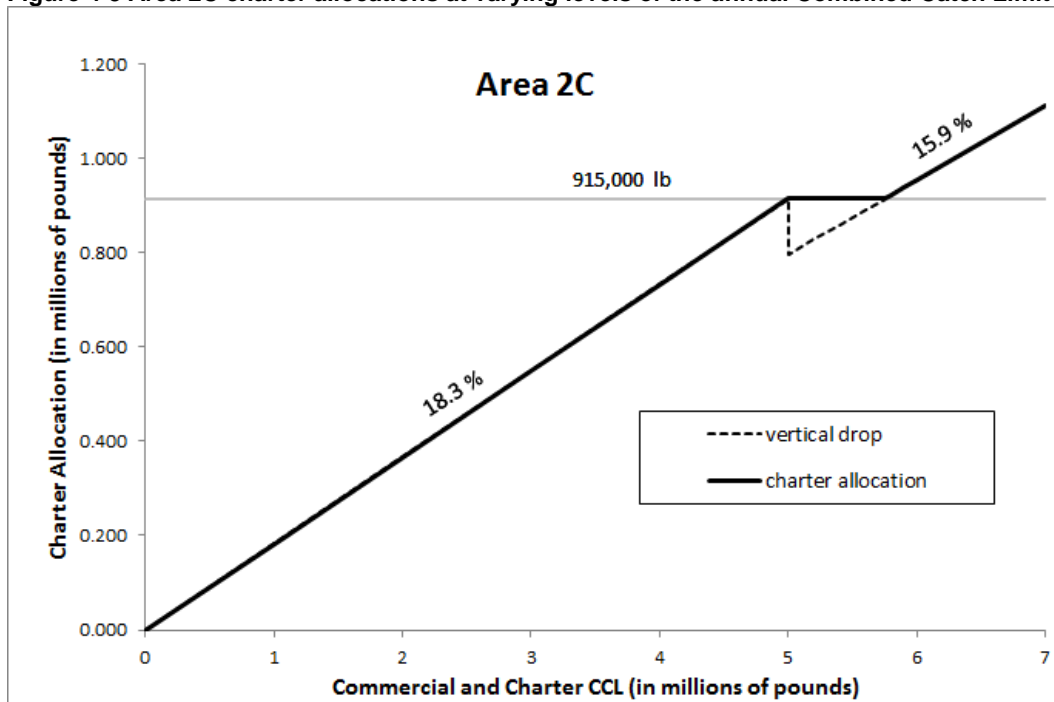
4.4.1.2.1.1 Area 2C Allocation

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)



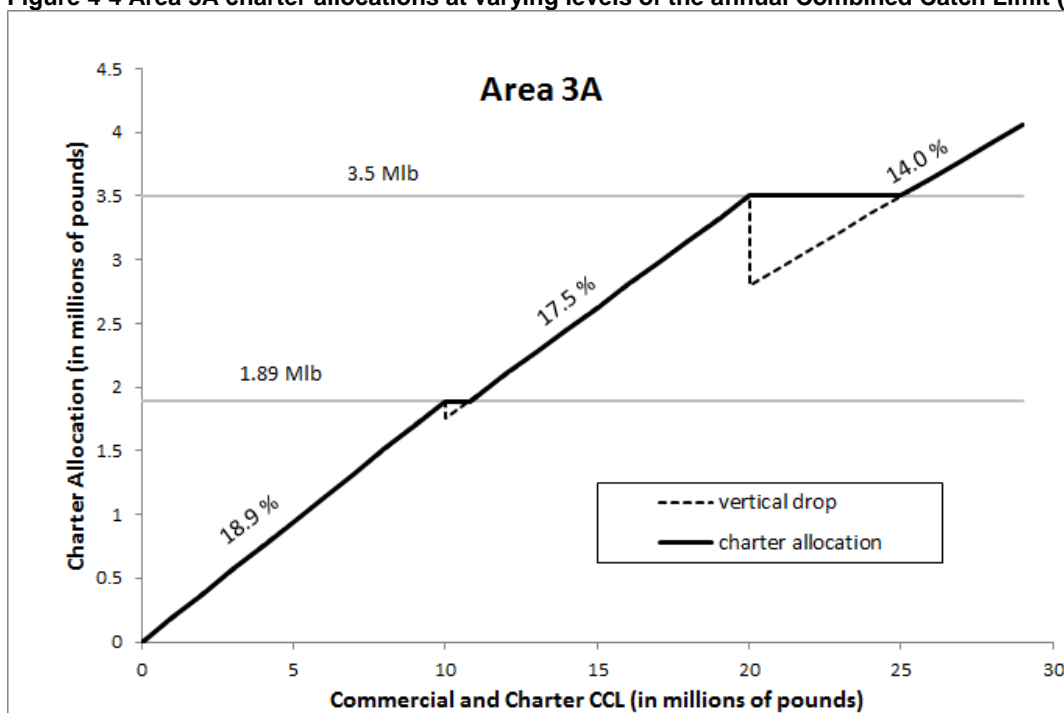
4.4.1.2.1.2 Area 3A Allocation

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

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 Commissioners

for commercial and charter fisheries. The charter allocation is defined in 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.

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

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

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 20 lb, 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 a size

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>.

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).

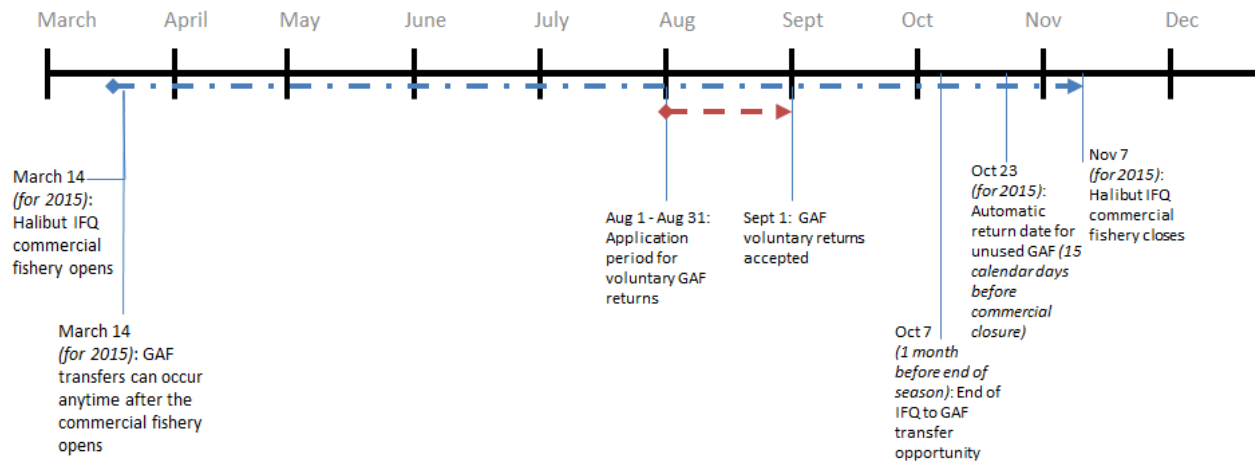
The automatic return date of unused GAF occurs 15 calendar days prior to the end of the commercial halibut season. Figure 4-5 shows an example of this timeline for the year 2015. Some of these dates could change annually, because they depend on the commercial IFQ season dates established by the IPHC.

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 scheduled 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. 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. However, unless annual management measure state otherwise, multiple charter trips per day per CHP may occur, increasing that maximum potential.⁹ Conversely, not every angler endorsement on a CHP will be used each trip.

⁹ 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.

Relatively few charter businesses in Alaska rely on charter business revenues for 100 percent of their household income. The Alaska Saltwater Sport Fishing Charter Business Survey, a survey administered by the Alaska Fisheries Science Center that collects baseline economic information from the saltwater sport fishing charter businesses in Alaska, found that less than one-fifth of survey respondents reported 100 percent of their household income deriving from charter business (Lew et al. 2014). The largest proportion of respondents reported that charter business accounted for between 1 and 25 percent of their total annual household income. Between 2011 and 2013, the fraction of item respondents reporting 51-75 percent of total household income earned from charter business grew by over 8 percent. The fraction of respondents reporting that between 26 and 50 percent of total household income derived from charter business declined by 7 percent over the same period.

During the off season, charter business operators have a number of different, though not mutually exclusive, options available with respect to employment. Over half of the respondents to the Alaska Saltwater Sport Fishing Charter Business Survey who were engaged in two activities during the off season combined the continuation of charter business work with working in an Alaskan non-fishing related job (Lew et al. 2014).

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

Area	Individuals that hold at least 1 CHP		
	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)	(%)
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 the lack of revenue data 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.¹⁰ Out of 574 charter vessels that were able to be verified by DVM number, Table 4-9 illustrates the types of commercial

¹⁰ 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.

fishing operations these vessels may also have been a part of in 2014.¹¹ 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.

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,¹² 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).

¹¹ 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.

¹² 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 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.

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. Estimates of 2015 charter harvest demonstrate that Area 2C was 4.4 percent 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	0.814	96

Source: From NPFMC (2014) and ADF&G (2015).

Table notes: All pounds are in net weight. 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 annual 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 annual management measures. While many 3A stakeholders maintained that the two-fish bag limit was vital to their operations, annual 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 calculate 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. Estimates from 2015 demonstrate an overage of 10.8 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	2.094	111

Source: From NPFMC (2014) and ADF&G (2015).

Table notes: All pounds are in net weight. 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 4-6) and 44.5 inches in Area 3A (Table 4-13 and Figure 4-7). 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

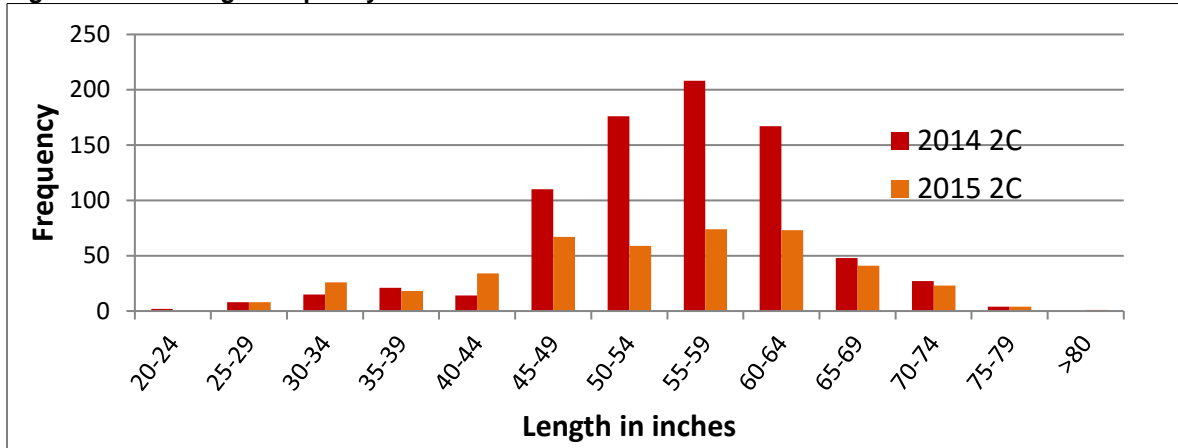
Table note: weighted average price per pound is only represents those transfers that voluntarily report price

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	428	78	53.5 (27-83)
3A	2014	269	30	45 (30-75)
	2015	143	53	44.5 (31-84)
Total 2014		1,069	53	
Total 2015		571	70	

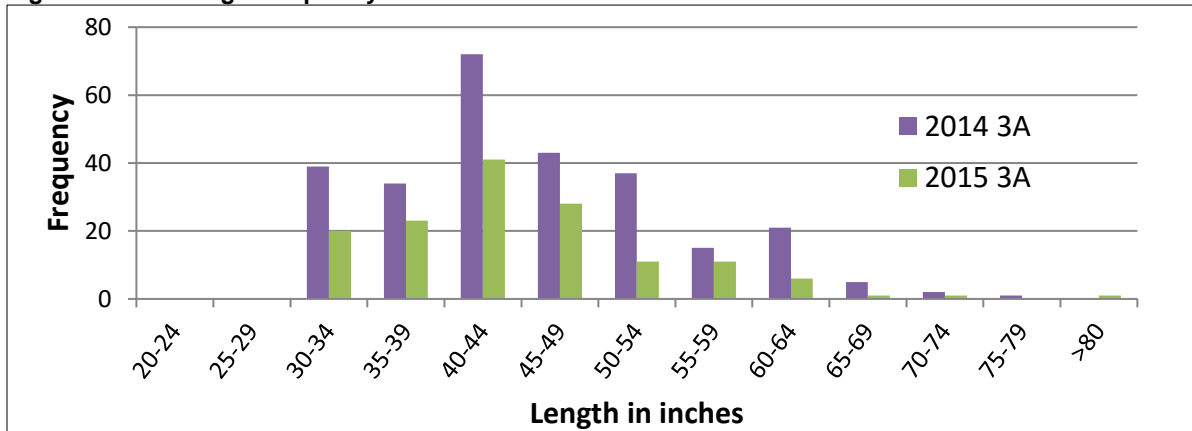
Source: NMFS GAF Program 2015 Annual Report

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), the NOAA RAM Report to the Fleet (NOAA 2012) or the recent IFQ Program Review (NPFMC 2016b)

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 and in convention waters 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.¹³ 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.

¹³ 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 member¹⁴ 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.

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

¹⁴ 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).

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.¹⁵ 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(1)(2)).
- 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

¹⁵ 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.

- 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.¹⁶
 - 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)).¹⁷
- 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)).¹⁸
- 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 area (§679.42(g)(1)(ii)). CQEs are unrestricted in minimum block size (§679.42(g)(ii)).¹⁹ QS blocks cannot subdivided.

¹⁶ GOA Amendment 94 modified the original CQE program to allow for the acquisition of class D QS by CQEs in Area 3A.

¹⁷ 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).

¹⁸ 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.

¹⁹ 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).

- 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.²⁰ 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 4.8.1.4 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 GOA²¹ and Amendment 102 expanded the program to include one community in Area 4B of the BSAI.²²

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 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.

²⁰ With the exception of D class QS in Area 3A.

²¹ 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).

²² 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).

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). A brief description of communities involved in the commercial halibut IFQ fishery is provided in Section 4.6.

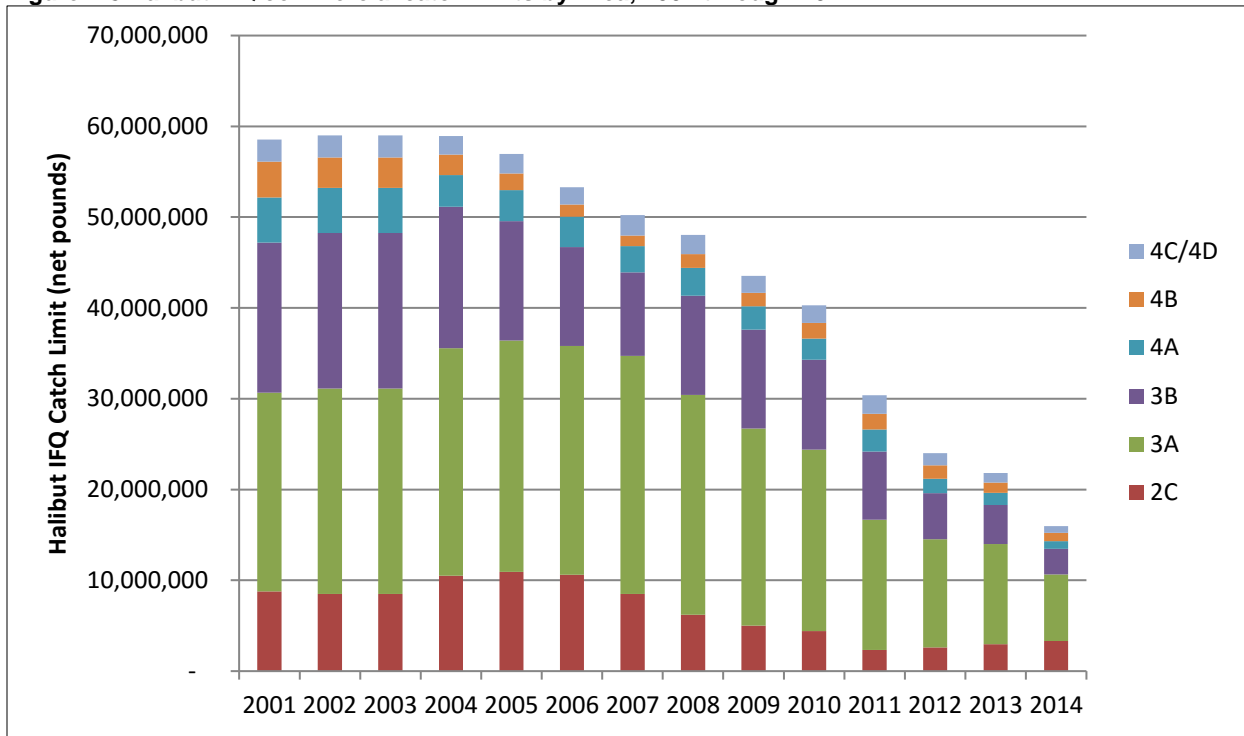
4.5.3.1 IFQ seasons and seasonal harvest

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 actual 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 in convention waters off Alaska, and Areas 3A, 3B, and 2C combined made up 85 percent of the total commercial halibut IFQ harvest in convention waters 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

Year	Area 2C			Area 3A		
	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	2014 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

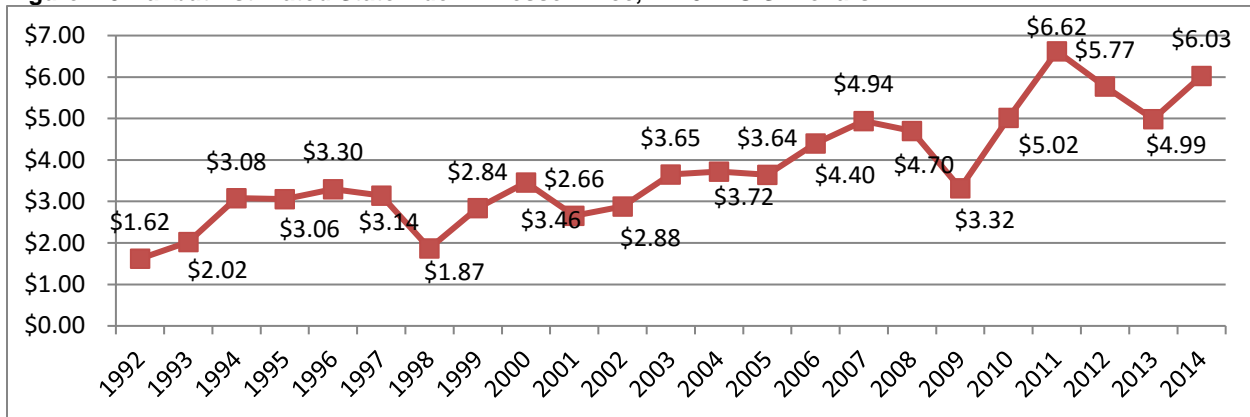
Year	2C					3A				
	Total harvest (pounds)	Persons with landings	Vessels with landings	Pounds per vessel	Person per vessel	Total harvest (pounds)	Persons with landings	Vessels with landings	Pounds per vessel	Person per vessel
1995	7,787,475	1,319	1,105	7,047	1.19	17,978,081	1,537	1,145	15,701	1.34
1996	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

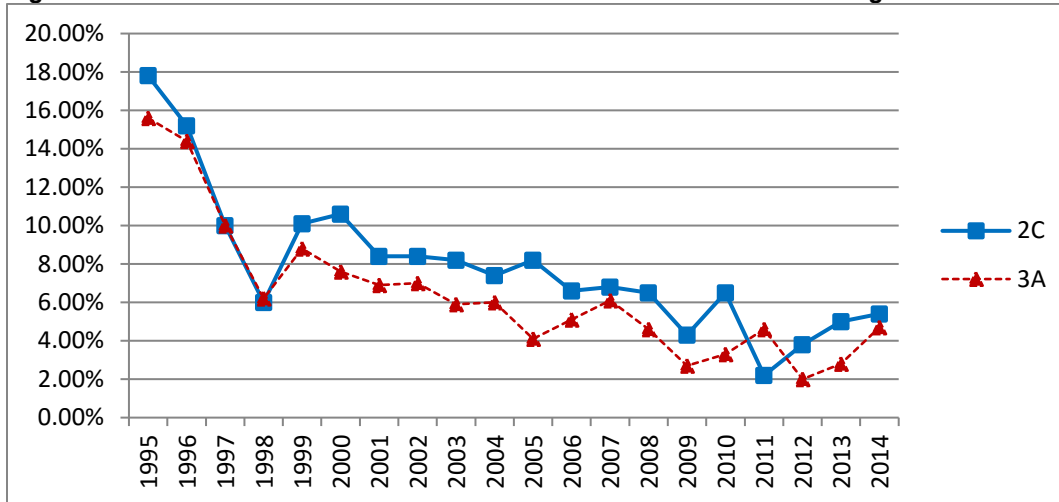
As demonstrated in Table 4-22 and illustrated more clearly in Figure 4-10, there has been a stark decreasing trend in transfers for both areas between 2000 and 2012, with a slight increase for both areas since 2011 (2C) and 2012 (3A).

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.²³ The limited scope of background presented here is meant to frame available information that provides direct relevance to the proposed actions.

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 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

²³ 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.

more visible. As will be later described in relation to the proposed action, (see Section 4.8.2 and Section 4.9), 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 permanent 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		Area 3A	
AK Community	Percent of QS pool	AK Community	Percent of QS pool
ANCHOR POINT	0.2%	ANCHOR POINT	0.8%
ANCHORAGE	0.1%	ANCHORAGE	6.6%
ANGOON	0.4%	ANDERSON	0.0%
AUKE BAY	1.0%	AUKE BAY	0.1%
CHUGIAK	0.2%	CENTRAL	0.0%
COFFMAN COVE	0.2%	CHIGNIK LAGOON	0.0%
CORDOVA	0.0%	CHINIAK	0.2%
CRAIG	3.3%	CHUGIAK	0.1%
DILLINGHAM	0.0%	CLAM GULCH	0.5%
DOUGLAS	1.6%	CORDOVA	6.5%
EDNA BAY	0.3%	DELTA JUNCTION	1.0%
ELFIN COVE	1.7%	DILLINGHAM	0.6%
FAIRBANKS	0.2%	DOUGLAS	1.0%
GUSTAVUS	0.6%	DUTCH HARBOR	0.0%
HAINES	3.7%	EAGLE RIVER	0.8%
HOMER	0.1%	ELFIN COVE	0.2%
HOONAH	1.4%	FAIRBANKS	0.2%
HYDABURG	0.1%	FRITZ CREEK	0.4%
HYDER	0.1%	GIRDWOOD	0.1%
JUNEAU	11.2%	GUSTAVUS	0.1%
KAKE	1.1%	HAINES	0.4%
KASILOF	0.0%	HALIBUT COVE	0.3%
KETCHIKAN	5.7%	HOMER	12.1%
KLAWOCK	0.0%	HOONAH	0.2%
KODIAK	0.0%	INDIAN	0.0%
KOTZEBUE	0.1%	JUNEAU	3.4%
METLAKATLA	0.5%	KASILOF	0.5%
MEYERS CHUCK	0.0%	KENAI	2.4%
NAKNEK	0.0%	KETCHIKAN	0.7%
PELICAN	1.4%	KLAWOCK	0.1%
PETERSBURG	34.0%	KODIAK	26.1%
PILOT POINT	0.0%	KOTZEBUE	0.3%
POINT BAKER	0.3%	LARSEN BAY	0.1%
PORT ALEXANDER	0.2%	MEKORYUK	0.3%
ST GEORGE ISLAND	0.0%	METLAKATLA	0.1%
ST PAUL ISLAND	0.0%	MOOSE PASS	0.0%
SEWARD	0.0%	NAKNEK	0.0%
SITKA	19.5%	NIKISKI	0.2%
SKAGWAY	0.1%	NIKOLAEVSK	0.7%
SOLDOTNA	0.0%	NINILCHIK	0.5%
TENAKEE SPRINGS	0.0%	NOME	0.2%
THORNE BAY	0.3%	NORTH POLE	0.2%
TOGIAK	0.0%	OLD HARBOR	0.2%
TWIN HILLS	0.0%	OUZINKIE	0.2%
WARD COVE	0.6%	PALMER	0.5%
WASILLA	0.1%	PELICAN	0.7%
WRANGELL	9.5%	PETERSBURG	11.3%
YAKUTAT	0.0%	PORT ALEXANDER	0.0%
Total	100.0%	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 Area 2C and 3A IFQ landings by port for 2014

Port name	Pounds landed	IFQ from Area:
Washington		
BELLINGHAM	479,285	Both
SEATTLE	**	2C
Alaska		
ALITAK	**	3A
COFFMAN COVE	**	2C
CORDOVA	420,525	3A
CRAIG	54,833	2C
HAINES	4,670	2C
HOMER	1,741,342	3A
HOONAH	**	Both
HYDER	**	2C
JUNEAU	**	Both
KAKE	**	2C
KENAI	25,206	3A
KETCHIKAN	127,468	Both
KODIAK	1,403,610	3A
OTHER AK	**	2C
PETERSBURG	1,162,372	Both
PORT ALEXANDER	**	2C
PORT PROTECTION	**	2C
SAND POINT	**	3A
SEWARD	1,526,678	Both
SITKA	**	Both
VALDEZ	**	3A
WHITTIER	54,255	3A
WRANGELL	**	Both
YAKUTAT	509,642	2C
Total for 2014	10,500,806	Both

Source: NOAA, RAM Division

Table notes: Halibut weights are reported in headed and gutted pounds. Asterisks denote confidential data based on either less than 3 processing operations or less than 3 landings. "Other AK" represents a very small amount of harvest.

Charter operations interact with the communities they take place in in different ways. Some operations begin in one location, and transport the angler to the location of launch. Lodges providing guided sport fishing opportunities are often, but not always located outside of a community. These types of business may

still source some goods and services from nearby communities, although some lodges may purchase much of their labor, supplies, and equipment from non-local sources. Approximately 90 percent of the respondents to the Alaska Saltwater Sport Fishing Charter Business Survey reported that more than 25 percent of their clients booked at least one month in advance. Less than a quarter of respondents reported that more than 26 percent of clients booked less than 48 hours in advance (Lew et al. 2015). However, 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. With respect to the composition of charter business clients, over half of the respondents to the Alaska Saltwater Sport Fishing Charter Business Survey reported that returning customers and personal referrals from previous customers accounted for 51 to 99 percent of their client base (Lew et al. 2015).

Physical addresses of saltwater and freshwater sport fishing businesses and guides in 2014 indicated that 87 percent of the businesses reported Alaska residency, and 13 percent were nonresidents; 63 percent of the guides were residents, and 37 percent were nonresidents (Powers & Sigurdsson 2016). In 2014, records show that 83 percent of the angler-days of effort in the charter halibut fishery were conducted by nonresident anglers, compared with 16 percent by residents and one percent by crew members, comped anglers, or those of unknown residency (Powers & Sigurdsson 2016).

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.²⁴ 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.

²⁴ 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 4-28 Area 2C and Area 3A CHP holdings by registered state in 2016

Area 2C		Area 3A	
State	Count of CHPs	State	Count of CHPs
AK	448	AK	400
AL	1	CA	5
AR	2	CO	3
AZ	2	ID	3
CA	5	IN	1
CO	1	KY	1
FL	2	MI	2
GA	2	MN	1
ID	3	MO	1
KY	1	NE	1
ME	1	NV	1
NV	1	NY	1
OH	1	OR	4
OR	5	TX	1
PA	1	UT	1
SD	2	WA	11
UT	21	WY	2
VA	1	Total	439
WA	34		
Total	534		

Source: NOAA, RAM Division

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 a 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	Kafliia 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 by 0.581 Milb (41 percent) in Area 2C from 2007 to 2015 and 1.76 Milb (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 flexibility 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.

Recent research has also demonstrated the GAF program to be unpopular among the charter sector (Lew, Putman & Larson 2016; Yamada & Flumerfelt 2014). Survey results reveal that CHP holders have generally had a negative view of the CSP and GAF leasing program, and many believe the leasing program negatively impacts their business (Lew, Putman & Larson 2016). 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.

While no type of permanent or temporary compensated transfer of halibut harvesting privilege is expected to be inexpensive (see Section 4.8.1.9 for a brief discussion of RQE costs), analysis of the first several years of the GAF program has demonstrated GAF leasing prices, particularly in Area 2C, nearly as high as the standard ex-vessel value of the IFQ (Kroetz, Lew & Sanchirico 2016). Particularly in the context that unused IFQ is automatically transferred back to the commercial holder (with or without a refund of compensation), these lease rates demonstrate a high willingness-to-pay on the part of the participating charter sector.

While considered an interim solution to address compensated reallocation at the time of CSP implementation, the GAF program and a potential RQE provide different opportunities. 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. For example, in the case of Area 2C, GAF may be used when an angler highly values keeping a second fish. The proposed RQE would not necessarily allow a 2C angler to keep a second fish. An RQE would be seeking to purchase halibut QS on behalf of all charter anglers as a whole by allowing for incremental adjustments of annual management measures. This could mean inches on a fish, or a change in the daily bag or annual limit.

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 association common pool**. In addition, 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 & Flumerfelt 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 than 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 individuals with the capital to acquire private benefits as in 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 its resources (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 were 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 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 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 funds could not be used directly or indirectly to lobby local, state, or federal officials.

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 Areas 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 regulations 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.

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). Based on this continued interest from the charter sector, the Council has identified **Option 2**, one entity with two area quota pools, as its PPA.

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, 3A) a total sector QS use cap by regulatory area that would be combined with GAF restrictions, and 4) a prohibition on the acquisition of class D QS and/or small blocks of QS. These three restrictions are not considered mutually exclusive (with the expectation of Option 3 and 3A). Similar types of 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 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** proposes the following transfer limits:

Annual limit on transfers to the RQE in each regulatory area (Area 2C and Area 3A) of 0.5%-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)					
			0.5	1	2	3	4	5
Area 2C								
2011	59,477,396	25.56	0.012	0.023	0.047	0.070	0.093	0.116
2012	59,477,396	22.70	0.013	0.026	0.052	0.079	0.105	0.131
2013	59,477,396	20.05	0.015	0.030	0.059	0.089	0.119	0.148
2014	59,477,396	17.94	0.017	0.033	0.066	0.099	0.133	0.166
2015	59,477,396	16.17	0.018	0.037	0.074	0.110	0.147	0.184
Area 3A								
2011	184,893,008	12.88	0.072	0.144	0.287	0.431	0.574	0.718
2012	184,893,008	15.52	0.060	0.119	0.238	0.357	0.477	0.596
2013	184,893,008	16.76	0.055	0.110	0.221	0.331	0.441	0.552
2014	184,893,008	26.27	0.035	0.070	0.141	0.211	0.282	0.352
2015	184,893,008	23.73	0.039	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 produces these analyses of management measures on an annual basis (for example, Meyer & Powers 2014). These analyses project 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 4-32 (Area 2C) and Table 4-33 (Area 3A), the analysis created Table 4-34 and Table 4-35 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 MIb, 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 an RQE had existed in Area 2C in 2015 and it held one-half percent of Area 2C QS, then the harvest limit would have been 0.870 MIb and ADF&G could have recommended a daily bag limit of one fish under 43 inches or above 76 inches in length. The data seem to indicate that an 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

Category	Status Quo	Portion of Area QS Held by RQE					
		0.5	1	2	3	4	5
Harvest Limit+IFQ	0.851	0.870	0.888	0.925	0.961	0.998	1.035
Regulation	1F-U42 O80	1F-U43 O76	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 MIb 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 three percent to remove the day of the week restriction and four 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

Category	Status Quo	Portion of Area QS Held by RQE					
		0.5	1	2	3	4	5
Harvest Limit+IFQ	1.89	1.929	1.968	2.046	2.124	2.202	2.279
Regulation	2F-U29	2F-U29	2F-U29	2F-U29	2F-U29 W/O DOW Restriction	2F-U30 W/O DOW Restriction	2F-U32 W/O DOW Restriction

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 transfers take place each year. Thus, it is logical to presume that the RQE will see the greatest number of purchasing opportunities and shares available in the C-Class market. (See Table 4-36.)

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

Category	Class			
	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. (See Table 4-37.)

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

Category	Class			
	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

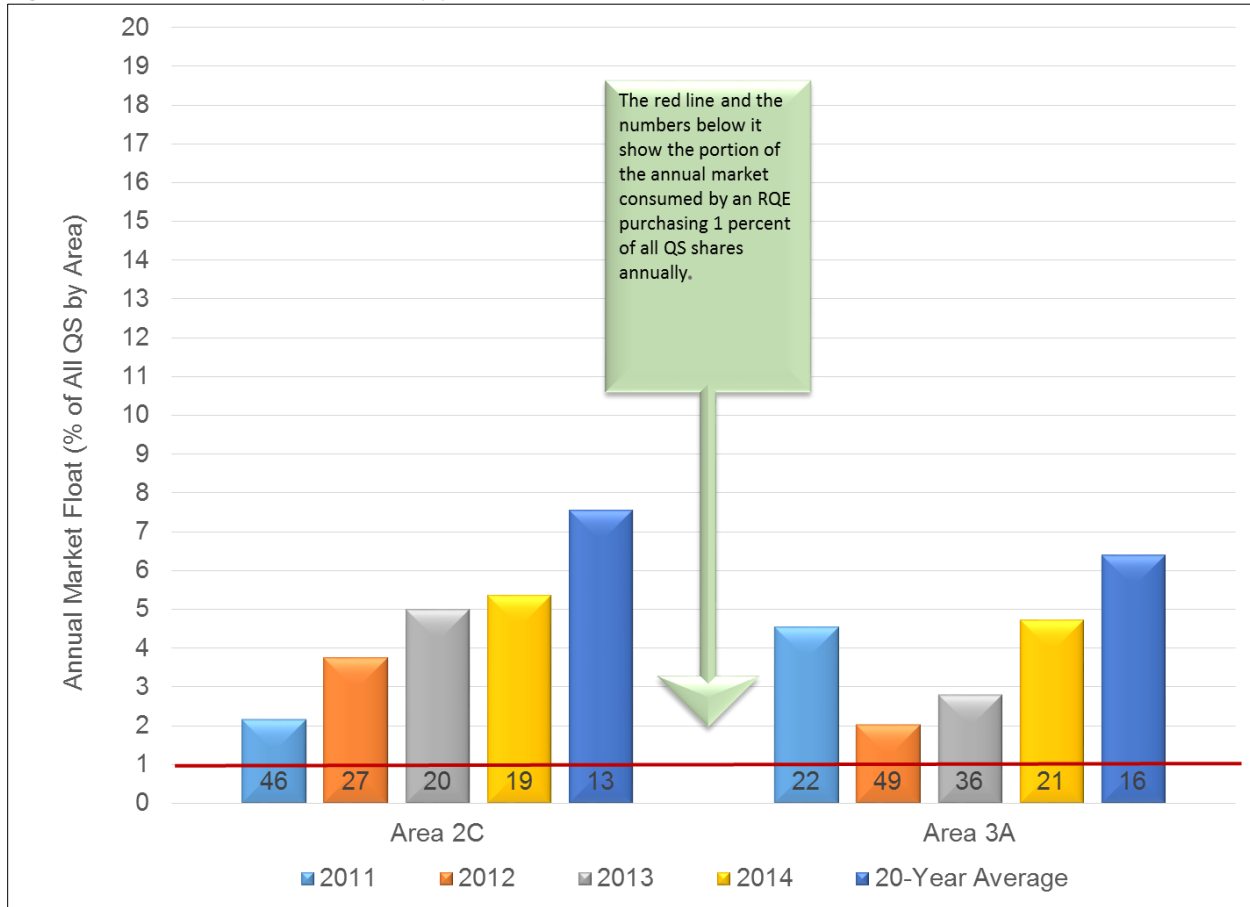
Source: Northern Economics, Inc. estimates from NOAA (2015a).

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

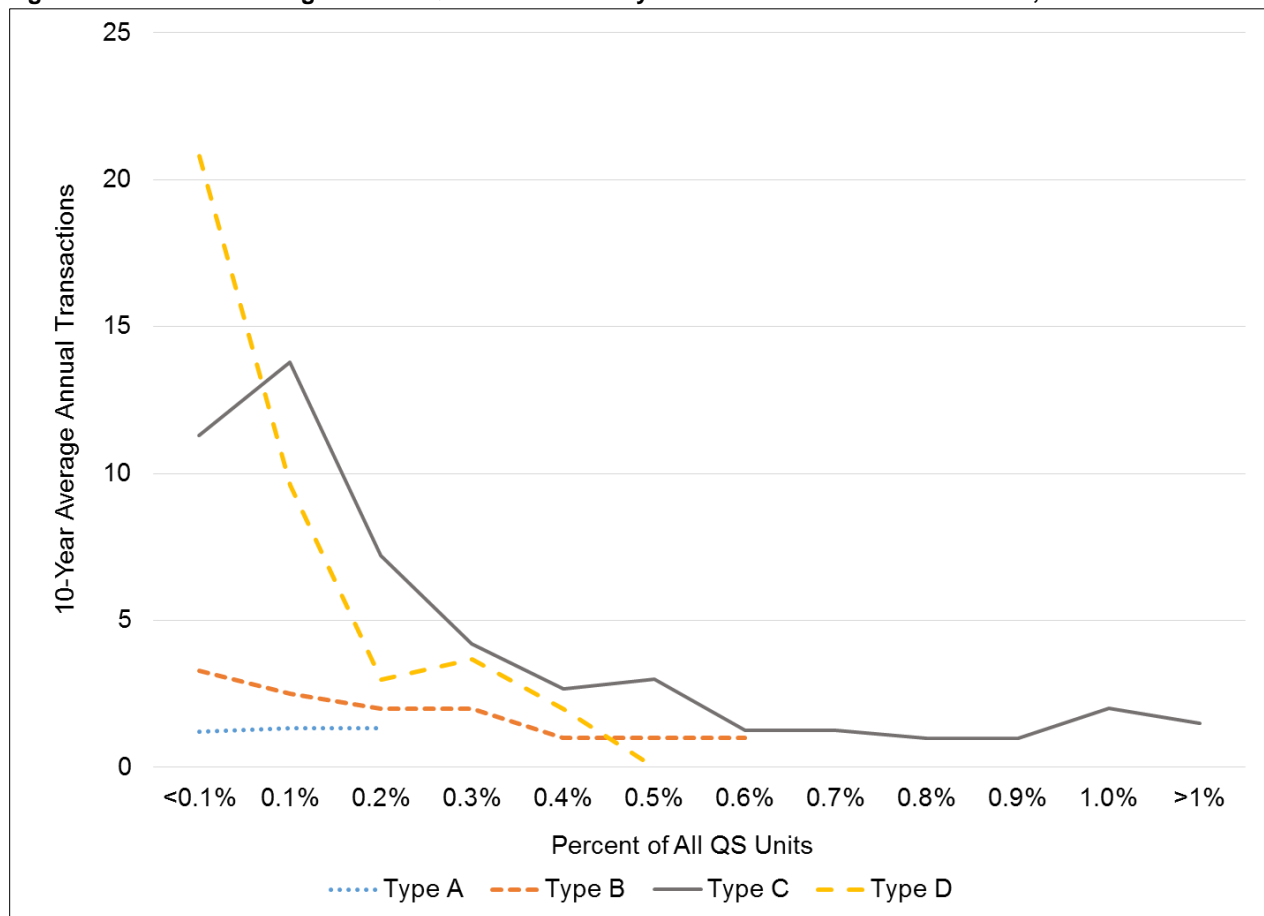


Source: Northern Economics, Inc. estimates from NOAA (2015a).

At the April 2016 Council meeting, in response to comments and questions about how frequently an RQE would need to enter the QS market, Council members expressed interest in understanding the size of trades which typically occur in the QS market on an annual basis. The amount of halibut QS that an RQE may purchase will depend on the plan designed by the Council, the state of halibut stocks, charter angler demand and willingness to pay, and an RQE's ability to finance purchases. However, the data show that it is likely that an RQE's ability to liberalize regulations will require at an amount of QS at least in the single digit percentages depending on the IPHC Area. For an RQE, building a holding of this size could mean a small number of trips into the market if large amounts of QS are available in a single transaction, or it could mean tens of trips into the market if the RQE is forced to buy low fractions of a percent of all QS in each transaction.

NMFS transaction data from the past ten years show that halibut QS markets vary by QS unit type. For example, the most frequent trade is a D-class trade with less than 0.1 percent changing hands. Over the last ten years, trades of this type occurred, on average, over 20 times per year. The number of D-class trades involving larger trade amounts declines rapidly with just a single annual trade accounting for 0.5 percent of all QS units. On the other hand, the most common C-Class trade is between 0.1 percent and 0.2 percent of all QS units with 1 to 2 trades per year occurring for each tenth of a percentage point above 0.5 percent. A-Class shares trade very infrequently with a handful of trades each year which tend to be between 0 and 0.3 percent of all Area QS. B-Class is more frequently traded than A-class, but doesn't have the larger trades of C-Class (see Figure 4-12). The market data show that while an RQE shouldn't expect to fulfill all of its needs with a small handful of opportunities, there are sufficient trading opportunities to access the market even if, for example, D-class shares were prohibited from being purchased. While the analysis did not look at these data at the blocked/unblocked level, the RQE's job would get substantially harder if significant portions of blocked QS were also excluded from the program.

Figure 4-12 10-Year Average Annual QS Transactions by Vessel Size and Transaction Size, Area 2C

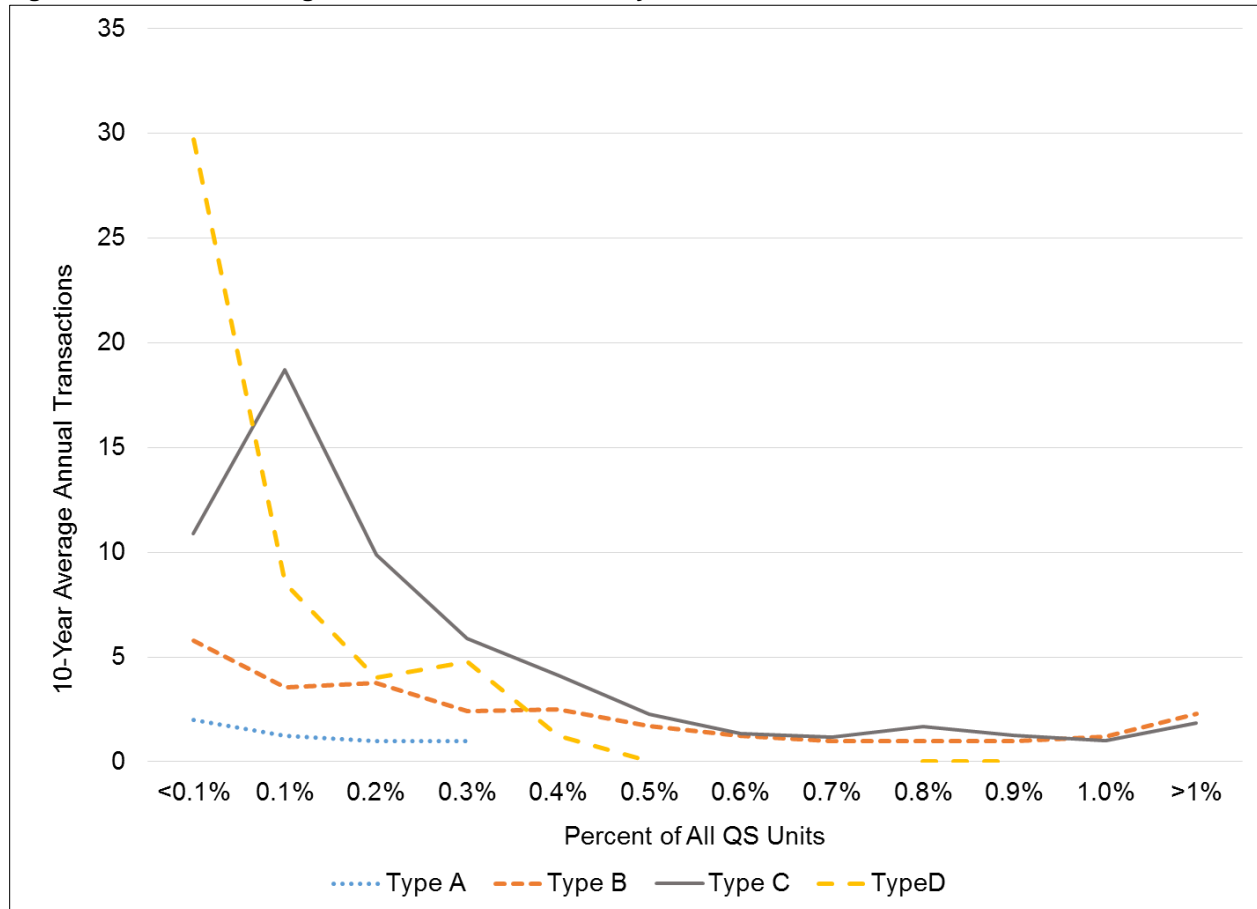


Source: RAM Division, NMFS sourced through AKFIN

The Area 3A quota markets are larger and more robust than the Area 2C quota markets with more opportunities for an RQE to purchase quota share and more opportunities to purchase larger percentages of Area QS. For example, in both C-class and B-Class there are, on average, low-single digit opportunities every year to purchase QS at every tenth measurement between 0.5 percent and 1.0 percent as well as a handful of chances to purchase greater than one percent in a single purchase. In addition, there are slightly more opportunities to purchase A-Class. The D-class distribution is the same shape as in Area 2C with few, if any, opportunities to purchase agglomerations of D-class units greater than 0.5 percent in size (see Figure

4-13). Lastly, the analysts also note that figures above reinforce an uncomfortable fact that has challenged halibut management for some time. An RQE operating in Area 3A will have a significantly easier time than an RQE in Area 2C. Smaller portions of Area QS make larger differences in Area 3A, the need is lower, and there are more and greater opportunities to purchase QS.

Figure 4-13 10-Year Average Annual QS Transactions by Vessel Size and Transaction Size, Area 3A



Source: RAM Division, NMFS sourced through AKFIN

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. (See Table 4-38.)

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					Historical Abundance (1995-2007)
		2011	2012	2013	2014	2015	
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 these different allocations would 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 examples 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 charter halibut sector would need at least the five 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 4-14). Cells marked (UCA) in Figure 4-14, denote management options that are available under the current allocation. A 10 percent allowance could have allowed one fish per day under 50 inches or over 66 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 is clear that the range the Council is analyzing provides flexibility within the one-fish regime. Other key conclusions 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 additional options, and a seven percent allowance opens 14 additional 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 4-14 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	4	3	1	UCA	UCA	UCA	UCA	UCA	UCA	UCA	UCA	UCA
36	12	10	9	7	5	4	2	UCA	UCA	UCA	UCA	UCA	UCA	UCA	UCA	UCA
37	13	11	9	7	6	5	3	1	UCA	UCA	UCA	UCA	UCA	UCA	UCA	UCA
38	14	12	10	8	7	5	4	2	1	UCA	UCA	UCA	UCA	UCA	UCA	UCA
39	14	12	11	9	8	6	4	3	2	1	UCA	UCA	UCA	UCA	UCA	UCA
40	15	13	11	10	8	7	5	3	2	2	1	UCA	UCA	UCA	UCA	UCA
41	15	14	12	10	9	8	6	4	3	2	1	1	UCA	UCA	UCA	UCA
42	16	14	13	11	9	8	6	5	4	3	2	2	1	UCA	UCA	UCA
43	16	15	13	11	10	9	7	5	4	4	3	2	1	1	1	1
44	17	15	14	12	11	9	8	6	5	4	3	3	2	2	2	1
45	18	16	15	13	12	10	9	7	6	5	4	4	3	3	3	2
46	18	17	15	13	12	11	9	7	7	6	5	4	4	3	3	3
47	19	17	16	14	13	12	10	8	7	7	6	5	5	4	4	4
48	19	18	16	15	13	12	10	9	8	7	6	6	5	5	5	4
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). Note: Cells denoted UCA are available under the current allocation.

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 (Figure 4-15). 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 4-15 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	4	1	UCA	UCA	UCA	UCA	UCA	UCA	UCA	UCA
36	N/A	19	16	13	11	9	6	3	1	UCA	UCA	UCA	UCA	UCA	UCA	UCA
37	N/A	20	17	14	12	10	7	4	2	1	UCA	UCA	UCA	UCA	UCA	UCA
38	N/A	N/A	18	16	13	11	8	5	4	3	1	UCA	UCA	UCA	UCA	UCA
39	N/A	N/A	19	17	14	12	9	7	5	4	2	2	UCA	UCA	UCA	UCA
40	N/A	N/A	20	18	15	13	10	8	6	5	3	3	2	1	1	UCA
41	N/A	N/A	N/A	19	16	14	12	9	7	6	5	4	3	2	2	1
42	N/A	N/A	N/A	20	17	15	12	10	8	7	6	5	4	3	3	2
43	N/A	N/A	N/A	20	18	16	13	11	9	8	7	6	5	4	4	3
44	N/A	N/A	N/A	N/A	19	17	15	12	11	9	8	7	6	5	5	4
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). Note: Cells denoted UCA are available under the current allocation.

In Area 3A, the maximum amount of QS allowed ranged from 9,244,650 units to 36,978,602 units (Table 4-39). 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					Historical Abundance (1995-2007)
		2011	2012	2013	2014	2015	
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 example 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 4-16). 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, most of these fish would be expected to be 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 4-16 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	UCA	UCA	UCA	1	2	2	2	2	2	3	3
27	UCA	UCA	UCA	2	2	3	3	3	3	3	3
28	UCA	UCA	1	2	3	3	4	4	4	4	4
29	UCA	UCA	1	3	3	4	4	4	4	4	5
30	UCA	UCA	2	4	4	5	5	5	5	5	5
31	UCA	UCA	2	4	5	5	5	6	6	6	6
32	UCA	UCA	3	5	5	6	6	6	6	6	7
33	UCA	1	3	5	6	6	7	7	7	7	7
34	UCA	1	4	6	6	7	7	7	7	7	7
35	UCA	1	4	6	7	7	7	8	8	8	8
36	UCA	2	4	6	7	8	8	8	8	8	8
37	UCA	2	4	7	7	8	8	8	8	8	8
38	UCA	2	5	7	7	8	8	8	8	9	9
39	UCA	2	5	7	8	8	8	9	9	9	9
40	UCA	2	5	7	8	8	9	9	9	9	9
41	UCA	2	5	7	8	9	9	9	9	9	9
42	UCA	3	5	7	8	9	9	9	9	9	9
43	UCA	3	5	8	8	9	9	9	9	9	10
44	UCA	3	5	8	8	9	9	9	9	9	10
45	UCA	3	6	8	9	9	9	9	10	10	10
46	UCA	3	6	8	9	9	9	10	10	10	10
47	UCA	3	6	8	9	9	10	10	10	10	10
48	UCA	3	6	8	9	9	10	10	10	10	10
49	UCA	3	6	8	9	10	10	10	10	10	10
50	UCA	3	6	8	9	10	10	10	10	10	10

Source: Northern Economics, Inc. estimates from ADF&G (2015) and NOAA (2015a). Note: Cells denoted UCA are available under the current allocation.

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 five percent or less allocation. (Figure 4-17.)

Figure 4-17 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	UCA	UCA	UCA	UCA	UCA	UCA	UCA	UCA	UCA	UCA	UCA
27	UCA	UCA	UCA	UCA	UCA	UCA	UCA	UCA	UCA	UCA	UCA
28	UCA	UCA	UCA	UCA	UCA	UCA	UCA	UCA	UCA	UCA	UCA
29	UCA	UCA	UCA	UCA	UCA	UCA	UCA	UCA	UCA	UCA	UCA
30	UCA	UCA	UCA	UCA	UCA	UCA	UCA	UCA	UCA	UCA	UCA
31	UCA	UCA	UCA	UCA	UCA	UCA	UCA	UCA	UCA	UCA	UCA
32	UCA	UCA	UCA	UCA	UCA	UCA	UCA	UCA	UCA	UCA	UCA
33	UCA	UCA	UCA	UCA	UCA	UCA	UCA	UCA	UCA	UCA	UCA
34	UCA	UCA	UCA	UCA	UCA	UCA	UCA	UCA	UCA	UCA	UCA
35	UCA	UCA	UCA	UCA	UCA	UCA	UCA	UCA	UCA	UCA	UCA
36	UCA	UCA	UCA	UCA	UCA	UCA	UCA	UCA	UCA	UCA	UCA
37	UCA	UCA	UCA	UCA	UCA	UCA	UCA	UCA	UCA	UCA	UCA
38	UCA	UCA	UCA	UCA	UCA	UCA	UCA	UCA	UCA	UCA	UCA
39	UCA	UCA	UCA	UCA	UCA	UCA	UCA	UCA	UCA	UCA	UCA
40	UCA	UCA	UCA	UCA	UCA	UCA	UCA	UCA	UCA	UCA	UCA
41	UCA	UCA	UCA	UCA	UCA	UCA	UCA	UCA	UCA	UCA	UCA
42	UCA	UCA	UCA	UCA	UCA	UCA	UCA	UCA	UCA	UCA	UCA
43	UCA	UCA	UCA	UCA	UCA	UCA	UCA	UCA	UCA	UCA	UCA
44	UCA	UCA	UCA	UCA	UCA	UCA	UCA	UCA	UCA	UCA	UCA
45	UCA	UCA	UCA	UCA	UCA	UCA	UCA	UCA	UCA	UCA	UCA
46	UCA	UCA	UCA	UCA	UCA	UCA	UCA	UCA	UCA	UCA	UCA
47	UCA	UCA	UCA	UCA	UCA	UCA	UCA	UCA	UCA	UCA	UCA
48	UCA	UCA	UCA	UCA	UCA	UCA	UCA	UCA	UCA	UCA	UCA
49	UCA	UCA	UCA	UCA	UCA	UCA	UCA	UCA	UCA	UCA	UCA
50	UCA	UCA	UCA	UCA	UCA	UCA	UCA	UCA	UCA	UCA	UCA

Source: Northern Economics, Inc. estimates from ADF&G (2015) and NOAA (2015a). Note: Cells denoted UCA are available under the current allocation.

Sub-Option 2 of Option 3 of Element 2 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

Category	Class			
	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 3A: Total Cumulative Limit on the amount of Commercial Quota Share Held by RQE and Leased under GAF.

Option 3A of Element 2 is the Council's PPA and would restrict an RQE, in combination with the GAF program, from utilizing more than 10 percent of the 2015 commercial QS pool in Area 2C and more than 15 percent of the 2015 commercial QS pool for Area 3A. In addition, the cumulative cap will be managed annually on a sliding scale between RQE and GAF, with GAF transfers restricted to accommodate RQE QD holdings. As with **Option 3** the purpose of this option is to place a cumulative restriction on total QS by the guided charter sector.

In addition to the cumulative limit, The Council provided for two sub-options, neither of which is designated as preliminary preferred at this time. They are:

1. GAF shall not be reduced below a range of 1 percent to 3 percent of the 2015 commercial QS pool for Area 2C or 3A.
2. GAF shall not be reduced below 1.15 times the previous year's GAF transfers for either Area 2C or Area 3A.

Section 4.4.1.2.4 describes the GAF program. It should be noted that the 10 percent and 15 percent limits are substantially less than the current effective allowance for the GAF program. 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 CHP²⁵ 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.

These limits were not necessarily chosen to represent the maximum amount of leasing that the Council considered to be acceptable. The analysis speaks to the low level of risk that individual charter operators would lease up until their allowable maximum GAF (400 or 600 fish). There is also a very low level of risk that each and every QS holder would lease their maximum allowable IFQ as GAF. These restrictions were likely instituted to protect the GAF leasing market from one large player (either QS holder or CHP holder), rather than to protect the commercial sector as a whole from excessive use of the opportunity.

Using the 2015 QS ownership data, the analysis estimates that in 2015 there were 1.80 Milb of GAF leasable IFQ pounds in Area 2C (Table 4-41) and 2.68 Milb of GAF leasable QS in Area 3A (Table 4-42). These amounts equal 49.1 percent and 35.5 percent of the allocation in each Area respectively.²⁶ Thus, reducing the cumulative amount that could be held in GAF and by the RQE to 10 percent and 15 percent is a substantial change for the GAF program. The 10 percent and 15 percent cumulative amounts were selected because of a presumption that these amounts matched the GAF program, but the GAF program is an individual leasing limit for a sub-set of IFQ holders. Many IFQ holders can lease more than 10 percent and 15 percent of their holding if 1,500 pounds of IFQ is a greater amount than those percentage limits.

²⁵ 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).

²⁶ There is also a limit on the number of GAF which each CHP may lease, but the commercial leave provisions are the current binding constraint.

Table 4-41 IFQ Available for GAF Leases, Area 2C 2015

Category	Amount of Leasable GAF per Holder (lbs)			Sum
	>1,500	1,500	<1,500	
QS Holders	11	831	770	1,612
GAF leasable Pounds	22,470	1,246,500	535,727	1,804,698
Average Pounds per Holder	2,043	1,500	696	1,120

Table 4-42 IFQ Available for GAF Leases, Area 3A 2015

Category	Amount of Leasable GAF per Holder (lbs)			Sum
	>1,500	1,500	<1,500	
QS Holders	184	1,042	858	2,084
GAF leasable Pounds	521,685	1,563,000	600,042	2,684,727
Average Pounds per Holder	2,835	1,500	699	1,288

GAF usage is substantially less than the program's theoretical maximums and the cumulative limits and sub-options better reflect current usage than the theoretical maximums. Table 4-43 demonstrates that overall GAF usage in the first three years of the program has been limited to 1.25 percent or less in Area 2C and less than 0.2 percent in Area 3A (see Table 4-43).

Table 4-43 GAF transfers in 2014 and 2015

Area	Year	IFQ Transferred (lbs.)	Total IFQ Allocation (lbs.)	IFQ Transferred (%)	Sub-Option 2 Next Year- Maximum IFQ Transferable (5)
2C	2014	29,498	3,318,720	0.89	1.02
	2015	36,934	3,679,000	1.00	1.15
	2016	47,064	3,752,271	1.25	1.44
3A	2014	11,654	7,317,730	0.16	0.18
	2015	10,337	7,790,000	0.13	0.15
	2016	10,442	7,160,895	0.15	0.17

Source: NMFS GAF Program 2015 Annual Report and NMFS RAM.

Despite the low rate of participation displayed in Table 4-43, there are a number of reasons why the GAF 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. In addition some CHP holders may have invested in purchasing halibut QS, since implementation of the GAF program with the explicit intention of self-transferring IFQ as GAF to augment their operations.

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. GAF may also be used in a situation where an angler only catches halibut within a reverse slot limit and does not want to go home empty-handed.

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.

Due to this potential reliance on GAF by the few CHP holders that have used it and its different purpose than the RQE proposal, the Council has considered several sub-options that would maintain its availability. **Sub-option 1** would create a fixed one to three percent set aside for GAF which could not be used by the RQE program. This set aside would reduce the RQE's maximum cumulative holding to between 7 percent and 9 percent in Area 2C and between 12 percent and 14 percent in Area 3A. Overall the fixed nature of this sub-option reduces program flexibility in times where GAF growth might occur outside of the set aside and when GAF demand is substantially less than the set aside. For example, presume a 3 percent GAF set aside in both IPHC Areas in 2016. An RQE would be limited to holding 7 percent of all QS in Area 2C and 12 percent in Area 3A, but actual GAF usage in each Area was a fraction of the allowed maximum. The cap would have stranded 1.75 percent of Area 2C QS and 2.85 percent of Area 3A QS that the RQE might have used if it had the resources.

Table 4-44 GAF 3 Percent Set-Aside Example, 2016 Conditions

Area	Maximum Combined QS Allowance (%)	QS Reserved for GAF (%)	Maximum RQE Allowance (%)	Actual GAF Usage (%)	QS Allowed, but not Used (%)
2C	10	3	7	1.25	1.75
3A	15	3	12	0.15	2.85

Sub-option 2 is more flexible from an RQE perspective because it is less likely to automatically strand QS compared to the current level of GAF usage. However, **Sub-option 2** would limit growth in GAF usage to 15 percent greater than usage the year before. For example, **Sub-option 2** would have limited GAF usage in Area 2C to 1.15 percent of Area-wide QS in Area 2C in 2016 (i.e., 1.00 percent X 1.15) and 0.15 percent in Area 3A. At the same time, if **Sub-option 2** had been in effect between 2015 and 2016, GAF usage in Area 2C would have been capped at 1.15 percent of IFQ instead of the converted 1.25 percent. The actual effect on anglers of such a cap is uncertain as preliminary NMFS data indicate that roughly 10 percent of GAF pounds in Area 2C were returned to the QS pool voluntarily.

While this sub-option caps the year-to-year growth of GAF usage, it does not provide a maximum cap beyond the Catch Sharing Program limit, this feature could, conceptually, threaten the long-term viability of the RQE if GAF usage increased year after year. The analysts note, however, that the more successful the RQE program is in liberalizing bag limits in time of restriction from the historical bag limit, the less incentive any angler has to use GAF. This effect can clearly be seen in comparing GAF usage in Area 2C where anglers have been restricted to one fish a day and the GAF allows them a full second fish of any size, and usage in Area 3A where anglers have access to a second fish of limited size and where a GAF usage only affords them an increase of a "partial" fish. GAF usage rates in Area 2C are eight times the rates in Area 3A.

The total effective portion of IFQ that an RQE could hold will depend on the transfer restriction options selected by the Council and the section, combination, or hybridization of the relevant sub-options. Under Option 3A, depending on which sub-option or hybrid of sub-options the Council chooses, the RQE could,

in the near term, be limited to a maximum cumulative holding to between 7 percent and 9 percent in Area 2C and between 12 percent and just under 15 percent in Area 3A. These ranges are covered in other sections of this analysis and summarized in the Executive Summary. For example:

- Section 4.8.1.2.3 covers this range of limits without the addition of block or vessel limits.
- Sections 4.8.1.3.1–4.8.1.3.5 cover this range of limits with the addition of block and vessel limits.
- Section 4.8.1.3.4 covers the combination of all of the Options and Elements regarding total cumulative limits with and without block and vessel limits.

As examples, Table 4-45 and Table 4-46 show the best available regulatory option under lower biomass conditions and in combination with the D-Class and small block limits discussed in Section 4.8.1.3.1. Further discussion of these options is found in Section 4.8.1.3.4. As noted in that section, these cumulative levels provide greater flexibility than the charter sector currently has under the CSP. However, an uncapped GAF program could slowly erode the RQE's flexibility.

Table 4-45 Best Regulatory Options Available, PPA Area 2C, 2011 Stock Conditions, 2015 Demand, 1,500 Block Restrictions

Cumulative Cap (Percent)	D-Class Shares Unrestricted			
	Blocks Unrestricted	Blocks 50 Percent Restricted	Blocks 75 Percent Restricted	Blocks Fully Restricted
1	U41-O80	U41-O80	U41-O80	U41-O80
2	U42-O80	U42-O80	U42-O80	U41-O76
3	U43-O80	U43-O80	U42-O76	U42-O76
4	U44-O80	U43-O76	U43-O76	U43-O78
5	U44-O76	U44-O78	U44-O80	U44-O80
6	U45-O80	U44-O74	U45-O80	U44-O76
7	U46-O78	U47-O80	U45-O76	U45-O78
8	U47-O80	U46-O78	U46-O76	U46-O80
9	U48-O80	U47-O78	U47-O80	U47-O80
10	U48-O76	U48-O76	U48-O80	U48-O80
D-Class Shares Restricted				
1	U41-O80	U40-O76	U40-O76	U40-O76
2	U41-O76	U41-O76	U41-O76	U41-O78
3	U42-O76	U42-O78	U42-O80	U42-O80
4	U43-O78	U43-O80	U43-O80	U43-O80
5	U44-O80	U44-O80	U43-O78	U43-O76
6	U44-O76	U44-O78	U44-O80	U44-O80
7	U45-O80	U45-O80	U45-O80	U45-O80
8	U46-O80	U46-O80	U45-O78	U45-O76
9	U46-O76	U46-O76	U46-O80	U46-O80
10	U47-O76	U47-O80	U47-O80	U47-O80

Table 4-46 Best Regulatory Options Available, PPA Area 2C, 2011 Stock Conditions, 2015 Demand, 2,000 Block Restrictions

Cumulative Cap (Percent)	D-Class Shares Unrestricted			
	Blocks Unrestricted	Blocks 50 Percent Restricted	Blocks 75 Percent Restricted	Blocks Fully Restricted
1	U41-O80	U41-O80	U41-O80	U40-O76
2	U42-O80	U42-O80	U41-O76	U41-O78
3	U43-O80	U42-O76	U42-O78	U42-O80
4	U44-O80	U43-O76	U43-O80	U43-O80
5	U44-O76	U44-O80	U44-O80	U43-O76
6	U45-O80	U44-O76	U44-O76	U44-O80
7	U46-O78	U45-O76	U45-O80	U44-O76
8	U47-O80	U46-O78	U46-O80	U45-O76
9	U48-O80	U46-O74	U46-O76	U46-O80
10	U48-O76	U47-O76	U47-O80	U46-O76
D-Class Shares Restricted				
1	U41-O80	U40-O76	U40-O76	U40-O76
2	U41-O76	U41-O78	U41-O78	U41-O80
3	U42-O76	U42-O80	U42-O80	U42-O80
4	U43-O78	U43-O80	U43-O80	U43-O80
5	U44-O80	U43-O76	U43-O76	U43-O76
6	U44-O76	U44-O78	U44-O80	U44-O80
7	U45-O80	U45-O80	U44-O76	U44-O76
8	U46-O80	U45-O76	U45-O80	U45-O80
9	U46-O76	U46-O78	U46-O80	U45-O76
10	U47-O76	U47-O80	U46-O76	U46-O78

Table 4-47 and Table 4-48 show the regulatory options available for Area 3A under the PPA. Note that shaded areas indicate a likely two-fish of any size bag limit and all cells presume the first fish is of unlimited size with a size restriction on the second fish.

Table 4-47 Best Regulatory Options Available, PPA Area 3A, 2015 Stock Conditions, 2015 Demand, 1,500 Block Restrictions

Cumulative Cap (Percent)	D-Class Shares Unrestricted			
	Blocks Unrestricted	Blocks 50 Percent Restricted	Blocks 75 Percent Restricted	Blocks Fully Restricted
1	U26	U26	U26	U26
2	U27	U27	U27	U27
3	U29	U28	U28	U28
4	U30	U30	U30	U29
5	U32	U31	U31	U31
6	U34	U33	U33	U33
7	U38	U37	U36	U35
8	U44	U42	U41	U40
9	U50	U50	U49	U48
10		U50	U50	U50
11				
12				
13				
14				
15				
D-Class Shares Restricted				
1	U26	U26	U26	U26
2	U27	U27	U27	U27
3	U28	U28	U28	U28
4	U29	U29	U29	U29
5	U31	U31	U31	U31
6	U33	U33	U32	U32
7	U35	U35	U35	U35
8	U40	U39	U38	U38
9	U48	U46	U45	U44
10	U50	U50	U50	U50
11				
12				
13				
14				
15				

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Table 4-48 Best Regulatory Options Available, PPA Area 3A, 2015 Stock Conditions, 2015 Demand, 1,500 Block Restrictions

Cumulative Cap (Percent)	D-Class Shares Unrestricted			
	Blocks Unrestricted	Blocks 50 Percent Restricted	Blocks 75 Percent Restricted	Blocks Fully Restricted
1	U26	U26	U26	U26
2	U27	U27	U27	U27
3	U29	U28	U28	U28
4	U30	U29	U29	U29
5	U32	U31	U31	U31
6	U34	U33	U33	U32
7	U38	U36	U35	U34
8	U44	U40	U39	U37
9	U50	U48	U45	U42
10		U50	U50	U50
11				
12				
13				
14				
15				
	D-Class Shares Restricted			
	Blocks Unrestricted	Blocks 50 Percent Restricted	Blocks 75 Percent Restricted	Blocks Fully Restricted
1	U26	U26	U26	U26
2	U27	U27	U27	U26
3	U28	U28	U28	U27
4	U29	U29	U29	U29
5	U31	U31	U31	U30
6	U33	U32	U32	U32
7	U35	U35	U34	U34
8	U40	U38	U37	U37
9	U48	U44	U42	U41
10	U50	U50	U50	U48
11		U50	U50	U50
12				
13				
14				
15				

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

Option 4 of **Element 2** considers three sub-options:

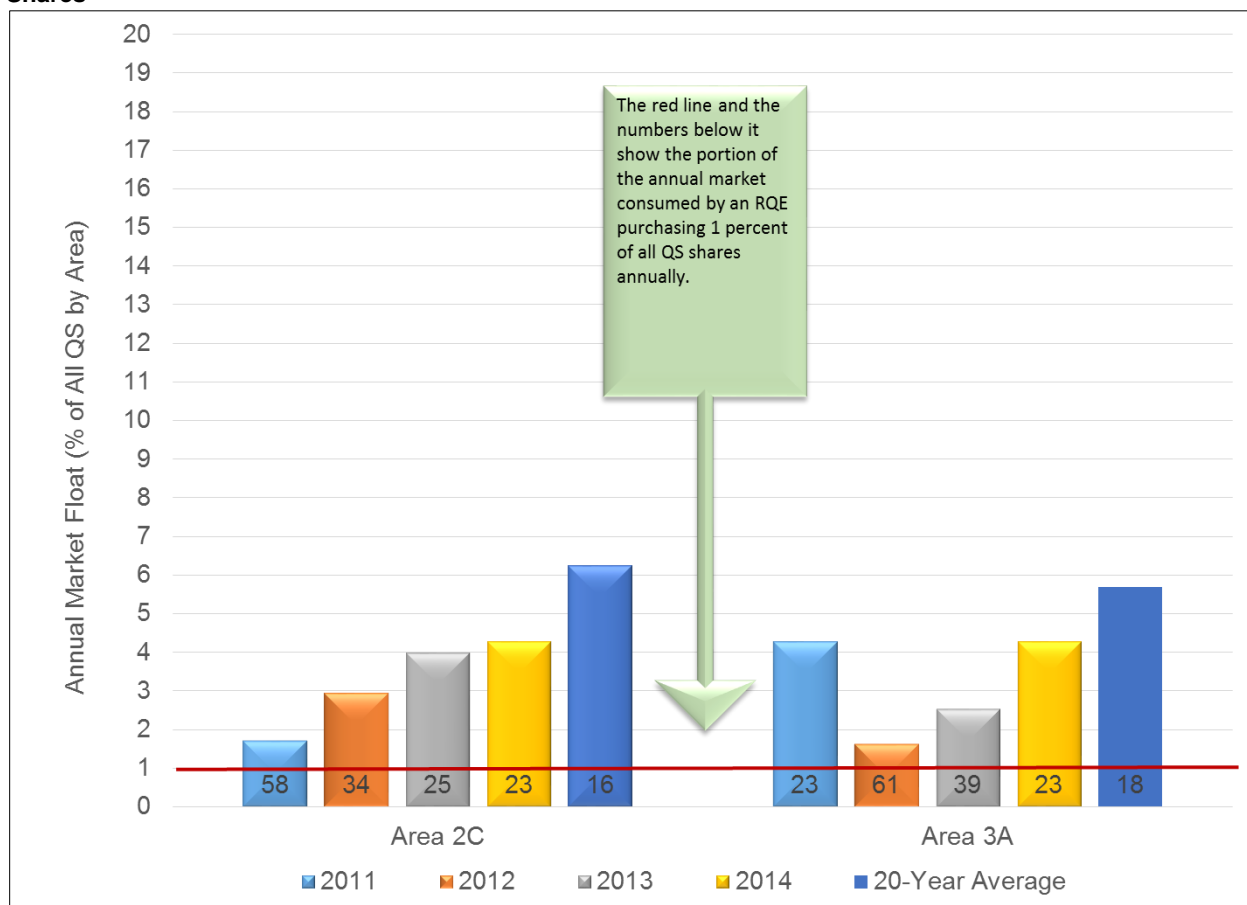
1. A prohibition on D-Class commercial QS by an RQE.
2. Restricting (prohibiting) the purchase of blocked QS by class that equates to less than or equal to 1,500 pounds or 2,000 pounds in 2015 lb.

3. Prohibiting an RQE from purchasing a percentage of blocked QS above the less than or equal to 1,500 pounds or 2,000 pounds in 2015 lb with potential options of 50 percent, 75 percent, or 100 percent.

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 affect 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 4-18).

Figure 4-18 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).

4.8.1.3.1 Effects on Element 2, Option 3, Sub-Option 1 on Program Efficacy

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 2,529,096 units to 10,116,384 (Table 4-49). 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 4-49 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					Historical Abundance (1995-2007)
		2011	2012	2013	2014	2015	
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 74 inches. In the restricted scenario, the Area 2C fishery would have seen its reverse slot bottom stay at 48 inches but with the upper slot being at 76 inches; 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 4-19).

Figure 4-19 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	3	1	UCA	UCA	UCA	UCA	UCA	UCA	UCA	UCA	UCA
36	14	12	10	8	6	4	2	UCA	UCA	UCA	UCA	UCA	UCA	UCA	UCA	UCA
37	15	13	11	9	7	5	3	1	UCA	UCA	UCA	UCA	UCA	UCA	UCA	UCA
38	16	14	12	10	8	6	4	2	1	UCA	UCA	UCA	UCA	UCA	UCA	UCA
39	17	15	13	10	9	7	5	3	2	1	UCA	UCA	UCA	UCA	UCA	UCA
40	17	15	13	11	9	8	6	4	3	2	1	UCA	UCA	UCA	UCA	UCA
41	18	16	14	12	10	9	7	5	4	3	2	1	UCA	UCA	UCA	UCA
42	19	17	15	13	11	9	7	5	4	3	2	2	1	UCA	UCA	UCA
43	19	17	15	13	12	10	8	6	5	4	3	2	2	1	1	1
44	20	18	16	14	12	11	9	7	6	5	4	3	3	2	2	1
45	N/A	19	17	15	13	12	10	8	7	6	5	4	4	3	3	2
46	N/A	19	18	16	14	13	11	9	8	7	6	5	4	4	4	3
47	N/A	20	19	17	15	14	12	10	9	8	7	6	5	5	5	4
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). Note: Cells denoted UCA are available under the current allocation.

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 five percent allowance. That said, number of “not achievable” regulatory options increases from 56 to 76 between the “with” and “without” scenarios (Figure 4-20).

Figure 4-20 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	1	UCA	UCA	UCA	UCA	UCA	UCA	UCA	UCA
36	N/A	N/A	19	15	13	10	7	3	2	UCA	UCA	UCA	UCA	UCA	UCA	UCA
37	N/A	N/A	20	17	14	11	8	4	3	1	UCA	UCA	UCA	UCA	UCA	UCA
38	N/A	N/A	N/A	18	15	13	10	6	5	3	1	UCA	UCA	UCA	UCA	UCA
39	N/A	N/A	N/A	19	17	14	11	8	6	4	3	2	UCA	UCA	UCA	UCA
40	N/A	N/A	N/A	N/A	18	15	12	9	7	6	4	3	2	1	1	UCA
41	N/A	N/A	N/A	N/A	19	17	14	10	9	7	5	4	3	2	2	1
42	N/A	N/A	N/A	N/A	20	18	15	11	10	8	7	6	4	3	3	3
43	N/A	N/A	N/A	N/A	N/A	19	16	13	11	9	8	7	5	5	4	4
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). Note: Cells denoted UCA are available under the current allocation.

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 (Table 4-50). 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 4-50 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					Historical Abundance (1995-2007)
		2011	2012	2013	2014	2015	
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 4-21).

Figure 4-21 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	UCA	UCA	UCA	1	2	2	2	3	3	3	3
27	UCA	UCA	UCA	2	2	3	3	3	3	3	3
28	UCA	UCA	1	3	3	4	4	4	4	4	4
29	UCA	UCA	1	3	4	4	4	5	5	5	5
30	UCA	UCA	2	4	5	5	5	5	6	6	6
31	UCA	UCA	2	4	5	6	6	6	6	6	6
32	UCA	UCA	3	5	6	6	7	7	7	7	7
33	UCA	1	3	6	6	7	7	7	7	7	7
34	UCA	1	4	6	7	7	8	8	8	8	8
35	UCA	1	4	6	7	8	8	8	8	8	8
36	UCA	2	4	7	8	8	8	8	9	9	9
37	UCA	2	5	7	8	8	9	9	9	9	9
38	UCA	2	5	7	8	9	9	9	9	9	9
39	UCA	2	5	7	8	9	9	9	9	9	10
40	UCA	2	5	8	8	9	9	9	9	10	10
41	UCA	3	5	8	9	9	9	10	10	10	10
42	UCA	3	6	8	9	9	10	10	10	10	10
43	UCA	3	6	8	9	9	10	10	10	10	10
44	UCA	3	6	8	9	10	10	10	10	10	10
45	UCA	3	6	8	9	10	10	10	10	10	10
46	UCA	3	6	8	9	10	10	10	10	10	11
47	UCA	3	6	9	9	10	10	10	10	11	11
48	UCA	3	6	9	9	10	10	10	11	11	11
49	UCA	3	6	9	10	10	10	11	11	11	11
50	UCA	4	6	9	10	10	11	11	11	11	11

Source: Northern Economics, Inc. estimates from ADF&G (2015) and NOAA (2015a). Note: Cells denoted UCA are available under the current allocation.

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 five percent of the 3A QS pool (Figure 4-22).

Figure 4-22 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	UCA	UCA	UCA	UCA	UCA	UCA	UCA	UCA	UCA	UCA	UCA
27	UCA	UCA	UCA	UCA	UCA	UCA	UCA	UCA	UCA	UCA	UCA
28	UCA	UCA	UCA	UCA	UCA	UCA	UCA	UCA	UCA	UCA	UCA
29	UCA	UCA	UCA	UCA	UCA	UCA	UCA	UCA	UCA	UCA	UCA
30	UCA	UCA	UCA	UCA	UCA	UCA	UCA	UCA	UCA	UCA	UCA
31	UCA	UCA	UCA	UCA	UCA	UCA	UCA	UCA	UCA	UCA	UCA
32	UCA	UCA	UCA	UCA	UCA	UCA	UCA	UCA	UCA	UCA	UCA
33	UCA	UCA	UCA	UCA	UCA	UCA	UCA	UCA	UCA	UCA	UCA
34	UCA	UCA	UCA	UCA	UCA	UCA	UCA	UCA	UCA	UCA	UCA
35	UCA	UCA	UCA	UCA	UCA	UCA	UCA	UCA	UCA	UCA	UCA
36	UCA	UCA	UCA	UCA	UCA	UCA	UCA	UCA	UCA	UCA	UCA
37	UCA	UCA	UCA	UCA	UCA	UCA	UCA	UCA	UCA	UCA	UCA
38	UCA	UCA	UCA	UCA	UCA	UCA	UCA	UCA	UCA	UCA	UCA
39	UCA	UCA	UCA	UCA	UCA	UCA	UCA	UCA	UCA	UCA	UCA
40	UCA	UCA	UCA	UCA	UCA	UCA	UCA	UCA	UCA	UCA	UCA
41	UCA	UCA	UCA	UCA	UCA	UCA	UCA	UCA	UCA	UCA	UCA
42	UCA	UCA	UCA	UCA	UCA	UCA	UCA	UCA	UCA	UCA	UCA
43	UCA	UCA	UCA	UCA	UCA	UCA	UCA	UCA	UCA	UCA	UCA
44	UCA	UCA	UCA	UCA	UCA	UCA	UCA	UCA	UCA	UCA	UCA
45	UCA	UCA	UCA	UCA	UCA	UCA	UCA	UCA	UCA	UCA	UCA
46	UCA	UCA	UCA	UCA	UCA	UCA	UCA	UCA	UCA	UCA	UCA
47	UCA	UCA	UCA	UCA	UCA	UCA	UCA	UCA	UCA	UCA	UCA
48	UCA	UCA	UCA	UCA	UCA	UCA	UCA	UCA	UCA	UCA	UCA
49	UCA	UCA	UCA	UCA	UCA	UCA	UCA	UCA	UCA	UCA	UCA
50	UCA	UCA	UCA	UCA	UCA	UCA	UCA	UCA	UCA	UCA	UCA

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

Note: Cells denoted UCA are available under the current allocation.

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 $\leq 1,500$ 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 4-51).

Table 4-51 Blocked QS Less than or Equal to 1,500 lb or 2,000 lb in 2015, Area 2C

Class	Total Shares	QS from 2015 Blocks \leq		Percent of Class QS	
		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 4-52).

Table 4-52 Blocked QS Less than or Equal to 1,500 lb or 2,000 lb in 2015, Area 3A

Class	Total Shares	QS from 2015 Blocks \leq		Percent of Class QS	
		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).

4.8.1.3.2 Effect of Element 2, Option 4, Sub-Option 2 on Annual Transfer Limits

As one might expect based on the results discussed above, preventing the RQE from purchasing $\leq 1,500$ pound blocks or $\leq 2,000$ 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 $\leq 1,500$ 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 $\leq 2,000$ 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 4-53). The analysis notes that the 0.5 percent annual transfer limit would result in very small amounts of QS moving each year.

Table 4-53 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)					
			0.5	1	2	3	4	5
No Exclusions								
2011	59,477,396	25.56	0.012	0.023	0.047	0.070	0.093	0.116
2012	59,477,396	22.70	0.013	0.026	0.052	0.079	0.105	0.131
2013	59,477,396	20.05	0.015	0.030	0.059	0.089	0.119	0.148
2014	59,477,396	17.94	0.017	0.033	0.066	0.099	0.133	0.166
2015	59,477,396	16.17	0.019	0.037	0.074	0.110	0.147	0.184
Excluding D-Class								
2011	50,581,920	25.56	0.010	0.020	0.040	0.059	0.079	0.099
2012	50,581,920	22.70	0.011	0.022	0.045	0.067	0.089	0.111
2013	50,581,920	20.05	0.013	0.025	0.050	0.076	0.101	0.126
2014	50,581,920	17.94	0.014	0.028	0.056	0.085	0.113	0.141
2015	50,581,920	16.17	0.016	0.031	0.063	0.094	0.125	0.156
Excluding ≥1500 lb Blocks								
2011	51,298,804	25.56	0.010	0.020	0.040	0.060	0.080	0.100
2012	51,298,804	22.70	0.012	0.023	0.045	0.068	0.090	0.113
2013	51,298,804	20.05	0.013	0.026	0.051	0.077	0.102	0.128
2014	51,298,804	17.94	0.015	0.029	0.057	0.086	0.114	0.143
2015	51,298,804	16.17	0.016	0.032	0.063	0.095	0.127	0.159
Excluding ≥2000 lb Blocks								
2011	45,575,160	25.56	0.009	0.018	0.036	0.053	0.071	0.089
2012	45,575,160	22.70	0.010	0.020	0.040	0.060	0.080	0.100
2013	45,575,160	20.05	0.012	0.023	0.045	0.068	0.091	0.114
2014	45,575,160	17.94	0.013	0.025	0.051	0.076	0.102	0.127
2015	45,575,160	16.17	0.014	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 $\leq 1,500$ 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 $\leq 2,000$ 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 4-54).

Table 4-54 Comparison of Sub-Option Effects on Annual Transfer Limits, Area 3A

Year	Available QS Units	QS/IFQ Ratio	Pounds of Annual Transfer Allowance (by Percent)					
			0.5	1	2	3	4	5
No Exclusions								
2011	184,893,008	12.88	0.072	0.144	0.287	0.431	0.574	0.718
2012	184,893,008	15.52	0.060	0.119	0.238	0.357	0.477	0.596
2013	184,893,008	16.76	0.055	0.110	0.221	0.331	0.441	0.552
2014	184,893,008	26.27	0.035	0.070	0.141	0.211	0.282	0.352
2015	184,893,008	23.73	0.039	0.078	0.156	0.234	0.312	0.389
Excluding D-Class								
2011	172,219,382	12.88	0.067	0.134	0.267	0.401	0.535	0.669
2012	172,219,382	15.52	0.056	0.111	0.222	0.333	0.444	0.555
2013	172,219,382	16.76	0.052	0.103	0.206	0.308	0.411	0.514
2014	172,219,382	26.27	0.033	0.066	0.131	0.197	0.262	0.328
2015	172,219,382	23.73	0.037	0.073	0.145	0.218	0.290	0.363
Excluding ≥1500 lb Blocks								
2,011	171,537,369	12.88	0.067	0.133	0.266	0.400	0.533	0.666
2,012	171,537,369	15.52	0.056	0.111	0.221	0.332	0.442	0.553
2,013	171,537,369	16.76	0.051	0.102	0.205	0.307	0.409	0.512
2,014	171,537,369	26.27	0.033	0.065	0.131	0.196	0.261	0.326
2,015	171,537,369	23.73	0.036	0.072	0.145	0.217	0.289	0.361
Excluding ≥2000 lb Blocks								
2011	160,533,112	12.88	0.063	0.125	0.249	0.374	0.499	0.623
2012	160,533,112	15.52	0.052	0.103	0.207	0.310	0.414	0.517
2013	160,533,112	16.76	0.048	0.096	0.192	0.287	0.383	0.479
2014	160,533,112	26.27	0.031	0.061	0.122	0.183	0.244	0.306
2015	160,533,112	23.73	0.034	0.068	0.135	0.203	0.271	0.338

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

4.8.1.3.3 Effects of Element 2, Option 4, Sub-Element 2 on Program Efficacy

Block restrictions would trickle through from annual transfer limits to total cumulative limits. Table 4-55 and Table 4-56 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 4-55 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 4-56 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	0.141

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 $\leq 2,000$ 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 seven percent total cumulative limit. However, in a scenario where the Council restricted the ownership of $\leq 2,000$ pound blocks, the Council would need to select a roughly nine percent total cumulative limit (see Table 4-57).²⁷

Table 4-57 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 4-23 and Figure 4-24 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 $\leq 2,000$ 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 4-23 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	3	1	UCA	UCA	UCA	UCA	UCA	UCA	UCA	UCA	UCA
36	14	12	10	8	6	4	2	UCA	UCA	UCA	UCA	UCA	UCA	UCA	UCA	UCA
37	15	13	11	9	7	5	3	1	UCA	UCA	UCA	UCA	UCA	UCA	UCA	UCA
38	16	14	12	10	8	6	4	2	1	UCA	UCA	UCA	UCA	UCA	UCA	UCA
39	16	14	12	10	9	7	5	3	2	1	UCA	UCA	UCA	UCA	UCA	UCA
40	17	15	13	11	9	8	6	4	3	2	1	UCA	UCA	UCA	UCA	UCA
41	18	16	14	12	10	9	7	5	4	3	2	1	UCA	UCA	UCA	UCA
42	18	16	15	12	11	9	7	5	4	3	2	2	1	UCA	UCA	UCA
43	19	17	15	13	11	10	8	6	5	4	3	2	2	1	1	1
44	20	18	16	14	12	11	9	7	6	5	4	3	3	2	2	1
45	20	19	17	15	13	12	10	8	7	6	5	4	4	3	3	2
46	N/A	19	17	15	14	12	11	9	8	7	6	5	4	4	4	3
47	N/A	20	18	16	15	13	11	10	8	8	7	6	5	5	5	4
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). Note: Cells denoted UCA are available under the current allocation.

Figure 4-24 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	4	1	UCA	UCA	UCA	UCA	UCA	UCA	UCA	UCA	UCA
36	16	13	11	9	7	5	3	UCA	UCA	UCA	UCA	UCA	UCA	UCA	UCA	UCA
37	17	14	12	10	8	6	3	1	UCA	UCA	UCA	UCA	UCA	UCA	UCA	UCA
38	18	15	13	11	9	7	5	2	1	UCA	UCA	UCA	UCA	UCA	UCA	UCA
39	18	16	14	12	10	8	6	3	2	1	UCA	UCA	UCA	UCA	UCA	UCA
40	19	17	15	12	10	9	6	4	3	2	1	UCA	UCA	UCA	UCA	UCA
41	20	18	16	13	11	10	7	5	4	3	2	1	UCA	UCA	UCA	UCA
42	N/A	18	16	14	12	10	8	6	5	4	2	2	1	UCA	UCA	UCA
43	N/A	19	17	15	13	11	9	7	6	4	3	3	2	1	1	1
44	N/A	20	18	16	14	12	10	8	7	5	4	4	3	2	2	2
45	N/A	N/A	19	17	15	13	11	9	8	7	5	5	4	3	3	3
46	N/A	N/A	20	17	16	14	12	10	8	7	6	6	5	4	4	4
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). Note: Cells denoted UCA are available under the current allocation.

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 $\leq 1,500$ pound block restriction (see Figure 4-25) and 12 percent under the $\leq 2,000$ pound block restriction (see Figure 4-26). The smallest reverse slot gap that the RQE could reach with a 20 percent cumulative limit would be an U50-O66 regime with the $\leq 1,500$ pound block restriction and U50-O70 regime with the $\leq 2,000$ pound block restriction.

Figure 4-25 Area 2C Charter regulations achievable by cumulative limit based on 2015 estimates of harvest and average fish size and 2011 QS/IFQ ratio, No $\leq 1,500$ 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	1	UCA	UCA	UCA	UCA	UCA	UCA	UCA	UCA
36	N/A	N/A	19	15	12	10	7	3	1	UCA	UCA	UCA	UCA	UCA	UCA	UCA
37	N/A	N/A	20	16	14	11	8	4	3	1	UCA	UCA	UCA	UCA	UCA	UCA
38	N/A	N/A	N/A	18	15	13	10	6	5	3	1	UCA	UCA	UCA	UCA	UCA
39	N/A	N/A	N/A	19	16	14	11	8	6	4	3	2	UCA	UCA	UCA	UCA
40	N/A	N/A	N/A	20	18	15	12	9	7	5	4	3	2	1	1	UCA
41	N/A	N/A	N/A	N/A	19	17	13	10	8	7	5	4	3	2	2	1
42	N/A	N/A	N/A	N/A	20	18	14	11	10	8	6	5	4	3	3	3
43	N/A	N/A	N/A	N/A	N/A	19	15	12	11	9	8	7	5	5	4	4
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). Note: Cells denoted UCA are available under the current allocation.

Figure 4-26 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	2	UCA	UCA	UCA	UCA	UCA	UCA	UCA	UCA
36	N/A	N/A	N/A	17	14	11	7	4	2	UCA	UCA	UCA	UCA	UCA	UCA	UCA
37	N/A	N/A	N/A	18	15	12	9	5	3	1	UCA	UCA	UCA	UCA	UCA	UCA
38	N/A	N/A	N/A	20	17	14	11	7	5	3	1	UCA	UCA	UCA	UCA	UCA
39	N/A	N/A	N/A	N/A	18	16	12	8	6	5	3	2	UCA	UCA	UCA	UCA
40	N/A	N/A	N/A	N/A	20	17	13	10	8	6	4	3	2	1	1	UCA
41	N/A	N/A	N/A	N/A	N/A	19	15	11	9	8	6	5	4	3	2	2
42	N/A	N/A	N/A	N/A	N/A	20	16	13	11	9	7	6	5	4	4	3
43	N/A	N/A	N/A	N/A	N/A	N/A	17	14	12	10	8	7	6	5	5	4
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). Note: Cells denoted UCA are available under the current allocation.

Within Area 3A, the block restrictions would also trickle through from annual transfer limits to total cumulative limits. Table 4-58 and Table 4-59 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 4-58 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 4-59 QS/IFQ Ratio Effect on Total Cumulative Limits with $\leq 2,000$ 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 $\leq 2,000$ 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 $\leq 2,000$ pound blocks, the Council would need to select a roughly seven to eight percent total cumulative limit (see Table 4-60).²⁸

²⁸ The authors note that selecting the $\leq 2,000$ 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 4-60 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 circumstance applies 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. (See Figure 4-27 and Figure 4-28.)

Figure 4-27 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	UCA	UCA	UCA	1	2	2	2	3	3	3	3
27	UCA	UCA	UCA	2	2	3	3	3	3	3	3
28	UCA	UCA	1	3	3	4	4	4	4	4	4
29	UCA	UCA	1	3	4	4	4	5	5	5	5
30	UCA	UCA	2	4	5	5	5	5	6	6	6
31	UCA	UCA	2	4	5	6	6	6	6	6	6
32	UCA	UCA	3	5	6	6	7	7	7	7	7
33	UCA	1	3	6	6	7	7	7	7	7	8
34	UCA	1	4	6	7	7	8	8	8	8	8
35	UCA	1	4	6	7	8	8	8	8	8	8
36	UCA	2	4	7	8	8	8	9	9	9	9
37	UCA	2	5	7	8	8	9	9	9	9	9
38	UCA	2	5	7	8	9	9	9	9	9	9
39	UCA	2	5	8	8	9	9	9	9	9	10
40	UCA	2	5	8	8	9	9	9	10	10	10
41	UCA	3	5	8	9	9	9	10	10	10	10
42	UCA	3	6	8	9	9	10	10	10	10	10
43	UCA	3	6	8	9	10	10	10	10	10	10
44	UCA	3	6	8	9	10	10	10	10	10	10
45	UCA	3	6	8	9	10	10	10	10	10	10
46	UCA	3	6	9	9	10	10	10	10	10	11
47	UCA	3	6	9	9	10	10	10	10	11	11
48	UCA	3	6	9	9	10	10	10	11	11	11
49	UCA	3	6	9	10	10	10	11	11	11	11
50	UCA	4	6	9	10	10	11	11	11	11	11

Source: Northern Economics, Inc. estimates from ADF&G (2015) and NOAA (2015a). Note: Cells denoted UCA are available under the current allocation.

Figure 4-28 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	UCA	UCA	UCA	1	2	2	3	3	3	3	3
27	UCA	UCA	UCA	2	2	3	3	3	3	3	4
28	UCA	UCA	1	3	3	4	4	4	4	4	5
29	UCA	UCA	1	3	4	4	5	5	5	5	5
30	UCA	UCA	2	4	5	5	6	6	6	6	6
31	UCA	UCA	2	5	5	6	6	6	6	7	7
32	UCA	UCA	3	6	6	7	7	7	7	7	8
33	UCA	1	4	6	7	7	8	8	8	8	8
34	UCA	1	4	6	7	8	8	8	8	8	9
35	UCA	1	4	7	8	8	8	9	9	9	9
36	UCA	2	5	7	8	9	9	9	9	9	9
37	UCA	2	5	7	8	9	9	9	9	9	10
38	UCA	2	5	8	9	9	9	10	10	10	10
39	UCA	2	5	8	9	9	10	10	10	10	10
40	UCA	3	6	8	9	10	10	10	10	10	10
41	UCA	3	6	8	9	10	10	10	10	10	11
42	UCA	3	6	9	9	10	10	10	10	11	11
43	UCA	3	6	9	10	10	10	11	11	11	11
44	UCA	3	6	9	10	10	11	11	11	11	11
45	UCA	3	6	9	10	10	11	11	11	11	11
46	UCA	3	6	9	10	10	11	11	11	11	11
47	UCA	3	7	9	10	11	11	11	11	11	11
48	UCA	4	7	9	10	11	11	11	11	11	11
49	UCA	4	7	9	10	11	11	11	11	12	12
50	UCA	4	7	10	10	11	11	12	12	12	12

Source: Northern Economics, Inc. estimates from ADF&G (2015) and NOAA (2015a). Note: Cells denoted UCA are available under the current allocation.

4.8.1.3.4 Comparison of Element 2 Options and Combinations through Option 4, Sub-Options 1 and 2

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 4-61 compares the effect of the options and 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 achieved one 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 4-61 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 4-62 provides the same comparison as Table 4-61 for Area 2C, but under 2011 stock conditions. With no restrictions, the best option would be 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

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.

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.

Table 4-62 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 five percent minimum allowance under consideration by the Council. Under 2015 conditions, an unrestricted five 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 (See Table 4-63).

Table 4-63 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 indicates allowances that would allow managers to select a maximum size on the second fish larger than 50" in length or relax the five-fish annual limit or eliminate the day of the week closure.

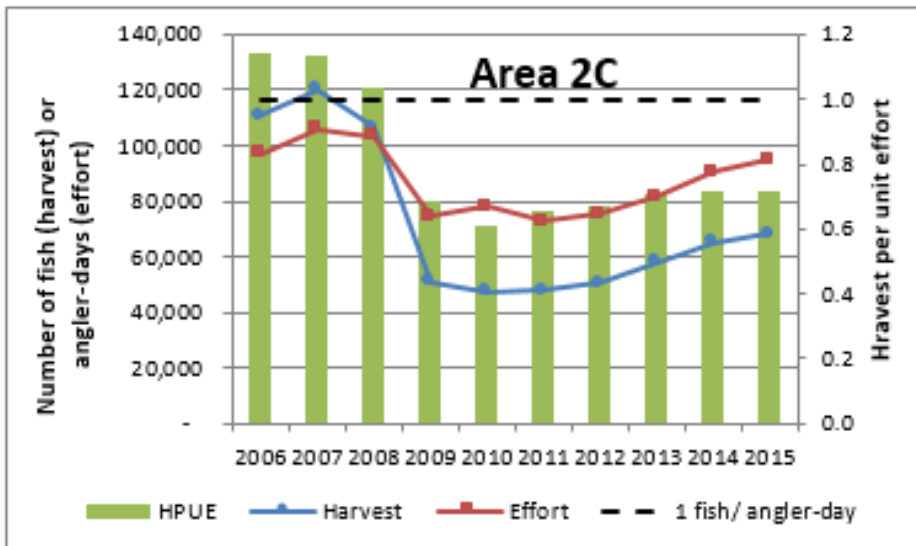
Source: Northern Economics, Inc. estimates from ADF&G (2015) and NOAA (2015a).

Angler demand is held constant at 2015 levels in Table 4-61 through Table 4-63 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, the CHP program and its associated restrictions,³⁰ only indirectly caps angler effort. Variability in angler effort itself depends on a suite of other exogenous factors, for example changes in angler demand, ocean and weather conditions, or the management measures chosen (e.g., day of the week closure).

Change in angler effort in this analysis is considered in terms of a change in number of angler-trips taken. Effort (number of angler-trips), along with harvest (number of fish), and harvest per unit effort is shown for Area 2C in Figure 4-29 and for Area 3A in Figure 4-30. Both Area 2C and Area 3A demonstrate a noteworthy decline in effort (as well as harvest) between 2008 and 2009. An influential factor for Area 2C was likely the shift in regulations from a two fish bag-limit (1 U32) to a one fish of any size management regime. As would be expected, harvest per unit effort fell below 1 fish per person during 2009 in Area 2C. However, the number of angler-days dropped off substantially as well. Possibly anglers were choosing not to fish or to fish other species due to an aversion to the lower bag limit. Area 3A had the same management measures for 2008 and 2009 and also demonstrated a decline in angler-effort between 2007 and 2009. One likely contributing factors to change in effort in both areas was the declining state of the U.S. economy after 2008, which could particularly impact non-Alaskan charter anglers. Section 4.8.2.1.1 continues the discussion of impacts on charter anglers and angler effort.

³⁰ CHPs have a designated number of anglers that are endorsed to fish halibut on their vessel in a given trip. In addition, Area 3A management measures have limited a CHP to one trip per day beginning in 2014.

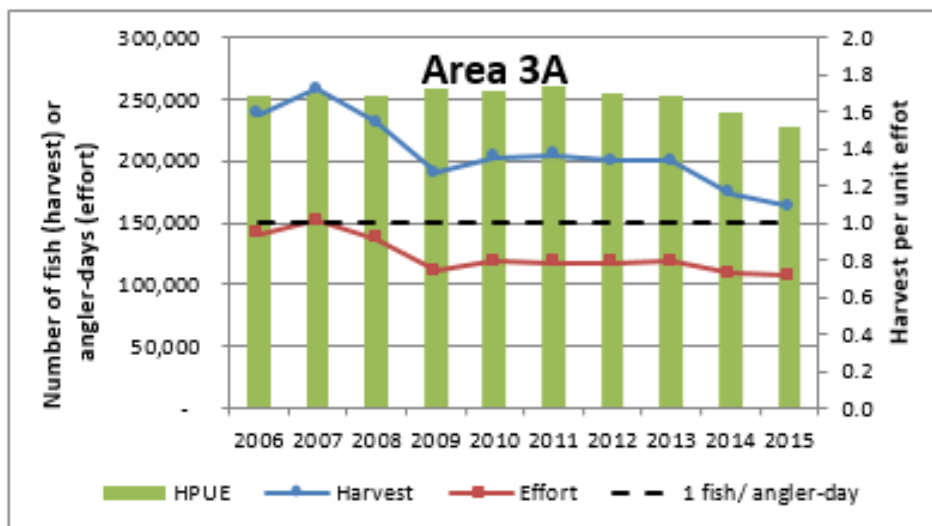
Figure 4-29 Change in effort, harvest, and harvest per unit effort in Area 2C, 2006 through 2015



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 4-30 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.

4.8.1.3.5 Effect of Element 2, Option 4, Sub-Option 3

Element 2, Option 4, Sub-Option 3 would prohibit an RQE from purchasing a 25, 50, 75, or 100 percent of blocks of quota with poundages greater than the 1,500 and 2,000 pound levels specified in **Element 2, Option 4, Sub-Option 2**. Realizing the analytical complexity of the sub-option, Council members indicated during their April 2016 meeting that they wanted the analysis for this sub-option to focus on helping them understand the structure of the QS holdings and provide a generalized idea of what type of program and market effects could occur if larger blocks were restricted. In addition, the Council indicated that their intent would be for this sub-option to come be additive to **Sub-Option 2** and that they did not intend at that time

for restrictions on large block purchases to be selected without providing similar protection to small blocks first.

Sub-Option 2 would restrict an RQE from purchasing small blocks at or below 1,500 pounds or 2,000 pounds in 2015. This sub-option would restrict the purchase of 49 percent or 63 percent of all blocks in Area 2C, depending on the block size standard. In Area 3A, the sub-option would remove 51 percent or 67 percent of all area blocks depending on the size standard. **Sub-Option 1** would prohibit the purchase of D-class shares whether in small blocks, larger blocks or unblocked status. Combining this sub-option would result in restricting the purchase of 59 percent or 69 percent of all blocks in Area 2C and 59 percent or 71 percent of all blocks in Area 3A. Table 4-64 shows blocks by size status, area, and vessel class.

Table 4-64 Blocks per Area 2015

Class	Area 2C		Area 3A	
	Blocked, but Not Small	Small Blocks	Blocked, but Not Small	Small Blocks
≤1,500 lb Small Block Standard				
A	13	5	11	9
B	26	13	76	42
C	537	314	551	393
D	136	353	132	356
≤2,000 lb Small Block Standard				
A	9	9	6	14
B	19	20	61	57
C	410	441	393	551
D	74	415	49	439

Source: RAM Division, NMFS sourced through AKFIN

It is also necessary to understand the distribution of QS between vessel classes and then between blocked and unblocked units above the 1,500 pound and 2,000 pound threshold established by the Council's motion. In Area 2C, 13.8 percent of all QS is ≤1,500 pound small block QS with that percentage increasing to 23.4 percent if the ≤2,000 pound standard is used (see Table 4-65). These QS units are the ones that would be affected by the adoption of **Sub-option 2**. As previously noted, there is substantial overlap between the small block standard and D-Class QS. The additional non-small block D-Class QS is 5.9 percent of all QS with the ≤2,000 pound standard and 8.8 percent of all QS with the ≤1,500 pound standard. These are the units affected by **Sub-option 1**. Both of these affected groups of QS are shaded blue in the table and the effects of precluding an RQE from buying these is analyzed in the preceding section. In looking at the remaining unshaded cells in the table it is evident that the only major sources of QS left in Area 2C are blocked C-Class QS which don't meet the small block standards and unblocked C-Class. Non-qualifying blocked C-Class is 39.1 percent or 45.2 percent of Area QS while the unblocked C-Class QS is 25.9 percent of all Area QS.

Table 4-65 Distribution (%) of 2015 Area 2C QS by Vessel Class and Block Status

Vessel Class	Blocked, but Not Small	Small Blocks	Unblocked	Total
<u>≤1,500 lb Small Block Standard</u>				
A	1.0	0.1	1.0	2.1
B	2.1	0.3	2.1	4.5
C	45.2	7.3	25.9	78.5
D	8.8	6.1	0.1	15.0
Total	57.0	13.8	29.2	100.0
<u>≤2,000 lb Small Block Standard</u>				
A	0.8	0.3	1.0	2.1
B	1.7	0.6	2.1	4.5
C	39.1	13.4	25.9	78.5
D	5.8	9.1	0.1	15.0
Total	47.4	23.4	29.2	100.0

Source: RAM Division, NMFS sourced through AKFIN

The analysis in Sections 4.8.1.3.1–4.8.1.3.4 showed that protecting D-Class and small blocks below 1,500 or 2,000 pounds would have a relatively small effect on overall program effectiveness. Those two actions remove 22.7 percent or 29.3 percent of all QS from the potential RQE market, and they essentially leave large block and unblocked C-Class as the only real source of QS for an RQE. The overall effect of **Sub-option 3** in Area 2C will almost entirely be determined by whether the Council prohibits the RQE from holding large block C-Class QS.

To inform the Council of how the large block prohibition would affect the program's efficacy, the analysis compares unrestricted program efficacy with the D-Class/small block combination, and then 25 percent, 50 percent, 75 percent, and 100 percent restrictions on C-Class large blocks at the 1,500 pound standard and in low (2011) biomass conditions. In Area 2C, the program's performance is measurably degraded by the addition of large C-block exclusions IF the block exclusion also affects the eligible pool to which the cumulative cap applies as it does for **Sub-option 1**. For example, presuming the Council's preliminary preferred alternative of a 10 percent maximum cumulative cap, an RQE holding 10 percent would be able to move the size restriction on the single fish in an angler's daily bag limit from the one fish under 37 inches seen in 2011 to one fish under 48 and over 76 inches. The liberalized regulation shrinks to one fish under 47 and over 80 with the exclusion of D-Class shares and small blocks. However, the addition of excluding large C-block results in a wider reverse slot limit with the maximum lower size limit slipping from U47 down to U46 (at 25 percent), U45 (50 percent), U44 (75 percent), and then down to U43 at 100 percent exclusion (see Table 4-66). It is important to note that if the C-block exclusion does not apply to the cumulative cap calculation then Table 4-66. can be ignored and the negative issues associated with large block exclusion apply primarily to market effects. The analysts request the Council clarify whether or not the sub-option applies to the cumulative cap calculation.

Table 4-66 Program Efficacy Element 2, Sub-Option 3, Area 2C 2011 Stock Conditions/2015 Demand

Cumulative Cap (Percent)	No Restrictions	No Small Blocks and D-Class	Large C-Block Exclusion Rate (%)			
			25	50	75	100
5	U44-O76	U43-O76	U43-O78	U43-O80	U42-O78	U42-O80
6	U44-O74	U44-O78	U44-O80	U43-O78	U43-O80	U42-O79
7	U46-O78	U45-O80	U44-O78	U44-O80	U43-O78	U42-O76
8	U47-O80	U45-O76	U45-O80	U44-O79	U43-O76	U43-O80
9	U48-O80	U46-O80	U45-O78	U44-O78	U44-O80	U43-O78
10	U48-O76	U47-O80	U46-O80	U45-O80	U44-O76	U43-O76
11	U49-O76	U47-O76	U46-O76	U45-O76	U44-O75	U44-O80
12	U50-O78	U48-O80	U47-O80	U46-O80	U45-O80	U44-O79
13	U50-O74	U48-O74	U48-O80	U46-O76	U45-O76	U44-O76
14	U50-O72	U49-O78	U48-O76	U46-O80	U46-O80	U44-O76
15	U50-O70	U50-O80	U48-O74	U47-O76	U46-O76	U45-O80
16	U50-O68	U50-O76	U49-O78	U48-O78	U46-O75	U45-O76
17	U46-O62	U50-O74	U49-O76	U48-O76	U47-O80	U46-O80
18	U50-O66	U50-O72	U50-O76	U49-O80	U48-O80	U46-O79
19	U50-O64	U50-O70	U50-O74	U49-O76	U48-O79	U46-O76
20	U49-O62	U49-O68	U49-O70	U50-O80	U48-O76	U46-O75

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

Blocked QS are a much smaller portion of the Area 3A quota pool. In total, just 35.3 percent of all QS are blocked compared to 70.8 percent of all Area 2C QS (Table 4-67). As in Area 2C, a large block C-Class is the major source of large-block QS after removing D-Class and accounts for 85 percent of all large blocked QS after removing D-Class shares. Here again, the overall effect of large block prohibition will really depend how the Council acts with regard to C-Class shares. The difference between Area 3A and Area 2C is that even if the Council were to prohibit the ownership of all large-block C-Class shares, all D-Class shares, and all small blocks, that there would still be 67.7 percent of all QS which the RQE could compete to purchase.

Table 4-67 Distribution (%) of 2015 Area 3A QS by Vessel Class and Block Status

Vessel Class	Blocked, but Not		Unblocked	Total
	Small	Small Blocks		
<1,500 lb Small Block Standard				
A	0.4	0.0	2.2	2.6
B	3.3	0.5	33.3	37.1
C	20.7	4.3	28.5	53.5
D	3.8	2.4	0.7	6.8
Total	28.1	7.2	64.7	100.0
<2,000 lb Small Block Standard				
A	0.3	0.1	2.2	2.6
B	2.9	0.8	33.3	37.1
C	17.0	7.9	28.5	53.5
D	1.9	4.3	0.7	6.8
Total	22.2	13.2	64.7	100.0

Source: RAM Division, NMFS sourced through AKFIN

While excluding large blocks would also affect program performance in Area 3A, the effects are not as significant as in Area 2C with the exception of at lower cap ownership levels. For example, with a 100 percent exclusion on large C-block ownership an RQE at a 5 percent ownership level would need that 5 percent simply to provide the 2015 maximum size limit on the second fish of 29 inches. If the RQE is able to own 12 percent or more of the allowable QS pool, and owns that amount, then the RQE can come close to a 50-inch size limit on the second fish even if large portions of C-Class are restricted (see Table 4-68). As in the Area 2C discussion, Table 4-68 presumes that the Council's intent is similar to that for **Sub-option 1** where preclusion from ownership also excludes QS from the pool to which the cumulative cap percentage applies. If that is not the Council's intent, then Table 4-68 can be ignored and the issues of excluding large blocks are primarily market related.

Table 4-68 Program Efficacy Element 2, Sub-Option 3, Area 3A 2011 Stock Conditions/2015 Demand

Cumulative Cap (Percent)	No Restrictions	No Blocks and D- Class	Large C-Block Exclusion Rate (%)			
			25	50	75	100
5	U32	U31	U30	U30	U30	U29
6	U34	U32	U32	U31	U31	U30
7	U38	U35	U34	U33	U32	U32
8	U44	U38	U37	U35	U34	U33
9	U50	U44	U41	U38	U37	U35
10	In this area regulators can choose between liberalizing the 5-fish annual limit or relaxing the size restriction.	U50	U48	U44	U41	U38
11			U50	U50	U48	U43
12					U50	U49
13						U50
14						
15						
16						
17						
18						
19						
20						

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

4.8.1.4 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 2015 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)
- **Sub-option 5**-50% equally to all CQEs actively participating in Area 2C/3A and either 1) 50% equally to all catcher vessel QS holders which hold not more than 1,500 to 3,000 pounds in 2015 pounds (by area proportional to QS holdings); or 2) equally to all catcher vessel QS holders (by area, proportional to QS holdings and based on the percent of each class of QS purchased by the RQE).

As specified by the option, the analysis focuses 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 4-69 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 4-69). For the other groups:

- There were just over 376 QS owners who held 1,500 pounds of IFQ or less in 2015. This group represented 37.9 percent of all QS owners but held just 5.5 percent of all QS units. Their average 2015 poundage was 537 pounds of IFQ 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 IFQ 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 of IFQ in 2015, while the median holding was 717 pounds.
- Owners with 3,000 pounds of IFQ 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 the median holding was 856 pounds.

³¹ NOAA RAM Division notes that defining Sub-option 1 and Sub-option 5 as benefiting QS holders that do not hold more than 1,500 to 3,000 pounds in 2015 pounds, creates more administrative challenges than if the Council considered QS holders that do not hold more than 1,500 to 3,000 pounds in *the current year's pounds*.

Table 4-69 2015 QS and IFQ Holders in Area 2C, 2015 data³²

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 the total combined catch limit reached 15 Mlb (see Table 4-70). 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 4-70 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 occurring 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 GHF 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 ownership 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 4-70 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

Note: 2016 ACCL levels are bolded.

Apparent from Table 4-70 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 presumably very rare and/ or expensive (See 4.8.1.9 on Program costs) 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 owner and the program will involve millions of dollars of compensated reallocation (see Section 4.8.1.9). For discussion purposes, Table 4-71 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 received less than 100 pounds of IFQ in 2015. For these individuals,

the addition of 266 pounds would more than triple their holdings and might raise question about whether the IFQ is being distributed to individuals who actually invest significantly in the fishery.

Table 4-71 Effect of High Abundance Re-allocation on QS Holders, Area 2C

Distribution Group	Pounds Reallocated			
	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 4-72). For the other groups:

- There were just over 370 QS owners who held 1,500 pounds of IFQ 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 of IFQ 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 were issued 658 pounds of IFQ with a median of 445 pounds.
- The 2,500 pounds of IFQ 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 of IFQ in 2015 while the median holding was 794 pounds.
- Owners with 3,000 pounds of IFQ 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 the median holding was 938 pounds.

Table 4-72 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 Milb and 3.4 Milb 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 4-73 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 box around the last six rows). Even under 5 to 10 percent allowances, reallocations could occur between ACCLs of 11 to 15 Mlb.

Table 4-73 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

Note: 2016 ACCL levels are bolded.

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 purposes, Table 4-74 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 4-74 Effect of High Abundance Re-allocation on QS Holders, Area 3A

Distribution Group	Pounds Reallocated			
	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 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, potentially stranding IFQ.

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 sectors. It is possible that an RQE could sell what it perceived to be excess QS back in this situation, but it would need to balance its long-term expectations for the halibut stock with the price of QS, angler demand, and the opportunity cost of carrying excess QS.

Under **Sub-option 5**, NMFS would split excess QS equally between all CQEs actively participating in Area 2C/3A and either 1) all catcher vessel QS holders which hold not more than 1,500 to 3,000 pounds in 2015 pounds (by area proportional to QS holdings); or 2) all catcher vessel QS holders (by area, proportional to QS holdings and based on the percent of each class of QS purchased by the RQE). This option essentially combines **Sub-option 3** with either **Sub-option 1** or **Sub-option 2**.

For individual QS holders, the effect of this sub-option relative to **Sub-option 1** or **Sub-option 2** is that it halves the effect of those sub-options. Instead of reallocating 100 percent of the returned IFQ to catcher-vessels, Sub-option 5 only returns 50 percent of that amount. While this change is clearly a substantial reduction from **Sub-option 1** or **Sub-option 2**, large reallocations would still result in substantial percentage increases in effective QS holding across all classes (see Table 4-75 and Table 4-76).

Table 4-75 Effect of High Abundance Re-allocation on QS Holders, Area 2C in Sub-Option 5

Distribution Group	Pounds Reallocated			
	100,000	250,000	500,000	1,000,000
Pounds of Additional Quota				
All QS Holders	50	126	252	504
<1,500 Pounds	133	332	665	1,330
<2,000 Pounds	115	287	573	1,147
Percent Increase in Median Quota				
All QS Holders	2	5	10	20
<1,500 Pounds	32	80	159	319
<2,000 Pounds	21	53	105	211

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

Table 4-76 Effect of High Abundance Re-allocation on QS Holders, Area 3A in Sub-Option 5

Distribution Group	Pounds Reallocated			
	100,000	250,000	500,000	1,000,000
Pounds of Additional Quota				
All QS Holders	40	99	199	398
<1,500 Pounds	134	336	672	1,344
<2,000 Pounds	112	279	558	1,116
Percent Increase in Median Quota				
All QS Holders	1	3	6	12
<1,500 Pounds	48	120	241	481
<2,000 Pounds	25	63	125	251

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

Also, under this sub-option, 50 percent of reallocated halibut would flow to CQEs operating in Area 2C/Area 3A. As noted above, 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 held less than 20,000 pounds of halibut IFQ in 2015 (see Table 4-17). Even with a 50 split between QS holders and the CQEs, the overages in Area 3A could still be many times the current holdings of these CQEs and might exceed their ability to fish the reallocation in the space of one season.

NMFS recommends that the Council select Sub-option 4 to leave any surplus IFQ in the water. It is likely to take several years before the RQE can establish a reliable and consistent source of funding to begin to purchase QS. Meanwhile, the trend in halibut stock abundance is currently unclear. The likelihood of a redistribution is constrained by numerous factors: the Council's selected transfer limits, the cost of QS, the availability of QS for purchase, the halibut stock size, and the RQE's ability to obtain funding.

Additionally, NMFS would incur programming costs associated with developing a system for redistribution of IFQ that may never be utilized. These programming details would have to be completed before a rule to authorize an RQE could be implemented. Programming the NMFS database for temporary redistribution will undoubtedly be complex. The additional complexities of including this component could delay the rulemaking process for the establishment of an RQE, which is the primary objective identified in the Council's purpose and need statement. In addition, the costs of these programming changes would be subject to cost recovery, and those additional costs would be borne by the commercial IFQ fishery. Given the low likelihood that redistribution would occur, these additional costs do not appear warranted. ***NMFS recommends that the Council reconsider a redistribution option under a separate regulatory action after an RQE is established, the trend in halibut stock abundance is clearer, and the rate of QS acquisitions by the RQE can be determined. If, after the RQE is established, it appears that a redistribution provision***

may be necessary, the Council could determine how that redistribution should occur in a future regulatory amendment.

4.8.1.5 Element 4 Limit on Use of 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. In addition, the element contains a single option which would make the RQE responsible for associated IFQ program fees and state and local taxes which would have been directly associated with lost commercial halibut landings.

There are some subtle implications for the RQE associated with the main body of the motion which reads:

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. RQE funds shall not be used directly or indirectly to lobby local, state, or federal officials.

The implications are:

- While the element allows for the RQE to use funds to purchase CHPs, there is nothing in this action or any other program which would allow them to do so at this time (dropping Alternative 3 removed this possibility; see Section 3.3). The language authorizing the RQE to purchase CHPs would have to come from another Council action. What this language means is that the Council would not have to revisit the RQE fund authorization in order to allow it to spend money on the purchase of CHPs under the theoretical future action. There are no legal issues with the Council choosing to leave this language for fund use flexible; however, it may be unnecessarily confusing to allow use of funds without allowing for the actual transactions. Given that the Council would need a separate amendment to facilitate this process anyways, the Council may consider whether these two components of authorization should be linked together.
- The prohibition on using RQE funds to lobby local, state, and federal officials is exceptionally broad and could create administrative challenges for the RQE. For example, this action requires the submittal of an annual report to NMFS. Should the RQE need to appear before NMFS or the Council to discuss the annual report, the RQE would need to make sure that its Executive Director appeared before the agency or the Council without using RQE funds for travel, staff pay, or any other cost which might be incurred for the trip could be perceived as lobbying. Similarly, if the RQE pursues a state halibut charter stamp to help it pay for the costs of purchasing QS, the RQE's Executive Director and other staff could not use RQE funds to pay for travel expense to Juneau to testify or meet with lawmakers. The staff would have to identify a separate funding source willing to pay for their travel and salary expenses while working for the RQE's interests. There are likely to be other circumstances where the normal day-to-day duties of a non-profit director are likely to fall under the ambiguity of the proposed language.

What is clear from the Council's deliberations and the longline sector's testimony is that the Council is seeking a way to prevent RQE funds from being used to increase demand for charter sector services or lobby directly against commercial longline interests outside of the scope of the action discussed in this document. While the proposed language may help achieve those results there is also the possibility that the language could create significant administrative challenges for the RQE which would prevent it from fulfilling the basic needs of a non-governmental organization under federal oversight.

Option 1. RQE will be responsible for associated IFQ Program fees (Observer fees and administrative fees) and fish taxes that are collectible.

The Council's PPA would allow for an RQE to purchase commercial halibut QS, use the resulting IFQ to augment the charter catch limit, and ultimately support charter halibut harvest through relaxed seasonal regulations. Use of this IFQ in the charter sector would inherently result in less IFQ being landed commercially. This may have implications for the revenues that are derived from taxes traditionally levied on the ex-vessel value of the landings of halibut IFQ for commercial participants. If there is no comparable fee in the charter sector, this displaced revenue may have implications on the ability of those revenues to provide their intended service.

Specifically, based on the PPA of **Alternative 2, Element 4, Option 1**, this section is split into three parts evaluating the Council's authority, the implications, and the logistical process of extending fees associated with the 1) IFQ cost recovery program, 2) Federal North Pacific Observer Program (Observer Program), and 3) other fish taxes that are collectible to an entity that represents the halibut charter sector. The implications, authority, and logistical complexity of imposing each type of fee are different. Despite the directive of collecting these fees being listed as a single option, the Council may choose to adopt action separately for each of the types of fees or taxes.

4.8.1.5.1 Federal Cost Recovery Fee

4.8.1.5.1.1 Description of the Issue

An RQE that acquires QS would benefit from the general IFQ Program components that have sunk costs associated with their implementation, and variable cost that allows for these functions to be maintained. For instance, there is a cost associated with the annual issuance of IFQ.

NMFS anticipates increased costs associated with the establishment of an RQE, this would include regulatory changes as well as initial changes to the IFQ Program database to allow for this a new type of QS holding entity. The more complex the restrictions and provisions are, the more challenging and resource-intensive they may be to implement.

For example, the redistribution of "excess" QS (**Alternative 2, Element 3, Option 1, Sub-option 5**) would require a database process to identify current QS holders who do not hold 1,500 or 3,000 pounds of IFQ using the 2015 QS pool, each year in the system, whether redistribution occurs or not. We need another automated process that equally distributes 50 percent of the RQE IFQ to these identified QS holders' IFQ accounts and 50 percent to any active CQE in a year when a redistribution occurs. That IFQ associated with the redistribution would also need to be made distinguishable from other holdings as it would not be transferable during that season. The IFQ transfer code would need to be rewritten so that it ignores these pounds, except when held by a CQE who would be able to lease the redistributed IFQ to a community member.

In addition to the sunk costs of making these database changes to allow for this entity to exist and operate, variable annual costs would be expected associated with the management and enforcement of transfers to this type of entity. Again, the more complex the transfer restrictions, the more difficult they are to manage and enforce.

4.8.1.5.1.2 The Council's Authority

Statutory provisions set forth by §304(d)(2) of the Magnuson-Stevens Act give the Secretary of Commerce authority and directive to collect fees to recover the actual costs directly related to the management, data collection, and enforcement of any limited access privilege programs.

If an RQE is made eligible to acquire Halibut QS and the RQE acquires Halibut QS, then NMFS can collect cost recovery fees from that RQE through the already established IFQ Cost Recovery Program, as the Council's action would be to amend the existing IFQ Program and not establish a new limited access privilege program.

The Secretary of Commerce and NMFS have exercised this authority with a similar program that allows the use of commercial halibut IFQ in the charter fishery, the GAF Program.

4.8.1.5.1.3 Logistics of Levying this Fee

Under **Alternative 2**, halibut QS/IFQ would remain halibut QS/IFQ, regardless of whether it is held and used by a commercial participant, or held by an RQE and used by the charter sector in that area. Under the RQE proposal, this entity's holdings would augment the annual charter catch limit, creating an adjusted charter catch limit, thus allowing for less stringent annual management measures to be set for the following charter season (see Figure 4-2). However, the underlying halibut QS/IFQ still exists. These holdings are permitted to be sold back to a commercial participant, if an RQE so chooses. All of the characteristics originally represented in the QS holdings (size, QS Class, blocked/unblocked) would be retained.

In years where an RQE holds QS, and the IFQ is used to augment the charter sector's catch limit, the charter sector would be effectively using all of this IFQ. While the charter sector has had underages and overages throughout the years, which contributes to the subsequent year's TCEY, additional benefits associated with an increased catch limit impact charter anglers from the very start of the season. Benefits from those additional pounds are enjoyed throughout the season. Therefore, the IFQ pounds would be considered "used" first in the season, and any underages or overages that occur at the end of the season would apply through the remaining catch limit to impact the subsequent year's TCEY, as occurs under status quo.

Section 304(d)(2) of Magnuson-Stevens Act dictates that a cost recovery fee would be collected "...in the calendar year in which the fish is harvested." Through the understanding that all IFQ held by the RQE will be "used", NMFS has the authority to levy the fee estimated by an RQE's annual IFQ pounds that are issued, rather than estimating IFQ harvest at each point of charter landings. Based on the IFQ holdings (i.e., the estimated pounds of halibut landed due to this allocation), the fee would be calculated using the Area-wide standard price (similarly to the price applied through GAF). The IFQ Cost Recovery fee could be levied on an RQE each year the RQE holds QS, and the resulting IFQ is used in the charter sector. Based on the logistics described in **Alternative 2, Element 3, Option 1** this would constitute all holdings acquired before October 1 of the prior year.

In a situation in which an RQE holds QS for an area that already has the least strict management measures available (two fish of any size) and therefore IFQ is allocated to participants of the commercial sector (as specified under **Alternative 2, Element 3, Option 1**), the responsibility of the cost recovery fee would follow the use of that IFQ.

Recovery of these fees would be consistent with the current IFQ Program. 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. Either directly or indirectly, all IFQ users currently support the IFQ cost recovery fee. Users in the commercial halibut fishery pay directly, with a bill charged to the IFQ permit holder (i.e., the user of the IFQ). In contrast, under the current GAF program, the user pays indirectly, as the fee is levied on the QS holder and expenses are expected to be passed on through the transfer price of GAF to the ultimate user of the IFQ. 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 does not track costs associated with GAF separately from other IFQ Program fees.

4.8.1.5.2 Observer Program

4.8.1.5.2.1 Description of the issue

In order to analyze how much of an impact the proposed action may have on the Observer Program, this section begins with a description of the current program coverage as proposed in the draft 2017 Annual Deployment Plan (ADP).³³ The ADP documents how the NMFS intends to assign at-sea and shoreside observers to vessels and processing plants engaged in fishing operations in the North Pacific under the authority of the Magnuson-Stevens Act, the FMP for groundfish of BSAI, the FMP for groundfish of GOA, and the Northern Pacific Halibut Act of 1982. The adaptive ADP process can and has adjusted the selection pool used (trip selection versus vessel selection), the strata defined (based on vessel LOA, based on gear type, and based gear type along with tender use), and the allocation of observer days within each strata throughout the program in an effort to continuously improve on providing the most reliable data and best representation of the fisheries, given the available resources. For this discussion, we use the proposed observer coverage categories from the 2017 ADP (NMFS 2016b) and refer to the Annual Report that analyses the previous years' (2016) realized observer deployment information (NMFS 2016a). However, it is important to note that changes have been made to the partial coverage category trip selection pool for the 2017 ADP as compared to the ADP that was implemented in 2016.

Catcher vessels participating in the commercial halibut IFQ fishery are in the partial coverage observer category under regulations at 50 CFR 679.51(a)(1).³⁴ Observer coverage selection rates for hook and line catcher vessels have ranged from 11% to 24% depending on vessel size and operation type since 2013. In the partial coverage category, NMFS has the flexibility to assign observer coverage when and where it is needed as described in the ADP. The ADP for 2017 describes the partial coverage deployment pools, or "strata" (NMFS 2016b):

- 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 2017 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 2017, 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

³³ Final 2017 ADP will not be released until the December 2016 Council meeting. We rely on the draft ADP presented at the October 2016 Council meeting understanding that while the coverage rate by strata may slightly change during the draft and final versions, the proposed strata for 2017 will remain the same.

³⁴ Freezer longliners retaining halibut fall into the full observer coverage category, unless they are small catcher/processors placed in the partial 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 that had been used on a freezer longliner in full coverage, 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. It may be useful to note that due to the shift to the fresh halibut market after the implementation of the IFQ program, few to zero vessels that have caught halibut in recent years have frozen product onboard (NPFMC 2016). Therefore, few vessels retaining halibut are in the full coverage category.

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.
- Trawl vessels delivering to tenders trip-selection pool: This pool is composed of all catcher vessels in the partial coverage category that are greater than or equal to 40 ft LOA that are fishing trawl gear and delivering to tenders.
- **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.**
- Hook-and-line vessels delivering to tenders trip-selection pool: This pool is composed of all catcher vessels in the partial coverage category that are greater than or equal to 40 ft LOA that are fishing hook-and-line gear and delivering to tenders.
- 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.
- Pot vessels that are delivering to tenders trip-selection pool: This pool is composed of all catcher vessels in the partial coverage category that are greater than or equal to 40 ft LOA that are fishing with pot gear and delivering to tenders.

Almost all vessels that participate in the halibut IFQ fishery are in the partial coverage, and under the 2017 ADP they fall into either 1) the hook-and-line trip-selection pool, or 2) the no selection pool. (Note that halibut longline participants have not delivered to tenders since before the implementation of the IFQ Program (NPFMC 2016b)). All vessels in the partial observer coverage category, 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.³⁵ 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.³⁶

³⁵ Vessels may be in full coverage for some fisheries, and in partial coverage for others.

³⁶ 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.

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 vessels in the partial observer coverage category. The process of creating an ADP allows NMFS the flexibility to adjust observer coverage rates to maintain the collection of high quality data to manage the fisheries. Changes in observer fee receipts and changes in annual projected fishing effort in the partial observer coverage category have an impact on 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. 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. Since 2013, federal funds have subsidized some additional observer coverage (NMFS 2015b). However, these additional funds are not guaranteed and will not be available for the Alaska fisheries in 2017. Consequently, this analysis is based on fees exclusively made available from the observer fee liability that are generated from fees on groundfish and halibut landings.

Therefore, in understanding the potential implications of the Council's PPA in this analysis (allow for the creation of an RQE) analysts are challenged with the questions of 1) **“how much observer fee liability would be foregone if some halibut IFQ were used in the halibut charter sector rather than the commercial fishing sector?”**, and 2) **“how would this action alternative change the demand for the number of observer-days in the partial coverage fleet?”**

Changes in observer fee liability

The first question is analyzed by focusing on 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 PPA of this alternative (under **Alternative 2, Element 2**) details both annual transfer limits, cumulative transfer limits, and prohibitions on acquiring certain kinds of QS. Considering the different types of transfer restrictions provides clear benchmarks for understanding the maximum observer fee liability that may be displaced by allowing a non-commercial entity to hold halibut QS.

This analysis first examines the total cumulative transfer restrictions for each regulatory area listed under **Alternative 2, Element 2, Option 3A**, one of the Council's PPA. Option 3A would restrict the total transfers in Area 2C to 10 percent of the Area 2C 2015 commercial QS pool, and the total transfers in Area 3A to 15 percent of the Area 3A 2015 commercial QS pool.

The objective of Table 4-77 and Table 4-78 is to estimate the maximum amount of revenue foregone and observer days that would not be funded if halibut IFQ is used in the charter sector, rather than the commercial sector whose landings are subject to the observer fee. Note that the analysis 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. For each year (2013 through 2015), these tables illustrate how many pounds different percentages of the 2015 area QS pool would represent. These pounds are multiplied by the standard ex-vessel price that is set based on the IFQ buyers' report for purposes of observer program fees to get the estimated ex-vessel value of that IFQ (had it been landed for commercial purposes). Using the observer fee of 1.25 percent of the ex-vessel value, the tables show the estimated foregone observer fee liability. If an RQE achieved maximum holdings in Area 2C under the current PPA, the maximum estimated foregone observer fee liability would be \$28,244 (in 2015). If an RQE achieved maximum holdings in Area

3A under the current PPA, the maximum estimated observer fee liability foregone could be high as \$124,539 (2013).

Although the program budget from observer fees is variable year to year, for some level of context, the total observer fee liability in GOA for all species and gear types amounted to \$3,363,418 in 2013, \$2,679,541 in 2014, and \$3,046,655 in 2015 (NMFS 2014b; NMFS 2015b; NMFS 2016b). Since hook-and-line fees do not only contribute to hook-and-line coverage, it is appropriate to compare possible lost revenues to the total funds of the program across gear types and species. The foregone revenues from an RQE holding the maximum amount of QS in each area (based on the PPA levels), represent between 3% to 4% of the total observer fee liability in GOA each year between 2013 and 2015.

The tables also demonstrates the amount of partial coverage observer days that would have gone unfunded in these years, given RQE holdings up to 10% and 15% in Area 2C and 3A, respectively. This number is estimated using the average cost per day reported in the annual report each year (NMFS 2014b; NMFS 2015b; NMFS 2016b). Dividing the estimated foregone observer fee liability in each year, a maximum of 26 observer days could have gone unfunded from Area 2C RQE holdings (2015) and a maximum of 117 observer days could have gone unfunded from Area 3A RQE holdings (2013).

Table 4-77 Estimated reduction in observer fee revenues and observer days with RQE holdings up to 10% of Area 2C (2015) QS pool using 2013 through 2015 as examples, Alternative 2, Element 2, Option 3A

2013					
Cumulative Cap (Percent)	Maximum QS units transferable	Pounds of IFQ (Millions)	Estimated ex-vessel value	Foregone observer fees	Converted to observer days
1	594,774	0.030	\$178,581	\$2,232	2
2	1,189,548	0.059	\$357,161	\$4,465	4
3	1,784,322	0.089	\$535,742	\$6,697	7
4	2,379,096	0.119	\$714,322	\$8,929	9
5	2,973,870	0.148	\$890,960	\$11,137	11
6	3,568,644	0.178	\$1,071,560	\$13,395	13
7	4,163,418	0.208	\$1,252,160	\$15,652	15
8	4,758,192	0.237	\$1,426,740	\$17,834	17
9	5,352,966	0.267	\$1,607,340	\$20,092	20
10	5,947,740	0.297	\$1,787,940	\$22,349	22
Applied metrics for 2013		QS: IFQ ratio: 20.05	Standard price: \$6.02	Observer fee: 1.25%	Average cost per day: \$1,024
2014					
Cumulative Cap (Percent)	Maximum QS units transferable	Pounds of IFQ (Millions)	Estimated ex-vessel value	Foregone observer fees	Converted to observer days
1	594,774	0.033	\$167,094	\$2,089	2
2	1,189,548	0.066	\$334,187	\$4,177	4
3	1,784,322	0.099	\$501,281	\$6,266	6
4	2,379,096	0.133	\$668,375	\$8,355	8
5	2,973,870	0.166	\$836,640	\$10,458	10
6	3,568,644	0.199	\$1,002,960	\$12,537	12
7	4,163,418	0.232	\$1,169,280	\$14,616	14
8	4,758,192	0.265	\$1,335,600	\$16,695	16
9	5,352,966	0.298	\$1,501,920	\$18,774	18
10	5,947,740	0.332	\$1,673,280	\$20,916	20
Applied metrics for 2014		QS: IFQ ratio: 17.94	Standard price: \$5.04	Observer fee: 1.25%	Average cost per day: \$1067
2015					
Cumulative Cap (Percent)	Maximum QS units transferable	Pounds of IFQ (Millions)	Estimated ex-vessel value	Foregone observer fees	Converted to observer days
1	594,774	0.037	\$225,845	\$2,823	3
2	1,189,548	0.074	\$451,690	\$5,646	5
3	1,784,322	0.110	\$677,535	\$8,469	8
4	2,379,096	0.147	\$903,380	\$11,292	11
5	2,973,870	0.184	\$1,129,760	\$14,122	13
6	3,568,644	0.221	\$1,356,940	\$16,962	16
7	4,163,418	0.258	\$1,584,120	\$19,802	18
8	4,758,192	0.294	\$1,805,160	\$22,565	21
9	5,352,966	0.331	\$2,032,340	\$25,404	24
10	5,947,740	0.368	\$2,259,520	\$28,244	26
Applied metrics for 2015		QS: IFQ ratio: 16.17	Standard price: \$6.14	Observer fee: 1.25%	Average cost per day: \$1,071

Source: Observer fee standard ex-vessel prices based on 2012, 2013, and 2014 IFQ Buyers Reports. Pounds are based off of the 2015 Area 2C QS pool; 59,477,396 units. Average cost per day based on Annual reports (NMFS 2014b; NMFS 2015b; NMFS 2016b).

Table 4-78 Estimated reduction in observer fee revenues and observer days with RQE holdings of 15% of Area 3A (2015) QS pool using 2013 through 2015 as examples, Alternative 2, Element 2, Option 3A

2013					
Cumulative Cap (Percent)	Maximum QS units transferable	Pounds of IFQ (Millions)	Estimated ex-vessel value	Foregone observer fees	Converted to observer days
1	1,848,930	0.110	\$664,115	\$8,301	8
2	3,697,860	0.221	\$1,328,229	\$16,603	16
3	5,546,790	0.331	\$1,992,344	\$24,904	23
4	7,395,720	0.441	\$2,656,458	\$33,206	31
5	9,244,650	0.552	\$3,323,040	\$41,538	39
6	11,093,580	0.662	\$3,985,240	\$49,816	47
7	12,942,511	0.772	\$4,647,440	\$58,093	54
8	14,791,441	0.883	\$5,315,660	\$66,446	62
9	16,640,371	0.993	\$5,977,860	\$74,723	70
10	18,489,301	1.103	\$6,640,060	\$83,001	78
11	20,338,231	1.213	\$7,302,260	\$91,278	86
12	22,187,161	1.324	\$7,970,480	\$99,631	93
13	24,036,091	1.434	\$8,632,680	\$107,909	101
14	25,885,021	1.544	\$9,294,880	\$116,186	109
15	27,733,951	1.655	\$9,963,100	\$124,539	117
Applied metrics for 2013		QS: IFQ ratio:	Standard price:	Observer fee:	Average cost per day:
		16.76	\$6.02	1.25%	\$1,024
2014					
Cumulative Cap (Percent)	Maximum QS units transferable	Pounds of IFQ (Millions)	Estimated ex-vessel value	Foregone observer fees	Converted to observer days
1	1,848,930	0.070	\$354,724	\$4,434	4
2	3,697,860	0.141	\$709,449	\$8,868	8
3	5,546,790	0.211	\$1,064,173	\$13,302	12
4	7,395,720	0.282	\$1,418,897	\$17,736	17
5	9,244,650	0.352	\$1,774,080	\$22,176	21
6	11,093,580	0.422	\$2,126,880	\$26,586	25
7	12,942,511	0.493	\$2,484,720	\$31,059	29
8	14,791,441	0.563	\$2,837,520	\$35,469	33
9	16,640,371	0.633	\$3,190,320	\$39,879	37
10	18,489,301	0.704	\$3,548,160	\$44,352	42
11	20,338,231	0.774	\$3,900,960	\$48,762	46
12	22,187,161	0.845	\$4,258,800	\$53,235	50
13	24,036,091	0.915	\$4,611,600	\$57,645	54
14	25,885,021	0.985	\$4,964,400	\$62,055	58
15	27,733,951	1.056	\$5,322,240	\$66,528	62
Applied metrics for 2014		QS: IFQ ratio:	Standard price:	Observer fee:	Average cost per day:
		26.27	\$5.04	1.25%	\$1,067

Table 4-78 continued.

2015					
Cumulative Cap (Percent)	Maximum QS units transferable	Pounds of IFQ (Millions)	Estimated ex-vessel value	Foregone observer fees	Converted to observer days
1	1,848,930	0.078	\$478,400	\$5,980	6
2	3,697,860	0.156	\$956,800	\$11,960	11
3	5,546,790	0.234	\$1,435,200	\$17,940	17
4	7,395,720	0.312	\$1,913,600	\$23,920	22
5	9,244,650	0.389	\$2,388,460	\$29,856	28
6	11,093,580	0.467	\$2,867,380	\$35,842	33
7	12,942,511	0.545	\$3,346,300	\$41,829	39
8	14,791,441	0.623	\$3,825,220	\$47,815	45
9	16,640,371	0.701	\$4,304,140	\$53,802	50
10	18,489,301	0.779	\$4,783,060	\$59,788	56
11	20,338,231	0.857	\$5,261,980	\$65,775	61
12	22,187,161	0.935	\$5,740,900	\$71,761	67
13	24,036,091	1.013	\$6,219,820	\$77,748	73
14	25,885,021	1.091	\$6,698,740	\$83,734	78
15	27,733,951	1.168	\$7,171,520	\$89,644	84
Applied metrics for 2015		QS: IFQ ratio:	Standard price:	Observer fee:	Average cost per day:
		16.17	\$6.14	1.25%	\$1,071

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. Pounds are based off of the 2015 Area 3A QS pool; 184,893,008 units. Average cost per day based on Annual reports (NMFS 2014b; NMFS 2015b; NMFS 2016b).

It is important to highlight that restrictions established in **Alternative 2, Element 2, Option 3A** also include annual GAF usage under this transfer allowance. RQE QS holdings would represent a long-term holding, while GAF are leased from IFQ on an annual basis. Therefore, by design, the RQE holdings would have priority in utilizing available IFQ under the cumulative restrictions. Understanding some charter anglers have used the flexibility of GAF and operations may come to depend on it, the Council included **Alternative 2, Element 2, Option 3A, Sub-option 1 and 2** in order to mitigate additional constraints for GAF users. These sub-options are not currently selected as a PPA, but are still under consideration and analysis. Sub-option 1, states that “GAF shall not be reduced below a range of 1% to 3% of the 2015 commercial QS pool for Area 2C or 3A”, essentially cutting the total cumulative allowance for an RQE from 10 percent in Area 2C down to 7, 8, or 9 percent, and from 15 percent in Area 3A down to 12, 13 or 14 percent. Sub-option 2, states “GAF shall not be reduced below 1.15 times the previous year’s GAF transfers for either 2C or 3A”. The impact of Sub-option 2 is entirely dependent on future GAF usage, but practically speaking, could mean that the cumulative cap could be anywhere from 0 to 10 percent for RQE in Area 2C or 0 to 15 percent for the RQE in Area 3A.

Table 4-79 and Table 4-80 use 2015 as a sample year and 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 are fewer 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 4-79 Estimated reduction in observer fee revenues and observer days with RQE holdings of 10% of Area 2C (2015) QS pool using 2015 as an example, Alternative 2, Element 2, Option 4, Sub-options 1 and 2

No D-Class			
QS: IFQ ratio:	Standard price:	Observer fee:	Average cost per day:
16.17	\$6.14	1.25%	\$1,071
Pounds of IFQ (Millions):	Estimated ex-vessel value:	Foregone observer fees:	Converted to observer days:
0.313	\$1,921,820	\$24,023	22
No Blocks ≤1,500 lbs			
QS: IFQ ratio:	Standard price:	Observer fee:	Average cost per day:
16.17	\$6.14	1.25%	\$1,071
Pounds of IFQ (Millions):	Estimated ex-vessel value:	Foregone observer fees:	Converted to observer days:
0.317	\$1,946,380	\$24,330	23
No Blocks ≤2,000 lbs			
QS: IFQ ratio:	Standard price:	Observer fee:	Average cost per day:
16.17	\$6.14	1.25%	\$1,071
Pounds of IFQ (Millions):	Estimated ex-vessel value:	Foregone observer fees:	Converted to observer days:
0.282	\$1,731,480	\$21,644	20

Source: Observer fee standard ex-vessel prices based on 2014 IFQ Buyers Reports. Average cost per day based on Annual reports (NMFS 2016b).

Table 4-80 Estimated reduction in observer fee revenues and observer days with RQE holdings of 15% of Area 3A (2015) QS pool using 2015 as an example, Alternative 2, Element 2, Option 4, Sub-options 1 and 2

No D-Class			
QS: IFQ ratio:	Standard price:	Observer fee:	Average cost per day:
23.735	\$6.14	1.25%	\$1,071
Pounds of IFQ (Millions):	Estimated ex-vessel value:	Foregone observer fees:	Converted to observer days:
1.088	\$6,680,320	\$83,504	78
No Blocks ≤1,500 lbs			
QS: IFQ ratio:	Standard price:	Observer fee:	Average cost per day:
23.735	\$6.14	1.25%	\$1,071
Pounds of IFQ (Millions):	Estimated ex-vessel value:	Foregone observer fees:	Converted to observer days:
1.084	\$6,655,760	\$83,197	78
No Blocks ≤2,000 lbs			
QS: IFQ ratio:	Standard price:	Observer fee:	Average cost per day:
23.735	\$6.14	1.25%	\$1,071
Pounds of IFQ (Millions):	Estimated ex-vessel value:	Foregone observer fees:	Converted to observer days:
1.015	\$6,232,100	\$77,901	73

Source: Observer fee standard ex-vessel prices based on 2014 IFQ Buyers Reports. Average cost per day based on Annual reports (NMFS 2016b).

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 it takes; it could shorten the duration of a trip; or there could be a scenario where it does not impact operations at all. The expectation is that there would be variability in how QS transfers would impact specific operations relative to the status quo.

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 40 ft 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 40 ft 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 40 ft LOA. Particularly if the Council adopted any 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 35 ft LOA, and likely in the trip selection pool (vessels greater than or equal to 40 ft LOA). There has been no use of tenders in the recent halibut IFQ fishery; therefore, that stratum is not considered here.

Given the uncertainty 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, using elements from the PPA, imagine Area 2C RQE had a 10 percent cumulative transfer cap and a prohibition on D class QS:³⁷

- This would result in a maximum of 313,000 pounds of halibut IFQ the charter sector could use in 2015 (as established in Table 4-79).
- 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).³⁸
- 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 probability 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.³⁹
- This can be compared to the 22 observer sea-days that are no longer afforded due to the reduced observer fee liability (Table 4-79).

³⁷ This example of transfer restrictions was chosen for ease of calculation. A similar exercise could be done with any of the transfer restrictions.

³⁸ 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 than 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.

³⁹ 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.

Using the same method for Area 3A, imagine the Council set a 15 percent cumulative transfer cap for Area 3A and a prohibition on D class QS.⁴⁰

- This would result in a maximum of 1,088,000 pounds of halibut IFQ it could hold in 2015 (refer to Table 4-80).
- The 1,088,000 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 218 trips.
- With a 15 percent selection probability for hook-and-line vessels in the trip selection pool (NMFS 2015a), an estimated 33 of these 218 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 99 to 165 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 4-80).

These examples reveal that the impacts of the RQE IFQ acquisition are difficult to quantify and will depend on how much QS is purchased, 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 (estimated at about 3 or 4 percent of the total observer fee liability in GOA), which would have spillover effects into the coverage rates that can be afforded in other fisheries. At the other end of the spectrum, the action could provide a distributional benefit by removing more demand for observer sea-days (by decreasing the number of commercial fishing trips taken) compared to the level of observer fee reduction. This would not necessarily be considered a net benefit, as the loss in observer days would still reduce the biological data collected for the halibut resource, with the same amount of biomass able to be removed from the water.

4.8.1.5.2.2 The Council's Authority

While the authority under the Magnuson-Stevens Act for NMFS to collect cost recovery fees from the RQE is clear, its line of authority is not as clear under Magnuson-Stevens Act §313 for Observer Program fees. Section 313 of the Magnuson-Stevens Act authorizes the Council to develop a fisheries research plan for any fishery under the Council's jurisdiction, except salmon, which may include the deployment of observers and the collection of fees. Observer fees are collected under this authority. The commercial halibut IFQ fishery is in the research plan as implemented by the restructured Observer Program in 2013. The charter halibut fishery is not in the research plan.

4.8.1.5.2.3 The Logistics of Levying this Fee

The Council's PPA under **Alternative 2, Element 4, Option 1** would make the RQE responsible for the associated observer fee for the harvest of halibut IFQ by the charter halibut fishery. Specifically, §313(b)(2)(F) of the Magnuson-Stevens Act requires that the fee shall "be assessed against some or all fishing vessels and United States fish processors, including those not required to carry an observer or an electronic monitoring system under the plan...". NMFS has not thoroughly analyzed whether Magnuson-Stevens Act §313 authorizes NMFS to require the RQE to pay the observer fee associated with halibut IFQ because the RQE is not a vessel or a processor. If the MSA does authorize this option, further analysis would be required to determine how to implement the observer fee for the RQE. NMFS would need to consider how the RQE or all vessels participating in the charter halibut fishery would fit in the fisheries research plan to assess the observer fee from the RQE, even though the charter halibut vessels would not pay the fee and there is no intention to station observers or electronic monitoring on the charter halibut

⁴⁰ This example of transfer restrictions was chosen for ease of calculation. A similar exercise could be done with any of the transfer restrictions.

vessels. In other words, the RQE or the charter halibut vessels may need to be included in the fisheries research plan and the Observer Program for NMFS to be authorized to collect observer fees from the RQE. Bringing the RQE or the charter halibut vessels into the fisheries research plan may also require an FMP amendment, 60-day public comment period, and public hearings in Oregon, Washington, and Alaska as required under Magnuson-Stevens Act §313(c) for amendments to the fisheries research plan. In addition, if the RQE or charter vessels are placed into the research plan, the Council and NMFS may need to evaluate the charter halibut fishery annually in the Observer Program Annual Report and Annual Deployment Plan.

Given the complexity of assessing the observer fee on the RQE, and the relatively small amount of money and number of observer days that would be foregone if the RQE were not assessed observer fees on their holdings, NMFS does not recommend that the Council adopt a preferred alternative that includes assessing observer fees on the RQE at this time. The additional complexities of including this component could delay the rulemaking process for the establishment of an RQE, which is the primary objective identified in the Council's purpose and need statement. Instead, NMFS suggests that the Council delay considering whether to assess the observer fee until after an RQE is established and acquires QS, at which time the Council or NMFS can decide to examine the impact of the RQE on observer fees as a separate action. This would allow the Council and NMFS to analyze the potential benefits of assessing the observer fee with a better understanding of the outstanding logistical complications and authority to do so.

4.8.1.5.3 Fish Taxes

In addition to IFQ Program cost recovery fees and observer fees, public testimony also raised concerns about displacement of other types of taxes and fees associated with halibut IFQ landings, particularly those taxes used to support communities. Specifically, one testifier referred to the state fisheries business tax (also known as the raw fish tax) that is levied on fishery processors, or on the export of unprocessed fish from Alaska at a rate of 3 percent of the ex-vessel price paid to fishermen. The burden of this fee is assumed to be shared with the harvesters. Half of the revenues from the fisheries business tax contribute to the state's General Fund and the remaining 50 percent is shared with the city and borough where the processing occurred. Thus, the landing and processing of halibut IFQ in a community can benefit that community by providing funding for public services, roads, schools, etc.

Charter anglers do not pay a fisheries business tax when landing halibut; nor do they pay a locally levied raw fish tax that many commercial harvesters contribute to. However, as described in Section 4.8.2, both fishing sectors contribute to the economic activity within communities and both sectors contribute to local and state tax revenues. Table 4-81 provides a qualitative list of taxes and fees directly related to the harvest of halibut in each sector.

Many of the fees the charter sector pays are municipality or borough-specific. In many municipalities/boroughs, anglers pay a sales tax as a percentage of their trip cost, and sometimes as a percentage of their halibut processing (see DOC 2016, for specific municipalities/ boroughs rates). As in the commercial halibut sector, the charter sector also contributes to local sales tax revenue through the purchase of goods and services necessary for the harvest of halibut. The charter sector may contribute indirectly as well, as out-of-town clients, drawn to the community by the opportunity to halibut fish, spend money on local goods and services. In addition to sales tax, some municipalities/boroughs levy a fish box tax, a per-passenger harbor tax, and/or fees associated with picking up/ dropping of clients at the airport. To the extent out-of-town clients, drawn to the community by the opportunity to halibut fish, chose to spend the night in town, the charter sector may also contribute indirectly to revenues collected from a municipal/ borough bed tax (DOC 2016). The benefits from these types of fees may be particularly connected to the opportunity to go charter halibut fishing in the case of a charter lodge that is required to pay these associated fees.

There are a number of taxes that impact both sectors such as motor fuel taxes, corporate income tax, property tax, dock and harbor fees, parking fees, commercial vessel launch fees, moorage fees, boat storage fees, and associated state permits/ licenses (e.g. crew license or sport fishing license). These fees may not be equal between the sectors and operations; each fishing operator is subject to these types of fees relative to the size of their operations.

Table 4-81 Taxes directly related to the harvesting of halibut in the commercial or charter sector

COMMERCIAL TAXES	CHARTER TAXES
<p>The Alaska Department of Revenue collects a fisheries business tax (also known as the “raw fish tax”) from processors and persons who export unprocessed fishery resources from Alaska. Shore-based processors are assessed at a rate of 3% of the ex-vessel price paid to fishermen.</p> <p>The Division shares 50% of tax collected with the incorporated city and organized borough in which the processing took place. The remaining 50% of the revenue contributes to the State’s General Fund.¹</p>	<p>Some boroughs or municipalities levy a fish box tax, from which revenues flow directly to the community. This is a sales tax levied on fish charter customers for packaged fish and/or seafood caught or taken and retained by the fish charter customers as part of a fish charter. For the city and borough of Sitka, as well as the municipality of Gustavus, this sales tax is levied at a flat rate of \$10 per fish box.</p>
<p>Both municipalities and boroughs are also authorized to levy a raw fish tax in addition to the state’s fisheries business tax, which range from 1% to 3%. These rates and the associated annual revenues collected are available in Alaska Taxable.²</p>	<p>Similar to the commercial halibut sector, the charter sector contributes to boroughs- or municipality-level sales tax. In these communities, sales tax revenues can be directly linked to the charter sector as anglers will pay sales tax as a percentage of the charter trip price. Also, like the commercial sector, revenues are collected through the sale of goods and services necessary in order to harvest halibut on a charter vessel (e.g. bait and gear). Sales tax percentages are listed by municipality or borough in Alaska Taxable.²</p>
<p>A Seafood Marketing Assessment is levied by the state at a rate of 0.5% of the value of seafood processed products first landed in, or exported from Alaska. The Seafood Marketing Assessment is based upon the first wholesale value of seafood products. Appropriation of these funds may be legislated to the Alaska Seafood Marketing Institute, which can provide benefits to both commercial harvesters and processors by the promotion of Alaskan Seafood.</p>	<p>Some boroughs levy passenger-for-hire fees on each charter client. For example, in addition to the commercial boat launch fee (for which both sectors would be accountable for) the City and Borough of Juneau Docks and Harbors requires a base fee (\$400 for inspected vessels in 2016) then \$1.50 per passenger each calendar day.³</p>
<p>Some boroughs or municipalities levy a sales tax, of anywhere from 1% to 7%. Revenues are collected through the sale of goods and services necessary in order to harvest halibut on a commercial vessel (e.g. bait and gear). Sales tax percentages are listed by municipality or borough in Alaska Taxable.²</p>	<p>On Aug. 9, 1950, the Federal Aid in Sport Fish Restoration Act was passed. This act is commonly referred to as the Dingell-Johnson Act tax on sport fishing gear (D-J tax).</p> <p>The D-J Act placed a 10% excise tax on fishing rods, reels and tackle. This tax is collected from the manufacturers by the U.S. Treasury and is transferred to the U.S. Fish and Wildlife Service for distribution to the states. Each state’s share is based 60% on its licensed sport fishermen and 40% on its land and water area.</p>
<p>Operator pays for commercial fishing vessel registration fees</p>	<p>If a charter operation includes transporting passengers to or from the airport, some municipalities/ boroughs levy a commercial vehicle access fee per vehicle per year.⁴</p>

Crew or operator pays for commercial crew license fees	Anglers pay the state for a sport fishing license
CFEC permit fees are based on estimates of average ex-vessel earnings, and are issued to skippers (IFQ holders) who deploy gear. In 2016, CFEC halibut permit fees were \$450 for permits used on vessels <60', and \$1,200 for permits on vessels >= 60'. If the permit holder holds less than 8,000 lbs of IFQ, they qualify for a reduced fee of \$75. ⁵	Charter businesses pay the state for a charter business license
In addition, participants of either sector may contribute to the revenues derived from motor fuel taxes, corporate income tax, property tax, dock and harbor fees, parking fees, commercial vessel launch fees, moorage fees, and boat storage fees. ⁶	

1 Alaska State taxes collected through The Alaska Department of Revenue are documented:

<http://www.tax.alaska.gov/programs/programs/reports/AnnualReport.aspx?Year=2015#program60633>

2 Alaska Taxable (DOC 2016) details sales tax, bed tax, alcohol tax, car rental tax, raw fish tax, fish box tax, tobacco tax, and miscellaneous taxes by boroughs and municipalities:

<https://www.commerce.alaska.gov/dcra/DCRARepoExt/RepoPubs/Taxable/2015%20Full.pdf>

3 These rates are different for inspected and non-inspected vessels and are subject to changes each year. City and borough of Juneau, 05 CBJAC 20.080:

https://www.municode.com/library/ak/juneau/codes/code_of_ordinances?nodeId=PTIVADCORE_TIT05DOHA_C_H20SMBOHAFECH_05_CBJAC_20.060REBOLAFE

4 For example, Juneau:

http://www.juneau.org/law/regulations/documents/2016-05-02-Title07-Ch10_JIA_Rates_and_Fees.pdf

5 20 AAC 05.245 and permit fees at: https://cfec.state.ak.us/mnu_Forms.htm#vesselforms

6 (UFA 2015)

Some of the taxes and fees listed in Table 4-81 and previously described are assessed based on volume of harvest, and are therefore directly related to how much IFQ is available for that sector (e.g., fisheries business tax, raw fish tax, fish box tax). Others of these taxes and fees are based on the number of participating vessels or anglers in that sector (e.g., vessel registration fees, CFEC permit fees, passenger-for-hire fees, sales tax on charter trips, etc.). It is easier to understand the impacts of displaced revenues in the case of an RQE purchasing commercial QS when considering the former types of taxes, which are directly based on the available pounds. It is more difficult to predict the amount of displaced revenues based on the latter types of fees because it is unclear who will sell QS, how that might affect current commercial operations, and how that will impact angler demand. However, it is likely that these types of tax revenues will also be impacted.

4.8.1.5.3.1 The Council's Authority

Neither the Council nor the Secretary of Commerce has the authority to levy local or state taxes. As far as the analysts are aware, the Council has never recommended a tax to the state legislature. It is however, in the Council's purview to consider potential impacts to state and community tax revenues when considering whether to recommend action. This is an element of deliberation when the Council considers the proposed action's net benefits to the nation.

4.8.1.5.3.2 Logistics of Levying this Fee

While the Council does not have the authority to levy and state or local tax on an RQE, the analysts assume that if the state legislature or a municipality does use this authority, the language in **Alternative 2, Element 4** enables an RQE to provide for this fee by considering taxes to be an "administrative cost". The governmental entity levying such a fee would need to determine the proper methods for making this tax collectible and under what conditions. For example, would a tax still apply if an RQE was formed but was unable to secure funding? Would a tax still apply if an RQE was formed but did not purchase QS?

4.8.1.6 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: 6 CHP holders, 3 from each halibut management area (2C/3A); 2 commercial halibut quota share holder, one from each halibut management area (2C/3A); 2 community representative (not a holder of a CHP or commercial QS), one from each management area (2C/3A); 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 to NMFS 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.

If the Council selects Option 4, NMFS recommends that the Council specify what information should be included in the annual report, and to whom and by when it should be submitted each year.

4.8.1.7 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.

4.8.1.7.1 Overage-underage provision

Section 4.5.1 describes the overage-underage program that exists in the commercial halibut fishing for IFQ participants. The Council has not created alternatives or options around this potential aspect of the RQE program. However, the CATCH proposal recommended that this flexibility also apply in the case of an RQE (Yamada & Flumerflet 2014). In February 2014, Gregg Williams (former IPHC staff) 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 10 percent overage of an individual IFQ holder and a whole halibut charter sector for one regulatory area.

NMFS suggests that when accounting for charter halibut catch, the RQE's IFQ balance should be debited first, before any charter catch accrues toward the regular charter catch limit under the CSP. The RQE's IFQ balance would be zeroed out and no overages or underages would be accounted for in the RQE's IFQ account.

4.8.1.8 Funding Considered by Charter Groups

As previously mentioned, Alternative 2 and the current analysis do 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 interconnected 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 be 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 subgroup 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 more complicated 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 a non-profit charter entity see Yamada & Flumerflet (2014) and Davis, Sylvia, & Cusack (2013).

4.8.1.9 Program Cost

The issue of program cost is not a formal topic of this analysis. It has, however, been a topic repeatedly raised during Council testimony. The analysts note that it will be the responsibility of the RQE to develop a way to fund the program. It is not clear what the source of that funding will be, but regardless of the funding source, the important issue for the Council to consider is the effects of RQE involvement in the QS

market and way to mitigate or limit those effects. The price for halibut quota, particularly when measured on an IFQ pound basis, has risen substantially in recent years as halibut stocks fell. This stock decline, combined with strong market demand for halibut, has buoyed the value of QS for existing holders and made QS for new fishery entrants more expensive. Permit and quota share prices rise and fall, but current QS prices mean that the program will likely cost tens of millions of dollars. As of the publication date of this report, QS were trading for \$60 to \$70 per pound in Area 2C, and between \$50 and \$60 per pound in Area 3A. If an RQE were to buy eight percent of all QS in an unrestricted scenario it would cost roughly \$34 million in Area 3A and \$19 million in Area 2C. The RQE need not have all of that money at once and the total amount needed will depend on the QS market, halibut stocks, and the RQE's overall goals.

Given the price of halibut QS, why would an RQE consider purchasing it? Currently, the only alternative to the goal of the RQE for liberalizing bag limits is the GAF program under the Catch Share Plan. Recent research has shown that GAF purchasers are paying prices nearly equal to current ex-vessel prices to lease GAF in Area 2C and at very high discount rates in Area 3A (Kroetz, Lew, and Sanchirico 2016). In short, the GAF program is expensive and charter operators who want to lease GAF pay rates that are sometimes 50 percent above what commercial longline operators are paying. The willingness of at least some charter anglers to pay these prices indicates that within at least a certain portion of the charter industry, there is a very high willingness to pay for the ability to offer liberalized bag limits. This issue is discussed more in Section 4.8.2.1. If the RQE has a long time frame with which to work, then the long-term cost of purchasing QS is likely less than the long-term cost of leasing QS at above market-rate prices every year.

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. 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 of the Magnuson-Stevens Act ⁴¹as 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 discussed 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

⁴¹ While Pacific halibut is managed under the authority of the Halibut Act, the National Standards are often used as guidance for Council recommendations on Federal regulations related to the halibut fishery.

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 4.9.

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 to 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 marketplace. This "natural calculation" exists every day in an open marketplace. When a willing seller and a willing buyer come to terms on a price for the exchange of 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.⁴²

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,⁴³ 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).

⁴² Some examples include the travel cost model, which evaluates marginal willingness-to-pay (WTP) based on how much it costs a person in order to travel and participate in an activity (including the opportunity cost of their time), hedonic models which evaluate 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 transaction 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.

⁴³ Marginal willingness-to-pay is the additional amount consumers are willing to pay for one more unit of a particular good.

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 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.⁴⁴ 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 while under 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 others 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.

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

⁴⁴ 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.

measures.⁴⁵ In this case there could be both movement along the demand curve (by changing price) and 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,⁴⁶ 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 and provided further explanation for the low harvest season in Area 2C. 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 the ability to harvest at least one trophy fish seems valuable, the results of the stated preference study also suggest that willingness-to-pay for fishing trips with bag limits that allow two or more fish to be harvested with no size restrictions on the first fish harvested are not statistically different from the value for trips for larger bag limits or for the case where all the fish in the limit can be any size. This suggests that fisheries managers may have some latitude to restrict harvest without diminishing angler fishing values considerably, so long as anglers are allowed to catch at least one fish that is large (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.⁴⁷

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.

⁴⁵ 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.

⁴⁶ This would be an increase in price in addition to the costs set aside for purchasing halibut QS.

⁴⁷ 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.

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.

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. This section describes some of the contextual issues that may influence the transfer of QS to the proposed RQE and provides some quantitative estimates of the magnitude of economic impacts to the commercial halibut fishery from different total QS transfer caps. This section includes some discussion about the possible indirect impacts on commercial halibut processing operations and commercial support sectors. These indirect impacts are also relevant when considering the expected impacts of an RQE on communities in Section 4.8.2.4.

The primary way a charter RQE would affect the commercial halibut sector is through direct competition in the QS market, and the opportunity for relatively less IFQ to be landed commercially. When considering different scales of economic efficiency (as described in Section 4.8.2), at an individual QS holder-level, this option would be a benefit as their QS transactions are voluntary, and the value of their QS may increase. A QS holder would be expected to act in their own best interest when deciding whether and at what price to sell their QS.

As a group, the commercial sector has voiced concerns over the potential RQE program, as an individual QS holder's decision may not necessarily maximize the net benefits from a sector-level perspective. Spillover effects could occur, potentially impacting hired skippers, crew, support sectors, commercial processing operations, communities, and opportunities for new entrants.

Understanding the magnitude of changes to the commercial sector stakeholder groups is challenging, particularly in a scenario with unrestricted transfer opportunity by an RQE. Given the cumulative transfer

restrictions presented in **Alternative 2, Element 2, Option 3** and **Option 4**, the following tables seek to demonstrate remaining halibut IFQ pounds that would have been available in Area 2C and 3A in 2011 through 2015, had an RQE been in place with different levels of QS holdings. Note that the Council's PPA (**Option 3A**) is included within these ranges (10 percent for Area 2C and 15 percent for Area 3A, shared with annual GAF transfers).

Table 4.82 through Table 4.89 show the potential remaining commercial halibut QS and IFQ pounds based on RQE maximum cumulative holdings from 5 to 20 percent under a program with no other transfer restrictions (see Table 4.82 and Table 4.83), D-class restrictions (see Table 4.84 and Table 4.85), $\leq 1,500$ pound block restrictions (see Table 4.86 and Table 4.87), and $\leq 2,000$ pound block restrictions (see Table 4.88 and see Table 4.89), for the years 2011 through 2015. The tables also show the IFQ pounds that would have been available during a period of historical abundance (1995–2007) under the various RQE maximum cumulative holding percentages.

Under the unrestricted program option, the remaining commercial halibut QS would have ranged from 56.5 million units (5 percent cumulative RQE holdings) to 47.6 million units (20 percent cumulative RQE holdings), representing 3.5 million to 2.9 million pounds of commercial halibut IFQ for Area 2C in 2015, respectively (see Table 4.82). Previous years with higher QS/IFQ ratios would have lower remaining IFQ pounds; for example, 2011 would have ranged from 2.2 million to 1.9 million pounds of commercial halibut IFQ. Remaining commercial halibut QS in Area 3A would have ranged from 175.6 million units (5 percent cumulative RQE holdings) to 147.9 million units (20 percent cumulative RQE holdings), representing 7.4 million to 6.2 million pounds of commercial halibut IFQ in 2015, respectively (see Table 4.83). As was the case for Area 2C, the remaining IFQ commercial pounds for other years would have increased or decreased based on the QS/IFQ ratio determined for that year.

Table 4.82. QS and IFQ remaining commercial pounds based on RQE maximum cumulative holdings, no other restrictions, Area 2C

Cumulative Reduction (Percent)	Maximum QS Units Remaining for Commercial Fishing*	Remaining Commercial Pounds based on Scenario/QS Ratio					Historical Abundance (1995-2007)
		2011	2012	2013	2014	2015	
5	56,503,526	2.211	2.489	2.818	3.150	3.494	8.940
6	55,908,752	2.187	2.463	2.788	3.116	3.458	8.846
7	55,313,978	2.164	2.437	2.759	3.083	3.421	8.752
8	54,719,204	2.141	2.411	2.729	3.050	3.384	8.658
9	54,124,430	2.118	2.384	2.699	3.017	3.347	8.564
10	53,529,656	2.094	2.358	2.670	2.984	3.310	8.470
11	52,934,882	2.071	2.332	2.640	2.951	3.274	8.376
12	52,340,108	2.048	2.306	2.610	2.918	3.237	8.282
13	51,745,335	2.024	2.280	2.581	2.884	3.200	8.188
14	51,150,561	2.001	2.253	2.551	2.851	3.163	8.093
15	50,555,787	1.978	2.227	2.521	2.818	3.127	7.999
16	49,961,013	1.955	2.201	2.492	2.785	3.090	7.905
17	49,366,239	1.931	2.175	2.462	2.752	3.053	7.811
18	48,771,465	1.908	2.149	2.432	2.719	3.016	7.717
19	48,176,691	1.885	2.122	2.403	2.685	2.979	7.623
20	47,581,917	1.862	2.096	2.373	2.652	2.943	7.529
QS/IFQ Ratio		25.56	22.7	20.05	17.94	16.17	6.32

*Based on 2015 total QS Units

Source: NMFS Alaska Region RAM data provided by AKFIN; Northern Economics, Inc. estimates from NOAA (2015a)

Table 4.83. QS and IFQ remaining commercial pounds based on RQE maximum cumulative holdings, no other restrictions, Area 3A

Cumulative Reduction (Percent)	Maximum QS Units Remaining for Commercial Fishing*	Remaining Commercial Pounds based on Scenario/QS Ratio					
		2011	2012	2013	2014	2015	Historical Abundance (1995-2007)
5	175,648,358	13.637	11.318	10.480	6.686	7.402	21.847
6	173,799,428	13.494	11.198	10.370	6.616	7.324	21.617
7	171,950,497	13.350	11.079	10.260	6.546	7.246	21.387
8	170,101,567	13.207	10.960	10.149	6.475	7.168	21.157
9	168,252,637	13.063	10.841	10.039	6.405	7.090	20.927
10	166,403,707	12.920	10.722	9.929	6.334	7.012	20.697
11	164,554,777	12.776	10.603	9.818	6.264	6.934	20.467
12	162,705,847	12.632	10.484	9.708	6.194	6.857	20.237
13	160,856,917	12.489	10.364	9.598	6.123	6.779	20.007
14	159,007,987	12.345	10.245	9.487	6.053	6.701	19.777
15	157,159,057	12.202	10.126	9.377	5.982	6.623	19.547
16	155,310,127	12.058	10.007	9.267	5.912	6.545	19.317
17	153,461,197	11.915	9.888	9.156	5.842	6.467	19.087
18	151,612,267	11.771	9.769	9.046	5.771	6.389	18.857
19	149,763,336	11.628	9.650	8.936	5.701	6.311	18.627
20	147,914,406	11.484	9.531	8.825	5.631	6.233	18.397
QS/IFQ Ratio		12.88	15.52	16.76	26.27	23.73	8.04

*Based on 2015 total QS Units

Source: NMFS Alaska Region RAM data provided by AKFIN; Northern Economics, Inc. estimates from NOAA (2015a)

As discussed in Section 4.8.1.2.5, removing the D-class QS from the potential pool of QS that could be accumulated by an RQE would result in more QS remaining with the commercial halibut fishery. As shown in Table 4.85 the remaining commercial halibut QS would have ranged from 56.9 million units (5 percent cumulative RQE holdings) to 49.4 million units (20 percent cumulative RQE holdings), representing 3.5 million to 3.1 million pounds of commercial halibut IFQ for Area 2C in 2015, respectively. Previous years with higher QS/IFQ ratios would have lower remaining IFQ pounds; for example, 2011 would have ranged from 2.2 million to 1.9 million pounds of commercial halibut IFQ. As shown in Table 4.85 the remaining commercial halibut QS would have ranged from 176.3 million units (5 percent cumulative RQE holdings) to 150.4 million units (20 percent cumulative RQE holdings), representing 7.4 million to 6.3 million pounds of commercial halibut IFQ for Area 3A in 2015, respectively. As was the case for Area 2C, the remaining IFQ commercial pounds for other years would have increased or decreased based on the QS/IFQ ratio determined for that year.

Table 4.84. QS and IFQ remaining commercial pounds based on RQE maximum cumulative holdings, D-Class restrictions, Area 2C

Cumulative Reduction (Percent)	Maximum QS Units Remaining for Commercial Fishing*	Remaining Commercial Pounds based on Scenario/QS Ratio					
							Historical Abundance (1995-2007)
		2011	2012	2013	2014	2015	
5	56,948,300	2.228	2.509	2.840	3.174	3.522	9.011
6	56,442,481	2.208	2.486	2.815	3.146	3.491	8.931
7	55,936,662	2.188	2.464	2.790	3.118	3.459	8.851
8	55,430,842	2.169	2.442	2.765	3.090	3.428	8.771
9	54,925,023	2.149	2.420	2.739	3.062	3.397	8.691
10	54,419,204	2.129	2.397	2.714	3.033	3.365	8.611
11	53,913,385	2.109	2.375	2.689	3.005	3.334	8.531
12	53,407,566	2.089	2.353	2.664	2.977	3.303	8.451
13	52,901,746	2.070	2.330	2.638	2.949	3.272	8.371
14	52,395,927	2.050	2.308	2.613	2.921	3.240	8.290
15	51,890,108	2.030	2.286	2.588	2.892	3.209	8.210
16	51,384,289	2.010	2.264	2.563	2.864	3.178	8.130
17	50,878,470	1.991	2.241	2.538	2.836	3.146	8.050
18	50,372,650	1.971	2.219	2.512	2.808	3.115	7.970
19	49,866,831	1.951	2.197	2.487	2.780	3.084	7.890
20	49,361,012	1.931	2.174	2.462	2.751	3.053	7.810
QS/IFQ Ratio		25.56	22.7	20.05	17.94	16.17	6.32

*Based on 2015 total QS Units

Source: NMFS Alaska Region RAM data provided by AKFIN; Northern Economics, Inc. estimates from NOAA (2015a)

Table 4.85. QS and IFQ remaining commercial pounds based on RQE maximum cumulative holdings, D-Class restrictions, Area 3A

Cumulative Reduction (Percent)	Maximum QS Units Remaining for Commercial Fishing*	Remaining Commercial Pounds based on Scenario/QS Ratio					Historical Abundance (1995-2007)
		2011	2012	2013	2014	2015	
5	176,282,039	13.686	11.358	10.518	6.710	7.429	21.926
6	174,559,845	13.553	11.247	10.415	6.645	7.356	21.711
7	172,837,651	13.419	11.136	10.313	6.579	7.284	21.497
8	171,115,457	13.285	11.025	10.210	6.514	7.211	21.283
9	169,393,264	13.152	10.915	10.107	6.448	7.138	21.069
10	167,671,070	13.018	10.804	10.004	6.383	7.066	20.855
11	165,948,876	12.884	10.693	9.901	6.317	6.993	20.640
12	164,226,682	12.751	10.582	9.799	6.251	6.921	20.426
13	162,504,488	12.617	10.471	9.696	6.186	6.848	20.212
14	160,782,295	12.483	10.360	9.593	6.120	6.775	19.998
15	159,060,101	12.349	10.249	9.490	6.055	6.703	19.784
16	157,337,907	12.216	10.138	9.388	5.989	6.630	19.569
17	155,615,713	12.082	10.027	9.285	5.924	6.558	19.355
18	153,893,519	11.948	9.916	9.182	5.858	6.485	19.141
19	152,171,325	11.815	9.805	9.079	5.793	6.413	18.927
20	150,449,132	11.681	9.694	8.977	5.727	6.340	18.713
QS/IFQ Ratio		12.88	15.52	16.76	26.27	23.73	8.04

Based on 2015 total QS Units

Source: NMFS Alaska Region RAM data provided by AKFIN; Northern Economics, Inc. estimates from NOAA (2015a)

Removing blocks $\leq 1,500$ pounds would have also resulted in decreasing the amount of QS from the potential pool of QS that could have been accumulated by an RQE. As shown in Table 4.86 and Table 4.87 the remaining commercial halibut QS would be generally similar to the estimates for D-class restrictions, with available QS representing 3.5 million to 3.0 million pounds of commercial halibut IFQ for Area 2C and 7.4 million to 6.3 million pounds of commercial halibut IFQ for Area 3A, in 2015, for those RQE maximum cumulative holdings under 5 percent and 20 percent, respectively. As shown in Table 4.88 and Table 4.89, the remaining commercial halibut QS if blocks $\leq 2,000$ lbs. were removed would have resulted in 3.5 million to 3.1 million pounds of commercial halibut IFQ for Area 2C and 7.5 million to 6.4 million pounds of commercial halibut IFQ for Area 3A, in 2015, for those RQE maximum cumulative holdings under 5 percent and 20 percent, respectively.

Table 4.86. QS and IFQ remaining commercial pounds based on RQE maximum cumulative holdings, ≤1,500 pound block restrictions, Area 2C

Cumulative Reduction (Percent)	Maximum QS Units Remaining for Commercial Fishing*	Remaining Commercial Pounds based on Scenario/QS Ratio					
		2011	2012	2013	2014	2015	Historical Abundance (1995-2007)
5	56,948,300	2.228	2.509	2.840	3.174	3.522	9.011
6	56,442,481	2.208	2.486	2.815	3.146	3.491	8.931
7	55,936,662	2.188	2.464	2.790	3.118	3.459	8.851
8	55,430,842	2.169	2.442	2.765	3.090	3.428	8.771
9	54,925,023	2.149	2.420	2.739	3.062	3.397	8.691
10	54,419,204	2.129	2.397	2.714	3.033	3.365	8.611
11	53,913,385	2.109	2.375	2.689	3.005	3.334	8.531
12	53,407,566	2.089	2.353	2.664	2.977	3.303	8.451
13	52,901,746	2.070	2.330	2.638	2.949	3.272	8.371
14	52,395,927	2.050	2.308	2.613	2.921	3.240	8.290
15	51,890,108	2.030	2.286	2.588	2.892	3.209	8.210
16	51,384,289	2.010	2.264	2.563	2.864	3.178	8.130
17	50,878,470	1.991	2.241	2.538	2.836	3.146	8.050
18	50,372,650	1.971	2.219	2.512	2.808	3.115	7.970
19	49,866,831	1.951	2.197	2.487	2.780	3.084	7.890
20	49,361,012	1.931	2.174	2.462	2.751	3.053	7.810
QS/IFQ Ratio		25.56	22.7	20.05	17.94	16.17	6.32

Based on 2015 total QS Units

Source: NMFS Alaska Region RAM data provided by AKFIN; Northern Economics, Inc. estimates from NOAA (2015a)

Table 4.87. QS and IFQ remaining commercial pounds based on RQE maximum cumulative holdings, ≤1,500 pound block restrictions, Area 3A

Cumulative Reduction (Percent)	Maximum QS Units Remaining for Commercial Fishing*	Remaining Commercial Pounds based on Scenario/QS Ratio					Historical Abundance (1995-2007)
		2011	2012	2013	2014	2015	
5	176,316,140	13.689	11.361	10.520	6.712	7.430	21.930
6	174,600,766	13.556	11.250	10.418	6.646	7.358	21.717
7	172,885,392	13.423	11.140	10.315	6.581	7.286	21.503
8	171,170,018	13.290	11.029	10.213	6.516	7.213	21.290
9	169,454,645	13.156	10.918	10.111	6.451	7.141	21.076
10	167,739,271	13.023	10.808	10.008	6.385	7.069	20.863
11	166,023,897	12.890	10.697	9.906	6.320	6.996	20.650
12	164,308,524	12.757	10.587	9.804	6.255	6.924	20.436
13	162,593,150	12.624	10.476	9.701	6.189	6.852	20.223
14	160,877,776	12.491	10.366	9.599	6.124	6.780	20.010
15	159,162,403	12.357	10.255	9.497	6.059	6.707	19.796
16	157,447,029	12.224	10.145	9.394	5.993	6.635	19.583
17	155,731,655	12.091	10.034	9.292	5.928	6.563	19.370
18	154,016,282	11.958	9.924	9.190	5.863	6.490	19.156
19	152,300,908	11.825	9.813	9.087	5.798	6.418	18.943
20	150,585,534	11.691	9.703	8.985	5.732	6.346	18.730
QS/IFQ Ratio		12.88	15.52	16.76	26.27	23.73	8.04

Based on 2015 total QS Units

Source: NMFS Alaska Region RAM data provided by AKFIN; Northern Economics, Inc. estimates from NOAA (2015a)

Table 4.88. QS and IFQ remaining commercial pounds based on RQE maximum cumulative holdings, ≤2,000 pound block restrictions, Area 2C

Cumulative Reduction (Percent)	Maximum QS Units Remaining for Commercial Fishing*	Remaining Commercial Pounds based on Scenario/QS Ratio					Historical Abundance (1995-2007)
		2011	2012	2013	2014	2015	
5	57,198,638	2.238	2.520	2.853	3.188	3.537	9.050
6	56,742,886	2.220	2.500	2.830	3.163	3.509	8.978
7	56,287,135	2.202	2.480	2.807	3.138	3.481	8.906
8	55,831,383	2.184	2.460	2.785	3.112	3.453	8.834
9	55,375,632	2.166	2.439	2.762	3.087	3.425	8.762
10	54,919,880	2.149	2.419	2.739	3.061	3.396	8.690
11	54,464,128	2.131	2.399	2.716	3.036	3.368	8.618
12	54,008,377	2.113	2.379	2.694	3.011	3.340	8.546
13	53,552,625	2.095	2.359	2.671	2.985	3.312	8.474
14	53,096,874	2.077	2.339	2.648	2.960	3.284	8.401
15	52,641,122	2.060	2.319	2.625	2.934	3.255	8.329
16	52,185,370	2.042	2.299	2.603	2.909	3.227	8.257
17	51,729,619	2.024	2.279	2.580	2.883	3.199	8.185
18	51,273,867	2.006	2.259	2.557	2.858	3.171	8.113
19	50,818,116	1.988	2.239	2.535	2.833	3.143	8.041
20	50,362,364	1.970	2.219	2.512	2.807	3.115	7.969
QS/IFQ Ratio		25.56	22.7	20.05	17.94	16.17	6.32

Based on 2015 total QS Units

Source: NMFS Alaska Region RAM data provided by AKFIN; Northern Economics, Inc. estimates from NOAA (2015a)

Table 4.89. QS and IFQ remaining commercial pounds based on RQE maximum cumulative holdings, ≤2,000 pound block restrictions, Area 3A

Cumulative Reduction (Percent)	Maximum QS Units Remaining for Commercial Fishing*	Remaining Commercial Pounds based on Scenario/QS Ratio					Historical Abundance (1995-2007)
		2011	2012	2013	2014	2015	
5	176,866,352	13.732	11.396	10.553	6.733	7.453	21.998
6	175,261,021	13.607	11.293	10.457	6.672	7.386	21.799
7	173,655,690	13.483	11.189	10.361	6.610	7.318	21.599
8	172,050,359	13.358	11.086	10.266	6.549	7.250	21.399
9	170,445,028	13.233	10.982	10.170	6.488	7.183	21.200
10	168,839,697	13.109	10.879	10.074	6.427	7.115	21.000
11	167,234,366	12.984	10.775	9.978	6.366	7.047	20.800
12	165,629,035	12.859	10.672	9.882	6.305	6.980	20.601
13	164,023,703	12.735	10.569	9.787	6.244	6.912	20.401
14	162,418,372	12.610	10.465	9.691	6.183	6.844	20.201
15	160,813,041	12.485	10.362	9.595	6.122	6.777	20.002
16	159,207,710	12.361	10.258	9.499	6.060	6.709	19.802
17	157,602,379	12.236	10.155	9.403	5.999	6.641	19.602
18	155,997,048	12.112	10.051	9.308	5.938	6.574	19.403
19	154,391,717	11.987	9.948	9.212	5.877	6.506	19.203
20	152,786,386	11.862	9.844	9.116	5.816	6.439	19.003
QS/IFQ Ratio		12.88	15.52	16.76	26.27	23.73	8.04

Based on 2015 total QS Units

Source: NMFS Alaska Region RAM data provided by AKFIN; Northern Economics, Inc. estimates from NOAA (2015a)

Table 4.90 and Table 4.91 present summaries of the estimated remaining commercial halibut IFQ pounds that would remain under various RQE maximum cumulative holding scenarios in 2015 for Areas 2C and 3A, respectively. As shown, for Area 2C, the unrestricted option would have decreased the amount of available commercial halibut IFQ by the largest amount, followed by a restriction on ≤1,500 lb. blocks, D-class restrictions, and a restriction on ≤2,000 lb. blocks. For Area 3A, the unrestricted option would have decreased the amount of available commercial halibut IFQ by the largest amount, followed by a restriction on ≤2,000 lb. blocks, D-class restrictions, and a restriction on ≤1,500 lb. blocks.

Table 4.90. IFQ remaining commercial pounds based on RQE maximum cumulative holdings, Area 2C, 2015

Cumulative Reduction (Percent)	Remaining Commercial Pounds based on Scenario/QS Ratio			
	No Restrictions	No D-Class	No ≤1,500 lb Blocks	No ≤2,000 lb Blocks
5	3.494	3.522	3.520	3.537
6	3.458	3.491	3.488	3.509
7	3.421	3.459	3.456	3.481
8	3.384	3.428	3.424	3.453
9	3.347	3.397	3.393	3.425
10	3.310	3.365	3.361	3.396
11	3.274	3.334	3.329	3.368
12	3.237	3.303	3.298	3.340
13	3.200	3.272	3.266	3.312
14	3.163	3.240	3.234	3.284
15	3.127	3.209	3.202	3.255
16	3.090	3.178	3.171	3.227
17	3.053	3.146	3.139	3.199
18	3.016	3.115	3.107	3.171
19	2.979	3.084	3.075	3.143
20	2.943	3.053	3.044	3.115
QS/IFQ Ratio	16.17	16.17	16.17	16.17

Source: NMFS Alaska Region RAM data provided by AKFIN; Northern Economics, Inc. estimates from NOAA (2015a)

Table 4.91. IFQ remaining commercial pounds based on RQE maximum cumulative holdings, Area 3A, 2015

Cumulative Reduction (Percent)	Remaining Commercial Pounds based on Scenario/QS Ratio			
	No Restrictions	No D-Class	No ≤1,500 lb Blocks	No ≤2,000 lb Blocks
5	7.402	7.429	7.430	7.453
6	7.324	7.356	7.358	7.386
7	7.246	7.284	7.286	7.318
8	7.168	7.211	7.213	7.250
9	7.090	7.138	7.141	7.183
10	7.012	7.066	7.069	7.115
11	6.934	6.993	6.996	7.047
12	6.857	6.921	6.924	6.980
13	6.779	6.848	6.852	6.912
14	6.701	6.775	6.780	6.844
15	6.623	6.703	6.707	6.777
16	6.545	6.630	6.635	6.709
17	6.467	6.558	6.563	6.641
18	6.389	6.485	6.490	6.574
19	6.311	6.413	6.418	6.506
20	6.233	6.340	6.346	6.439
QS/IFQ Ratio	23.73	23.73	23.73	23.73

Source: NMFS Alaska Region RAM data provided by AKFIN; Northern Economics, Inc. estimates from NOAA (2015a)

Table 4.92 and Table 4.93 present the total realized halibut IFQ harvest in the commercial sector in 2011 through 2014, contrasted with the estimated halibut IFQ pounds that may have been harvested in 2011 through 2014 given various scenarios of RQE holdings in these years for Areas 2C and 3A, respectively. These tables present RQE QS-holding scenarios based on unrestricted cumulative caps (i.e. no prohibition against D shares or limitation on holdings blocked QS) and under the assumption that an RQE holds up to the cap. These tables also contrast the total commercial halibut IFQ gross ex-vessel revenue that may have been earned in 2011–2014 under various RQE maximum cumulative holding scenarios for Areas 2C and 3A, respectively. The calculations for these estimated commercial halibut IFQ harvests assume that the historic percent harvested in years 2011–2014 would remain the same. The ex-vessel price per pound used to compute total gross revenues was based off of state-wide estimates compiled by CFEC and AKFIN (see Figure 4-9).

As shown in Table 4.92 the actual pounds of commercial IFQ harvested in Area 2C ranged from 2.3 to 3.2 million pounds from 2011 to 2014. Under the 5 percent RQE maximum cumulative holding scenario, the total estimated commercial IFQ halibut harvest would have been between 2.2 and 3.1 million pounds; under the 20 percent RQE maximum cumulative holding scenario, the total estimated commercial IFQ halibut harvest would have been 1.8 and 2.6 million pounds. The actual amount of ex-vessel revenue earned in Area 2C ranged from \$14.3 million in 2013 to \$19.4 million in 2014. Under the 5 percent RQE maximum cumulative holding scenario, the total estimated commercial IFQ halibut harvest ex-vessel revenue would have been \$13.5 to \$18.4 million; under the 20 percent RQE maximum cumulative holding scenario, the total estimate commercial IFQ halibut harvest ex-vessel revenue would have been \$11.4 to \$15.5 million. The difference between what historically occurred and what is estimated to have potentially occurred under the various RQE maximum cumulative holding scenarios are estimated to be anywhere from a decline of \$730,170 (5 percent RQE holdings, 2013) to a decline of \$3.9 million (20 percent RQE holdings, 2014) for the commercial fishery as a whole.

Table 4.92 Actual past IFQ harvest ex-vessel value compared to estimated past IFQ harvest ex-vessel value under unrestricted option for Area 2C, 2011 through 2014

RQE QS holding scenario	Year	Actual		Estimated based on RQE holdings		Ex-Vessel Price per Pound	Actual		Estimated based on RQE holdings	Difference
		Total IFQ	Total Harvest	Total IFQ	Total Harvest		Total Ex-Vessel Value	Total Ex-Vessel Value		
5% RQE Cumulative Cap	2011	2,330,000	2,292,926	2,210,623	2,175,449	\$6.62	\$15,179,170	\$14,401,470	-\$777,701	
	2012	2,624,000	2,527,243	2,489,142	2,397,358	\$5.77	\$14,582,192	\$13,832,755	-\$749,437	
	2013	2,970,000	2,861,611	2,818,131	2,715,284	\$4.99	\$14,279,439	\$13,549,269	-\$730,170	
	2014	3,318,720	3,215,399	3,149,583	3,051,528	\$6.03	\$19,388,856	\$18,400,714	-\$988,142	
10% RQE Cumulative Cap	2011	2,330,000	2,292,926	2,094,275	2,060,951	\$6.62	\$15,179,170	\$13,643,497	-\$1,535,673	
	2012	2,624,000	2,527,243	2,358,135	2,271,181	\$5.77	\$14,582,192	\$13,104,715	-\$1,477,477	
	2013	2,970,000	2,861,611	2,669,808	2,572,375	\$4.99	\$14,279,439	\$12,836,150	-\$1,443,289	
	2014	3,318,720	3,215,399	2,983,816	2,890,921	\$6.03	\$19,388,856	\$17,432,256	-\$1,956,600	
15% RQE Cumulative Cap	2011	2,330,000	2,292,926	1,977,926	1,946,454	\$6.62	\$15,179,170	\$12,885,525	-\$2,293,645	
	2012	2,624,000	2,527,243	2,227,127	2,145,004	\$5.77	\$14,582,192	\$12,376,675	-\$2,205,517	
	2013	2,970,000	2,861,611	2,521,486	2,429,465	\$4.99	\$14,279,439	\$12,123,030	-\$2,156,409	
	2014	3,318,720	3,215,399	2,818,048	2,730,315	\$6.03	\$19,388,856	\$16,463,797	-\$2,925,059	
20% RQE Cumulative Cap	2011	2,330,000	2,292,926	1,861,577	1,831,957	\$6.62	\$15,179,170	\$12,127,553	-\$3,051,617	
	2012	2,624,000	2,527,243	2,096,120	2,018,828	\$5.77	\$14,582,192	\$11,648,636	-\$2,933,556	
	2013	2,970,000	2,861,611	2,373,163	2,286,555	\$4.99	\$14,279,439	\$11,409,911	-\$2,869,528	
	2014	3,318,720	3,215,399	2,652,281	2,569,708	\$6.03	\$19,388,856	\$15,495,338	-\$3,893,518	

Source: CFEC and AKFIN; NMFS RAM Division, QS Transfer Report, 2015; Northern Economics, Inc. estimates from NOAA (2015a)

As shown in Table 4.93 the actual pounds of commercial IFQ harvested in Area 3A ranged from 14.3 to 7.4 million pounds from 2011 to 2014. Under the 5 percent RQE maximum cumulative holding scenario, the total estimated commercial IFQ halibut harvest would have been between 13.5 and 6.7 million pounds; under the 20 percent RQE maximum cumulative holding scenario, the total estimated commercial IFQ halibut harvest would have been 11.4 and 5.7 million pounds. The actual amount of ex-vessel revenue earned in Area 3A ranged from \$94.5 million in 2011 to \$44.3 million in 2014. Under the 5 percent RQE maximum cumulative holding scenario, the total estimated commercial IFQ halibut harvest ex-vessel revenue would have been \$89.7 to \$40.5 million; under the 20 percent RQE maximum cumulative holding scenario, the total estimate commercial IFQ halibut harvest ex-vessel revenue would have been \$75.5 to \$34.1 million. The difference between what historically occurred and what is estimated to have potentially occurred under the various RQE maximum cumulative holding scenarios are estimated to be anywhere from a decline of \$2.7 million (5 percent RQE holdings, 2013), to a decline of \$18.9 million (20 percent RQE holdings, 2011) for the commercial sector as a whole.

Table 4.93 Actual past IFQ harvest ex-vessel value compared to estimated past IFQ harvest ex-vessel value under unrestricted option for Area 3A, 2011 through 2014

RQE QS holding scenario	Year	Actual		Estimated based on RQE holdings		Ex-Vessel Price per Pound	Actual		Estimated based on RQE holdings	Difference
		Total IFQ	Total Harvest	Total IFQ	Total Harvest		Total Ex-Vessel Value	Total Ex-Vessel Value		
5% RQE Cumulative Cap	2011	14,360,000	14,268,030	13,637,295	13,549,953	\$6.62	\$94,454,359	\$89,700,692	-\$4,753,667	
	2012	11,918,000	11,688,285	11,317,549	11,099,407	\$5.77	\$67,441,404	\$64,043,580	-\$3,397,824	
	2013	11,030,000	10,824,476	10,480,212	10,284,933	\$4.99	\$54,014,135	\$51,321,813	-\$2,692,322	
	2014	7,317,730	7,353,550	6,686,272	6,719,001	\$6.03	\$44,341,907	\$40,515,574	-\$3,826,332	
10% RQE Cumulative Cap	2011	14,360,000	14,268,030	12,919,542	12,836,798	\$6.62	\$94,454,359	\$84,979,603	-\$9,474,756	
	2012	11,918,000	11,688,285	10,721,888	10,515,228	\$5.77	\$67,441,404	\$60,672,865	-\$6,768,539	
	2013	11,030,000	10,824,476	9,928,622	9,743,620	\$4.99	\$54,014,135	\$48,620,665	-\$5,393,470	
	2014	7,317,730	7,353,550	6,334,363	6,365,369	\$6.03	\$44,341,907	\$38,383,176	-\$5,958,731	
15% RQE Cumulative Cap	2011	14,360,000	14,268,030	12,201,790	12,123,643	\$6.62	\$94,454,359	\$80,258,514	-\$14,195,845	
	2012	11,918,000	11,688,285	10,126,228	9,931,049	\$5.77	\$67,441,404	\$57,302,151	-\$10,139,254	
	2013	11,030,000	10,824,476	9,377,032	9,202,308	\$4.99	\$54,014,135	\$45,919,517	-\$8,094,618	
	2014	7,317,730	7,353,550	5,982,454	6,011,738	\$6.03	\$44,341,907	\$36,250,777	-\$8,091,129	
20% RQE Cumulative Cap	2011	14,360,000	14,268,030	11,484,038	11,410,487	\$6.62	\$94,454,359	\$75,537,425	-\$18,916,934	
	2012	11,918,000	11,688,285	9,530,567	9,346,869	\$5.77	\$67,441,404	\$53,931,436	-\$13,509,969	
	2013	11,030,000	10,824,476	8,825,442	8,660,996	\$4.99	\$54,014,135	\$43,218,369	-\$10,795,766	
	2014	7,317,730	7,353,550	5,630,545	5,658,106	\$6.03	\$44,341,907	\$34,118,378	-\$10,223,528	

Source: CFEC and AKFIN; NMFS RAM Division, QS Transfer Report, 2015; Northern Economics, Inc. estimates from NOAA (2015a)

The displacement of commercial revenue illustrated in Table 4.92 and Table 4.93 due to an acquisition of halibut QS by an RQE, could also have a negative distributional impact on commercial halibut processors, their employees, and support sectors. 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 and this section provides a sense for the magnitude of foregone harvest at different RQE holding levels.

Due to the allocation of IFQ to harvesters and the gradual shift from frozen to a fresh halibut market that followed the implementation of the IFQ program, there is indication that some of the bargaining power previously held by processors shifted to the harvesting sector (NPFMC, 2016). Diversification became important to the survival of a processing operation, as well as a way to find use from the sunk costs of freezing and storage capacity built up in the derby days of halibut and sablefish fisheries. While not their most profitable species for many operations, processing representatives have indicated halibut has been important to maintaining relationships with existing fishery participants, prolonging the duration of employment for processing plant workers, as well as for value added products. In other words, although processors may no longer be making substantial margins on processing halibut, the processing of this species may still provide ancillary benefits to processor operations. Cumulative caps on RQE transfers may limit the negative impacts to processors. Annual caps may slow the transition of QS to a non-commercial entity, allowing businesses to adapt and potentially diversify. The diversification of operations and an RQE's expected impact on the communities is further discussed in Section 4.8.2.3.

In addition to loss of revenue within the commercial sector and support industries, another primary concern is the potential for **Alternative 2** to further consolidate the commercial fleet, which can negatively impact captains and crew that do not hold QS, as well as their 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.

The extent to which consolidation would be expected to occur, depends both on the magnitude of QS transferred, as well as how those transfer impact existing operations. 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 should focus on transfer restrictions in order to mitigate this impact.

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 redistribute 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.

While some individuals/ entities in the commercial halibut sector may be negatively impacted by another player in the commercial halibut QS market, QS holders in the fishery could experience some distributional benefits from the proposed RQE. For example, individual QS holders may benefit from the available transactions with an RQE. If an RQE is able to acquire the funding, and are willing to pay above the market rate for QS, they may be able to offer QS holders a premium price. Any entity that currently holds QS could benefit as the value of their QS increases with an 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.

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 on which to fish. 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.

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 issues 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, and the RQE program could provide these QS holders with an economic option not currently available to them.

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 small blocked 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. Cumulative and annual QS use caps could also diminish the shock to the market.

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 for entry. The more types of transfer restrictions placed on an RQE (on prohibiting or limiting certain classes, blocks, etc.), the more likely an RQE will struggle to identify available QS for purchase.

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 Milb of harvest, non-charter sport fishing made up 1.14 Milb of harvest, and charter halibut fishing (plus wastage) contributed 0.76 Milb of harvest in Area 2C. In Area 3A, subsistence fishing contributed 0.25 Milb of harvest, non-charter sport fishing harvested 1.49 Milb, and charter fishing (plus wastage) contributed 1.78 Milb (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 depletion 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 have a significant economic impact in communities.

Commercial fishing creates economic impacts in many ways. The sector 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 directly and indirectly lead to local employment opportunity. Economic impacts take place in the communities where fish are landed and in communities where vessel owners, crew and QS holders spend their income associated with harvesting of halibut; sometimes these represent the same communities, and sometimes not.

As described in Section 4.8.1.5.3, there are a number of municipal, state, and federal-level taxes that the commercial halibut fishing sector contributes to; funding a variety of important community services. Table 4.94 and Table 4.95 that, under the proposed RQE program, there is a potential for less revenue from commercial IFQ halibut landings to contribute to these taxes, regardless of the option or maximum cumulative scenario. The Fisheries Business Tax (“raw fish tax”), which is levied on persons who process or export fisheries resources from Alaska, would decline proportionally with the reduction in landed pounds; as would any borough or municipality-levied raw fish tax (DOJ 2016). Confidentiality restrictions limit the discussion as to which communities may be the most affected by a drop in commercial raw fish tax but data from Table 4-27 provides a general indication of the communities that experience the most IFQ halibut landings; these include Kodiak, Homer, Petersburg, and Seward.

The fresh market for halibut has incentivized a distribution chain that seeks to bring the fish to the consumer as quickly as possible. Sometimes this means that the halibut is not processed in the community of landing, but is immediately transported closer to a wholesale market. To the extent that halibut is not processed in the community of landing, an RQE holding QS may not change the raw fish tax revenue or some of the economic activity occurring within that community of landing.

The charter sector also 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 (see Section 4.8.1.5.3). 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.⁴⁸ These methods would be particularly difficult to use in estimating the overall economic impact RQE holdings would have to the halibut charter industry from a community level. The challenge in this time of calculation 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 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. However, without significant assumptions, it is difficult to link a change in this charter harvest opportunity with the number of jobs it creates, or the multiplier effect associated with the wage that participants in charter operations (CHP holder, vessel operators, crew, administration, lodge employees) receive, and spend in the community.

Although, it may be a relatively more straight-forward calculation to try to understand how QS no longer fished in the commercial sector, could result in economic impacts related to the commercial sector, there are still noted difficulties which conducting these studies for Alaskan communities, given the unique and sometimes limited components of local economies. McDowell has conducted research looking at fishery-related economic impacts including the number of full-time equivalent (FTE) positions, income earned laborers and harvesters (e.g., direct labor income), the wholesale value difference between raw product and value-added product (e.g., direct value added), the secondary income and effects (e.g., indirect/induced labor and income), and totals for the above items.⁴⁹ As shown in Table 4.94 recent data suggest that 3,800 jobs are directly associated with the halibut/sablefish fishery nationwide, representing \$155 million in labor income; an additional 3,700 jobs and \$235 million in indirect/induced labor income associated with the halibut/sablefish fishery nationwide. As shown in Table 4.95 the total economic impact associated with the halibut/sablefish fishery represents between 6 and 7 percent of the total nationwide economic impact associated with all of Alaska's commercial fisheries.

⁴⁸ 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).

⁴⁹ Full-time equivalents is a measure of total employment which converts part-time positions into full-time jobs. For example, two half-time positions working 20 hours per work equals one full-time equivalent. This number does not tell the reader the number of people employed by the industry but allows industry to industry comparisons of total employment potential in a standard metric.

Table 4.94. Commercial Fishing Economic Impacts by Species, Estimated Contributions to the National Economy

	Salmon	Crab	Alaska Pollock	Pacific Cod	Other Groundfish	Halibut/ Sablefish	Total
Direct FTE Jobs	18,400	7,300	13,900	6,700	3,100	3,800	53,200
Direct Labor Income (MM)	\$845	\$288	\$665	\$281	\$162	\$155	\$2,396
Direct Value Added (MM)	\$2,151	\$715	\$1,704	\$705	\$418	\$386	\$6,079
Indirect/Induced FTE Jobs	19,700	6,900	15,400	6,700	3,700	3,700	56,100
Indirect/Induced Labor Income (MM)	\$1,119	\$451	\$840	\$411	\$188	\$235	\$3,244
Indirect/Induced Value Added (MM)	\$2,917	\$1,014	\$2,285	\$981	\$550	\$543	\$8,290
Total FTE Jobs	38,100	14,200	29,300	13,400	6,800	7,500	109,300
Total Labor Income (MM)	\$1,964	\$738	\$1,506	\$692	\$350	\$389	\$5,639
Total Value Added (MM)	\$5,068	\$1,729	\$3,990	\$1,686	\$968	\$929	\$14,370

Source: McDowell Group 2015

Table 4.95. Commercial Fishing Economic Impacts by Species, Estimated Contributions to the National Economy (percent)

	Salmon	Crab	Alaska Pollock	Pacific Cod	Other Groundfish	Halibut/ Sablefish	Total
Direct FTE Jobs	34.6%	13.7%	26.1%	12.6%	5.8%	7.1%	100.0%
Direct Labor Income	35.3%	12.0%	27.8%	11.7%	6.8%	6.5%	100.0%
Direct Value Added	35.4%	11.8%	28.0%	11.6%	6.9%	6.3%	100.0%
Indirect/Induced FTE Jobs	35.1%	12.3%	27.5%	11.9%	6.6%	6.6%	100.0%
Indirect/Induced Labor Income	34.5%	13.9%	25.9%	12.7%	5.8%	7.2%	100.0%
Indirect/Induced Value Added	35.2%	12.2%	27.6%	11.8%	6.6%	6.6%	100.0%
Total FTE Jobs	34.9%	13.0%	26.8%	12.3%	6.2%	6.9%	100.0%
Total Labor Income	34.8%	13.1%	26.7%	12.3%	6.2%	6.9%	100.0%
Total Value Added	35.3%	12.0%	27.8%	11.7%	6.7%	6.5%	100.0%

Source: McDowell Group 2015

Due to confidentiality issues around the limited number of processors in some communities, species diversification cannot be presented at the community level. Instead Table 4.96 compares the estimated loss in ex-vessel revenue for Area 2C to the total regional harvest value for the Southeast region from 2011-2014. This table relies on CFEC/ AKFIN ex-vessel values produced by area (see Figure 4-9) applied to the IFQ pounds that could have been held by an RQE during 2011 through 2014, under different transfer restrictions scenarios, and total regional harvest value produced by McDowell (2015). The total harvest value for the region ranged from \$260 million in 2014 to \$333 million in 2013. Compared to the estimated declines in the commercial IFQ halibut fishery, depending on RQE maximum cumulative limits, the estimated losses would be between 0.2 to 1.5 percent.

Table 4.96. Total Regional Harvest Value (“Southeast”, All Species) Compared to Lost Halibut Harvest Value in the Unrestricted Option, Area 2C

Year	5% RQE Cumulative Cap Reduction in Ex- Vessel IFQ Halibut Value (Estimated)	10% RQE Cumulative Cap Reduction in Ex- Vessel IFQ Halibut Value (Estimated)	15% RQE Cumulative Cap Reduction in Ex- Vessel IFQ Halibut Value (Estimated)	20% RQE Cumulative Cap Reduction in Ex- Vessel IFQ Halibut Value (Estimated)	Total Regional Harvest Value
2011	-\$777,701	-\$1,535,673	-\$2,293,645	-\$3,051,617	\$330,000,000
2012	-\$749,437	-\$1,477,477	-\$2,205,517	-\$2,933,556	\$274,000,000
2013	-\$730,170	-\$1,443,289	-\$2,156,409	-\$2,869,528	\$333,000,000
2014	-\$988,142	-\$1,956,600	-\$2,925,059	-\$3,893,518	\$260,000,000
Year	5% RQE Cumulative Cap Reduction in Ex- Vessel IFQ Halibut Value (Estimated)	10% RQE Cumulative Cap Reduction in Ex- Vessel IFQ Halibut Value (Estimated)	15% RQE Cumulative Cap Reduction in Ex- Vessel IFQ Halibut Value (Estimated)	20% RQE Cumulative Cap Reduction in Ex- Vessel IFQ Halibut Value (Estimated)	Total Regional Harvest Value
2011	-0.24%	-0.47%	-0.70%	-0.92%	100%
2012	-0.27%	-0.54%	-0.80%	-1.07%	100%
2013	-0.22%	-0.43%	-0.65%	-0.86%	100%
2014	-0.38%	-0.75%	-1.13%	-1.50%	100%

Source: CFEC and AKFIN; NMFS RAM Division, QS Transfer Report, 2015; Northern Economics, Inc. estimates from NOAA (2015a); McDowell Group 2015

Table 4.97 presents the estimated loss in ex-vessel revenue for Area 3A compared to the total regional harvest value for the Southcentral and Kodiak Island regions combined from 2011 through 2014. The total harvest value for the region ranged from \$388 million in 2014 to \$497 million in 2013. Compared to the estimated declines in the commercial IFQ halibut fishery, depending on RQE maximum cumulative limits, the estimated losses would be between 0.5 and 3.9 percent.

Table 4.97. Total Regional Harvest Value ("Southcentral", All Species) Compared to Lost Halibut Harvest Value in the Unrestricted Option, Area 3A

Year	5% RQE Cumulative Cap Reduction in Ex- Vessel IFQ Halibut Value (Estimated)	10% RQE Cumulative Cap Reduction in Ex- Vessel IFQ Halibut Value (Estimated)	15% RQE Cumulative Cap Reduction in Ex- Vessel IFQ Halibut Value (Estimated)	20% RQE Cumulative Cap Reduction in Ex- Vessel IFQ Halibut Value (Estimated)	Total Regional Harvest Value
2011	-\$4,753,667	-\$9,474,756	-\$14,195,845	-\$18,916,934	\$483,000,000
2012	-\$3,397,824	-\$6,768,539	-\$10,139,254	-\$13,509,969	\$463,000,000
2013	-\$2,692,322	-\$5,393,470	-\$8,094,618	-\$10,795,766	\$497,000,000
2014	-\$3,826,332	-\$5,958,731	-\$8,091,129	-\$10,223,528	\$388,000,000
Year	5% RQE Cumulative Cap Reduction in Ex- Vessel IFQ Halibut Value (Estimated)	10% RQE Cumulative Cap Reduction in Ex- Vessel IFQ Halibut Value (Estimated)	15% RQE Cumulative Cap Reduction in Ex- Vessel IFQ Halibut Value (Estimated)	20% RQE Cumulative Cap Reduction in Ex- Vessel IFQ Halibut Value (Estimated)	Total Regional Harvest Value
2011	-0.98%	-1.96%	-2.94%	-3.92%	100%
2012	-0.73%	-1.46%	-2.19%	-2.92%	100%
2013	-0.54%	-1.09%	-1.63%	-2.17%	100%
2014	-0.99%	-1.54%	-2.09%	-2.63%	100%

Source: CFEC and AKFIN; NMFS RAM Division, QS Transfer Report, 2015; Northern Economics, Inc. estimates from NOAA (2015a); McDowell Group 2015

While Table 4.96 and Table 4.97, demonstrate that RQE holdings of even up to 20 percent of the available commercial QS does not represent a substantial percent of regional commercial harvest value at an area level, at a community level, this ex vessel revenue could be a significant contribution to the local economy. There are many ways to describe “community dependence” on commercial halibut fishing. As described earlier, benefits can manifest in the community of landing, but also the communities where vessel owners, crew, and QS holders reside, and these are not always the same place. By linking vessel owners with their registered address, Table 4.98 categorizes communities/ locations that are dependent on halibut relative to other commercial fisheries. This table categorizes communities based on the proportion of total fisheries ex vessel revenue that Area 2C and 3A halibut IFQ ex vessel revenue accounts for. These communities do not necessarily indicate where the halibut is landed, but demonstrates beneficial economic activity under the assumption that vessel owners will spend some of their income generated from halibut fishing in their home (i.e. registered) community. A caveat to Table 4.98 is that fisheries relative dependence says nothing about other economic opportunities in that community. For example, Eagle River is a larger metropolitan Alaskan city with other economic opportunities outside of commercial fishing. Additionally, some of these communities are also dependent on charter fishing; for example, Anchor Point, Alaska.

Table 4.98 Communities/locations categorized by Area 2C and 3A halibut IFQ dependency, based on vessel owners' halibut ex vessel revenue, compared to vessel owners' total fisheries ex vessel revenue, 2011 through 2015

>1 to 10% ex vessel revenue		>10 to 20% ex vessel revenue		>20 to 40% ex vessel revenue		>40 to 60% ex vessel revenue	
Community	Number of vessels	Community	Number of vessels	Community	Number of vessels	Community	Number of vessels
PORT ALEXANDER	21	NINILCHIK	23	CLAM GULCH	8	YAKUTAT	96
EDNA BAY	12	HAINES	107	ANCHOR POINT	39	HYDER	3
THORNE BAY	17	PETERSBURG	436	DOUGLAS	40	HALIBUT COVE	5
KODIAK	371	FAIRBANKS	25	EAGLE RIVER	31	STERLING	25
WILLOW	15	DELTA JUNCTION	21	PELICAN	31		
METLAKATLA	50	HOONAH	79	SELDOVIA	20		
SOLDOTNA	80	WRANGELL	223	OUZINKIE	17		
CRAIG	152	SEWARD	59	AUKE BAY	30		
KETCHIKAN	299	JUNEAU	295	ELFIN COVE	33		
POINT BAKER	14	SITKA	609	FRITZ CREEK	17		
KENAI	96	HOMER	549				
CORDOVA	454	GUSTAVUS	36				
DUTCH HARBOR	17	KAKE	31				
ANGOON	3						
WASILLA	145						
VALDEZ	46						
PALMER	45						
OLD HARBOR	12						
WARD COVE	54						
ANCHORAGE	336						
WHITTIER	10						
KASILOF	70						

Source: AKFIN gross revenue procedure

Note: This table does not include communities/ locations in which less than 1 percent of their vessel owners' ex vessel revenue is derived from Area 2C or 3A halibut IFQ. A number of communities have less than three vessels and can therefore not be included in this table due to confidentiality. These communities include: Galena, Central, and Chiniak.

Given the diversity in charter/commercial community relationships by Alaskan community, the largest negative impacts would be expected to occur in small GOA communities that do not benefit from charter operations, have limited diversity in other fisheries, and has either a resident or a major “lander” choose to sell their QS to an RQE. For the larger, more diverse communities any impact from a transfer is more likely to be *de minimus* on the community. By combining Table 4-27 and Table 4-30 from the background section, Table 4.99 through Table 4.101 demonstrate communities that include both charter and commercial halibut landings in 2014 (using communities with greater than 200 charter trips). This does not mean that the communities listed benefit evenly from activity each sector, but gives some indication to communities that could experience benefits related to increased charter opportunities, possible costs related to a decrease in commercial fishing, or a combination of impacts, based off an RQE holding QS. Several communities that are reported to have accepted Area 2C and 3A halibut IFQ landings in 2014, were not listed as communities with halibut charter operations (from Table 4-27). These communities include Kenai, Hyder, Alitak, Port Protection, Sand Point, and “other Alaska” (making up a small percentage of 2C IFQ landings), as well as Seattle and Bellingham, Washington.

Table 4.99 Southeast Alaska communities/ locations that had both charter and commercial landings in 2014

Community	Commercial Port?	Total charter trips
SITKA	X	24,946
KETCHIKAN	X	8,335
WATERFALL		6,826
CRAIG	X	5,442
JUNEAU/ AUKE BAY	X	4,520
GUSTAVUS		4,032
ELFIN COVE		3,459
YAKUTAT	X	2,843
YES BAY		2,599
PETERSBURG	X	2,270
ANGOON		1,803
KLAWOCK		1,603
SPORTSMAN COVE		1,287
EL CAPITAN LODGE		1,174
WARM SPRINGS BAY		1,101
THORNE BAY		1,058
PYBUS POINT		1,035
PELICAN		983
HOONAH	X	797
SALMON FALLS		772
KNUDSON COVE		707
APPLE ISLAND		670
WRANGELL	X	482
POINT BAKER		405
PORT ST NICHOLAS		397
CLOVER PASS		394
COFFMAN COVE	X	389
S KAIGANI BAY		388
STEAMBOAT BAY		370
PORT ALEXANDER	X	312
PYBUS POINT LODGE		293
BAY OF PILLARS		282
SARKAR COVE		262
WHALE PASS		256
CLOVER BAY		241
KELP BAY		236
HAINES	X	228
BARTLETT COVE		213
TENAKEE		213

Source: NOAA, RAM Division and ADF&G Saltwater Charter Logbooks, sourced through AKFIN
Note that some commercial ports may not be marked if IFQ landings were attributed to a larger nearby port.
Only communities/ locations with greater than 200 charter trips reported are included.

Table 4.100 Kodiak Island Alaska communities/ locations that had both charter and commercial landings in 2014

Community	Commercial Port?	Total charter trips
KODIAK	X	3,276
LARSEN BAY		1,387
PORT LIONS		832
OLD HARBOR		822
SEAL BAY (SC)		372
KILIUDA BAY		281
UGANIK BAY		242

Source: NOAA, RAM Division and ADF&G Saltwater Charter Logbooks, sourced through AKFIN

Note that some commercial ports may not be marked if IFQ landings were attributed to a larger nearby port (i.e. Kodiak). Only communities/ locations with greater than 200 charter trips reported are included.

Table 4.101 Southcentral Alaska communities/ locations that had both charter and commercial landings in 2014

Community	Commercial Port?	Total charter trips
HOMER	X	19,626
SEWARD	X	15,655
DEEP CREEK		11,633
ANCHOR POINT		4,943
WHITTIER	X	2,344
VALDEZ	X	2,179
NINILCHIK		1,289
HAPPY VALLEY		1,045
IRON CREEK		415
CORDOVA	X	339
LOWELL POINT		331
SELDOVIA		268
RASPBERRY ISLAND		228

Source: NOAA, RAM Division and ADF&G Saltwater Charter Logbooks, sourced through AKFIN

Note that some commercial ports may not be marked if IFQ landings were attributed to a larger nearby port. Only communities/ locations with greater than 200 charter trips reported are included.

Overall, impacts of an RQE would be expected to differ across communities and in part would depend on how engaged the communities are in the two different sectors, and how QS sales to an RQE affects existing commercial landings and operations and charter operations. Setting total and annual QS caps could slow the 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 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.

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.

Bringing 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.

5 INITIAL REGULATORY FLEXIBILITY 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 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* in the action alternative (**Alternative 2**). The operative action in this alternative 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, the RFA focuses on those entities that are *directly regulated* by the action alternative.⁵⁰ In light of this guidance, the pool of entities considered directly regulated by **Alternative 2** is limited to those entities that would be engaging in QS transfer (i.e., QS holders and a future RQE).

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. In the case of a future RQE, this type of entity would be considered a small as it would fit the standard of: “small non-profit, defined to be independently owned and non-dominate in its field of operation.”

QS holders in the commercial halibut fishery would also be considered directly regulated in **Alternative 2** of this action, as a regulatory amendment 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 2C, and 1,453 QS holders at the end of 2014 in Area 3A. If an RQE was not able to purchase D class QS and/ or blocked QS (less than \leq 1,500 or 2,000 pounds), 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). For example, 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 1,079 for Area 2C and 3A, respectively. Although affiliations are to be incorporated for purposes of the RFA, available data cannot always take into account

⁵⁰ The NMFS Regional Economist for Alaska provides guidance on the preparation of the IRFA (Queirolo 2013). That guidance states that for a small entity to be “directly regulated” by the action, the action must require some affirmative action on the part of the specific entity. This is a higher threshold than simply stating that an entity is potentially impacted by the action. The action alternative under consideration merely “allows” for the charter sector to form a non-profit RQE group and purchase QS; it does not require it. Secondary impacts of QS purchases cannot strictly be described as the result of direct regulation. It is questionable whether a future RQE entity or QS holder are directly regulated by the considered action, since no affirmative action on their part is *required*.

all affiliations between entities. Therefore, these estimates may overstate the number of small entities (and conversely, understate the number of large entities).

Vessel operators are not considered “directly regulated” for purposes of Alternative 2, because this action would not require them to take any affirmative action. However, because there are no data to directly link QS holders with fishery revenue they may generate, it is not possible to determine the number of QS holders that are “small entities”. Therefore, vessels that are used to harvest IFQ are examined as a proxy.

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.

It is common for more than one QS holder to 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 the amount reported by vessel, 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 more than five large entities.

5.7 Recordkeeping and Reporting Requirements

This section will not be fully completed until the Council selects a preferred alternative. At this stage, under the Council’s PPA, the proposed action would not require any additional recordkeeping and reporting requirements for existing or future commercial IFQ participants, the action simply allows them added opportunity to sell QS.

For a future RQE, Alternative 2, Element 5, Option 4, of the proposed action creates a new reporting requirement in the form of an annual report that must be submitted to NMFS detailing an RQE’s activities during the prior year. Once the Council’s PA is established, NMFS may provide a more complete description of the requirements within an annual reports, modeled off annual report requirements for a Community Quota Entity (CQE). At that time an estimate of reporting burden will also be calculated. An RQE will not be mandated to fulfill these reporting requirements unless they choose to participate in the program, and participation in the program is on a voluntary basis.

5.8 Federal Rules that may Duplicate, Overlap, or Conflict with Proposed Action

This section will not be fully completed until the Council selects a preferred alternative. However thus far, based on the Council’s PPA, no existing Federal rules have been identified that would duplicate, overlap, or conflict with the proposed action alternative to all for the development of an RQE.

5.9 Description of Significant Alternatives to the Proposed Action that Minimize Economic Impacts on Small Entities

The purpose of an IRFA analysis is to identify if the proposed action will result in a disproportionate and/or significant adverse economic impact on the directly regulated small entities, and to consider alternatives that would lessen this adverse economic impact to those small entities. Section 5.6 highlighted that the

small, directly regulated entities according to SBA definitions, includes a future RQE and commercial halibut QS holders.

Given that participation in this program would not be mandated, but be on a voluntary basis for the directly regulated entities, Alternative 1 (the no action alternative) would not be expected to lessen the adverse economic impact on directly regulated small entities. The impacts from Alternative 2 are expected to be positive towards these entities.

A discussion of the economic impacts to small entities from the options that are presented under Alternative 2 will be expanded on once the Council had identified a preferred alternative. Until then, this section cannot be fully completed.

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 3.3 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, coastwide 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). As with the present analysis, this document focused expected impacts to the health of the halibut resource at the coastwide level, as the IPHC considers this species to be a coastwide stock. This document is available from:

http://alaskafisheries.noaa.gov/analyses/halibut/earirirfa_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 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 (BSAI) 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 (FMP) 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 and prohibited species catch (PSC) 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:

<https://alaskafisheries.noaa.gov/fisheries/groundfish-harvest-specs-eis>.

6.2 Analytical Method

The proposed action alternative, allowing for a recreational quota entity (RQE) to purchase and hold commercial halibut quota share (**Alternative 2**) is chiefly motivated by social and economic concerns. This section identifies the components of the environment that may be affected by Council action and warrant further discussion. Table 6-1 shows the seven 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. As there are many socioeconomic considerations of this proposed, the analysis on expected socioeconomic impacts for action are conducted in the RIR and IRFA (Section 4 and 5).

Table 6-1 Resources potentially affected by the proposed action and alternatives

Alternatives	Potentially affected component						
	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 action alternative.) **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 regulations regarding seasons and gear type would be unchanged. The primary change that could occur would be related to the size composition of halibut retained in the charter sector and the opportunity to shift harvest 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 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 forage 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 Permit⁵¹ (§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.

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

⁵¹ An FFP is free of charge and unrestricted in number. It is required for the harvest of any groundfish species in Federal waters.

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.⁵² 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.

6.3 Pacific halibut

6.3.1.1 Life History, Development, and Feeding Behavior

Pacific halibut (*Hippoglossus stenolepis*) 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).

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

⁵² Although studies have been done on whale depredation in the commercial long-line sector, no comparable studies were 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.

currents. 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.

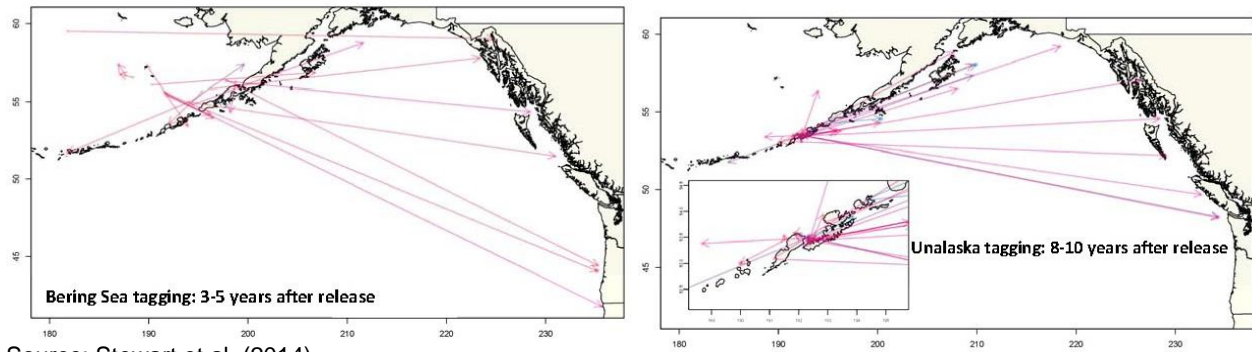
6.3.1.2 Distribution and Migration

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 coastwide 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, GOA (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 IPHC 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 by regulatory area (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

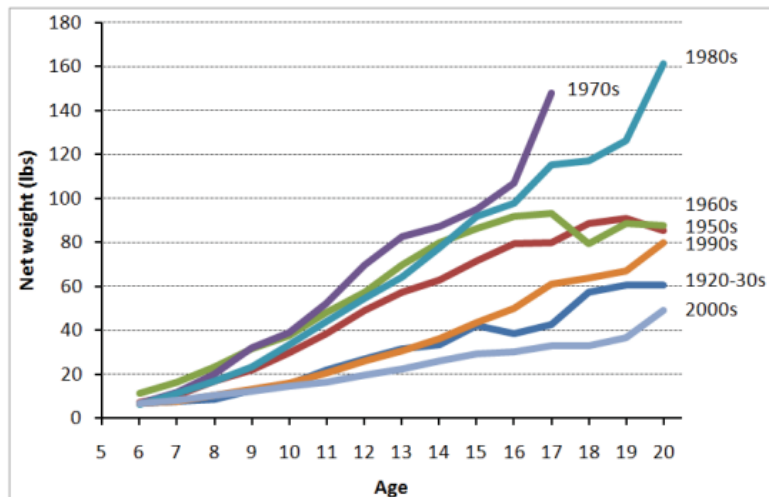
assessed the halibut stock in each regulatory area separately. Since tagging studies in the mid-2000s demonstrated that a substantial portion of the adult stock is migratory, the IPHC has assessed the halibut population as a single stock since 2006 (Meyer 2014). The IPHC combines directed and non-directed 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 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-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 weight-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



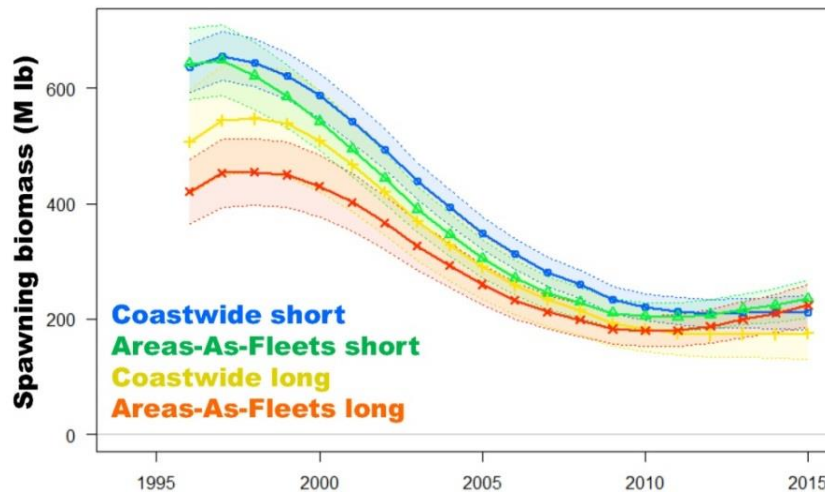
Source: The Pacific Halibut: Biology, Fishery, and Management, Tech Memo No. 59 (IPHC 2014).

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 (short), and the other using the full historical record (long; 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 million pounds (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 median biomass estimates from 1996 through 2015, and also identifies estimates of halibut fishing intensity (from all sources of estimated removals) during that time period from the ensemble model. 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 than MSY rates.

Table 6-2 Median population (millions of pounds, net weight) and fishing intensity estimates (based on median spawning potential ratio) from 2014 assessment

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.

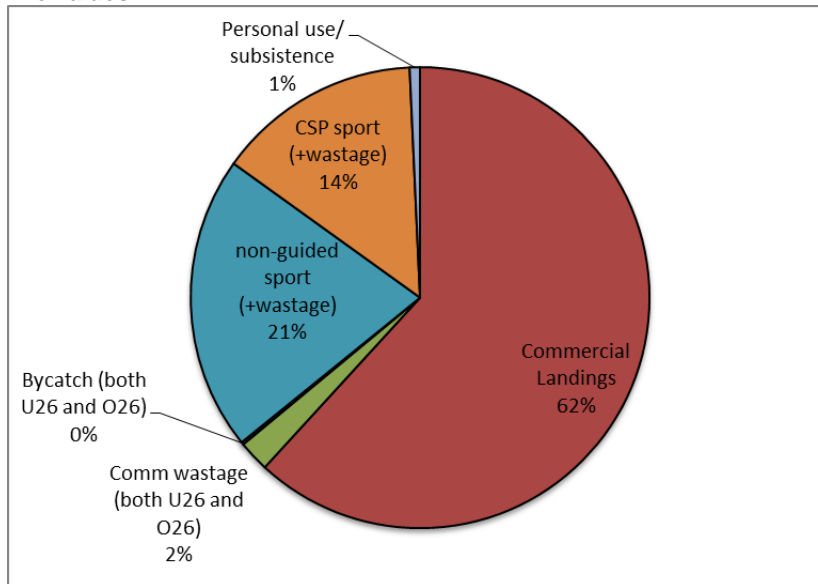
6.3.1.4 Removals

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

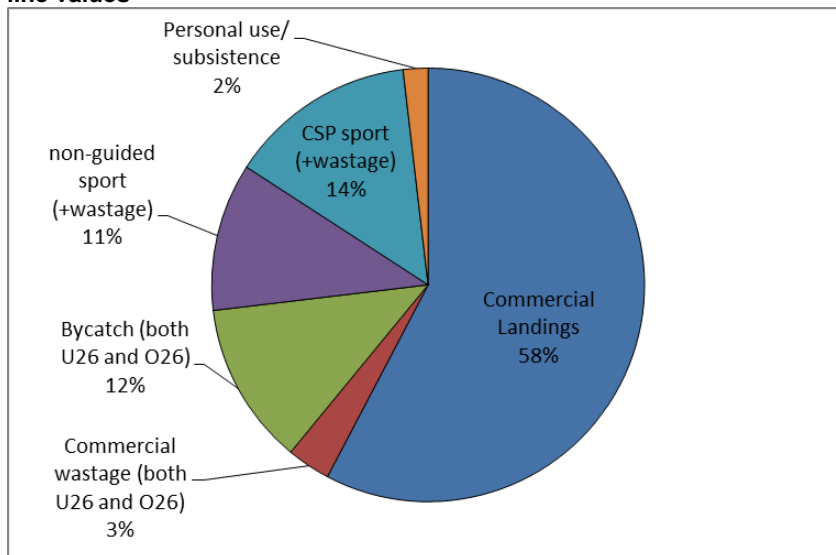
halibut targeted fisheries, and discard mortality in non-halibut directed fisheries. Sport removal of halibut (including the unguided sector) is an important proportion of halibut removals (Figure 6-4 and Figure 6-5). In Area 2C, the IPHC catch table for 2015 allocated 0.79 mt to the guided halibut sport 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 proportion of 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 proportion of 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

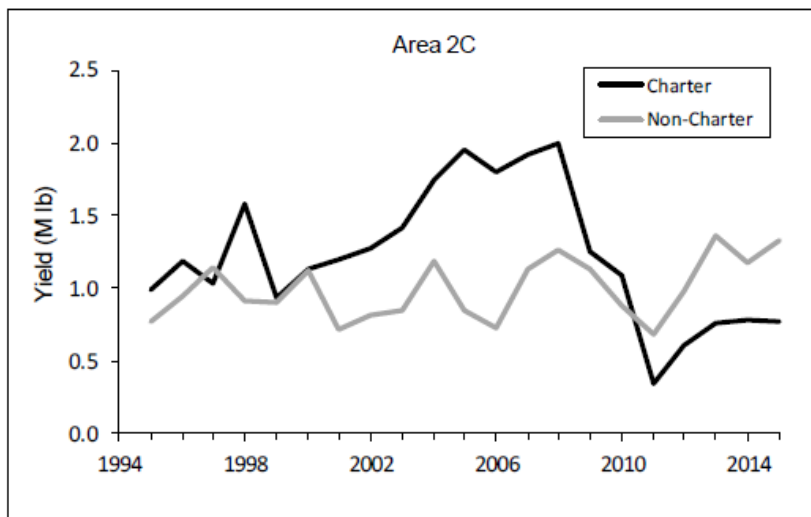
Halibut sport fishing yield was on the rise in Area 2C (with some variation) up until 2008 (Figure 6-6). Both charter and non-charter fishing yield declined from 2008 through 2011, however, the drop was much more significant for the charter sector. In 2011 (the year the regulations for the charter sector allowed for only 1 fish U37), the non-charter sector yield surpassed the charter sector yield by 0.341 Mlb. It has remained greater than the charter sector's yield since. Again, as described in Figure 4-1, non-charter sport fishing removals are not part of the CSP and are deducted from TCEY before catch limits are established. Overall sport removal (excluding release mortality) have been around 2 Mlb in Area 2C from 2013 through 2015.

Figure 6-6 Area 2C sport halibut yield (excluding release mortality) by sector 2000 through 2015. Charter harvest (no. fish) was reported in charter logbooks in 2014 and 2015 and estimated using the ADF&G mail survey before 2014

Year	Charter			Non-Charter			Total Sport Harvest		
	Harvest (no. fish)	Avg. Wt. (lb net)	Yield (Mlb)	Harvest (no. fish)	Avg. Wt. (lb net)	Yield (Mlb)	Harvest (no. fish)	Avg. Wt. (lb net)	Yield (Mlb)
2000	57,208	19.75	1.130	54,432	20.59	1.121	111,640	20.16	2.251
2001	66,435	18.10	1.202	43,519	16.56	0.721	109,954	17.49	1.923
2002	64,614	19.74	1.275	40,199	20.25	0.814	104,813	19.94	2.090
2003	73,784	19.13	1.412	45,697	18.52	0.846	119,481	18.90	2.258
2004	84,327	20.75	1.750	62,989	18.84	1.187	147,316	19.93	2.937
2005	102,206	19.10	1.952	60,364	14.01	0.845	162,570	17.21	2.798
2006	90,471	19.94	1.804	50,520	14.30	0.723	140,991	17.92	2.526
2007	109,835	17.46	1.918	68,498	16.51	1.131	178,333	17.10	3.049
2008	102,965	19.42	1.999	66,296	19.08	1.265	169,261	19.28	3.264
2009	53,602	23.31	1.249	65,549	17.29	1.133	119,151	20.00	2.383
2010	41,202	26.36	1.086	52,896	16.72	0.885	94,098	20.94	1.971
2011	36,545	9.40	0.344	42,202	16.24	0.685	78,747	13.07	1.029
2012	42,436	14.27	0.605	54,696	17.87	0.977	97,132	16.30	1.583
2013	52,675	14.47	0.762	78,078	17.43	1.361	130,753	16.24	2.123
2014	65,036	12.04	0.783	69,060	16.95	1.170	134,096	14.57	1.954
2015	65,656	11.69	0.768	73,816	17.97	1.327	139,472	15.02	2.094

Source: ADF&G 2016

Figure 6-7 Charter and non-charter halibut yield (Mlb) in Area 2C since 1995



Source: ADF&G 2016

Halibut sport fishing removal (excluding release mortality), in Area 3A have also been on the decline since 2007. Unlike Area 2C, non-charter sport fishing yield has not exceeded charter yield; however, Figure 6-9

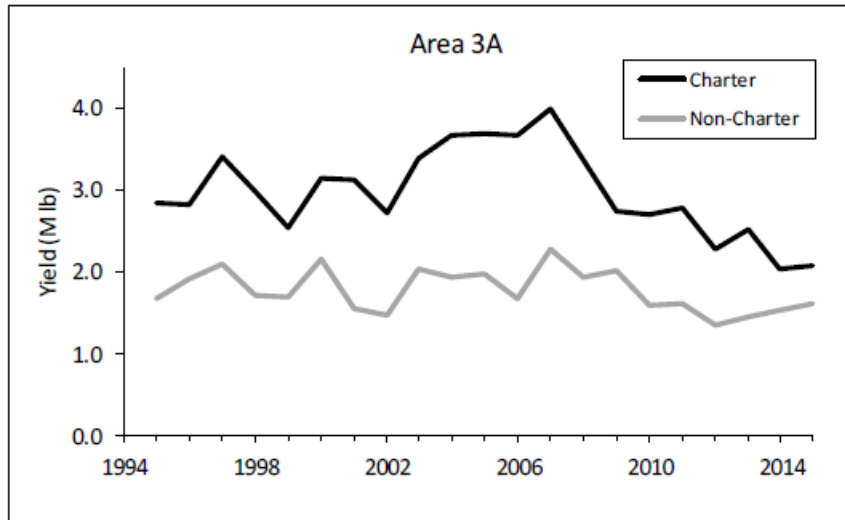
demonstrates these lines merging in more recent years. Overall, Area 3A halibut sport fishing removal (excluding release mortality) has been right around 4 Mlb between 2012 and 2015.

Figure 6-8 Area 3A sport halibut yield (excluding release mortality) by sector 2000 through 2015. Charter harvest (no. fish) was reported in charter logbooks in 2014 and 2015 and estimated using the ADF&G mail survey before 2014

Year	Charter			Non-Charter			Total Sport Harvest		
	Harvest (no. fish)	Avg. Wt. (lb net)	Yield (Mlb)	Harvest (no. fish)	Avg. Wt. (lb net)	Yield (Mlb)	Harvest (no. fish)	Avg. Wt. (lb net)	Yield (Mlb)
2000	159,609	19.67	3.140	128,427	16.86	2.165	288,036	18.42	5.305
2001	163,349	19.18	3.132	90,249	17.09	1.543	253,598	18.43	4.675
2002	149,608	18.20	2.724	93,240	15.86	1.478	242,848	17.30	4.202
2003	163,629	20.67	3.382	118,004	17.34	2.046	281,633	19.27	5.427
2004	197,208	18.60	3.668	134,960	14.35	1.937	332,168	16.88	5.606
2005	206,902	17.83	3.689	127,086	15.61	1.984	333,988	16.98	5.672
2006	204,115	17.95	3.664	114,887	14.57	1.674	319,002	16.73	5.337
2007	236,133	16.95	4.002	166,338	13.71	2.281	402,471	15.61	6.283
2008	198,108	17.05	3.378	145,286	13.37	1.942	343,394	15.49	5.320
2009	167,599	16.31	2.734	150,205	13.47	2.023	317,804	14.97	4.758
2010	177,460	15.20	2.698	124,088	12.79	1.587	301,548	14.21	4.285
2011	184,293	15.16	2.793	128,464	12.57	1.615	312,757	14.09	4.408
2012	173,582	13.16	2.284	113,359	11.83	1.341	286,941	12.64	3.626
2013	199,248	12.62	2.514	121,568	11.94	1.452	320,816	12.36	3.966
2014	174,351	11.67	2.034	127,125	12.06	1.533	301,476	11.83	3.568
2015	163,632	12.63	2.067	136,225	11.86	1.616	299,857	12.28	3.682

Source: ADF&G 2016

Figure 6-9 Charter and non-charter halibut yield (Mlb) in Area 3A since 1995



Source: ADF&G 2016

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 about 9percent over its allocation. The 2C charter sector was estimated to be 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 (2014), Area 3A was estimated at 16 percent over the catch limit, which was cut by almost 1 Milb from 2013. Estimates for 2015 reveal that with increase management restrictions and a 100,000 lb increase in the harvest limit, Area 3A was about eleven percent over the charter catch limit.

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. **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.

This assessment does not break down the discussion of the action alternative into each of its elements, options, and sub-options, as many of these decisions represent more technical components of RQE operations. However, **Alternative 2, Element 2** outlines several types of QS transfer restrictions which, if adopted, could influence the degree environmental impacts of the action alternative may be different from the status quo. The more constraining the transfer restrictions, the more challenging it may be for an RQE to acquire halibut QS. Thus, fishing operations would be expected to more closely match that of the status quo. If the Council does not adopt transfer restrictions under **Alternative 2, Element 2**, any predicted impacts related to the change in harvest intensity by the two sectors could be more acute.

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 under **Alternative 2**. 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 years 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 the halibut 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 has balanced out 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.

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 charter halibut fishery, discarding can occur immediately after a fish is caught. 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. If RQE QS holdings allow for a relaxed size limit or reverse slot limit, it may mitigate some of the discarding that has propagated due to these management measures. From a conservation perspective, benefits may change as slot limits and minimum size limits require the discard of halibut in different size thresholds.

However, these discards do not all constitute wastage. Halibut released by charter anglers have very high survival rates, depending on the type of hook used. 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. 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. 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.

Under **Alternative 2**, the primary environmental consideration with regards to the sustainability of the halibut resource includes the consideration of changes in the spatial or temporal distribution of the fish at a local scale. This is a consideration given the PPA could create an opportunity to shift some harvest intensity from the commercial halibut IFQ fishery to the charter halibut fishery. 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 coastwide stock, and assesses it as such. Given the limited amount of QS that may be transferred to and used in charter sector, particularly under the PPA transfer restrictions (**Alternative 2, Element 2**), relative to the coastwide commercial halibut harvest, 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.**

Although any local impacts to the halibut resource that may occur from this action would not jeopardize the halibut stock, the Council has received public comments on the current perceived or expected impacts of localized depletion based on the harvest intensity of different halibut user groups. Understanding regions that may be more sensitive to changes in halibut harvest intensity or size selectivity is challenging for analysts to assess with available information. Analysts do not have halibut biomass estimates by sub-areas, over time, migratory patterns of halibut by sub-area, or size composition of catch by sector and sub-area. Therefore, it is difficult to describe even the status quo of localized fishing effects based on pressure from different halibut user groups.

IPHC has conducted some 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 (i.e. CPUE did not demonstrate a persistent declining trend).

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 both of these studies was 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.

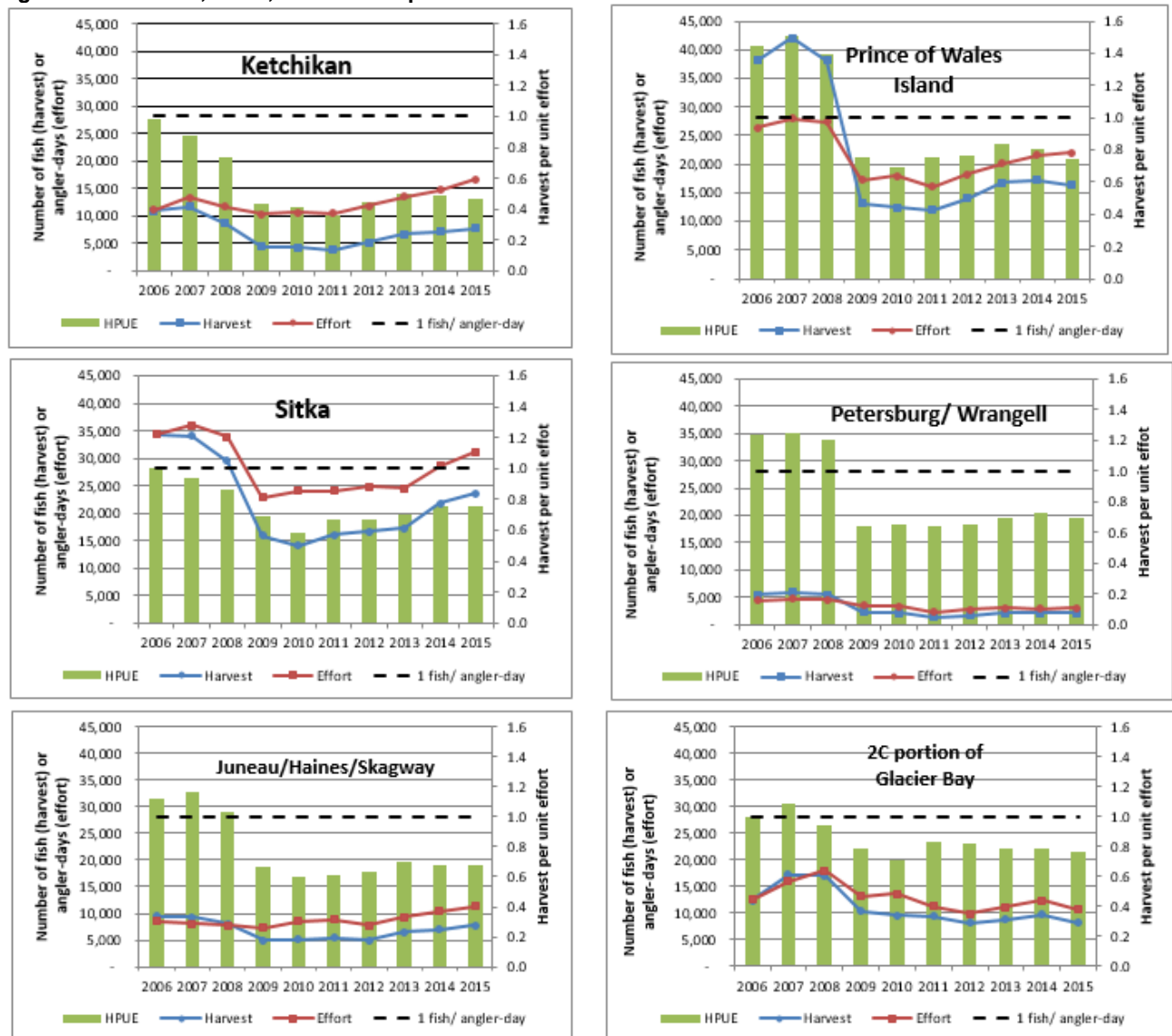
There are several sources of information about the halibut stock and localized fishing behavior that is available at a finer scale of resolution than IPHC regulatory area; however, these types of data are not able to bring clarity to the question of potential localized depletion that may occur from the change in harvest intensity between halibut user groups. As one example, the IPHC conducts annual longline surveys through the Alaskan coastline. IPHC survey data is collected on a 10 nm x 10 nm grid in water depths of 20-275 fathoms. The survey provides a relative abundance index of halibut comparable on a year over year basis. The large spatial placement of stations is valuable in capturing a big picture (large scale) of the halibut

population as a whole, but is poor in its ability to detect localized depletion changes. In Southeast Alaska, the grid pattern is often interrupted by islands/proximity to land, resulting in a spottier coverage; again, this does not lend itself as an appropriate metric for localized changes in halibut abundance. Additionally, the temporal structure (annual) of the stations does not allow for monitoring in-season changes in abundance (due to any reason, seasonal reproductive migration, short term feeding movements, etc.) and the variance seen from year to year could not be pinned down to a specific driver such as quota pressure changing from one locality to another. For this reason, survey data will not lend much enlightenment to possible effects of changing fishing pressure when transferring quota from commercial sector to an RQE.

In addition to IPHC data, statistics of charter angler harvest (number of fish), effort (angler days), harvest per unit effort (HPUE) and the average weight of halibut are available by sub-area. Saltwater logbook data can be used to demonstrate trends in charter harvest by regional port-level. Figure 6-10 and Figure 6-11 demonstrates harvest, effort, and the ratio of the two – harvest per unit effort (HPUE) for sub-area of Area 2C and 3A. This is not a great measure of localized abundance however, because effort and subsequently harvest, are directly relate to angler demand and the management measures that are in place for that year. Local resource abundance may be a factor in these harvest rates, but its influence is intertwined with these other significant influences.

For instance, as one would expect, when the bag limit changed in Area 2C from allowing anglers to retain two fish (one under 32 inches) in 2008 to one fish of any size in 2009, the ratio of fish per angler-day (HPUE) dropped below 1 in every 2C sub-area. Given the temporary period of time in 2008 which a one fish of any size bag limit also existed in 2C (later halted by injunction), the HPUE in some areas dropped below 1 earlier than 2009.

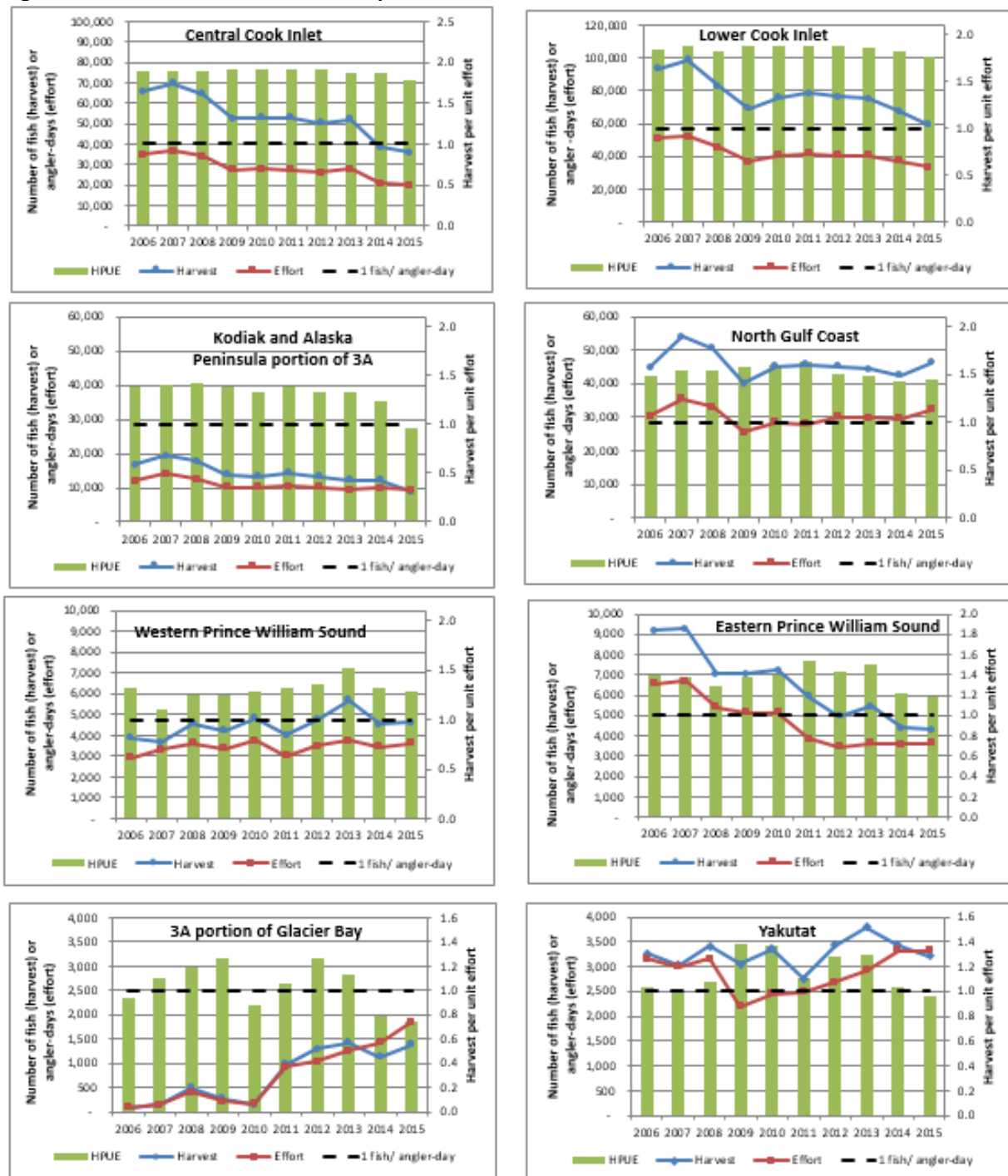
Figure 6-10 Harvest, effort, and harvest per unit effort in subarea of 2C



Source: ADF&G logbooks

Notes: 2C sub-areas include: Ketchikan, Prince of Wales Island (Craig, Klawock, Thorne Bay, etc), Sitka, Petersburg/ Wrangell, Juneau/ Haines/ Skagway, 2C portion of Glacier (Icy Strait, Cross Sound, Gustavus, Elfin Cove)

Figure 6-11 Harvest, effort, and harvest per unit effort in subarea of 3A

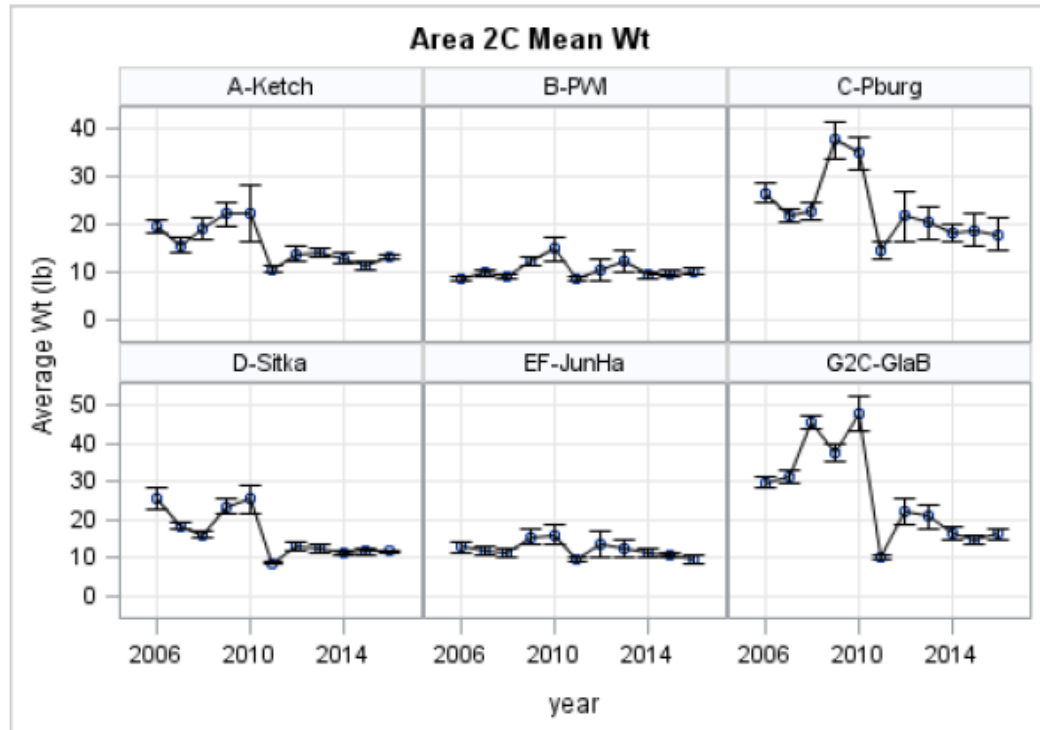


Source: ADF&G logbooks

Notes: 3A sub-areas include: Central Cook Inlet (Ninilchik to Anchor Point), Lower Cook Inlet (Homer/Seldovia), Kodiak and Alaska Peninsula portion of 3A, North Gulf Coast (Seward), Western Prince William Sound (Whittier, Chenega), Eastern Prince William Sound (Valdez, Cordova), 3A portion of Glacier Bay (GOA north of 2C/3A boundary), and Yakutat.

The average weight of the charter caught halibut is available by regional port through creel sampling. These harvest results are also heavily influenced by annual management measures, angler demand, and angler behavior. For example, if an angler is only allowed to retain one halibut of any size (rather than two), he/she may be more likely to high-grade up until they have catch a satisfactorily large halibut. When Area 2C went from having one fish with no size limit (in 2010) to one fish under 37 inches (in 2011), naturally the average weight dropped significantly. Also, in a regulatory scheme that allows for the harvest of two fish, with one under a certain size (like Area 3A in 2014 through 2016), the fish required to be small will pull down the area-wide average weight of the harvest. Given the other changing influences, average weight statistics may also not reveal much about the available resource.

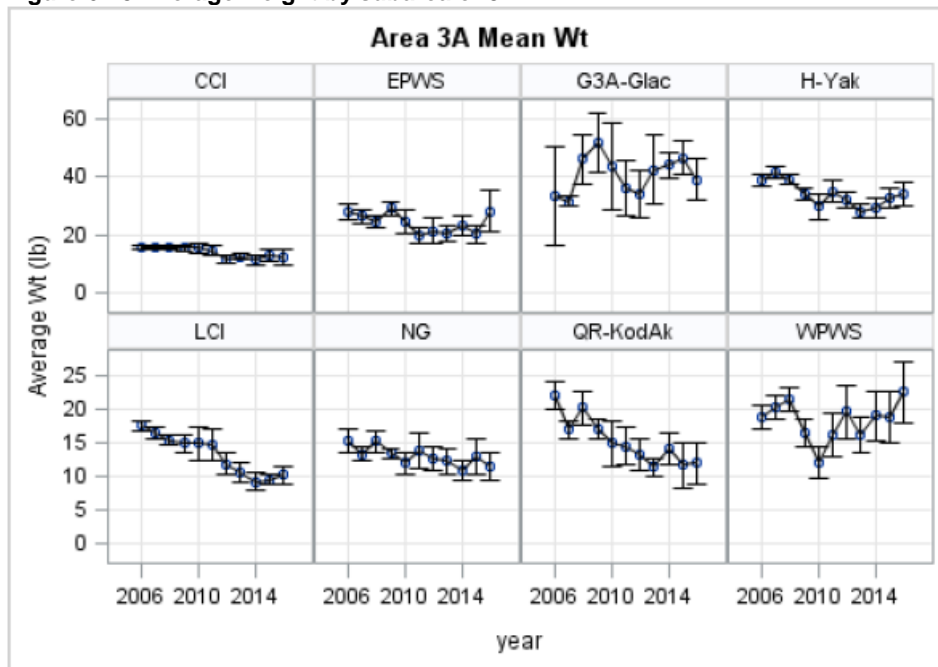
Figure 6-12 Average weight by subarea of 2C



Source: ADF&G 2016

Notes: 2C sub-areas include: Ketch: Ketchikan, PWI: Prince of Wales Island (Craig, Klawock, Thorne Bay, etc), Pburg: Petersburg/ Wrangell, Sitka, JunHa: Juneau/ Haines/ Skagway, GlaB: 2C portion of Glacier (Icy Strait, Cross Sound, Gustavus, Elfin Cove)

Figure 6-13 Average weight by subarea of 3A



Source: ADF&G 2016

Notes: 3A sub-areas include: CCI: Central Cook Inlet (Ninilchik to Anchor Point), LCI: Lower Cook Inlet (Homer/Seldovia), KodAk: Kodiak and Alaska Peninsula portion of 3A, NG: North Gulf Coast (Seward), WPWS: Western Prince William Sound (Whittier, Chenega), EPWS: Eastern Prince William Sound (Valdez, Cordova), Glac: 3A portion of Glacier Bay (GOA north of 2C/3A boundary), and Yak: Yakutat.

It should be noted that while relative harvest intensity may decrease in the commercial sector with an RQE holding commercial QS, the shift in the charter sector would primarily be in the size composition of the catch. In other words, less fish may be harvested commercially; but the relative size selectivity of catch would not be expected to be effected by the PPA. In the charter sector, available IFQ would likely influence the size of the fish retained rather than the number of fish retained. Additional pounds in the charter sector could create a smaller reverse slot in Area 2C or a larger second fish in Area 3A. As demonstrated in Figure 1-9 and 1-10 the average weight of charter caught halibut is highly influenced by the management measures adopted. Exceptions include getting rid of management measures, like day of the week closure and the annual limit, currently utilized in Area 3A. If these measures were removed, the charter sector may be harvesting a relatively greater number of fish. Both a change in size selectivity and harvest intensity are accounted for by a catch limit that is specified in pounds of available harvest.

As shown, data on harvest, effort, and average weight can help monitor the local pressure on the resource and the potential change in size composition of the catch, but given the other restrictions on harvest (e.g. annual management measures), which are established based on abundance at the IPHC regulatory area-level, they do not clearly inform about the local abundance of the resource. Therefore, these type of data cannot be used to predict the disparity in potential impacts of the local halibut resource.

In some sub-areas, the footprint of commercial and charter overlaps. 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 some areas, commercial operations stay near port as well. In these locations, localized effects from **Alternative 2** would be expected to be minimal as fishing pressure shifts from the commercial sector to the charter section in the same area. To the extent that these operations are have different footprints, localized effects could be felt. This may particularly be the case to the extent that the footprint of the halibut charter fishery overlaps with the footprint of the other non-commercial halibut user groups, such as non-

guided sport anglers and subsistence users. 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. These types of spatial management measures may aid in mitigating conflicts that arise with a shift in relative harvest intensity or a change in charter size composition that may occur due to the PPA.

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, 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.

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.

Methods to develop abundance-based Prohibited Species Catch (PSC) limits in the BSAI non-halibut target fisheries could be one example of an action under current consideration with the potential to have cumulative effects with the proposed action alternative. Matching PSC limits with the available resource on a routine basis, rather than setting a fixed hard cap could be more responsive to the health of the stock. Given the migratory nature of halibut, as demonstrated in Section 1.3.1.2 this could have long-term impacts on the available resource in GOA for all halibut user groups. Note that this action is in the discussion paper

stage, however, therefore it does not fit the criteria of being a “reasonably foreseeable” action. Cumulative impacts with the proposed action are speculative at this time.

Amendment 101 to the GOA groundfish FMP, currently in the proposed rule stage of rulemaking (published in 81 FR 55408 on August 19, 2016), would be considered a reasonably foreseeable future action. Amendment 101 allows the use of long line pot gear in the GOA sablefish fishery, with a number of expectations.⁵³ This action is not represented in the status quo fishery and therefore, it is necessary to consider in conjunction with the proposed action. Given the limited biological effects the PPA of the present analysis is expected to have on the halibut resource, this discussion of cumulative effects with Amendment 101 is focused around any exacerbation of economic impacts that could occur from the PPA.

Specifically, if the opportunity to use pot gear in order to target sablefish, allowed IFQ participants more of a chance to also target halibut IFQ, there may be cumulative impacts in the form of more pressure on the halibut QS market. However, Amendment 101 would only allow retention of halibut in sablefish pots to the extent that it represents legal sized incidental catch, for which the participants on board hold available QS for.

While there is no mechanism imposed to ensure the halibut catch remains incidental levels (e.g. a maximum retainable allowance), the analysis points to two primary reasons why participants would be unlikely to target halibut with sablefish pots. One of the primary characteristics of this fishery that minimizes the amount of halibut caught while sablefish fishing is the difference in the depth of these species. Adult sablefish depth distributions in the BSAI range from approximately 200 m to 1000 m; the majority of the IFQ fishery effort is between 300-600 m. Adult halibut are caught primarily from 25 m to 275 m but have been caught as deep as 550 m. Juveniles of both species are generally found in the near-shore areas and are rarely encountered by the pot fishery for sablefish. From 2002-2008, the average catch of halibut in the pot fishery for sablefish in the BS and AI was 0.24 lbs/pot. Secondly, depending on the type of pots used, the sablefish pot design could mitigate halibut bycatch. The sablefish gear committee, which met to advise the analysis for Amendment 101, reported that the tunnel size would determine the how much bycatch would occur. The Committee noted that pots in the BSAI sablefish IFQ fishery use a “sock tunnel” which make it very difficult for halibut to push their way through into the pot.

After Amendment 101 has been implemented, and long line pot gear has been use for sablefish fishing in GOA, NMFS will have data on the amount of halibut catch occurring in sablefish pots. If this reaches a level that concerns the IPHC, the Council in conjunction with the IPHC, may set an MRA or develop other measures for halibut in sablefish.

Given these factors, it is unlikely that Amendment 101 would motivate sablefish IFQ holders to be more active in the halibut QS market with the intention of simultaneously targeting sablefish and halibut IFQ.

⁵³ See NPFMC (2016a) for the details of longline pot use restrictions.

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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