DRAFT FOR INITIAL REVIEW

Environmental Assessment/Regulatory Impact Review/ Initial Regulatory Flexibility Analysis for a Regulatory Amendment to Implement Guideline Harvest Level Measures in the Halibut Charter Fishery in IPHC Regulatory Area 3A

Date: September 4, 2007

Lead Agency: NOAA Fisheries Service
P. O. Box 21668
Juneau, Alaska 99802

Responsible Official: Doug Mecum, Acting Alaska Regional Administrator

Abstract: The analyses contained in this document examine a series of potential changes to the prevailing management of the Pacific halibut charter fishing sector in Area 3A. In addition to the requisite No Action Alternative, the Council is considering seven options under Alternative 2, to reduce halibut harvests by this sector to the Area 3A Guideline Harvest Level (GHL) of 3.65 Mlb in 2008. The options include: (1) No more than one trip per charter vessel per day; (2) No harvest by skipper or crew and a limit on the number of lines to not exceed the number of paying clients; (3) Annual limits of four fish, five fish, or six fish per charter angler; (4) Reduced bag limits of one fish per day in May, June, July, August, September or for the entire season; (5) Requiring one of two fish in a daily bag to be larger than 45 inches or 50 inches; (6) Requiring one of two fish in a daily bag to measure less than, or equal to, 32 inches, 34 inches, or 36 inches; or (7) A reverse slot limit requiring one of two fish in a daily bag limit to measure 32 inches or less or longer than either 45 inches or 50 inches.

Comments Due: Comments on this draft will be accepted by the Council up to its scheduled action to release the document for public review during its October 3 - 9, 3007 meeting.

For Further Information Contact: Jane DiCosimo
North Pacific Fishery Management Council
605 West 4th Avenue, Suite 306
Anchorage, Alaska 99501-2252
(907) 271-2809

NOTE: After this draft was prepared, ADF&G Sport Fish Division released a final estimate for the 2006 Area 3A charter harvest of 3.664 Mlb. This estimate is about 284,000 lb lower than last year's projection of 2006 harvest. Final 2006 data puts the harvest at 100.37 percent of the GHL, compared with the projection used in this analysis of 108.1 percent of the GHL. The analysis overestimates the effects of each option by approximately 6-8 percent. For example, an option estimated to lower harvest to 92 percent of the GHL will likely be revised to around 84-86 percent after inclusion of the final 2006 estimate in the next draft of this analysis. Staff did not have enough time to incorporate the final estimate into this draft; however, we will include it in our presentation of effects of the proposed options at the October 2007 Council meeting and in the public review draft. The ADF&G report is appended to this document.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

ABBREVIATIONS

ADF&G	Alaska Department of Fish and Game
CEY	Constant Exploitation Yield
CFR	Code of Federal Regulations
EA	Environmental Assessment
E.O.	Presidential Executive Order
GHL	Guideline Harvest Level
IPHC	International Pacific Halibut Commission
IRFA	initial regulatory flexibility analysis
ISER	University of Alaska, Anchorage Institute for Social and Economic Research
lb	Pounds
Mlb	Million pounds
NOAA	National Oceanic and Atmospheric Administration
NPFMC	North Pacific Fishery Management Council
OLE	Office of Law Enforcement
OMB	Office of Management and Budget
RFA	Regulatory Flexibility Act
RIR	Regulatory Impact Review
SBA	U.S. Small Business Administration
SWHS	Statewide Harvest Survey

EXECUTIVE SUMMARY

This analysis assesses the potential biological, social, and economic impacts of implementing regulations to control harvests in the charter halibut fishery in International Pacific Halibut Commission (IPHC) Regulatory Area 3A. The proposed action was initiated in October 2005, when the Council first reviewed Alaska Department of Fish and Game (ADF&G) Sport Fish Division data that indicated that the 2004 guideline harvest level (GHL) of 3.65 Mlb had been exceeded. In response, the Council developed an analysis of alternatives for implementing management options to reduce harvests to below the GHL. The Council selected its preferred alternative of no action in April 2006 because the overage was minimal. In December 2006, the Council received information that the GHL was exceeded by increasing amounts in 2005 and 2006. In April 2007, the Council revised the options under Alternative 2 from its April 2006 analysis and scheduled initial review of this analysis for October 2007.

The analysis employs the best information available at the time the document was prepared[1]. The goal of any restrictive measure is to reduce sport fishing mortality of halibut in the charter sector in Area 3A to its GHL in a manner that minimizes adverse impacts on the charter fishery, its sport fishing clients, the coastal communities that serve as home port for this fishery, and on fisheries for other species. In addition to the no action alternative, the Council is considering seven options to reduce halibut harvests to the Area 3A GHL:

Alternative 1. No action. Maintain the existing 2007 Status Quo management structure.

Alternative 2. Implement one or more measures to restrict charter halibut harvest to the Area 3A GHL

- Option 1. No more than one trip per charter vessel per day.
- Option 2. i. No harvest by skipper or crew while clients are on board; and/or
  ii. Line limits not to exceed the number of paying clients on board.
- Option 3. Annual limits of four, five, or six halibut, per angler, caught from a charter vessel fishing in Area 3A.
- Option 4. Reduced bag limits of one fish per day in May, June, July, August, or the entire season
- Option 5. A two-fish bag limit with the one fish of any size and one fish larger than 45 inches or 50 inches
- Option 6. A two-fish bag limit with one fish of any size and one fish 32, 34 or 36 inches in length
- Option 7. A two-fish bag limit with one fish of any size and one fish 32 inches or less in length or larger than 45 inches or 50 inches

Environmental Assessment

The potential effects of the alternatives on marine resources would be caused by increased harvest of groundfish species, incidental catch of groundfish species, and an increase in halibut mortality. Negative impacts on salmon stocks are not expected, because current ADF&G management under the Pacific

[1] After this draft was prepared, ADF&G Sport Fish Division released a final estimate for the 2006 Area 3A charter harvest of 3.664 Mlb. This estimate is about 284,000 lb lower than last year's projection of 2006 harvest. Final 2006 data puts the harvest at 100.37 percent of the GHL compared with the projection used in this analysis of 108.1 percent of the GHL. The analysis overestimates the effects of each option by approximately 6-8 percent.

Salmon Treaty closely monitors stock health and sets escapements accordingly. The socioeconomic environment may be affected through changes in angler demand for charter halibut trips which may decrease total revenue, both over the short and long run. The socioeconomic environment for the charter and commercial sector may also be affected by allocation conflicts over fully utilized species such as halibut, rockfish, and salmon.

The environmental assessment (EA) concluded that none of the alternatives would affect the health of the halibut stock since the IPHC sets limits on total halibut removals. Regardless of the amount of halibut biomass taken by a sector, no adverse impacts to the halibut resource would be expected because the IPHC factors in most resource removals in the halibut stock assessment when setting annual catch limits. Additionally, release mortality for the sport fishery is not expected to substantially increase above status quo under any of the alternatives.

The EA also examined groundfish species that may be targeted or incidentally caught in the charter halibut fisheries. Rockfish and lingcod are commonly harvested in the sport fishery. Commercial and sport catch limits are set for these species and none of the catches for these species exceeded their respective ABC or OFL in 2006. Rockfish harvests in 2006 were well under the respective limits for the commercial and sport fisheries combined. Harvest levels for lingcod in recent years have remained constant under strict sport fishery slot limits and season regulations, and commercial catch limits. A small increase in lingcod harvest would likely not significantly impact the stock because of ADF&G regulations for the sport and commercial sectors. Moreover, the magnitude of the harvest increase from the proposed alternatives would likely be small given the strict sport harvest measures currently in place for lingcod. For these reasons, the impact of the alternatives on these species is expected to be insignificant.

Cumulative effects are linked to incremental policy changes that individually may have small outcomes, but that in the aggregate and in combination with other factors can result in major resource trends. This action would not interact synergistically with other actions or with natural trends to significantly affect the halibut resource of the Gulf of Alaska. The proposed alternatives will not have any effect on the halibut resource. No reasonably foreseeable future actions would have impacts that would cause significant cumulative effects when combined with the effects from this action.

Possible future actions currently under consideration by the Council include annual changes to the GHL policy, limited entry, setting an allocation (rather than a GHL) to the charter sector, and the development of a share-based allocation program to individual charter operators or to the charter sector. The State of Alaska prohibited retention of crew caught fish and limited the lines to the number of paying passengers, not to exceed six lines. The state legislature adopted a bill to allow the state to share otherwise confidential charter boat fishery data with Federal managers. This will facilitate implementation of the limited entry (moratorium) program and GHL management measures, such as annual limits. The State of Alaska is also seeking limited delegation of authority to manage halibut in state and Federal waters.

Regulatory Impact Review

The analysis is based on data available in the summer of 2007, including preliminary 2006 Statewide Harvest Survey (SWHS) estimates from ADF&G. ADF&G staff have indicated they expect to release final harvest numbers based on the SWHS in September 2007. This analysis will be updated with those final data in the public draft of this analysis after the Council meeting in October 2007. Hence, all results contained in this analysis are preliminary (see footnote 1).

Expected Effect of Alternative 1

The long-term effect of the no action alternative likely would be the continuation of a highly variable annual growth trend in the Area 3A halibut harvest and a reallocation from the commercial sector to the charter sector (Figure 1). In 2006, charter halibut harvests equaled 3.947 Mlb or 108.1 percent of the GHL. This amount includes harvest by skipper, crew, and clients. The client portion is estimated at 96.7 percent of the GHL or 3.528 Mlb. In the short-term, the January 2007 ADF&G emergency order, which banned retention of fish caught by skipper and crew during saltwater charters, may result in a reduction in harvest between 2006 and 2007. The 2007 client harvest will be lower than the GHL if charter client harvests increase by less than 121,000 lb from the estimated 2006 client harvest level of 3.528 Mlb. Estimates based on ADF&G data indicate that the ban on skipper and crew would have saved approximately 418,000 lb or 10.6 percent of the harvest if it had been in place in 2006 and if one assumes that skipper and crew fully report their harvests through the SWHS. The analysis assumes that the reductions in 2007 will be approximately the same percentage. Charter halibut harvests have grown at an annualized growth rate of 3.0 percent over the past 11 years and 4.7 percent over the past five years. Therefore, under these growth rates, charter client harvest would grow between 107,000 and 167,000 lb in 2007.[2]

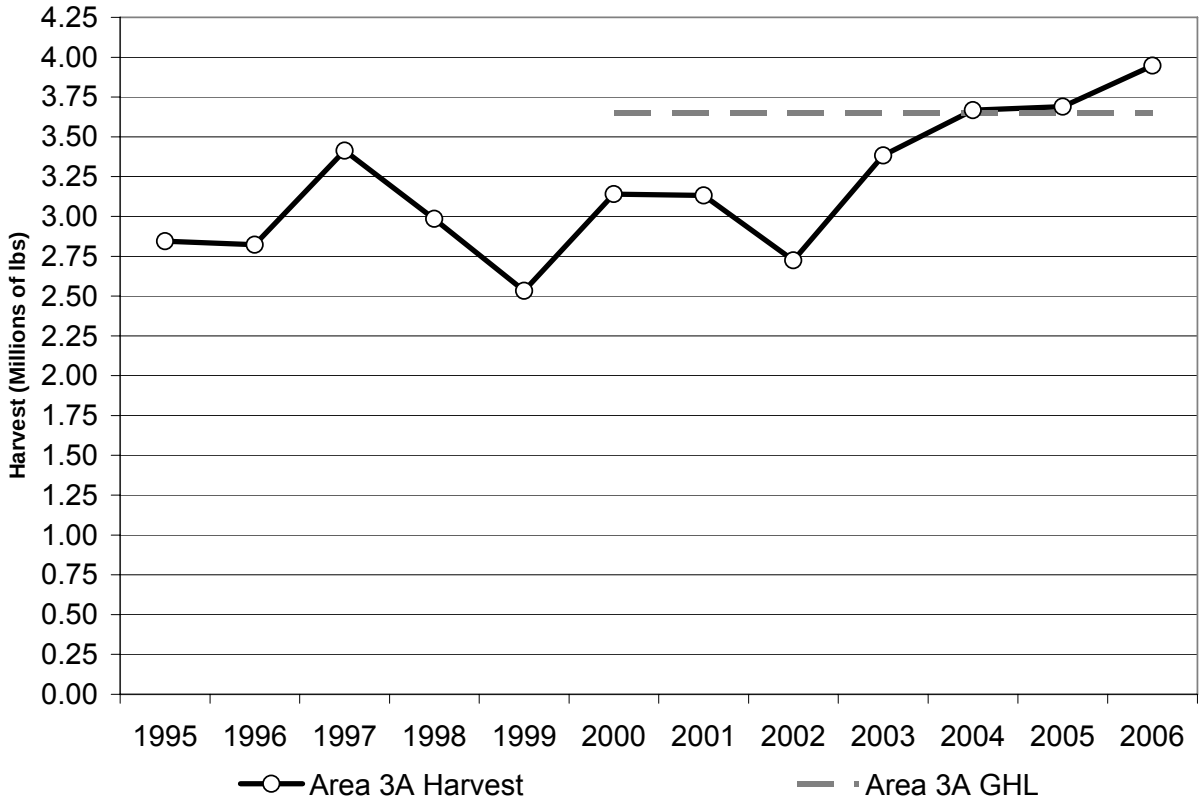

Figure 1 Charter Fleet Halibut Harvests by Year
Source: ADF&G Statewide Harvest Survey Data, 1995-2006 (2007).

[2] Year to year changes between 1995 and 2006 in charter harvests have ranged from -15.1 percent to 24.4 percent.

Expected Effect of Alternative 2

This analysis includes seven options the Council is considering to reduce charter halibut harvests in Area 3A. The following sub-sections summarize the analytical results for each option. A summary of the entire analysis is then provided. The status quo includes the ADF&G emergency order that banned skipper and crew harvest. The analysis expects that in the absence of Council action ADF&G will maintain that emergency order. Hence, all of the options are analyzed as if that emergency order had been in place in 2006. The tables show the effect of the each option as a stand alone measure on 2006 harvest and the combined effect on 2006, including any interaction effects, of the status quo and the proposed option (see Figure 2). All of the summary tables show the combined effect under the assumption that ADF&G will continue its emergency order in the future.

Estimate Level	Effect of One Trip per Day under 2006 Status Quo		Adjusted for 2007 Status Quo		
	Harvest Reduction (Mlb)	Harvest Reduction (%)	Combined Harvest Reduction (Mlb)	Estimated Harvest (Mlb)	As a Portion of the 3.650 Mlb GHL (%)
Lower Estimated	0.217	5.5%	0.613	3.334	91.4%
Upper Estimate	0.247	6.3%	0.640	3.307	90.6%

Figure 2 Example of How to Read the Tables in this Report

Option 1 – Effect of No More than One Trip per Vessel per Day

ADF&G estimates that harvest from "second trips" comprise between 5.5 percent and 6.3 percent of total harvest in 2006, equivalent between 217,000 lb and 247,000 lb. These data are adjusted for the status quo, which includes the ADF&G emergency order. In combination, these measures would have reduced 2006 harvest between 90.6 percent and 91.4 percent of the GHL. As noted in a prior analysis (NPFMC 2006), a portion of displaced anglers are likely to find replacement trips. Thus, the estimated reductions likely overstate actual reductions.

Table 1 Summary Effect of No More than One Trip per Day

Estimate Level	Effect of One Trip per Day under 2006 Status Quo		Adjusted for 2007 Status Quo		
	Harvest Reduction (Mlb)	Harvest Reduction (%)	Combined Harvest Reduction (Mlb)	Estimated Harvest (Mlb)	As a Portion of the 3.650 Mlb GHL (%)
Lower Estimated	0.217	5.5%	0.613	3.334	91.4%
Upper Estimate	0.247	6.3%	0.640	3.307	90.6%

Source: Northern Economics, Inc. estimates based on ADF&G Logbook and Statewide Harvest Survey Data.

Option 2 – Effect of No Harvest by Skipper and Crew and Line Limits

Option 2 would ban harvest by skipper and crew while clients were onboard and would implement line limits equal to the number of paying clients. It would have the same effect as the status quo for 2007,

except that these two measures would be implemented in Federal regulations. A Federal ban would allow ADF&G to lift the blanket possession ban for all species caught on saltwater trips and for state line limits on all saltwater charter fish and provide a greater sense of permanence to the restrictions, but would not result in additional reductions beyond that achieved by the state ban. NPFMC (2006) estimated that this option would reduce overall harvest by 7.7 and 10.5 percent in Area 3A and noted an increasing trend between 1998 and 2002. This analysis estimates that it would have reduced harvest in 2006 by 10.6 percent (418,000 lb) to 96.7 percent of the GHL. Interviews for this analysis and NPFMC (2006) indicated notable support for this measure. However, an additional Federal restriction would not result in additional harvest reductions.

Option 3 – Effect of an Annual Limit of Four or Five or Six Fish per Angler

Option 3 would establish a four, five, or six fish annual limit that an individual could harvest while on charter trips in Area 3A. Table 2 shows associated estimates of reductions in harvest. The six-fish annual limit combined with the status quo would have reduced harvest to approximately 94.4 percent of the GHL (502,000 lb reduction), a five-fish annual limit would have reduced harvest to roughly 92.2 percent of the GHL (582,000 lb reduction), and a four-fish annual limit would have reduced 2006 harvest to 89.6 percent of the GHL (676,000 lb reduction). However, much of these reductions are attributable to the ban on skipper and crew harvesting halibut while on charter trips. The reason for this decline in the expected effect is that skipper and crew account for the vast majority of the "multi-fish" harvest. The analysis does not expect significant reductions in growth rates or participation as only 5 percent of anglers harvested five fish or more in Area 3A in 2006.[3]

Table 2 Summary Effect of an Annual Limit

Estimate Level	Adjusted for 2007 Status Quo		
	Combined Harvest Reduction (Mlb)	Harvest (Mlb)	As a Portion of the 3.650 Mlb GHL (%)
Four Fish	0.676	3.271	89.6%
Five Fish	0.582	3.365	92.2%
Six Fish	0.502	3.445	94.4%

Source: Northern Economics, Inc. estimates based on ADF&G data (2007).

Option 4 – Effect of Reduced Bag Limits

Instituting a season-long, one-fish bag limit would reduce harvests to approximately 51.2 percent of the GHL without any demand effects. Under a 30 percent demand reduction, the upper level predicted by both peer-reviewed literature and key informant interviews, would result in harvest equivalent to 35.8 percent of the GHL (Table 3). While some one month bag limits may further reduce harvest levels below the GHL, the analysis is not able to account for anglers switching from a month with a reduced bag limit to a month without a reduced bag limit. Over the long run, anglers who change the timing of their trips to account for bag limit changes *will erode the reductions from these options*. Thus, the estimates for single-month bag limits are viewed as *maximum estimates of the short-term effect of this management sub-option.*

[3] This data shows a fundamental difference between Area 3A and Area 2C charter halibut fisheries. In Area 2C more than 10 percent of clients harvested five or more fish in 2006.

Table 3 Summary Effect of Lower Bag Limits

Sub-Option	Reduction	Effect of Option 4		Adjusted for 2007 Status Quo		
		Harvest Reduction (Mlb)	Harvest Reduction (%)	Combined Harvest Reduction (Mlb)	Harvest (Mlb)	As a Portion of the 3.650 Mlb GHL (%)
May	No Reduction	0.175	5.0%	0.593	3.354	91.9%
	30%Reduction	0.234	6.6%	0.652	3.295	90.3%
June	No Reduction	0.437	12.4%	0.855	3.092	84.7%
	30%Reduction	0.584	16.5%	1.002	2.945	80.7%
July	No Reduction	0.628	17.8%	1.046	2.901	79.5%
	30%Reduction	0.840	23.8%	1.258	2.689	73.7%
August	No Reduction	0.348	9.9%	0.766	3.181	87.1%
	30%Reduction	0.465	13.2%	0.884	3.063	83.9%
September	No Reduction	0.064	1.8%	0.482	3.465	94.9%
	30%Reduction	0.107	3.0%	0.525	3.422	93.7%
Entire Season	No Reduction	1.661	47.1%	2.079	1.868	51.2%
	30%Reduction	2.221	62.9%	2.639	1.308	35.8%

Source: Northern Economics, Inc. estimates based on ADF&G data (2007).

Option 5 – Effect of a Two Fish Bag Limit with One Fish any Size and One Fish Larger than 45" or 50"

Option 5 would establish a two-fish bag limit with one fish of any size and one fish equal to or larger than 45 or 50 inches depending on the sub-option. These options result in relatively high levels of reductions especially when considered in combination with the ADF&G ban on skipper and crew harvest. Both of the sub-options would reduce harvest to a level below the GHL without the assumption of some corresponding reduction in demand for trips. ADF&G estimates that the 45-inch sub-option would reduce harvest to approximately 62.3 percent of the GHL while the 50-inch sub-option would reduce harvest to 57.5 percent of the GHL. If a ten percent demand reduction takes place harvest would have been reduced to 54.9 percent and 50.6 percent, respectively. A ten percent demand reduction means the change must not only reduce demand by ten percent, but also effectively eliminated any growth in the industry which has been growing at 4 to 7 percent per year. ADF&G data indicated that more than 90 percent of the halibut harvested in Area 3A in 2006 were smaller than the sub-option lengths. IPHC data also show that fish 45" and larger are less than ten percent of the population. These data would indicate that fish above 45" are relatively rare and the limit could effectively result in a one-fish bag limit; particularly in areas where these fish are rarer than area wide measurements would suggest. In these areas demand reductions could be much higher than area wide effects.

Table 4 Summary Effect of a Two Fish Bag Limit with One Fish any Size and One Fish Larger than 45" or 50"

Sub-Option	Demand Reduction	Effect of Option 5		Adjusted for 2007 Status Quo		
		Harvest Reduction (Mlb)	Harvest Reduction (%)	Combined Harvest Reduction (Mlb)	Harvest (Mlb)	As a Portion of the 3.650 Mlb GHL (%)
45	No Reduction	1.254	31.8%	1.673	2.274	62.3%
	10% Demand Reduction	1.524	38.6%	1.942	2.005	54.9%
50	No Reduction	1.431	36.3%	1.850	2.097	57.5%
	10% Demand Reduction	1.683	42.6%	2.101	1.846	50.6%

Source: Northern Economics, Inc. estimates based on ADF&G data (2007).

Option 6 – Effect of a two Fish Bag Limit with One Fish any Size and One Fish Less than 32", 34", or 36"

Option 6 would allow a two-fish daily bag limit, with one fish of any size and one fish less than or equal to 32, 34, or 36 inches in length. The analysis estimates an upper bound estimate based on the assumption that angler's harvest the "average" fish below the length limit and a lower estimate depicting how the efficacy of the option could be reduced if the anglers succeeded in high grading their catch by one size class. All three sub-options would reduce harvest below the GHL when the analysis accounts for the combined effect with the state ban on skipper and crew harvest. The 32-inch limit, which is similar to the 2007 NMFS rule for Area 2C, would reduce harvest between 69.8 percent and 76.4 percent of the GHL. The 34-inch limit would reduce harvest between 73.3 percent and 79.7 percent of the GHL, while the 36-inch limit would reduce harvest between 76.3 percent and 82.9 percent of the GHL. If anglers are not successful at high grading, then the associated harvest reductions will be nearer the upper limit than the lower limit.

Table 5 Summary Effect of a Two Fish Bag Limit with One Fish any Size and One Fish Less than 32", 34", or 36"

Sub-Option	Estimate Level	Annual Limit		Adjusted for 2007 Status Quo		
		Harvest Reduction (Mlb)	Harvest Reduction (%)	Combined Harvest Reduction (Mlb)	Harvest (Mlb)	As a Portion of the 3.650 Mlb GHL (%)
32"	Lower	0.738	20.2%	1.157	2.790	76.4%
	Upper	0.983	26.9%	1.401	2.546	69.8%
34"	Lower	0.620	17.0%	1.038	2.909	79.7%
	Upper	0.852	23.3%	1.270	2.677	73.3%
36"	Lower	0.501	13.7%	0.920	3.027	82.9%
	Upper	0.742	20.3%	1.160	2.787	76.3%

Source: NEI Estimates based on Alaska Department of Fish and Game 2006 Logbook Data, 2007.

Option 7 – Effect of a two Fish Bag Limit with One Fish any Size and One Fish Less than 32" or larger than 45" or 50"

Option 7 would create a reverse slot limit on the second fish of an angler's daily bag limit. The angler could keep a second fish if it was 32 inches or less in length or: a) 45 inches or longer in length; or b) 50 inches or longer in length. As was predicted for Area 2C (NPFMC 2007), the reverse slot limit is likely to increase harvested biomass as some relatively small fish near 32 inches will likely be replaced by much heavier fish above 45 inches or 50 inches. The analysis assumes that catch rates remain the same and that "in-slot" fish will be replaced by fish smaller or larger than the slot at the same ratio equivalent to those found in 2006 harvest data.[4] The particular combination of 32 inch/45 inch reverse slot limit would result in an increase of average harvest weight to 21.0 lb, from the 2006 average harvest weight of 18.23 lb and an increase in total harvest weight of 283,000 lb. The 32/50 inch reverse slot has less effect, but still results in an estimated increase in harvest weight of 61,000 lb. Hence, neither option would address the problem statement.

[4] For example, if fish below 32 inches were 60 percent of the harvest by number and fish above 45 inches were 15 percent of the harvest by number, then "in-slot" fish would be replaced by four fish below 32 inches to every one fish above 45 inches.

Summary of Effects

In 2006 charter halibut harvests stood at 108.1 percent of the GHL including harvests by skipper, crew, and client. Client harvest is estimated at approximately 96.7 percent of the GHL for 2006. All of the options under consideration, with the exceptions of Option 7 and Option 2 (the status quo), would reduce total charter harvests further. A number of the analyzed options would reduce charter halibut harvest levels to those that the Council targeted with its preferred alternative for Area 2C. These include the sub-options from Option 3 and several sub-options from Option 4.

Table 6. Summary of Estimated Effects

Management Option	Sub-Option	Harvest with Option (Mlb)		Post-Option Harvest as a Portion of the GHL (%)	
		Less Effective	More Effective	Less Effective	More Effective
Option 4. One Fish Bag Limit	Full Season	1.868	1.308	51.2%	35.8%
Option 5. Minimum Size on the Second Fish	50"	2.097	1.846	57.5%	50.6%
Option 5. Minimum Size on the Second Fish	45"	2.274	2.005	62.3%	54.9%
Option 6. Maximum Size on the Second Fish	32"	2.790	2.546	76.4%	69.8%
Option 4. One Fish Bag Limit	July	2.901	2.689	79.5%	73.7%
Option 6. Maximum Size on the Second Fish	34"	2.909	2.677	79.7%	73.3%
Option 6. Maximum Size on the Second Fish	36"	3.027	2.787	82.9%	76.3%
Option 4. One Fish Bag Limit	June	3.092	2.945	84.7%	80.7%
Option 4. One Fish Bag Limit	August	3.181	3.063	87.1%	83.9%
Option 3. Annual Limit	4 Fish	3.271	3.271	89.6%	89.6%
Option 1. One Trip per Day	None	3.334	3.307	91.4%	90.6%
Option 4. One Fish Bag Limit	May	3.354	3.295	91.9%	90.3%
Option 3. Annual Limit	5 Fish	3.365	3.365	92.2%	92.2%
Option 3. Annual Limit	6 Fish	3.445	3.445	94.4%	94.4%
Option 4. One Fish Bag Limit	September	3.465	3.422	94.9%	93.7%
Option 2. No Harvest by Skipper & Crew (Status Quo)	*None*	*3.529*	*3.529*	*96.7%*	*96.7%*
Option 7. Reverse Slot Limit	32"/45"	Ineffective		Ineffective	
Option 7. Reverse Slot Limit	32"/50"	Ineffective		Ineffective	

NPFMC (2007) noted the Council's reasons for rejecting several similar options for Area 2C.

Table 7. Option Weak Points

Option Weakness	Option						
	1	2	3	4	5	6	7
Less Effective than Status Quo							●
Effect of Option Easily Diluted by Changes in Behavior	●			●		●	
Potential for Increased Mortality					●	●	
Difficulty Measuring Larger Fish					●		
Reduce Harvest by Too Great an Amount				●			
Economic Effects on Charter sector				●	●	●	

Table 8 provides a qualitative summary of the effects by option, including charter sector preference based on key informant interviews and qualitative estimates on the benefits of each option to the commercial sector. Additional detail is provided in the RIR.

Table 8 Qualitative Summary of Effects by Option for Area 3A

Option	Expected Size of Reductions	Effects on Industry	Effect on State Managed Fisheries
1. One Trip per Vessel per Day	In conjunction with the status quo, would reduce harvest between 90.6 and 91.4% of the GHL.	Relatively minor effects on the charter sector, except those businesses that focus on multiple trips per day, which are concentrated in a few ports. Modest benefits for the commercial industry.	State managers expect a concurrent minor reduction in the harvest of some associated species.
2. No Retention by Skipper and Crew and Line Limits	Would have no additional harvest reductions. 2006 client harvest is estimated at 96.7% of the GHL.	Preferred by the charter sector with no additional benefits for the commercial industry.	State managers expect no change in the harvest of some associated species.
3. Annual Limit	Three sub-options would, in conjunction with the status quo, reduce harvest levels between 89.6 and 94.4% of the GHL, depending on the sub-option.	The second most preferred option by the charter sector. Commercial sector would receive modest benefits beyond the status quo.	State managers expect a modest to significant increase in the charter harvest of available salmon species, lingcod, and rockfish as anglers would switch from targeting halibut to these other species.
4. One-fish bag limit	Would reduce harvest between 35.8% and 94.9% of the GHL, depending on the sub-option.	Least preferred option for the charter sector. Highest economic cost to the charter sector, with the highest benefits for the commercial fleet.	State managers expect a significant increase in the charter harvest of available salmon species, lingcod, and rockfish as anglers would switch from targeting halibut to these other species.
5. Option for a Second Fish with a Minimum Length	Would reduce harvest between 50.6% and 62.3% of the GHL, depending on the sub-option.	Minor demand reductions expected. Modest to high benefits for the commercial fleet.	Charter harvest of state managed species would likely increase by modest amounts.
6. Option for a Second Fish with a Maximum Length	Would reduce harvest between 69.8% and 82.9% of the GHL, depending on the sub-option.	Options would likely result in economic losses to the charter sector and moderate to high benefits for the commercial fleet; however, the same benefits could be achieved with lower cost to charter sector under Option 3.	Charter harvest of state managed species could increase by modest amounts. However, such an increase is not certain.
7. Reverse Slot Limit	Would result in increased harvests.	Would result in losses to the commercial sector, while increasing the regulatory burden on the charter sector.	Charter harvest of state managed species could increase by modest amounts. However, such an increase is not certain.

Overall and Long-Term Efficacy of the Options and Management Options

The long-term efficacy of the options is likely to be limited by strategic responses to each of them by charter sector participants and anglers. For example, lowering bag limits during one portion of the season will shift demand to other times of the year. Similarly, season closure dates will also shift effort. Thus, the estimates for these options should be seen as short-term maximum effects rather than long-term estimates. The efficacy of annual limits is likely to be limited by the substitution of bare-boat charters and other self-guided activities because charter-based trips could become less attractive under an annual limit. Again, the harvest resulting from this behavior would not count against the GHL, but would be counted in the IPHC's deductions for total sport catch from Total CEY, and therefore not benefit the commercial sector.

1.0 ENVIRONMENTAL ASSESSMENT

This Environmental Assessment (EA) assesses the potential biological, social, and economic impacts of alternatives for implementing regulations to restrict charter harvest in Area 3A to its Guideline Harvest Level (GHL) of 3.65 Mlb. The National Environmental Policy Act (NEPA) requires a description of the purpose and need for the proposed action, as well as a description of alternative actions that may address the problem.

- The purpose and need is addressed in Section 1.2.
- Section 1.4 describes the alternatives considered for analysis.
- Section 1.8 describes the affected environment.
- Section 1.9 discusses the potential environmental impacts of the alternatives as required by NEPA, as well as impacts on endangered species and marine mammals.

1.1 Background

The IPHC promulgates regulations governing the Pacific halibut (*Hippoglossus stenolepis*) fishery in compliance with the terms of the Convention between the United States and Canada for the Preservation of the halibut fishery of the North Pacific Ocean and Bering Sea, signed at Washington D.C., on March 29, 1979. The IPHC promulgates regulations on an annual basis that are approved by the Secretary of State of the United States under Section 4 of the Northern Pacific Halibut Act (Halibut Act, 16.U.S.C. 773 – 773k). Pursuant to regulations at 50 CFR 300.62, the approved IPHC regulations are published in the *Federal Register* to inform persons subject to the regulation.

Additional management regulations that are not in conflict with those adopted by the IPHC are implemented by the Secretary of Commerce and may be developed by the Regional Fishery Management Council to allocate harvest privileges among U.S. fishermen. The halibut fishery in waters off Alaska (0-200 miles) is under the jurisdiction of the Secretary of Commerce, represented by the National Marine Fisheries Service (NMFS), and advised by the North Pacific Fishery Management Council (Council) These waters comprise IPHC regulatory Areas 2C (Southeast Alaska), 3 (Southcentral Alaska), and 4 (Bering Sea/Aleutian Islands).

Each year, using a combination of harvest data from the commercial, recreational, and subsistence fisheries and information collected during scientific surveys, the IPHC determines the abundance of halibut in each area (exploitable biomass). The biological target level for total removals in a regulatory area is the product of a fixed harvest rate and the estimate of exploitable biomass. This is called the "total constant exploitation yield" (Total CEY) and is the target level for total removals (in net lb) for an area in the coming year. The IPHC subtracts estimates of the total "non-commercial" removals for the up coming year from the Total CEY. These removals include harvest from recreational anglers, subsistence users, wastage, and bycatch mortalities. The portion of the Total CEY remaining after the removals are subtracted is the CEY available for the commercial longline fishery, the "Fishery CEY."[5] The actual fishery harvest limit is set with reference to this Fishery CEY.

With the exception of the charter fishery, and a small increase in subsistence harvest, removals have remained stable. However, increased growth in the charter fishery has resulted in increased harvest. This increased harvest has reduced the allocation available for the commercial halibut fishery. The commercial catch limit is allocated among halibut quota share (QS) holders in Area 3A. Each QS holder receives a

[5] The IPHC does not currently account for mortality resulting from the release of fish in the sport fishery.

percentage of the total poundage available for commercial harvest within a year. This poundage comprises an individual fishing quota (IFQ).

In 1995, the Council adopted a problem statement recognizing that the increasing amount of harvest in the charter fishery may change the stability, economic viability, and diversity of the halibut industry, the quality of the recreational experience, access for subsistence users, and the socioeconomic well-being of the coastal communities dependent on the halibut resource. This policy statement led to the development of a GHL to address the allocative issues between the commercial and charter sectors.

The Guideline Harvest Level

Since 1993, the Council has discussed the expansion of the charter halibut sector. The issue gained prominence in 1993 when some small Alaskan communities, such as Sitka, expressed concerns about local depletion of the halibut resource and the potential reallocation of increasing percentages of the Total CEY from the IFQ fishery to the charter fishery. In response to these concerns, the Council developed a GHL policy to control halibut harvested in the charter sector. In February 2000, the Council recommended GHLs for Areas 2C and 3A, after a previous preferred alternative was returned to the Council by NMFS for additional consideration because the preferred alternative lacked regulatory measures to control harvest to the proposed GHLs. On January 28, 2002, NMFS published a proposed rule (67 FR 3867) in the *Federal Register* that specified GHLs and a system of harvest reduction measures that would be used to maintain the charter halibut harvest in IPHC Areas 2C and 3A at or below the GHLs. The GHLs established an estimated amount of halibut harvest that may be taken annually in the charter fishery for Areas 2C and 3A.

The proposed rule also described management measures that would be implemented by NMFS to take effect the year following an overage of a GHL. However, NMFS informed the Council through a letter dated April 2, 2002, that the management measures could not be implemented in the year following a GHL overage because of the time lag associated with receiving recreational harvest data from State of Alaska Department of Fish and Game (ADF&G), and a notice and comment period under the Administrative Procedures Act (APA), including an Environmental Analysis, Regulatory Impact Review, and Initial Regulatory Flexibility Analysis (EA/RIR/IRFA) of the harvest control measure would be required.

The final rule implementing the GHL was promulgated on August 8, 2003 (68 FR 47256). It removed the "problematic" harvest control measures that were determined to conflict with the legal requirements of the APA. It established the GHLs as a level of acceptable annual harvests for the charter halibut fishery in Areas 2C and 3A. The GHLs equal 1.432 Mlb net weight in Area 2C and 3.65 Mlb net weight in Area 3A. Both GHLs have been exceeded since implementation in 2004. NMFS implemented management measures to reduce charter halibut harvests in Area 2C in 2007. The Council has recommended additional management measures in Area 2C for implementation in 2008.

If the Annual Total Constant Exploitation Yield for Halibut in Area 3A is More Than:	Than the GHL for Area 3A will be:
21,581,000 lbs. (9,788.9 mt)	3,650,000 lbs. (1655.6 mt).
19,042,000 lbs. (8637.3 mt)	3,103,000 lbs. (1407.0 mt).
16,504,000 lbs. (7,485.9 mt)	2,734,000 lbs. (1266.4 mt).
13,964,000 lbs. (6334.0 mt)	2,373,000 lbs. (1,139.9 mt).
11,425,000 lbs. (5,182.3 mt)	2,008,000 lbs. (910.8 mt).

Charter halibut harvest is effectively unrestricted, because the GHL is not a "hard" cap. The commercial allocation is a hard cap calculated after deducting estimates of other harvests, including charter harvest. Therefore, as the charter fishery expands, its harvests reduce the allocation to the commercial halibut fishery, and the amount of IFQ available for harvest is reduced.

While commercial quotas fluctuate directly with stock abundance, the GHLs are established annually at the fixed poundage and may be reduced to a fixed poundage in response to a decline (only) in stock abundance[6]. Regulations at 50 CFR 300.65 define GHL levels in relation to halibut stock abundance (Total CEY). 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 3A were to fall between 15 percent and 24 percent below its 1999-2000 average to 19.042 Mlb, then the GHL would be reduced to 3.103 Mlb or less. If the total CEY declined by 25 to 34 percent to 16.604 Mlb, then the GHL would be reduced to 2.734 Mlb or less. If the total CEY continued to decline by at least another 10 percent to 2.373 Mlb, the GHL would be reduced to 2.373 Mlb or less. One additional step down is projected in the box at left. The GHL would be increased by commensurate incremental percentage points to its initial level of 125 percent of the average 1995-1999 charter harvest estimates, but no greater than its original level of 3.65 Mlb if halibut abundance rebounded.

The GHL formula incorporated a 25 percent increase above the 1995-1999 average charter harvest. The charter sector requested that a fixed amount of fish be provided to enhance predictability for the next season's bookings. Council intent was to maintain a stable charter fishing season of historic length, using area-specific measures to control harvests to the GHL. The GHLs have not been reduced; however, charter halibut harvest in Area 3A exceeded the GHL in 2004, 2005, and possibly 2006[7] (Table 9).

1.2 Purpose and Need

The proposed action was initiated in October 2005, when the Council reviewed 2004 ADF&G data that indicated that the Area 3A GHL had been exceeded. Implementing management measures to reduce harvests below the GHL is the next management step, as outlined in the Council's GHL policy. The Council selected no action as its preferred alternative for Area 3A in April 2006 because the overage was less than 1 percent and State action in 2006 was predicted to result in restraining charter halibut harvest to the GHL (NPFMC 2006). In December 2006, the Council was informed that ADF&G final estimates indicated that the GHL had been exceeded in 2005 and projections suggested it might have been exceeded in 2006. The Council added several management options to Alternative 2, which resulted in this revised analysis. If approved by the Secretary, the Council's selection of a revised preferred alternative (scheduled for December 2007) is intended to be implemented for the 2008 charter season.

The purpose of the proposed action is to reduce charter halibut harvests in Area 3A to the GHL of 3.65 Mlb. The GHL is intended to stop the reallocation from the commercial sector to the charter sector. The long-term average annual growth rate in charter sector harvests is 3.0 percent, while the 5-year (2002-2006[8]) average annual growth rate is 4.7 percent. Charter pressure (as measured by the number of active vessels, total number of active trips, total number of clients, and average number of clients per trip) increased in the last several years, but the fleet is at the same levels of effort and capacity that it exhibited in 2000 and 2001 by many measures. The total number of trips, vessels, and client days are roughly comparable, while the average number of clients per trip and the average trips per vessel has fallen. It remains to be seen if the industry is in a long-term growth phase or a cyclical bubble such as occurred in 1999, 2000, and 2001. For further discussion please see Section 2.4.

---

[6] A formula to increase the GHL was not incorporated into Council policy because the GHL formula already included a 25 percent increase above historical harvests and the Pacific halibut stock was at its peak abundance and not expected to increase.

[7] This text may be revised if 2006 final estimates are below the GHL

[8] preliminary

Table 9 Area 3A sport catch of Pacific halibut. Values shown for 2006 are projections based on the ADF&G Statewide harvest survey and reflect the prohibition on skipper/crew fish in 2006. All pounds are net weight (headed and gutted) (IPHC 2007)

	Guided Harvest (Mlb)	Guided Harvest (percent of GHL)	Unguided Harvest (Mlb)	Total[c] (Mlb)
1995	2.845	78	1.666	4.511
1996	2.822	77	1.918	4.740
1997	3.413	94	2.100	5.514
1998	2.985	82	1.717	4.702
1999	2.533	69	1.695	4.228
2000	3.140	86	2.165	5.305
2001	3.132	86	1.543	4.675
2002	2.724	75	1.478	4.202
2003	3.382	93	2.046	5.427
2004[a]	3.668	100	1.937	5.606
2005	3.689	101	1.984	5.672
2006[b]	3.947	108	2.141	6.088

[a] First full charter season under the GHL harvest policy (final rule published August 3, 2003).

[b] Projection based on linear regression method to estimate harvest based on historical trends in SWHS.

[c] Discrepancies in the total value are from rounding error.

1.3 Problem Statement

PROBLEM STATEMENT
Adopted February 2006

Harvest by the guided sport halibut sector has exceeded the Guideline Harvest Level (GHL) recommended by the NPFMC and established by the Secretary of Commerce. The NPFMC adopted the GHL to address the open-ended reallocation of halibut from the commercial to the guided sport sector and to provide a measure of stability to the halibut industry and coastal communities while the NPFMC develops a long-term plan for the guided sport (GS) sector. Designing management measures to maintain stability and prevent the GS sector from exceeding the GHL during this interim period is the responsibility of the NPFMC.

The recent expansion of the halibut charter sector may make achievement of Magnuson-Stevens Act National Standards more difficult. The Council is concerned about its ability to maintain the stability, economic viability, and diversity of the halibut industry, the quality of the recreational experience, the access of subsistence users, and the socioeconomic well-being of the coastal communities dependent on the halibut resource. Specifically, the Council noted the following areas of concern with respect to the recent growth of halibut charter operations:

(1) Pressure by charter operations may be contributing to localized depletion in several areas.

(2) The recent growth of charter operations may be contributing to overcrowding of productive grounds and declining harvests for historic sport and subsistence fishermen in some areas.

(3) As there is currently no limit on the annual harvest of halibut by charter operations, an open-ended reallocation from the commercial fishery to the charter sector is occurring. This reallocation may increase if the projected growth of the charter sector occurs. The economic and social impact on the

commercial fleet of this open-ended reallocation may be substantial and could be magnified by the IFQ program.

(4) In some areas, community stability may be affected as traditional sport, subsistence, and commercial fishermen are displaced by charter operators. The uncertainty associated with the present situation and the conflicts that are occurring between the various user groups may also be impacting community stability.

(5) Information is lacking on the socioeconomic composition of the current charter sector. Information is needed that tracks: (a) the effort and harvest of individual charter operations; and (b) changes in business patterns.

(6) The need for reliable harvest data will increase as the magnitude of harvest expands in the charter sector.

1.4 Description of the Alternatives

In October 2005, the Council reviewed ADF&G Sport Fish Division Statewide Harvest Survey data that indicated that the Area 3A GHL was exceeded in 2004 by less than one percent. In conformance with its 2000 policy to implement measures to attain a certain level of harvest reduction, the Council identified alternatives to reduce charter halibut harvests. Those alternatives were based on a suite of proposed measures that were developed over the course of seven separate meetings of the GHL Committee, Advisory Panel, and Council in 2000. The Council selected its preferred alternative of no action in April 2006 because the overage was minimal. In December 2006, the Council received information the GHL was exceeded by increasing amounts in 2005 and 2006. In April 2007, the Council revised Alternative 2 from its previous analysis and scheduled initial review of this analysis for October 2007.

The goal of any restrictive measure is to reduce sport fishing mortality of halibut in the charter fishery sector in Area 3A to its GHL in a manner that minimizes adverse impacts on the charter fishery, its sport fishing clients, the coastal communities that serve as home port for this fishery, and on fisheries for other species. In addition to the no action alternative, the Council is considering 7 options to reduce halibut harvests to the GHL of 3.65 Mlb in Area 3A.

Alternative 1. No action. Maintain the existing 2007 Status Quo management structure.

Alternative 2. Implement one or more measures to restrict charter halibut harvest to the Area 3A GHL

Option 1. No more than one trip per charter vessel per day.

Option 2. i. No harvest by skipper or crew while clients are on board; and/or

ii. Line limits not to exceed the number of paying clients on board.

Option 3. Annual limits of four, five, or six halibut, per angler, caught from a charter vessel fishing in Area 3A.

Option 4. Reduced bag limits of one fish per day in May, June, July, August, or the entire season

Option 5. A two-fish bag limit with the one fish of any size and one fish larger than 45 inches or 50 inches

Option 6. A two-fish bag limit with one fish of any size and one fish 32, 34 or 36 inches in length

Option 7. A two-fish bag limit with one fish of any size and one fish 32 inches or less in length or larger than 45 inches or 50 inches

1.4.1 Alternative 1

Taking no action would result in no new measures to reduce charter halibut harvests to the Area 3A GHL. Alternative 1 includes current Federal and state regulations that would otherwise remain unchanged (i.e., harvest (bag) limits of two fish per person per day; possession limit of two bag limits). An emergency order was issued by ADF&G in 2007 to prohibit a sport fishing guide and sport fishing crew member on a charter vessel in Southcentral and Southeast Alaska from retaining fish while clients are onboard the vessel during the fishing season and limit the number of lines in the water to the number of paying clients.[9] This restriction effectively applied to all of Area 3A.

1.4.2 Alternative 2

Alternative 2 proposes to implement one or more management measures to restrict charter halibut harvests to the Area 3A GHL of 3.65 Mlb for 2008 (at the earliest) and beyond. Seven management measures are included under Alternative 2. The seven options include: (1) No more than one trip per vessel per day; (2) No harvest by skipper and crew and a limit on the number of lines to not exceed the number of paying clients; (3) Annual limits of four fish, five fish, or six fish per angler; (4) Reduced bag limits of one fish per day in May, June, July, August, September or for the entire season; (5) Requiring one of two fish in a daily bag to be larger than 45 inches or 50 inches; (6) Requiring one of two fish in a daily bag to measure less than, or equal to, 32 inches, 34 inches, or 36 inches; or (7) A reverse slot limit requiring one of two fish in a daily bag limit to measure 32 inches or less or longer than either 45 inches or 50 inches.

1.5 Action Area

The action considered in the analysis would occur in IPHC regulatory Area 3A (Figure 3).

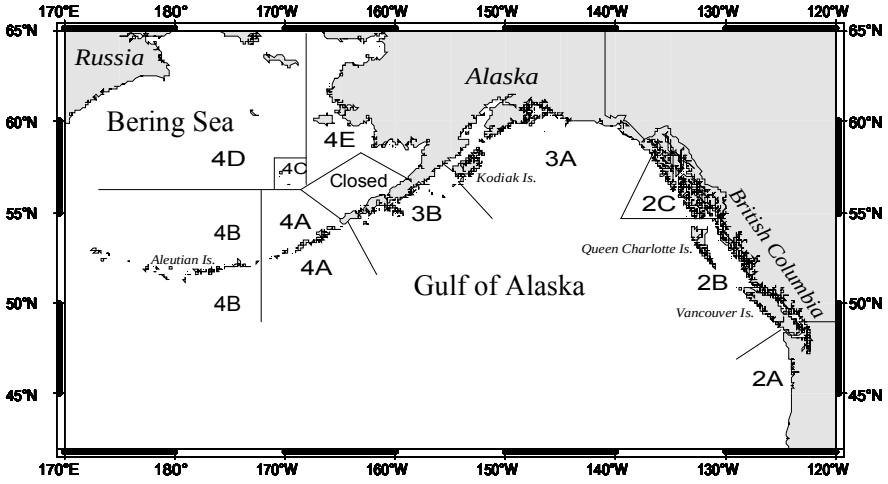

Figure 3 IPHC regulatory areas in the northern Pacific Ocean and Bering Sea

[9] These state measures are also included under Alternative 2, Option 2 for implementation under Federal regulations.

1.6 Relationship of this action to Federal law

While NEPA and the Regulatory Flexibility Act (RFA) are the primary laws directing the preparation of this document, a variety of other Federal laws and policies require environmental, economic, and socio-economic analysis of proposed Federal actions. This document contains the required analysis of the proposed Federal action to ensure that the action complies with these additional Federal laws and executive orders:

- Convention between the United States and Canada for the Preservation of the halibut fishery of the North Pacific Ocean and Bering Sea (Convention). Northern Pacific Halibut Act (Halibut Act, 16 U.S.C. 773-773k)
- Endangered Species Act
- Marine Mammal Protection Act
- Administrative Procedure Act
- Information Quality Act

1.7 Related NEPA Documents

The NEPA documents listed below have detailed information on the halibut fishery, groundfish fisheries with halibut bycatch, and on the natural resources, the economic and social activities, and communities affected by those fisheries:

- Groundfish Programmatic Supplemental Environmental Impact Statement (PSEIS by NMFS 2004)
- Essential Fish Habitat Environmental Impact Statement (EIS by NMFS 2005b)
- The Harvest Specifications Environmental Impact Statement (EIS by NMFS 2007)
- Guideline Harvest Level Environmental Assessment (EA by Council 2003)
- Regulatory amendment to implement measures to reduce charter harvest in Area 2C to the GHL (EA/RIR/IRFA by Council 2007b)
- Regulatory amendment to define subsistence halibut fishing in Convention Waters (EA/RIR/IRFA by Council 2003b)
- Regulatory amendment to modify the halibut bag limit in the halibut charter fisheries in IPHC Regulatory Area 2C (EA/RIR/IRFA by NMFS 2007)
- EA/RIR/IRFA for a regulatory amendment to modify the halibut bag limit in the halibut charter fisheries in IPHC Regulatory Area 2C (EA/RIR/IRFA by NPFMC 2007)

1.8 Affected Environment

The NEPA documents listed below contain extensive information on the fishery management areas, marine resources, ecosystem, social and economic parameters of these fisheries, and the annual harvest specifications. Rather than duplicate an affected environment description here, readers are referred to those documents. All of these public documents are readily available in printed form or over the Internet at links given in the references. Because this action is limited in area and scope, the description of the affected environment is incorporated by reference from the following documents:

Groundfish Programmatic EIS. The Alaska Groundfish Fisheries Final Programmatic Supplemental Environmental Impact Statement (PSEIS) evaluates the fishery management policies embedded in the GOA and BSAI groundfish FMPs against policy level alternatives and the setting of TACs, allowable biological catch (ABC), and overfishing level (OFL) at various levels (NMFS 2004). The PSEIS is

available at http://www.fakr.noaa.gov/sustainablefisheries/default.htm. The following sections of this document are particularly relevant:

- Section 3.3 contains a description of the physical oceanographic environment for BSAI and GOA waters.
- Section 3.5.2 contains descriptions of prohibited species management, life history characteristics, trophic interactions, past and present effects analysis, comparative baseline and cumulative effects analysis.
- Section 3.5.3 contains descriptions of target groundfish species management, life history characteristics, trophic interactions, past and present effects analysis, comparative baseline and cumulative effects analysis.
- Section 3.9.2.4 contains socio-economic information on fishing sectors, including the hook and line sectors.

Harvest Specification EIS. The EIS analyzed the Council's harvest strategy for the GOA fisheries (NMFS 2007). The EIS included ecosystem considerations section of the Stock Assessment and Fishery Evaluation (SAFE) reports. The EIS also contains a detailed discussion of the prohibited species catch limits, which include a discussion on the management of halibut bycatch. http://www.fakr.noaa.gov/analyses/specs/eis/default.htm.

Essential Fish Habitat Identification and Conservation in Alaska EIS. (NMFS 2005b) This EIS reexamines the effects of fishing on EFH in waters off Alaska, presents a wider range of alternatives, and provides a thorough analysis of potential impacts on EFH caused by the groundfish fishery. The analysis provides a description of managed groundfish species, marine mammals, and the socioeconomic environment in the Central GOA trawl fishery. There are long-term effects of fishing on benthic habitat features off Alaska and acknowledges that considerable scientific uncertainty remains regarding the consequences of such habitat changes for the sustained productivity of managed species. The EIS is found at http://www.fakr.noaa.gov/habitat/seis/efheis.htm.

Steller Sea Lion Protection Measures Final Supplemental Environmental Impact Statement (SEIS). (NMFS 2001) The SEIS evaluates alternatives to mitigate potential adverse effects as a result of competition for fish between Steller sea lions under a no action alternative as well as other alternatives that would substantially reconfigure the GOA and BSAI groundfish fishery. Impacts are disclosed, both significantly positive and significantly negative as required by NEPA. A biological opinion prepared according to the Endangered Species Act is included for the preferred alternative. This document also describes the life history characteristics of Steller sea lions and potential interactions with the groundfish fishery. For more information see http://www.fakr.noaa.gov/sustainablefisheries/seis/sslpm/default.htm.

For those groundfish stocks where information is available, none are considered overfished or approaching an overfished condition and all are managed within the annual harvest specifications. The ABC, OFL, and TAC amounts for each target species or species group for 2006 is specified in the *Federal Register* (71 FR 10870, March 3, 2006). The status of each target species category, biomass estimates, and acceptable biological catch specifications are presented both in summary and in detail in the annual SAFE reports (Council 2005b). The SAFE report also updated the economic status of the groundfish fisheries off Alaska and presented the ecosystem considerations relevant to the GOA. This EA incorporates by reference stock status information in the SAFE reports (Council 2005).

The IPHC annually publishes a summary of current management, research, and harvest recommendations for its annually meeting. This document may be found on the IPHC's website at http://www.iphc.washington.edu/halcom/default.htm.

1.9 Potential Environmental Impacts

The approach to reducing charter halibut harvest in Area 3A is limited in scope and will not likely affect all environmental components within that area. Table 10 shows the three potentially affected components: groundfish, halibut stocks, and the socioeconomic environment. The potential effects of the alternatives on the resource could be caused by increased harvest of groundfish species, incidental catch of groundfish species, and an increase in halibut mortality. These potential impacts on resource components are described in more detail in Section 1.10.

Negative impacts on non-halibut prohibited species, including salmon, are not expected because current ADF&G and Federal management closely monitors stock health, allocation, and restricts harvest from all sectors to biological management goals. The alternatives would not significantly change the amount of these species harvested, fishing methodology, areas fished, seasons fished, or fishing intensity. Salmon is the primary prohibited species other than halibut targeted in the sport fishery. Information is not available to predict small changes in harvest patterns due to the alternatives, however, given the magnitude of the charter fishery, angler preferences, specialized gear to target halibut, and current regulations to control sport harvest, any increase in salmon removals is likely to be small and would be regulated within biological limits.

Table 10 Resource components potentially affected by the proposed alternatives

	Potentially Affected Component								
Alternatives	**Non-halibut prohibited species**	**Physical**	**Benthic Comm.**	**Groundfish**	**Marine Mammals**	**Seabirds**	**Non-specified Species**	**Halibut**	**Socio-economic**
Alt 2, Opt 1	N	N	N	N	N	N	N	N	N
Alt 2, Opt 2	N	N	N	N	N	N	N	N	N
Alt 2, Opt 3	N	N	N	N	N	N	N	N	N
Alt 2, Opt 4	N	N	N	**Y**	N	N	N	**Y**	**Y**
Alt 2, Opt 5	N	N	N	**Y**	N	N	N	**Y**	**Y**
Alt 2, Opt 6	N	N	N	**Y**	N	N	N	**Y**	**Y**
Alt 2, Opt7	N	N	N	**Y**	N	N	N	**Y**	**Y**

N = no impact beyond status quo anticipated by the option on the component.
Y = an impact beyond status quo is possible if the option is implemented.

No effects are expected on the physical environment, benthic community, non-specified and forage species, marine mammals, and sea bird components of the environment because current fishing practices (e.g., season and gear types) harvest limits, or regulations protecting habitat and important breeding areas as described in previous NEPA documents would not be changed by any of the alternatives. No effects are expected for marine mammals because existing protection measures would not be changed, nor would allowable harvest amounts for important prey species. None of the alternatives would change groundfish TAC amounts, methods, season closure dates, or areas closed to fishing.

The significance ratings are: significantly beneficial, significantly adverse, insignificant, and unknown. Where sufficient information on direct and indirect effects is available, rating criteria are quantitative in nature. In other instances, where less information is available, the discussions and rating criteria are qualitative. In instances where criteria to determine an aspect of significance (significant adverse, insignificant, or significant beneficial) do not logically exist, no criteria are noted. These situations are termed “not applicable” in the criteria tables.

The socioeconomic environment may be affected through changes in angler demand for charter halibut trips which may decrease total revenue over the short and long run. The socioeconomic environment for the charter and commercial sector may also be affected by allocation conflicts for fully utilized species such as halibut, rockfish, and salmon. A detailed discussion of potential socioeconomic impacts is provided in Section 2.0.

Differences between direct and indirect effects are primarily linked to the time and place of impact. Direct effects are caused by the action and occur at the same time and place. Indirect effects occur later in time and/or are further removed in distance from the direct effects (40 CFR 1508.27). For example, the direct effects of an alternative which lowers the harvest level of a target fish could include a beneficial impact to the targeted stock of fish, a neutral impact on the ecosystem, and an adverse impact on net revenues to fishermen, while the indirect effects of that same alternative could include beneficial impacts on the ability of Steller sea lions to forage for prey, neutral impacts on incidental levels of PSC, and adverse impacts in the form of economic distribution effects, for example, reducing employment and tax revenues to coastal fishing communities.

1.10 Potential Impacts on Marine Resources

1.10.1 Pacific Halibut Stock

The IPHC sets area catch limits for the commercial fishery in proportion to halibut abundance. This harvest philosophy protects against overharvest of what may be separate, but unknown, genetic populations, and spreads fishing effort over the entire range to prevent regional depletion. Small scale local depletion does not have a significant biological effect on the resource as a whole. The IPHC considers the halibut resource to be a single population. Egg and larval drift and subsequent counter migration by young halibut cause significant mixing within the population. Ultimately, counter migration and local movement tend to fill in areas with low halibut density, although continued high exploitation will maintain local depletion. However, estimates of local biomass and information about immigration and migration rates on a high geographical resolution are not available to manage small areas.

As described by Clark and Hare (2005), the annual exploitable biomass is estimated by fitting a stock assessment model using available data from the commercial fishery and scientific surveys in each area. Total CEY is calculated by applying a target harvest rate (22.5 percent in Area 3A in 2007) to the exploitable biomass estimate.

The Fishery CEY is calculated by subtracting estimates of all unallocated removals (which include legal-sized bycatch, legal-sized wastage, personal use, and charter and non-guided catch) from the Total CEY (Figure 4Figure 4). The IPHC uses harvest estimates from the previous year for all non-commercial categories because removal numbers are relatively stable between years. Because sport harvest estimates are not available until the following year, a projection method based on historical harvest levels is used to estimate harvest for the year previous to that in which commercial quota is established.

After the harvest deductions are made, the remainder comprises the Fishery CEY. The commercial catch limit is set based on the Fishery CEY. In setting the commercial catch limits, the IPHC considers area-specific harvest policy objectives and also applies its Slow Up/Fast Down[10] policy in setting the commercial halibut fishery catch limits. Thus, the commercial catch limits may be greater than or less

[10] The IPHC can recommend a Fishery CEY that are responsive to rapid changes in halibut abundance. For example, if the halibut stock is rapidly declining, the Commission may recommend a lower Fishery CEY incremented over several years to dampen the effects of the stock decline. Conversely, if the stock is in rapid increase, the Fishery CEY may be increased over number of years rather than one large increase.

than, and do not necessarily equal, the Fishery CEY. The commercial catch limit is currently only set for commercial fisheries for hook and line gear. The nature of this process means that changes in the charter harvest affect the commercial catch limits with a lag, and not immediately on a pound for pound basis.

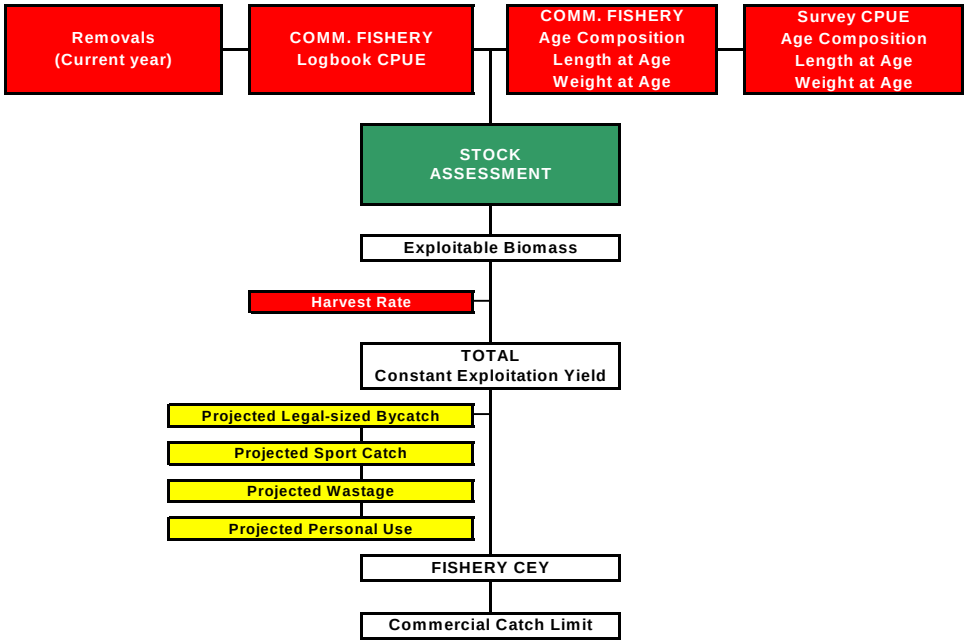

Figure 4 The IPHC's stock assessment and catch limit setting process for Area 3A

Growing concerns about net migration from the western to the eastern Gulf of Alaska have led the staff to doubt the accuracy of the closed-area assessments that have been done for many years (Clark and Hare 2006). In 2006, IPHC staff changed the structure of its stock assessment model because of new scientific information that modified previous model assumptions about migration between regulatory areas. The new estimation technique considered tagging data and mortality rates which suggested that a fraction of halibut continue to migrate eastward beyond eight years of age. This decision changed the traditional "closed-area" approach used by the IPHC. Clark and Hare (2006) reported that a comparison of total yield between the coastwide assessment with survey apportionment and a closed-area assessment produced a similar biomass estimates, but the distribution of yield among regulatory areas was much different. The coastwide assessment indicated more biomass was available in Areas 3B and 4 and less in Area 2 than the levels calculated using the closed area model. Figure 5 shows projected CEY on the basis of the 2006 coastwide stock assessment, a 20 percent coastwide target harvest rate, and the biomass distribution estimated from the 2004-2006 survey CPUE by area.

The IPHC did not adopt staff recommendations for the 2006 projections for Area 3A (26.01 Mlb) and, instead, adopted a CEY of 26.20 Mlb. The Commission believed that further examination of options for partitioning the coastwide biomass estimate for each area before it adopted the new approach. Thus, the IPHC relied on previous methodology of separate regulatory assessments as the basis for determining 2007 catch limits. The two estimates of CEY for Area 3A were more similar than for other areas.

The exploitable biomass for the coastwide projection and Area 3A projection is expected to increase during the next ten years. Note that the projections in Figure 6 assume the CEY in depicted in Figure 3 is harvested in the future and the IPHC authors report the following caution about the area-specific projection:

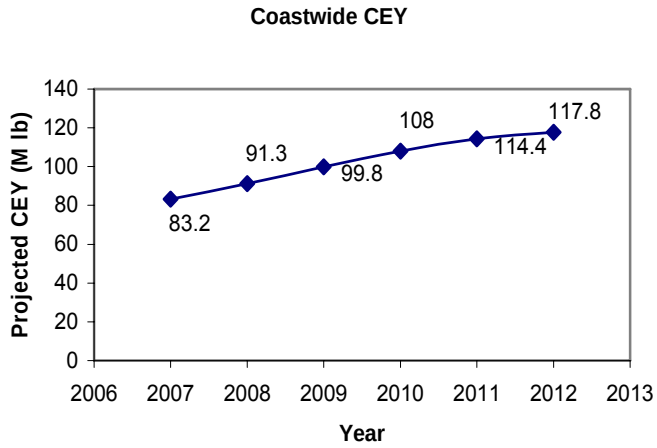

Figure 5 Coastwide CEY projection through 2012 (IPHC 2007)

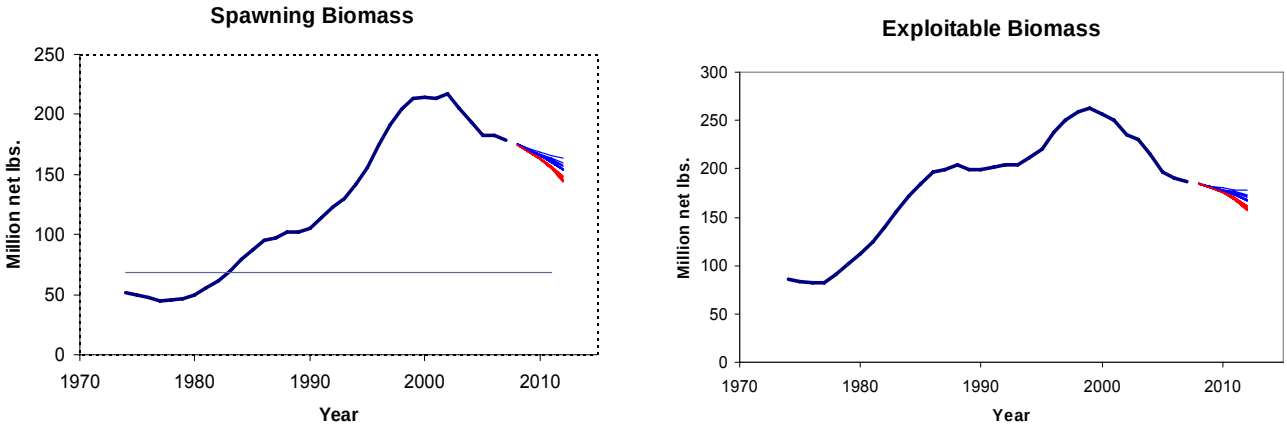

Figure 6 Five year project for Area 3A spawning biomass and exploitable biomass using a closed area assessment. Projection assumes a 0.20 harvest rate.

> *"At this juncture it is uncertain what future harvest rates will be applied to the different regulatory areas. Further, the closed areas assessments do not portray the same biomass distribution as the coastwide assessment. We do believe, however, that the closed area assessments provide a generally accurate portrayal of past trends and future projections. What is uncertain is the vertical scale for the different areas. We have included area-specific projections from the closed area assessments for illustrative purposes." (IPHC 2007).*

Additional descriptive information on surveys, stock assessments, and research on halibut can be found in detail in the 2007 Report of Assessment and Research Activities (IPHC 2007). Further details on the management, production history, and life history of halibut are described in Section 3.7.2 of the SEIS (NMFS 1998) and the 2004 IPHC annual report.

Halibut is fully utilized in Area 3A. Three major categories of use occur in Alaska for halibut: commercial, sport, and subsistence (Figure 7). Commercial harvests account for the largest portion of total use in Area 3A, comprising approximately 70 percent of the removals, not including approximately 11 percent of bycatch and wastage. Sport users are divided into two subcategories: guided and non-guided. Approximately 11 percent of the total removals come from the charter sector and 6 percent from the non-guided sector. Subsistence (personal use) comprises the smallest portion of cultural use at 1 percent of total removals. Wastage removals represent the mortality of legal-sized halibut due to lost or

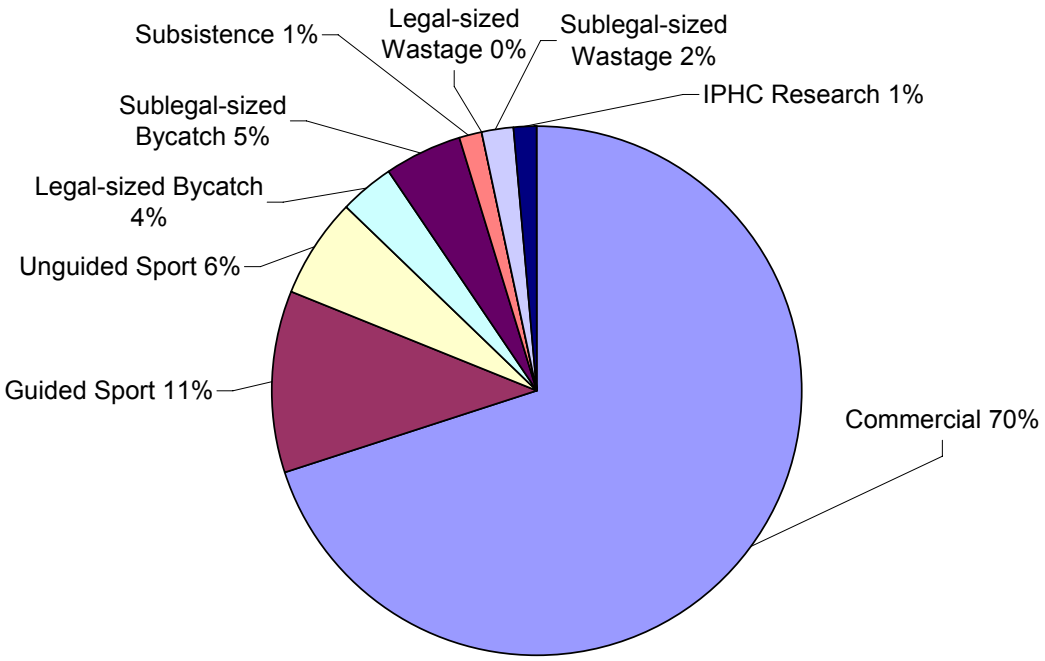

Figure 7 Proportion halibut removed by category in Area 3A in 2006 (Source: IPHC 2007).

abandoned gear, and of sublegal-sized halibut discarded in the halibut fishery. Since the implementation of the QS fisheries in the 1990s, the total mortality of legal-sized halibut from lost gear in all areas has remained ≤ 1.5 Mlb annually. Bycatch mortality accounts for halibut that die from being caught in other fisheries (Table 11).

In 2006, total CEY removals categories were approximately 32.8 Mlb. An additional 2.3 Mlb of sub-legal mortality also occurred. The legal mortality category is composed of halibut caught in the non-halibut commercial fishery that are discarded, but are of at least 32 inches in length. Sub-legal halibut are those discarded in the commercial that are less than 32 inches in length.

Commercial Removals

The groundfish fishery management plans for the Bering Sea/Aleutian Islands and Gulf of Alaska designated Pacific halibut as a prohibited species to any new commercial development due to its historical usage by the longline (or setline) fishery. The commercial halibut fishing fleet is diverse, using various types of longline gear and strategies. An individual fishing quota program was implemented in 1995 (50 CFR 300.60 through 300.65). The IFQ program enabled an eligible vessel to fish any time between March 5 and November 15 in 2006. Total setline CEY for Area 3A[11] is estimated to be high at just over 32 Mlb, but below its 2003 peak of 40 Mlb (Table 11). The fishery CEY has ranged between 24 Mlb and 34 Mlb during the last five years.

Halibut begin recruiting to longline gear at approximately 60 cm in length, but the commercial minimum size limit is 32 inches (82 cm). The fishery ranges from shallow inshore waters to as deep as 275 meters along the continental shelf. The directed catch consists of individuals chiefly from 7 kg. to 121 kg. The average size in the commercial catch in 1996 was between 9 kg. and 20 kg depending on the area caught; the average age was 12 years (Forsberg, J., Unpub 1997).

[11] at a harvest rate of 22.5 percent

The IFQ program has kept catches within harvest limits, reduced the amount of lost gear and wastage due to "ghost fishing," and allowed the commercial fishery to operate during a long period which has had the ancillary affect of increasing safety. The annual amount of IFQ for the commercial hook and line fisheries is established annually by the Secretary of Commerce, based on recommendations from the IPHC.

Harvest from the commercial fishery is tracked by NMFS using a catch accounting system that deducts harvest from an IFQ holder's account. This information is also used to enforce the total annual quota as well as individual IFQ accounts. Thus, since the IFQ program, annual harvest limits have not been exceeded by a significant margin. The IFQ program has an overage/underage provision that balances an IFQ holder's account, year to year. This regulation results in a long-term balance of harvest at the catch limit and allows IFQ holders to move small amounts of halibut between years.

Halibut bycatch and wastage occurs in the groundfish and salmon fisheries operating in waters off Alaska. The effects of these fisheries on halibut are primarily managed by conservation measures developed and recommended by the Council over the entire history of the Federal Fishery Management Plans (FMPs) for the Bering Sea and Aleutian Island (BSAI) and Gulf of Alaska (GOA) and implemented by Federal regulation. These measures can be found at 50 CFR 679.21 and include catch limitations on a year round and seasonal basis. These management measures are discussed further in the following documents:

- Sections 3.6.1 and 3.6.2 of the GOA and BSAI FMPs (Council, 2005a and b) cover management of the bycatch of halibut in the groundfish fisheries. The FMPs are available at http://www.fakr.noaa.gov/npfmc/default.htm.
- Section 3.5 of the PSEIS (NMFS 2004) reviews the effects of the groundfish fishery on halibut. The PSEIS is available at http://www.fakr.noaa.gov/sustainablefisheries.seis/intro.htm.
- Charter 7 of the Alaska Groundfish Harvest Specification EIS (NMFS 2007) provides an overview of prohibition species catch management, including halibut bycatch.

The annual amount of halibut bycatch and wastage is treated as a hard cap in groundfish fisheries. Fisheries are often closed to directed fishing when halibut bycatch allotments are taken. As a result, fishing morality has remained relatively constant; with the total amounts depending on the type of fisheries being prosecuted and total effort. In Area 3A, bycatch and wastage have accounted for approximately 11 percent of the total removals (Figure 7).

The catch limit for the commercial longline fishery in Area 3A is set once all other removals are deducted from the available yield. The increase in charter removals results in a reduction of the commercial sector harvest over an extended period of time. In a given year, non-commercial removals are not necessarily deducted on a pound for pound basis. For example, harvest quota for the commercial fishery set in 2007 includes historical sport harvest from 2006, but the 2007 sport harvest is unknown. Thus, an increase of sport harvest above the level predicted in 2006 is not accounted for in the next year's commercial quotas. Over the long-term, any overage results in a loss of commercial harvest. This same effect would occur if any other non-commercial removals increased rapidly (and unpredictably) from year to year. Of the non-commercial removals accounted for by the IPHC, the charter harvest has been quite variable over the past 10 years, whereas other removals have remained relatively constant. The relationship between the charter and commercial sectors has resulted in consideration of numerous actions to control charter halibut removals, including the proposed action. The IPHC has expressed its concerns to the Council over the lack of harvest controls on the charter sector to adhere to the GHL. Without those controls, the IPHC subtracts the projected charter harvests from the Total CEY and adopts catch limits for the commercial

Table 11 Area 3A History of Removals 1997-2006 (millions of pounds net weight)										
	Total	Fishery	Commercial	Sport			Bycatch Mortality	Personal Use	Wastage	TOTAL CEY
Year	CEY	CEY	Catch	Guided	Unguided	Total	(Legal Sized Fish)	(Subsistence)	(Legal Sized Fish)	REMOVALS
1995	31.16	16.87	18.142	2.845	1.670	4.515	1.460	0.097	0.128	24.342
1996	n/a	n/a	19.318	2.822	1.920	4.742	1.403	0.097	0.177	25.737
1997	40.66	33.55	24.675	3.413	2.100	5.514	1.150	0.097	0.074	31.510
1998	45.44	38.71	25.874	2.985	1.717	4.702	1.490	0.074	0.155	32.295
1999	31.80	24.67	25.287	2.533	1.695	4.228	1.595	0.074	0.101	31.285
2000	18.98	11.94	19.331	3.140	2.165	5.305	1.210	0.074	0.030	25.950
2001	27.80	21.89	21.935	3.132	1.543	4.675	1.700	0.074	0.032	28.416
2002	30.96	24.14	22.967	2.724	1.478	4.202	1.180	0.074	0.023	28.446
2003	40.00	34.22	22.683	3.382	2.046	5.427	1.364	0.074	0.091	29.639
2004	36.50	30.00	25.052	3.668	1.937	5.606	1.520	0.280	0.067	32.525
2005	32.90	26.30	25.862	3.689	1.984	5.672	1.320	0.429	0.078	33.361
2006	32.18	24.94	24.908	3.947	2.141	6.088	1.321	0.429	0.050	32.796

Source: Gregg Williams from:
Guided, 1999-2006: ADF&G table dated Nov. 20, 2006 titled "Charter Halibut Harvests in Area 2C and 3A"
Unguided 1999-2004: Scott Meyer (ADF&G), worksheet titled "2C-3A_HarvestTables.xls"
Unguided 2005-2006: ADF&G letter to IPHC dated Oct. 23, 2006
All other categories, 1999-2005: IPHC Bluebooks
All other categories, 2006: Gregg Williams (pers. comm.) and IPHC Bluebooks.

IFQ fishery based on the remaining CEY. In effect, if the charter fishery exceeds the GHL, yield is transferred from the commercial sector to the charter sector[12]

Sport Fishing Removals

Area 3A supports the largest recreational fishery for Pacific halibut. Sport harvest grew from about 18,000 fish in 1977 to nearly 334,000 fish in 2005. Cook Inlet fisheries account for most of the harvest, followed by fisheries based in Seward, Valdez and Whittier, Kodiak, and Yakutat. There are increasing numbers of lodges that offer guided halibut fishing, particularly around Kodiak and Afognak islands, and in Prince William Sound. Area 3A sport harvest estimates are derived from a statewide postal survey in conjunction with biological sampling and interviews at major points of landing. Final estimates lag by one year. Current year's harvests are derived from linear projections of numbers of halibut harvested in the previous five years and current average weights. Charter halibut harvests ranged from 2.533 Mlb to 3.689 Mlb during 1995 to 2005 and accounted for approximately 11 percent of the average halibut removals during the last five years (Table 11). Charter harvest accounts for about 65 percent of the total recreational harvest.

Regulations by both Federal and state agencies affect the halibut fishery. Federal sportfishing regulations are found at 50 CFR 300.62. The 2006 annual measures for halibut fisheries were published at 71 FR 10850, Part 24. The GHL regulations are published at 50 CFR 300.65.

Federal regulations require the following:

- The daily bag limit is two halibut, with 4 in possession
- The sport fishing season February 1 – December 31
- No person shall fillet, mutilate, or otherwise disfigure a halibut in any manner that prevents the determination of minimum size or the number of fish caught, while onboard the catcher vessel.
- No halibut caught for sport harvest shall be offered for sale, bartered, or traded.
- No halibut caught while sport fishing shall be possessed on board a vessel when other fish or shellfish aboard the said vessel for destined for commercial use, sale, trade, or barter.
- The operator of a charter vessel shall be liable for any violations of these regulations committed by a passenger aboard said vessel.

State of Alaska fishing regulations for the charter fishery are included below.

- Most anglers must have a current year's Alaska sport fishing license. There are three exceptions:
  - Resident and non-resident anglers younger than 16 do not need a sport fishing license.
  - Alaska resident anglers 60 and older must have a free ADF&G Permanent ID Card.
  - Alaska resident disabled veterans (50 percent or greater) must have a free ADF&G Disabled Veteran's Permanent ID Card.
- When a fish is landed and killed it becomes part of the bag limit of the person originally hooking it. Once you have attained your bag limit, you are not allowed to catch and keep halibut for anyone else on the vessel that same day.

The sport fishery has an unknown level of catch-and-release mortality, which results from physiological injury, stress, or handling. The level of mortality depends on several factors, including the hooking location, handling time, type of gear used, environmental characteristics (e.g., warm water), previous release history, and species physiology. A brief discussion of release mortality as it relates to halibut was presented in Appendix II of NPFMC (2007). The release mortality rate for halibut in the Area 2C charter fishery was approximately 5 percent, which means approximately 5 percent of the halibut caught and

[12] From a letter dated December 1, 2006 from Bruce Leaman, IPHC, to Stephanie Madsen, NPFMC

released die as a result. Recreational discard mortality has not yet been estimated and is not included in the stock assessment or catch limit setting process. To reduce discard mortality, IPHC staff recommended the mandatory use of circle hooks be adopted in Areas 2C and 3A. However, this recommendation was not adopted by the IPHC Commissioners because of enforcement concerns.

For the following reasons, this analysis can provide only a qualitative discussion about the impacts of release mortality on halibut for the alternatives:

1. **Behavioral change**s: If implemented, Alternative 2, Options 4–7 would likely change the selection process that anglers use when determining which fish to harvest or release. Anglers may consider trip attributes such as the length of a trip, what other party members have caught, weather and sea conditions, sea sickness, availability of alternative species, residency, and maximization of poundage when decided to release a fish. These behavioral characteristics may correspond with the ability of an angler to maximize the two fish bag limit either for poundage, numbers of fish, or both. Under a more restrictive harvest regime anglers are likely to change how they use these selection criteria to make harvest decisions. In addition, some anglers may completely drop out of the fishery under a new regulation.
2. **Data limitation**: The data currently available (creel census, logbook, SWHS) has been collected under a two fish bag limit regulation. This data does not include a size distribution for released fish or information about the size of halibut caught by an individual angler or the type of trip an angler took (e.g., cruise ship vs. lodge). The number of the halibut that die following release could be estimated from ADF&G logbook, creel, or mail survey data. However, size information is necessary to convert this estimate to poundage. The average weight of released fish is lower than the average weight of harvested fish because anglers preferentially target larger fish. Additionally, because of the angler selection process previously described, a mortality estimate based on current data may not accurately portray conditions for the non-status quo alternatives.

The previously described limitations make it difficult to predict changes in halibut mortality under proposed management measures. However, a qualitative discussion provides insight into the relative impact each alternative may have on the number of fish released in comparison with status quo. Options 1, 2, and 3 under Alternative 2 are expected to have no effect on discard rates. Options 4 through 7 may result in release mortality estimates at least as high as the status quo because anglers would be harvesting less fish in a daily fishing period, while releasing fish in an effort to maximize the size of those retained. Alternative 2, Option 4 is likely to have a higher amount of release mortality than other options because it provides the most restrictive measure in terms of limiting an angler to one fish. Alternative 2, Option 5 is likely to have the next highest amount of release mortality, as anglers would need to cycle through fish to catch one of 45 inches or greater or 50 inches or greater. The number of fish an angler cycles through until s/he reaches one to keep may increase in concert with an increasing minimum size requirement. Alternative 2, Option 6 would likely have a similar harvest level as the status quo. Alternative 2, Option 7 may have a similar or lower level of mortality to the status quo because anglers would target the size of one of the fish below and above the slot of 32 and either 45 or 50 inches. Given that catch and release is a condition of the halibut fishery under the status quo, an unknown number of anglers would likely continue fishing regardless of the regulation.

The IPHC does not explicitly include sportfishing discard mortality when determining the Fishery CEY nor is the incidental mortality in the sport fishery included in the determination of the GHL. However, release mortality for the sport fishery is not expected to substantially increase above status quo under any of the alternatives. Therefore, none of the proposed alternatives are expected to significantly impact the halibut stock.

Subsistence Removals

The distinctions between sport and subsistence are clouded by differing legal and cultural interpretations by both resource managers and users, and since rod and reel gear is legal in the subsistence fishery. The IPHC did not have a formal regulatory definition of subsistence prior to 2002; however, it did attempt to track subsistence harvest taken under a personal use category, leaving only sport harvests under the sport fishing category. In 2002, the IPHC adopted regulatory language defining subsistence ("Customary and Traditional Fishing in Alaska"), based on a recommendation by the Council. Federal regulations now recognize and define a legal subsistence fishery for halibut in Alaska (70 FR 16742, April 1, 2005). Subsistence removals totaled 429,000 lb (net weight) in 2005. The 2005 estimate was deducted from the overall CEY for 2006, but the 2006 estimate is not yet published. Subsistence harvest is tracked by ADF&G using survey respondent methods including public outreach, mailed household surveys, and community visits. Fall *et al* (2006) provides a detailed description of the survey methods and response rates. Subsistence/personal use harvest has increased in Area 3A from 0.286 Mlb in 2003 to 0.429 Mlb in 2005. Subsistence fishery regulations are found at 50 CFR 300.60–300.66.

Effect of alternatives on the halibut resource: The proposed alternatives address resource allocation issues. They would affect harvest levels and fishing practices of individuals participating in all halibut fisheries, but not the health of the halibut stock. Regardless of the amount of halibut biomass taken by a sector, no adverse impacts to the halibut resource would be expected because the IPHC factors resource removals in the halibut stock assessment when setting annual catch limits.

1.10.2 Groundfish

In the charter fishery, anglers may target other species along with halibut or target other species if halibut fishing is poor. The charter operator aims to satisfy the client and may do so by landing any species (Scott Meyer, pers. comm.). Thus, a regulatory constraint on halibut may influence the amount of salmon or other groundfish species caught in the charter fishery. The harvest of State-managed groundfish observed in the ADF&G port sampling program is usually inversely related to halibut harvest, but it is unknown to what degree anglers switch target species when halibut fishing is poor or expend more effort to target other species. No in-depth analysis of these data has been done, and it may be impossible given the limited resolution of the effort information. It is likely that harvest of State-managed species will increase if the halibut stock declines in abundance.

A regulatory measure to restrict halibut harvest may be analogous to a decline in abundance. For certain anglers, halibut fishing may become less desirable the more difficult it is to optimize the poundage of fish harvested or to harvest two fish. The decision process for anglers is complex and data are not available to predict removals from the groundfish fishery that may occur under the non-status quo alternatives.

The primary groundfish species taken incidental to halibut fishing on charter boats includes at least a dozen species of rockfish, as well as lingcod, and smaller numbers of Pacific cod, sablefish, greenlings, starry flounder, spiny dogfish, and salmon shark. These species may be recorded in ADF&G data as having been caught on a halibut targeted trip, but they may become the target species during the trip because the halibut bag limit has been reached or fishing is poor.. In some portions of Area 3A, State regulations require certain species of rockfish to be retained up to the bag limit; however, incidentally caught rockfish beyond an individual's bag limit must be released. Assessment of rockfish discard mortality is problematic. Identification of rockfish species that are similar in appearance is difficult and calculation of a mortality rate is dependent on the depth that rockfish was caught, handling and release techniques, etc.

Rockfish species composition varies among ports. Many are taken incidental to halibut fishing, or as an alternate target if halibut fishing is poor or once the halibut bag limit has been reached. Black rockfish and yelloweye rockfish make up the vast majority of the charter harvest, with lesser amounts of dusky, dark, quillback, silvergray, and others. Black rockfish accounted for more than 70 percent of the harvest at Seward and Kodiak, but only 14-44 percent at Whittier, Valdez, and Homer during the period 2003-2005. The percentage of yelloweye rockfish in the charter harvest during the same period ranged from 14 percent at Kodiak to over 50 percent at Whittier and Valdez (S. Meyer, pers. commun.). Black rockfish were removed from the Federal groundfish FMP, and the Council recommended a similar action for dark rockfish to the Secretary in 2007.

The impacts of the alternatives on rockfish removals are difficult to project, because behavioral changes under a new restrictive halibut harvest policy are unknown. Recreational harvests do not accrue against the commercial catch specifications and no recreational fisheries are included under the groundfish FMP.

Lingcod is also a commercial and sport fishery target species. It is not under management authority of the groundfish FMP, and is managed solely by the State. Harvest levels in recent years have remained constant under strict sport fishery slot limit regulations and seasons, and commercial quota limits (Table 12); however, in 2005 total catch increased to 16,281 fish from 9,549 in 2004. A harvest increase in the sport sector resulting from the alternatives would likely be small given the existing regulatory constraints.

Table 12 Estimated rockfish and lingcod harvest (number of fish) by charter anglers in Area 3A

Year	Rockfish	Lingcod
1996	17,640	5,137
1997	17,036	6,737
1998	16,884	5,070
1999	18,756	5,150
2000	25,690	7,609
2001	28,273	6,813
2002	30,946	5,830
2003	28,415	7,836
2004	41,400	9,576
2005	38,722	11,047

Source: ADF&G, Statewide Harvest Survey.

Effect of alternatives on the groundfish resources: Rockfish and lingcod are species commonly harvested in the sport halibut fishery and managed by ADF&G in State and Federal waters. There are no sport limits set (other than daily bag limits). None of these stocks are assessed in South Central Alaska.

The interaction of halibut catch and harvest of other groundfish species is poorly documented and not well understood. Any discussion of impacts from the proposed alternatives will be highly speculative. Other species taken incidentally in sport charter halibut fisheries include sculpin, arrowtooth flounder and several other flatfishes, spiny dogfish, sleeper shark, salmon shark, and greenling. No sport fish harvest estimates are available for these species for Area 3A. However, the commercial catch limit is set for these species and none of the catches of these species has historically exceeded their respective OFLs. The impact of the alternatives on these species is expected to be insignificant.

1.10.3 Endangered or Threatened Species

The Endangered Species Act of 1973 as amended [16 U.S.C. 1531 et seq; ESA], provides for the conservation of endangered and threatened species of fish, wildlife, and plants. It is administered jointly by NMFS for most marine mammal species, marine and anadromous fish species, and marine plants species and by the U.S. Fish and Wildlife Service (USFWS) for bird species, and terrestrial and freshwater wildlife and plant species.

The designation of an ESA listed species is based on the biological health of that species. The status determination is either threatened or endangered. Threatened species are those likely to become endangered in the foreseeable future [16 U.S.C. § 1532(20)]. Endangered species are those in danger of becoming extinct throughout all or a significant portion of their range [16 U.S.C. § 1532(20)]. Species can be listed as endangered without first being listed as threatened. The Secretary of Commerce, acting through NMFS, is authorized to list marine fish, plants, and mammals (except for walrus and sea otter) and anadromous fish species. The Secretary of the Interior, acting through the U.S. Fish and Wildlife Service (USFWS), is authorized to list walrus and sea otter, seabirds, terrestrial plants and wildlife, and freshwater fish and plant species.

In addition to listing species under the ESA, the critical habitat of a newly listed species must be designated concurrent with its listing to the "maximum extent prudent and determinable" [16 U.S.C. § 1533(b)(1)(A)]. The ESA defines critical habitat as those specific areas that are essential to the conservation of a listed species and that may be in need of special consideration. Federal agencies are prohibited from undertaking actions that destroy or adversely modify designated critical habitat. Some species, primarily the cetaceans, which were listed in 1969 under the Endangered Species Conservation Act and carried forward as endangered under the ESA, have not received critical habitat designations.

After reviewing the current status of the listed species, designated critical habitat, and the potential effects of the halibut fisheries, NMFS Sustainable Fisheries concludes that this fishery off Alaska (which uses gear unlikely to generate bycatch of finfish, seabirds or marine mammals) will not affect ESA-listed species or designated critical habitat, pursuant to Section 7 of the Endangered Species Act. Therefore, the ESA does not require a consultation for this fishery. Halibut do not interact with any listed species and do not comprise a measurable portion of the diet of any listed species nor do any of the species comprise a measurable portion of their diet. No interactions between the charter halibut fisheries and any listed species have been reported. Table 13 identifies the species listed as endangered and threatened under the ESA.

1.10.4 Seabirds

Because halibut fisheries are Federally regulated activities, any negative affects of the fisheries on listed species or critical habitat and any takings[13] that may occur are subject to ESA Section 7 consultation. NOAA Fisheries Service initiates the consultation and the resulting biological opinions are issued to NOAA Fisheries Service. The Council may be invited to participate in the compilation, review, and analysis of data used in the consultations. The determination of whether the action "is likely to jeopardize the continued existence of" endangered or threatened species or to result in the destruction or modification of critical habitat is the responsibility of the appropriate agency (NOAA Fisheries Service or USFWS). If the action is determined to result in jeopardy, the opinion includes reasonable and prudent measures that are necessary to alter the action so that jeopardy is avoided. If an incidental take of a listed

[13] The term "take" under the ESA means "harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect, or attempt to engage in any such conduct" (16 U.S.C. '1538(a)(1)(B).

species is expected to occur under normal promulgation of the action, an incidental take statement is appended to the biological opinion.

Table 13 ESA listed and candidate species that range into the BSAI and GOA groundfish management areas.

Common Name	Scientific Name	ESA Status
Blue Whale	*Balaenoptera musculus*	Endangered
Bowhead Whale	*Balaena mysticetus*	Endangered
Fin Whale	*Balaenoptera physalus*	Endangered
Humpback Whale	*Megaptera novaeangliae*	Endangered
Right Whale[1]	*Balaena glacialis*	Endangered
Sei Whale	*Balaenoptera borealis*	Endangered
Sperm Whale	*Physeter macrocephalus*	Endangered
Steller Sea Lion (Western Population)	*Eumetopias jubatus*	Endangered
Steller Sea Lion (Eastern Population)	*Eumetopias jubatus*	Threatened
Chinook Salmon (Lower Columbia R.)	*Oncorhynchus tshawytscha*	Threatened
Chinook Salmon (Upper Columbia R. Spring)	*Oncorhynchus tshawytscha*	Endangered
Chinook Salmon (Upper Willamette)	*Oncorhynchus tshawytscha*	Threatened
Chinook Salmon (Snake River spring/summer)	*Oncorhynchus tshawytscha*	Threatened
Chum Salmon (Hood Canal Summer run)	*Oncorhynchus keta*	Threatened
Coho Salmon (Lower Columbia R.)	*Oncorhynchus kisutch*	Threatened
Steelhead (Snake River Basin)	*Oncorhynchus mykiss*	Threatened
Steller's Eider [2]	*Polysticta stelleri*	Threatened
Short-tailed Albatross [2]	*Phoebaotria albatrus*	Endangered
Spectacled Eider[2]	*Somateria fishcheri*	Threatened
Kittlitz's Murrelet[2]	*Brachyramphus brevirostris*	Candidate
Northern Sea Otter	*Enhydra lutris*	Threatened
Olive Ridley turtle	*Lepidochelys olivacea*	Threatened/Endangered
Loggerhead turtle	*Caretta caretta*	Threatened
Green turtle	*Chelonia mydas*	Threatened/Endangered
Leatherback sea turtle	*Dermochelys coriacea*	Endangered

[1]NMFS designated critical habitat for the northern right whale on July 6, 2006 (71 FR 38277).

[2] The Steller's eider, short-tailed albatross, spectacled eider, and Northern sea otter are species under the jurisdiction of the USFWS. For the bird species, critical habitat has been established for the Steller's eider (66 FR 8850, February 2, 2001) and for the spectacled eider (66 FR 9146, February 6, 2001). The Kittlitz's murrelet has been proposed as a candidate species by the USFWS (69 FR 24875, May 4, 2004).

In addition to those species listed under the ESA, other seabirds occur in Alaskan waters which may indicate a potential for interaction with halibut fisheries. The most numerous seabirds in Alaska are northern fulmars, storm petrels, kittiwakes, murres, auklets, and puffins. These groups, and others, represent 38 species of seabirds that breed in Alaska. Eight species of Alaska seabirds breed only in Alaska and in Siberia. Populations of five other species are concentrated in Alaska but range throughout the North Pacific region. Marine waters off Alaska provide critical feeding grounds for these species as well as others that do not breed in Alaska but migrate to Alaska during summer, and for other species that breed in Canada or Eurasia and overwinter in Alaska. Additional discussion about seabird life history, predator-prey relationships, and interactions with commercial fisheries can be found in the 2004 FPSEIS. Since charter halibut gear are typically rod-and-reel with a maximum of two hooks, interactions with

seabirds are unlikely. There are no known reported takes of seabirds in charter fisheries off Alaska, based on best available information.

None of the alternatives under consideration would affect the prosecution of the halibut fisheries in a way not previously considered in consultations. The proposed alternatives to the status quo would limit charter halibut removals and any associated bycatch, although seabirds are not a known incidental harvest in this fishery. A likely result of the proposed alternatives is that commercial halibut harvests may increase; this fishery is subject to strict seabird avoidance requirements (http://www.fakr.noaa.gov/protectedresources/seabirds/guide.htm). None of the alternatives would affect takes of listed species and therefore, none of the alternatives are expected to have a significant impact on endangered or threatened species.

Short-tailed albatross. In 1997, NOAA Fisheries Service initiated a Section 7 consultation with USFWS on the effects of the halibut fishery off Alaska on the short-tailed albatross. USFWS issued a Biological Opinion in 1998 that concluded that the halibut fishery off Alaska was not likely to jeopardize the continued existence of the short-tailed albatross (USFWS, 1998). USFWS also issued an Incidental Take Statement of two short-tailed albatross in two years (1998 and 1999), reflecting what the agency anticipated the incidental take could be from the fishery action. No other seabirds interact with the halibut fisheries. Under the authority of ESA, USFWS identified non-discretionary reasonable and prudent measures that NOAA Fisheries Service must implement to minimize the impacts of any incidental take.

1.10.5 Marine Mammals

The charter halibut fishery in the EEZ of Alaska is classified as Category III fishery under the Marine Mammal Protection Act. A fishery that interacts only with non-strategic stocks and whose level of take has insignificant impact on the stocks is placed in Category III. No takes of marine mammals by the charter halibut fishery off Alaska have been reported; therefore, none of the alternatives is expected to have a significant impact on marine mammals.

1.10.6 Biodiversity and the Ecosystem

Halibut is one of four groundfish, in terms of biomass as measured by the trawl surveys, which dominate the Gulf of Alaska ecosystem (S. Gaichas, pers. comm.). The others include arrowtooth flounder, walleye pollock, and Pacific cod (in order of importance). Halibut is an apex predator in the GOA, and appears to be dependent on pollock stocks as pollock comprised over half of adult halibut's diet composition measured in the early 1990s. Most mortality on halibut is from fishing because they have few natural predators, especially as adults.

Halibut harvests by the charter fishery as well as all other fishery harvests, removes predators, prey, or competitors and thus could conceivably alter predator-prey relationships *relative to an unfished system*. Studies from other ecosystems have been conducted to determine whether predators were controlling prey populations and whether fishing down predators produced a corresponding increase in prey. Similarly, the examination of fishing effects on prey populations has been conducted to evaluate impacts on predators. Finally, fishing down of competitors has the potential to produce species replacements in trophic guilds. Evidence from other ecosystems presents mixed results about the possible importance of fishing in causing population changes of the fished species' prey, predators, or competitors. Some studies showed a relationship, while others showed that the changes were more likely due to direct environmental influences on the prey, predator, or competitor species rather than a food web effect. Fishing does have the potential to impact food webs but each ecosystem must be examined to determine how important it is for that ecosystem.

Little research has been conducted on the specific trophic interactions of halibut. With trophic interactions and inter-specific competition so poorly understood, it is not possible to clearly specify the effects to the ecosystem of the charter halibut fishery. However, given the nature of the action, the presumed effects of the alternatives on the ecosystem are insignificant.

1.10.7 Social and Economic Environment

A description of the charter halibut fishery and detailed discussions of the socioeconomic impacts of the alternatives may be found in the RIR in Chapter 7. Chapter 8 contains an IRFA, conducted to evaluate the impacts of the suite of potential alternatives being considered, including the alternatives, on small entities, in accordance with the provisions of the RFA.

1.11 Cumulative Effects

Effects of an action can be direct or indirect. According to the definition in the Council on Environmental Quality (CEQ) regulations (40CFR1500.1) providing guidance on NEPA, direct effects are caused by the action and occur at the same time and place, while indirect effects are those caused by the action and occur later in time or farther removed in distance, but are still reasonably foreseeable. Although the CEQ regulations draw this distinction between direct and indirect effects, legally both must be considered equally in determining significance. In practice, according to "The NEPA Book" (Bass et al. 2001, p. 55), "the distinction between a reasonably foreseeable effect and a remote and speculative effect is more important than the question of whether an impact is considered direct or indirect."

The alternatives under consideration in this EA are designed to limit halibut harvests in the charter fishery to the GHL. Any direct effects or reasonably foreseeable indirect environmental effects from the action would be minor, as explained in the EA. The action itself would not entail changes in stock levels, and any environmental effects, such as the removal of halibut biomass from the ecosystem, are so minor as to make it difficult to reasonably predict further indirect effects of those changes.

Possible future actions currently under consideration by the Council include annual changes to the GHL policy, limited entry, an allocation (rather than a GHL) to the charter sector, and the development of a share-based allocation program to individual charter operators or to the charter sector. ADF&G has implemented regulations in Area 3A in 2006 and 2007 to prohibit retention of crew caught fish and to limit the lines to the number of paying passengers. The state legislature passed a bill in 2007 to allow the state to share otherwise confidential charter boat fishery data with Federal managers, which would facilitate implementation of the limited entry (moratorium) program and GHL management measures (e.g., annual limit). A delegation of authority to the state to manage halibut is being sought by the State of Alaska.

Cumulative effects are linked to incremental policy changes that individually may have small outcomes, but that in the aggregate and in combination with other factors can result in major resource trends. This action would not interact synergistically with other actions or with natural trends to significantly affect the halibut resource of the Gulf of Alaska. Measures intended to regulate the harvests of halibut under the proposed alternatives would supersede current regulations for 2008 and beyond. The nature of future Council actions on allocations, compensated reallocation, permit endorsements and/or share-based systems is speculative. Thus, no reasonably foreseeable future actions would have impacts that would cause significant cumulative effects when combined with the effects from this action.

2.0 REGULATORY IMPACT REVIEW

2.1 Introduction

The Council developed the following suite of alternatives to reduce harvest for anglers fishing from a charter vessel in regulatory Area 3A.

Alternative 1. No action. Maintain the existing 2007 Status Quo management structure.

Alternative 2. Implement one or more measures to restrict charter halibut harvest to the Area 3A GHL

Option 1. No more than one trip per charter vessel per day.

Option 2. i. No harvest by skipper or crew while clients are on board; and/or

ii. Line limits not to exceed the number of paying clients on board.

Option 3. Annual limits of four, five, or six halibut, per angler, caught from a charter vessel fishing in Area 3A.

Option 4. Reduced bag limits of one fish per day in May, June, July, August, or the entire season

Option 5. A two-fish bag limit with the one fish of any size and one fish larger than 45 inches or 50 inches

Option 6. A two-fish bag limit with one fish of any size and one fish 32, 34 or 36 inches in length

Option 7. A two-fish bag limit with one fish of any size and one fish 32 inches or less in length or larger than 45 inches or 50 inches

2.2 Purpose of the Regulatory Impact Review

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

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

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

- Have an annual effect on the economy of $100 million or more or adversely affect in a material way the economy, a sector of the economy, productivity, competition, jobs, local or tribal governments or communities;
- Create a serious inconsistency or otherwise interfere with an action taken or planned by another agency;

- Materially alter the budgetary impact of entitlements, grants, user fees, or loan programs or the rights and obligations of recipients thereof; or
- Raise novel legal or policy issues arising out of legal mandates, the President's priorities, or the principles set forth in this Executive Order.

The key elements of a RIR include:

- A description of the management objectives (Section 1.4);
- A description of the fishery (Section 2.3);
- A statement of the problem (Section 2.4);
- A description of each alternative, including the status quo (Section 2.6); and
- An economic analysis of the expected effects of each selected alternative relative to the baseline (Section 2.7).

In addition, this document includes an analysis of the effect of each alternative management option (Section 2.6), a Regulatory Flexibility Analysis (Section 0), and a discussion of other applicable laws (Section 4.0).

2.3 Description of the Fishery

The charter fleet is a fairly homogeneous group with similar operating characteristics and vessel sizes. The exceptions are a few larger, 'headboat' style vessels specializing in overnight experiences, or larger vessels specializing in carrying more than a dozen passengers (NPFMC 2005). Halibut fishing practices are described at http://www.sf.adfg.state.ak.us/statewide/halibut.cfm#manage.

2.4 Statement of the Problem

The purpose of the proposed action is to reduce charter halibut harvests in Area 3A to its GHL of 3.65 Mlb. The GHL is intended to stop the reallocation from the commercial sector to the charter sector. In addition to the no action alternative, the Council is considering seven options under Alternative 2 to reduce halibut harvests to its GHL. Charter halibut harvests in Area 3A have grown at an annualized growth rate of 3.0 percent over the past 11 years and 4.7 percent since 2000. While charter harvests rose and fell from year to year between 1995 and 2002, the sector has seen upward growth since that time.

As shown by Table 14 and Figure 9, charter pressure (as measured by the number of active vessels, total number of active trips, total number of clients, average number of clients per trip, and average number of trips per vessel) increased in the last several years, but the fleet is at the same levels of effort and capacity that it exhibited in 2000 and 2001 by many measures. The total number of trips, vessels, and client days are roughly comparable, while the average number of clients per trip and the average trips per vessel has fallen. It remains to be seen if the industry is in a long-term growth phase or a cyclical bubble such as occurred in 1999, 2000, and 2001. The declining number of trips per vessel in a year supports the idea of a cyclical bubble. The decline in average trips per vessel led the decline in average clients per trip and client days in the 1999-2001 cycle. If the average annual number of trips per vessel is a leading indicator, then other indicators of effort may fall in the coming years.

Harvest increased 7 percent harvest increase between 2005 and 2006, while the average harvest weight, the number of trips and the number of client days only rose by 3.0 percent, 3.1 percent and 5.9 percent, respectively.

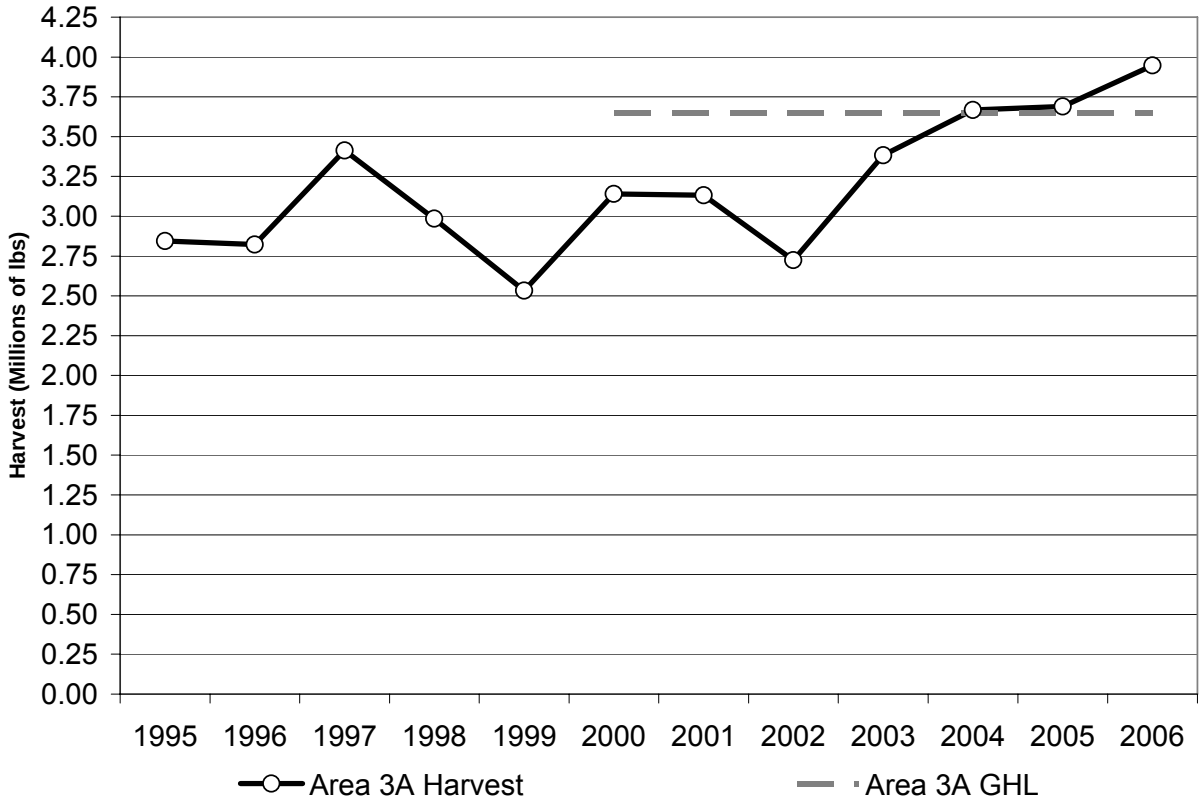

Figure 8 Charter Fleet Halibut Harvests by Year

Source: ADF&G, Statewide Harvest Survey Data 1995-2006, 2007.

Table 14 Effort in the Area 3A Charter Halibut Fishery, 1998-2006

Year	Number of "active" vessels	Total Number of Trips Conducted by "active" vessels	Total Number of Clients	Average Clients Per Trip	Average Trips Per Vessel
1998	503	17,650	94,611	5.4	35.1
1999	545	19,823	89,449	4.5	36.4
2000	570	25,180	132,604	5.3	44.2
2001	560	23,818	132,306	5.6	42.5
2002	491	18,573	91,092	4.9	37.8
2003	499	18,592	90,178	4.9	37.3
2004	532	22,600	116,670	5.2	42.5
2005	559	22,708	130,716	5.8	40.6
2006	625	23,427	138,465	5.9	37.5

Source: NEI Estimates based on Alaska Department of Fish and Game 2006 Logbook Data, 2007.

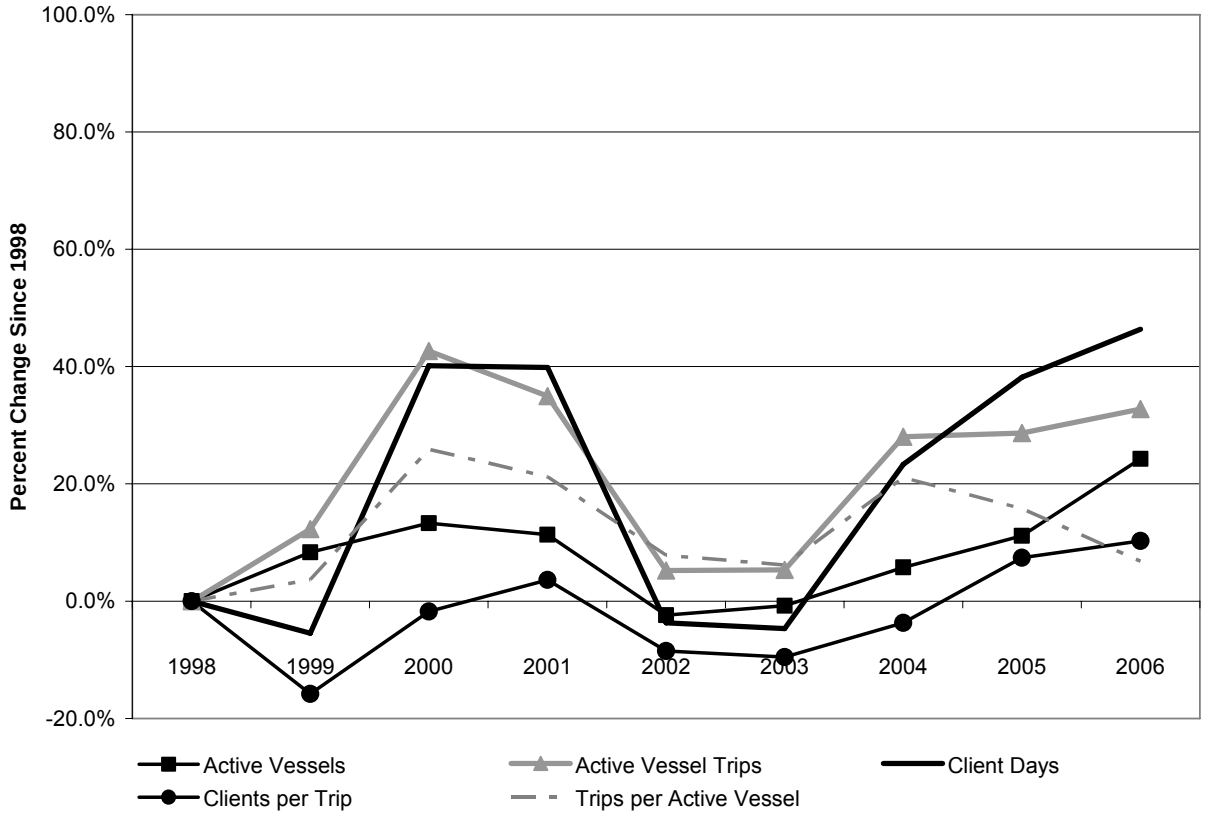

Figure 9 Area 3A Charter Fleet and Effort Growth, 1998-2006

Source: NEI Estimates based on Alaska Department of Fish and Game 2006 Logbook Data, 2007.

2.5 Baseline Analytical Data

Baseline data for this analysis derived from the ADF&G Logbook Program and the Statewide Harvest Survey (SWHS) Program. This analysis differs from recent analyses of GHL management options in that ADF&G 2006 logbooks directly record halibut catch, harvest, and effort for the first time in several years. This change allows for improved estimation of effects, but also means that estimates for some options prior to 2006 are not directly comparable to these 2006 estimates. Estimating the effect of options on years prior to 2006 would have required using two estimation methods, and time did not allow this approach. Also, the analysis includes key informant interviews with a number of charter participants in Area 3A.

The number and total weight of charter harvested halibut increased in Area 3A between 1995 and 2006. Table 15 shows estimated halibut harvest (number of fish, average net weight, and biomass) by charter anglers. This information represents a combination of total estimated halibut harvest obtained from the SWHS and on-site catch or creel sampling programs conducted in Area 3A. While the year to year halibut harvest and rate of change in the harvest are highly variable, the 2006 Area 3A harvest (including crew and skipper harvest) is now at 108.1 percent of the 3.65 Mlb GHL implemented in 2004. ADF&G logbook data estimate that crew harvest approximately 10.6 percent of the total reported harvest, while client harvest comprises the remainder. At these ratios, 2006 client harvest stood at an estimated 96.7 percent of the GHL assuming that crew reported the same amount of harvest in both logbooks and SWHS booklets.

Table 15 Charter Halibut Harvest, 1995-2006

Year	Area 3A			
	Charter-Harvested Halibut	Average Net Weight (lb) per Halibut	Total Charter Halibut Harvest (Mlb)	Rate of Change from Previous Year[14]
1995	137,843	20.6	2.845	
1996	142,957	19.7	2.822	-0.8%
1997	152,856	22.3	3.413	20.9%
1998	143,368	20.8	2.985	-12.5%
1999	131,726	19.2	2.533	-15.1%
2000	159,609	19.7	3.140	24.0%
2001	163,349	19.2	3.132	-0.3%
2002	149,608	18.2	2.724	-13.0%
2003	163,629	20.7	3.382	24.2%
2004	197,208	18.6	3.668	8.5%
2005	206,902	17.8	3.689	0.6%
2006	216,553	18.2	3.947	7.0%
5-Year Average	191,926	18.71	3.576	4.7%[15]

Source: ADF&G, Statewide Harvest Survey Data 1995-2006.

ADF&G provided logbook estimates for the number of total "active" vessels, total trips conducted by "active" vessels, number of bottomfish trips per season, per "active" vessel (in total), along with a summary of the total number of additional trips within one day conducted by "active" vessels in Area 3A (Table 16).[16] For data prior to 2006, all data are for bottomfish-targeted trips only and if a charter operator reported more than one trip per day, both trips had to be targeted at bottom fishing in order for the second trip in a day to be used for the summary below.[17] The 2006 logbook allowed ADF&G to count the number of second day trips where halibut was actually harvested.

ADF&G provided data on the frequency of "second trips" for halibut. Overall, the portion of harvest has increased between 3.0 to 4.4 percent for data collected in 1998, 2000, and 2001, and between 5.5 and 6.3 percent in 2006 (Table 17).

An improvement attributable to the updated 2006 logbooks is the ability of ADF&G to directly count the annual number of halibut caught by anglers while on charter trips. The inclusion of angler license numbers in logbooks makes this direct accounting method possible (Table 18). Prior documents, such as NPFMC (2006), relied on estimates based on Statewide Harvest Survey data. These data show that 79 percent of 3A anglers harvested two or fewer fish in 2006.

[14] This column added by Northern Economics, Inc.

[15] The eleven year (long-term) growth rate is 4.1 percent per year.

[16] An active vessel is defined as a vessel which recorded at least one trip per year with bottomfish harvesting effort.

[17] In 1999 a supplemental log sheet was to be used by charter operators when reporting additional trips within a day. However, the rate of reporting second trips in a day was substantially below the rates observed for all other years (1998, 2000-2004) in which the second trip within the day was reported on the main log sheet for the day. Accordingly, information on multi-trips within a day is not reported for 1999.

Table 16 Logbook Estimates of Second Trips per Day for Halibut in Area 3A, 1998-2006.

Year	Number of "active" vessels	Total Number of Trips Conducted by "active" vessels	Total Number of Trips after the 1st Trip within a Day	Second Trips as a % of Total Trips	Total Number of Vessels that made more than 1 Trip per Day	Portion of All Vessels taking a Second Trip
1998	503	17,650	466	2.6%	100	19.9%
1999	545	19,823	No Data	No Data	No Data	No Data
2000	570	25,180	893	3.5%	145	25.4%
2001	560	23,818	834	3.5%	115	20.5%
2002	491	18,573	631	3.4%	95	19.3%
2003	499	18,592	700	3.8%	118	23.6%
2004	532	22,600	1,078	4.8%	115	21.6%
2005	559	22,708	1,089	4.8%	185	33.1%
2006	625	23,427	1,142	4.9%	258	41.3%

Source: Alaska Department of Fish and Game 1998-2006 Logbook Data, 2007.

Table 17 Proportion of Harvest Occurring in Vessel Trips Beyond One Trip per Day

Year	*Minimum* occurring in trips beyond the 1st trip in a day	*Average* occurring in trips beyond the 1st trip in a day
Older Logbook Data		
1998	3.0%	3.5%
2000	3.1%	3.6%
2001	3.8%	4.4%
2006 Logbook Data		
2006	5.5%	6.3%

Source: Alaska Department of Fish and Game 1998, 2000, 2001 and 2006 Logbook Data, 2007.

Table 18 Charter Harvest Level Estimates per Angler in Area 3A, 1996-2004

Pacific Halibut Harvested per Angler per Year	Percentage of Harvest Saved by a n^{th} fish limit- All Anglers	Percentage of Harvest Saved by a n^{th} fish limit- Clients Only
1	63.81%	59.81%
2	30.32%	22.62%
3	22.37%	14.10%
4	15.29%	6.54%
5	12.85%	4.14%
6	10.74%	2.11%
7	9.81%	1.36%
8	9.01%	0.76%
9	8.54%	0.51%

Source: Alaska Department of Fish and Game 2006 Logbook Data, 2007.

ADF&G analyzed 2006 logbook and port sampling data of angler harvests for analysis of Option 4, which would reduce the charter bag limit to one fish. The data distinguish between the "first fish" and "second fish" in a bag limit. Overall, "second fish" account for 47.1 percent of the overall harvest (Table 19).

Table 19 "Second" Fish as Portion of Area 3A Charter Angler Harvests, 2006

Month	Distribution of Total Harvest	Second Fish % of total
Jan	0.0%	0.00%
Feb	0.0%	0.00%
Mar	0.0%	0.0%
Apr	0.4%	0.2%
May	10.5%	5.0%
Jun	26.0%	12.4%
Jul	37.7%	17.8%
Aug	21.2%	9.9%
Sep	4.0%	1.8%
Oct	0.1%	0.0%
Nov	0.0%	0.0%
Dec	0.0%	0.0%
Total	100.0%	47.1%

Source: Alaska Department of Fish and Game 2006 Logbook and Port Sampling Data, 2007.

2.6 Analysis

This section contains a discussion of the individual effects of the proposed options under Alternative 2. The effect of the management options on communities is located in Section 2.7.

This analysis represents a departure from some prior analyses in that the 2006 logbook data provide enhanced information on angler effort and catch. For this reason, the analysis only provides estimates of the effect of the management options as if the options were in place in 2006. Prior analyses provided estimates of the effect over a number of years. However, because of the availability of 2006 charter halibut logbook data, that would have required two separate analyses for each management option. While viewing the effect of the options over several years would be useful, the expedited nature of the analysis did not allow enough time for ADF&G to produce two sets of data for the analysis. The approach used in this analysis was accepted by the Council for use in the Area 2C GHL analysis (NPFMC 2007).

2.6.1 Option 1 – No More than One Trip per Vessel per Day

Option 1 would limit charter operators to one trip per vessel per day. A prior analysis estimated that this option would have reduced overall harvest between 3.0 and 4.4 percent in Area 3A (NPFMC, 2006). However, that analysis depended on logbook data from 1999, 2000, and 2001 to determine the portion of harvest that came from second trips of the day. The re-initiation of halibut logbook data in 2006 has simplified this analysis and shows that the number of "second trips" in a day increased considerably in 2005 and 2006 in Area 3A and that a greater portion of the charter fleet is using this business model at least in part. As shown in Table 20, the number of "second trips" per day nearly tripled between 1998 and 2006 even though the overall number of trips is up by just under one third. As a portion of trips, second trips of the day are still a relatively small portion of overall effort, but that portion has consistently increased from a low of 2.6 percent in 1998 to 4.9 percent in 2006. The portion of vessels that took at least one "second trip" for halibut during a year has increased from 19.9 percent of vessels in 1998 to 41.3 percent of vessels in 2006. However, given that only 4.9 percent of trips qualified as second trips, it would seem that the portion of vessels specializing in targeting halibut more than once in a day is still relatively small. The Council rejected this option for application in Area 2C, in part, because it would have had a disproportionate economic impact on a few businesses.

Table 20 Logbook Estimates of Second Trips per Day for Halibut

Year	Number of "active" vessels	Total Number of Trips Conducted by "active" vessels	Total Number of Trips after the 1st Trip within a Day	Second Trips as a % of Total Trips	Total Number of Vessels that made more than 1 Trip per Day	Portion of All Vessels taking a Second Trip
1998	503	17,650	466	2.6%	100	19.9%
1999	545	19,823	No Data	No Data	No Data	No Data
2000	570	25,180	893	3.5%	145	25.4%
2001	560	23,818	834	3.5%	115	20.5%
2002	491	18,573	631	3.4%	95	19.3%
2003	499	18,592	700	3.8%	118	23.6%
2004	532	22,600	1,078	4.8%	115	21.6%
2005	559	22,708	1,089	4.8%	185	33.1%
2006	625	23,427	1,142	4.9%	258	41.3%

Source: Alaska Department of Fish and Game 1998-2006 Logbook Data, 2007.

ADF&G estimates that harvest from "second trips" accounts for between 5.5 percent and 6.3 percent of total harvest in 2006, equivalent to a range of 217,000 lb and 247,000 lb. The analysis adjusts these data for the status quo, which includes an emergency order banning retention of saltwater species by skipper and crew while serving on an active charter vessel. In combination, these measures would have reduced 2006 harvest to a range between 91.4 percent and 90.6 percent of the GHL. As noted in NPFMC (2006), a portion of displaced anglers are likely to find replacement trips. Thus, the estimated reductions likely overstate actual reductions that would result from this option.

Table 21 Estimated Harvest Reductions from Limiting Vessels to One Trip per Day, 2006

Estimate Level	Effect of One Trip per Day under 2006 Status Quo		Adjusted for 2007 Status Quo		
	Harvest Reduction (Mlb)	Harvest Reduction (%)	Combined Harvest Reduction (Mlb)	Estimated Harvest (Mlb)	As a Portion of the 3.650 Mlb GHL (%)
Lower Estimated	0.217	5.5%	0.613	3.334	91.4%
Upper Estimate	0.247	6.3%	0.640	3.307	90.6%

Source: NEI Estimates based on Alaska Department of Fish and Game 2006 Logbook Data, 2007.

While growth is linked to the number of client days, it can be accommodated in different ways by the industry; these include growth in the number of active vessels, the average number of clients per trip, or by more trips per vessel. Effort statistics for Area 3A show that recent growth is being accommodated by an increasing number of vessels carrying more passengers per trip. At the same time, the average number of trips per vessel declined by more than 10 percent between 2004 and 2006. Thus, on average, charter operators are making fewer trips at higher capacity, rather than making more trips. An increasing number of vessels and a declining average number of trips per vessel indicate the potential for increasing levels of latent capacity. Additionally, there are an increasing number of marginal participants who take relatively few trips; these may be eliminated from the fishery upon implementation of the charter halibut limited entry program. While the total number of vessels increased by 17 percent between 2004 and 2006, the total number of trips increased by only 3 percent during the same time. Thus, active boats became more crowded while marginal or new players took relatively few trips.

Table 22 Effort Statistics for Area 3A, 1998-2006

Year	Number of "active" vessels	Total Number of Trips Conducted by "active" vessels	Total Number of Client Days	Average Clients Per Trip	Average Trips Per Vessel
1998	503	17,650	94,611	5.4	35.1
1999	545	19,823	89,449	4.5	36.4
2000	570	25,180	132,604	5.3	44.2
2001	560	23,818	132,306	5.6	42.5
2002	491	18,573	91,092	4.9	37.8
2003	499	18,592	90,178	4.9	37.3
2004	532	22,600	116,670	5.2	42.5
2005	559	22,708	130,716	5.8	40.6
2006	625	23,427	138,465	5.9	37.5

Source: NEI Estimates based on Alaska Department of Fish and Game 2006 Logbook Data, 2007.

2.6.2 Option 2 – No Harvest by Skipper and Crew and Line Limits

Option 2 would ban harvest by skipper and crew while guiding paying clients and would implement line limits equal to the number of paying clients. This option would have the same effect as the status quo for 2007, except that these two measures would be implemented in Federal regulations. A Federal ban would allow ADF&G to lift the blanket possession ban for all species caught on saltwater trips and for state line limits on all saltwater charter fish and provide a greater sense of permanence to the restrictions, but would not result in additional reductions beyond that achieved by the state ban. NPFMC (2006) estimated that this option would reduce overall harvest by 7.7 and 10.5 percent in Area 3A and noted an increasing trend between 1998 and 2002. This analysis estimates that it would have reduced harvest in 2006 by 10.6 percent (418,000 lb) to 96.7 percent of the GHL. This number assumes that skipper and crew accurately report their harvest during the SWHS. Interviews for this analysis and NPFMC (2006) indicated notable support for this measure.

2.6.3 Option 3 –Annual Limit of Four, Five, or Six Fish per Angler

Option 3 would establish a four, five, or six fish annual limit on the number of halibut an individual could harvest while on charter trips in Area 3A. A high portion of the reductions that might have been expected if an annual limit had been in place in 2006 will actually be saved through the application of the skipper and crew ban as skipper and crew are the predominant "multi-fish harvesters" in Area 3A. For example, the four-fish annual limit would save 15.3 percent of 2006 harvest, but only 6.6 percent (or 43 percent of expected reductions) from clients only (Table 23).

Table 23 Effect of an Annual Limit on Charter sector Halibut Harvest in Area 3A

Measure	Harvest Reduction Expected	Percentage Points Attributable to Crew	Percentage Points Attributable to Clients
Four Fish	15.3%	8.7%	6.6%
Five Fish	12.9%	8.7%	4.2%
Six Fish	10.7%	8.6%	2.1%

Source: Northern Economics, Inc. estimates based Alaska Department of Fish & Game Logbook Data, 2007.

Table 24 shows estimated reductions in harvest associated with Option 3. The six-fish annual limit would have reduced harvest to approximately 94.4 percent of the GHL (a 502,000 pound), a five-fish annual limit would have reduced harvest to roughly 92.2 percent of the GHL (582,000 lb reduction), and a four-fish annual limit would have reduced 2006 harvest to 89.6 percent of the GHL (a 676,000 lb reduction). However, much of these reductions are attributable to the ban on skipper and crew harvesting halibut while on charter trips. Skipper and crew account for the vast majority of the "multi-fish" harvest. The

analysis does not expect significant reductions in growth rates or participation as only 5 percent of anglers harvested five fish or more in Area 3A in 2006.[18]

Table 24 Effect of an Annual Limit on Charter Halibut Harvest in Area 3A

Estimate Level	Adjusted for 2007 Status Quo		
	Combined Harvest Reduction (Mlb)	Harvest (Mlb)	As a Portion of the 3.650 Mlb GHL (%)
Four Fish	0.676	3.271	89.6%
Five Fish	0.582	3.365	92.2%
Six Fish	0.502	3.445	94.4%

Source: Northern Economics, Inc. estimates based Alaska Department of Fish & Game Logbook Data, 2007.

2.6.4 Option 4 –Reduced Bag Limits of One Fish per Day in May, June, July, or August, or the Entire Season

Table 25 summarizes the estimated effect of Option 4.[19] While some one month bag limits would likely reduce harvest levels to below the GHL, the analysis is not able to account for anglers switching from a month with a reduced bag limit to a month without a reduced bag limit. Over the long run, anglers who change the timing of their trips to account for bag limit changes *will erode the reductions from these options*. Thus, the estimates for single-month bag limits are viewed as *maximum estimates of the short-term effect of this management sub-option.* In 2006, Area 3A harvests were approximately 108.1 percent of the area GHL including skipper and crew harvest. Instituting a season-long, one-fish bag limit would reduce harvests to approximately 51.2 percent of the area GHL without any demand effects. A 30 percent demand reduction, the upper level predicted by both peer-reviewed literature and key informant interviews would result in harvest equivalent to 35.8 percent of the current GHL.

The effectiveness of Option 4 is likely to be affected by a number factors including:

- potential changes in average fish size through changes in angler behavior
- changes in demand for halibut charter trips
- potential changes in discards

The ability to account for each of these factors varies greatly. The analysis is unable to account for effects stemming from changes in angler behavior such as increase in average harvest rate or increase in catch per unit effort. It can account for some of the mortality effects of a bag limit reduction and can also account for the effect of reduced demand. As noted in NPFMC (2006), peer-reviewed literature and key informant interviews both seem to indicate the potential for demand reductions. However, the magnitude of those demand reductions is unclear. The analysis reports a predicted maximum of 30 percent, but the actual effect could be higher or lower.

[18] This data shows a fundamental difference between Area 3A and Area 2C charter halibut fisheries. In Area 2C more than 10 percent of clients harvested five or more fish in 2006.

[19] Note that the analysis used the overall length composition for 2006, effectively assuming the same length composition each month, when in fact they were likely different.

Table 25 Effect of a One-Fish Bag Limit Accounting for the Reduced Participation

Sub-Option	Reduction	Effect of Option 4		Adjusted for 2007 Status Quo		
		Harvest Reduction (Mlb)	Harvest Reduction (%)	Combined Harvest Reduction (Mlb)	Harvest (Mlb)	As a Portion of the 3.650 Mlb GHL (%)
May	No Reduction	0.175	5.0%	0.593	3.354	91.9%
	30%Reduction	0.234	6.6%	0.652	3.295	90.3%
June	No Reduction	0.437	12.4%	0.855	3.092	84.7%
	30%Reduction	0.584	16.5%	1.002	2.945	80.7%
July	No Reduction	0.628	17.8%	1.046	2.901	79.5%
	30%Reduction	0.840	23.8%	1.258	2.689	73.7%
August	No Reduction	0.348	9.9%	0.766	3.181	87.1%
	30%Reduction	0.465	13.2%	0.884	3.063	83.9%
September	No Reduction	0.064	1.8%	0.482	3.465	94.9%
	30%Reduction	0.107	3.0%	0.525	3.422	93.7%
Entire Season	No Reduction	1.661	47.1%	2.079	1.868	51.2%
	30%Reduction	2.221	62.9%	2.639	1.308	35.8%

Source: NEI Estimates based on Alaska Department of Fish and Game 2006 Logbook Data, 2007.

2.6.5 Option 5 – A Two-Fish Bag Limit with One Fish of any Size and One Fish Larger than 45 inches or 50 inches

Option 5 would establish a two-fish bag limit with one fish of any size and one fish equal to or larger than 45 or 50 inches depending on the sub-option. These options result in a high levels of reductions especially when considered in combination with the ADF&G ban on skipper and crew harvest. Both of the sub-options would reduce harvest to a level below the GHL without the assumption of some corresponding reduction in demand for trips. ADF&G estimates that the 45-inch sub-option would reduce harvest to approximately 62.3 percent of the GHL while the 50-inch sub-option would reduce harvest to 57.5 percent of the GHL. If a ten percent demand reduction takes place harvest would have been reduced to 54.9 percent and 50.6 percent, respectively. A ten percent demand reduction means the change must not only reduce demand by ten percent, but also effectively eliminated any growth in the industry which has been growing at 4 to 7 percent per year. ADF&G data indicated that more than 90 percent of the halibut harvested in Area 3A in 2006 were smaller than the sub-option lengths. IPHC data also show that fish 45" and larger are less than ten percent of the population. These data would indicate that fish above 45" are relatively rare and the limit could effectively result in a one-fish bag limit; particularly in areas where these fish are rarer than area wide measurements would suggest. In these areas demand reductions could be much higher than area wide effects.

Table 26 Expected Effect of a Second Fish of a Minimum Size

Sub-Option	Demand Reduction	Effect of Option 5		Adjusted for 2007 Status Quo		
		Harvest Reduction (Mlb)	Harvest Reduction (%)	Combined Harvest Reduction (Mlb)	Harvest (Mlb)	As a Portion of the 3.650 Mlb GHL (%)
45	No Reduction	1.254	31.8%	1.673	2.274	62.3%
	10% Demand Reduction	1.524	38.6%	1.942	2.005	54.9%
50	No Reduction	1.431	36.3%	1.850	2.097	57.5%
	10% Demand Reduction	1.683	42.6%	2.101	1.846	50.6%

Source: Northern Economics, Inc. estimates based on ADF&G data (2007).

2.6.6 Option 6 – A Two-Fish Bag Limit with One Fish of any Size and one Fish 32, 34 or 36 Inches in Length

Option 6 would allow a two-fish daily bag limit with one fish of any size and one fish equal to or less than 32, 34, or 36 inches in length. This option is similar to current regulation for Area 2C, which took effect on June 1, 2007. That rule allows anglers in Area 2C to retain one fish of any size and one fish equal to or less than 32 inches in length. ADF&G staff estimated that the a maximum size on the second fish would reduce the average weight of the second fish from 18.2 lbs to 8.6 lbs, 9.9 lbs, and 11.0 lbs for the 32-inch, 34-inch, and 36-inch sub-options, respectively. This estimation technique assumes that an angler's second fish is equal to the average fish under the respective length limit. One way in which anglers can lower the effectiveness of this option is to keep the largest fish possible under the limit. There is ample opportunity for this behavior in Area 3A, as IPHC surveys indicate that 68 percent of the halibut population is below 36 inches, 38 percent of the population is between 30 inches and 36 inches, and catch rates are relatively high for anglers catching at least one fish. Table 27 shows how "high grading" will lower the efficacy of this alternative. Under the 32-inch limit, the average fish below 32 inches measures 8.6 lb and would measure roughly 29 inches. If anglers succeed in harvesting nearly all 32-inch fish, the efficacy of the measure would be reduced to 75.1 percent of the estimated effect. Under the 36-inch limit the average fish would weigh approximately 11 lb and measure 32 inches. If anglers succeed in harvesting an average of a 34-inch fish instead of a 32-inch fish, the efficacy of the measure would be reduced to 67.6 percent of the original estimate.

Table 27 Effect of High Grading

Length (in)	Mean Weight (lb)	Regulation Length and Mean Weight		
		32"	34"	36"
		8.6	9.9	11.0
30	9.0	96.2%	111.0%	127.4%
32	11.0	75.1%	86.7%	99.5%
34	13.3	N/A	58.9%	67.6%
36	16.0	N/A	N/A	31.3%

Source: NEI Estimates based on Alaska Department of Fish and Game 2006 Logbook Data, 2007.

The analysis accounts for this potential high grading behavior by taking ADF&G's original estimates as the upper limit estimate of the measure's efficacy and creates a lower level estimate of efficacy by assuming that anglers will increase the average fish size caught under this option by 2 inches. The option could be more effective than the upper limit, if it results in significant demand reductions. However, this seems unlikely at high minimum lengths. The option could be less effective than predicted if anglers are more successful at high grading, or if anglers maximize their annual harvest weights by taking more trips in which they harvest one larger fish per trip and keep the total number of fish harvested annually at the same level as before.

All three sub-options would reduce harvest to a level below the GHL when the combined effect of the state's ban on skipper and crew harvest are added together with the effects of this option. The 32-inch limit would reduce harvest to between 69.8 percent and 76.4 percent of the GHL. The 34-inch limit would reduce harvest between 73.3 percent and 79.7 percent of the GHL, while the 36-inch limit would reduce harvest between 76.3 percent and 82.9 percent of the GHL (Table 28). If anglers are not successful at high grading, then the associated harvest reductions will be nearer the upper limit than the lower limit.

Table 28 Expected Effect of a Two-Fish Bag Limit with One Fish of Any Size and One Fish 32, 34 or 36 Inches in Length

Sub-Option	Estimate Level	Annual Limit		Adjusted for 2007 Status Quo		
		Harvest Reduction (Mlb)	Harvest Reduction (%)	Combined Harvest Reduction (Mlb)	Harvest (Mlb)	As a Portion of the 3.650 Mlb GHL (%)
32"	Lower[20]	0.738	20.2%	1.157	2.790	76.4%
	Upper[21]	0.983	26.9%	1.401	2.546	69.8%
34"	Lower	0.620	17.0%	1.038	2.909	79.7%
	Upper	0.852	23.3%	1.270	2.677	73.3%
36"	Lower	0.501	13.7%	0.920	3.027	82.9%
	Upper	0.742	20.3%	1.160	2.787	76.3%

Source: NEI Estimates based on Alaska Department of Fish and Game 2006 Logbook Data, 2007.

2.6.7 Option 7 – A Two-Fish Bag Limit with One Fish of any Size and One Fish 32 Inches or Less in Length or Larger than 45 Inches or 50 Inches

Option 7 would create a reverse slot limit on the second fish within an angler's daily bag limit. The angler could keep a second fish if the fish were 32 inches or less in length or if the fish were either 45 inches or longer in length or 50 inches or longer in length, depending on the sub-option. As was the result when this option was analyzed for Area 2C (NPFMC 2007), the reverse slot limit is likely to increase harvested biomass as some relatively small fish near 32 inches will likely be replaced by much heavier fish above 45 inches or 50 inches. The analysis assumes that catch rates remain the same and that "in-slot" fish would be replaced by fish smaller or larger than the slot size, at the same ratio equivalent to those found in 2006 harvest data.[22] The particular combination of 32-inch/45-inch reverse slot limit would result in an increase of average harvest weight to 21.0 lb, compared to the 2006 average harvest weight of 18.2 lb and an increase in total harvest weight of 283,000 lb. The 32/50-inch reverse slot also results in an estimated increase in harvest weight of 61,000 lb. Hence, neither suboption would assist the Council in addressing the issues outlined in the problem statement.

2.7 Economic and Socioeconomic Impacts of Alternatives

At its February 2007 meeting, the Scientific and Statistical Committee (SSC), referencing the March 2006 EA/RIR/IRFA on options to limit charter halibut harvest in both Area 2C and Area 3A, noted that the discussion of the potential impact and efficacy of the options should reflect an anticipation that halibut sportfishing charter service providers and their clients will respond strategically to those proposed management changes. For example, the SSC noted that it should be anticipated that some anglers will substitute bare-boat charters and other self-guided activities for charter halibut trips if such trips become less attractive due to restrictive annual bag limits. It should also be anticipated that some charter service providers and some anglers would shift their effort to alternative fisheries or alternative recreation services and activities. This analysis includes a similar anticipation that anglers will adapt to proposed

[20] All lower estimates assume anglers highgrade by an average increase of 2" in length.

[21] All upper estimates assume no highgrading.

[22] For example, if fish below 32 inches were 60 percent of the harvest by number and fish above 45 inches were 15 percent of the harvest by number, then "in-slot" fish would be replaced by four fish below 32 inches to every one fish above 45 inches.

management options where they are capable of doing so. For example, some anglers faced with restrictive bag limits in Area 2C may shift their fishing effort to Area 3A. However, this effect may be mitigated if the Council establishes management measures in Area 3A similar to what the Council selected for Area 2C in 2008.

Strategic responses will reduce the efficacy of the proposed options and will reduce the potential opportunity costs to the halibut charter sector and its customers. Therefore, harvest reductions associated with some of the proposed options would be dissipated as angler behavior responds to those restrictions.

2.7.1 Economic Effects on Industry and Communities

Key informant interviews, with a set of specific questions for each business type, were conducted with a number of charter and brokerage operators in Area 3A. This section describes the results of those interviews, and discusses those results in relation to available data from ADF&G and peer-reviewed economic research. This information is viewed as complementary to the numerical analyses conducted above, and in many ways confirms the results of those analyses. The Council's timeline for action does not permit a comparison of producer surplus and consumer surplus in each sector, as affected by each option (2004).

2.7.1.1 Effect of Alternative 1. No Action

The effect of the no action alternative would likely be continuation of a pattern of long-term growth in the area's halibut harvest. As previously requested by the SSC, this analysis provides comparative static estimates of commercial losses based on 5 and 10-year projections of charter-based sport fishing catches and 2006 ex-vessel prices. This analysis proved more difficult than expected given that the estimates of losses must also include estimates of biological productivity. For prior analyses, the analysis contacted IPHC staff about the best way to model long-term losses and harvests. Each year the IPHC conducts a complicated stock assessment to predict CEY. This assessment includes estimates of total biomass and the long-term effect of commercial and sport overages and underages. Given the complexity of the model, IPHC staff suggested that the best way to estimate long-term effects would be to hold current estimates of total CEY, legal-sized bycatch, subsistence catch, unguided sport catch, and commercial wastage constant while allowing guided sport catch to increase along long-term growth estimates. While this methodology is not as accurate as population modeling, it provides a reasonable estimate of losses that could result under the no action alternative. Using these guidelines, the model makes the following simplifying assumptions:

- 2007 estimates of total CEY, legal-sized bycatch, subsistence catch, unguided sport catch, and commercial wastage remain constant between 2006 and 2015.

- Ex-vessel prices remain constant in real terms at $3.80 per lb in Area 3A ($US 2006).

- Charter harvests grow from 2006 ADF&G estimates at their long-term growth rate calculated for 1995-2006. Under this assumption, Area 3A has a yearly growth rate of 4.1 percent.

Using these assumptions, the model predicts that the Area 3A GHL overage could grow from 0.297 Mlb in 2006 to 0.811 Mlb in 2015. This increase reflects a reduction in total CEY as noted in the IPHC's estimates for 2007. Related losses in ex-vessel value would increase to approximately $3.006 million in 2015 (Table 29). Losses in ex-vessel value directly affect crew and communities dependent on the commercial fleet and the combined affect of losses from CEY reductions and increases in GHL overages are likely to affect the commercial fleet in a substantial way.

Table 29 Long-Term Commercial Losses in Ex-Vessel Value based on Estimated Commercial CEY Reductions and Guided Sport Catch-Area 3A

Year	Total Commercial CEY	Legal-sized Bycatch	Subsistence catch	Unguided Sport Catch	Guided Sport catch	Commercial wastage	Commercial CEY	GHL Overage	Ex-Vessel Losses ($M)
2006	25.2	1.32	0.4	2.023	3.947	0.08	17.430	0.297	$1.101
2007	26.2	1.32	0.4	2.023	3.516	0.08	18.861	-0.134	$0.000
2008	26.2	1.32	0.4	2.023	3.622	0.08	18.755	-0.028	-$0.000
2009	26.2	1.32	0.4	2.023	3.732	0.08	18.645	0.082	$0.303
2010	26.2	1.32	0.4	2.023	3.844	0.08	18.533	0.194	$0.720
2011	26.2	1.32	0.4	2.023	3.960	0.08	18.417	0.310	$1.151
2012	26.2	1.32	0.4	2.023	4.080	0.08	18.297	0.430	$1.594
2013	26.2	1.32	0.4	2.023	4.203	0.08	18.174	0.553	$2.051
2014	26.2	1.32	0.4	2.023	4.330	0.08	18.047	0.680	$2.522
2015	26.2	1.32	0.4	2.023	4.461	0.08	17.916	0.811	$3.006

Source: Northern Economics Estimates based on IPHC 2006 Stock Assessment Estimates and 2006 ADF&G estimates of guided and unguided sport catch.

Note: All non-dollar figures are in millions of pounds.

2.7.1.2 Effect of Alternative 2

This section discusses the effect of the proposed action options contained in Alternative 2.

Option 1. No more than one trip per vessel per day

Option 2. No harvest by skipper and crew and line limits

Option 3. Annual limits of four, five, or six fish per angler

Option 4. Reduced bag limits of one fish per day in May, June, July, or August, or the entire season

Option 5. A two-fish bag limit with the one fish of any size and one fish larger than 45 inches or 50 inches

Option 6. A two-fish bag limit with one fish of any size and one fish 32, 34 or 36 inches in length

Option 7. A two-fish bag limit with one fish of any size and one fish 32 inches or less in length or larger than 45 inches or 50 inches

Option 1 – No More than One Trip per Vessel per Day

A likely economic effect associated with this option would be that some operators would be forced to change their business model to conform to the proposed limit of only one trip per day. While the analysis does not know the number of businesses that rely on this model, Table 30 lists the number of vessels that made more than one trip in a day during the 1998 through 2006 seasons. Between 19.3 percent and 41.3 percent of the fleet participated in multiple trips per day at least once during each of those years. Thus, a number of the fleet participates in this way at some point during each halibut season, but the number of operators who depend on this business model is likely limited since only 4.9 percent of the trips entered in 2006 logbooks qualify as a second trip. Nonetheless, these operators would face a significant disruption of their business model.

Table 30 Area 3A Vessels Affected by the limiting Vessels to One Trip per Day

Year	Number of "active" vessels	Total Number of Trips Conducted by "active" vessels	Total Number of Trips after the 1st Trip within a Day	Second Trips as a % of Total Trips	Total Number of Vessels that made more than 1 Trip per Day	Portion of All Vessels taking a Second Trip
1998	503	17,650	466	2.6%	100	19.9%
1999	545	19,823	No Data	No Data	No Data	No Data
2000	570	25,180	893	3.5%	145	25.4%
2001	560	23,818	834	3.5%	115	20.5%
2002	491	18,573	631	3.4%	95	19.3%
2003	499	18,592	700	3.8%	118	23.6%
2004	532	22,600	1,078	4.8%	115	21.6%
2005	559	22,708	1,089	4.8%	185	33.1%
2006	625	23,427	1,142	4.9%	258	41.3%

Source: Alaska Department of Fish and Game 1998-2006 Logbook Data, 2007.

Under this option, some clients who would have chosen to go halibut fishing might choose to pursue another activity in the area or could chose not to take their trip to Alaska at all. In the aggregate, these decisions represent economic transfers, not economic losses, but businesses are still affected by these decisions at the local level. Herrmann et al. (2001) noted that Kenai saltwater charter clients spent between $167.47 and $294.21 daily depending on whether they were local or from out of state. If clients could not, or chose not to, take a halibut trip and did not spend this money elsewhere in the local economy, then the management measure would result in economic losses related to client expenditures. However, the analysis is currently unable to quantify how many anglers would be unable to find a replacement charter trip, would choose not to take a halibut trip altogether, or would spend their money in another sector of the economy.

As noted in NPFMC (2006), the disruption of business models and changes in angler expenditures are unlikely to be felt evenly across communities within Area 3A, as the charter sector in some communities depends far more on the multiple-trip per day business model than in other communities. For example, operators located in Prince William Sound communities (Valdez, Cordova, and Whittier) and Seward rely more on the single-trip per day model because of the distance from these communities to the primary fishing grounds, which are located near Hinchinbrook and Montague Islands.[23] Thus, the option may have little economic effect (and generate little harvest reductions) in these communities. On the other hand, a higher percentage of charter operators in Deep Creek and Ninilchik rely on multiple trips per day as their primary business model. These operators are located much closer to halibut fishing grounds in Cook Inlet, and are able to make shorter trips to fishing grounds. These operators and their communities would face the greatest economic effects under this option. Homer is the home of the overnight fleet in Area 3A, but not the home port for many multiple-trips per day charters. The economic effect in this community would likely be intermediate between the effects in Prince William Sound and interior Cook Inlet communities.

Option 2 – No Harvest by Skipper and Crew and Line Limits

Option 2 would implement Federal limits on crew harvest and number of fishing lines, which are currently in effect for all saltwater charter fisheries in state waters. Key informant interviews with charter operators for both this analysis and NPFMC (2006) indicated that the elimination of harvest by crew

[23] The Prince Williams Sound communities are also home to several business operating multi-night tours, but these tours do not always concentrate on fishing.

members was likely to have little economic impact on their businesses. In fact, many of the interviews indicated that the elimination of the crew harvest was the most acceptable measure presented to them. The economic impact of this proposed measure is most likely to fall on crew members themselves, unless they are able to acquire halibut for personal use through other low-cost means. Fishing during crew members' days off may be an option for some, but the cost is dependent upon access to available fishing boats and gear and the travel expense to the closest fishing grounds. Crews located in Deep Creek and Ninilchik are close to fishing grounds as many of the crews currently offer multiple trips per day, while crews in the communities of Valdez, Cordova, Whittier and Seward are approximately 2 to 2½ hours from their primary fishing grounds, which are located near Hinchinbrook and Montague Islands.

Halibut that is not replaced through low-cost means would have to be replaced at retail prices or by substituting other protein sources, leading to higher costs for crew members. For example, if halibut costs an average of $12 per lb at the retail counter, then it would cost crew approximately $3 million to replace the lost halibut on a pound-for-pound basis at the retail counter. At least one interviewee told us that crew at lodges considered the halibut to be part of their wages. If true, it means that the elimination of crew harvest could lead to higher labor costs for operators if crew members demand to be compensated for the reduction in wages. However, many operators reported for this analysis and NPFMC (2006) that if crew harvest were eliminated, crew would conduct personal recreational trips on days when they did not have paying clients or in the shoulder season so that skippers, deck hands, and family members could continue to acquire halibut for personal use and offset the potential costs of the proposed option.

Option 3 – Annual limits of Four, Five, or Six Fish per Angler

Option 3 would establish a four-fish, five-fish, or six-fish limit on the number of halibut an individual could harvest annually while on charter trips in Area 3A. Likely economic effects of the proposed option are a reduction in harvest by commercial charter customers and crew and a subsequent decreased demand for commercial charter trips. However, it is likely this measure would cause anglers to change their fishing strategy over time. Anglers would continue to limit the number of annual commercial charter trips they demand, substituting these trips for bare-boat charters and other self-guided fishing activities. Therefore, it is questionable if Option 3 would decrease the amount of halibut harvested in the long run.

Based on informant interviews, charter operators anticipate that an annual limit would most likely impact Alaskan residents and out-of-state residents on extended multi-day trips. Some interviewees indicated that a low annual limit of four or five fish per angler could decrease their bookings by between 10 and 25 percent. These operators would be relatively dependent on multi-day anglers given that only five percent of anglers harvest five or more fish per year. However, as stated previously, the likely economic effect is a decreased demand for charter trips. Potentially, clients who would have chosen to go on a multi-day charter halibut fishing trip might choose to take a shorter halibut trip and pursue another activity in the area. In aggregate, this decision represents economic transfers, and no economic losses to the state as a whole, but on a local level charter businesses would experience a decreased demand for trips. Additionally, charters would experience a decreased demand for trips from Alaska residents. Interviewees suggested an even number limit, as clients are unlikely to pay for an expensive charter fishing trip just to catch that last single (or odd number) halibut under a two fish daily bag limit (in effect a one fish daily limit for that last, odd-numbered fish).

Option 4 – Reduced Bag Limits of One Fish per Day in May, June, July, or August, or the Entire Season

Option 4 would reduce daily bag limits to one fish in any of the months of May, June, July, or August or establish a one fish daily bag limit for the entire season. The likely economic effect of this option is a

decreased demand for charter fishing trips. The severity of losses from reduced client demand for charter fishing services depends on whether the measure is implemented for the entire season or a single month.

Key informant interviews strongly indicated that a one fish daily bag limit would have a negative effect on the commercial charter business. Operators think that if a seasonal one fish daily limit is set, the demand for commercial fishing trips would decline sharply, and financially many of their businesses would no longer be able to operate. Many anglers consider the cost of the trip and the amount of halibut meat they will likely catch to the cost of purchasing halibut at the store. As previously noted, the 2001 publication by Herrmann et al. based on a 1998 postal survey of Kenai saltwater anglers noted that charter clients spent between $167.47 and $294.21 daily depending on whether they were local or from out of state. Two average-size halibut will produce approximately 20 to 25 lb of meat. Purchasing the same amount of halibut in the store would usually cost more than $240. So, charter fishing can cost less than purchasing halibut at the store if an angler fills the daily bag limit with average size fish or larger.

Implementing Option 4 for one month would decrease the demand for charter halibut fishing during the impacted month and increase the demand for charter halibut fishing in alternative months. Interviewees indicated that other species would be fished more intensely, especially during the month with the one-fish halibut limit. Additionally, interviewees voiced concern over the negative public perception of the one-fish limit, and the possibility that demand for commercial charter trips would decrease in all months due to confusion or frustration regarding the management measure.

Key informant interviewees suggested that the implementation of a month long one fish daily limit could be varied by location. In Ninilchik, the month of May might work as charter anglers could fish for both halibut and salmon. In Deep Creek, charter anglers fish for other species during the month of June. In Homer, the month of May was mentioned. In Seward and Valdez, charter anglers also fish for salmon in August. However, the authors note that this strategy would limit the effectiveness of the option as it is easy for anglers to switch the port where there charter trip originates.

Option 5 – A Two-Fish Bag Limit with One Fish of any Size and one Fish Larger than 45 Inches or 50 Inches

Option 5 would establish a two-fish bag limit with one fish of any size and one fish equal to or larger than 45 or 50 inches, depending on the sub-option The economic effect of this option would likely be unevenly distributed among Area 3A communities dependent upon the average size of halibut caught by the local charters. Demand for commercial charter trips will likely increase in communities close to grounds that typically catch fish above 45 or 50 inches in length, and demand for commercial charter trips in communities close to grounds where smaller fish are caught will likely decline. Additionally, operators indicated that they expect some reduction in demand if this option is in place given the fact that many anglers will essentially face a one-fish bag limit in certain areas.

Option 6 – A Two-Fish Bag Limit with One Fish of any Size and One Fish 32, 34 or 36 Inches in Length

Option 6 would establish a two-fish bag limit with one fish of any size and one fish equal to or less than 32, 34, or 36 inches in length dependent upon the sub-option implemented. This option is similar to the 2007 NMFS rule for Area 2C, which took effect on June 1, 2007. That rule allowed anglers in Area 2C one fish of any size and one fish equal to or less than 32 inches in length. ADF&G staff estimated that the a maximum size on the second fish would reduce the average weight of the second fish from 18.2 lb to 8.6 lb, 9.9 lb, and 11.0 lb for the 32-inch, 34-inch, and 36-inch sub-options, respectively. It is unclear what effect this option would have on angler demand. Charter operators located in sub-areas where smaller halibut are normally caught might not experience any demand reduction, but operators targeting

larger fish might see noticeable demand effects. Area 3A halibut fisheries are often multi-species and operators might choose to target more pacific cod, rockfish, and salmon to make up for the reduced size limit on the second fish.

Informant interviewees indicated that the effect of Option 6 on the halibut resource would not be as negative as Option 5. Setting a maximum catch limit would eliminate the targeted catch of halibut breeding stock. However, some interviewees anticipate the demand for charter fishing trips would decline if this option were implemented; particularly the number of trips demanded by Alaskan residents would decrease as they would be limited in the amount of halibut meat they could catch per day spent on a commercial charter.

Option 7 – A Two-Fish Bag Limit with One Fish of any Size and One Fish 32 Inches or Less in Length or Larger than 45 Inches or 50 Inches

Option 7 would create a reverse slot limit on the second fish in an angler's daily bag limit. The angler could keep a second fish if it was 32 inches or less in length or if the fish was either 45 inches or longer in length or 50 inches or longer in length, depending on the sub-option. Option 7 is a combination of Option 5 and Option 6, setting both a maximum and minimum size requirement for halibut. The economic effect of this option is dependent upon the reaction to the measure from the charter clients. Interviewees were hesitant about this option as they felt it would be confusing and could be bad for the resource by essentially encouraging anglers to target the larger halibut. Some interviewees responded that their clients would be annoyed by the proposed restrictions, while other interviewees mentioned that it might decrease demand for trips due to customer frustration.

2.7.2 Enforcement Issues and Recordkeeping and Reporting Requirements

ADF&G currently regulates the recreational harvest of king salmon, rainbow trout, salmon sharks, and other species in certain areas by requiring anglers to record harvests of these species on the back of their fishing licenses immediately upon harvest. A similar system that utilizes the logbook or a system involving charter stamps could be used to regulate annual harvest limits in Area 3A.

OLE staff has reported that enforcement occurs on an opportunistic basis. All agencies agreed that some level of additional enforcement would be needed under a GHL system, depending upon the allocation and implementation scheme adopted. Also, the decision to allocate additional enforcement to this program would properly entail an evaluation of the public interest in doing so, versus doing less enforcement somewhere else. Staff discussed GHL enforcement issues, especially the implications of activating the various options like line, bag, and trip limits. Although a State enforcement officer was not present during this discussion, the other agencies essentially reported that additional enforcement resources would not be forthcoming to support this program.

Requiring operators to prominently post GHL control options like bag limits and line limits onboard charter would help promote compliance. The State could further support this by requiring those businesses selling sportfishing licenses to do the same. However, this is likely to have minimal effect as some charter clients are willing to exceed their bag/possession limits while risking the limited likelihood that they will be caught. If they are caught in violation, many know that any fines will be minimal and this is a cost they are willing to accept as it is a fraction of what they have paid for the opportunity to fish halibut in Alaska. In addition, fines would most likely be levied on the operator. Some clients are willing to violate the law to keep more or larger halibut than the regulations allow, even if the regulations are posted in plain sight. Some clients may offer the guide incentives to violate the law, or they may choose to fish in remote places to minimize the chance that they would be caught if they are determined to keep more halibut or larger halibut than the regulations allow. As a comparison, many charter tour operators

have posted the Federal marine mammal viewing regulations and guidelines in plain site on their vessels. NOAA OLE has not received any reports of violations or misconduct from a passenger on any of those vessels. However, OLE does receive reports of violations committed by the vessels that have the information posted from other, non charter or tour vessels that do not have the regulations posted.

While there are some operations in isolated locations, many boats tie up and operate in close proximity to other charter operations. Even in these areas, it is not reasonable to expect that those operators who are following the rules would be quick to notice another operator who wasn't following the rules.[24] Effective enforcement of proposed management options can only be accomplished by enforcement personnel at-sea and with effective after-the-fact auditing for a number of reasons. Competitor charter operators aren't likely to know any more details regarding potential violations than enforcement personnel unless they are on the catcher vessel witnessing and auditing the activities. The operator of one vessel that is observing the actions of persons onboard another vessel, whether at-sea or dockside, will not know who harvested which fish, if that fish was properly documented in a log book, if the fishermen had a valid fishing license, if the fishermen documented it on the back of the fishing license, the total number of halibut onboard, if the skipper or crew harvested any of the halibut, the total number of fish harvested by each individual for the year, the destination of the halibut, etc. The commercial fishery is equally highly competitive and many boats operate, offload, and tie up in close proximity to each other. In addition, the commercial fleet has processing plant employees, fuel dock employees, harbor department employees and often ADF&G and IPHC samplers watching their daily activities. Yet, with all this competition and oversight, enforcement does not get many reports of violations from competitor commercial fishermen even though violations are committed and investigated.

Charter operators are required to have a current Coast Guard license to operate. One of the conditions of the license requires the operator to comply with all Federal regulations. Charter operators potentially risk losing their Coast Guard license if they violate Federal fisheries regulations. It is not reasonable to conclude that because of the nature of the Coast Guard license, inferring a trust and responsibility to the licensee, as well as the double jeopardy implications, charter operators would likely have a higher rate of compliance with GHL options than might otherwise be expected because the USCG has, in every instance, declined to investigate evidence from NOAA Enforcement that a vessel operator was in violation of one Federal regulation or another and, therefore, suspend or revoke the operator's USCG license.

ADF&G currently regulates the recreational harvest of king salmon, rainbow trout, salmon sharks, and other species in certain areas by requiring anglers to record harvests of these species on the back of their fishing licenses immediately upon harvest. A similar system that utilizes the logbook or a system involving charter stamps could be used to regulate annual harvest limits in Area 3A. Having the angler record their halibut catches on the reverse side of a fishing license should be required. If an angler is required to record their Federal halibut catches on their sport fishing license, the license becomes a record. As such, Federal enforcement personnel will need access to that record to ensure that daily or annual bag/possession limits are not exceeded.

The attributes associated with a charter fishery, along with an enforcement priority for recreational fisheries, and appropriate recordkeeping and reporting may provide a level of compliance sufficient to ensure the alternatives have the desired effect in controlling charter halibut removals in Area 3A.

[24] Charter operators cannot offer a "trip with higher bag or rod limits," as suggested in this excerpt. Those limits are set in regulation and operators would not advertise illegal activity.

2.7.2.1 Use of State Recordkeeping and Reporting Tools

In 2007, the State legislature passed a bill that allowed State agencies to share confidential data with NOAA. This will enhance the ability of the NOAA to administer and enforce some of the options that would otherwise be more difficult to administer and enforce. State recordkeeping and reporting requirements meet Federal information requirements for Options 1 and 3. The 2007 legislation allows NOAA OLE to access confidential angler and operator information in the logbook or angler license information. Without this information, NOAA OLE could not seize angler license information and logbooks for inspection and evidence, enter logbook and license data in Federal court, or perform post season audits of data to pursue violators. NOAA OLE would also need access to angler and charter operator registration and logbook information to provide the necessary program support (e.g., database management). The following is still needed for Federal enforcement of proposed options:

- A memorandum of understanding between the State, NOAA OLE, and NMFS would also likely be needed to allow data sharing.
- A requirement in Federal regulations for an angler or a guide to produce State fishing licenses, State logbooks, State catch cards, etc. when asked by Federal enforcement personnel. NOAA Enforcement and USCG Enforcement personnel cannot rely on the State's decision to deputize Federal officers, at the Commissioner's pleasure. This process can be highly political and changeable. It is unreasonable for Federal enforcement personnel to have to cite a State regulation to use as legal authority to demand a fishing license or log book for a Federal fishery management program. In addition, State deputization carries a number of legal responsibilities and demands on those that are deputized. NOAA enforcement personnel do not need any additional demands or responsibilities bestowed upon them by State statutes.
- USCG attorneys are reviewing the 2007 State legislation to determine if the USCG is included in the language that allowed State agencies to share confidential data with NOAA. Additional State legislation may be needed.

2.7.2.2 Trip Limit (Option 1)

The trip limit described in Alternative 2, Option 1 would require NOAA OLE to determine the number of trips taken by a charter vessel for a given day. The regulation for a trip limit would indicate that a charter halibut trip begins on a charter fishing vessel when a halibut is harvested and ends: (1) when any halibut is offloaded from that vessel; (2) when any person that was present on that vessel when a halibut was harvested disembarks; or (3) at 23:59 hours, whichever comes first. This language indicated that a trip is focused on the harvesting of halibut and does not include trips where halibut harvest did not occur or clients were being transported between sites. This definition would require NOAA OLE to have onboard documentation of angler-specific trip and harvest information that is linked to the day a trip started and ended. The language used in the final rule would likely be different from the proposed language, but would contain all the important elements in the proposed language, including a trip linked to each day fished and client/halibut offloading being a termination point for a trip.

The logbook currently collects information specific to both the trip and day fished. To provide onsite enforcement of the regulation, NOAA OLE would need the date when the trip started, the date when the trip ended, and information that would identify clients who harvested halibut. The 2007 logbook reports the day a fishing trip occurred. This would provide NOAA OLE with information about the date the trip started, including the number of trips that occurred on a given day, and the date the trip ended. An operator could cheat on the trip limit by recording two trips as a single trip in the logbook. This would be a violation of the regulation. NOAA OLE would have a difficult time enforcing this type of recordkeeping unless the number of clients recorded in the logbook did not match the number of clients onboard the vessel. Moreover, recording multiple trips under the guise of a single trip would also be

detrimental to the logbook database. This is one of the primary reasons that NOAA Enforcement would like to see the clients sport fishing license number (currently required) and their signature (not currently required) in the logbook. It would be more difficult for an operator to cheat if the clients' information, which can be verified on the spot or after the fact, is entered and signed by the client.

A requirement for an angler or a guide to produce State fishing licenses, State logbooks, State catch cards, etc. when asked by Federal enforcement personnel will need to be written into Federal regulations. NOAA Enforcement and USCG Enforcement personnel cannot rely on the State's decision to deputize Federal officers at the Commissioner's pleasure. This process can be highly political and changeable. It is unreasonable for Federal enforcement personnel to have to cite a State regulation to use as legal authority to demand a fishing license or log book for a Federal fishing management program. In addition, State deputization carries a number of legal responsibilities and demands on those that are deputized. NOAA enforcement personnel do not need any additional demands or responsibilities bestowed upon them by State statutes nor do Federal enforcement programs have the resources to enforce state regulations.

2.7.2.3 Prohibition of Retention by Skipper or Crew and Line Limits (Option 2)

An option to prohibit the retention of halibut by skipper and crew was promulgated by ADF&G in Area 2C for 2006 (EO # 1-R-01-0631) and areas 3A and 2C for 2007 (EO # 2-R-03-02-07 and 1-R-02-07, respectively). These EO regulations apply to the charter fishery (including species other than halibut) and are enforced by ADPS. State regulations must be applied to the charter fishery in general and cannot specify the halibut fisheries. A Federal regulation could apply only to the halibut fisheries and not other State-managed species.

Federal enforcement of a regulation prohibiting skipper and crew retention would require enforcement officers to observe skipper or crew harvest at sea or determine that the number of harvested halibut exceeded the collective bag limit for clients. NOAA OLE can identify guides using their ADF&G guide license; however, crew are not required to be licensed by the State or Federal government, and thus do not have any identification information indicating they are crew. Without crew documentation, it would be difficult for NOAA OLE to distinguish crew from anglers, if guides wanted to circumvent the regulation. However, guides (often business owners) may not want to risk the enforcement sanctions (especially with clients onboard) associated with allowing crew to harvest halibut. Some guides instead provide legal methods for crew to obtain halibut. Crew may retain halibut as private recreational anglers when not working and often have access to a fishing vessel from which they may harvest halibut. Crew may also receive halibut "gifted" from clients.

A Federally codified definition of "crew" needs to be established and all of the regulatory language needs to mirror that which is already in place. So, instead of saying "skipper," the regulations would specify "operator." In addition, a guide should be required to specify and document their crew for every fishing trip in their logbook prior to the start of every fishing trip. This would reduce the likelihood that a skipper would allow crew to retain halibut.

According to ADF&G logbook data from 1999 through 2001, harvests by crew members in Area 3A accounted for between 7.7 percent and 10.5 percent of the Area's annual halibut harvest. A projection of partial year logbook data from 2006 indicates that crew accounted for 10.6 percent of the total charter harvest, but the ban was not in effect until 2007.

Many State regulations have been in place for quite some time, for example, requirements for the saltwater logbook, sport fishing license's, guide licenses, annual limits for salmon, validating licenses, etc. State enforcement data could play a large role in analyzing compliance levels and enforcement needs. For example: 1) how many State citations were issued for: a) violation of the EO; b) logbook errors; c)

failure to document catch on a fishing license; or d) over harvest? 2) What effort has the State made to enforce charter fishing regulations? and 3) how many charter vessels were checked by State officers to ensure compliance?

Enforcement of line limits in Federal regulations would be difficult because Federal regulations would only apply to halibut fishing, and halibut is only one target in a multi-species fishery. If someone simply has a line in the water, NOAA OLE cannot determine whether he/she is targeting halibut or another State-managed species. NMFS could only enforce the line limit if any harvested halibut were onboard the vessel. Thus, a person who harvested a halibut and then went salmon fishing would still be limited by the line limit. Such a regulation would also require at-sea enforcement. No additional recordkeeping and reporting requirements have been identified.

Line limits can only be enforced as observed in real time at sea. It is nearly impossible to observe persons, who onboard a charter fishing vessel engaged in fishing, without them being aware that they are being observed by enforcement personnel. If a charter vessel is fishing too many lines, it is very easy for them to reel in the extra lines when they see the NOAA, State, or USCG patrol vessel coming towards them, and then redeploy the extra lines when the patrol vessel departs.

2.7.2.4 Annual Limit (Option 3)

The annual limit would substantially increase Federal enforcement and administrative costs in Area 3A. In 2006, approximately 138,465 charter clients, distributed over 625 charter vessels, fished from a charter vessel in Area 3A (ADF&G 2006). ADF&G estimates that approximately 2 percent of these clients harvested six halibut and approximately 4 percent of the clients harvested five halibut. Given the two-fish daily bag limit described under the status quo, anglers harvesting more than four fish would have fished for at least three days.

Regulations for the proposed annual limit would be directed at anglers fishing for halibut and charter operators offering guided halibut services in Area 3A. The annual limit would apply to anglers paying for charter services to fish for halibut. However, under this interpretation of the annual limit, crew and skippers could continue to harvest halibut and give those halibut to the anglers. The regulation could be promulgated to enforce the annual limit on charter anglers fishing from a vessel in which at least one angler on board the vessel hired a guide to offer halibut fishing services. Without the inclusion or ban on skipper and crew harvest, this option would allow skipper and crew to retain their bag limit of halibut and give those halibut to clients as a gift.

Enforcement of lodges and multi-day fishing charters presents a unique set of logistical issues for NOAA OLE. Lodges may have a single charter vessel or a group of charter vessels operating in remote areas that are only accessible by airplane or boat. These remote fishing operations increase the enforcement costs for several reasons: (1) travel time to and from the enforcement area is increased; (2) enforcement activities may require several days to adequately cover an area; and (3) angler patterns such as fishing locations, the timing for the departure and arrival of new clients, and daily fishing schedule are poorly understood and change often and without notice to accommodate a dynamic and growing industry. It is important that NOAA OLE has adequate staff and enforcement tools to overcome these issues to ensure the annual limit is perceived as credible (i.e., they may get caught if in violation) by anglers.

The credibility of an enforcement effort depends on several factors, including the likelihood of detecting a violation, the swiftness of the enforcement response, and the perception that enforcement actions are real (Iannuzzi 2002). Moreover, deterrence-based enforcement is most successful when a well developed compliance program is designed to identify and correct violations, establish an enforcement presence, collect evidence needed to support enforcement actions, and help target enforcement activities

(Rechtschaffen and Markell 2003). In the case of the charter fishery, detection of a violation for the annual limit would be heavily reliant on reporting requirements for charter anglers and operators, and the ability of enforcement to enforce regulations in remote areas. Without sufficient documentation of a violation, cases will not be prosecuted, which may reduce the credibility and effectiveness of the regulation.

These issues were addressed in a June 2006 NOAA OLE memo and during a meeting between NOAA Fisheries, Council Staff, NOAA OLE, ADF&G, and NOAA General Counsel. In the memo and at the meeting, NOAA OLE indicated the following criteria must be met for the annual limit to be enforceable:

- NOAA OLE would need the ability to check for compliance at sea, dockside, and through a post-season audit of angler catch. To meet these needs, a harvest record indicating the number of halibut harvested would be needed for each angler, as well as a vessel-specific record of each angler's catch (serially matched to an angler's catch card) that would be submitted to NOAA OLE on a regular basis throughout the fishing season. A vessel-specific record would be needed to track the charter operators involved with violations. The angler harvest record would be used during dock-side or at-sea enforcement and to provide a record of angler-specific halibut harvest for the charter guide.

- A Federal regulation needs to be promulgated that requires anglers to allow Federal officers to inspect their state fishing license (if catch info is recorded on the reverse) and the logbook. Federal enforcement personnel cannot rely on State regulations to ensure that a Federally managed program is enforced.

- ADF&G is collecting and analyzing logbook data to manage the fishery to keep it within the GHL. All of the information collected in the logbooks is collected to manage the fishery. Therefore, if, during the course of that data analysis, the State discovers that a particular angler has exceeded his/her limit, the State should forward that information to NOAA OLE for follow up. NOAA OLE does not have the resources to re-analyze this data to ensure that the GHL has not been exceeded via violations.

A detailed discussion paper about the annual limit was presented to the Council at its October 2006 meeting (NMFS 2006). The paper provides a detailed discussion on the types of recordkeeping and reporting tools that could be used and their associated costs. Federal use of the State logbook and angler licenses would require additional staff time. Federal staff would be required to coordinate with ADF&G and respond to agency needs. A part time NMFS staff person would be required to process and query operator, business, and angler information. This person would also provide assistance to NOAA OLE with the collection of evidence, administrative correspondence, preparation of cases, and maintenance of the database by working closely with NMFS programmers and ADF&G staff as needed. The expected annual cost for a GS-9 part time NMFS staff person is approximately $50,000.

Since the logbook and angler license information is being required for management purposes to keep the harvest within the GHL, NOAA OLE would not collect, process, or analyze operator, business or angler information. However, NOAA OLE would respond to and investigate reports of violations that are discovered by and reported to Enforcement by those who do collect and analyze the information.

Programmer time would also be required to build and maintain a secure Federal database. Periodic data transfers would be the simplest database format, with programmer time required to construct and maintain the Federal database and workstation structure. Construction and maintenance of this database would likely be minimal, requiring one to two weeks of programmer time annually. The estimated cost for NMFS programmer time is $2,500 to $5,000, annually.

Federal use of State charter and angler recordkeeping and reporting tools would require ADF&G administrative support. To meet Federal data needs, ADF&G would need to provide adequate staff time to query charter operator and angler information, package this information, and send it to NMFS annually. ADF&G staff time would also be required to coordinate with the NMFS and NOAA OLE to develop a transfer methodology (including security concerns) and provide ongoing support to NMFS staff.

NMFS and NOAA OLE could use the information from the logbook, guide and business registration, and angler license database to identify and pursue cases. Once a violation was identified, NOAA OLE would use the serialized angler license number to obtain information (including PID and DVL information) about the individual angler from the ADF&G license database, and the logbook to identify the charter operator and vessel (including the registered business). Anglers and charter operators would be contacted about their violation, and enforcement would take appropriate action.

Federal regulations implementing the annual limit would describe the type of information a charter operator and client are required to record. The State logbook and angler sport fishing license would be used to fulfill these information needs as outlined in Federal regulation. However, Federal regulations cannot only refer to the completion of the State logbook and angler license as fulfilling Federal reporting requirements. Regulations must describe the required information and indicate the State logbook could be used to meet these information needs. Therefore, Federal regulations must also require that the angler and/or guide produce the logbook and /or license to a Federal enforcement officer upon demand.

The State may change its logbook and angler license requirements at any point in time, including a change to the information requirements for charter operators and anglers. These changes may result in State reporting tools not meeting the information requirements for enforcing the annual limit. Moreover, changes to State law may also prevent NOAA OLE from accessing information essential to enforcement or change the authority granted to NOAA OLE to enforce the annual limit. In either situation, NOAA OLE would not be able to enforce the annual limit using State reporting tools and a Federal logbook program would be necessary.

2.7.2.5 Size Limits (Options 5, 6, and 7)

The primary enforcement issues associated with a size limit are determining the number of halibut harvested and the size of one of the halibut for each person fishing from a charter vessel. The options would require enforcement officers to check the number and size of harvested halibut at the point of offload or onboard the charter vessel. In either situation, the halibut could not be mutilated in such a manner that would prevent measurement. Regulations associated with the alternative would prohibit charter operators from discarding carcasses until all fillets are offloaded from the charter vessel.

Determining the number of halibut harvested by a person fishing from a charter vessel is difficult because halibut may be distributed among anglers, resulting in more successful anglers harvesting more than two halibut to maximize the collective daily bag limit for licensed anglers onboard the charter vessel. This practice is often referred to as a "boat limit." To enforce the minimum size requirement, NOAA OLE officers would likely rely on angler specific information recorded in the State logbook, interview information from the anglers, and the total number and sizes of halibut harvested on a charter vessel as evidence of a violation. However, in certain situations it would be a difficult for NOAA OLE to attribute individual halibut to a person onboard the charter vessel if a boat limit has been harvested.

Option 5 would require operators to position halibut weighing at least 43 lb or 60 lb for measurement prior to release or harvest. To measure a halibut, operators would be required to bring it to the side of the vessel or onboard the vessel for measurement. The capture, measuring, and release of large species is not unprecedented in a Federal or State managed recreational fishery. For example, certain shark and marlin

species have minimum size requirements that are comparable to the release sizes considered under Option 5. The 2006 Atlantic shark regulations require a 54-inch minimum length limit applied to the allowable harvest of one shark per vessel per day (including mako and porbeagle sharks) and a 99-inch limit minimum size limit on blue marlin. In Southeast Alaska, charter anglers are required to release Chinook salmon under 28 inches and lingcod fewer than 30 inches or over 35 inches in length. This option would not require any additional reporting requirements for charter operators or charter anglers.

2.7.2.6 Charter Operator Responsibilities

Guides may be held responsible by NOAA OLE if charter anglers exceed their annual halibut limit. Enforcement action may be taken on a guide and charter angler if the annual limit is exceeded. The nature of the violation and the final regulations would determine how the enforcement action is carried out. The Halibut Act provides for enforcement action on a charter guide at 773(i)(c) who has charter anglers in violation of the halibut regulations:

> *If any officer authorized to enforce this subchapter (as provided for in this section) finds that a fishing vessel is operating or has been operated in the commission of an act prohibited by section 773e of this title, such officer may, in accordance with regulations issued jointly by the Secretary and the Secretary of the department in which the Coast Guard is operating, issue a citation to the owner or operator of such vessel...*

The IPHC regulations specify the regulation at Section 25(18):

> *The operator of a charter vessel shall be liable for any violations of these regulations committed by a passenger aboard said vessel.*

The definition of an operator is specific at Section 3(1)(m):

> *"Operator", with respect to any vessel, means the owner and/or master or other individual on board and in charge of that vessel.*

In addition to the IPHC regulations, the USCG also has the authority to revoke operating licenses if a charter operator fails to comply with all Federal regulations. Thus, violation of the GHL regulation would constitute a violation of Federal regulation, which may result in enforcement action by the USCG. The USCG and an administrative law judge need to be consulted on this point. It is unlikely that the USCG would be willing to suspend or revoke a person's license, thereby reducing, limiting or eliminating a person's ability to earn an income solely for a $150 civil violation.

NOAA OLE would have the authority to take enforcement action on the charter angler or operator depending on the infraction. Charter operators would be solely responsible for charter logbook recordkeeping and reporting requirements, as well as requirements associated with the distribution of angler catch cards. The situation associated with the violation would determine the action taken by NOAA OLE.

2.7.2.7 Enforcement Costs

Enforcement of all alternatives would require on-site enforcement efforts to observe a person or charter vessel with an illegal halibut. This would require regular visits by enforcement officers to areas where halibut are harvested and landed. These areas include remote areas such as lodges and urbanized areas such as Homer or Seward. In the case of time specific regulations, enforcement officers would need to check offloading sites throughout the entire fishing year and potentially board vessels to determine the

presence of illegally harvested halibut. As previously discussed, the annual limit would require specific recordkeeping and reporting requirements to track the number of halibut harvested by an individual angler and to allow information collected for enforcement to be audited by NOAA OLE during and after the fishing season.

Enforcement of the annual limit and the other proposed measures in Area 3A would require an additional four Enforcement Officers and one Special Agent at an annual cost of $750,000. This would include placing an additional Officer in Seward, Homer, Kodiak and Anchorage and an additional Special Agent in Anchorage. These personnel would be augmented by the personnel already in place in these ports as well as the state JEA Public Safety Technician II's to accomplish charter halibut enforcement during the height of the charter fishing season. The additional personnel would conduct investigations of alleged charter halibut violations the remainder of the year. Enforcement costs would vary with the desired level of enforcement. However, given the current low priority level associated with enforcing the charter halibut two-fish bag limit, an increase in enforcement resources or a re-prioritization of resources would likely increase compliance with the alternatives. For example, in 2006 NOAA OLE reported boarding only 14 charter trips (out of 20,000 trips), whereas in the IFQ fishery for halibut and sablefish, NOAA OLE inspected 146 trips (out of 7,500 trips). Greater compliance would likely be obtained if enforcement resources were increased to a level similar to the annual limit. An increase in the number of enforcement officers would allow a greater proportion of the approximately 20,000 trips taken annually by charter operators to be inspected by NOAA OLE. An increased enforcement effort for an annual limit would also likely increase compliance with the other harvest reduction measures.

2.7.3 Effects on Net Benefits to the Nation

The net benefits to the nation arising out of the options under Alternative 2 can accrue from several sources. First, the proposed options should initially reverse and then slow the growth of the open-ended reallocation between commercial and guided sport sectors. This reversal should instill commercial quota holders with greater confidence in the value of their quotas, which will in turn support the market for quota shares and encourage appropriate investment and capitalization in the commercial sector. Further, the reallocation of halibut harvest amounts back to the commercial sector may affect the benefits realized by U.S. consumers through changes in product availability and price. This section summarizes the different effects of the options to allow comparison and conclusions concerning the overall effects of the options on net benefits to the nation.

If the current management of charter halibut harvests in Area 3A continues, the net benefits to the nation are likely to follow their current trend. The open-ended reallocation to the guided sport sector from the commercial sector will continue and likely grow as guided sport sector harvest has grown in recent years. This reallocation will increase uncertainty for commercial quota holders and could affect benefits realized by U.S. consumers through changes in product availability and price.

For prior analyses, the SSC requested that the discussion of the no action alternative be expanded to include estimates of consumer losses due to reductions in the commercial TAC if charter-based sport fishing overages continued. The analysis combined the overage estimates derived for the ex-vessel revenue losses analysis with a consumer surplus and total revenue model from Herrmann and Criddle (2006) to generate estimates of total consumer losses associated with GHL overages.[25] This model estimates consumer surplus losses would increase to $0.377 million by 2015.

[25] Unlike the ex-vessel revenue analysis, the consumer surplus model requires estimates of commercial underages in the future. The analysis assumes that future commercial underages would be equivalent to the average of the commercial underages from 2001 through 2005. This amounts to an underage of 0.42 Mlb per year in Area 3A.

Table 31 Long-Term Commercial Losses in Ex-Vessel Value based on Estimated Commercial CEY Reductions and Guided Sport Catch-Area 3A

Year	Area 3A			
	Estimated Charter Harvest	Estimated GHL Overage	Est. Commercial Underage	Lost Consumer Surplus
2006	3.947	0.297	0.42	$0.000
2007	3.516	-0.134	0.42	$0.000
2008	3.622	-0.028	0.42	$0.000
2009	3.732	0.082	0.42	$0.000
2010	3.844	0.194	0.42	$0.000
2011	3.960	0.310	0.42	$0.000
2012	4.080	0.430	0.42	-$0.013
2013	4.203	0.553	0.42	-$0.133
2014	4.330	0.680	0.42	-$0.256
2015	4.461	0.811	0.42	-$0.377

Source: Northern Economics Estimates based on IPHC 2005 Stock Assessment Estimates and 2005 ADF&G estimates of guided and unguided sport catch.
Note: All non-dollar figures are in millions of pounds.

While the no action alternative will result in continued and increasing consumer surplus losses, it would also result in regional increases in sport angler welfare surpluses resulting from the projected increase in charter-based sport fishing for halibut. Because the number of halibut sport fishing charter service providers is large and barriers to entry are low, halibut sport fishing charter service providers can be assumed to behave as "perfect competitors," which generate very little or no net economic rents. Consequently, the principal source of net national benefits from the charter halibut fishery is angler surplus—the difference between the benefits that anglers derive from sport fishing for halibut onboard charter boats and the costs that they incur. While the magnitude of changes in regional economic benefits will vary, it is unlikely that the changes in regional expenditures will result in changes in net national benefits. Anglers that are unable to find the angling experience they want in Alaska may be able to find it somewhere else. Moreover, increases in regional expenditures associated with increases in charter-based sport fishing are likely to be offset by decreases in regional expenditures associated with commercial fishing.

All of the options could help reverse the open-ended reallocation between commercial and guided sport sectors and could instill commercial quota holders with greater confidence in the value of their quotas, which will in turn support the market for quota shares. A greater confidence in the value of quotas will also encourage appropriate investment and capitalization in the commercial sector. Further, the reallocation of halibut harvest amounts back to the commercial sector may affect the consumer surplus benefits realized by U.S. consumers. However, the options could result in long-term increased costs incurred by charter operators dependent on a multiple-trip per day business model, crew members dependent on halibut harvests for personal use, and operators dependent on clients interested in fishing

Note that in this model consumer surplus losses begin when the GHL overage is larger than the commercial underage. In this way the model may overestimate real world losses. In the real world, consumer impacts start when total supply (from all world sources) are reduced sufficiently to result in a price effect, a supply shortage, or both. A welfare loss results when consumers experience a welfare loss they could not fully compensate through substitution. Also, please note that the model results only approximate what the actual effects would be if ex-vessel and wholesale market conditions hold similar to conditions that were present in 2002. Ex-vessel and consumer prices are significantly higher at this point and time and producers may be capturing a greater share of total welfare.

experiences lasting longer than two days or those dependent on repeat customers who take more than two trips per year. Theoretically, if operators could adapt their operations to service the same number of clients on fewer fish, then efficiency is gained resulting in net national benefits. However, as discussed in Section 2.6, many of the options, particularly those that affect bag limits, are likely to result in fewer return clients. Thus, it isn't clear from the available research that the industry can service the same number of clients on fewer fish.

2.7.4 Summary and Conclusions

In 2006 charter halibut harvests stood at 108.1 percent of the GHL including harvests by skipper, crew, and client. Client harvest is estimated at approximately 96.7 percent of the GHL for 2006. Client harvest could be higher if skipper and crew are not reporting their entire logbook reported halibut harvest in their SWHS booklets. All of the options under consideration, with the exceptions of Option 7 and Option 2 (the status quo), would reduce total charter harvests further. A number of the analyzed options would reduce charter halibut harvest levels to the same levels that the Council targeted with its preferred alternative for Area 2C. These include the sub-options from Option 3 and several sub-options from Option 4.

Table 32. Summary of Estimated Effects

Management Option	Sub-Option	Harvest with Option (Mlb)		Post-Option Harvest as a Portion of the GHL (%)	
		Less Effective	More Effective	Less Effective	More Effective
Option 4. One Fish Bag Limit	Full Season	1.868	1.308	51.2%	35.8%
Option 5. Minimum Size on the Second Fish	50"	2.097	1.846	57.5%	50.6%
Option 5. Minimum Size on the Second Fish	45"	2.274	2.005	62.3%	54.9%
Option 6. Maximum Size on the Second Fish	32"	2.790	2.546	76.4%	69.8%
Option 4. One Fish Bag Limit	July	2.901	2.689	79.5%	73.7%
Option 6. Maximum Size on the Second Fish	34"	2.909	2.677	79.7%	73.3%
Option 6. Maximum Size on the Second Fish	36"	3.027	2.787	82.9%	76.3%
Option 4. One Fish Bag Limit	June	3.092	2.945	84.7%	80.7%
Option 4. One Fish Bag Limit	August	3.181	3.063	87.1%	83.9%
Option 3. Annual Limit	4 Fish	3.271	3.271	89.6%	89.6%
Option 1. One Trip per Day	None	3.334	3.307	91.4%	90.6%
Option 4. One Fish Bag Limit	May	3.354	3.295	91.9%	90.3%
Option 3. Annual Limit	5 Fish	3.365	3.365	92.2%	92.2%
Option 3. Annual Limit	6 Fish	3.445	3.445	94.4%	94.4%
Option 4. One Fish Bag Limit	September	3.465	3.422	94.9%	93.7%
Option 2. No Harvest by Skipper & Crew (Status Quo)	*None*	*3.529*	*3.529*	*96.7%*	*96.7%*
Option 7. Reverse Slot Limit	32"/45"	Ineffective		Ineffective	
Option 7. Reverse Slot Limit	32"/50"	Ineffective		Ineffective	

NPFMC (2007) noted the Council's reasons for rejecting several similar alternatives in Area 2C. Table 33 compares the options to reasons cited in NPFMC (2007) for rejecting similar alternatives.

Table 33. Option Weak Points

Option Weakness	Option						
	1	2	3	4	5	6	7
Less Effective than Status Quo							●
Effect of Option Easily Diluted by Changes in Behavior	●			●		●	
Potential for Increased Mortality					●	●	
Difficulty Measuring Larger Fish					●		
Reduce Harvest by Too Great an Amount				●			
Economic Effects on Charter sector				●	●	●	

3.0 REGULATORY FLEXIBILITY ACT

3.1 Introduction

The Regulatory Flexibility Act (RFA), first enacted in 1980, and codified at 5 U.S.C. 601, et seq., was designed to place the burden on the government to review all regulations to ensure that, while accomplishing their intended purposes, they do not unduly inhibit the ability of small entities to compete. The RFA recognizes that the size of a business, unit of government, or nonprofit organization frequently has a bearing on its ability to comply with a Federal regulation. Major goals of the RFA are: 1) to increase agency awareness and understanding of the impact of their regulations on small business; 2) to require that agencies communicate and explain their findings to the public; and 3) to encourage agencies to use flexibility and to provide regulatory relief to small entities.

The RFA emphasizes predicting significant adverse impacts on small entities as a group distinct from other entities and on the consideration of alternatives that may minimize the impacts, while still achieving the stated objective of the action. When an agency publishes a proposed rule, it must either, 1) "certify" that the action would not have a significant adverse effect on a substantial number of small entities, and support such a certification declaration with a "factual basis," demonstrating this outcome, or, 2) if such a certification cannot be supported by a factual basis, prepare and make available for public review an Initial Regulatory Flexibility Analysis (IRFA) that describes the impact of the proposed rule on small entities.

Based upon a preliminary evaluation of the seven analyzed options, it appears that "certification" would not be appropriate. Therefore, an IRFA has been prepared for each action. Analytical requirements for the IRFA are described below in more detail.

The IRFA must contain:

- A description of the reasons why action by the agency is being considered;
- A succinct statement of the objectives of, and the legal basis for, the proposed rule;
- A description of, and where feasible, an estimate of the number of small entities to which the proposed rule will apply (including a profile of the industry divided into industry segments, if appropriate);
- A description of the projected reporting, record keeping, and other compliance requirements of the proposed rule, including an estimate of the classes of small entities that will be subject to the requirement and the type of professional skills necessary for preparation of the report or record;
- An identification, to the extent practicable, of all relevant Federal rules that may duplicate, overlap, or conflict with the proposed rule;
- A description of any significant alternatives to the proposed rule that accomplish the stated objectives of the Magnuson-Stevens Act and any other applicable statutes, and that would minimize any significant adverse economic impact of the proposed rule on small entities. Consistent with the stated objectives of applicable statutes, the analysis shall discuss significant alternatives, such as:
    a. The establishment of differing compliance or reporting requirements or timetables that take into account the resources available to small entities;
    b. The clarification, consolidation or simplification of compliance and reporting requirements under the rule for such small entities;
    c. The use of performance rather than design standards;
    d. An exemption from coverage of the rule, or any part thereof, for such small entities.

The "universe" of the entities to be considered in an IRFA generally includes only those small entities that can reasonably be expected to be directly regulated by the proposed action. If the effects of the rule fall primarily on a distinct segment of the industry, or portion thereof, (e.g., user group, gear type, geographic area), that segment would be considered the universe for purposes of this analysis. In preparing an IRFA, an agency may provide either a quantifiable or numerical description of the effects of a proposed rule (and alternatives to the proposed rule), or more general, descriptive statements if quantification is not practicable or reliable.

3.2 Reasons for Considering the Proposed Action

As described more fully in Section 3.4 of the RIR, a GHL was established for the charter halibut fishery in Area 3A in 2004. At its December 2006 meeting, the Council reviewed preliminary 2006 halibut charter harvest estimates from the ADF&G Sport Fish Division. The data indicated that the GHL of 3.65 Mlb had been exceeded by 21 percent in Area 3A. In response to the new information, the Council initiated an analysis that includes a proposed action to reduce halibut charter harvests to the Area 3A GHL.

3.3 Objectives and Legal Basis of the Proposed Actions

As described more fully in Section 3.2 of the RIR, the purpose and overall intent of the proposed action is to reduce charter halibut harvests in Area 3A.

The Northern Pacific Halibut Act of 1982 (16 U.S.C. 773-773k; Pub. L. 97-176, as amended) authorized the Secretary of Commerce to enforce the terms of the Convention between the United States and Canada for the Preservation of the Halibut Fishery of the Northern Pacific Ocean and Bering Sea. The Secretary promulgates regulations pursuant to this goal in 50 C.F.R. Part 301. The North Pacific Council may also develop and implement, with the approval of the Secretary, regulations as deemed necessary to fulfill the purpose of the Convention and this Act. However, the implementation of these regulations is subject to approval by the Secretary of Commerce.

3.4 Description and Number of Small Entities to which the proposed actions will apply

3.4.1 Definition of a Small Entity

The RFA recognizes and defines three kinds of small entities: (1) small businesses, (2) small non-profit organizations, and (3) and small government jurisdictions. This action will only affect small businesses.

Small businesses. Section 601(3) of the RFA defines a 'small business' as having the same meaning as 'small business concern,' which is defined under Section 3 of the Small Business Act. 'Small business' or 'small business concern' includes any firm that is independently owned and operated and which is not dominant in its field of operation. The SBA has further defined a "small business concern" as one "organized for profit, with a place of business located in the United States, and which operates primarily within the United States or which makes a significant contribution to the U.S. economy through payment of taxes or use of American products, materials or labor.… A (small) business concern may be in the legal form of an individual proprietorship, partnership, limited liability company, corporation, joint venture, association, trust or cooperative, except that where the firm is a joint venture there can be no more than 49 percent participation by foreign business entities in the joint venture."

The SBA has established size criteria for all major industry sectors in the United States, including fishing charter services. A business involved in providing fishing charter services is a small business if it is

independently owned and operated and not dominant in its field of operation and if it has combined annual receipts not in excess of $6.5 million. The SBA definition of a small business applies to a firm's parent company and all affiliates as a single entity.

The SBA has established "principles of affiliation" to determine whether a business concern is "independently owned and operated." In general, business concerns are affiliates of each other when one concern controls or has the power to control the other, or a third party controls or has the power to control both. The SBA considers factors such as ownership, management, previous relationships with or ties to another concern, and contractual relationships, in determining whether affiliation exists. Individuals or firms that have identical or substantially identical business or economic interests, such as family members, persons with common investments, or firms that are economically dependent through contractual or other relationships, are treated as one party with such interests aggregated when measuring the size of the concern in question. The SBA counts the receipts or employees of the concern whose size is at issue and those of all its domestic and foreign affiliates, regardless of whether the affiliates are organized for profit, in determining the concern's size. However, business concerns owned and controlled by Indian Tribes, Alaska Regional or Village Corporations organized pursuant to the Alaska Native Claims Settlement Act (43 U.S.C. 1601), Native Hawaiian Organizations, or Community Development Corporations authorized by 42 U.S.C. 9805 are not considered affiliates of such entities, or with other concerns owned by these entities solely because of their common ownership.

Affiliation may be based on stock ownership when (1) A person is an affiliate of a concern if the person owns or controls, or has the power to control 50 percent or more of its voting stock, or a block of stock which affords control because it is large compared to other outstanding blocks of stock, or (2) If two or more persons each owns, controls or has the power to control less than 50 percent of the voting stock of a concern, with minority holdings that are equal or approximately equal in size, but the aggregate of these minority holdings is large as compared with any other stock holding, each such person is presumed to be an affiliate of the concern.

Affiliation may be based on common management or joint venture arrangements. Affiliation arises where one or more officers, directors, or general partners controls the board of directors and/or the management of another concern. Parties to a joint venture also may be affiliates. A contractor and subcontractor are treated as joint ventures if the ostensible subcontractor will perform primary and vital requirements of a contract or if the prime contractor is unusually reliant upon the ostensible subcontractor. All requirements of the contract are considered in reviewing such relationship, including contract management, technical responsibilities, and the percentage of subcontracted work.

Small organizations. The RFA defines "small organizations" as any not-for-profit enterprise that is independently owned and operated and is not dominant in its field.

Small governmental jurisdictions. The RFA defines small governmental jurisdictions as governments of cities, counties, towns, townships, villages, school districts, or special districts with populations of fewer than 50,000.

3.4.2 Description of Small Entities to Which the Proposed actions will apply

Federal courts and Congress have indicated that a RFA analysis should be limited to small entities directly regulated by the proposed action.[26] As such, small entities to which the rule will not apply are not considered in this analysis.

[26] *Mid-Tex Elec. Coop v. FERC*, 773 F.2d 327 (D.C. Cir. 1985); *Cement Kiln Recycling Coalition et. al. v. EPA*, 255 F.3d 855 (2001).

The proposed options would apply to businesses providing services in the guided halibut sport fishery in Area 3A (Southcentral Alaska). There do not appear to be any entities that are directly regulated by the proposed action that would qualify as either "small nonprofit" entities or "small government jurisdictions."

3.4.3 Estimate of the Number of Small Entities to Which the Proposed actions will apply

ADF&G data showed that there were 625 vessels recording charter trips for halibut in 2006 for which, exact revenue figures from individual charter operators are not available. The analysis deduces that all single-vessel operators are likely small businesses based on their ability to generate revenue The charter season lasts for a approximately of 120 days between early May and mid-September and vessels are generally carry up to six paying passengers per trip. Key informant interviews indicate single trip prices average between $150 and $250 per day. Hence, a single vessel operator could generate $180,000 in a single season if he took one trip per day at maximum capacity. Two trips per day(or carrying 12 passengers for one trip per day) at maximum capacity and sailing everyday of the season would generate $360,000 in revenue. ADF&G data indicate that the average vessel took just under 37.5 trips in 2006 with an average client load of 5.9 passengers. Thus, the average vessel likely generated approximately $55,000 in revenue. More than 118 vessels operating at maximum capacity would be needed to generate more than $6.5 million in revenue. There is no business in the affected area operating this many vessels. Thus, the analysis concludes that most operators are likely to be small businesses

The estimation of the number of small entities is likely over-inclusive because of the limited information on vessel ownership and operator revenues. However, it is highly likely that nearly all entities qualify as small businesses.

3.5 Description of the Projected Reporting, Record Keeping and Other Compliance Requirements of the Analyzed Options

3.5.1 Description of Compliance Requirements of the Analyzed Options

As currently envisioned, the proposed actions would not require any new or revised "reporting" or "record keeping". Specifically, the analyzed options impose harvest restriction options: (1) No more than one trip per charter vessel per day; (2) No harvest by skipper or crew and a limit on the number of lines to not exceed the number of paying clients; (3) Annual limits of four fish, five fish, or six fish per charter angler; (4) Reduced bag limits of one fish per day in May, June, July, August, September or for the entire season; (5) Requiring one of two fish in a daily bag to be larger than 45 inches or 50 inches; (6) Requiring one of two fish in a daily bag to measure less than, or equal to, 32 inches, 34 inches, or 36 inches; or (7) A reverse slot limit requiring one of two fish in a daily bag limit to measure 32 inches or less or longer than either 45 inches or 50 inches.

3.5.2 Description of Compliance Costs Associated with the Proposed Actions

As noted above the analysis does not expect an increase in reporting or recording keeping requirements on the part of operators. Hence compliance costs associated with the projected reporting, record keeping and other compliance requirements should be negligible.

3.6 Identification of Relevant Federal Rules that may Duplicate, Overlap or Conflict with the Proposed Actions

NOAA Fisheries is unaware of any duplicative, overlapping, or conflicting Federal rules.

3.7 A Description of Any Significant Options to the Proposed Action

The RFA requires a description of any significant alternatives to the proposed rule that accomplish the stated objectives of the Magnuson-Stevens Act and any other applicable statutes, and that would minimize any significant adverse economic impact of the proposed rule on small entities. This section will be completed when the Council establishes a proposed rule.

4.0 CONSISTENCY WITH OTHER APPLICABLE LAWS

4.1 Introduction

This section discusses the consistency of the proposed actions with the North Pacific Halibut Act of 1982, Magnuson-Stevens Act, and the Regulatory Flexibility Act.

This North Pacific Halibut Act of 1982 governs the promulgation of regulations for managing the halibut fisheries in both state and Federal waters. The language in the Halibut Act regarding the authorities of the Secretary of Commerce and the Regional Fishery Management Council is excerpted below:

> *"The Regional Fishery Management Council having authority for the geographic area concerned may develop regulations governing the U.S. portion of Convention waters, including limited access regulations, applicable to nationals or vessels of the U.S., or both, which are in addition to, and not in conflict with regulations adopted by the Commission. Such regulations shall only be implanted with the approval of the Secretary, shall not discriminate between residents of different States, and shall be consistent with the limited entry criteria set forth in Section 303(b)(6) of the Magnuson Act. If it becomes necessary to allocate or assign halibut fishing privileges among various U.S. fishermen, such allocation shall be fair and equitable to all such fishermen, based upon the rights and obligations in existing Federal law, reasonably calculated to promote conservation, and carried out in such a manner that no particular individual, corporation, or other entity acquires an excessive share of the halibut fishing privileges…"*

From the language in the Halibut Act, it is clear that while jurisdictional authority for the limited access and other allocation options resides within the provisions of the Halibut Act, consideration of those types of options is subject to many of the same criteria described under the Magnuson-Stevens Act. In particular, the 303(b) (6) provisions of the Magnuson-Stevens Act and the language from National Standard 4 are directly referenced. Therefore, the following sections are included to discuss the consistency of the proposed options relative to certain provisions of the Magnuson-Stevens Act and other applicable laws, without regard for whether such treatment is formally required.

4.2 Section 303(a) (9) – Fisheries Impact Statement

The Magnuson-Stevens Act requires that any management options submitted by the Council take into account potential impacts on the participants in the fisheries, as well as participants in adjacent fisheries. Without regard to whether this fisheries impact statement is formally required under the proposed action, the following information is provided. The impacts of the proposed options have been discussed in previous sections of this document. The action options would not curtail the charter fishing season, but could influence client demand for trips and require certain businesses to change their business model. In addition, certain options could shift demand from halibut to other species and change the spatial nature of demand over time. The effects of changing business models and the spatial shift of demand are likely to affect not only businesses but communities as well. Participants in other fisheries (e.g., salmon, rockfish, and lingcod) could find themselves facing additional competition from displaced halibut anglers.

Not imposing options to limit charter catches to their GHL could reduce the amount of halibut available to the commercial fisheries, particularly if the charter fishery continues to expand and the halibut quota decreases.

5.0 REFERENCES

Alaska Department of Fish & Game. Statewide Harvest Survey (1995-2006). 2007.

Alaska Department of Fish & Game. *Charter Logbook Program (1995-2006*). 2007.

Clark, W. G. and S. R. Hare. 2007. Assessment of the Pacific halibut stock at the end of 2006. International Pacific halibut Commission Report of Assessment and Research Activities 2006: 97-128.

Criddle, Keith, M. Herrmann S.T. Lee, and C. Hamel, *Participation Decisions, Angler Welfare, and the Regional Impact of Sportfishing.* Marine Resource Economics. Volume 18, pp. 291-312. 2003.

Criddle. Keith. *Economic Principles of Sustainable Multi-use Fisheries Management with a Case History Economic Model for Pacific Halibut.* American Fisheries Society Symposium. Volume 43. pp. 143-171, 2004

Fall, J. A., D. Koster, and B. Davis. 2006. Subsistence harvests of Pacific halibut in Alaska, 2005. Alaska Department of Fish and Game, Division of Subsistence, Technical Paper 320. Juneau.

"Fisheries of the Exclusive Economic Zone off Alaska: North Pacific Halibut and Sablefish Individual Fishing Quota Cost Recovery Program," Title 50 Code of Federal Register, Part 679. 2005 ed.

Forsberg, J. E. 2007. Age distribution of the commercial halibut catch for 2006. International Pacific halibut Commission Report of Assessment and Research Activities 2006: 75-80.

Hamel, Charles, Herrmann, M., S.T. Lee, K.R. Criddle, and H.T. Geier. *Linking Sportfishing Trip Attributes, Participation Decisions, and Regional Economic Impacts in Lower and Central Cook Inlet, Alaska.* The Annals of Regional Science. Volume 36. pp. 247-264. 2002.

Hare, Steven and W.G. Clark. *Discussion Paper on Regularizing Bycatch, Sport, and Subsistence Catch.* International Pacific Halibut Commission. Report of Assessment and Research Activities, 2007.

Herrmann, Mark, S.T. Lee, K.R. Criddle, and C. Hamel. *A Survey of Participants in the Lower and Central Cook Inlet Halibut and Salmon Sport Fisheries.* Alaska Fishery Research Bulletin. Volume 8, Number 2, Winter 2001.

Herrmann, Mark, S. T. Lee, K.R. Criddle, and C. Hamel. *An Economic Assessment of the Sport Fisheries for Halibut, Chinook, and Coho Salmon in the Lower Cook Inlet.* Final Report Prepared for the Minerals Management Service, Coastal Marine Institute, April 2000, University of Alaska Fairbanks.

Herrmann, Mark and K.R. Criddle. *An Econometric Model for the Pacific Halibut Fishery.* Marine Resource Economics. Volume 21, No. 2. 2006.

International Pacific Halibut Commission Staff. *Discussion of IPHC Management Options for the 2007 Sport Charter Fishery in Alaska.* International Pacific Halibut Commission. February 2007

Lee, S.Todd. NMFS. Personal Communication with NEI Staff, February 1, 2007.

Lew, Daniel. NMFS. Personal Communication with NEI Staff, January 31, 2007.

McCaughran, D. A. . and S. H. Hoag. 1992. The 1979 Protocol to the Convention and Related Legislation. IPHC Tech. rep. No. 26. 32 pp. IPHC, POB 95009, Seattle, WA 98145-20009.

"Monthly Halibut IFQ Landings by Year in Lb and Percent of Annual IFQ TAC." National Marine Fisheries Service. Juneau, Alaska. December 2005.

National Marine Fisheries Service. 2007. Regulatory Amendment to Modify the Halibut Bag Limit in the Halibut Charter Fisheries in IPHC Regulatory Area 2C. Environmental Assessment/Regulatory Impact Review/ Initial Regulatory Flexibility Analysis. NMFS, Juneau, AK.

North Pacific Fishery Management Council (NPFMC). 1997. Draft Environmental Assessment/ Regulatory Impact Review/Initial Regulatory Flexibility Analysis for Proposed Regulatory Amendments to Implement Management Options for Guided Sport Fishery for Halibut off Alaska. North Pacific Fishery Management Council. Anchorage.

NPFMC. 2001. Environmental Assessment/Regulatory Impact Review/Final Regulatory Flexibility Analysis for a Regulatory Amendments to Implement Management Measures Under a Guideline Harvest Level and/or Moratorium for the Charter Fishery for Pacific Halibut in Areas 2C and 3A. NPFMC. Anchorage.

NPFMC. 2003. Environmental Assessment/Regulatory Impact Review/Final Regulatory Flexibility Analysis for a Regulatory Amendments to Implement Management Options Under a Guideline Harvest Level and/or Moratorium for the Charter Fishery for Pacific Halibut in Areas 2C and 3A. North Pacific Fishery Management Council. Anchorage.

NPFMC. 2005. Environmental Assessment/Regulatory Impact Review/Final Regulatory Flexibility Analysis for a Regulatory Amendments to Incorporate the Charter Sector into the Individual Fishing Quota Program for Pacific Halibut in International Pacific Halibut Regulatory Areas 2C and 3A. NPFMC. Anchorage.

NPFMC. 2006. Environmental Assessment/Regulatory Impact Review/Final Regulatory Flexibility Analysis for a Regulatory Amendments to Implement Management Options Under a Guideline Harvest Level Options for the Charter Fishery for Pacific Halibut in Areas 2C and 3A. NPFMC. Anchorage.

NPFMC. 2007. Draft Report of the Scientific and Statistical Committee to the North Pacific Fishery Management Council. February 5-7, 2007.

NPFMC 2007b, Environmental Assessment/Regulatory Impact Review/Final Regulatory Flexibility Analysis for a Regulatory Amendments to Implement Management Options Under a Guideline Harvest Level Options for the Charter Fishery for Pacific Halibut in Areas 2C. NPFMC. Anchorage.

"Pacific Halibut Fisheries; Guided Sport Charter Vessel Fishery for Halibut," 72 Federal Register 66 (April 6, 2007), pp. 17071-17076.

Williams, G. 1999. Appendix A. Pacific halibut stock assessment and evaluation. In: Stock Assessment and Fishery Evaluation Report for the Gulf of Alaska Groundfish Total Allowable Catch Specifications. Avail. From NPFMC, 605 W. 4th Ave., Suite 306, Anchorage, AK 99501.

6.0 LIST OF PREPARERS

Jane DiCosimo
North Pacific Fishery Management Council
605 West 4th Avenue, Suite 306
Anchorage, AK 99501
Ph: 907.271.2809
Fax: 907.271.2817

Ben Muse, Ph.D., and Jason Gasper
NMFS Alaska Region
709 W. 9th St.
Juneau, Alaska 99802-1668
Ph: 907-586-7228
Fax: 907-586-7465

Jonathan King
Northern Economics
880 H. Street, Suite 210
Anchorage, AK 99501
Ph: 907.274.5600
Fax: 907.274.5601

Scott Meyer, Allen Bingham,
Doug Vincent-Lang
ADF&G Sport Fish Division
333 Raspberry Road
Anchorage, AK 99802
Ph: 907 267-2339

7.0 INDIVIDUALS CONSULTED

Lewis Queirolo, Ph.D., NMFS Alaska region
Mark Fina, Ph.D., NPFMC
Jay Ginter, NOAA Fisheries, SF
Jeff Passer, Ron Antaya, NOAA OLE
John Lepore, Susan Auer, NOAA GC
Jessie Gharrett, Tracy Buck, RAM Division
LCDR Lisa Ragone, USCG
Gregg Williams, Cal Blood, IPHC
John Goodhand, Valdez, AK
Laurie Coates, Homer, AK
Mark Clemens, Seward, AK
Tim Evers, Ninilchik, AK
Bryan Bondioli, Deep Creek, AK
Chris Fiala, Kodiak, AK
Tim Cashman, Homer, AK
Robert Ward, Deep Creek, AK
Andy Mezirow, Seward, AK

APPENDIX. FINAL 2006 CHARTER HALIBUT HARVEST ESTIMATE FOR AREA 3A FROM ADF&G SPORT FISH DIVISION

The Area 3A sport charter harvest was 3.664 M lb, which is only 0.37% over the Area 3A GHL of 3.650 M lb. The final estimate is about 284,000 lb lower than last year's projection of 2006 harvest. Last year's projection was high by 7.7%. At the time we provided this projection we advised the Council and the IPHC that this was only a projection of past years' trend in harvest and that these projections have been off by as much as 20% or more due to year-to-year variability. Average weight for Area 3A was 17.9 lb, a little lower than the projected average weight of 18.2. Even though the final estimates and projections used the same average weights for each port, the overall Area 3A average weight declined because the harvest was distributed among the ports slightly differently than in the projection.

The Area 3A sport private harvest was 1.674 M lb, which is about 467,000 lb lower than the 2006 year-end projection of 2.141 M lb. That projection was high by 27.9%. The average weight was 14.6 lb, up slightly from the projected average weight of 14.5 lb, and different for the same reason.

The total Area 3A sport removals for 2006 were 5.337 M lb. This is considerably lower than our overall projection of 6.088 M lb. In setting the 2007 commercial catch limits for Area 3A, the IPHC deducted from the overall CEY the charter GHL of 3.65 M lb and our private harvest projection of 2.14 M lb, for a total sport fishery deduction of 5.79 M lb. The total sport fishery removals were therefore lower than the amount deducted from the CEY by about 450,000 lb.

The differences between the projections and final estimates are due almost entirely to differences in the numbers of fish harvested. I discovered that previous estimates of mean weight for each port were rounded to the nearest 0.1 lb before multiplying by the harvested number of fish. Starting with these 2006 final estimates all rounding will occur after all calculations are made. The differences are on the order of only a few hundred pounds.

Detailed tables are on the following page.

2006 Area 3A - Final Halibut Harvest Estimates

User	Port	MeanWt	Harvest	Yield (lb)
CHARTER	CCI	15.8	55,915	883,891
	Homer	17.6	79,560	1,400,256
	Kodiak	22.1	14,219	314,309
	Seward	15.3	32,387	495,198
	Valdez	27.9	9,119	254,200
	Whittier	18.8	9,264	174,274
	Yakutat	38.7	3,651	141,399
	Area 3A	17.9	204,115	**3,663,527**
PRIVATE	CCI	13.2	28,704	380,015
	Homer	12.8	45,263	577,961
	Kodiak	19.6	11,000	215,907
	Seward	13.8	16,681	229,680
	Valdez	21.4	6,633	142,172
	Whittier	19.4	6,030	116,988
	Yakutat	19.0	576	10,951
	Area 3A	14.6	114,887	**1,673,674**
OVERALL	Area 3A	16.7	319,002	**5,337,201**

(variance estimates available after mid-September)

Charter GHL status 2006

Harvest	GHL	%diff
3.664	3.650	0.37%

Comparison of last year's projection of 2006 harvest (M lb) and final estimates.

User	Projected	Final	Proj Error(%)
Charter	3.947	3.664	7.7%

Area 3A Harvest 1995-2006

	Charter			Non-charter			Total Sport Ha	
Year	No. Fish	Avg. Wt.	Yield (M lb)	No. Fish	Avg. Wt.	Yield (M lb)	No. Fish	Avg. Wt.
1995	137,843	20.6	2.845	95,206	17.5	1.666	233,049	19.4
1996	142,957	19.7	2.822	108,812	17.6	1.918	251,769	18.8
1997	152,856	22.3	3.413	119,510	17.6	2.100	272,366	20.2
1998	143,368	20.8	2.985	105,876	16.2	1.717	249,244	18.9
1999	131,726	19.2	2.533	99,498	17.0	1.695	231,224	18.3
2000	159,609	19.7	3.140	128,427	16.9	2.165	288,036	18.4
2001	163,349	19.2	3.132	90,249	17.1	1.543	253,598	18.4
2002	149,608	18.2	2.724	93,240	15.9	1.478	242,848	17.3
2003	163,629	20.7	3.382	118,004	17.3	2.046	281,633	19.3
2004	197,208	18.6	3.668	134,960	14.4	1.937	332,168	16.9
2005	206,902	17.8	3.689	127,086	15.6	1.984	333,988	17.0
2006	204,115	17.9	3.664	114,887	14.6	1.674	319,002	16.7