

North Pacific Fishery Management Council

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Enforcement Committee Agenda

**October 4, 2016
1:00–4:00 pm
Lupine Room, Hilton Hotel
Anchorage, Alaska**

The agenda for October 2016 Enforcement meeting includes two issues: (1) review discussion paper on comingling of guided and unguided halibut, and (2) an update on the enforcement considerations for the EM integration analysis. Following is a summary for each of the agenda items.

1. Comingling of Guided Halibut with Unguided Halibut on the same Charter Vessel

At the June 2016 meeting, the Council tasked staff to prepare a discussion paper on information concerning comingling of guided and unguided halibut on the same vessel for presentation at a future Council meeting. To assist in the preparation of the discussion paper, the Enforcement Committee will review the preliminary draft at this meeting that is included in the Background Information section.

The included discussion paper provides information on current comingling regulations, a description of guided and unguided halibut fisheries management and halibut removals from Area 2C and 3A, a description of how comingled guided and unguided halibut could occur, and potential alternatives and options to limit comingling of guided and unguided halibut on the same vessel at that same time.

2. Update on EM Integration Alternatives and Options for October 2016 - Initial Review

The Council has initiated an analysis to integrate electronic monitoring (EM) tools into the Observer Program for vessels using fixed gear, and an initial review draft is being prepared for October 2016. This is a high priority project for the Council, and the target date for implementation is 2018. The EM program design is being developed through the Council's Fixed Gear EM Workgroup. Staff will provide the Committee with an update on the October 2016 initial review analysis.

Included in the Background Information section is a summary of the alternatives and an option under consideration and a summary of the enforcement recommendations from the executive summary of the full analysis. The full version of the enforcement recommendations from the analysis (Section 3.6 starting on page 67) is attached as an appendix. A link to the [full initial review draft](#) is provided here and can also be found under the Council's agenda item C3

BACKGROUND INFORMATION

Agenda Item 1.

Comingling of Halibut from Guided and Unguided Trips on the Same Vessel

Discussion Paper for Enforcement Committee

October 2016

I. Introduction

At the June 2016 meeting, the Council tasked staff to prepare a discussion paper on information concerning comingling of halibut for presentation at future Council meeting. Due to the different regulations applicable to guided and unguided (i.e., chartered and non-chartered) halibut fishing trips, possessing halibut harvested from both on the same vessel at the same time presents challenges for accountability that cannot be overcome with the current regulatory tools. This type of scenario can occur on multi-day and “mothership” charter fishing and floating lodges, and to a lesser extent on vessels that are owned by self-guided fishing operations that also provide sport fishing guide services to their clients that request them. Once guided and unguided halibut are comingled aboard a vessel there is no way for Office of Law Enforcement (OLE) to determine which halibut were harvested under the guided regulations and which halibut were harvested under the unguided regulations. Compliance can be maximized and the duration of an at-sea vessel boarding can be minimized when regulations serve a clear purpose and are drafted concisely, unambiguously and require no interpretation by guides, anglers or authorized officers in the field. The current regulatory structure allows guided and unguided halibut to be comingled on a vessel but does not provide the regulated public or authorized officers with a mechanism (beyond the honor system) to ensure compliance with the more restrictive guided halibut regulations. prohibition of comingling guided and unguided halibut to ensure proper accounting of catch in all categories would require a regulatory change.

The potential for comingling guided and unguided halibut exists on every vessel that harvests halibut and every floating lodge that services halibut harvesters. The issue is likely to expand as charter operators (and their employees) look for ways to maximize halibut harvests for guided and non-guided anglers on their vessels.

The following discussion paper provides information on current comingling regulations, a description of guided and unguided halibut fisheries management and halibut removals from area 2C and 3A, a description of how comingled guided and unguided halibut could occur, and potential alternatives and options to limit comingling of guided and unguided halibut on the same vessel at the same time.

II. Current Comingling Regulations

There are currently no regulations that address the issue of possessing guided and unguided halibut on the same vessel at the same time. However, in 2003, the Council recognized that comingling subsistence harvested halibut with non-subsistence harvested halibut would present enforcement challenges. To address this challenge, the Council implemented a prohibition on possessing subsistence, sport and commercially harvested halibut on the same vessel at the same time when the final subsistence regulations were first published. The Council approved this regulatory tool to assist authorized officers in ensuring that daily bag and possession limits, as well as other restrictions relevant to each fishery, could be enforced in the field without putting undue burden on the harvester or the agency. The relevant portion of the subsistence regulation is pasted below:

50 CFR §300.66 Prohibitions.

In addition to the general prohibitions specified in 50 CFR 300.4, it is unlawful for any person to do any of the following:

(h) Conduct subsistence fishing for halibut while commercial fishing or sport fishing for halibut, as defined in §300.61, from the same vessel on the same calendar day, or possess on board a vessel halibut harvested while subsistence fishing with halibut harvested while commercial fishing or sport fishing, except that persons authorized to conduct subsistence fishing under §300.65(g), and who land their total annual harvest of halibut...:

The IPHC Annual Management Measures at Section 25 (6) prohibit the possession of sport harvested halibut onboard a vessel when other fish or shellfish are destined for commercial sale, trade or barter. This prohibition is partially in place to assist authorized officers in ensuring that all of the regulations specific to the mechanism of harvest could be enforced efficiently while onboard a vessel.

25. Sport Fishing for Halibut—General

(6) No halibut caught in sport fishing shall be possessed on board a vessel when other fish or shellfish aboard said vessel are destined for commercial use, sale, trade, or barter.

In another IPHC Annual Management Measures at Section 28(1)(f) all halibut harvested on a charter vessel in Area 2C and Area 3A must be retained on board the vessel until the end of the fishing trip.

28(1)(f): All halibut harvested on a charter vessel fishing trip in Area 2C or Area 3A must be retained on board the charter vessel on which the halibut was caught until the end of the charter vessel fishing trip as defined at 50 CFR 300.61.

In yet another IPHC Annual Management Measures, halibut in excess of the possession limit may be possessed on a vessel that does not contain sport fishing gear

28. Sport Fishing for Halibut—Areas 2C, 3A, 3B, 4A, 4B, 4C, 4D, 4E (1) In Convention waters in and off Alaska: (e) Halibut in excess of the possession limit in paragraph (1)(c) of this section may be possessed on a vessel that does not contain sport fishing gear, fishing rods, hand lines, or gaffs.

III. Guided and Unguided Halibut Fisheries

A. Sports Fishing Comingling Data

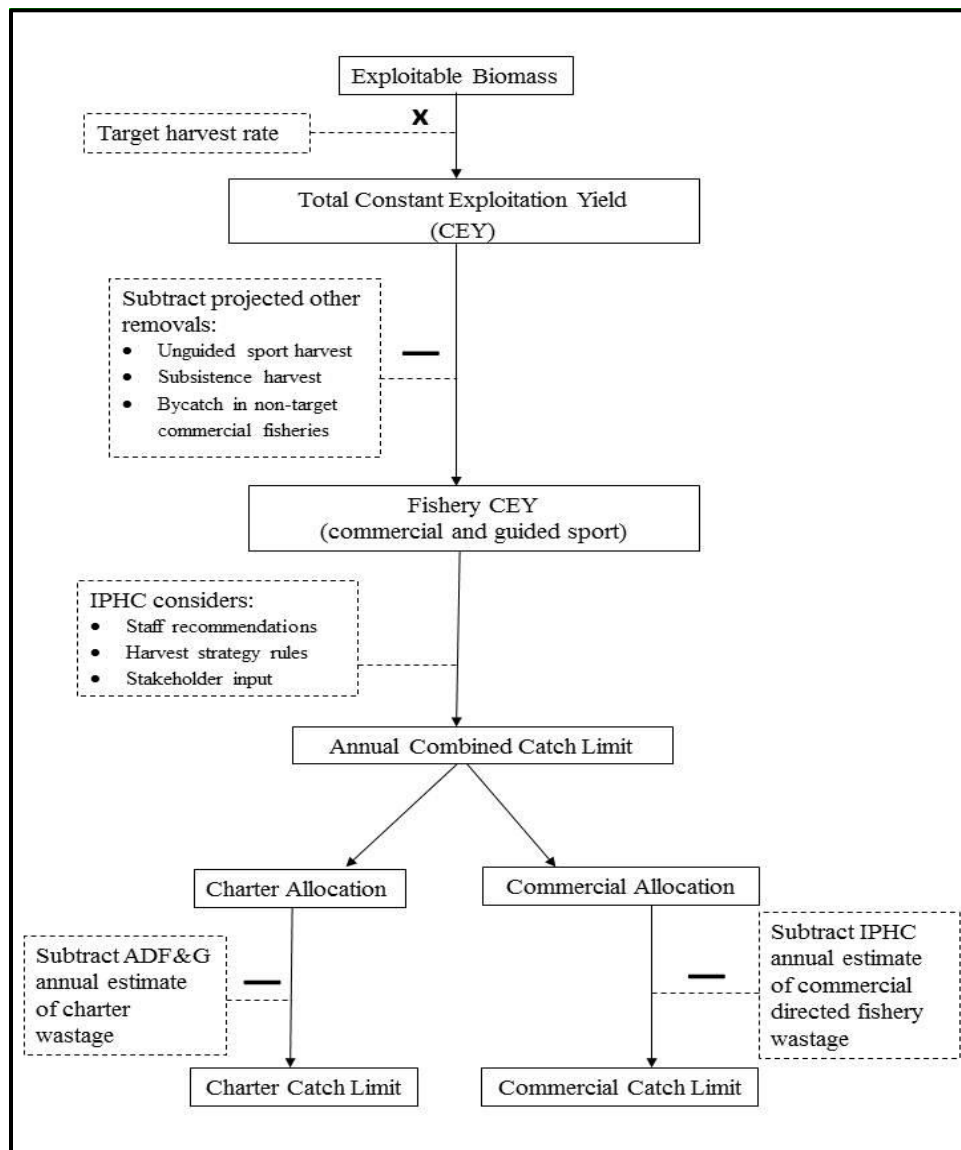
There is currently no data available to quantify the extent of mothership or multi-day charter fishing or floating lodge operations. Data is not collected by National Marine Fisheries Service (NMFS), the Alaska Department of Fish and Game (ADF&G) or the International Pacific Halibut Commission (IPHC) on the number of operators that offer multi-day or mothership fishing operations, how many multi-day or mothership trips are conducted or how many guided and unguided halibut are harvested on multi-day or mothership fishing operations. However, OLE has received inquiring from operators of multi-day, mothership fishing and floating lodge operations as to how they should treat their comingled guided and unguided halibut, and how their comingled catches would be viewed by authorized officers when they are boarded at sea. OLE personnel have encountered multi-day fishing vessels at sea that have guided and non-guided comingled halibut onboard and have been unable to verify that all of the guided halibut onboard was harvested and retained in compliance with the IPHC Annual Management Measures. It's not possible to quantify the number of inquiries or boardings regarding comingling of guided and unguided halibut that OLE personnel have been involved in.

B. Halibut Fishery Management

Guided and unguided halibut fishing operate under a different management structure. In general, guided harvest is managed under an annual allocation, while unguided harvest is not. As seen in Figure 1, projected unguided sport removals and subsistence harvest are subtracted from the total constant

exploitation yield (CEY) before the catch limits are set for commercial and guided fishing. There is no catch limit assigned to this type of fishing; the total amount of removals is constrained indirectly through management measures such as bag limits and gear restrictions. Catch limits are established for the commercial and guided halibut sectors with the remaining CEY.

Figure 1 Process for setting annual combined catch limits, charter and commercial allocations, and charter and commercial catch limits for Area 2C and Area 3A under the Catch Sharing Plan



This means that while the regulations for unguided sport halibut harvest have remained at a bag limit of two fish of any size, the guided sport sector's management measures have been more restrictive and have varied over the years (particularly since the implementation of the Catch Sharing Plan (CSP)).

For the guided halibut sector, the CSP provides a systematic, timely, and responsive process to address harvest overages or underages, using the best available and most recent data. Annual management

measures for implementation in the Area 2C and Area 3A¹ guided halibut fishery are set each year through a public process.

In December each year, prior to Council consideration, ADF&G presents an analysis based on the combinations of management measures requested by the Charter Halibut Management Implementation Committee. This analysis is based on a forecast of the upcoming year's harvest under the current year ("status quo") regulations and observed effects of various measures in past years. Projected harvests under alternative management measures are compared to the guided sector's allocation associated with the IPHC's "blue line" CCL for commercial and guided sport fisheries. The guided allocation is defined in relation to the magnitude of this combined catch limit. Management measures are not modified inseason, therefore the Council recommends annual management measures intended to keep guided harvest within the guided sector allocation in each area.

There are a variety of management measures that have been used or considered in the past to manage the charter and other recreational halibut fisheries. Some of these measures directly restrict the number or size of fish allowed to be retained. Management measures for the guided sector are at least as restrictive as for the unguided sport sector; however, in recent years they have been much more restrictive, as can be seen in Table 1 and Table 2.

Table 1 Management measures for guided sport halibut fishing in Area 2C, 2010 to 2016

Year	Mgmt type	Area 2C charter regulation	Harvest limit (Mlb)	Guided harvest (Mlb)	Guided Harvest (% of harvest limit)
2010	GHL	One fish (no size limit); no harvest by skipper & crew; line limit	0.788	1.086	138
2011	GHL	One fish with a maximum of 37 inches; no harvest by skipper and crew; line limit	0.788	0.344	44
2012	GHL	One fish U45 inches or O68 inches; no harvest by skipper and crew; line limit	0.931	0.605	65
2013	GHL	One fish U45 inches or O68 inches; no harvest by skipper and crew; line limit	0.788	0.762	97
2014	CSP	One fish U44 inches or O76 inches; no harvest by skipper and crew; line limit	0.761	0.827	109
2015	CSP	One fish U42 inches or O80 inches; no harvest by skipper and crew; line limit	0.851	0.848	0
2016	CSP	One fish U43 inches or O80 inches; no harvest by skipper and crew; line limit	0.906	Not available yet	Not available yet

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

Table notes: All pounds are in net weight. The guided harvest removal for 2016 (italicized) is based on preliminary estimates from ADF&G (2016). Harvest limit and guided harvest include discard mortality associated with O26 halibut released beginning with the CSP in 2014.

¹ Area 2C and Area 3A represent the vast majority (more than 99%) of the guided halibut fishing, therefore the comingling of halibut would only be a concern in these regulatory areas.

Table 2 Management measures for guided sport halibut fishing in Area 3A, 2010 to 2016

Year	Mgmt type	Area 3A charter regulation	Harvest limit (Mlb)	Guided harvest (Mlb)	Guided harvest (% of harvest limit)
2010	GHL	Two-fish bag limit (no size restrictions); no limit on crew retention	3.65	2.698	74
2011	GHL	Two-fish bag limit (no size restrictions); no limit on crew retention	3.65	2.793	77
2012	GHL	Two-fish bag limit (no size restrictions); no limit on crew retention	3.103	2.284	74
2013	GHL	Two-fish bag limit (no size restrictions); no limit on crew retention	2.734	2.514	92
2014	CSP	Two-fish bag limit (one fish U29 inches); one trip per day; no harvest by skipper and crew	1.78	2.066	116
2015	CSP	Two-fish bag limit (one fish U29 inches); one trip per day, five-fish annual limit; Thursday closure; no harvest by skipper and crew	1.89	2.063	109
2016	CSP	Two-fish bag limit (one fish U28 inches); one trip per day, four-fish annual limit; Wednesday closure; no harvest by skipper and crew; line limit	1.814	Not available yet	Not available yet

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

Table notes: All pounds are in net weight. The guided harvest removal for 2016 (italicized) is based on preliminary estimates from ADF&G (2016). Harvest limit and guided harvest include discard mortality associated with O26 halibut released beginning with the CSP in 2014.

C. Halibut removals in guided and unguided sport fishing

Five major categories of halibut use occur in Alaska: commercial landings, sport (guided and unguided), subsistence and personal use, discard mortality in halibut targeted fisheries, and bycatch mortality in non-halibut directed fisheries.

Table 3 and Table 4 provide Area 2C and Area 3A guided and unguided sport harvest of halibut by number of fish and Mlb from 1995 through 2014. For the 2014 season, the harvest of Area 2C guided halibut was 65,036 fish for a yield of 0.783 Mlb, while the harvest of unguided halibut was 69,060 fish for a yield of 1.170 Mlb. For Area 3A, the harvest of guided halibut was 174,351 fish for a yield of 2.034 Mlb, while the harvest of unguided halibut was 127,125 fish for a yield of 1.533 Mlb.

**Table 3 Area 2C guided and unguided sport harvest of halibut to include number of fish (No. Fish)
Millions of pounds (M lb.)**

Year	Guided ^a		Unguided		Total Sport Harvest	
	No. Fish	Yield (M lb)	No. Fish	Yield (M lb)	No. Fish	Yield (M lb)
1995	49,615	0.986	39,707	0.765	89,322	1.751
1996	53,590	1.187	41,307	0.943	94,897	2.129
1997	51,181	1.034	53,205	1.139	104,386	2.172
1998	54,364	1.584	42,580	0.917	96,944	2.501
1999	52,735	0.939	44,301	0.904	97,036	1.843
2000	57,208	1.130	54,432	1.121	111,640	2.251
2001	66,435	1.202	43,519	0.721	109,954	1.923
2002	64,614	1.275	40,199	0.814	104,813	2.090
2003	73,784	1.412	45,697	0.846	119,481	2.258
2004	84,327	1.750	62,989	1.187	147,316	2.937
2005	102,206	1.952	60,364	0.845	162,570	2.798
2006	90,471	1.804	50,520	0.723	140,991	2.526
2007	109,835	1.918	68,498	1.131	178,333	3.049
2008	102,965	1.999	66,296	1.265	169,261	3.264
2009	53,602	1.249	65,549	1.133	119,151	2.383
2010	41,202	1.086	52,896	0.885	94,098	1.971
2011	36,545	0.344	42,202	0.685	78,747	1.029
2012	42,436	0.605	54,696	0.977	97,132	1.583
2013	52,675	0.762	78,078	1.361	130,753	2.123
2014	65,036	0.783	69,060	1.170	134,096	1.954

Source: ADF&G-DSF

^a - Guided harvest estimates in numbers of fish are based on the Alaska Statewide Harvest Survey (mail survey) prior to 2014, and on the ADF&G charter logbook beginning in 2014.

**Table 4 Area 3A guided and unguided sport harvest of halibut to include number of fish (No. Fish)
Millions of pounds (M lb.)**

Year	Guided ^a		Unguided		Total Sport Harvest	
	No. Fish	Yield (M lb)	No. Fish	Yield (M lb)	No. Fish	Yield (M lb)
1995	137,843	2.845	95,206	1.666	233,049	4.511
1996	142,957	2.822	108,812	1.918	251,769	4.740
1997	152,856	3.413	119,510	2.100	272,366	5.514
1998	143,368	2.985	105,876	1.717	249,244	4.702
1999	131,726	2.533	99,498	1.695	231,224	4.228
2000	159,609	3.140	128,427	2.165	288,036	5.305
2001	163,349	3.132	90,249	1.543	253,598	4.675
2002	149,608	2.724	93,240	1.478	242,848	4.202
2003	163,629	3.382	118,004	2.046	281,633	5.427
2004	197,208	3.668	134,960	1.937	332,168	5.606
2005	206,902	3.689	127,086	1.984	333,988	5.672
2006	204,115	3.664	114,887	1.674	319,002	5.337
2007	236,133	4.002	166,338	2.281	402,471	6.283
2008	198,108	3.378	145,286	1.942	343,394	5.320
2009	167,599	2.734	150,205	2.023	317,804	4.758
2010	177,460	2.698	124,088	1.587	301,548	4.285
2011	184,293	2.793	128,464	1.615	312,757	4.408
2012	173,582	2.284	113,359	1.341	286,941	3.626
2013	199,248	2.514	121,568	1.452	320,816	3.966
2014	174,351	2.034	127,125	1.533	301,476	3.568

Source: ADF&G-DSF

^a - Guided harvest estimates in numbers of fish are based on the Alaska Statewide Harvest Survey (mail survey) prior to 2014, and on the ADF&G charter logbook beginning in 2014.

D. Examples of Guided and Unguided Comingling Halibut

Below is a description of different situations that comingling of guided and unguided halibut occurs, which can be useful in developing potential solutions to address that stated problem.

Mothership and multi-day guided fishing vessels - The “mothership” and multi-day fishing business models consist typically of a large vessel that is used to conduct multi-day fishing and sightseeing

adventures that has one or more small vessels associated with the larger vessel. The captain, crew and guests are lodged, fed and spend much of their time on the large vessel as it tows the smaller vessel(s) or transports them on deck. Guided halibut fishing can either be conducted from the smaller vessel(s) while the larger vessel is anchored or in transit or from the larger vessel. The halibut harvested with a guide is transferred from the smaller fishing vessel(s) to the larger vessel when the smaller vessel(s) return from fishing. During the course of the multi-day trip, crew and/or non-guided guests fish for and retain halibut from either the larger vessel or a smaller non-guided vessel. All of the non-guided halibut ultimately end up on the larger vessel along with the halibut harvested with a guide for the remainder of the trip. When the halibut harvested from guided and unguided fishing are comingled on the larger vessel, enforcement of more restrictive size, bag, possession, annual limits and daily closures on the halibut harvested with a guide becomes complicated. Any halibut harvested with a guide that does not comply with the more restrictive charter limits can simply be verbally labeled as non-guided harvested halibut. The saltwater logbook does not provide an adequate tool for verification or enforcement in this situation because the logbook is required to be completed at the end of the guided vessel fishing trip which can be when the halibut is transferred from the smaller vessel to the larger vessel or when the halibut is transferred off of the larger vessel (depending upon which vessel the halibut was harvested from). In the latter situation, comingling can occur on the larger vessel for a number of days before the logbook is completed.

Self-guided fishing vessels – Businesses that offer self-guided fishing opportunities sometimes also offer guided fishing opportunities as well. Guided and non-guided halibut harvest can occur on the same vessel if unguided halibut is harvested by sport anglers on vessel first, then the anglers request the assistance of a guide to harvest additional halibut on that trip. Possessing guided and unguided halibut on these vessels simultaneously is not currently prohibited. Enforcing some of the added restrictions on the guided halibut (size, annual limit) on these vessels can be challenging by anglers that wish to subvert the additional restrictions placed on the guided halibut.

Floating lodges – Halibut is harvested from vessels that deploy from a stationary floating platform that serves as a lodge. The floating lodge can be a large vessel at anchor, an anchored barge with structures built on it or an anchored large float house. All of the fishing is conducted from vessels that come and go from the float house daily or multiple times a day. Some of the small vessels may engage in unguided fishing trips (self-guided, employee or comp trips) and some of the vessels engage in fully guided trips. When the smaller vessels return from fishing to the floating lodge, they offload halibut harvested with a guide in addition to halibut harvested without a guide. The halibut is comingled on the floating lodge where it is not always possible for enforcement personnel to determine which halibut was harvested by guided anglers and which halibut was harvested by non-guided anglers. Halibut bag and possession limits and some other halibut fishing regulations apply on floating lodges in Alaska because the IPHC Annual Management Measures at Section 28 indicate that the sport fishing measures apply “in Convention waters in and off Alaska.

Halibut transport vessels – The IPHC Annual Management Measures at Section 28 (1)(e) allow a person on board a vessel that does not contain any sport fishing gear to exceed the possession limit of halibut. Since there is no possession limit on this type of vessel, prohibiting the possession of guided and non-guided halibut on this type of vessel would be useless, so OLE would propose excluding this type of vessel from a prohibition if adopted.

IV. Potential Alternatives and Options

Alternative 1: Take no action. The extent of the issue cannot be quantified with the available data. However, the issue exists at some level and will grow as long as halibut anglers seek to maximize their ability to harvest halibut.

Alternative 2: Prohibit the possession of guided and un-guided halibut simultaneously on any vessel.

Halibut catch must be offloaded before switching to guided or unguided operation. This prohibition would not cost charter operators any effort or additional expense. It would negatively impact the ability of non-guided anglers onboard a multi-day or mothership fishing vessel and floating lodge to harvest and retain halibut.

Alternative 3: Identify guided and un-guided halibut on the same vessel.

Option 3a: Tag or cut fin of guided and unguided halibut (similar to GAF). Clipping a fin is already used to mark GAF. Using the same mechanism to mark non-GAF fish would create confusion. Cutting fins or tagging halibut by a guide or the angler that harvested the halibut is essentially a self-reporting mechanism that relies on the honor system that cannot be verified or validated by authorized officers. Adopting a requirement to clip a fin would require effort from the charter guide, crew or non-guided anglers and would provide little or no additional benefit to ensure that all anglers onboard are in compliance.

Option 3b: Halibut catch must be separated into different holds or bins by operation type. I'm not sure what type of separation would be effective. Separating halibut by a guide or the angler that harvested the halibut is also essentially a self-reporting mechanism that relies on the honor system that cannot be verified or validated by authorized officers. Adopting a requirement such as this would require effort (and possibly additional expense) on the part of the charter guide, crew or non-guided anglers to separate the halibut and would provide little or no additional benefit to ensure that all anglers onboard are in compliance.

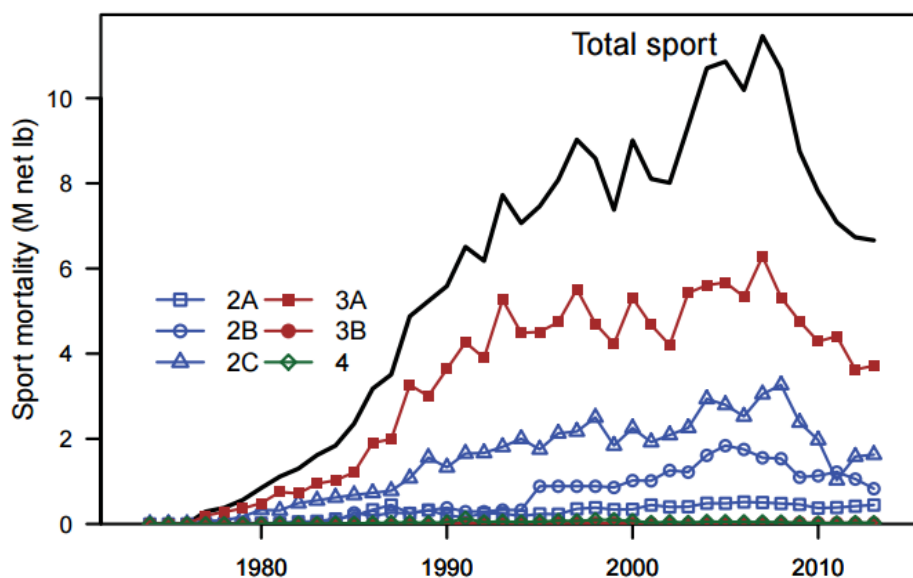
Alternative 4: Require all halibut that is possessed onboard a multi-day charter vessel, a vessel that has engaged in charter halibut and non-charter halibut harvesting during the same trip, a mother ship and a floating lodge to comply with the annual management measures that are published for charter harvested halibut. This would most likely require that regulatory definitions be drafted and published for multi-day charter vessel, mothership charter vessel, floating lodge and the combination guided/non-guided vessel. Adopting this alternative would put halibut harvest restrictions on non-guided anglers that comingle their catches with guided anglers while on convention waters in Alaska.

Appendix: Coastwide Sport Halibut

The coastwide sport harvest of halibut (including guided and unguided) has grown considerably since IPHC began keeping sport catch statistics in the late 1970s (**Figure 2**). The sport harvest first reached one Mlb in 1981 and continued to grow, surpassing five Mlb in 1989 and 10 Mlb in 2004. Sport harvest peaked at 11.5 Mlb in 2007 and has since declined somewhat to 7.5 million pounds in 2011.

In Alaska, the harvest by the sport fishery has followed a similar trend, in part because it makes up the vast majority of coastwide sport halibut fishing. Alaska sport fishing harvest of halibut peaked at 9.4 Mlb in 2009. Increased fishery restrictions coupled with declines in abundance have resulted in the harvest in 2012 of 6.87 Mlb. **Figure 2** reinforces the fact that nearly all of Alaskan sport halibut harvest comes from Area 3A and Area 2C.

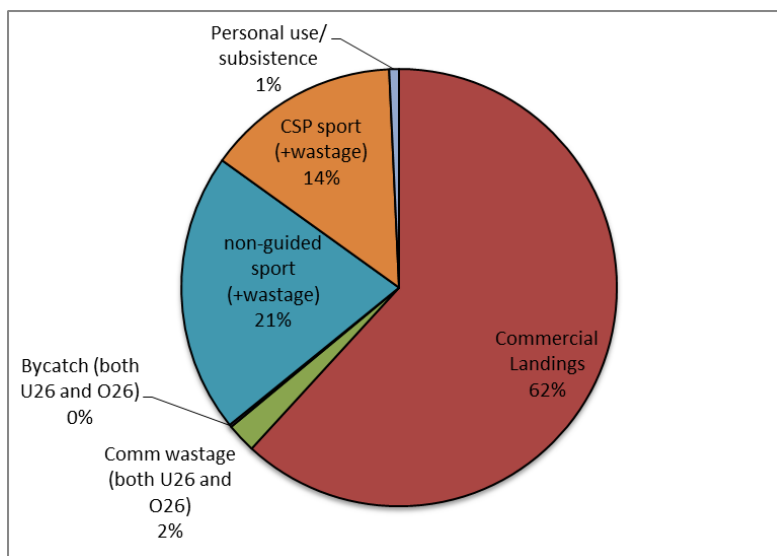
Figure 2 Sport catch removals (millions of pounds, net weight) since accounting began, 1977-2012



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

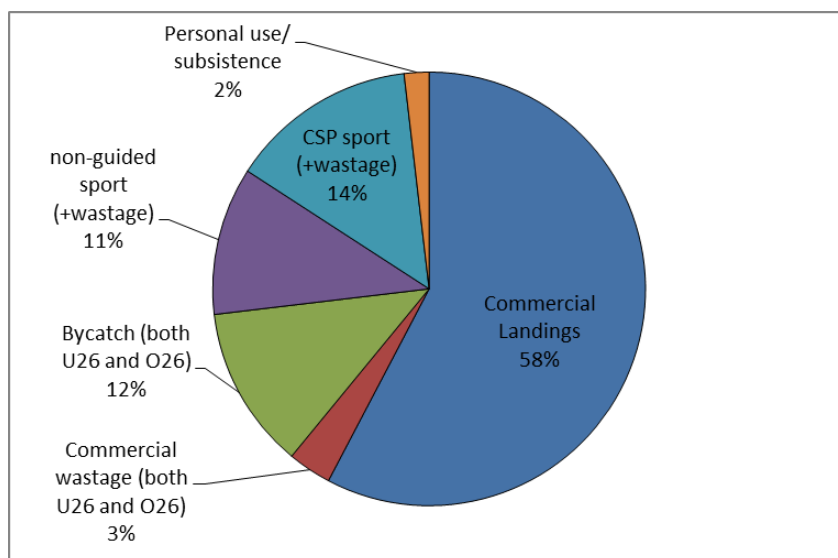
Sport removal of halibut (including the unguided sector) is an important proportion of halibut removals (**Figure 3** and **Figure 4**). In Area 2C, the IPHC catch table for 2015 allocated 0.79 mt to the guided halibut sport fishing sector and its wastage (i.e. 14 percent of the total removals). As prescribed in the CSP, this represents 18.3 percent of the total O26 FCEY. Area 3A guided halibut sport fishing sector was allocated 1.49 Mlb (14 percent of the total projected removals for 2015).

Figure 3 Projected halibut removals for Area 2C based on IPHC halibut catch for the 2015 blue line values



Source: IPHC (2015) Final decision table, available at:
http://www.iphc.int/meetings/2015am/Final_Adopted_catch_limits_1_30_15.pdf

Figure 4 Projected halibut removals for Area 3A based on IPHC halibut catch for the 2015 blue line values



Source: IPHC (2015) Final decision table, available at:
http://www.iphc.int/meetings/2015am/Final_Adopted_catch_limits_1_30_15.pdf

BACKGROUND INFORMATION

Agenda Item 2.

EM Integration Alternatives and Options & Enforcement Considerations

- Alternative 1: No Action - EM is not a tool in the Council's Research Plan
- Alternative 2: Allow use of EM for catch estimation on vessels in the EM selection pool
- Option: Require full retention of ~~key~~ rockfish² species with associated dockside monitoring
- Alternative 3: Allow use of EM for compliance monitoring of vessel operator logbooks used for catch estimation

NOAA Office of Law Enforcement (NOAA OLE) recognizes that an EM system to supplement the Observer Program has as its primary objective the management of the fisheries and data collection. However, an effective EM program must also have compliance components to contribute to that goal. With the accelerated timeline for implementation of an EM program, some of the enforcement issues that have been raised may not be fully resolved before the Council's final recommendation on this analysis, or even before initial implementation, however the following recommendations will help to ensure the enforceability and overall success of the program:

- Any components or tools for compliance implemented by this program should be consistent with other regulatory programs (e.g., the Observer Deploy and Declare System (ODDS), Vessel Monitoring System (VMS) transmission requirements, and electronic logbooks, if required).
- NOAA OLE envisions visiting vessels either at sea or while at the dock to verify that the systems are functioning correctly and are in compliance with the vessel's vessel monitoring plan.
- Data reviewers and EM service providers should report substantive potential violations observed aboard the vessels to NOAA OLE.
- Data retention should be sufficient to allow for compliance review and complex investigations, anticipated to be between 3 to 5 years but dependent on national guidelines.
- Strong and clear regulations provide guidance to vessel owners and operators about their responsibilities to maintain a functioning EM system. These will likely include requiring system health checks daily, keeping the cameras clean, and following the specifications of the vessel monitoring plan. NOAA OLE is considering various methods to verify that EM systems are on and functioning correctly, including whether to require real time transmission of system health data.
- Regulations should also clearly define the system failures under which a vessel would not be allowed to operate.

EM will likely provide some support for enforcement of other regulations. During EM video review, the data reviewers would record potential violations and report to NOAA OLE. Thresholds for reporting violations would need to be developed. Additionally, as the program develops, additional compliance-only EM components may be integrated. The use of cameras to verify seabird streamer line use, which is required for hook-and-line vessels under pre-implementation, is one such example. Another is the option, proposed by the EM Workgroup and supported by NMFS, to allow vessels to fish individual fishing quota (IFQ) in multiple areas with the use of an EM system.

² Note, in the Alternative 2 Option, it is the suggestion of the EM Workgroup to replace the word "key" with "rockfish", as it more accurately reflects the intent of the option.

As a reminder of the Enforcement Committee's discussion on EM during the June 2016 meeting, a copy of the minutes is provided below.

There was discussion at the committee about the two systems (integrated GPS vs. VMS) that could be used to provide location data with an EM system. Discussion concentrated on the utility of each system for enforcement opportunities, transmission of real-time data (location and system status), timelines for transfer and review of video data, data retention requirements, and timeline for implementation. Committee members noted that VMS allows for transmission of data that could provide system status information to the agency in real time, and may provide some opportunity for vessels to address critical failures at sea rather than returning to port. An EM system with integrated GPS would require a satellite modem to transfer those data, but would otherwise be comparable to VMS. It was noted that transmission of video data in real time from either system is currently cost prohibitive. However, transmission of basic system health data (no video) may be a viable alternative. System health transmissions would aid compliance and assist program technicians to troubleshoot EM systems at sea, potentially keeping vessels on the fishing grounds. It was also noted that requiring VMS to be incorporated into EM would require installation of VMS on vessels that do not currently have VMS installed. There were two perspectives raised by the committee with regards to enforcement utility of EM: one perspective was that the enforcement committee should recommend, at this early stage, those system components that would aid the agency, US Coast Guard, and State of Alaska in enforcement actions, the other perspective was that EM is being considered as a way to add value the observer program, and the committee should consciously evaluate the value of EM to the observer program as the primary objective and compliance components as contributors to the goals of management and the data collection. The committee noted that EM will provide some support for enforcement, regardless of which components are selected. It was also noted that fully integrating VMS into EM could complicate progress on EM in the short term.

After discussion, the committee approved the following statement during their June meeting:

The NPFMC Enforcement committee recognizes the aggressive timeline for implementation of EM, and recognizes that with the accelerated timeline some of the enforcement issues that have been raised may not be fully resolved before implementation. The committee appreciates the opportunity to raise enforceability concerns early and recommends the EM Workgroup test compliance components during pre-implementation where feasible. The committee looks forward to continuing to work with the EM Workgroup to address additional enforcement concerns, after implementation, as the program matures.

Appendix: Enforcement Considerations for an EM Program

NOAA OLE recognizes that with the accelerated timeline for implementation of an EM program, some of the enforcement issues that have been raised may not be fully resolved before the Council's final recommendation on this analysis, or even before initial implementation. However, it is still important to raise enforceability concerns early so that the enforcement issues that may affect the enforceability and overall success of the program can be addressed prior to implementation. NOAA OLE looks forward to continuing to work with the EM Workgroup to address additional enforcement concerns, after implementation, as the program matures.

Two broad categories of enforcement considerations are described here. First, Section 0 provides recommendations for enforcing a functioning EM program. Second, Section 0 describes the tools an EM program can provide that will allow OLE to detect violations of other requirements in the fishery, and Section 0 identifies other uses of EM for compliance monitoring.

Recommendations to be able to enforce an EM Program

NOAA OLE recognizes that an EM system to supplement the Observer Program has as its primary objective the management the fisheries and data collection. However, an effective EM program must also have compliance components to contribute to that goal. This section describes those compliance tools that would be needed to ensure a functioning EM program that meets that primary objective. Any decision points that have multiple avenues for enforcement are described in more detail.

An EM system that meets the enforcement needs would ultimately integrate GPS as a compliance, data, and management tool with these desired functions:

- Tamper resistance and low/no maintenance

- Independent date/time stamp with transmitted position or tagging in EM dataset

- Records of gear type, fishery, and fishing effort; two way communications; data transmission; electronic signatures, etc.

- Data to owner/operator for voluntary compliance.

- Mapping overlay of federal areas, transit restrictions, management units, gear restrictions, and restricted/closed areas 'geo-fencing'.

Any components or tools for compliance implemented by this program should be consistent with other regulatory programs. Examples of tools that should be consistent across regulatory program include the ODDS system, VMS transmission requirements, and electronic logbooks, if required. This minimizes the number of regulatory requirements a vessel owner must comply with which maximizes compliance and minimizes unintentional violations. Having consistent requirements aides in enforcement of those requirements and NOAA OLE can provide better and more informed guidance to fishers.

NOAA OLE will need access to an EM system aboard the vessel. NOAA OLE envisions visiting vessels either at sea or while at the dock to verify that the systems are functioning correctly and are in compliance with the vessel's VMP. Methods will need to be developed to allow enforcement boarding officers the ability to verify that the cameras are in the approved locations and that the handling procedures are being followed.

Data reviewers and EM service providers should report substantive potential violations observed aboard the vessels to NOAA OLE. Vessel owners are encouraged to self-report violations. Data reviewers will be provided a list of potential violations that might be observed during the video review. Procedures should be in place for documenting and transferring this data to NOAA OLE to meet chain of custody

requirements. EM service providers and vessel owners should report critical malfunctions or divergence from an approved VMP to NOAA OLE.

Data retention should be sufficient to allow for compliance review and complex investigations. This should be anticipated to be between 3 to 5 years and will depend on what national guidelines are developed. Sound and consistent practices for the transfer and handling of data will be required to maintain evidentiary value of compliance data. This would be similar to other information collected aboard a fishing vessel and required by NMFS, such as raw observer data.

Strong and clear regulations provide guidance to vessel owners and operators about their responsibilities to maintain a functioning EM system. These will likely include requiring system health checks daily, informing NOAA OLE and the EM provider when system failures have occurred, keeping the cameras clean, following the specifications set forth in their VMP and ensuring that the systems are not tampered with (not turning the system off when required, not intentionally obstructing camera views or blocking sensors). To aid enforcement, VMPs should be clear, specific and updated to reflect the most up to date information about a vessel's operations. VMPs should be readily available to NOAA OLE.

Regulations should also have a clear definition of the failures in which a vessel would not be allowed to operate. Regulations should also include a provision to prohibit a vessel from fishing in the case of continual EM equipment failures or extraordinary failure situations. NOAA OLE's criteria for this type of failure of a system would not be the same as the "critical failure" developed in other sections of the document. The regulatory provision to prohibit a vessel from fishing would likely only need to be invoked under the most extreme circumstances when all other methods of bringing a vessel into compliance have failed.

NOAA OLE is considering several methods to verify that EM systems are on and functioning correctly while aboard the vessel. The three methods being considered include:

Method 1: NOAA OLE receives reports from the EM data reviewer of system failures after the EM reviewer has reviewed the data.

Most often, the failure would be reported well after it occurred. This option has many disadvantages. It would be difficult for NOAA OLE to determine if the failure was accidental, intentional, or malicious. Vessel operators and owners may not be aware of the failure or may have difficulty remembering the details of the incident. Enforcement cases may be difficult to prove or delayed by months or years. Vessels that had failures which prevented the collection of usable data might not be addressed until after fishing is complete at which time violations could be more significant. Enforcement would be primarily a reactive tool if the operator did not comply with requirements to stop fishing or repair the system. Enforcement would be of less value for proactive or voluntary compliance.

Method 2: Transmission of basic system health data from vessels at sea in real time to NOAA OLE and EM providers. Transmission of a full system maintenance check along with image clips, GPS and sensor logs when arrive at the dock.

Real time reporting of EM system health has many advantages. These include being able to notify and work with vessel operators immediately when systems fail which may address issues early and keep vessels at sea and fishing with no down time. It would also speed enforcement response to address violations at an earlier stage and help identify vessel operators that may be inclined to repeat violations or intentional tampering with EM system. System health transmissions would aid compliance assistance and allow program technicians to troubleshoot EM systems at sea, potentially keeping vessels on the fishing grounds. This method would help ensure that compliant vessels remained in the EM pool. If a failure was immediately reported and the operator was able to correct the problem, the likelihood of enforcement

action (e.g. penalty) would be decreased. Finally, this information may be used in lieu of VMS requirements if the data was detailed and submitted in a timely fashion.

There are some disadvantages to this approach. First, installing equipment to allow vessels to transmit at sea and at the dock may not be feasible for some vessels that would otherwise qualify for the EM pool. Also, installation and transmission would have some additional costs, which are not known at this time. It is unclear if the vessel owner or the agency would be responsible for paying for these costs. Additional OLE technicians would be required to monitor the system health data.

Method 3: Vessel owners and operators report EM system malfunctions directly to NOAA OLE and EM Providers. The malfunctions reported to NOAA OLE would be those that require the vessel to remain in port until repaired.

This option has some of the advantages of the second option as well as some of the disadvantages of the first option. Requiring vessel owners to self-report malfunctions would engage the stakeholders so that they are aware of the problem and actively attempting to repair it. It is possible that not all malfunctions would be reported to NOAA OLE or would be reported later when the EM reviewer noticed the failure.

This would have many of the same challenges of the first option. However, failure to report malfunctions as required would be violation as well. Also, without the ability to transmit, using this in lieu of VMS would not be feasible and would not allow vessels to participate in fishing IFQ in multiple areas, described later in this section. This option may cost less than transmitting at sea and would not require dedicated NOAA OLE technicians to monitor system health checks. NOAA OLE staff time would be required to receive and investigate reports. Investigations would be difficult if NOAA OLE lacked immediate access to system information. Enforcement investigations and troubleshooting systems would likely need to happen more frequently at the dock.

Enforcement Tools provided by an EM program

EM will likely provide some support for enforcement of other regulations, regardless of which components are selected. During EM video review, the data reviewers would record potential violations and report to NOAA OLE. Table 5 provides a list of potential violations that could be captured by EM and detected by either human review or by automatic algorithms. Seriousness is based on anticipated violations, but is highly dependent on particulars of each situation. It is likely not all potential violations will be reported to NOAA OLE. Thresholds for reporting violations would need to be developed.

Table 5 Potential violations that could be captured by EM and detected by either human review or by automatic algorithms.

Violation	Likelihood of Detection ³	Seriousness of Violations	Automatic Algorithm Detection
Fail to comply with VMP or components of EM program ¹	Medium	Low-High ²	Yes
Conduct fishing contrary to inseason action, closure, or adjustment - 679.7(a)(2) ¹	Low	High	Possible?
Steller sea lion no fishing zone or no transit approach - 223.202(a) ¹	Low	High	Possible?
Feed or harass a marine mammal- 216.11(b)	Low	High	
Discharge a firearm within 100 yds of an endangered Steller sea lion 224.103(d)(1)(ii)	Low	High	
Take or lethally take a marine mammal- 229.3(a)	Low	High	
Fail to comply with effort log, logbook, or electronic logbook requirement- 679.5	Medium	Low-High ²	Possible?
Submit false information on a report - 679.7(a)	Medium	High	
Retain undersize or out of season fish – multiple regulations	Medium	High	Possible
Discard legal sized IFQ halibut – 679.7(f)	Medium	Medium	Possible?
IFQ required retention or discard - 679.7(f)	Medium	Medium	
IRIU -679.27	Medium-High	Medium	
Remove fins of a shark and discard carcass at sea – 600.1203	Low	Medium-High	
Fail to return prohibited species to sea with a minimum of injury -679.21(b)(2)	Medium	Low-Medium	
Fail to release halibut outboard of the rail- 679.7(a)(13)(i)	High	Low-Medium ²	
Fail to release halibut by cutting ganion, twisting or straightening hook-679.(a)(13)(ii)	Medium	Low-Medium	
Puncture or gaff a halibut - 679.(a)(13)(iii)	Low	Medium	
Crucify or otherwise strip halibut by contact with vessel- 679.(a)(13)(iv)	Medium	Medium	Possible?
Retain or possess prohibited species - 679.7(a)(12)	Low	Medium-High	Possible?
Fail to collect seabirds- 679.51(e)(1)	Medium	High	
Fail to deploy or meet seabird avoidance gear performance standards 679.24(e)(4)	High	Medium-High	
Pursue, take, capture, kill any migratory bird- 16 USC 703(a)	Low	High	
Fail to make a reasonable effort to release seabirds alive - 679.24(e)(2)	Low	High	
Marine pollution	Low	Low-High	Possible

¹Real time detection capability desired

²Seriousness dependent on the particular situation

³Likelihood of Detection means able to be detected by an EM reviewer with moderate familiarity with regulations

EM for Compliance Monitoring

As the EM program develops, Council, industry and agency may integrate additional compliance-only EM components. Two elements of the EM program are now being considered that would fulfill a primarily compliance role: use of cameras to verify seabird streamer line use and the use of an EM system to allow vessels to fish IFQ in multiple areas. EM used primarily for compliance will likely have more stringent requirements than those required for EM data collection. However, those requirements will likely vary depending on the compliance use and the likelihood and severity of violations. Potential additional requirements for EM used as a compliance tool may include: electronic logbook requirements, additional reporting requirements, transmission of critical data while at sea, or the requirement to cease fishing if crucial components of the EM system fail.

Cameras used to verify streamer line use

The cameras installed as part of the EM system to verify the use of streamer lines is proposed as a compliance tool, but will be a part of the complete EM system. For this camera to verify streamer line use the frame rate recording could be very low. The camera would only need to be on and recording while the gear was being set and the frame rate for the recording could be extremely low, one frame per minute would allow NOAA OLE to verify that the streamer lines were being deployed. At this time NOAA OLE is not envisioning any additional requirements beyond those required for the EM system as a whole while required aboard the vessel.

As part of the normal video review, the reviewer would note the use of streamer line and provide a report to NOAA OLE if streamers were not deployed or if there were obvious violations of performance standards. As with other potential violations detected, there will likely be a threshold for this reporting requirement which has not yet been defined.

EM option for vessels IFQ fishing in multiple regulatory areas

Retaining halibut IFQ, halibut CDQ, and sablefish IFQ from multiple regulatory areas on a vessel at the same time is allowed under current regulations if the amount retained does not exceed the total amount of unharvested IFQ or CDQ available in the regulatory area in which the vessel is fishing, and the halibut are identified by regulatory area (by individual marking or storage in separate areas). In addition, halibut IFQ or CDQ fishing in multiple regulatory areas in Area 4 is allowed if an observer is onboard the vessel or the vessel carries either VMS and does not possess at any time more halibut than the IFQ or CDQ available in the area being fished. In both cases for Area 4, the halibut need to be identified by regulatory area (by individual marking or separation).

For all regulatory areas, vessel operators may retain IFQ or halibut CDQ *exceeding* the amount available in the area being fished if they have an observer onboard the vessel (50 CFR 679.7(f)(4)). This allowance was in effect at the time NMFS developed regulations to restructure the Observer Program. Unfortunately, NMFS did not identify at that time that this regulation needed to be revised with implementation of the partial coverage category. **For this reason, and for data quality, cost savings, and monitoring and enforcement reasons described below, NMFS recommends allowing vessels to obtain and use an EM system in lieu of carrying an observer.** The caveat to this recommendation is that NMFS is uncertain how many IFQ and halibut CDQ vessel owners are facing restrictions due to the current regulations. We could spend considerable time developing regulatory amendment alternatives that benefit a small number of people or offer solutions that will not be used by fishermen.

Because regulations governing halibut IFQ and CDQ fishing in multiple regulatory areas are addressed in both Federal fishery regulations and IPHC regulations, implementation of proposed regulatory amendment requires coordination with the IPHC and may also require a complementary adjustment by the IPHC.

In June 2013, representatives of IFQ fishermen identified the conflict between NMFS's regulations that allow IFQ fishing in multiple areas with an observer and the limitations for vessels in the partial coverage category on voluntarily taking an observer. Industry expressed the importance of being able to fish IFQ in multiple regulatory areas **to reduce the costs of fishing**, the potential for increased amounts of unfished IFQ if vessel owners cannot combine "clean-up" trips for multiple areas, and the possibility that the situation will become costlier and limiting if halibut and sablefish catch limits decline in future years.

Under current Observer Program regulations, most vessels fishing for IFQ or halibut CDQ are in the partial coverage category where observers are deployed randomly by NMFS under the ADP. NMFS regulations do not authorize voluntary observer coverage for vessels in the partial coverage category. NMFS is concerned that voluntary observer coverage would create the potential for data quality problems

(fishing behavior may change if observers can be taken voluntarily on selected trips) and operational issues (the need to identify these trips separately in observer data, and the need to re-program the catch accounting system to exclude these data for catch estimation). NMFS requirements for safety, support, and assistance to observers do not apply for observers taken voluntarily. In addition, NMFS does not support using observer days in the partial coverage category to provide an observer for this strictly compliance monitoring role. For these reasons, vessel operators no longer have the option to hire an observer directly from an observer contractor if they wish to fish in multiple regulatory areas and retain catch in excess of the available IFQ or halibut CDQ for the area. The only option available is to conduct fishing in multiple areas if the vessel is randomly selected for observer coverage.

VMS alone is a minimally adequate tool to monitor IFQ fishing in multiple areas because the transmission rate of VMS is inadequate to determine where, how much, or how often fishing occurs and VMS currently deployed in Alaska only provides speed and heading on an intermittent basis. NMFS is concerned that vessel operators seeking observer coverage to IFQ or halibut CDQ fish in multiple areas will attempt to manipulate trip logging through ODDS by logging and then cancelling a trip until the vessel is selected for coverage. This behavior would undermine the goal of random sampling and create **data quality concerns**. NMFS will continue to monitor whether logging of trips in ODDS is being intentionally manipulated to obtain observer coverage.

A potential solution to this program would be to allow vessels that want to fish IFQ in multiple areas to install and use the same EM system envisioned by this action. However, instead of tool to account for catch is would be used to ensure compliance with the requirements for fishing IFQ in multiple areas. The EM systems have components that include sensors attached to parts of the gear to determine when fishing is occurring and GPS units to determine where the vessel is located and how it is moving. NMFS believes that an EM system could provide the necessary monitoring for IFQ fishing in multiple areas. Vessels that want to fish IFQ in multiple areas would need to have the complete systems installed aboard their vessels prior to registering in ODDS. At this time, only vessels that are in the EM selection pool would be allowed to use an EM system.

When the vessel registered a trip in ODDS, there would be a way to notify NMFS that even if they were not selected for EM coverage for catch accounting, they would be using an EM system for monitoring compliance with the IFQ fishing in multiple areas requirement. This would allow NMFS to remove any data collected from this vessel from database and alleviate any data quality concerns.

The system would require a reliable power source that would be operating 24 hours a day and it would be required to be operating at all times after the vessel left port to conduct IFQ fishing in multiple areas. This may be different than the EM system envisioned for catch accounting which may not need to be recording 24 hours a day.

The data storage device would likely be a computer with a removable hard drive. Depending on what is developed for the transmission method this hard drive may need to have the storage capacity for several weeks of data.

Transmission of sensor and location data: In order to monitor compliance with the IFQ in multiple areas requirement, a vessel with this EM system may need to transmit their location and sensor data to NMFS OLE, similar to what is required for VMS. Since the camera footage would not be a required to be transmitted, it is likely these transmission costs would be lower.

Electronic logbook: NMFS OLE proposes that an electronic logbook (eLogbook) could be required, but would not have to transmit at sea and could be transmitted once the vessel returned to port or had access to a wireless modem. It may be possible to modify the eLogbook so that the GPS and sensor data could be

attached to the eLogbook transmission. This data might be sent to NMFS OLE and housed and reviewed by the contracted technicians or OLE staff.

Some IFQ vessels that may use this exception may not have a NMFS logbook requirement. However, OLE proposes that logbook data is needed as it commits the operator to his or her fishing activity. The NMFS logbook would be a crucial piece of evidence in any multiple area case. Additionally, IPHC does not provide NMFS OLE with the IPHC logbook data. Vessel owners and operators are required to provide the logbook to OLE, if requested.

Several questions regarding implementation of such a program are outstanding that require further discussion, including:

Could vessels that are not part of the EM selection pool participate?

Who would be required to pay for the systems if vessels not in the EM selection pool are allowed to participate or if a vessel in the EM pool was not selected to use EM for the trip?

How and when would they be installed aboard the vessels?

Would the systems stay onboard the vessels even when not fishing in multiple areas on one trip?

If the electronic transmission of the data is not possible retrieving or requiring submittal of the data from the vessel could be more complicated and would require more thought before implementation. For example, would it be possible to mail hard drives directly to NMFS OLE?

What would the chain of custody requirements be?

How many vessels would be interested in this option if it became available?

How would NMFS manage the data from an EM system that was for compliance only?

Enforcement of Alternative 3

The regulations would identify consequences if the logbook is found to be inaccurate, based on the EM audit. In other fisheries, the consequence is that the vessel operator has to pay the cost of a full EM audit, but this may not be a legal option in Alaska. Information from the EM review, where it differs from the logbook, would be used to adjust IFQ accounts, as well as harvest mortality and prohibited species catch information that is used to manage the status of fisheries where applicable. However, enforcement tools to ensure vessel operators report accurate logbooks are not readily available at this time to Alaska OLE. The only tool that may be feasible is to remove a vessel that had inaccurate logbook reports from the EM selection pool.

An electronic logbook would be needed under Alternative 3 so that NOAA OLE does not have to interpret handwriting or other marks made in a paper logbook. Electronic logbooks also increase the timeliness of reporting which would reduce the enforcement response time.

Enforcement costs under Alternative 3 are expected to be higher. OLE officers or agents would need to review cases in which logbook audits did not match the EM reported data. Thresholds for severity as well as patterns of non-compliance would need to be collected and reviewed. This would likely require multiple years of collection of instances and long periods of investigative work.