

Application for an exempted fishing permit to examine ways to reduce halibut bycatch mortality rates on Amendment 80 vessels through changes to handling procedures for halibut catches

Date of Application: March 16, 2009 (Note: This is a revised version from the March 12, 2009 and February 15, 2009, applications following feedback from the NMFS AK Region, AFSC, and IPHC)

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FFP vessel information:

F/T Ocean Peace

4201 21st Avenue West
Seattle WA 98199
Phone: 206 282-6100
Fax: 206 282-6103
Contact: Mitch Hull, Executive VP
Vessel Home port: Dutch Harbor
USCG # 677399
NMFS FFP 2134
LOA: 219 ft

F/T Constellation

O'Hara Corporation
120 Tillson Avenue
Rockland, ME 04841
Contact: Paul McFarland
Phone: 207-594-4444
Fax: 207-594-0407
Coast Guard#: 640364
NMFS FFP#: 4092.
LOA: 150 ft
Homeport: Rockland, Maine

F/T Cape Horn

Cape Horn Fisheries Inc.
4257 24th Ave. W..
Seattle 98199-1214
Contact: Dave Wilson
Phone: 206-286-1661
Fax: 206-286-1793
Coast Guard#: 653806
FFP#: 2110
LOA: 165 feet

Note: The vessels listed above were selected by the Best Use Cooperative based on factors affecting the feasibility of deck sorting halibut (practicality is a major issue for this pilot study) as well as the high level of

expected cooperation and compliance with EFP protocols and rules. To the best of our knowledge, none of the vessels, companies, or captains has had any halibut-related compliance violations in the past five years.

Amount/Species to be harvested, gear to be used: If approved by NMFS, the EFP fieldwork would be conducted from mid-May through the end of June 2009 on the three Best Use Cooperative (Amendment 80 sector) vessels listed above. The Best Use Cooperative is a fishing cooperative authorized under Amendment 80 to the BS/AI Groundfish FMP. Groundfish and PSC harvested during the EFP will come from the participating BUC member vessels' Amendment 80 allocations as well as from non-Amendment 80 species available to these vessels. While not requesting any additional groundfish or PSC, a provision in the EFP does include crediting the halibut mortality savings achieved from the EFP. Credit would be applied after the EFP data analysis has been reviewed by NMFS and the IPHC. The inclusion of credit to EFP participants for their halibut mortality savings from the EFP is used as an incentive to ensure that participants do all they can to reduce halibut mortality during the EFP. The process of accounting for, data review, and crediting for halibut mortality savings from the EFP is detailed below. Target fisheries for the EFP fishing will be a combination of Bering Sea cod, flathead sole, and "other flatfish" targets including Arrowtooth flounder. All EFP fishing will occur in areas of the Bering Sea otherwise open to fishing to non-pelagic trawl gear. The above fishery targets were selected because they occur during the timeframe when weather conditions are generally best for sorting halibut and assessing viability rates on deck. The target fisheries for the EFP (flathead sole, cod, and arrowtooth) are ones that the EFP vessels normally participate in as part of their annual fishing activities. Species caught and catch amounts during the EFP are expected to be the similar to what these vessels typically catch during this period of time in these target fisheries. EFP fishing is expected to be conducted on the fishing grounds east and northeast of the Pribilof Islands and in the "Horseshoe" (northeast of Dutch Harbor). Fishing gear used during the EFP will be the non-pelagic trawl gear that these vessels normally use. Depending on halibut bycatch rates, EFP vessels may use halibut excluders to help control halibut bycatch rates in accordance with their normal fishing practices and the objectives of the EFP outlined below.

NOTE: A reviewer of an earlier draft of this application noted that the target fisheries for the EFP do not include yellowfin sole, a major fishery for the Amendment 80 sector. To clarify this matter, it is true that yellowfin sole are sometimes targeted by Amendment 80 vessels during this same timeframe to varying degrees depending on the year. But halibut catch rates for yellowfin sole fishing during the May/June timeframe are typically extremely low because yellowfin sole are tightly schooled then and fishing occurs in locations such as Togiak where halibut abundance is typically quite low. So the potential for meaningful reductions in halibut mortality from deck sorting halibut in the late spring early summer yellowfin fishery was deemed to be low and not worth the extra time and effort that would be needed to sort halibut on deck. From the perspective of the EFP applicant, the fishing targets proposed for the EFP hold much higher potential for halibut mortality reductions relative to the yellowfin sole so yellowfin sole was not included in the target fisheries for this EFP.

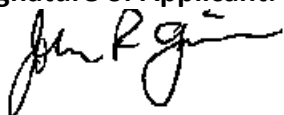
Experimental design: Detailed below

Provisions for public release of data and information from EFP and provisions for interim and final reports from EFP: Detailed below

Willingness to carry observers during EFP: Each EFP vessel will carry two sea samplers during the entire time period in which they are engaged in fishing under the EFP. EFP vessels will also continue to carry their normal observer coverage requirements (2 observers) at all times during fishing authorized under the EFP. Sea

samplers will be regular NMFS-trained observers who meet all requirements of the NMFS North Pacific Observer Program but are not currently under contract to work as observers. Two sea samplers are needed on each EFP vessel to account for halibut catches on deck and in the processing area as well as conducting viability assessments on halibut sorted from the catch on deck as well as halibut that were missed during sorting on deck and are collected by the crew in the processing area. EFP participants will cover all additional costs for the sea samplers during the EFP. Other field project management and supervision is described below.

Signature of Applicant:

A handwritten signature in black ink, appearing to read "John Gauvin". The signature is fluid and cursive, with a prominent initial "J" and a long, sweeping underline.

John Gauvin, Science Projects Director, BUC

Statement of Purpose and Goals:

The requested exempted fishing permit is needed for a pilot evaluation of how changes in halibut handling procedures on the participating Amendment 80 vessels may affect halibut bycatch mortality rates as well as accounting/monitoring of halibut catches. An EFP is needed to conduct this preliminary evaluation of potential for reducing halibut bycatch mortality so halibut can be rapidly returned to the sea from the deck and handled in a manner that is otherwise not currently allowable on Amendment 80 sector vessels. To create a realistic evaluation of potential for reducing halibut mortality, the EFP includes incentives to EFP participants in the form of lower halibut mortality rates applied (retroactively) to their EFP halibut catches following NMFS/ IPHC review of the data and analysis, and determination of halibut savings. Eventual credit for savings assumes that reductions in halibut mortality are achieved during the EFP, one of the questions that the EFP is designed to evaluate. In addition to looking at potential for reducing halibut mortality, this pilot study will provide some information on related questions such as the fraction of the halibut that can be feasibly sorted out on deck, how long and how much extra effort deck sorting will take, and how well alternative methods for accounting for halibut catches and mortality rates might work on Amendment 80 vessels.

How the effort to reduce halibut mortality fits into the Amendment 80 sector's overall objective to improve usage of target flatfish resources in the Bering Sea that are currently constrained of halibut bycatch mortality caps

With fishing cooperatives in place since January 2008, the Amendment 80 sector believes that better incentives for individual bycatch accountability now exist. With individual bycatch allowances via fishing cooperatives, fishermen can now see a direct relationship between how carefully they utilize their halibut bycatch mortality allowances and how much of the Amendment 80 and non-Amendment 80 species groundfish allocations (in particular Arrowtooth flounder) they can utilize. Amendment 80 fishermen are now focused on how to utilize a combination of tools they feel are necessary maintain or increase groundfish catches under the current and future halibut bycatch mortality allowances available to them. These include halibut excluders, hotspot avoidance through bycatch information sharing, and development of alternative handling procedures to reduce halibut mortality (the subject of this pilot study) for the halibut bycatch that fishermen have not managed to avoid catching. If a way to get those halibut back into the water can be made to work under the accounting and monitoring requirements of fisheries management in federal fisheries off Alaska, then having that additional tool in the toolbox would help to maintain or extend fishing opportunities under the halibut bycatch constraints the fishery faces.

Modifications to catch handling regulations and procedures would be needed in any effort to reduce halibut mortality rates because under the current regulations, nothing can be removed from the catch until the contents of the net are dumped into a holding tank, the catch goes over the required motion-compensated flow scale, and the observer on duty has had an opportunity to sample the fish.

At the conclusion of the first year of operations under Amendment 80 fishing cooperatives, many captains noted that factors such as tow duration and catch amounts per tow are now potentially more conducive to halibut survival relative to prior to Amendment 80. The indicator of better halibut condition posited by captains was that most of the halibut they bring aboard now appear to have better color and seem quite lively, at least when the net is first brought on board. To increase actual survival rates, however, fishermen noted that halibut would have to be returned to the sea faster than is currently possible. The suite of reasons

for the delay between the time the net is brought on board and halibut are returned to the sea are described in more detail below.

Official NMFS/ IPHC/NPFMC mortality rates applied to bycatch taken in Amendment 80 flatfish and cod fisheries are currently in the range of 70-80%. While current discard mortality rates are already quite high, the Amendment 80 sector faces the prospect that rates may actually increase in the next few years if status quo catch handling requirements and procedures remain in place. This is due to the downstream effects of new regulations wherein no mixing of catches from different tows is allowed under Amendment 80. This can mean that halibut remain out of the water longer than prior to Amendment 80 because a net coming on board cannot be dumped into a tank until all of the catch in that tank from the previous tow has been cleared. Mortality rates for halibut are determined via the IPHC's rolling average calculation of fishery-specific discard mortality rates, and fishing under Amendment 80 rules may in fact increase the fishery-specific average mortality rate applied to halibut taken as bycatch in that fishery target.

The intent of new catch handling regulations is to allow for accurate estimations of catch, including halibut bycatch, and the Amendment 80 sector fully appreciates the need for good catch data. However, according to the Amendment 80 captains, under the current catch handling procedures it can now take as long as two hours or more for some of the halibut in a given tow pass over the vessel's flow scale and be returned to the sea. Halibut survival may be lower than what would otherwise be possible using a different approach to handling and accounting for halibut bycatch on Amendment 80 vessels. A new system would ideally allow the halibut to be sorted on deck and returned to the sea more rapidly, while maintaining or possibly even improving the accuracy of estimating and accounting for halibut and other catch.

Another reason better tools to reduce halibut mortality are needed is because Amendment 80 includes phased-in reductions in the halibut mortality allowance available to the Amendment 80 sector. These reductions amount to 50 MT per year over the first four years of Amendment 80 management. The combined effects of the current catch handling regulations on halibut mortality rates and the phased-in reductions in halibut PSC available to the Amendment 80 sector are prime motivators for the Best Use Cooperative's efforts to develop all possible tools to effectively reduce halibut bycatch and halibut bycatch mortality rates.

Pilot study to examine ways to reduce halibut mortality rates while accurately accounting for halibut bycatch and bycatch mortality rates:

If approved, this EFP application would allow three Best Use Cooperative members to participate in a pilot study on ways reduce halibut mortality and improve accounting of halibut catches. The pilot study has been developed with input from the NMFS Alaska Fishery Science Center's Fisheries Monitoring and Analysis (FMA) Division and the International Pacific Halibut Commission (IPHC). The three vessels would be platforms for the pilot study under a permit authorizing the participants to handle and account for halibut catch and mortality rates in a manner that would not otherwise be allowed under current regulations. Halibut catch and mortality assessments would be done by the two sea samplers on each EFP vessel during the EFP. Additional supervision will be in place with field project management by the EFP permit holder (field project manager) at all times.

In addition to the BUC's field project manager, the applicant has invited NMFS' FMA Division, NMFS Regional Office in Juneau, and the IPHC participate in the fieldwork by sending a staff person out on the EFP vessels

during some or all of the fieldwork in 2009. In addition to helping to evaluate the methods used to handle and account for halibut catches and mortality rates, agency personnel participating in the fieldwork would also be in a good position to assess the potential for the eventual development of a wider program for reducing halibut mortality should the pilot study show that halibut bycatch mortality rates can be successfully reduced while meeting accounting and monitoring objectives.

We have been informed that AFSC's FMA Division does not have any staff available to assist in the field work for this EFP. But the other agencies listed above have not yet indicated whether they can make someone available. Additionally, we are planning to rotate an electronic monitoring (EM) system between EFP vessels during the EFP to assess the utility of EM for monitoring deck sorting activities. The plan for using the EM system is described in more detail below. One objective of evaluating EM for this purpose is to assess whether it could be used someday in the future in a fishery-wide application to improve monitoring and potentially reduce the need for fishery observers to be present on deck at all times during halibut deck sorting activities.

Exemptions needed for this EFP pilot study: To accomplish the objectives of the pilot study, specific exemptions are needed to allow vessels to handle halibut differently from what is currently allowed and for observers to account for catches differently from normal Amendment 80 procedures. Catch handling regulations do not allow any sorting or removal of catch on deck, prior to observer sampling. Additionally, the EFP will change the method and location for how and where halibut accounting and viability assessments will be done. During the EFP, these will occur principally on deck (and in the processing area for any halibut missed on deck) and halibut accounting will be done via a census. A specially designed halibut transport chute will be used on deck to return halibut removed on deck to the sea. This too is a departure from the current procedures for how halibut are accounted for and assessed for viability rates. These exemptions would only be available under this EFP and would be in place for a limited time period during this EFP pilot project.

Additionally, a modification to the NMFS catch accounting procedures used on Amendment 80 vessels will be needed for the EFP. As will be explained below, halibut catches will be accounted for as a census comprised of two parts: halibut from each tow accounted for on deck, and halibut that were missed during deck sorting and collected in the processing area from each tow. The total halibut catch per tow (numbers, lengths, and total weight) will be the sum of the halibut removed on deck and collected in the processing area. This method of reporting halibut catch is in lieu of the normal procedure to report halibut catch as a fraction from an observer sample that is then extrapolated to estimate total catch via the NMFS catch accounting program. The data entry field in NMFS' catch reporting software for reporting a census instead of a sample will be used during the EFP for this purpose.

General approach to this pilot study: The approach for the EFP is to focus on a subset of flatfish/cod target trawl fisheries that Amendment 80 fishermen feel are good candidates for attaining significant halibut bycatch mortality reductions. For those fisheries, a combination of factors is expected to affect the viability of halibut. One factor is the time needed to sort halibut from the target catch. This is likely affected by the vessel's deck layout, the available space to do the sorting, the percentage of halibut in the catch, and the size of halibut relative to the target species. Other key factors affecting halibut viability are things like tow duration and the catch amount per haul. The time of year selected for the EFP pilot study is expected to increase the likelihood that weather conditions will allow for expeditious and effective sorting on deck.

While all these factors would likely be covariates of interest in a scientific study, this pilot study is not designed to do a scientific assessment of how influential any one factor is in explaining mortality rates. The focus here is to see if changes that Amendment 80 captains think are workable for reducing halibut mortality do in fact result in meaningful reductions in halibut mortality rates under a set of accounting and monitoring conditions that are thought to be adequate for catch accounting purposes. Because this is a feasibility study and not a scientific study, fishermen will be allowed to make adjustments during the EFP to how they fish and how many people are assigned to sorting halibut on deck as fishing conditions change during the EFP. The EFP will assess the time and effort needed to sort and account for halibut catches and determine to what degree participants can achieve mortality rate reductions (relative to the current IPHC mortality rates assigned to these target fisheries) within the accounting and monitoring system in place during the EFP.

A scientific study of specific covariates might incorporate tows with and without the modified catch handling procedures where the tows without would serve as a scientific control. For our pilot study, the basis for comparison of halibut mortality rates is simply the NMFS/IPHC mortality rate in place for the target fisheries covered in the EFP. This is an important distinction because the intent here is not to verify the accuracy of the official NMFS/IPHC halibut mortality rate applied to regular fishing. The concept of the EFP is to change halibut handling procedures, provide incentives to participants to fish and handle halibut in a manner that should reduce mortality rates, and evaluate how the resulting halibut mortality rates differ from the official NMFS/IPHC rates.

The vessels participating in the EFP will establish a fishing protocol among EFP participants prior to the start of the EFP. The protocol will be designed to facilitate sorting halibut on deck by keeping catch amounts and tow duration within parameters that are thought to increase viability of halibut. The fishing protocol will also encompass things such as selection of fishing areas to avoid during the EFP (areas where halibut are too numerous or are too small to make deck sorting effective). The intent is to maintain manageable bycatch rates for halibut during the EFP so that quantities of halibut are feasible for efficient sorting of halibut on deck.

Field work under this EFP will be done in a manner that is designed to generate practical and useful information and data that will allow the permit holder to assess the effectiveness and feasibility of the modifications in halibut bycatch handling procedures used during the EFP. In addition to generating an estimate of the degree to which halibut mortality rates could be reduced, the pilot study should help inform industry and fishery managers on how changes in halibut handling procedures might affect catch sampling methods, catch accounting, and catch monitoring effectiveness.

The pilot study should also help inform the Amendment 80 sector participants of the feasibility of removing halibut on deck under different catch handling regulations if regulations were to change to allow this practice. It should also inform the industry on basic costs of such changes in terms of vessel modifications and effects on vessel efficiency and safety. Although the starting point for collecting this information involves target fisheries and a time of year that the EFP applicant has selected as good candidates for success, the fieldwork should still be valuable for assessing the likely outcome in fisheries that pose greater challenges for reducing halibut mortality rates.

The field work will be conducted under conditions that approximate as closely as possible ones in place on Amendment 80 vessels. In addition to the modifications in catch handling procedures, the one major

difference will be incentives for the EFP participants to achieve some savings in terms of usage of their halibut mortality caps. This will only occur if they are in fact able to reduce mortality compared to the regular IPHC/NMFS halibut mortality rates that would otherwise be applied to their halibut catches. Such incentives do not exist currently in the regular Amendment 80 fisheries because catch accounting procedures do not allow halibut to be returned to the sea in a sufficiently expeditious manner to effectively reduce mortality rates. How those mortality savings from the EFP will be retroactively credited to EFP participants is detailed below.

Catch handling procedures under the current regulations and modifications that will be in place for the EFP:

Under the EFP, participating vessels will be allowed to use a modified procedure for catch handling during the EFP pilot study that will allow halibut (halibut alone) to be sorted from the net on deck and released back to the water after accounting for the halibut catch in the manner described below. Halibut will be the only species that is allowed to be sorted from the catch on deck.

The above modification in catch handling procedures will allow each of the three EFP participant vessels to sort the halibut from the rest of the catch on deck in the following manner. First, when the net is brought on deck, the crew will pull the net farther forward of the hatch to the aft fish holding tank than normally occurs. This will be done to provide the crew sufficient space to remove halibut as the catch is spilled into the below-deck catch holding tank. Additionally, the line (rope) used to keep the aft end of the codend closed during fishing (generally called the “zipper”) will only be partially unzipped after the codend is pulled forward of the tank. This will help control the flow of fish out of the codend so fish can spread out across the increased area created by pulling the net further forward of the hatch to the tank. This should help the deck crew to identify the halibut and remove them from the flow of fish towards the tank. Sorting grids will not be used in the the process to sort halibut from the rest of the catch on deck.

At the outset of the EFP, crew members will be trained to slide the halibut to the starting point of the special chute that will be used during the EFP to move halibut to an area outside the trawl alley. The halibut will then be slid onto that chute, which runs through the trawl alley toward the port or starboard side of the vessel. Only one chute will be used to move the halibut on each EFP vessel. The purpose of the chute is to both expedite and facilitate transport of the halibut by reducing the need to lift the fish in order to move them to a temporary holding pen that is part of the chute itself. Although only one chute will be used on each EFP vessel, for some EFP vessels, the chute will be designed to be transferable to either side of the vessel. This will be done for the two EFP vessels that have a divided fish holding tanks and therefore occasionally need to switch sides for dumping catch into the holding tank. Vessels with split tanks tend to have wider trawl alleys and the ability to move the chute to the opposite side reduces the distance halibut will have to be moved to get them onto the chute.

The specialized halibut chutes will be equipped with a small flow of sea water to facilitate the movement of halibut from the trawl alley via the chute to the holding pen. The chute will be inserted through the trawl alley about ten inches above the deck. A short ramp up to the chute will be constructed so crew members should not need to lift halibut at all or carry them over the trawl alley. Cutting through the trawl alley to installing the chute also provides a useful downward angle for moving halibut without the use of a conveyor belt. At the same time, the elevation of the starting point of the chute in the trawl alley helps prevent target catch in the trawl alley from flowing into the chute. This is needed because it is possible at times that the

quantity of fish moving toward the tank out of the codend will be greater than intended. If the chute were closer to the level of the deck, there would be greater potential for fish other than halibut to slosh onto the chute with the movement of the vessel even in modest sea conditions.

Halibut that are slid down the halibut chute will move to a holding pen designed to collect them if sorting outpaces the time needed to count, measure, and do viability assessments. If halibut numbers in the catch are sufficiently low, then the gate on the holding pen can be pinned in the open position to allow the halibut to move directly to a length calibrated board at the end of the chute. In either case, a crew member will be positioned on the chute to assist the sea sampler whose job it is to account for the halibut sorted on deck (as well as taking viability samples as described below). If halibut need to be collected in the holding pen prior to being measured and assessed for viability, sea water will be pumped into the pen to help increase halibut viability. If everything is working as designed, halibut should not remain in the pen area for more than a minute or two. To achieve this quick turn-around, an efficient system for the sea sampler to count and measure halibut must be in place. Methods for accounting for halibut catches during the EFP are outlined below.

The duties for the crew member working in the chute area will be to assist the sea sampler on deck in handling the halibut so that they can be counted and individually measured. The crew member's work will allow the sea sampler to concentrate on tallying and measuring each halibut instead of being involved in moving or lifting halibut. The crew member will also assist (as necessary) the sea sampler by sliding fish one at a time to the sea sampler when the sea sampler is assessing halibut viabilities as per the viability assessment procedures described below.

A length board with length gradations and a shape that is appropriate for halibut will be provided by each EFP participant to facilitate the length measurements taken by the sea sampler during the EFP. The length board includes as part of its design a means of individually sliding halibut from the holding pen to the area where the sea sampler is stationed near an overboard scupper (a slotted portal normally installed on fishing vessels to drain water off the deck). This will allow halibut to be slipped through the scupper (released to the sea) once the sea sampler has taken the length measurement and done a viability assessment for each individual fish.

The length board will have a smooth surface and be wide enough to accommodate all but very large halibut, i.e., all those that are able to fit through the vessel's off-board scupper. Very large halibut are an infrequent catch in flatfish and cod fisheries in the Bering Sea. At the end of the length board closest to the off-board scupper, a small check/gate device will be installed so that the nose of each halibut will slide up to the gate and the halibut will be temporarily contained between the sides of the length board and the gate. In this manner, the sea sampler will then be able to obtain the length data for individual fish from the position of the fish's tail on the length board. This length board may also be useful for holding halibut when halibut viability sampling is occurring.

The sea sampler may have to hold the tail of the halibut down while the length data is being collected if the fish is flapping its tail. Holding the tail down would be necessary for halibut that are very lively and therefore flapping in a manner that makes length estimation difficult.

The sea sampler may record individual halibut lengths with a voice recording device to avoid the need to pick up a pencil and make a mark or data entry on a paper sheet for each halibut. Viability ratings for each halibut can be recorded in the same manner or on a separate waterproof sheet. Alternatively, bar codes for each length may be installed onto the length board so that a bar code reader “wand” can be used to record the individual lengths. The latter approach would also allow the data to be directly placed into an MS Access or MS Excel spreadsheet. The decision to use a bar code reader system or voice recorder will depend on the preference of the sea samplers, who will be consulted prior to the start of the EFP. During the EFP, sea samplers will use the same viability assessment methods that regular observers use in the normal non-pelagic trawl flatfish and cod fisheries.

Each sea sampler will use a stopwatch to determine the time duration needed to complete sorting of the halibut on deck for each tow. The start time will be when the net is brought on board and pulled forward of the hatch and the end time will be when all the catch from that haul are in the below deck tank. The data will be recorded for the purpose of evaluating the feasibility of deck sorting halibut during the EFP.

During the process of spilling the contents of the codend into the aft tank and removal of halibut on deck, catch from that tow will be accumulating in the tank. After notifying one of the vessel’s regular observers (the one who is on duty at that time), the crew will start bringing catch from that haul into the processing area. This is the area where the vessel’s regular observers do their catch composition sampling and the rest of their other observer duties, which will proceed in the normal manner except that species composition sampling methods will reflect that halibut is not part of the observer sample, as explained below.

To account for any halibut that were missed during sorting operations on deck during the EFP, the processing crew will be instructed prior to the EFP to remove any halibut that were missed on deck as they enter the processing area on the conveyor belt. The second sea sampler on board during the EFP will oversee the halibut sorting activities of the crew in the processing area during the EFP. To ensure that procedures for this as well as the handling of halibut on deck are clearly understood by everyone who will be handling halibut during the EFP, briefings will be held prior to the start of the EFP with sea samplers and crew members who will be involved with sorting and handling halibut. The observers who will participate on the EFP vessels will be identified to NMFS in advance so they can be briefed and provided a copy of these operating conditions.

The EFP should not create additional workload for the regular observers on the vessels engaged in the EFP. Each EFP vessel’s two observers will simply be expected to do their normal observer duties. Sea samplers will note any departures from the procedures crew members are supposed to do to remove halibut on deck or from the sorting belt in the processing area. Halibut that were missed during sorting on deck will be placed into a tote that will be used to hold them until they can be tallied, measured, and discarded.

During and after halibut sorting on deck is completed for a given tow, the sea sampler working below deck will oversee halibut sorting activities done by the crew in the processing area as well as accounting for and taking lengths of each halibut missed on deck as they are removed from the sorting belt by crew members. Viability assessments for the halibut collected in the processing area will also be done by the sea sampler working below deck and these data will be recorded along with halibut numbers and lengths as was done on deck. The sea sampler will include the haul number (matching the record numbering system used on deck) so that the total number of halibut per tow can be calculated and the fraction removed on deck can be determined. An example of how this might be done is a number system for each EFP tow that accounts for

halibut from haul “12D” (meaning halibut from haul 12 removed on deck) and “12F” (removed in factory). Accounting for the halibut missed during deck sorting is critical to assess the benefits and practicality of deck sorting halibut.

Under this design, species composition sampling, total catch accounting, and biological sampling will be done by the regular observers and halibut will be treated independently as a census. The total number of halibut catch per tow including halibut sorted on deck and collected in the processing area will be converted to weight using the standard IPHC length to weight conversion. The total weight of halibut per tow will then be supplied to the vessel’s regular observers so that it can be reported to NMFS. The data entry field used for this in the NMFS catch accounting software will be the one for a census rather than as a fraction of the observer sample. Reporting using that data field will avoid over-reporting halibut catch because under the EFP data collection procedures, halibut catch will be a census instead of a fraction of a sample done as part of species composition sampling.

Procedures for viability sampling for halibut removed from the catch on deck: Given that the EFP needs as much information on viabilities of halibut removed on deck as possible to accurately reflect the mortality rate achieved over the course of the EFP and across all three EFP vessels, the approach will be to assess viability (i.e. mortality) rates for each halibut removed on deck. Discussions with captains who will participate in the EFP reflect that they are confident that the numbers of halibut during the EFP will allow viability to be assessed for each halibut removed on deck without slowing down the process of sorting and measuring halibut so that viability is reduced. When numbers of halibut are relatively high during the sorting process, the gate on the chute will be closed to check the forward progress of the halibut down the chute used on each vessel. This should help to prevent the flow of halibut from overwhelming the ability of the crew member and sea sampler to work at a pace where the sea sampler can account for each halibut length and do viabilities on each fish.

To ensure practicality given the uncertainties that are inherent with fishing, a fall back approach to halibut viability sampling may be needed on some tows in the event that an unexpectedly large number of halibut are caught. In the pre-EFP briefing, sea samplers will be asked to come up with a back-up approach for viability assessment on tows where the additional time needed to do halibut catch accounting and viability assessments on each fish might actually reduce halibut viabilities. In such cases, an approach such as doing viabilities on every other fish might be used. Sea samplers will note on their data recording form the tows where viabilities were done on a subset of the halibut and the sampling frame they used for those tows.

To ensure that halibut catch rates are not too high to allow for viability assessments on all halibut on nearly all tows, the EFP field project manager will keep the principle investigator informed on key performance variables such as how frequently sub-sampling for halibut viabilities is needed. The principal investigator will send updates summarizing this information on a weekly basis to the exempted fishing permit holder to provide an idea of how the EFP vessels are performing in this regard. If halibut catches are too large to allow the project to meet the objective of doing viabilities on every halibut on nearly all tows, then the EFP participants will be given feedback from the principal investigator that things are not working as planned and adjustment in fishing areas or other factors affecting halibut catch rates must be made. If improvements cannot be made, then the principal investigator in consultation with the NMFS/IPHC personnel involved with the project may suspend or terminate the EFP field test before its scheduled conclusion.

Fisheries/time period for the EFP in 2009 and the how the target amount of fishing for the EFP pilot study was designed:

Based on discussions with the EFP captains, it is felt that the mid-May to June period is ideal for achieving the halibut mortality and safety objectives of the EFP. This timeframe was selected because it is a time of year when weather conditions are typically ideal for the additional work on deck needed to sort out and account for halibut catches and viability sampling. The May/June time period is also a time when fishing for flathead sole, arrowtooth flounder, and cod occurs in areas/depths where the halibut have tended to be larger than other times of the year (e.g. winter rock sole, when bycatch of halibut tends to be relatively large numbers of small halibut). Conducting the EFP in the flathead sole/arrowtooth/cod fisheries in May/June is expected to facilitate sorting out the halibut on deck and result in a high fraction of the halibut removed on deck.

Finally, the captains who will be in charge of the EFP vessels believe the time period selected for the EFP allows for a high degree of success with halibut excluders and area-based bycatch avoidance to keep the numbers of halibut per tow to manageable levels during the EFP. These conditions likely apply fairly well to July and early August also, so if logistical problems arise during the EFP, there would be a way to move the EFP testing back to a month or so to allow for achievement of the EFP objectives.

An additional aspect of the EFP is to conduct the pilot test over a sufficient period of time in 2009 to collect enough information and data to assess the success of the modified handling procedures in terms of reductions in halibut mortality rates, the percentage of halibut removed on deck, and attainment of accounting/monitoring objectives for the EFP. The target amount of fishing for the EFP pilot study was designed around being sufficiently representative of actual fishing conditions, balanced against the cost and practicality of having two sea samplers on board for a period of time, given that the EFP boats currently already have to pay for the two full time observers already. The four to six week time duration was selected because it amounts to approximately three to five trips under normal fishing conditions in recent years. The basis for this was comments by captains that every vessel could likely make the modified handling procedures and fishing protocol work for one or two trips, but three to five trips would be a better test of the practicality of the modified halibut handling procedures.

Likewise, captains felt that the range of things that occur on a vessel to make conditions representative of fishing are more likely to play out over a three to five trip period than over one or two trips. This expectation is based on their knowledge of what can occur even when a plan to prevent things from occurring is agreed upon (such as the fishing protocol used for the EFP) and then that plan is implemented in the real world. For example, under the EFP fishing protocol, fishermen can be expected to be reasonably skillful at keeping catch at the target level if the level is set at what is practical for the fishery. However, over the period comprising three to five trips, even the best effort to control catches will result in some hauls with greater catches or larger amounts of halibut than were anticipated. The objective here is to conduct the EFP under conditions where the modified halibut handling procedures are expected to work well while incorporating at least some fishing under conditions that are more challenging, providing insights as to how well the modified procedures work under those challenges.

Finally, another design element was to conduct the EFP on vessels with different deck layouts and other likely determinants of success for deck sorting halibut. The decision to include three vessels in the EFP was based on the expectation by captains that some decks provide relatively more room and relatively smaller challenges for moving halibut out of the trawl alley and into an area where they can be accounted for and

released through an off-board scupper. In discussing how to make EFP pilot study relevant to the industry's desire to know if deck sorting halibut is widely feasible, captains considered the different deck configurations and deck space factors within the membership of the cooperative. In the final analysis, captains proposed the three vessels listed above because they represent a good cross representation of the challenges for sorting and moving halibut.

Based on the captains' discussion of the factors they feel will determine success, the three vessels for the EFP have quite different arrangements in terms single or double hatches to below deck tanks and width of trawl alleys relative to overall beam width. Captains felt that it was more important as a first step to focus on the different deck layouts representing the realities of the Amendment 80 sector than, for instance, selecting a "small" H&G vessel (one in the <125 foot category). Also, the relative amount of Amendment 80 catch on smaller H&G vessels is decreasing due to advantages larger vessels possess given fuel costs and efficiency relative to frozen hold capacity. If further fieldwork is done after this initial pilot study in 2009, inclusion of a vessel in the <125 foot category might, however, be worthwhile.

Plan for dealing with unanticipated conditions and outcomes that may arise during the EFP:

The objective is that the procedures for sorting halibut on deck during the EFP will be followed for all tows during the EFP. However, the realities of weather are such that even with the EFP occurring during the "good weather months," it is possible that conditions for part of the time could be relatively unsafe for the additional work for the crew and sea sampler on deck. Therefore some allowance is needed so EFP participants and the sea sampler working on deck can temporarily suspend the EFP catch handling protocol during the EFP if weather conditions are not suitable for the additional work on deck. If a suspension in the EFP test is needed, then the tows occurring during that time will be handled and accounted for in the manner currently in place for the regular Amendment 80 fisheries.

To prevent the possibility of biasing the results of the EFP, procedures need to be in place to prevent temporary suspension of the EFP for reasons other than weather conditions. To achieve this, the decision to suspend halibut sorting on deck due to unsafe conditions will be made prior to setting a net. If deck sorting of halibut is suspended due to inclement weather, then the halibut handling procedures will default back to the ones done in the regular Amendment 80 fishery. The regular Amendment 80 procedures will then remain in place until the weather conditions improve and a decision is made to resume the EFP. To resume the EFP, the decision will need to be made that the EFP handling procedures will be in place before the net is set.

Each EFP tow (where the modified halibut handling and accounting procedures are in place) will be identified prior to setting the gear and recorded in the logbook with an identifying EFP number. Tows which do not have an identifying EFP number are not part of the EFP and therefore not exempt from the regulations. Additionally, to avoid any confusion for sea samplers, regular observers, and crew, a system will be in place to indicate when EFP fishing and catch handling procedures are not in place (when weather conditions do not allow deck sorting) and fishing is occurring under the normal catch handling regulations. This system will be developed in consultation with sea samplers, vessel managers, principal investigator, and field project manager. This may include posting signs in the processing area and entrances to the deck or other devices to clarify and remind everyone on board that the EFP catch handling procedures are not in effect. Once again, the expectation is that weather conditions for the season selected for the EFP will allow all tows to be done under the EFP catch handling protocol. But a backup plan will need to be available to cover for bad weather

conditions. Additionally, the decision to suspend EFP handling procedures will have to be made prior to the start of a tow and the decision to resume EFP catch handling procedures will have to be made prior to starting a new tow.

In the extreme case that the EFP sorting and halibut handling procedures are clearly not working at all for one or all of the EFP participant vessels, then the EFP can be prematurely curtailed by the EFP principal investigator or NMFS in consultation with the IPHC. One criterion for stopping the EFP field work before the project is completed is if deck sorting halibut does not appear to have any ability to lower halibut viability rates relative to the mortality rates currently in place for the regular Amendment 80 fisheries. This decision to stop the EFP before the completion of the pilot study would be made only after the EFP participants have made adjustments to the fishing protocol to improve the chances of increasing viability rates.

Another reason for stopping the EFP pilot study prematurely will be if the catch handling procedures are deemed by the EFP participants to be impractical because the production rates for the vessel are not economically viable. Alternatively, it might be that the workload for crew members or the sea samplers is too difficult physically despite the vessel's efforts to reduce bycatch rates to a level that produces manageable numbers of halibut. Once again, premature curtailment of the EFP will only be done in consultation with NMFS and the IPHC personnel involved in the development of the EFP and after the EFP participants have made adjustments to the fishing protocol or changes to the fish handling procedures.

NMFS in consultation with the IPHC may also opt to terminate the experiment prior to its conclusion because they feel the EFP is not meeting its objectives or the data being collected is not thought to be valid or useful. Additionally, NMFS, the IPHC, or the EFP principle investigator may also consider terminating the EFP fieldwork prematurely if the data from the EFP shows that the fraction of halibut that can be removed on deck is too small relative to the overall amount of halibut and the quantity of halibut that must be accounted for below deck cannot be feasibly stored or handled to allow for an accurate census of the total halibut catch.

Use of electronic monitoring tools in the EFP to evaluate its feasibility for monitoring fish handling on deck and in the processing area:

One objective of the EFP is to evaluate the potential utility of electronic monitoring (EM) for monitoring the deck area to ensure catch handling procedures are being followed. The plan for evaluating EM in the EFP is to have one EM system provided and installed by a qualified EM service provided that would then be rotated between the EFP vessels on a trip by trip basis. This would allow effectiveness of EM on different EFP vessels to be assessed. This plan may have to be modified when cost estimates for an EM system are available to the EFP vessels. If the cost is workable, the EM camera placements will be designed to monitor the entire deck area to evaluate whether EM is useful for determining if discards from the deck are occurring in areas where they are not allowed under the EFP procedures. Only halibut will be able to be discarded from the deck and only via the specialized halibut chute during the EFP. So the EM placements and monitoring set up will be configured around those EFP restrictions.

One purpose for collecting the video data would be to assess the utility of EM for determining if crew members are following the EFP procedures. A review of the EM data conducted by the EM service provider (e.g. Archipelago Marine Resources of Victoria, BC Canada) would provide an assessment of what can be determined in terms of identification of halibut versus other species via EM. Numbers of halibut handled by the crew on a tow by tow basis can be compared to the counts by the sea sampler (or observer) on deck to

evaluate whether the camera placements etc. are adequate for tracking and confirming halibut catch numbers. Finally, if the sea samplers note any discards that do not comport with the protocol in place for the EFP, they will be asked to note the day/time that this occurred. The reviewer of the EM records can then use the notes of these occurrences to evaluate whether EM would be useful for detecting these discards that do not follow the allowed procedures.

Finally, EM may be useful for evaluating whether an observer performing catch composition sampling work or other duties in the processing area below deck could utilize a live feed of the EM video to help monitor the sorting activities on deck. To evaluate this, a flat screen monitor will be placed in a convenient location where the sea sampler working in the processing area can look at the video feed to see whether it is useful for monitoring catch handling procedures on deck. Such video would be designed around a potential future model where halibut handling procedures would be widely in place for the Amendment 80 sector and monitoring of activities on deck might be done with EM. This potential future arrangement might shift the lead responsibility for sorting and accounting for halibut on deck to the crew and monitoring via review of stored EM data or monitoring of live feed of video would be in place. A live feed of the deck video might then be useful to allow observers to monitor sorting on deck while they worked below deck.

To assess the potential utility of EM for this purpose, the sea sampler working in the processing during the EFP will be asked to periodically look at the live feed from the EM system on deck when the EM system is in place on a given vessel. Interviews conducted by the principal investigator following the EFP will be used to get the sea samplers' informal assessments of the utility of EM for this purpose.

Purpose behind crediting halibut mortality savings achieved during the EFP (retroactively) to provide incentives to EFP participants to do all the extra work needed for sorting halibut from the catch on deck:

To obtain the most realistic assessment of the potential for reducing halibut mortality rates, the EFP design needs to include some incentives for participants to fish and handle halibut in a manner that minimizes mortality under the extensive EFP halibut handling/accounting procedures. To achieve this, it is critical that participants use their own BUC allowance of halibut PSC mortality during the EFP and that there is some mechanism to credit mortality savings achieved from the EFP. Even if the NMFS catch accounting system cannot account for and apply credit for halibut mortality reductions in real time, the approach crediting for any mortality savings described below works because, during the EFP, participants will not know if their annual halibut bycatch mortality allowances will be constraining relative to the amount of fishing they plan to do in 2009. Therefore, the halibut mortality savings achieved during the EFP could provide EFP participants with some extra fishing opportunities later in 2009 later in the year if halibut becomes and they would otherwise have to stop fishing. This incentive is important to ensure vessel crews diligently follow EFP protocols to reduce halibut mortality even though they would result in significantly more effort by the deck crew. If at the end of the year their fishing operations are not constrained by halibut mortality, then EFP participants would not need to make use of the savings and formal crediting the halibut mortality savings to the EFP participants would not be necessary.

Specifics for halibut catch accounting, halibut viability assessments, and procedure for crediting of any halibut bycatch mortality savings from the EFP:

Halibut bycatch during the EFP will be accounted for via the individual counts and length measurements. The sea samplers will do these counts and measurements on all halibut on each EFP haul. Likewise, sea samplers will do viability assessments on all halibut during the EFP unless this is deemed to be infeasible on some tows, particularly on tows with a large number of halibut. For those tows, a fallback plan for sub-sampling will be used as is explained above. The goal of doing viability assessments on all halibut during the EFP was adopted because it provides the largest possible data pool and therefore also reduces the potential that any one tow or day would have a large effect on mortality rates overall. The standard IHPC length to weight conversion will be applied to each halibut length measurement to convert individual halibut lengths into weights.

Sea samplers will utilize the standard IPHC method for determining mortality rates in place. These are the same methods that are used in the regular Amendment 80 fisheries. Separate accounting and viability assessments will be done for the halibut sorted on deck and for the halibut missed during deck sorting (halibut collected in the processing area). To ensure separate accounting of halibut in the two locations, sea samplers will assign different data base codes for halibut sorted on deck and halibut collected in the processing area.

During the EFP, all groundfish and PSC data will be reported to NMFS using the regular reporting system that Amendment 80 vessels already use to report data to NMFS. Because halibut bycatch will be a census, however, the data entry field within NMFS' catch reporting software designed for reporting a census will be used to report the halibut bycatch on each EFP tow. The halibut bycatch reported in this data field will be the total halibut weight from each tow, including the weight of halibut removed on deck and halibut collected in the processing area. When the halibut catch data are entered into the program, the NMFS catch accounting system then automatically applies the normal NMFS/IPHC approved target mortality rates to this halibut. Because it has been reported in the normal manner, the halibut mortality generated from the EFP will not at

that point reflect the halibut mortality rates data being collected during the EFP and hence will not reflect any halibut mortality savings.

Following the completion of the EFP, the halibut mortality for the three EFP vessels will be calculated in the following manner. The mean halibut mortality rate for halibut sorted on deck across the three EFP vessels over the entire set of EFP tows will be calculated. Likewise, the average halibut mortality rate for halibut collected in the processing area will be calculated across the three EFP vessels and all EFP fishing will be calculated. For each location (deck and processing area), the total halibut mortality in that location will be calculated by multiplying the location-specific average halibut mortality rate times the total weight of halibut for that location. The amount of halibut mortality in each location will then be subtracted from the “nominal” halibut mortality in each location based on the NMFS/IPHC official halibut mortality rate to come up with the amount of halibut savings from the EFP. The “nominal” halibut mortality is the amount of halibut catch in each location that has already been reported to NMFS catch accounting system and therefore has received the NMFS/IPHC official halibut mortality rate to that weight of halibut catch. The difference between the amount of halibut mortality using the official mortality rate and the EFP-determined average rate will be the provisional EFP halibut mortality savings. These savings are “provisional” because they are subject to the review process described below. To clarify how these calculations will be done an example of how these calculations will be done is shown below.

Once the principal investigator has completed the calculations described above, all data and calculations used to arrive at the provisional halibut mortality savings will be provided to and reviewed by the IPHC and NMFS FMA. The expected timeframe for the FMA and IPHC review is approximately three weeks. This timeframe is designed around having the halibut mortality savings finalized and potentially available to the EFP participants in a timeframe that will allow them to plan their fishing for the remainder of the fishing season. The EFP applicant recognizes that this is a target timeframe that may require some adjustment due to NMFS and IPHC staff workload. Following their review, NMFS AFSC will inform the EFP holder and NMFS Region of any data quality or calculation issues and the final amount of halibut mortality savings from the EFP.

For purposes of crediting any EFP halibut mortality savings to the EFP participants, the following will occur. During the EFP, Best Use Cooperative will manage catch and halibut mortality accounts for the EFP vessels in the normal manner done for all BUC member vessels. During the EFP, reports to EFP participants will be made to inform them of their halibut mortality usage based on the NMFS/IPHC official mortality rates. Estimated halibut mortality usage based on average halibut mortality rates achieved during the EFP (running average to date) will also be provided to the EFP participants. Reports to EFP participants will emphasize that mortality usage based on average rates achieved during the EFP are subject to change when all the EFP data are in and the average rates for the overall data are available. Likewise, they will be subject to the NMFS/IPHC review at the end of the EFP. The halibut mortality information based on the NMFS/IPHC official rates and the estimated rates during the fishery will help participants understand how well they are doing in terms of halibut mortality reductions and therefore serve to incentivize halibut bycatch mortality reduction during the EFP. In this manner, EFP participants will also understand the range of potential halibut mortality outcomes given that the final data analysis and review have not been completed and NMFS and IPHC will have the final word on halibut mortality savings.

When NMFS and IPHC have completed their review of the EFP data and analysis, the BUC will inform EFP participants of their pro-rata halibut mortality savings. The expected timeframe for this is late summer of 2009 subject to NMFS/IPHC staff availability. Should the halibut bycatch mortality become limiting for any of the EFP participants later in the fishing year (limiting in a nominal sense), the BUC will allow that EFP participant to continue fishing up to the final amount of halibut mortality savings that was reported to the BUC by NMFS. Because NMFS' in-season data is based on halibut mortality allowances based on the official halibut mortality rates applied to EFP catches (this does not reflect any halibut mortality savings from the EFP), NMFS' catch accounting may at some point reflect a nominal "overage" in the BUC's halibut allowance. This would occur if the BUC's overall halibut allowance is used by BUC members and EFP participants utilize the halibut mortality savings from the EFP.

The potential for BUC members to utilize all their halibut allowances and for the EFP participants to utilize all of their allowances plus engage in fishing to utilize the halibut mortality savings from the EPF is not known at this time. This also presupposes that the EFP participants do actually create halibut mortality savings. Under the scenario that all of the above conditions occur (there are mortality savings from the EFP, BUC members use all their halibut mortality allowances in 2009, and the EFP participants utilize the savings from the EFP), then the NMFS catch accounting system would show a "nominal overage" in halibut mortality for the BUC. In this case, any performance reports by the BUC or NMFS detailing catch performance in 2009 relative to bycatch limitations would need to reflect that the reported halibut bycatch mortality for the BUC is a "nominal overage" which does not reflect the halibut mortality savings from the EFP.

Numerical example of how halibut mortality savings would be calculated and credited to EFP participants

NOTE: THIS EXAMPLE IS FOR INFORMATIONAL PURPOSES AND DOES NOT NECESSARILY INDICATE EXPECTED CATCH AMOUNTS OR HALIBUT MORTALTY RATES FOR THE EFP

EFP total halibut bycatch during overall all EFP fishing =	50 MT
EFP halibut bycatch sorted on deck=	40 MT
EFP halibut bycatch collected in processing area =	10 MT
Average halibut mortality rate deck sorted halibut (from viabilities) =	55 %
Official NMFS/IPHC mortality rate for target fishery (Oflats) =	74 %
Average mortality rate for processing area halibut (from viabilities) =	90 %

Equation 1: Nominal halibut mortality from EFP when total weight of halibut bycatch is entered into NMFS Catch Accounting System:

E1: 50MT of halibut bycatch x 0.74 = 37 MT

Equation 2: Actual halibut mortality from EFP = (Weight of halibut sorted on deck times average mortality rate from deck sorting) + (weight of halibut collected processing area times mortality rate from viabilities done in processing area) = Total halibut mortality for EFP

E2: (40 MT x 0.55) + (10 MT x 0.90) = 31 MT

Halibut mortality savings from EFP (difference between Equation 1 and Equation 2):

37 MT - 31 MT = 6 MT

Best Use Cooperative's distribution of halibut savings from EFP if halibut bycatch becomes constraining

Based on pro-rata share of total halibut bycatch from EFP to apportion halibut mortality savings between EFP vessels:

Example: Vessel 1 = 14 MT halibut bycatch during EFP
 Vessel 2 = 16 MT halibut bycatch during EFP
 Vessel 3 = 20 MT halibut bycatch during EFP

Therefore pro-rata shares of halibut mortality savings would be as follows:

Vessel 1= 28% of 6 MT = 1.68 MT
Vessel 2= 32% of 6 MT = 1.92 MT
Vessel 3= 40% of 6 MT = 2.40 MT

Table depicting roles and responsibilities for fieldwork and data analysis for EFP components:

TABLE 1				
Pilot study component	Task	Data to be collected	Lead responsibility for task	Lead responsibility for data analysis
<u>Sorting halibut on deck</u>	Sorting halibut from catch on each tow	N/A	EFP participants	EFP principal investigator
	Timing of removal of halibut from catch	Time needed to complete halibut sorting/tow	Sea samplers	EFP principal investigator
	Observing halibut sorting operations on deck to assess practicality etc.	Information to assess general feasibility of removing halibut on deck and factors affecting success such as weather, workload for crew, workload for sea sampler	Field project manager with input from sea samplers	EFP principal investigator
<u>Accounting for halibut removed on deck</u>	Counting individual halibut per tow	Number sorted on deck per tow	Sea samplers	EFP principal investigator
	Measuring individual halibut	Length of individual fish	Sea samplers	EFP principal investigator
<u>Halibut viability sampling and assessment on deck</u>	Assessing viability of all halibut taken in EFP (to degree possible)	Viability estimates across EFP vessels over duration of EFP	Sea samplers	EFP principal investigator

TABLE 1 – continued

Pilot study component	Task	Data to be collected	Lead responsibility for task	Lead responsibility for data analysis
	Monitoring ability to do viabilities on all halibut during EFP	Periodic estimates of viability rates during EFP, looking at fraction of tows where all halibut are assessed for viability	Sea samplers and EFP field project manager	EFP principal investigator
<u>EFP Fishing Protocol</u>	EFP participants design and implement fishing protocol and adjust as necessary.	Description of fishing protocol and participants' agreements to implement protocol including adjustments to protocol in response to halibut mortality rates	EFP participants under direction of field project manager and EFP principal investigator	EFP principal investigator
	Tracking fishing protocol to evaluate how fishing and halibut sorting and viability are affected	Information to evaluate how changes in fishing protocol affect actual tow duration, catch amounts per tow, halibut bycatch rates, relative size of halibut, and overall feasibility of deck sorting	Field project manager and EFP principal investigator with input from EFP participants and sea samplers	EFP principal investigator

TABLE 1 - continued

Pilot study component	Task	Data to be collected	Lead responsibility for task	Lead responsibility for data analysis
<u>Collecting and accounting for halibut missed on deck (collected in processing area)</u>	Accounting for halibut missed during sorting on deck	Number, weight/length of individual fish	EFP participants (collecting) accounting (sea samplers)	EFP principal investigator
		Viability assessment of halibut sorted in processing area	Sea samplers	EFP principal investigator
		Assessment of feasibility of collecting halibut missed on deck	EFP field project manager, sea samplers	EFP principal investigator
<u>Electronic Monitoring</u>	Placing EM systems and collecting and analyzing data	Data to evaluate utility of EM for monitoring catch handling procedures on deck	EM service provider, interviews with sea samplers to assess utility of real time feed for monitoring deck	EM service provider
		Data to evaluate utility of EM for confirming that only halibut are sorted from catch on deck	EM service provider	EM service provider
<u>Review of halibut mortality savings and EFP report</u>	Review calculations for halibut mortality savings and review PI's report on overall EFP findings		NMFS FMA, IPHC, and NMFS Alaska Region	

List of cost components, estimated costs and responsible parties:

Table 2 below provides an overview of the different cost components of the EFP fieldwork and the estimated costs based on the task as described in this EFP application. The party responsible for the cost item is also identified in Table 2.

Table 2

Cost Component of EFP	Estimated Cost	Responsible Party
<u>Sea Samplers</u>	\$30,000 (4 weeks of EFP fishing) to \$42,000 (6 weeks of EFP fishing) per EFP vessel over duration of EFP	EFP Participants
<u>Halibut Chute and Holding Pen</u>	\$25,000 materials and labor for three chutes total	EFP Participants
<u>Halibut Length Board</u>	up to \$3,000 per vessel if bar code and reader device is included	EFP Participants
Field project management by EFP permit holder	\$40,000 based on one field project manager rotated between EFP vessels	EFP participants
Field project management by IPHC or NMFS Region (if available)	Not known	
Electronic monitoring on deck and in processing area	Assumes one EM system rotated between EFP vessels, EM service provider contracted to install system and analyze data to evaluate utility of EM for objectives of EFP (\$?)	EFP participants

Making EFP data and results public: draft and final reports and presentation of findings from the EFP:

Upon completion of the fieldwork described above, the EFP applicant (principal investigator) will analyze the information and data from the EFP and draft a report summarizing the findings. The draft report will be a concise description of the EFP objectives and methods and the qualitative and quantitative findings. This draft report will be shared in first draft form with personnel from NMFS' FMA and the IPHC who are involved in the design of the EFP. The EM service provider contracted to collect the EM data and evaluate the utility of EM for the monitoring objectives described above will provide the EFP holder a draft report prior to the development of a draft report of findings. The EFP principal investigator will then incorporate that component into the overall report of findings from the EFP fieldwork. Once the principal investigator receives and incorporates the comments on the draft report from the FMA and IPHC, a second draft of

findings will be compiled and shared once again with the above agencies. After comments on the second draft are incorporated into the report, the principal investigator will notify the NPFMC that the report is ready for presentation to the NPFMC. The findings from the report will then be available for a presentation to the NPFMC. The scheduling of the draft final report will then be made to the NPFMC and its advisory bodies at the NPFMC's convenience.