

Supplemental Analysis for the Catch Sharing Plan
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1 Comparing the GHL to CSP

The Council requested a direct comparison of the allocations to the halibut charter and commercial setline fisheries under the GHL and the proposed CSP. This section of the analysis provides that comparison along with the assumptions that were imposed to generate the estimates. A discussion of the client demand is also provided.

1.1 Guideline Harvest Level

After debate and refinement since 1993, the GHL was recommended by the NPFMC in February 2000. NMFS published a final rule on August 8, 2003 (68 FR 7256) that implemented the GHL for 2004. The GHL established a pre-season estimate of the acceptable annual harvests for the charter halibut fishery in Areas 2C and 3A. Initially, the GHL was set at 125 percent of the average historic charter sector harvest¹ over the years 1995 through 1999. That average harvest equated to the charter sector being allocated, the equivalent at the time the preferred alternative was selected of 13.05 percent of the combined commercial setline fishery and charter sector allocation (combined CEY) in Area 2C and 14.11 percent of the combined CEY in Area 3A.

The GHLs were established as a maximum poundage that the charter clients in those IPHC areas may harvest. The charter sector requested that a fixed poundage allocation be provided, to enhance predictability for bookings for the next summer's fishing season. The overall intent was to maintain a stable charter fishing season of historical length, using area-specific measures to control harvests to the GHL. Because the GHL is linked to the total constant exploitation yield (TCEY) it is responsive to annual fluctuations in abundance. For example, in the event of a sufficient reduction in halibut biomass and corresponding TCEY in either area, as determined by the IPHC, the area GHL is reduced incrementally in a stepwise fashion in proportion to the reduction. Regulations at § 300.65(c)(1) specify the GHLs based on the TCEY that is established annually by the IPHC.

The original GHLs were 1.432 Milbs in Area 2C and 3.650 Milbs in Area 3A. For 2012 they are both set lower: 931,000 lbs in Area 2C (three tiers lower) and 3.102 Milbs in Area 3A (one tier lower). The GHLs are reduced if the area-specific total CEY declines by at least 15 percent below the average 1999-2000 total CEY, as determined by the IPHC. For example, if the total CEY in Area 2C was to fall between 15 percent and 24 percent below its 1999-2000 average, then the GHL would be reduced from 1.432 Milbs to 1.217 Milbs. If the total CEY declined between 25 percent and 34 percent, then the GHL would be reduced from 1.432 Milbs to 1.074 Milbs. If the TCEY continued to decline by at least 10 percent, the GHL would be reduced from 1.074 Milbs by an additional 10 percent to 931,000 lbs. If the total CEY declined by an additional 10 percent or more, the GHL would be reduced by an additional 10 percent from 931,000 lbs to the baseline level of 788,000 lbs. The Area 2C GHL would not be reduced below 788,000 lbs. If the area halibut biomass increased, the GHL could be increased only to its initial level of 1.432 Milbs, but no higher. A summary of the GHL tiers that are established in regulation is presented in Table 1.

¹ Based on Statewide Harvest survey data

Table 1 GHGs Established in Regulation for IPHC Areas 2C and 3A

If the annual Total CEY for halibut is more than (lbs):	Then the GHL will be (lbs):	If the annual Total CEY for halibut is more than (lbs):	Then the GHL will be (lbs):
Area 2C		Area 3A	
9,027,000	1,432,000	21,581,000	3,650,000
7,965,000	1,217,000	19,042,000	3,103,000
6,903,000	1,074,000	16,504,000	2,734,000
5,841,000	931,000	13,964,000	2,373,000
4,779,000	788,000	11,425,000	2,008,000

Source: NOAA regulations at CFR 300.65(c)(1)

Each year from 2004 through 2010, the charter halibut fishery exceeded the GHL in Area 2C (Figure 1); however, due to implementation of more stringent management measures, the preliminary estimate of 2011 charter halibut harvest was well below the GHL (see Table 3). During 2004 through 2007, the GHL was 1.432 Milbs. During that time period, charter halibut harvests were approximately 1.750 Milbs in 2004, 1.952 Milbs in 2005, 1.804 Milbs in 2006, and 1.918 Milbs in 2007. In 2008, the GHL was 931,000 lbs and guided charter harvests were approximately 1.999 Milbs. In 2009 the GHL was 788,000 pounds and the guided charter harvest was approximately 1.249 Milbs. In 2010, the GHL was 788,000 pounds and guided charter harvest was approximately 1.279 Milbs. In 2011 the GHL was 788,000 pounds and the estimated guide charter harvest was about 386,000 pounds, or less than half of the limit. The decrease in the guided charter harvest was primarily due to the implementation of the 37" size limit in addition to the one-fish bag limit. Since the GHL was implemented, the guided charter sector in Area 2C has annually exceeded the GHL by over 400,000 lbs, on average.

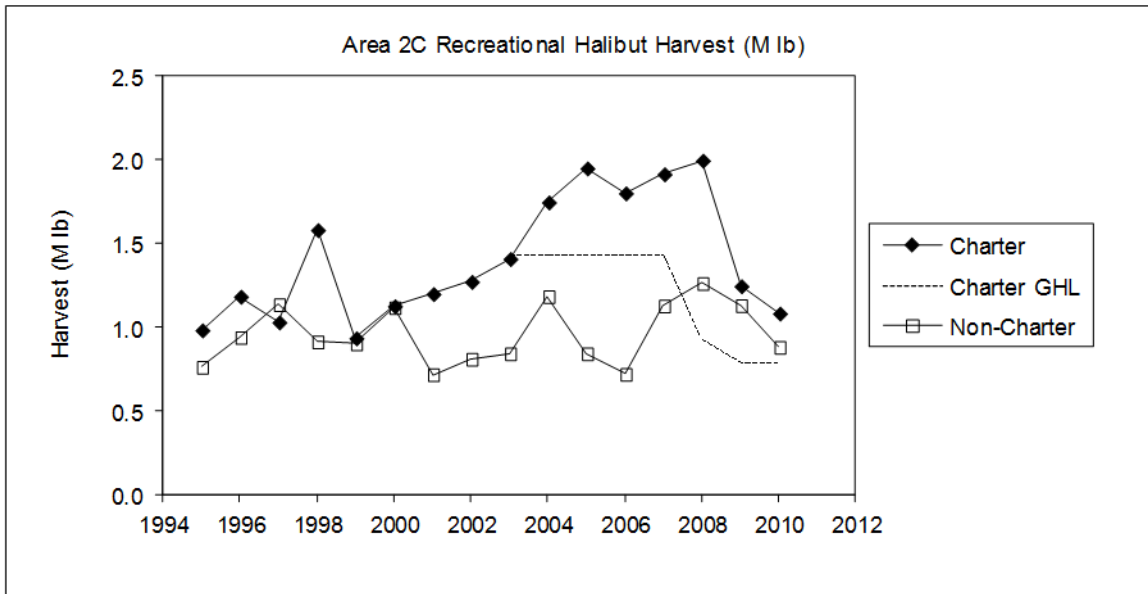


Figure 1 Area 2C sport halibut harvest, 1994 – 2010 (Source: ADF&G)

For 2012, the GHL is established at 931,000 pounds. A one-fish bag limit with a reverse slot limit of allowing retention of fish less than or equal to 45 inches or greater than or equal to 68 inches (head-on) has been recommended by the Council and approved by the IPHC, to limit Area 2C charter harvest to the GHL.

The Area 3A GHL was set at 3.650 Milbs from 2004 through 2011. In 2012, the GHL was reduced one tier to 3.103 Milbs. From 2004 through 2006, the GHL was exceeded by relatively small amounts (at most 39,000 lbs). In 2007, the GHL was exceeded by a much greater amount (about 350,000 lbs). From 2008 forward, the charter sector has not exceeded the Area 3A GHL, and since 2009 has harvested less than 3 Milbs. Low charter harvests in the most recent years have more than offset overages that occurred from 2004 through 2007.

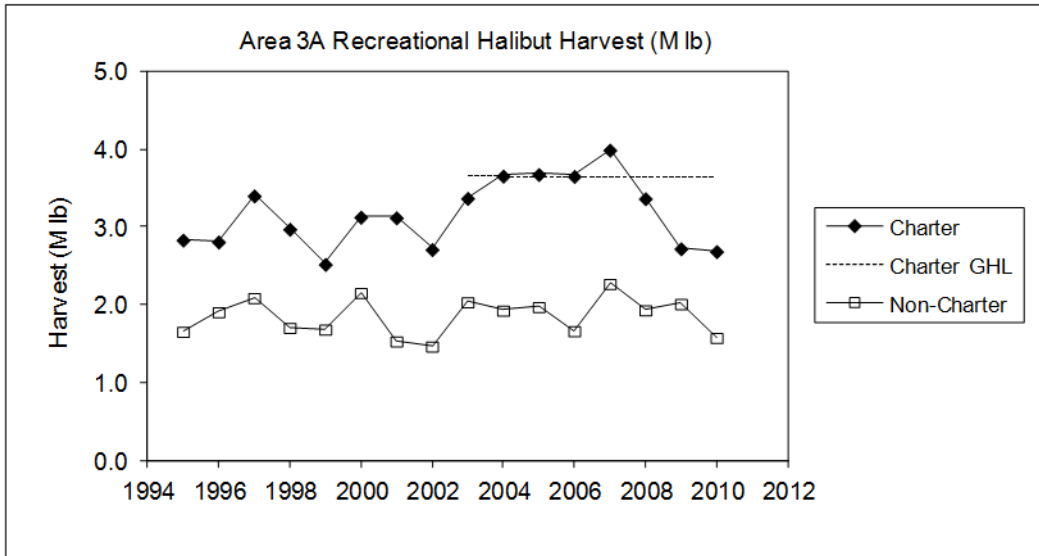


Figure 2 Area 3A recreational halibut harvest, 1994 – 2010 (Source ADF&G)

The GHLs for Areas 2C and 3A are established for the sport fishing season that the IPHC has determined to be February 1st to December 31st. A GHL will be established each fishing year, if the TCEY is above the lowest established GHL tier.

Based on the structure of the GHL, if the TCEY is less than or equal to 4.779 Milbs in Area 2C or less than or equal to 11.425 Milbs in Area 3A, a GHL amount may not be defined for that area by the current regulations. NMFS is currently reviewing the Council and NMFS record for the GHL to provide clarification for this issue. For purposes of this analysis, it is assumed that the GHL amount would not be defined in regulation, and charter vessel anglers would be subject to regulations implemented by the IPHC and NMFS.

Current IPHC regulations for all sport (guided and unguided) anglers fishing waters in and off Alaska are: (a) the sport fishing season is from February 1 to December 31; (b) the daily bag limit is two halibut of any size per day per person unless a more restrictive bag limit applies in Federal regulations at 50 CFR 300.65; and(c) no person may possess more than two daily bag limits. Current Federal regulations at 50 CFR 300.65(d)(2) limit charter vessel anglers in Area 2C to retaining one halibut per calendar day.

The IPHC establishes the TCEY in late January each year and the sport fishing season begins February 1. If the current GHL and charter harvest regulations are not revised and the IPHC establishes a TCEY for Area 2C less than or equal to 4.779 Milbs, charter vessel anglers would be

subject to the IPHC regulations setting the fishing season (a) and the possession limit (c). Area 2C charter vessel anglers also would be limited to retaining one halibut of any size per day by the more restrictive bag limit currently in Federal regulation at 50 CFR 300.65(d)(2). The IPHC could potentially recommend implementation of a more restrictive management measure through its annual regulations. IPHC regulations are subject to acceptance by the Secretary of State, with the concurrence of the Secretary of Commerce.

If the current GHL and charter harvest regulations are not revised and the IPHC establishes a TCEY of less than 11.425 MIbs for Area 3A, charter vessel anglers would be subject to the IPHC regulations a, b, and c specified above. Area 3A charter vessel anglers would be restricted to retaining two halibut of any size per day because current regulations at 50 CFR 300.65 do not contain a more restrictive bag limit than (b). As in Area 2C, the IPHC also could recommend implementation of more a restrictive management measure through its annual regulations.

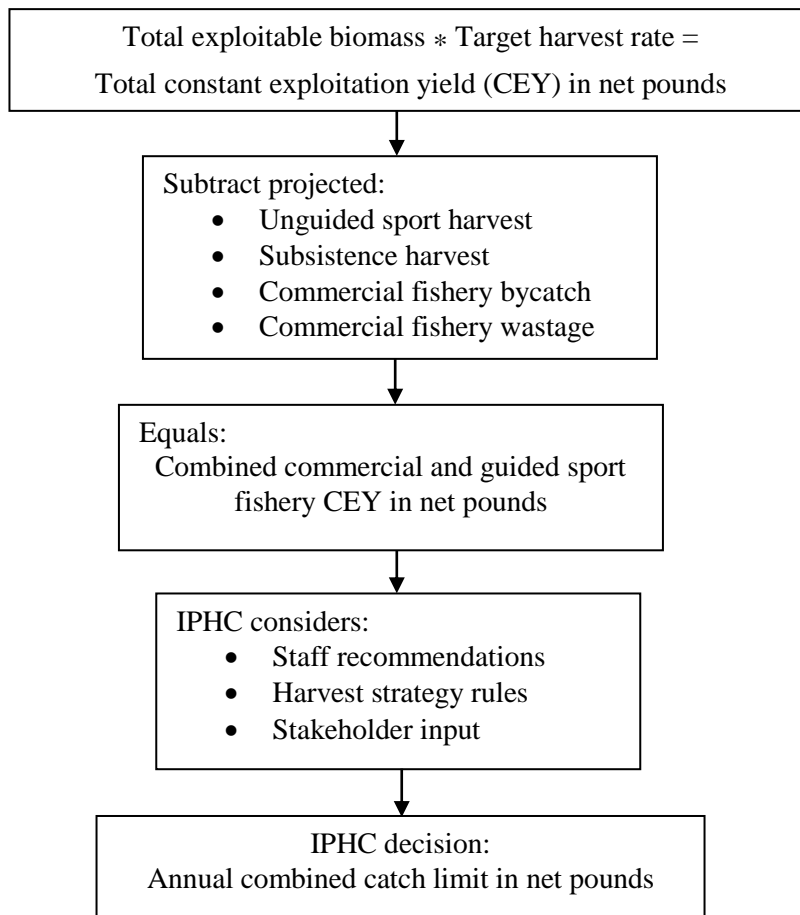
Captain and crew harvests in Area 2C would still be prohibited by federal regulations imposed at 50 CFR 300.65(d)(2)(ii)); the prohibition was implemented along with a 1-fish bag limit and line limits in 2009. That section states that “a charter vessel guide, a charter vessel operator, and any crew member of a charter vessel must not catch and retain halibut during a charter fishing trip.” Also, charter operators would still be required to abide by the requirements and limitations established under the Charter Halibut Permit (CHP) program for Areas 2C and 3A (see §300.67). CHPs limit a) the number of vessels that may operate in the halibut fishery at any given time by requiring a limited entry permit on any vessel operating as a halibut charter, b) the number of clients harvesting halibut that may be carried as a condition of each permit, and 3) the IPHC area that may be fished.

1.2 Comparison of the GHL with the Catch Sharing Plan

Recall that the GHL is a fixed poundage for different levels of halibut TCEY, which is defined in federal regulation. In contrast to the GHL, the proposed CSP would allocate to each sector a specific percentage of the combined commercial and charter catch limit (determined by the IPHC). Two tiers are established, with each sector receiving a fixed percentage of combined CEY under each tier. Within each tier, the proposed CSP percentages produce linear increases in both the charter limit and the commercial limit. In both areas, the lower tier allocates a larger percentage of the combined CEY to the charter sector. The shift to a higher percentage of the combined catch limit assigned to the charter sector at the threshold between the second tier and the first tier, results in an increase in the charter allocation at combined CEY levels that are slightly less than the threshold between the two tiers.

Because the GHL and CSP do not use the same baseline amount to determine the commercial IFQ and charter allocations, assumptions are required to compare the amount of halibut assigned to each sector. This section will provide a description of how each limit is determined as well as the assumptions necessary to compare the relative allocations under the two programs.

The proposed CSP allocation of halibut is calculated using percentages of a combined commercial and charter catch limit defined in the Council’s preferred alternative. That combined limit cannot be estimated for past years. The process that would be used by the IPHC is reported below.



Therefore, assumptions must be made to compare approximations of combined catch limits (under Council’s preferred CSP alternative) with the TCEY used to calculate the GHLs. It is assumed in this section that fishery CEYs plus the GHL set for that year could be used as a proxy for the combined catch limit. The comparisons do not assume that the IPHC is applying any kind of policy that allows them to set catch limits higher or lower than the combined fishery CEY (such as “slow up-fast down” or “slow up-full down”).

1.2.1 Area 2C

Employing the assumptions set out above, Figure 3 compares the CSP and GHL allocations to the charter sector at a continuum of combined catch limits. In making the comparison, two GHL estimates are set out which bound the GHL based on “deducted removals” from the fishery (subsistence, unguided sport, legal-size bycatch mortality, and legal-size wastage in the halibut fishery). Since these removals occur prior to computation of the GHL, the estimate of the removals affects the difference between the GHL and the CSP, with the difference increasing with the amount of removals. The minimum estimated removals that occurred in recent years in Area 2C occurred in 2007, with about 1.75 Milbs of halibut removed². The maximum estimated

² The values used in this paper for unguided sport, legal-size bycatch, and legal-size waste, that are deducted from the total CEY each year, are the preliminary estimates from the prior year. These values were the assumed value for the coming year. For example, when setting the catch limits for 2009, the “other removals” deducted from the total CEY were the preliminary estimates

removals occurred in 2011 with about 2.25 Milbs of halibut removed. The line labeled GHL (2.25 Milbs Δ) is the GHL when the estimated removals (or the difference between the TCEY and the estimated combined catch limit) is 2.25 Milbs. The line labeled GHL (1.75 Milbs Δ) is the GHL when the estimated removals (or the difference between the TCEY and the estimated combined catch limit) is 1.75 Milbs.

Information shown in Figure 3 supports the conclusion that the amount of removals taken from the TCEY prior to calculating the estimated combined catch limit impacts the relative difference between the charter sector's GHL and CSP allowance. As the removals from the TCEY decrease, the charter allowance under the CSP and the GHL move closer together. At combined catch limits greater than approximately 7.5 Milbs these removals no longer affect the GHL. This occurs because the GHL is at its highest tier and remains constant regardless of increases in the combined catch limit. Since the CSP allocation continues to increase with increases in the combined catch limit, when the combined catch limit is approximately 9.5 Milbs or greater, the CSP results in a larger charter allowance than the GHL. Below this point, the GHL results in a smaller charter allocation.

Figure 3 also shows that the GHL and upper bound of the acceptable CSP harvest (3.5 percent over the target allocation) are comparable harvest amounts for the charter sector when deducted removals are relatively small (i.e., the difference between the TCEY and combined catch limit is low (1.75 Milbs) as was the case in 2007). At the time of the Council's CSP action in 2008, these low estimates were the only estimates available. Therefore, based on the information that was available at the time of final action, the estimate of the GHL and the upper bound of acceptable catch level under the CSP were approximately equal. The target CSP allocation, however, is approximately 3.5 percent lower than this estimate of the GHL. This difference is exacerbated when the high removal estimates are considered, as the high removal GHL estimates are greater than the low removal estimates. To the extent that the objective of the Council to manage to the target CSP level is achieved, that target would result in lower charter harvest allowances under any combined catch limits that are less than 9.5 Milbs.

Figure 4 shows the difference between the Area 2C CSP allocation and the GHL at various combined catch limits. The figure once again highlights the effect of basing the charter sector's allocation on the TCEY (under the GHL) and the combined commercial and charter catch limit under the CSP. The graph shows that at combined catch limits of 8 Milbs or less, the difference between the CSP allocation and GHL fluctuate between less than 100,000 lbs and almost 400,000 lbs (as a result of the stair step nature of the GHL tiers) with the magnitude of the difference depending on the level of other removals. The effect of these removals prevents stating the magnitude of the difference between the GHL and CSP allocation with certainty.

Figure 4 also shows that the CSP yields a lower allocation than the GHL until the combined catch limit is greater than 9.5 Milbs. After that point, the GHL yields a larger harvest allowance for the halibut charter sector. Depending on the combined catch limit, the difference may range from about 100,000 lbs to about 400,000 lbs less under the CSP's target harvest level. As discussed earlier, the difference between the GHL and the target CSP level increases with the amount of the deducted removals.

of unguided sport, bycatch, and waste for 2008, plus the charter GHL for the coming year. If the final estimates of removals from ADF&G were used, the range of deducted removals for Area 2C would have been 1.66 Milbs to 2.27 Milbs.

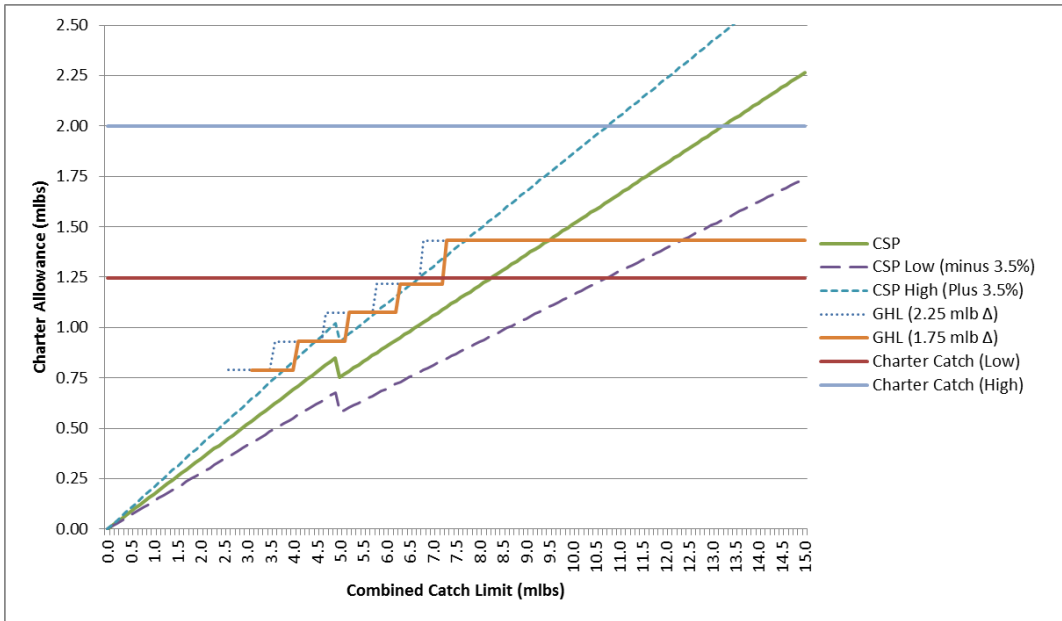


Figure 3 Comparisons of the Area 2C GHL and CSP charter allocations at various combined catch limits and low and high charter catch from 2003 through 2010.

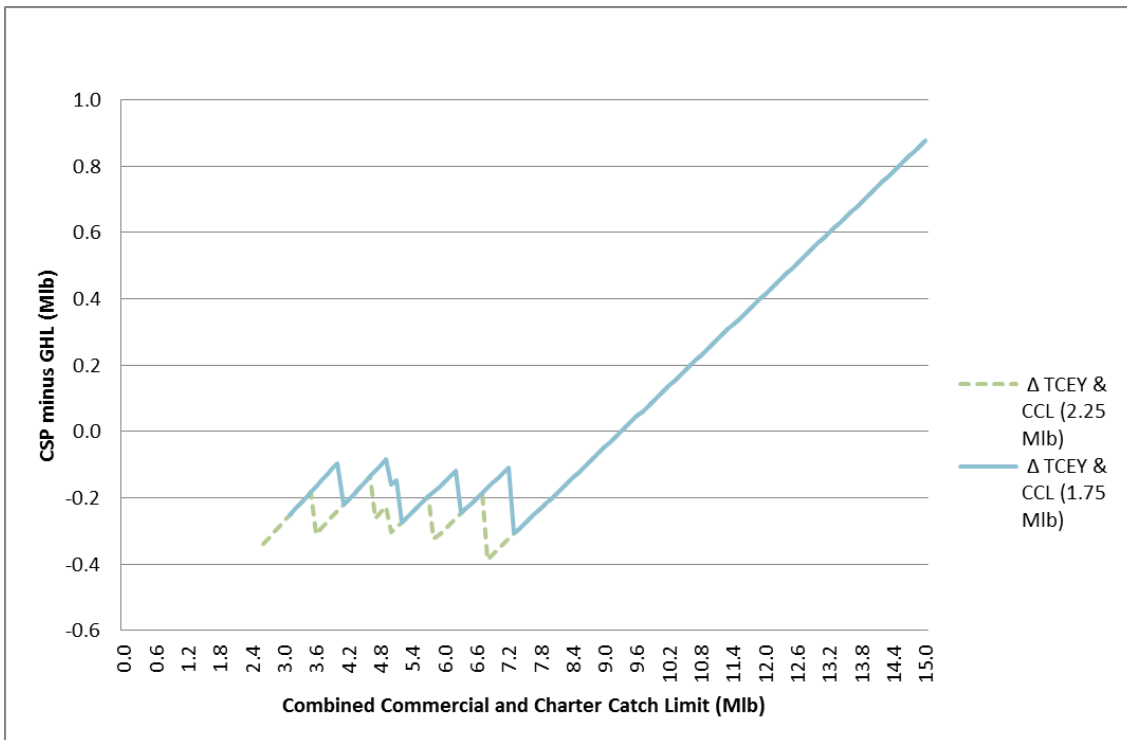


Figure 4 Difference between Area 2C target CSP allowance and GHL charter allowance

Figure 5 shows the percentage of the combined catch limit that would be allocated to the charter sector under the CSP and the GHL in Area 2C. The percentage under the CSP is defined by the proposed amendment. Percentages for the GHL are provided using the two levels of other removals discussed previously. The charter sector's percentage of the combined catch is greatest at the lowest levels for which the GHL is defined. This arises because the GHL provides the sector with a fixed poundage at each tier that does not decrease with the TCEY until the threshold for the next tier is reached. At the lowest combined catch limit (using the assumptions about difference from the TCEY), the charter sector is allocated as much as 30 percent and the commercial set line fishery is allocated 70 percent. As the TCEY increases, the charter sector's percentage of the total decreases under the GHL, but remains above the CSP percentage, until the combined catch limit is greater than 9.5 Milbs. At that point, the charter sector is allocated a smaller percentage (less than 15.1 percent) of the combined catch limit under the GHL.

Currently the TCEY is 5.865 Milbs in Area 2C. Depending on the assumed level of deducted removals (which drives the difference between the TCEY and combined catch limit), the charter sector would receive 22 percent to 26 percent of the combined catch limit under GHL management. Given the target CSP percentage is 17.3 percent at that combined catch limit, the charter sector would be allocated approximately 5 percent to 9 percent more of the combined catch limit under the GHL.

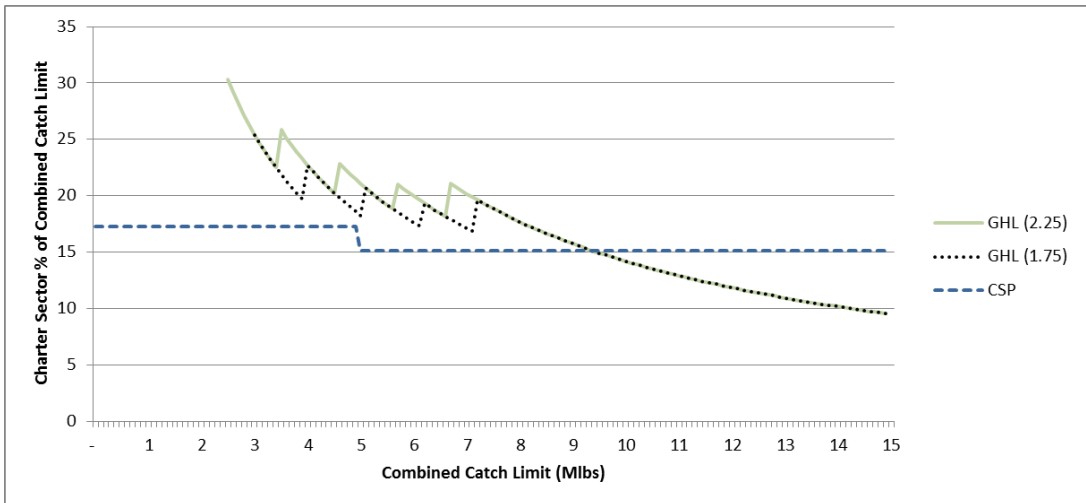


Figure 5 Charter sector's percentage of the Area 2C combined catch limit

1.2.2 Area 3A

Figures similar to those generated for Area 2C are presented in this section for Area 3A. The Area 3A figures assume that the difference between the TCEY and the combined catch limit was from 2.75 Milbs (2009) and 4.00 Milbs (2007)³. These values represent the maximum and minimum amount of other removals (such as unguided sport harvests and subsistence harvests) from the TCEY from 2004 through 2011. As previously discussed for Area 2C, these removals are deducted prior to the division of the combined catch limit under the CSP but after the GHL determination under the GHL. As a result, the magnitude of the difference between the TCEY

³ If the final estimates of removals from ADF&G were used, the range of deducted removals for Area 3A would have been 3.06 Milbs to 5.51 Milbs. These estimates would have resulted in a greater difference between the GHL and CSP lines in the figure presented.

and combined catch limit impacts the difference between the guided charter allocation under the GHL in comparison to the CSP.

Information presented in Figure 6 shows that when the difference between the TCEY and combined catch limit is relatively small (2.75 Mlbs), the charter allowance is approximately the same under the upper bound of the CSP allocation and the GHL. As the difference between the TCEY and combined catch limit increases, the difference between the GHL and CSP allocation also increases. When the difference between the TCEY and combined catch limit is assumed to be 4 Mlbs, the charter allowance under the GHL is greater than the upper bound of the CSP limit, until the combined catch limit is greater than 25.5 Mlbs. At that combined catch limit, the CSP yields a greater charter allowance than the GHL. The charter allowance at that combined catch limit is approximately 3.75 Mlbs. A charter allowance of that magnitude is within the range of historic charter harvests since 2004. Therefore, depending on demand for trips, it is possible that the charter sector could utilize allowances of that size or larger.

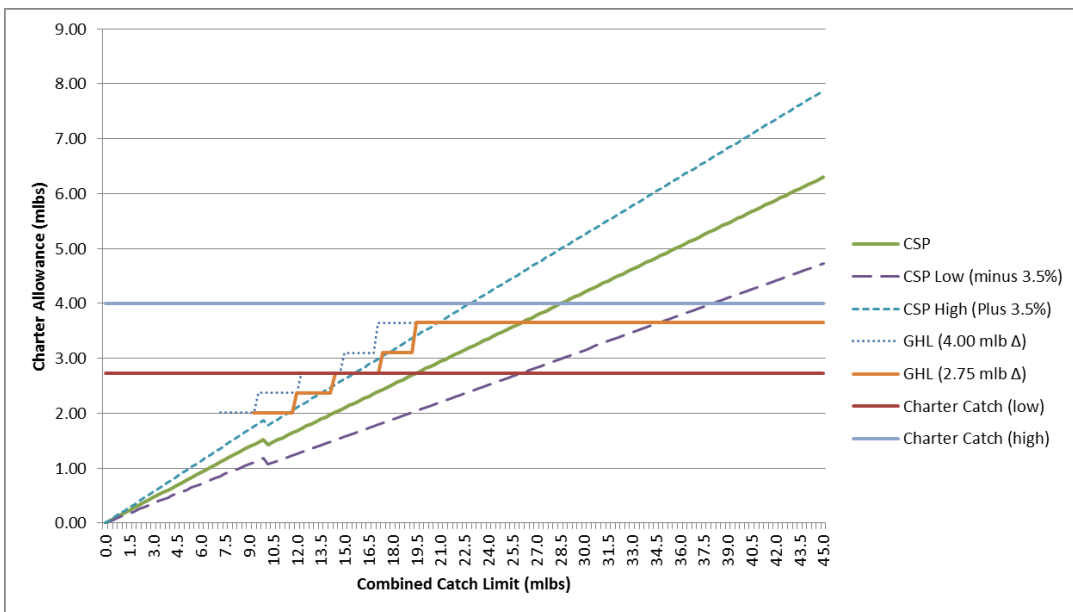


Figure 6 Comparisons of the Area 3A GHL and CSP charter allocations at various combined catch limits and low and high charter catch from 2003 through 2010.

Figure 7 shows the difference between the Area 3A GHL and CSP at various combined catch limits. When the difference between the TCEY and combined catch limit (or other removals) is 2.75 Mlbs and the combined catch limit is less than 25.5 Mlbs, the CSP yields a charter allowance that is about 500,000 lbs less than the GHL, on average. The magnitude of the difference ranges from 0 lbs to slightly less than 1.0 Mlbs, depending on the combined catch limit. At low levels of TCEY the GHL is not defined so comparisons between the GHL and CSP are not made for very low levels of abundance.

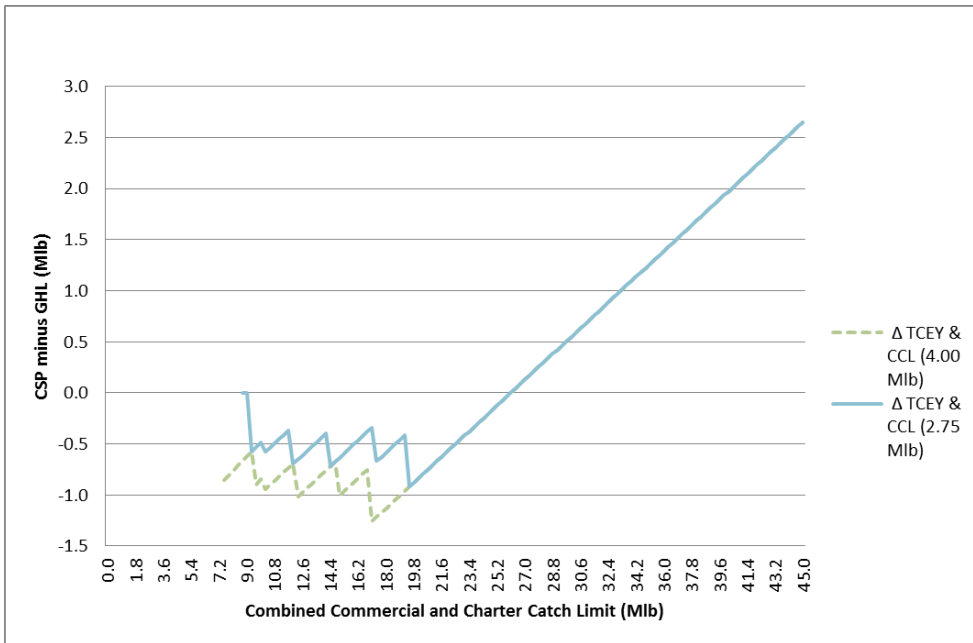


Figure 7 Difference between Area 3A target CSP allowance and GHL charter allowance

When the difference between the TCEY and the combined catch limit is assumed to be 4.0 Mlbs and the combined catch limit is less than about 25.5 Mlbs, the difference between the GHL and target CSP guided charter allowance about 750,000 lbs, on average. The range of the difference is about 500,000 lbs to 1.2 Mlbs, when the combined catch limit is less than 22 Mlbs. Once the combined catch limit reaches about 26.1 Mlbs, the CSP yields a larger allowance to the guided charter sector than the GHL.

Figure 8 shows the percentage of the combined catch limit that would be allocated to the charter sector. The resulting percentages are dependent on the level of other removals (or the difference between the TCEY and combined catch limit) assumed in the analysis. At lower levels of the combined catch limit, the percentage increases as the difference between the TCEY and combined catch limit increases. The current TCEY in Area 3A is about 19.8 Mlbs. Based on the assumptions used in this analysis, the charter sector would be allocated between 18 percent and 20 percent of the combined catch limit under the GHL. That is about 4 percent to 6 percent more of the total than would be allocated to the charter sector under the CSP.

The combined catch limit would need to be 26.1 Mlbs or greater before the charter sector is allocated a smaller percentage of the total combined catch limit under the GHL. This indicates that the TCEY would need to increase from the current level (19.8 Mlbs) by approximately 10 Mlbs (to about 30.0 Mlbs) before the charter sector would receive a larger allocation under the CSP than under the GHL.

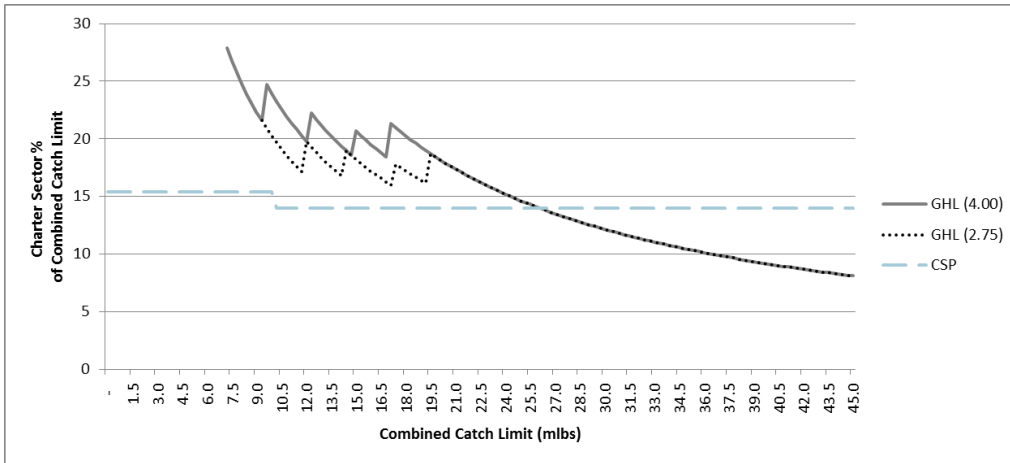


Figure 8 Percentage of the combined catch limit allocated to the charter sector in Area 3A

1.3 Summary

Declines in exploitable biomass and the TCEY have negatively impacted both the charter sector and the commercial setline fisheries in Areas 2C and 3A. The discussion above indicates that the GHL and the CSP result in different allocations to the two sectors at most combined catch limits. The difference in the allocations is dependent not only on the combined catch limit but also on the magnitude of removals deducted from the TCEY before setting the combined catch limit. In general, the difference between GHL allocations and CSP allocations to the charter sector increases with removals through the lower range of combined catch limits. This effect disappears at higher TCEY levels.

Charter sector allocations are greater in both pounds and percentage of the combined catch under the GHL at lower levels of the combined catch limit in both areas. Yet, once the combined catch limit reaches 9.5 Milbs in Area 2C and 26.1 Milbs in Area 3A, the CSP yields a larger charter sector allocation.

Two tables are presented below to compare management measures that may have been in place under the CSP compared to the actual management measure that was implemented from 2006 through 2012. Table 2 presents the outcome when the combined catch limit is estimated as the final approved commercial catch limit plus the GHL. This option allows the charter sector to remain at a higher tier in more years than when the combined catch limit is assumed to be equal to the combined fishery CEY (Table 3). Therefore the Area 2C CSP management measures are more restrictive, except in 2007 and 2011, under Option 1. Both Option 1 and Option 2 result in CSP management measures that are more restrictive in Area 3A than the GHL during 2009 through 2012. Under Option 2, the CSP is also more restrictive in 2008. In Area 2C the default management measures under the CSP are more restrictive in 2008. The default CSP management measure and the management measure in place were the same in 2009 and 2010. In 2011 and 2012 the default management measure under the CSP was less restrictive than the management measure that was in place.

Table 2 Option 1 Assumes the combined catch limit is the final approved commercial catch limit plus the GH.

IPHC Area	Year	Commercial Catch Limit	GHL	Combined		Estimated Harvest	CSP Allocation	CSP as % of CCL	CSP Matrix Tier	Default Management Measure Under the CSP	Management Measure That Was In Place
				GHL as % of CCL	Catch Limit (CCL)						
Area 2C	2006	10,630	1,432	11.9%	12,062	1,804	1,821	15.1%	3	Two fish (1 < 32")	Two fish any size
	2007	8,510	1,432	14.4%	9,942	1,918	1,501	15.1%	3	Two fish (1 < 32")	Two fish (1 < 32")
	2008	6,210	0,931	13.0%	7,141	1,999	1,078	15.1%	2	One fish any size	Two fish (1 < 32")
	2009	5,020	0,788	13.6%	5,808	1,249	0,877	15.1%	2	One fish any size	One fish any size
	2010	4,400	0,788	15.2%	5,188	1,086	0,783	15.1%	2	One fish any size	One fish any size
	2011	2,330	0,788	25.3%	3,118	0,388*	0,539	17.3%	1	One fish any size	One fish < 37"
	2012	2,624	0,931	26.2%	3,555		0,615	17.3%	1	One fish any size	Reverse slot limit (U45O68)
Area 3A	2006	25,200	3,650	12.7%	28,850	3,664	4,039	14.0%	4	Two fish any size	Two fish any size
	2007	26,200	3,650	12.2%	29,850	4,002	4,179	14.0%	4	Two fish any size	Two fish any size
	2008	24,220	3,650	13.1%	27,870	3,378	3,902	14.0%	4	Two fish any size	Two fish any size
	2009	21,700	3,650	14.4%	25,350	2,734	3,549	14.0%	3	Two fish (1 < 32")	Two fish any size
	2010	19,990	3,650	15.4%	23,640	2,698	3,310	14.0%	3	Two fish (1 < 32")	Two fish any size
	2011	14,360	3,650	20.3%	18,010	2,837*	2,521	14.0%	2	One fish any size	Two fish any size
	2012	11,918	3,103	20.7%	15,021		2,103	14.0%	2	One fish any size	Two fish any size

* ADF&G 2011 charter estimates provided to the IPHC on November 11, 2011

Table 3 Option 2 Assumes the combined catch limit is equal to the combined fishery CEY.

IPHC Area	Year	Total CEY	Other Removals	GHL as % of TCEY	Combined Catch Limit	Estimated Harvest	CSP Allocation	CSP as % of TCEY	CSP Matrix Tier	Default Management Measure Under the CSP	Management Measure That Was In Place
Area 2C	2006	13,730	1,864	10.4%	11,866	1,804	1,792	13.1%	3	Two fish (1 < 32")	Two fish any size
	2007	10,800	1,758	13.3%	9,042	1,918	1,365	12.6%	3	Two fish (1 < 32")	Two fish (1 < 32")
	2008	6,500	1,659	14.3%	4,841	1,999	0,731	11.2%	1	One fish any size	Two fish (1 < 32")
	2009	5,570	1,922	14.1%	3,648	1,249	0,551	9.9%	1	One fish any size	One fish any size
	2010	5,020	1,842	15.7%	3,178	1,086	0,480	9.6%	1	One fish any size	One fish any size
	2011	5,390	2,272	14.6%	3,118	0,388*	0,539	10.0%	1	One fish any size	One fish < 37"
	2012	5,860	1,719	15.9%	4,141		0,615	10.5%	1	One fish any size	Reverse slot limit (U45O68)
Area 3A	2006	32,180	3,941	11.3%	28,239	3,664	3,953	12.3%	4	Two fish any size	Two fish any size
	2007	35,780	3,920	10.2%	31,860	4,002	4,460	12.5%	4	Two fish any size	Two fish any size
	2008	28,960	3,060	12.6%	25,900	3,378	3,626	12.5%	3	Two fish (1 < 32")	Two fish any size
	2009	28,010	3,520	13.0%	24,490	2,734	3,429	12.2%	3	Two fish (1 < 32")	Two fish any size
	2010	26,190	4,260	13.9%	21,930	2,698	3,070	11.7%	3	Two fish (1 < 32")	Two fish any size
	2011	23,520	5,510	15.5%	18,010	2,837*	2,521	10.7%	2	One fish any size	Two fish any size
	2012	19,780	4,757	15.7%	15,023		2,103	10.6%	2	One fish any size	Two fish any size

Assumes the combined catch limit is equal to the combined fishery CEY, calculated as total CEY minus all other removals except guided sport (no provision for SUFD). Uses the preliminary other removals that were used to set catch limits in these years, not the final estimates of other removals.

This analysis compares charter sector allocations under the GHL and CSP. While the analysis provides relatively clear indication of circumstances that lead to one allocation exceeding the other, the value each sector places on marginal amounts of halibut is very likely to differ at various allocation levels. For example, a QS holder's commercial operation may be financially stressed when the commercial CEY is very low. That QS holder may be very willing to sacrifice a larger percentage of the combined catch limit to the charter sector at relatively high combined catch limits, in exchange for a higher percentage at lower combined catch limits. Similarly, if greater value is placed on marginal amounts of halibut at low levels of abundance, then the charter sector would derive greater benefit from the current GHL. This is amplified by the fact that the GHL is not defined for very low levels of abundance. It is also true that under the GHL, the charter sector is issued a greater percentage of the combined catch limit when the combined catch limit is relatively low. At the very lowest levels of the GHL, the charter percentage of the combined catch limit is substantially greater than the percentages defined for the first year of the GHL and the proposed CSP.

Assessing the difference between the CSP and GHL also requires considering how the different distributions affect the two sectors. The effects on the commercial fishery are relatively direct. The effect of a lower allocation in an area is distributed among all QS holders in the area by making smaller IFQ allocations proportionally to QS holdings. Similarly, an increase in the commercial allocation is distributed proportionally among QS holders. These QS holders will

receive either increased or decreased revenues from their landings depending on whether the commercial allocation has risen or fallen. Declines in allocations should be accompanied by a reduction in variable costs from the decrease in fishing effort needed to harvest fewer QS, but net returns from the fishery would be expected to decline. Participants may attempt to mitigate the decline in net revenues through cost saving measures. For example, lower allocations may lead to consolidation of catch on fewer vessels to reduce costs. Some costs, however, such as sunk costs from vessel and gear purchases, are unavoidable in response to short term changes in allocations. As a consequence, the ability of participants to mitigate negative effects from a decrease in allocations is limited.

Assessing the effects of differences between the GHL allocations and CSP allocations on the charter sector is more nuanced. While a benefit is derived by the charter sector from higher allocations, the magnitude of the benefit is somewhat uncertain for several reasons. The allocations are managed generally through measures (such as bag and size limits) that are intended to constrain charter harvests by limiting halibut retention. These measures will have the desired effect of constraining the number of fish taken by charter fishing. Their effect on the charter sector, however, arises primarily from their effect on demand for charter trips. Specifically, a reduction in the number or size of halibut a person may retain is likely to reduce the willingness of some potential clients to pay for a charter trip. In general, smaller allocations will result in more restrictive management measure and possibly reduced demand for charter trips. Yet, a variety of other considerations should be assessed in examining the effect of allocation changes on the charter sector. Since the demand changes arising from a change in the allocation are driven exclusively by the change in management measures, allocation changes that have no effect on management measures may be expected to have no effect on charter demand. In other words, changes in allocations that do not result in management changes will not benefit (or harm) the charter sector. These negligible effects are likely to arise only at high allocation levels, above the threshold at which a two fish bag limit would be imposed.⁴ Increasing allocations beyond the level needed to support charter harvests at a two fish bag limit has no effect on the charter sector.

While management measures driven by the allocations may change demand for charter trips, assessing those changes in demand for charter trips is complicated by the nature of the industry and its clients. Many clients will take a charter trip as part of a one time (or very infrequent) trip to Alaska. With a single opportunity for an Alaska halibut fishing trip as a part of a larger vacation trip, these persons may be less affected by changes in management measures constraining halibut retention. In other words, given a single opportunity for a halibut trip, a one fish bag limit (in comparison to a two trip bag limit) may not substantially reduce a person's willingness to pay for the trip. Such a client might also derive a variety of benefits other than harvesting halibut from the trip, including a relatively unique sightseeing opportunity. At the other end of the spectrum are other clients, particularly Alaska residents, who may have numerous opportunities to charter fish for halibut. Although these clients value the charter fishing experience, their demand may hinge on their ability to retain fish on their trip. More constraining measures (such as more constraining bag limits) are likely to decrease the willingness of these clients to pay for (and take) charter trips. Quantitative estimates of changes in angler demand, during the 1997 and 1998, for anglers fish waters off the lower and central lower Cook Inlet

⁴ To the extent that allocations at these levels provide no added benefit to the charter sector, it is questionable whether the allocation could be shifted to the commercial sector to realize a greater overall benefit from halibut fisheries. If such a shift is undertaken, the allocation to the charter sector should be sufficient to accommodate unanticipated overharvest of the allocation to the charter sector, as projected catch estimates under individual bag limits have some inherent uncertainty.

support these conclusions (Criddle et al, 2001). These effects are likely to vary with location (both within and across the two areas) and over time, posing a further challenge to deriving an understanding of the effects of the management measures on the sector. The limited history of employing these measures, along with the limited amount of data available from the charter sector, are also barriers to understanding the effect of these measures on demand for charter trips.

Further complicating any understanding of the effects of changes in the charter allocation on the sector is the potential for extraneous factors to affect industry costs (and thereby the supply of charter trips), as well as demand for charter trips from potential clients. For example, changes in fuel prices have directly affected charter operators' costs, which have directly limited charter trip supply by contributing to increases in charter prices (directly and through fuel surcharges) in recent years. To the extent that charter price changes driven by outside factors have coincided with changes in management measures, the information needed to understand the effects of management measures increases.⁵ Similarly, demand for charter trips is affected by outside factors, such as the state of the overall economy (which limits disposable income of potential clients) and the availability of cruise trips in Alaska (which changes with deployment of cruise vessels in Alaska). The effects of these factors are also likely to interact with management measures, clouding attempts to discern the effects of the management measures on the charter sector. For example, in a declining economy, an increase in the bag limit could simply offset the overall decline in charter demand that would occur in the absence of the management measure. Determining the extent to which extraneous factors may affect charter demand is important to understanding the effects of the management measures on the sector. Once the management measure effects are understood, those measures must be linked to the allocations to understand the effects of the allocations on the sector. To the extent that a charter sector allocation (or change in a charter sector allocation) is managed by a particular measure (i.e., a single fish bag limit is implemented to restrain catches to an allocation), the management measure's effects are, in essence, the effects of the allocation on the sector.

Since few changes in management measures have been made, limited data are available for examining the effects of those changes. In general, the experience comports with anticipated effects; however, since management measure changes coincided with other economic changes that might affect charter bookings, ascribing changes in charter trips to the management measures with substantial confidence is not possible. Table 4 shows the number of charter trips taken by resident and non-resident anglers from 2005 through 2010 in Area 2C and Area 3A, along with the applicable management measures. In Area 2C, charter clients increased from slightly more than 70,000 in 2005 to slightly more than 101,000 in 2007. A decline in clients followed, as clients decreased to approximately 70,000 in 2009, then increased to approximately 76,000 in 2010. Area 3A shows a similar pattern, where clients increase from over 125,000 in 2005 to almost 150,000 clients, declined to approximately 105,000 clients in 2009, before rising to more than 115,000 in 2010. The decline in 2008 in Area 2C coincided with an announced reduced bag limit, which remained in place for only a short portion of the season. Whether the announced (but shortlived) limit affected demand cannot be determined. A more drastic decline followed in 2009, when the bag limit was decreased from two fish to one fish. Yet, client bookings increased in 2010 despite continuation of the one fish limit. If these Area 2C changes in management measures and client bookings are considered alone, one might conclude that the management measures had a noticeable effect on charter demand; however, when considered together with

⁵ The ability of data to reveal the effects of changes driven by management measures is limited by the presence of coinciding factors that yield similar effects. While models may be capable of deriving these effects, the data needed to distinguish the effects of each of the different factors (including the management measures) on the charter sector is increased with each new factor.

information from the broader economy and the Area 3A bookings, the effects of management measures on demand is far less certain. In particular, in Area 3A from 2007 through 2010 (the period during which Area 2C management measures became increasingly restrictive) management measures were largely unchanged. Yet, during this period, the number of charter clients in Area 3A decreased in a similar proportion to the decrease in charter clients in Area 2C. During this period the economic downturn was at its strongest (which likely decreased demand for charter trips) and fuel prices increased (likely constraining supply of charter trips by increasing prices). In other words, factors beyond the changes in management measures likely contributed to the decrease in charter bookings in Area 2C. This should not be interpreted to suggest that the management measures in Area 2C had no effect on charter bookings, but only the other factors likely contributed to the decline and may even have had a greater effect on charter bookings than the more restrictive measures. While, without question, management measures will affect demand for charter trips, the effects of specific measures on demand is very complicated and uncertain.

Table 4. Resident, Non-resident, and total charter clients by year (including applicable management measures) for Area 2C and Area 3A (2005-2012).

Year	Area 2C charter regulation history.		Clients			Client Change Compared to 2005					
	Charter Regulations		Total	Resident	Non-resident	Total %	Total Clients	Resident %	Resident Clients	Non-Resident %	Non-Resident Clients
	2005	Two-fish bag limit (no size restrictions), no limit on crew retention.		73,030	1,659	71,371	0%	-	0%	-	0%
2006	Two-fish bag limit (no size limit), state EO prohibiting crew harvest 5/26-12/31.		92,665	1,653	88,042	27%	19,635	0%	(6)	23%	16,671
2007	Two-fish bag limit (1 under 32" eff. 6/1), no crew retention 5/1-12/31 (State EO and Federal Rule).		101,721	1,531	98,726	39%	28,691	-8%	(128)	38%	27,355
2008	Two-fish bag limit (1 under 32"), except one-fish bag limit Jun 1-10 (halted by injunction).		99,788	1,483	97,117	37%	26,758	-11%	(176)	36%	25,746
2009	One fish (no size limit), no harvest by skipper & crew, line limit (effective June 5).		70,611	1,369	68,876	-3%	(2,419)	-17%	(290)	-3%	(2,495)
2010	One fish (no size limit), no harvest by skipper & crew, line limit.		76,019	1,597	73,782	4%	2,989	-4%	(62)	3%	2,411
2011	One fish (37" max length limit), no harvest by skipper & crew, line limit.										
2012	One fish (<=45" or >= 68" limit), no harvest by skipper & crew, line limit.										

Year	Area 3A charter regulation history.		Clients			Client Change Compared to 2005					
	Charter Regulations		Total	Resident	Non-resident	Total %	Total Clients	Resident %	Resident Clients	Non-Resident %	Non-Resident Clients
	2005	Two-fish bag limit (no size restrictions), no limit on crew retention		128,480	37,105	91,375	0%	-	0%	-	0%
2006	Two-fish bag limit (no size restrictions), no limit on crew retention		137,125	33,569	102,397	7%	8,645	-10%	(3,536)	12%	11,022
2007	Two-fish bag limit (no size restrictions), state EO prohibiting crew harvest 5/1-12/31.		147,134	34,033	112,372	15%	18,654	-8%	(3,072)	23%	20,997
2008	Two-fish bag limit (no size restrictions), state EO prohibiting crew harvest 5/24-9/1.		134,886	30,337	103,877	5%	6,406	-18%	(6,768)	14%	12,502
2009	Two-fish bag limit (no size restrictions), state EO prohibiting crew harvest 5/23-9/1.		107,716	29,402	76,950	-16%	(20,764)	-21%	(7,703)	-16%	(14,425)
2010	Two-fish bag limit (no size restrictions), no limit on crew retention		117,512	30,706	84,978	-9%	(10,968)	-17%	(6,399)	-7%	(6,397)
2011	Two-fish bag limit (no size restrictions), no limit on crew retention										
2012	Two-fish bag limit (no size restrictions), no limit on crew retention										

skipper/crew and line limits continues for 2011 and 2012

The structure of the preferred alternative (particularly its method of defining management measures), provides some context for considering the relationship of charter trip demand (and the extraneous factors that affect that demand) to the effects of management measures (and thereby the allocations) on the industry. Specifically, if projected harvests using the preferred management measures exceed the sector's allocation by a threshold percentage, a more restrictive management measure is used. Conversely, if the projected harvest is below the allocation by a threshold percentage, a less restrictive measure is applied. In other words, when demand is relatively strong, more restrictive measures will be needed and the cost to the sector (including charter clients and the charter industry) of the constraints will be the greatest. On the other hand, when demand is weak, less constraining measures will be applied. It should also be noted that in these times of relatively strong demand, the charter sector is more likely to be able to increase prices to mitigate the costs to industry. The amount of excess client capacity within the fleet at high levels of demand will also affect the extent to which charter services will be able to increase trip prices.

To compare the difference in the effects of the GHL and CSP allocations on the charter sector, one should bear in mind that only effects arising from differences in the management measures under the two allocations should be considered. So, at times when the GHL and CSP allocations differ but the management measures are the same, the effects of the two allocations on the charter sector (clients and operators) will be the same. On the other hand, if the CSP dictates a different management measure than the GHL for the same allocation, the effects of the GHL and CSP will differ. As described above, for the low portion of the range of the TCEY, the CSP allocations are generally lower than the GHL allocations. In this range, it should be expected that the CSP will require more constraining measures than the GHL to maintain catches below the lower CSP allocation. At higher TCEYs, it should be anticipated that the GHL measures would be more constraining, as that allocation is lower; however, it should be noted that in Area 3A, the CSP allocation is lower across the entire range over which constraining management measures are required to maintain charter catches within the allocation based on current charter demand. In other words, the CSP is universally less beneficial to the charter sector in Area 3A at current demand levels. If charter demand were to increase, it is possible that more constraining measures could be required to maintain catches within the lower GHL allocation that results from higher TCEY levels.

While these general insights may be applied, some peculiarities of the CSP management measures should be considered prior to drawing conclusions. To the extent that the CSP management measures are constrained (forcing a choice between three measures for each allocation level), those measures may be either over- (or under-) restrictive. In other words, in times of low demand for charter trips, even the most liberal applicable CSP management measure may constrain catch to a level below the allocation. Likewise, in times of high demand, the most restrictive measure may not be sufficient to contain the harvest within the preferred allocation range. If the GHL management measure determinations are more flexible (i.e., the choice of management measures is not restricted to a select few measures and the choice does not lag one or more seasons behind allocation or demand changes), the effects on the charter sector should be more directly related to maintaining catch within the allocation. The result is that the difference in effects on the charter sector arising from the lower CSP allocation could be greater than might necessarily arise from the allocation, as a result of the constraint on management measures inherent in the CSP structure. It should also be noted that the constraint on management measures could also reduce the difference in charter sector effects between the GHL and CSP, if the CSP management measures prove to be too liberal (i.e., charter demand exceeds the level anticipated by the range of permitted management measures and the allocation is exceeded). At the extreme, the charter sector's benefits and harvests under the CSP may exceed the benefits and harvests under the GHL despite the CSP allocation being lower than the GHL allocation. This assumes that the GHL management measures will not be over (or under) restrictive thereby either providing the sector (including clients and operators) with a cost (or windfall) due to excessive imprecision. Some level of imprecision in achieving the GHL allocation will likely be unavoidable due to the nature of charter supply and demand, however, that imprecision will not be worsened by limiting the management measures accessible to achieve the allocation.

The Charter Halibut Limited Access Program established federal Charter Halibut Permits (CHPs). Beginning February 1, 2011, all halibut charter vessel operators in IPHC regulatory Areas 2C and 3A with must be endorsed with the appropriate regulatory area and number of anglers. Charter halibut operators must have an original, valid CHP onboard during every charter vessel fishing trip when charter anglers onboard are catching and retaining Pacific halibut.

2 Charter Harvest Permits

This section provides information on the number of permits that were issued during 2011 (including interim permits) and the number of permits that were valid as of March 5, 2012. Decreasing permit numbers result from the removal of interim permits as appeals are adjudicated or permits being revoked. Permits are issued to persons meeting the general landings requirements, community quota entities (CQE) that may hold charter permits, and military personnel that did not meet the general landings requirements but showed intent to enter the fishery during that time period.

In Area 2C a total of 570 permits were issued to individuals and 36 permits were issued to CQEs during 2011 (Table 5). The number of valid permits held on March 5, 2012 did not change for the CQEs. The number of permits held by individuals decreased by 41, to 539 permits, because permits were revoked and/or interim permits had been removed through the appeals process. These permits are currently held by 365 “regular” permit holders and nine CQEs.

In Area 3A a total of 490 permits were issued to individuals, 49 permits were issued to CQEs, and 5 permits were issued to persons meeting the military exemption during 2011. The number of valid permits held on March 5, 2012 did not change for the CQEs or the military exemptions. The number of permits held by individuals decreased by 46, to 444 permits, because permits were revoked and/or interim permits had been removed through the appeals process. These permits are currently held by 442 “regular” permit holders and nine CQEs.

Table 5 Number of permits issued and number currently valid as of March 5, 2012.

Type	Area	Number of CHP that were valid at any time during 2011	Number of CHP valid as of March 5, 2012	Permit holders as of March 5, 2012	Avg # permits/holder
CHP	2C	570	539	365	1.5
CQE	2C	36	36	9	4.0
CHP	3A	490	444	442	1.0
CQE	3A	49	49	8	6.1
MWR	3A	5	5	2	2.5

Key: CHP = "regular" CHP; CQE = community permits; MWR = military permits
Source: RAM 3/5/2012

Information in Table 6 provides a summary of the appeals that have been filed. As of March 2, 2012, a total of 199 of the 207 cases have been completed. The outcomes of the seven additional cases are still pending. Therefore, the appeals process is close to complete (96.1 percent of cases) and the outcome of outstanding appeals will have a relatively minor impact on the overall charter capacity.

Table 6 Summary of charter permit appeals as of March 2, 2012

Status	Count	Pct of Total Appeals Filed	Pct of Total Appeals with NAO Decision
Completed Cases			
Denial Affirmed	124	59.9%	66.0%
Denial Vacated (overturned)	37	17.9%	19.7%
Denial both Affirmed and Vacated	1	0.5%	0.5%
Case Under Reconsideration by NAO	11	5.3%	5.9%
Case Remanded to NAO by RA	10		
Denial Affirmed but Effective Date Stayed Pending RA Review	5	2.4%	2.7%
<i>Completed subtotal (cases with NAO Decisions):</i>	188	90.8%	100.0%
Case Dismissed	11	5.3%	n/a
<i>Dismissed subtotal (cases dismissed without NAO Decision):</i>	11	5.3%	n/a
Pending Cases			
Pending	4	1.9%	n/a
Pending - drafted	1	0.5%	n/a
Pending - waiting for review	3	1.4%	n/a
<i>Pending subtotal (cases without NAO Decisions):</i>	8	3.9%	n/a
Total Appeals:	207	100.0%	n/a
n/a means "not applicable"			
NAO means National Appeals Office			

When permits are removed from the fishery, individuals had the choice of purchasing a new permit or exiting the fishery. In Area 2C, only one person purchased a permit to remain in the fishery (Table 7). The other 34 persons left the fishery (at least as of March 5, 2012) when their permit was revoked. In Area 3A, persons associated with 47 revoked permits left the fishery and seven persons purchased a permit to remain active in the halibut charter fishery.

Table 7 Number of persons leaving fishery or purchasing a new permit

Type	Area	CHP Revoked and Left Fishery	CHP Revoked and Then Bought a CHP
CHP	2C	34	1
CHP	3A	47	7

Source: RAM - March 5, 2012

3 Guided Angler Fish (GAF)

A provision of the Council's proposed Catch Sharing Plan (CSP) would allow Charter Harvest Permit (CHP) holders to lease halibut IFQ from QS holders in the commercial set line fishery. That provision originally defined the process by which pounds of IFQ would have been converted to numbers of guided angler fish (GAF) when NOAA Fisheries approved the transfer. In December, the Council reviewed that process at the request of NOAA Fisheries and the State of Alaska. NMFS is concerned that variation in fish size over time and across vessels could result in disparities in GAF sizes that are inconsistent with the conversion of IFQ to fish. During its review, the Council indicated that because of these problems, their preferred alternative should be modified to issue GAF in poundage and require charter operators to report the lengths of all GAF to NMFS⁶. NMFS anticipates that CHP holders would report GAF length in a GAF electronic reporting system. This was the only method identified by NMFS that would result in obtaining an average weight for GAF fish in the first year of CSP implementation. NOAA Fisheries also noted that the proposed change would remove the need to convert pounds of IFQ halibut to number of GAF fish. However, it would pose challenges to charter operators leasing commercial IFQ as GAF as they would need to estimate the number of pounds of halibut needed to harvest the desired number of halibut.

Under the program, any unused GAF would be automatically returned to the QS holder from whom they were leased 15 days prior to the end of the commercial halibut fishing season. The Council retained this portion of their original preferred alternative, but removed the provision to allow returns earlier in the year. This will provide IFQ holders an opportunity to harvest returned GAF that fishing year, but the harvest of those IFQ must be completed within the 15 day window.

The original preferred alternative also placed limits on the number of GAF that may be used by a charter harvest permit (CHP) in a year. Those limits stated that no more than 400 GAF may be assigned to a CHP endorsed for 6 or fewer clients and no more than 600 GAF may be assigned to a CHP endorsed for more than 6 clients. Based on direction from the Council in December, GAF would no longer be assigned to the CHP in numbers of fish. Maintaining the limits on GAF usage could be accomplished by converting the numbers of fish (currently the preferred alternative) to pounds of IFQ to match the GAF accounting system. Both options limit the use of GAF but depending on the option selected it will have differential impacts on the amount of IFQ that may be leased.

The proposed GAF limits in numbers of fish would allow all charter operations to use either 400 or 600 GAF per CHP, depending on the number of client endorsements. If IFQ pounds are used to establish the limit, the amount of fish that could be harvested using a CHP would vary, because average halibut weights vary by port and business. For example, in Area 2C, during the 2010 fishing year ADF&G estimated that the average weight of a charter harvested halibut was 26.4 lbs. However, the average weight from the Prince of Wales Island port was only 14.8 lbs and the average weight from the Glacier Bay port was 47.4 lbs (Table 8). Based on those average weights, a person holding a CHP endorsed for six or fewer clients leasing 400 GAF would have needed to lease approximately of 5,920 lbs of IFQ in Prince of Wales Island and 18,960 lbs of IFQ in Glacier Bay. Each operator would provide the same number of clients the opportunity to harvest a GAF, but the amount of IFQ needed for each fish (and therefore the cost of IFQ for each fish) could differ greatly (by 320 percent in IFQ pounds).

⁶ New information in this report should be considered supplemental analysis to support and inform the Council's December 2011 policy guidance.

If the GAF limits were converted to pounds, CHP holders would be limited to different numbers of GAF based on their fishing practices and results. Using the example above, the person operating out of the Prince of Wales Island port would be allowed to use 3.2 times as many GAF as the person operating out of Glacier Bay. The method by which NMFS would administer a cap based on numbers of GAF, given that leases and catch accounting are based on pounds, is uncertain. Possible means of administering the cap include estimating size annually and establishing new poundage caps each year, or fixing the cap based on some derived numbers of fish that would be supported by an identified number of IFQ pounds. The simplest approach would be to establish a poundage limit (based on the estimated poundage that would arise from the 400 GAF and 600 GAF limits) that would remain constant. If the limit is based on the average fish size in 2010 for each area (26.4 pounds in 2C and 15.2 pounds in 3A), the respective limits would be 10,560 pounds (for 400 GAF) and 15,840 pounds (for 600 GAF) in Area 2C and 6,080 pounds (for 400 GAF) and 9,120 pounds (for 600 GAF) in Area 3A. **Because of these uncertainties, the Council should consider providing further guidance concerning the administration of lease caps for GAF.**

Table 8 Average charter caught halibut weight from 2010 by port

Port	Avg Wt (lb.)	400 GAF (lb.)	600 GAF (lb.)
Ketchikan	22.1	8,840	13,260
Prince of Wales Island	14.8	5,920	8,880
Petersburg/Wrangell	34.6	13,840	20,760
Sitka	25.3	10,120	15,180
Juneau	16.2	6,480	9,720
Haines/Skagway	16.2	6,480	9,720
Glacier Bay	47.4	18,960	28,440
Area 2C Avg.	26.4	10,560	15,840
Central Cook Inlet	15.5	6,200	9,300
Lower Cook Inlet	15.0	6,000	9,000
Kodiak	14.9	5,960	8,940
North Gulf Coast	12.0	4,800	7,200
Eastern PWS	24.4	9,760	14,640
Western PWS	12.0	4,800	7,200
Yakutat	29.7	11,880	17,820
Area 3A Avg.	15.2	6,080	9,120
Source: ADF&G sportfish survey			

Based on the average weight of charter caught halibut and the number of CHPs that are currently valid⁷, it is possible to estimate what the GAF limits in pounds would have been and the maximum amount of GAF that could be leased if every CHP holder leased up to the limit. Applying the average charter halibut weights to the limits on the number of fish (400 or 600) converts the number of fish to pounds. Table 9 shows the Area 2C IFQ limit (based on 400 GAF and 600 GAF) when converted from numbers of fish to pounds using the average net weight of charter halibut. For CHPs endorsed with 6 or fewer clients, the IFQ poundage limit ranged from 7,000 lbs to 11,640 lbs using the average annual weights from 1995 through 2010. Over that time period the average of all years was 8,300 pounds. When 600 GAF (for CHPs with more than six clients is used) were the benchmark for the GAF limit, the conversion to IFQ pounds 10,500 lbs

⁷ This includes the CHPs (both permanent and interim) that were valid as of March 5, 2012.

to 17,460 lbs with an average of 12,450 lbs. If all CHP holders leased up to the limit (this outcome is not anticipated), they would be allowed to lease about 4.8 Milbs of IFQ. This estimate is based on the average charter caught halibut weight over the time period and the number of CHPs currently valid. That amount is currently exceeds the maximum of 1.6 Milbs of GAF that could be leased under the Council’s recommended restriction for QS holders leasing IFQ as GAF (Table 12), but it is unlikely that CHP holders would demand that amount of GAF.

Table 9 Area 2C average net weight of charter caught halibut, GAF IFQ pound limits, and the maximum amount of IFQ that could be leased.

Year	Avg net weight of charter halibut (lb)	IFQ (based on 400 GAF)	IFQ (based on 600 GAF)	Max. GAF Lease in IFQ lbs (563** CHPs w/6 or fewer clients)	Max. GAF Lease in IFQ lbs (12*** CHPs w/ more than 6 clients)	Total IFQ lbs that could be leased
1995	19.9	7,960	11,940	4,481,480	143,280	4,624,760
1996	22.1	8,840	13,260	4,976,920	159,120	5,136,040
1997	20.2	8,080	12,120	4,549,040	145,440	4,694,480
1998	29.1	11,640	17,460	6,553,320	209,520	6,762,840
1999	17.8	7,120	10,680	4,008,560	128,160	4,136,720
2000	19.7	7,880	11,820	4,436,440	141,840	4,578,280
2001	18.1	7,240	10,860	4,076,120	130,320	4,206,440
2002	19.7	7,880	11,820	4,436,440	141,840	4,578,280
2003	19.1	7,640	11,460	4,301,320	137,520	4,438,840
2004	20.7	8,280	12,420	4,661,640	149,040	4,810,680
2005	19.1	7,640	11,460	4,301,320	137,520	4,438,840
2006	19.9	7,960	11,940	4,481,480	143,280	4,624,760
2007	17.5	7,000	10,500	3,941,000	126,000	4,067,000
2008	19.4	7,760	11,640	4,368,880	139,680	4,508,560
2009	23.3	9,320	13,980	5,247,160	167,760	5,414,920
2010	26.4	10,560	15,840	5,945,280	190,080	6,135,360
2011	9.4*	3,760	5,640	2,116,880	67,680	2,184,560
Avg. (excludes 2011)	20.8	8,300	12,450	4,672,900	149,400	4,822,300
Max. (excludes 2011)	29.1	11,640	17,460	6,553,320	209,520	6,762,840
Min. (excludes 2011)	17.5	7,000	10,500	3,941,000	126,000	4,067,000
* Preliminary estimate						
** Includes 39 interim permits						
*** includes 1 interim permit						

Source: ADF&G charter halibut weight estimates and RAM CHP estimates.

Table 10 estimates the Area 3A IFQ limit (based on 400 GAF and 600 GAF) when converted from numbers of fish to pounds using the average net weight of charter halibut. For CHPs endorsed with 6 or fewer clients, the IFQ poundage limit ranged from 6,080 lbs to 8,920 lbs using the average annual weights from 1995 through 2010. Over that time period the average of all years was 7,503 pounds. When 600 GAF (for CHPs with more than six clients is used) were the benchmark for the GAF limit, the conversion to IFQ pounds 9,120 lbs to 13,380 lbs with an average of 11,254 lbs. If all CHP holders leased up to the limit (this outcome is not anticipated), they would want to lease about 4.1 Milbs of IFQ. This estimate is based on the average charter caught halibut weight over the time period and the number of CHPs currently valid. That amount currently exceeds the maximum of 2.9 Milbs of GAF that could be leased in 2012 under the Council’s recommended restriction for QS holders leasing IFQ as GAF (Table 12).

Table 10 Area 3A average net weight of charter caught halibut, GAF IFQ pound limits, and the maximum amount of IFQ that could be leased.

Year	Avg net weight of charter halibut (lb)	IFQ (based on 400 GAF)	IFQ (based on 600 GAF)	Max. GAF Lease in IFQ lbs (403** CHPs w/6 or fewer clients)	Max. GAF Lease in IFQ lbs (95*** CHPs w/ more than 6 clients)	Total IFQ lbs that could be leased
1995	20.6	8,240	12,360	3,320,720	1,174,200	4,494,920
1996	19.7	7,880	11,820	3,175,640	1,122,900	4,298,540
1997	22.3	8,920	13,380	3,594,760	1,271,100	4,865,860
1998	20.8	8,320	12,480	3,352,960	1,185,600	4,538,560
1999	19.2	7,680	11,520	3,095,040	1,094,400	4,189,440
2000	19.7	7,880	11,820	3,175,640	1,122,900	4,298,540
2001	19.2	7,680	11,520	3,095,040	1,094,400	4,189,440
2002	18.2	7,280	10,920	2,933,840	1,037,400	3,971,240
2003	20.7	8,280	12,420	3,336,840	1,179,900	4,516,740
2004	18.6	7,440	11,160	2,998,320	1,060,200	4,058,520
2005	17.8	7,120	10,680	2,869,360	1,014,600	3,883,960
2006	17.9	7,160	10,740	2,885,480	1,020,300	3,905,780
2007	16.9	6,760	10,140	2,724,280	963,300	3,687,580
2008	17.0	6,800	10,200	2,740,400	969,000	3,709,400
2009	16.3	6,520	9,780	2,627,560	929,100	3,556,660
2010	15.2	6,080	9,120	2,450,240	866,400	3,316,640
2011	15.1*	6,040	9,060	2,434,120	860,700	3,294,820
Avg. (excludes 2011)	18.8	7,503	11,254	3,023,508	1,069,106	4,092,614
Max. (excludes 2011)	22.3	8,920	13,380	3,594,760	1,271,100	4,865,860
Min. (excludes 2011)	15.2	6,080	9,120	2,450,240	866,400	3,316,640
* Preliminary estimate						
** Includes 21 interim permits						
*** includes 2 interim permit						

Restrictions are also placed on the amount of IFQ an individual QS holder may lease to the charter sector. Commercial halibut QS holders may lease up to 1,500 pounds or 10 percent (whichever is greater) of their annual IFQ in each area (2C and 3A) to CHP holders (including themselves) for use as GAF.

CHP holders that also own halibut QS would be allowed to lease some of that QS to themselves. Between 22 and 24 charter permit holders also hold QS in that area (Table 11). One person with a CHP in Area 2C only holds QS in Area 3A. These individuals will have the opportunity to lease IFQ to their halibut charter business, if the net returns on the halibut IFQ are greater in the charter fishery than the commercial halibut fishery. The remaining 343 CHP holders in Area 2C and 419 CHP holders in 3A must lease IFQ from someone else to utilize GAF.

Table 11 CHP holders that also own halibut QS in IPHC Areas 2C or 3A.

Area	CHP Holders	CHP Holders with QS in Same Area	CHP Holders with QS in either 2C or 3A
CHP Only			
2C	365	22	6.0%
3A	442	23	5.2%
CHPs, CQEs, and MWRs			
2C	374	22	5.9%
3A	451	24	5.3%

Source: RAM – March 5, 2012

If an IFQ holder chooses to lease to a Community Quota Entity (CQE), then the same limitations apply as if they were leasing to an individual charter operator—1,500 lbs or 10 percent whichever is greater. Any quota which a CQE holds, regardless of its origin, could be leased up to 100 percent to eligible residents of the CQE community. For example, a CQE may hold quota share derived from purchase, lease from another qualified CQE, or lease from an individual, and then lease out up to 100 percent of the quota it holds. Because CQEs may own QS⁸ and lease their entire IFQ holding to local charter operators, they operate under different rules and are excluded from this discussion.

Based on the lease limit rules above, the maximum amount of IFQ that could be available for lease by QS holders can be calculated. To simplify the calculation it was assumed that none of the 2012 QS units were held by a CQE. RAM data⁹ defines the total QS units held. Those QS units were converted to pounds of IFQ based on the 2012 conversion rate of 22.7 QS per IFQ pound in Area 2C and 15.5 in Area 3A. The lease rate rule was applied to each QS holder’s IFQ pounds in an area to determine the total amount of IFQ that could be leased and the rule applied to each QS holder. The summary of those calculations are provided in Table 12. The information indicates that in Area 2C no class A, B, or D QS holders would be limited by the 10 percent restriction in 2012. This means every QS holder in these QS classes would be issued less than 15,000 lbs of IFQ in 2012.

Table 12 Estimated maximum amounts of halibut IFQ that could be leased in areas 2C and 3A by share class, based on 2012 data.

Area/Lease Limit Rule	A		B		C		D		Total	
	IFQ Available for Lease	QS Holders	IFQ Available for Lease	QS Holders	IFQ Available for Lease	QS Holders	IFQ Available for Lease	QS Holders	IFQ Available for Lease	QS Holders
2C - 10% Rule					8,880	5			8,880	5
2C - 1,500 lb. Rule	29,765	32	72,019	87	1,126,811	1,001	351,870	586	1,580,466	1,706
2C Total	29,765	32	72,019	87	1,135,692	1,006	351,870	586	1,589,346	1,711
3A - 10% Rule	19,770	7	318,386	104	212,872	81	1,744	1	552,772	193
3A - 1,500 lb. Rule	35,572	33	323,933	240	1,519,056	1,133	483,989	601	2,362,550	2,007
3A Total	55,342	40	642,319	344	1,731,928	1,214	485,732	602	2,915,322	2,200

Source: RAM QS holder data

⁸As of year-end 2011, no CQEs in Area 2C had purchased commercial halibut QS, and 2 CQEs in Area 3A had purchased a combined total of about 29,000 lbs (2011 IFQ lbs).

⁹<http://www.fakr.noaa.gov/ram/daily/ifqunitf.csv> (February 28, 2012)

Based on the amount available for lease, it appears that sufficient halibut could be made available for lease to meet client demand in 2012. However, that information alone does not provide the information necessary to determine the extent GAF leasing will occur. Whether IFQ is leased to members of the charter sector is dependent on several factors. These factors occur on both the demand side (CHP holder's ability to determine/forecast client demand and willingness to purchase halibut) and on the supply side (QS holder's willingness to lease their IFQ holdings). Both the supply and demand sides are equally important, because a mutually beneficial agreement must be reached before a lease will occur. Neither the buyer nor the seller possesses sufficient market power to force the other into a lease agreement.

3.1 Supply of GAF

It is not possible to predict the number of GAF that IFQ holders will make available for leasing each year. The quantity available is dependent on the market clearing price. That price must be sufficient to compensate the commercial IFQ holder for net revenues forgone from other uses of the IFQ¹⁰. Because individual commercial harvesters generate different amounts of net revenue from their allocation, the commercial operations that generate the lowest marginal net revenue would be most likely to lease halibut, all else equal. The lack of cost data associated with the commercial and charter operations and the difficulty of projecting future supplies and demand given the variability of halibut stocks and complexity of the various markets at issue limits our ability to provide detailed estimates of which QS holders would be most likely to lease IFQ. However, it is possible to discuss some sectors that may or may not be willing to lease IFQ qualitatively.

The net revenue derived from halibut is dependent on the business plan of the QS holder and the prevailing or expected market conditions. QS holders may utilize their IFQ when harvesting halibut in the directed fishery or as a means to retain halibut harvested incidentally to other target fisheries. Net revenue derived from IFQ used in the directed halibut fishery (by catcher vessels) is based on the ex-vessel price received for the halibut sold minus the costs associated with harvesting those halibut. If costs are constant and the ex-vessel price increases, assuming constant fishery CEY, net revenue increases. Therefore, the market clearing price of a lease also increases. In general, leases may occur if the lease price per pound of IFQ is greater than the net return from a pound of halibut delivered.

In recent years, the ex vessel price of halibut has increased in both Areas 2C and 3A (Table 13), but costs have also increased. Fuel costs, for example, have increased substantially since 1998. However, the ex vessel prices in 2011 seem to have increased at a greater rate, which may indicate the reduced supply of commercially harvested halibut (or increased demand) may have resulted in larger net returns. This cannot be confirmed without cost of production data.

Since the commercial IFQ leasing provision expired in the late 1990s, information on class "B", "C", and "D" lease prices are unavailable. Lease prices should reflect the expected net return¹¹ associated with the annual harvest of those IFQ. A minimum lease price should approximate the

¹⁰ These uses may include harvesting the halibut on their vessel or another vessel, selling the QS, or leasing the IFQ to another commercial fisherman. Leasing IFQ is very limited under the current IFQ program for class B, C, and D shares (except under survivorship transfer privileges § 679.41(k)), so for most QS holders leasing is not an option.

¹¹ The short-run difference between ex vessel revenue and total variable cost to harvest leasable halibut. This is sometimes referred to as Quasi-Rents in economics literature.

ex vessel price minus the variable costs associated with their harvest. Increased demand for GAF could lead to a price increase above commercial net return.

Table 13 Ex vessel prices in Areas 2C and 3A, 2003 through 2010.

Year	2C	3A
2003	2.95	2.89
2004	3.04	3.04
2005	3.08	3.07
2006	3.75	3.78
2007	4.41	4.40
2008	4.33	4.40
2009	3.08	3.12
2010	4.62*	4.62*
2011	6.77**	6.61**

* Statewide price

** Average of monthly Southeast prices from notification of standard prices and fee percentages (76 FR 238 pp. 77209-14)

If class “A” shares were harvested and processed on vessel, the net revenue derived from both harvesting and processing would need to be covered by the lease price. Because both the ex-vessel and first wholesale net revenue must be recouped, it is less likely that class “A” shares would be leased.

When halibut are utilized as incidental catch in the harvest of other groundfish (primarily Pacific cod), the net revenue associated with the halibut and any increased revenue associated with more fully harvesting the Pacific cod TAC must be covered by the lease price. This calculation is dependent on several factors, some of which are currently unavailable¹². However, if the halibut PSC limits in the Pacific cod fishery are a constraint, these IFQ may be more highly valued for that use by the holder than halibut harvested in the directed halibut fishery, which would also increase the GAF lease price for these IFQ. The QS holders that are most likely to utilize their IFQ in the cod fishery are the freezer longliners. These vessels are operating under a cooperative system that provides incentives for individuals to minimize their halibut PSC usage when it is a constraint. When this potential use of IFQ is combined with the increased value of “A” shares discussed earlier, it may be concluded that “A” shares are unlikely to be leased. Information from Table 12 indicates that these shares comprise a relatively small amount of the total. Catcher vessels currently have fewer incentives to utilize IFQ in this manner¹³. However, if rationalization of GOA fisheries is developed, this sector may also have increased incentives to utilize more IFQ to cover incidental halibut catch in the groundfish fisheries. These incentives will intensify if PSC limits are reduced.

The portfolio of an individual’s IFQ holdings may also affect their willingness to lease IFQ. For example, if a person has relatively small amount of IFQ in Areas 2C and /or 3A and larger holding further west, they may be willing the lease the 2C and 3A shares to maximize their

¹² For example, cost of production in the harvesting and processing sector and the amount of additional groundfish revenue that could be generated.

¹³ These IFQ holders may utilize their halibut IFQ in the cod fishery if it allows them to reduce costs associated with additional halibut trips.

profitability. Profitability may be increased by leasing IFQ because of reduced costs associated with their harvest or increased revenue, if the IFQ was not harvested previously because of cost. To determine approximately how many pounds of Area 2C and Area 3A IFQ met this criterion, the 2012 RAM list of QS holdings were examined. The 2012 QS units were converted to 2012 IFQ using the same rules listed for Table 12. Using those IFQ holdings the Area 2C and Area 3A IFQ (by area) were selected that comprised less than 10 percent of their total halibut holdings across all areas. The number of QS holders and their IFQ in Areas 2C and 3A are reported in Table 14. A total of 61 QS holder had less than 10 percent of their IFQ holdings in Area 2C. Those individuals were estimated to have been issued 44,956 lbs of halibut IFQ in 2012. Of that total 11,477 lbs was held by nine individuals that would not be allowed to lease all of their 2C IFQ because of the 1,500 lbs/10 percent lease rule. Subtracting that amount from the total yields 33,479 lbs of IFQ that could be leased. However, if a person determined that since they could not lease their entire holding they would not lease any of their IFQ, a total of 19,979 lbs would be available. That would yield approximately 1,000 GAF, depending on the average weight of a GAF that would be applied to those IFQ. If all IFQ available, under this scenario, were leased, that number would increase by about 70 percent.

Table 14 IFQ holdings by area that comprise less than 10 percent of the QS holders total IFQ.

	2C	3A
Total IFQ		
Pounds	44,956	27,878
QS Holders	61	35
Not leaseable (IFQ in excess of 1,500 lbs/10% Rule)		
Pounds	11,477	12,040
QS Holders	9	5
IFQ pounds that are leaseable		
Pounds	33,479	15,839
QS Holders	61	35
IFQ pounds are leaseable and all IFQ holding in the area may be leased		
Pounds	19,979	8,339
QS Holders	61	35

Source: RAM QS holder data

A total of 35 QS holders had less than 10 percent of their IFQ holdings in Area 3A. Those individuals were estimated to have been issued 27,878 lbs of halibut IFQ in 2012. Of that total 12,040 lbs was held by five individuals that would not be allowed to lease all of their 3A IFQ because of the 1,500 lbs/10 percent lease rule. Subtracting that amount from the total yields 15,839 lbs of IFQ that could be leased. However, if a person determined that since they could not lease their entire holding they would not lease any of their IFQ, a total of 8,339 lbs would be available. That would likely yield fewer than 500 GAF, depending on the average weight of a GAF that would be applied to those IFQ. If all IFQ available, under this scenario, were leased, that number would less than double.

Factors beyond net revenues generated by the IFQ holder may also play a role in determining if shares will be leased. For example, some IFQ holders may not lease their IFQ because it would negatively affect their crew's compensation. Any leases that occur will reduce the overall

harvesting income from the boat (assuming leases have little effect on commercial ex vessel prices). While the IFQ holder would be compensated by the lease, crew members that are paid on a share basis would not receive compensation. Given the heightened attention given to crew compensation and QS holders desire to attract the best crew members, further reducing crew benefits may affect GAF leasing. Animosity that has developed between sectors over the years, in some communities, may affect some IFQ holder's willingness to lease to the charter sector. Certainly not all IFQ holders share that philosophy, but any that do may reduce the total GAF that could be made available.

Each individual IFQ holder must weigh all these considerations, and perhaps other factors such as the duration of the lease, when determining whether to enter into an agreement. If an IFQ holder would consider leasing some or all of their IFQ in an area, taking the circumstances in the commercial halibut fishery as given, the ultimate factor in determining whether the lease occurs is the demand for GAF.

3.2 Demand for GAF

The proposed structure of the GAF program allows only CHP holders to lease GAF and they are prohibited from sub-leasing those fish to other CHP holders. Limiting eligible participants in the GAF market may reduce speculation and perhaps, through reduced demand, reduce the GAF price. However, the market price for GAF will be determined by the value of those fish in the directed commercial fishery, and guided anglers willingness to pay higher prices for trips that allow greater harvest flexibility or charter operators being willing to accept lower net revenue.

Guided anglers would only have incentives to use GAF when the harvest limits placed on guided anglers are more restrictive than those placed on unguided anglers. For example, if the guided angler in Area 3A was operating under a 2-fish of any size bag limit, they would have no incentive to pay additional costs to use GAF. GAF would not change the quantity or attributes of the halibut the client could harvest. If guided anglers were operating under a 1-fish of less than 37" bag limit, imposed in Area 2C during 2011, their incentive to utilize GAF increases. That does not mean that all guided angler's willingness to pay for GAF is equal to the cost associated with accessing those halibut. The actual number of transactions and transaction prices will be determined by the supply and demand associated with those fish.

Charter operations that have the highest net revenue per client and larger client bases are expected to be the most willing lessees of GAF. These business, which may have expansive ancillary operations (such as lodges), will use their larger client bases to use GAF or may be more able to be able to support the costs associated with the risk of potentially unused GAF through their larger operations. These operators would be willing to enter leases only if net revenues are expected to increase after the lease. GAF would be purchased to attract clients willing to pay for an opportunity to harvest additional fish. Given that GAF can be used to create the opportunity, a variety of different uses could be made of GAF, which might differ depending on circumstances. For example, if a one fish bag limit with a maximum size is in place, an operator could use GAF strictly for providing clients with an opportunity to retain a trophy fish. This use of GAF could allow an operator to earn additional revenues from multiple clients based on a single GAF.¹⁴ These operators might be able to attract certain clients willing to pay extra for that opportunity. During other times, GAF may be used strictly to allow clients to retain additional fish. Some risk is associated with any purchase of GAF, as it is possible that an operator may be unable to attract

¹⁴ This use of GAF can be made fairly without misleading clients, provided clients are informed of their chances of catching a trophy fish.

clients willing to pay for the added opportunity provided by GAF. These operators may be less willing to acquire GAF in the future.

Factors that influence demand and, as a result, whether a lease occurs include the management measures in place to limit charter harvest, duration of the lease, the business model of the charter service, and the net returns of halibut in the commercial IFQ fishery. Each of these factors is described below, but other factors will also influence demand for leases.

Comparing the Area 2C management measures for 2011 and 2012 provides an example of how these measures could affect client demand for GAF. In 2011, management measures were imposed that limited charter clients to a daily bag limit of 1-fish, less than 37 inches. This strict management measure did not allow clients to retain a trophy sized halibut. Some clients may sufficiently value the ability to retain such a fish, to be willing to pay an additional GAF fee. Charter operators have often referred to their ability to market trips for halibut of trophy size as important to their business. This indicates that charter clients place a relatively high value on larger fish. The 37" limit also resulted in a client being able to take home a maximum of approximately 12 lbs of halibut fillets¹⁵. Increasing the amount of halibut fillets that may be taken home, at less than retail cost, may entice clients to pay the additional fee. In 2012, the management measures changed. While there is still a 1-fish limit in area 2C, the client may retain a fish that is less than or equal to 45 inches or greater than or equal to 68 inches. The ability to retain a trophy fish and the increased smaller size limit reduces the incentive for a client to pay an additional fee for GAF. A client may still want to utilize GAF to retain two fish or fish between 45 inches and 68 inches, and it will depend on the preference of the individual angler and the ability of the operator to attract clients based on these added opportunities.

The duration of the lease agreements may also play an important role in determining if GAF are leased. Long term (multiyear) lease agreements may be developed for extended use of the GAF by a charter operator. Long term lease arrangements would be based on charter operators assuming that the combined catch limit will be small enough to trigger management measures at a tier limiting the number or size of the halibut their clients may harvest. The goal of the leasing entity is to amortize its investment over the lease period and provide a consistent market of halibut charter services to prospective clients. Long term leases could reduce uncertainty regarding access to fish and lease prices. Fluctuations in the commercial CEY will still cause the number of GAF a QS holder can lease to increase or decrease. Long term leases will be most effective for amounts that the lessee is certain to use and if the provisions to return unused GAF to the commercial sector provide adequate time for unused shares to be harvested.¹⁶ Under a short term lease (annual), the lease price will be strongly influenced by current charter and commercial market conditions pertaining to the volatility of supply and demand. The annual lease arrangements may be more likely to occur when there is a temporary unforeseen surge in the demand for GAF, resulting from relatively restrictive harvest measures.

There are several types of charter businesses that operate in Areas 2C and 3A. They are described in Section 4.2 of this document. Businesses can be as basic as supplying only the items needed for a fishing trip, to all inclusive lodges that cater to all the client's needs from the time they arrive at the base community until they leave. Basic charter operations would need to pass the

¹⁵ Additional fillets could be retained if the vessel fished areas where rockfish, lingcod, or other desirable species could be harvested.

¹⁶ Long term arrangements may also reduce uncertainties by ensuring GAF are available for lease at certain times in the season. These arrangements would reduce the need to transfer GAF back to the commercial sector late in the season by limiting the leases to the amount of GAF needed.

GAF costs on to the client as an increased cost of the trip or as a surcharge, if GAF are utilized by a client. Lodges could pass the cost of the GAF on as part of their overall package. The fee in that case may be less obvious to the client and the lodge could market their trips as allowing their clients to harvest 2-fish of any size. This type of operation, with a stable client base seeking specific attributes from their trip, may also be most likely to enter into long-term leases. They are also most likely to utilize GAF regardless of the lease structure.

Ultimately, each individual charter operation will need to determine if clients are willing to pay increased prices for using GAF. Charter operations attracting clients willing to pay extra for the experience of harvesting more or bigger fish will utilize GAF. Those that do not attract that type of client, will not participate in the GAF program. In the same way, clients will need to determine if the increased cost of harvesting more or larger halibut is worth the increased cost. That decision is driven by the individual's demand to harvest additional fish.

3.3 Conclusions

It is not possible to determine the amount of GAF that will be leased in a year, subject to the regulatory limits, but the amount will vary based several factors including the commercial market for halibut and costs of commercial operations and demand for charter trips and the management measures that are in place to control charter harvests. Overall economic conditions will affect demand for charter trips and likely demand for GAF. The rules proposed on the limits for GAF transfer seem to allow for sufficient GAF to be leased (under current conditions). However, just because rules allow it to be leased does not mean that GAF will always be available at the price charter operators are willing to pay. To reduce the uncertainty of when GAF are available, charter operators may attempt to procure long term leases. These leases would help ensure GAF are available when needed and would reduce the annual fluctuation in GAF prices. Business that can amortize the cost of the GAF over a larger business may be more likely to lease GAF than charter operators who have smaller operations.

4 Economic Conditions in the Charter and Commercial Fisheries

This section of the analysis was developed to illustrate changes that have occurred in halibut fisheries in recent years. Both commercial and charter examples are presented that rely on data collected by NOAA Fisheries and ADF&G. When routinely collected data were not available, information was collected by talking with persons involved in the fisheries.

4.1 Commercial Examples

Commercial halibut harvesting operations take a variety of forms. A commercial operator may own quota shares and a vessel, fishing the yielded IFQ on the vessel. Depending on whether the quota share holder is an initial recipient, it is possible that a hired skipper may be used to harvest IFQ. The primary long term costs of these operations are quota costs and vessel costs, although a variety of other long term and short term costs are incurred.

While some participants in the commercial fishery own quota shares and vessels (akin to the charter permits and vessels owned by charter fishery participants), the halibut IFQ program has allowed for flexibility in structuring commercial halibut fishery operations. Specifically, entering halibut fishery participants may not own a vessel, but may fish their quota share holdings on the vessel of another participant (by riding along on the vessel). While this structure might appear to

remove a substantial cost (i.e., vessel ownership) for participants who do not own a vessel, additional costs are incurred, as the vessel owner will retain a portion of the revenue generated by landings of those shares to cover operational costs and compensate for vessel use and crews. Payment arrangements for the harvest of quota vary across vessels depending on the circumstances. Generally, charges decrease with the amount of quota brought to the vessel for harvest. Also, a vessel that will be used for making a large harvest of its owner's quota may charge less to bring small amounts of quota on board to supplement its fishing. In addition, arrangements may also differ if the quota holder also is an active crewmember on the vessel.

Vessels also incur costs for fuel, insurance, gear, moorage, gear storage, food, and provisions. Other charges made on harvests including state and local taxes and cost recovery fees. Vessels also require periodic repair and maintenance, which can be greatly increased by accidents or failures of engines, hydraulics, refrigeration, or propulsion systems.

Crew costs are also a substantial operating cost. Crew sizes differ slightly with the size of a vessel and its operation. Most of the smaller vessels (less than 55 feet) operate with crews of one or two in addition to the captain. Larger vessels will typically operate with a crew of 3 in addition to the captain. Crew are typically compensated on a share based system under which they receive a share of vessel revenues (or gross stock) after the payment of specified operating costs (which may include the costs of quota, food, bait, lost gear, fuel and provisions).

In addition to halibut harvests, many vessels also participate in groundfish fisheries. Most of these vessels use longline gear in the groundfish fisheries, but some use pot and a very few use trawl gear. In addition, some vessels that are equipped for pot gear may also fish in crab fisheries, most often the *C. bairdi* fisheries managed by the State of Alaska. Prosecution of these other fisheries may offset some of the lost revenues in the halibut fishery at times of low halibut abundance for vessels holding the requisite permits to enter those fisheries.

The six tables below show six gross revenue and quota cost scenarios (three for Area 2C and three for area 3A), each from 2003 to 2011. The scenarios are intended only to provide information concerning the changes in revenue streams that arise from recent changes in halibut prices and the Fishery CEY. It is assumed that IFQ are fully harvested; estimates of revenue and quota share value are based on the average ex vessel price and share price in the area, except as noted. The first example for each area assumes that the quota holder received an initial allocation of quota shares equal to the average area initial allocation. The second table for each area assumes that the holder received an initial allocation in an amount equal to the average harvest of a vessel 60 feet or less in length. The third scenario for each area assumes that the quota share holder made three share purchases over a five year period. Each of the three quota share acquisitions would yield 5,000 pounds of IFQ in the year of purchase.

Importantly, none of the tables consider operating costs other than quota share costs. In assessing the information in the tables consideration should be given to those costs, particular costs that are likely to have changed during the period (such as fuel costs, which are substantially higher now than in 2003). (see Alaska Fuel Price Survey, Pacific States Marine Fisheries Commission, Portland Oregon). Changes in other costs are likely to either compensate for, or intensify the effects arising from revenue changes.

Under the first scenario in Area 2C, the quota holder is assumed to hold 25,000 quota shares (approximately the average initial allocation) throughout the period (see Table 15). Annual ex vessel gross revenue increases from 2003 to 2007, as a result of increases in both ex vessel price and the annual IFQ allocation (arising from a rising commercial CEY). Beginning in 2007, CEY

and price decreases lead to a drop in estimated quota value and gross revenue. Although the ex vessel price recovered (reaching the highest value for the period by 2011), quota values declined, most likely in response to the drop in the commercial CEY throughout the remainder of the period. As a consequence, the quota is of slightly lower value in 2011 than in 2003, despite a doubling of ex vessel price, while revenues from IFQ landings were less than two-thirds of the 2003 level in 2011. Nominal dollar values are reported in all tables.

Table 15. Scenario 1 for Area 2C – gross revenue and quota value for a quota holder who received an allocation of 25,000 quota shares.

2C - 1							
Year	Quota shares held*	Quota Share price (\$/share)	Value of Quota Share held (\$)	Annual ratio of Quota Shares to IFQ	Annual IFQ pounds	Average ex vessel price (\$/pound)	Annual ex vessel revenue (\$)
2003	25,000	1.39	34,750	7.02	3,563	2.95	10,526
2004	25,000	2.41	60,250	5.67	4,408	3.04	13,377
2005	25,000	3.31	82,750	5.45	4,588	3.08	14,122
2006	25,000	3.29	82,250	5.60	4,462	3.75	16,743
2007	25,000	2.80	70,000	7.00	3,573	4.41	15,740
2008	25,000	2.70	67,500	9.59	2,607	4.33	11,296
2009	25,000	1.70	42,500	11.86	2,107	3.08	6,499
2010	25,000	1.68	42,000	13.53	1,847	4.62**	8,534
2011	25,000	1.27	31,750	25.56	978	6.77***	6,622

* Shares assumed received under initial allocation under this scenario. Amount is slightly less than average initial allocation in Area 2C.

** Statewide price

*** Average of monthly Southeast prices from notification of standard prices and fee percentage (76 FR 238 pp. 77209-14).
Except as noted prices are from RAM annual report to the fleet and annual transfer reports.

The second scenario in Area 2C assumes that a person holds quota shares in an amount that yields the average IFQ harvest by a vessel that is 60 feet or less in length (see Table 16). The table also shows the average vessel harvest from 2003 to 2011, along with the gross revenues received for those harvests. These numbers can be contrasted with the harvest arising from the constant quota share holding to show fleet responses to changes in the fishery (such as changes in IFQ allocations arising from changes in the Fishery CEY and changes in ex vessel prices). Specifically, the harvest from constant quota share holdings exceeds the average vessel harvest (in pounds) from 2003 through 2006. This suggests that the harvest of halibut as percentage of the quota share pool dispersed among vessels during that period. In other words, the average vessel harvests (increased in pounds but) decreased as a share of the total IFQ pool during that period, since the average vessel harvested less IFQ than was yielded by the constant QS holdings (which are equivalent to the average vessel's harvests in 2003). With more IFQ pounds to harvest and an increasing price, on average, QS holders elected to harvest more pounds from a vessel, but less of the total pool, achieving higher revenues from those harvests. In the period from 2007 through 2011, the opposite phenomenon occurred. The average vessel harvested fewer pounds, but an

increasing share of the total IFQ pool. In other words, the average vessel harvested IFQ from a larger share of the QS pool, but fewer pounds. Revenues fluctuated during the period as a result of ex vessel prices for both a vessel harvesting a constant share of the QS pool and a vessel harvesting at the fleet average (for vessels of a length of 60 feet or less); however, gross revenues of the average vessel exceeded gross revenues of the vessel harvesting a constant percentage of the quota share pool, because of the concentration of additional harvests on the average vessel. Quota share value also fluctuated following a pattern similar to IFQ revenues, ending the period with a value less than in the beginning. This drop in value of constant QS holdings (which fell more than 10 percent from the 2003 value in 2011), however, is less proportionally than the drop in ex vessel gross revenues from annual IFQ harvests (which fell by more than 30 percent from the 2003 in 2011)¹⁷. The added concentration of harvests on the average vessel likely mitigated these effects for some quota holders. That concentration can occur by the quota share transfers that concentrate quota share holdings and by multiple quota share holders joining together to harvest their IFQ on a single vessel. This additional concentration can be used to reduce harvest costs, but may not avoid some costs, such as vessel costs that cannot be avoided through short run decisions.

Table 16. Scenario 2 for Area 2C - revenue and quota value for a quota holder who holds quota shares that yield IFQ harvested by the average vessel less than or equal to 60 feet in length in 2003 (15,000 pounds of IFQ yielded by 105,239 quota share units in 2003).

Year	Quota shares held*	Quota Share price (\$/share)	Value of Quota Share held (\$)	Annual ratio of Quota Shares to IFQ	Annual IFQ pounds	Average ex vessel price (\$/pound)	Annual ex vessel revenue (\$)	Approximate average vessel harvest* (pounds)	Annual ex vessel revenue (of ~ average vessel harvest) (\$)
2003	105,239	1.39	146,282	7.02	15,000	2.95	44,310	15,000	44,310
2004	105,239	2.41	253,625	5.67	18,554	3.04	56,311	17,000	51,595
2005	105,239	3.31	348,339	5.45	19,314	3.08	59,448	18,000	55,404
2006	105,239	3.29	346,235	5.60	18,785	3.75	70,481	16,000	60,032
2007	105,239	2.80	294,668	7.00	15,039	4.41	66,260	15,000	66,090
2008	105,239	2.70	284,144	9.59	10,974	4.33	47,551	13,000	56,329
2009	105,239	1.70	178,905	11.86	8,871	3.08	27,359	12,000	37,008
2010	105,239	1.68	176,801	13.53	7,776	4.62**	35,923	12,000	55,440
2011	105,239	1.27	133,653	25.56	4,118	6.77***	27,876	12,000	81,240

* Shares assumed received under initial allocation under this scenario. Amount is based on the median vessel harvest by C category vessels (60 feet and under LOA) in 2003 all areas.

** Statewide price from CFEC

*** Average of monthly Southeast prices from notification of standard prices and fee percentage (76 FR 238 pp. 77209-14).

Except as noted prices are from RAM annual report to the fleet and annual transfer reports.

The third scenario in Area 2C assumes that the quota share holder made three purchases of quota shares over a five year period (Table 17). Each purchase yields 5,000 pounds of IFQ in the year of purchase. The first purchase (in 2003) would have cost almost \$50,000. The second purchase,

¹⁷ The decrease in ex vessel revenue from QS held was greater when 2007 is compared to 2011. During this period the gross ex vessel revenue derived from QS decreased to about 42 percent of the 2007 level. Had QS been purchased in 2007, with the assumption that the future stream of earnings would approximate 2007 levels, the revenues generated in 2011 may be less than the amount necessary to cover the annual repayment schedule.

two years later, would have cost approximately 90,000. By that time, the original purchase would yield approximately 6,500 pounds of IFQ, as a result of the increase in the commercial CEY. The value of the first purchase, however, would have increased more than two-fold to over \$115,000, although halibut prices increased only slightly during the period. The third purchase would have been for an amount of quota share similar to the first purchase five years earlier (as the commercial CEY dropped back to a level similar to the 2003 level). Halibut prices by this time had increase by approximately 50 percent (almost \$1.50 higher than the 2003 price of \$2.95) and quota shares were approximately double the 2003 price. Consequently, in 2007, at the end of the purchase period, the quota share holder would have spent almost \$250,000 on quota share, which would yield approximately 13,000 pounds of IFQ and approximately \$61,000 in ex vessel revenues (at the 2007 commercial CEY and average ex vessel price). From 2007 on, the commercial CEY declined, so the amount of IFQ yielded by the quota share purchased declined to below 4,000 pounds in 2011 (less than one-third of the amount that might have been intended by the three-5,000 pound purchases). As expected, the price of quota share declined by more than 50 percent from the 2007 level to approximately \$1.25 per share leaving the total holding value at approximately \$125,000 (or slightly more than half of the almost \$240,000 outlay for purchases).

Table 17. Scenario 3 for Area 2C - revenue and quota value for a quota holder who made 3 purchases of quota shares (in 2003, 2005, and 2007), each of which yielded 5,000 pounds of IFQ harvested in the year of purchase.

Year	Quota Shares acquired	Quota shares held	Quota Share price (\$/share)	Quota Share cost incurred (\$)	Value of Quota Share held (\$)	Annual ratio of Quota Shares to IFQ	Annual IFQ pounds	Average ex vessel price (\$/pound)	Annual ex vessel revenue (\$)
2003	35,080	35,080	1.39	48,761	48,761	7.02	5,000	2.95	14,770
2004	0	35,080	2.41	0	84,542	5.67	6,185	3.04	18,770
2005	27,245	62,324	3.31	90,179	206,292	5.45	11,438	3.08	35,206
2006	0	62,324	3.29	0	205,046	5.60	11,125	3.75	41,740
2007	34,990	97,314	2.80	97,971	272,478	7.00	13,906	4.41	61,270
2008	0	97,314	2.70	0	262,746	9.59	10,148	4.33	43,970
2009	0	97,314	1.70	0	165,433	11.86	8,203	3.08	25,298
2010	0	97,314	1.68	0	163,487	13.53	7,190	4.62**	33,218
2011	0	97,314	1.27	0	123,588	25.56	3,807	6.77***	25,776

Scenario assumes 3 purchases of QS, each purchase would yield 5,000 pounds of IFQ in the year of purchase.

** Statewide price

*** Average of monthly Southeast prices from notification of standard prices and fee percentage (76 FR 238 pp. 77209-14).
 Except as noted prices are from RAM annual report to the fleet and annual transfer reports.

The commercial fishery scenarios for Area 2C suggest that in recent years quota share holders have experienced losses in gross revenues from their holdings. A portion of this decline has been offset by increased halibut prices. Despite these price increases, revenues from constant quota share holdings declined in 2011 to substantially less than the 2003 level. To counter this effect, quota share holders have consolidated their IFQ holding to reduce harvest costs. The decline in value of quota share holdings suggests that this consolidation has achieved limited success in maintaining quota share value. Persons who purchased quota shares, particularly at peak quota share values in the mid-2000s have seen the value of their holdings decline substantially. These changes reflect short term changes that are dependent on the period selected for analysis. Over

time, conditions could change, reversing the downward trends in revenues and quota share values reflected in data from recent years.

The Area 3A scenarios follow a slightly different pattern than the Area 2C scenarios. Changes in the Fishery CEY (and IFQ yielded by each quota share) are less substantial in Area 3A. In the first few years (2003 through 2006) the increase in IFQ yielded per quota share unit is less in Area 3A. As a consequence, the rise in quota share prices during that period was dampened in Area 3A. The drop in IFQ yielded by each quota share (or the drop in the Fishery CEY) is less substantial in Area 3A. This together with the increase in halibut prices result in a smaller drop in annual ex vessel revenues and quota share values in Area 3A. The result is that the value of constant quota share holdings (at the average initial allocation) doubled from the beginning of the period to the end of the period, while annual ex vessel revenues from constant quota share holdings ended the period at a level similar to or slightly higher than at the start (as shown in Table 18).

Table 18. Scenario 1 for Area 3A – gross revenue and quota value for a quota holder who received an allocation of 60,000 quota shares.

3A - 1							
Year	Quota shares held*	Quota Share price (\$/share)	Value of Quota Share held (\$)	Annual ratio of Quota Shares to IFQ	Annual IFQ pounds	Average ex vessel price (\$/pound)	Annual ex vessel revenue (\$)
2003	60,000	1.20	72,000	8.17	7,342	2.89	21,248
2004	60,000	1.88	112,800	7.38	8,131	3.04	24,676
2005	60,000	2.49	149,400	7.26	8,265	3.07	25,389
2006	60,000	2.46	147,600	7.34	8,177	3.78	30,925
2007	60,000	2.91	174,600	7.06	8,501	4.40	37,431
2008	60,000	3.51	210,600	7.63	7,859	4.40	34,579
2009	60,000	2.87	172,200	8.52	7,041	3.12	21,940
2010	60,000	2.28	136,800	9.25	6,486	4.62**	29,967
2011	60,000	2.52	151,200	12.88	4,660	6.61***	30,800

* Shares assumed received under initial allocation under this scenario. Amount is slightly less than average initial allocation.

** Statewide price

*** Average of monthly Central Gulf prices from notification of standard prices and fee percentage (76 FR 238 pp. 77209-14).

Except as noted prices are from RAM annual report to the fleet and annual transfer reports.

A vessel that harvested IFQ yielded by quota shares in an amount equal to the average harvest of a vessel 60 feet or less in Area 3A, in 2003, would have it harvests fluctuate above the 2003 level until 2008 (Table 19). The vessel would have harvested 15,000 pounds in 2003 and between 16,000 and almost 17,500 from 2004 through 2008. The vessels harvest would have then declined, dropping below 10,000 pounds in 2011. In contrast, the average vessel harvest increase to over 18,000 in 2005, then declined progressively thereafter to approximately 12,000 pounds in both 2010 and 2011. Comparing the average vessel harvest to the a vessel harvesting a constant amount of quota shares suggests that harvest of quota consolidated in the fleet from 2003 through

2005, but then dispersed thereafter, until 2011. In that year, a relatively large decline in the Fishery CEY likely stimulated consolidation of the harvest of IFQ in the fleet.

Table 19. Scenario 2 for Area 3A - revenue and quota value for a quota holder who holds quota shares that yield IFQ harvested by the average vessel less than or equal to 60 feet in length in 2003 (15,000 pounds of IFQ yielded by 105,239 quota share units in 2003)

3A - 2									
Year	Quota shares held*	Quota Share price (\$/share)	Value of Quota Share held (\$)	Annual ratio of Quota Shares to IFQ	Annual IFQ pounds	Average ex vessel price (\$/pound)	Annual ex vessel revenue (\$)	Approximate average vessel harvest* (pounds)	Annual ex vessel revenue (of ~ average vessel harvest) (\$)
2003	122,579	1.20	147,094	8.17	15,000	2.89	43,410	15,000	43,410
2004	122,579	1.88	230,448	7.38	16,611	3.04	50,413	17,000	51,595
2005	122,579	2.49	305,220	7.26	16,884	3.07	51,869	18,000	55,296
2006	122,579	2.46	301,543	7.34	16,705	3.78	63,179	16,000	60,512
2007	122,579	2.91	356,703	7.06	17,368	4.40	76,472	15,000	66,045
2008	122,579	3.51	430,251	7.63	16,055	4.40	70,644	13,000	57,200
2009	122,579	2.87	351,800	8.52	14,385	3.12	44,824	12,000	37,392
2010	122,579	2.28	279,479	9.25	13,251	4.62**	61,222	12,000	55,440
2011	122,579	2.52	308,898	12.88	9,519	6.61***	62,923	12,000	79,320

* Shares assumed received under initial allocation under this scenario. Amount is based on the median vessel harvest by C category vessels (60 feet and under LOA) in 2003 (all areas).

** Statewide price

*** Average of monthly Central Gulf prices from notification of standard prices and fee percentage (76 FR 238 pp. 77209-14).

Except as noted prices are from RAM annual report to the fleet and annual transfer reports.

The third scenario in Area 3A assumes that a person made three purchases of quota shares over a five year period from 2003 through 2007, with each purchase of an amount of quota share that would yield 5,000 pounds of IFQ in the year of purchase (Table 20). The number of shares purchased decline with each purchase, since the Fishery CEY rose during the purchasing period; however, the purchase price increased from less than \$50,000 for the first purchase to over \$100,000 for the third purchase. This price increase likely resulted from the increasing CEY and halibut ex vessel price during the period of the purchases. Subsequently, the Fishery CEY declined leading to a decrease in pounds of IFQ harvested annually. Revenues from harvests decline, particularly in 2009 when the ex vessel price declined in the area, but recovered in 2010, as a result of a price increase. Notwithstanding the decline in the Fishery CEY, the value of the quota shares remained above the sum paid for the three purchases, despite a decline in price from the last purchase. This arose because the quota share price in 2011 remained substantially higher than the price at the time of the 2003 purchase. This scenario suggests that despite a similar pattern in the Fishery CEY and quota share prices in Area 3A and Area 2C, Area 3A quota share holders appear to be better off than quota share holders in Area 2C. This arises primarily because the magnitude of the decline in the Area 3A Fishery CEY is substantially less than the changes in Area 2C. This conclusion is case dependent and could change, if the Fishery CEY declines in future years. For example, a person who made a substantial purchase of quota shares in Area 3A in 2008 would have suffered a considerable loss in quota share value by 2011.

Table 20. Scenario 3 for Area 3A - revenue and quota value for a quota holder who made 3 purchases of quota shares (in 2003, 2005, and 2007), each of which yielded 5,000 pounds of IFQ harvested in the year of purchase.

Year	Quota Shares acquired	Quota shares held	Quota Share price (\$/share)	Quota Share cost incurred (\$)	Value of Quota Share held (\$)	Annual ratio of Quota Shares to IFQ	Annual IFQ pounds	Average ex vessel price (\$/pound)	Annual ex vessel revenue (\$)
2003	40,860	40,860	1.20	49,031	49,031	8.17	5,000	2.89	14,470
2004	0	40,860	1.88	0	76,816	7.38	5,537	3.04	16,804
2005	36,300	77,159	2.49	90,386	192,126	7.26	10,628	3.07	32,650
2006	0	77,159	2.46	0	189,811	7.34	10,515	3.78	39,769
2007	35,289	112,448	2.91	102,690	327,222	7.06	15,933	4.40	70,151
2008	0	112,448	3.51	0	394,691	7.63	14,728	4.40	64,805
2009	0	112,448	2.87	0	322,724	8.52	13,196	3.12	41,119
2010	0	112,448	2.28	0	256,380	9.25	12,156	4.62**	56,162
2011	0	112,448	2.52	0	283,368	12.88	8,733	6.61***	57,722

Scenario assumes 3 purchases of QS, each purchase would yield 5,000 pounds of IFQ in the year of purchase.

** Statewide price

*** Average of monthly Central Gulf prices from notification of standard prices and fee percentage (76 FR 238 pp. 77209-14).
 Except as noted prices are from RAM annual report to the fleet and annual transfer reports.

4.2 Charter Examples

A variety of models of charter operations exist in Southeast and Southcentral Alaska. This section provides a brief description of those businesses, including revenue sources, costs, and supporting businesses. To the extent that businesses and opportunities differ across regions, those differences are described. In addition, for businesses that operate ancillary (or related) businesses, charter operations (including costs and revenues) are distinguished to the extent feasible. Since substantial variation exists across businesses, the descriptions in this section should be viewed as examples from which most operations will deviate (in some cases substantially).

For most charter operators, halibut are a primary target; however, most charters will run trips to target other species (including salmon, rockfish, and lingcod) or combination trips targeting halibut and other species. Halibut charters typically operate from late spring (May) until early fall (September). Winter trips may target halibut or catch halibut incidentally when targeting other species (most commonly king salmon), but the markets for these trips vary with location.

A variety of persons and businesses maintain charter operations in Southeast and Southcentral Alaska. Many small charter operations are run by sole proprietors, who operate a single vessel that carry six or fewer clients. In Southeast, all charters are limited to six clients. In some cases, these vessels operate without deckhands; however, many vessels capable of carrying six clients or more will also carry a deckhand for each 6 to 8 clients to assist with operations, including vessel operations, gear, baiting, gaffing, and cleaning, filleting, and processing fish. Deckhands are typically compensated at a daily rate plus a share of any tips. Small charter businesses typically only serve clients with charter fishing trips and sight-seeing trips. In Southeast, in particular, whale watching tours are popular. While most of these sole proprietors strive to make a living off charter (and sight-seeing) operations alone, many have other sources of income, including state or federal retirement income and seasonal employment that does not conflict with the summer

charter season. Operators provide all fishing gear and bait, but many require clients to bring lunches. Larger charter operations typically serve more clients with larger or more vessels or provide ancillary services such as fishing processing (vacuum packing and freezing) and lodging, which may range from primitive overnight cabins to full service lodges that provide transportation to remote island luxury lodges and gourmet meals. Some charter companies (particularly in Southeast) operate “mothership” excursions, which are multiday trips on which clients stay aboard a large vessel, making daily charter trips on smaller vessels. These larger operations that also provide lodging vary greatly. In some cases, particularly in Southeast, operators will coordinate packages that include stays at local hotels and meals at local restaurants and charter fishing as part of a package; some operators maintain local lodging in a coastal community with air service; others provide remote lodging that is accessible only by boat or fly-in service. Package prices (and investment and operating costs) will vary with the type of experience. Some of these operators, particularly those providing accommodations in coastal communities, will contract charters with other local operators to expand their sales.

The primary expenses associated with charter operations are the vessel and the charter halibut limited entry permits. Permit prices, to date, have shown wide variation from approximately \$10,000 to approximately \$90,000, while averaging approximately \$50,000. Southeast (2C) permits have traded at lower prices (approximately \$35,000 on average), in comparison to Southcentral (3A) permits (which have averaged almost \$60,000). Prices also generally appear to increase with the number of angler’s endorsed on the permit. Vessel costs vary greatly across operations, as vessels range from relatively small vessels that carry four or fewer clients up to large party boats capable of carrying 35 clients. In addition, some operations maintain fleets of several vessels. Operations that hire captains also incur substantial payroll costs for their services. Costs vary with both safety requirements and operator safety choices. Vessels that carry six or fewer clients are not subject to the safety inspections, but may choose to enter the Coast Guard’s Alaska Voluntary 5 Star Safety Program.¹⁸ Vessels carrying more than six persons must meet more stringent safety requirements (maintaining additional safety equipment including life rafts, double bilge pumps, and fire suppression systems) and are inspected annually. Insurance premiums (which include liability and workmen’s compensation insurance) along with payments toward deductibles in the event of a claim, are also an expense for operators. A variety of other vessel related additional expenses, many of which vary by location, must be borne by charter operators (including harbor fees, launch fees, wide-load permit fees, and park permits). In some areas, daily launches are common (effectively leading to a daily charge) while in other areas vessels are kept in harbors (which typically charge monthly or seasonal fees).

Charter operators also bear advertising, promotional, and support costs, which also vary based on the choices of the operator. Operators typically maintain a website and toll free phone line for soliciting clients. Some advertise in sports magazines or internet pages. In addition, several maintain offices, some of which also include small retail sales operations for fishing accessories and gifts. Many operators also advertise by attending outdoor trade shows throughout the lower 48 to increase their client base. At the extreme, some of the larger operations will attend as many as 20 shows a year. In Southeast, some operations rely heavily on wholesalers and cruise lines. These arranged trips come at a cost, as wholesalers may charge up to 50 percent of the total trip price for arranging the clients.

¹⁸ To receive a five star rating, participants must comply with existing regulations governing uninspected vessels, and have a safety-training program (including drills), a properly installed bilge pump and audible bilge alarm, a handheld VHF FM radio, an Emergency Position Indicating Radio Beacon (EPIRB), and an inflatable life raft. Participants in the program are listed at the program website (<http://alaska5star.us/home>).

Rates for charters vary across operations and trips. The typical full day (approximately 8 hour) six person (six-pack) trip rate is currently between approximately \$250 and \$325 per person. Operations that run greater distances may charge more, but may also extend trip times. The half day (approximately 4 to 5 hours) rate on these vessels is between approximately \$150 and \$200 per person. In Southeast, operators that support cruise line passengers typically operate these shorter trips. Larger vessels operating in Southcentral (which carry between 12 and 18 persons) typically charge a similar rate for a similar experience. Party boats, which carry between 18 and 35 persons) may charge substantially less – as low as \$100 per person for a 4 to 5 hour trip – and offer a different experience, such as shared rods. Discounted pricing may be available to seniors or military or if an operator would need an additional client to fill the vessel for a trip. Some operators also may apply a fuel surcharge, depending on fuel prices and the length of runs. Longer runs tend to be needed later in the summer season (i.e., July and August). Large operations that provide a variety of services (such as lodging and food) operate on an entirely different fee structure, typically using all inclusive pricing that covers food, lodging, local transportation, rain gear, and fish processing. Prices for these trips vary substantially depending on the operation and experience.

Many operators of single day trip operations have a goal of making approximately 100 trips per vessel per year, but between 50 and 75 trips is more typical and would be considered a successful season by many operators. Weather, vessel breakdown, or damage cancellations can lead to a loss of substantial revenues for an operation. These losses will vary year to year depending on conditions and also vary with location. Operations in locations with greater exposure to open water (such as Seward) are likely to have more weather cancellations than operations and fishing opportunities in more protected waters (such as most Southeast locations).

Development of scenarios for the charter sector is less straightforward than the development of scenarios for the commercial sector for a few reasons. The connection between halibut available to the sector (through the GHF or the catch sharing plan) and vessel revenues is less direct in the charter sector than in the commercial sector. Management measures governing the sector do not directly constrain catches from (and thereby revenues in) the sector, but instead limit inputs (such as the number of clients per trip) or outputs on a more limited basis (such as fish per client per day or fish size). The limits are intended to constrain total catch by the sector through their effects on individual harvests, as well as through their effects on both the supply of and demand for charter fishing trips. These supply and demand effects drive prices and the number of trips at both the individual and sector level. Additional uncertainty arises from both the relative inexperience with these management measures and the potential for factors other than the management measures (such as overall economic conditions or fuel prices) to affect supply and demand of charter trips. Development of charter sector scenarios is also complicated as fewer data sources are available for the charter sector relative to the commercial sector. Some data exists for examining charter sector activities (in numbers of trips and clients); however, vessel identification is not consistent over time for all vessels. These data do not directly define halibut fishing trips (instead identifying trips as bottom fishing trips, salmon fishing trips, or both). In addition, these data do not include revenue or price information. Although limited entry permit price data are available, those data are only from a limited number of transactions over two years. These data show some inconsistencies, such as prices that do not always increase with the number of clients permitted, limiting their utility for development of scenarios. As a result of these factors, estimates of revenues and permit costs for scenarios must be based on anecdotal reports of sector participants and conjectures based on available data.

The variation in charter operations suggests that a variety of examples may best illustrate the circumstances of a charter operation. To simplify the scenarios, no examples include ancillary

services (such as lodging and processing) that charter operators may also sell their charter clients. The scenarios only include cost information arising from limited entry permit purchases. In addition, since the limited entry program was implemented in 2010, no examples of revenue streams after purchase of a permit could be provided. As such, it should be understood that many operations will have revenues beyond those reflected in the example and all operations will have costs that are not reflected in the tables. In addition, the limited time series data and limited experience with management measures intended to constrain catches from the fleet creates some challenges to interpretation. Operations may be successful with relatively high numbers of clients and revenues under one set of management measures during periods when the economy is strong, but have limited success in years when different management measures apply or the economy is weak. These limitations should be considered when interpreting the tables.

Each scenario shows a permit price that is close to the average price of a six-client limited entry permit for the applicable management area (2C or 3A). The scenarios also show estimated annual revenues based on average and high assumed client trips and average and high charter prices. Client and trip numbers are based on log book data estimates, while prices are based on anecdotal information from fishery participants. Price estimates could be adjusted based on additional input from participants.

In assessing the scenarios, it should be considered whether an operation would be capable of covering its operating costs and have revenues remaining to commit to the price of a permit. While data are not available to establish whether revenues could be adequate to fund an operation and a permit, operational expenses are an important consideration. A variety of costs must be incurred by an operation, including fixed, long term costs (such as vessel costs) and variable, short term costs (such as fuel). These cost factors also pose challenges in interpreting the scenarios. For example, changes in these fuel costs can affect charter pricing. A change of an operation from a low priced scenario to a higher priced scenario may suggest additional returns to the operation, when in fact they are simply a reflection of the need to pass on fuel cost increases to clients.

In considering the scenarios in the broader context, it is important to keep in mind differences in the charter and commercial operations. Unlike in the commercial sector where two IFQ holders can join together to harvest their IFQ from a single vessel to achieve efficiencies, to receive any return from a charter permit requires that the holder operate a vessel. In essence, the permit holder must operate on an all-in basis – investing in all charter operation aspects of the business to receive a return from the permit. Commercial participants can avoid or save on some variable costs (such as fuel and to some extent bait and gear) on a short term basis, although fixed costs such as primary vessel costs are unavoidable. While charter participants may take steps to mitigating costs (such as fishing closer to port to save on fuel), realizing any return from the fishery in a year requires full participation by entering a vessel in the fishery.

The first scenario applies to a six person charter operating in Area 2C from 2005 through 2010, the years for which relatively consistent data time series data are available for the charter fleet (Table 21). The scenario assumes that the vessel operates at a booking rate that is between \$200 and \$250 per client trip, which increased over time. Annual trips fluctuated around 50 trips per year, except in 2009 when bookings dropped below 45 trips. Revenues rose from slightly more than \$35,000 in 2005 to almost \$50,000 in 2008. Peak revenues were received in that year as a result of a price increase, despite a slight drop in bookings from the preceding year. Revenues declined in 2009, then recovered slightly in 2010, as a result of a fluctuation in bookings. Notably, the decline in revenues in this scenario coincided with the one fish bag limit that was instituted in 2009; however, the role of that bag limit in the decline in comparison to other factors

(such as the economic downturn) is not known. In all years, gross revenues exceeded the average permit price of approximately \$35,000; however, whether revenues would be adequate to fund the purchase of a license is not known.

Table 21. Area 2C charter sector permit price and average 6-pack revenue scenario.

2C - Average 6 person permit price - approximately \$35,000						
Year		Clients per trip	Total trips	Total clients	Average price per client (\$)	Annual halibut charter revenue (\$)
2005	Two-fish bag limit (no size restrictions), no limit on crew retention.	3.7	49.3	184	200	36,879
2006	Two-fish bag limit (no size limit), state EO prohibiting crew harvest 5/26-12/31.	3.9	52.0	202	225	45,493
2007	Two-fish bag limit (1 under 32" eff. 6/1), no crew retention 5/1-12/31 (State EO and Federal Rule).	3.9	52.5	205	225	46,116
2008	Two-fish bag limit (1 under 32"), except one-fish bag limit Jun 1-10 (halted by injunction).	3.9	50.8	197	250	49,306
2009	One fish (no size limit), no harvest by skipper & crew, line limit (effective June 5).	3.8	44.6	170	250	42,426
2010	One fish (no size limit), no harvest by skipper & crew, line limit.	3.8	48.2	185	250	46,324

Clients and trips are based on the average charter boat that made over 20 trips in a year and carried 6 or fewer persons on all trips.
Prices are based on anecdotal average price.

The second scenario in area 2C assumes that the vessel operated in the top quartile of trips and clients. Under this scenario, the vessel is assumed to charge a relatively high rate for bookings, increasing from \$225 per trip in the first year then jumping to \$300 through the remainder of the period (Table 22). Annual trips follow a similar pattern to the previous scenario, increasing from approximately 60 trips per year to 70 trips per year from 2005 through 2007, then declining in 2008 and 2009 (to below 60 trips in 2009), prior to recovering to above 60 trips per year in 2010. Total revenues started the period at slightly more than \$50,000 in 2005, increased to peak at above \$80,000 in 2007, declined to approximately \$65,000 in 2009, then recovered to over \$70,000 in 2010. As in the preceding scenario, a decline in revenues coincided with implementation of the one fish bag limit in 2009; however the effect of that measure in comparison to other factors is not known. Gross revenues from the vessel greatly exceeded the average permit price in all years, but whether the revenues would be adequate to support the operation and the purchase of a permit is not known.

Table 22. Area 2C charter sector permit price and upper quartile 6-pack revenue scenario.

2C - Average 6 person permit price - approximately \$35,000						
Year		Clients per trip	Total trips	Total clients	Average price per client (\$)	Annual halibut charter revenue (\$)
2005	Two-fish bag limit (no size restrictions), no limit on crew retention.	3.9	61	235	225	52,875
2006	Two-fish bag limit (no size limit), state EO prohibiting crew harvest 5/26-12/31.	4.0	66	265	300	79,500
2007	Two-fish bag limit (1 under 32" eff. 6/1), no crew retention 5/1-12/31 (State EO and Federal Rule).	4.0	70	279	300	83,700
2008	Two-fish bag limit (1 under 32"), except one-fish bag limit Jun 1-10 (halted by injunction).	3.9	66	259	300	77,700
2009	One fish (no size limit), no harvest by skipper & crew, line limit (effective June 5).	3.8	57	219	300	65,700
2010	One fish (no size limit), no harvest by skipper & crew, line limit.	4.0	61	242	300	72,600

Clients and trips are based on the top quartile of charter boats that made over 20 trips in a year and carried 6 or fewer persons on all trips.
Prices are based on anecdotal high price.

In Area 3A, the first scenario considers a vessel that operates at the average number of trips with the average total clients. The operation made slightly more than 50 trips in 2005 through 2008, before decreasing to slightly more than 45 trips in 2009 and 2010 (Table 23). Prices increased through the period from \$200 in 2005 to \$250,000 in 2010. Gross revenues rose from slightly under \$50,000 in 2005 to over 60,000 (primarily from a price increase) in 2008 prior to decreasing to below \$55,000 in 2009 and 2010. The decrease in client trips in Area 3A in 2009 and 2010 is similar to the decrease in Area 2C, despite the constant management measures in the area. In Area 3A, permit prices appear to be higher (although a limited number of transactions have occurred, so that conclusion is weak). Whether this suggested higher permit price would affect the ability of an entering participant, operating at the average client and trip level, to fund the acquisition of a permit through their operation's revenues is not known. Comparing this scenario to the comparable Area 2C scenario, the annual average clients per trip and total clients are slightly higher in Area 3A, while the number of trips are comparable across the two area's scenarios. This Area 3A scenario shows higher revenues, as a result of the higher number of clients per trip.

Table 23. Area 3A Charter sector permit price and average revenue scenario.

3A - Average 6 person permit price - approximately \$60,000						
Year		Clients per trip	Total trips	Total clients	Average price per client (\$)	Annual halibut charter revenue (\$)
2005	Two-fish bag limit (no size restrictions), no limit on crew retention	4.7	52.8	247	200	49,335
2006	Two-fish bag limit (no size restrictions), no limit on crew retention	4.8	51.8	249	225	55,952
2007	Two-fish bag limit (no size restrictions), state EO prohibiting crew harvest 5/1-12/31.	4.8	52.2	253	225	56,986
2008	Two-fish bag limit (no size restrictions), state EO prohibiting crew harvest 5/24-9/1.	4.8	51.4	248	250	62,051
2009	Two-fish bag limit (no size restrictions), state EO prohibiting crew harvest 5/23-9/1.	4.7	46.5	221	250	55,125
2010	Two-fish bag limit (no size restrictions), no limit on crew retention	4.6	46.3	215	250	53,772

Clients and trips are based on the average charter boat that made over 20 trips in a year and carried 6 or fewer persons on all trips.
Prices are based on anecdotal average price.

The second Area 3A scenario considers a vessel that operates at the upper quartile of trips and clients and charges a relatively high rate for bookings. This vessel scenario maintains 60 or more trips in all years, except 2009, when the scenario shows 56 trips (Table 24). Although the number of trips rises to 60 in 2010, these trips include fewer clients, leading to a drop in the average number of clients per trip to approximately 4.5. Gross revenues rise from almost \$75,000 in the first year to almost \$100,000 in the second and third years from a substantial price increase with a steady number of clients. Revenues decline thereafter to approximately \$80,000 in 2010 as a result of a decrease in the total number of clients. The decrease in average clients per trip is unique to this scenario and may result in some increase in costs per client relatively to the preceding years.

Table 24. Area 3A charter sector permit price and upper quartile 6-pack revenue scenario.

3A - Average 6 person permit price - approximately \$60,000						
Year		Clients per trip	Total trips	Total clients	Average price per client (\$)	Annual halibut charter revenue (\$)
2005	Two-fish bag limit (no size restrictions), no limit on crew retention	4.8	68	329	225	74,025
2006	Two-fish bag limit (no size restrictions), no limit on crew retention	5.2	63	330	300	99,000
2007	Two-fish bag limit (no size restrictions), state EO prohibiting crew harvest 5/1-12/31.	5.0	66	330	300	99,000
2008	Two-fish bag limit (no size restrictions), state EO prohibiting crew harvest 5/24-9/1.	4.9	65	321	300	96,300
2009	Two-fish bag limit (no size restrictions), state EO prohibiting crew harvest 5/23-9/1.	4.9	56	275	300	82,350
2010	Two-fish bag limit (no size restrictions), no limit on crew retention	4.4	60	266	300	79,800
Clients and trips are based on the top quartile of charter boats that made over 20 trips in a year and carried 6 or fewer persons on all trips.						
Prices are based on anecdotal high price.						

In considering the scenarios, it is important to note that each scenario assumes relatively constant performance from year to year. An operation may move improve or suffer some decline from year to year, effectively moving among the different performance scenarios (or even dropping below any of the scenarios presented here). While a well-run operation may be expected to consistently perform well, unanticipated events (such as accidents or vessel problems) and uncertainties in charter supply and demand could lead to these changes in success. Not only charter management measures (i.e., bag and size limits and limits on entry), but a variety of other factors, will affect success of an operation. General conditions in the economy can have a noticeable effect on the numbers of potential clients, as many clients (particularly those from outside of Alaska) must incur substantial travel costs to even access the Alaska halibut charter fishery. The intervention of these various factors should be considered when reviewing these scenarios.

5 Wastage Mortality

The December 2011 Council motion requested that staff “review the IPHC process described in the CSP for deducting removals prior to applying the allocation percentages to the combined commercial/charter catch limit. The halibut charter stakeholder committee discussed “separate accountability”, in which each sector would be held accountable for its wastage of halibut. The CSP analysis currently deducts wastage in the commercial sector BEFORE the allocation percentages are applied. In 2011 the IPHC began deducting O26/U32 BAWM before setting catch limits, and this has allocative implications for 2C and 3A. Wastage estimates for the charter sector are not currently available, and so no deductions are made.”

As will be described below, the process currently contained within the CSP analysis reflects the current procedure followed by the IPHC for the accounting of commercial fishery wastage within the Commission’s catch limit setting process.

5.1 IPHC process for accounting for commercial wastage mortality

IPHC began estimating wastage in the commercial halibut fishery in 1985. At the time, the short, intense derby fishery was causing operators to set more gear than could be hauled back within the allowed fishing period. Any gear remaining in the water at the conclusion of a fishing period was

abandoned, with the fish on the hooks subsequently left to die. Wastage increased as the fishing periods grew shorter, declining substantially with the implementation of the IFQ program in 1995. This particular source of wastage is comprised of halibut greater than the commercial fishery minimum size of 32 inches; hence this is referred to as O32 wastage. IPHC subsequently added the mortality of sublegal fish released by commercial fishers, i.e., U32 wastage, due to the minimum size limit.

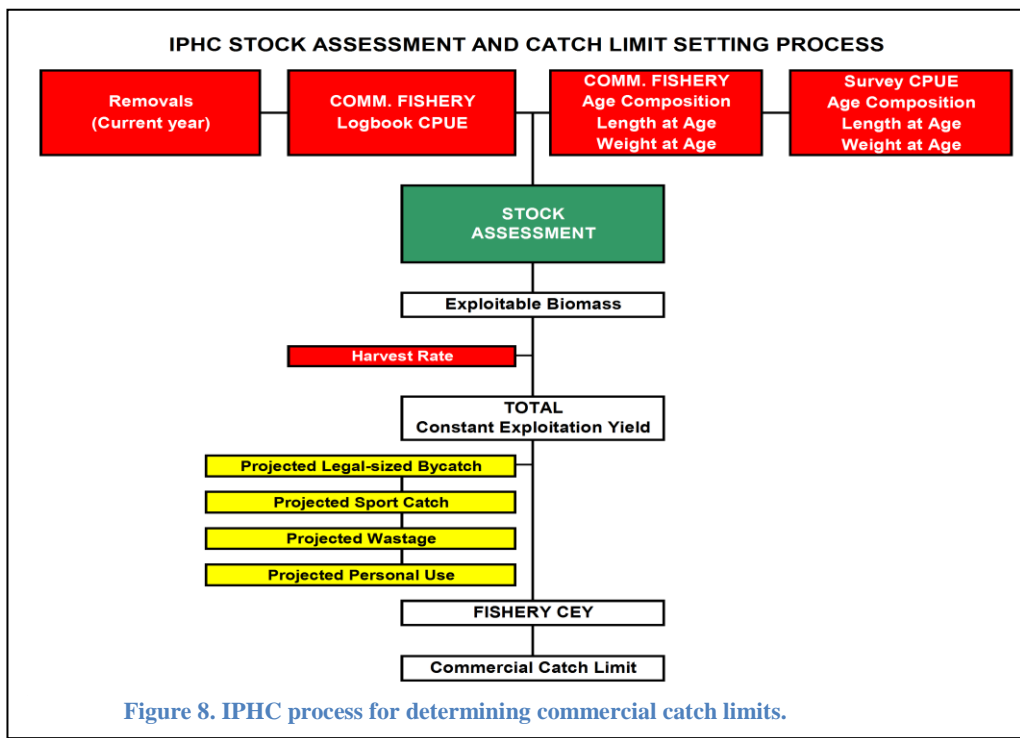
As a matter of policy, IPHC has accounted for wastage mortality through its inclusion in the “Other Removals” category within its catch limit determination process. This is to meet the objective of the process to determine a commercial fishery catch limit. That process is sequential, beginning with the estimation of biomass, to which is applied the harvest rate to determine the overall available yield (Total CEY, or TCEY). This is then followed by deducting from the TCEY the mortalities (removals) which are either not managed by IPHC or have no annual limit (i.e., bycatch sport, wastage, subsistence). The remainder forms the basis of the recommendations for the commercial fishery catch limit.

Commercial fishery wastage has been treated in the same manner as bycatch mortality. This method, which has been in place since 1997 is as follows:

- Mortality of fish larger than 32 inches is subtracted from the TCEY in the area where the mortality occurred because its effect is the same as a commercial removal.
- Mortality of fish smaller than 32 inches is accounted for in the harvest policy simulations

In contrast, mortalities from all sizes of fish caught in subsistence and sport fisheries were subtracted from the TCEY. The rationale for this differential treatment was based on the size compositions and resultant yield loss attributed to each source. The size distribution of sport and subsistence fisheries tends to be characterized by larger halibut than those taken as bycatch, but smaller than in the commercial catch. However, the sport and subsistence removals have been treated the same as commercial removals because simulation modeling showed that the effect on overall yield tended to be roughly the same for these fisheries. Bycatch (and under 32 inch commercial wastage), with its smaller size distribution, had a much greater effect on overall lost yield. However, the differential treatment continued to cause confusion, particularly in the size ranges where there is overlap (i.e., 26 to 32 inches).

To address the confusion and to provide a more transparent approach, in 2011 the IPHC adopted a consistent treatment of the mortalities from Other Removals (Hare 2011). This revised procedure accounted for direct deductions from Total CEY for all O26 removals instead of O32 as was previously done, regardless of which sector gave rise to them, with no negative impact on the current spawning biomass per recruit level. While the previous procedure of accounting for U32 mortalities through harvest rate reduction achieved the same goal, the revised procedure provides more transparent and consistent accounting for mortalities accruing from all sources.



5.2 Charter wastage mortality

In 2012 the IPHC adopted a management measure for the charter fishery in Area 2C that involved a reverse slot limit for the size of halibut that could be legally retained (i.e., fish between 45 and 68 inches must be discarded and all other sizes may be retained). Consideration of this regulation highlighted the issue of the mortality of fish which must be discarded by regulation, or which are discarded because the angler wishes to continue fishing in search of a larger sized fish for retention. The latter is a common occurrence during recreational fishing for halibut. The former is similar to the effect of regulations in the commercial halibut fishery, wherein there is a minimum legal size limit for retention.

Halibut discarded for any reason suffer some degree of discard mortality. For fish discarded in the commercial fishery, the IPHC has the process to estimate and account for the resulting mortality and this mortality is deducted from yield available to the fishery, as described above. However, no such estimation or accounting process currently exists for discards within the recreational fisheries for halibut. The new slot limit regulation has prompted the IPHC to request the development of data collection programs from all agencies involved with management of recreational fisheries for halibut, which will permit the estimation of discard mortality by these fisheries. At present the IPHC has such information available for a very limited number of recreational fisheries and this information could be used to provide estimates of discard mortality by other recreational fisheries in other areas. However, it would be more appropriate and accurate to obtain such information directly for each fishery and regulatory area. Accordingly, the IPHC will request that agencies develop and implement the necessary data collection programs to permit estimation of such discard mortality in 2012. The IPHC specifically identified the need for data on the quantities and sizes of halibut discarded by these fisheries.

Hare, S.R. 2011. Potential modifications to the IPHC harvest policy. Int. Pac. Halibut Comm. Report of Assessment and Research Activities 2010: 177-199.