

**Application for an exempted fishing permit (EFP) to continue research on ways to reduce halibut bycatch mortality rates in non-pollock catcher-processor trawlers through modifications catch handling procedures**

**Date of Application:** December 16, 2015 (revised)

**Requested permit dates:**

May 1 to December 31, 2016

**Co-Applicant Information:**

- Alaska Seafood Cooperative, 4241 21st Avenue W., Suite 302, Seattle, WA 98199
- Telephone: 206 462 7682, Fax: 206 462 7691 (covering AKSC member vessels participating in EFP)
- Alaska Groundfish Cooperative, 4257 24<sup>th</sup> Ave W, Seattle, WA 98199 (covering Alaska Groundfish Cooperative vessels participating in EFP)
- Glacier Seafoods, 2320 W Commodore Way #200, Seattle, WA 98199 (F/T Northern Glacier)
- American Seafoods Corporation, 2025 1st Ave #900, Seattle, WA 98121 (F/T Katie Ann)
- Fishermen's Finest, 570 Kirkland Way, Kirkland, WA 98033 (US Intrepid and American No. 1)
- United States Seafoods, 1801 Fairview Ave. E. Suite 100 Seattle, WA 98102 (Seafreeze Alaska and Seafreeze America)
- Ocean Peace, Inc., 4201 21<sup>st</sup> Avenue West Seattle, WA 98199 (F/T Ocean Peace and F/T Seafisher)

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**EFP Coordinator:** Jason Anderson ([jasonanderson@seanet.com](mailto:jasonanderson@seanet.com)), Cooperative Manager. Alaska Seafood Cooperative; Tel: 206 499-7244

**Data Manager:** Beth Concepcion ([daudistel@seanet.com](mailto:daudistel@seanet.com)), Alaska Seafood Cooperative, Tel: 206 462-7683

AKSC general phone number 206 213-5270

Coordinators and data managers for non-AKSC participating vessels to be identified before permit issuance.

**Signatures of co-applicants:**



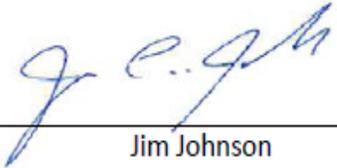
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John Gauvin  
Alaska Seafood Cooperative



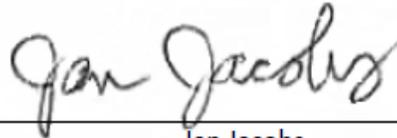
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Bill Orr  
Alaska Groundfish Cooperative



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Jim Johnson  
Glacier Seafoods



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Jan Jacobs  
American Seafoods Corporation



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Annika Saltman  
Fishermen's Finest



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Mark Fina  
United States Seafoods



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Todd Loomis  
Ocean Peace, Inc.

**EFP vessel information:**

A final list of EFP vessels will be provided to NMFS prior to final issuance of this EFP.

**Objective**

The objective of the 2016 EFP is to field test modifications to the procedures and approaches in the 2015 deck sorting EFP that: 1) Move substantively towards implementation of deck sorting as an allowable fish handling mode for the non-pollock catcher-processor trawl fisheries (Amendment 80, CDQ, and Trawl Limited Access) in the Bering Sea; 2) Simplify and improve on elements that worked from the 2015 project, 3) Address challenges and issues that arose in the 2015 EFP.

## **Preliminary results of the 2015 EFP and discussion of logical areas of focus for the 2016 EFP**

Prior to 2015, AKSC conducted two exempted fishing permit studies of deck sorting. These were relatively small “pilot” studies to test the concept in fisheries expected to be feasible (2009), and testing to validate the initial results in a somewhat expanded set of vessels and fisheries (2012). The objectives of 2015 EFP (EFP 15-02) were to broaden the evaluation to a much wider set of Amendment 80 fisheries, vessels, and times of the year with the goal of understanding the scale of possible halibut mortality savings. The 2015 work was also intended to start to evaluate what deck sorting would look like if it were available as an alternative catch handling procedure in the sector’s fisheries. With those objectives, EFP activities commenced in early May and are still underway currently. Nine of the 14 active AKSC vessels have participated in the EFP to date.

The most prominent result from the 2015 EFP is that substantial halibut mortality savings can be achieved from deck sorting on catcher-processor (CP) vessels operating in non-pollock Bering Sea fisheries. For the nine vessels in the EFP to date, all but one achieved mortality rates in the range of 41-53%. For reference, the standard mortality rate in the Bering Sea flatfish fisheries without deck sorting averages 80% (average across target fisheries of interest for the 2015 EFP). The table below illustrates EFP performance by vessel through September 2015.

Additionally, nearly all participants in 2015 were able to make the deck sorting procedures work in a wider range of flatfish fisheries than in earlier EFP tests. Specifically, a large amount of EFP activity occurred in the yellowfin sole fishery on both small and the large vessels. Yellowfin is the most significant flatfish fishery by catch volume, vessel participation, and annual total value. Because of the high catch volume in the fishery, deck sorting was generally expected to be unworkable based on the earlier EFPs. This year, however, the strategy to sort as many halibut as possible within 20 minutes or less worked to achieve significant halibut savings in yellowfin target fishery relative to the standard mortality rate (83%).

As is evident from the table, one EFP participant had somewhat higher halibut mortality rates. This vessel experienced practical problems with the modified catch handling procedures. In spite of this, the vessel was still able to reduce mortality rates relative to the standard rates in the fisheries they selected for deck sorting. Challenges for that vessel stemmed from the size of their stern tank, factory capacity, and deck layout. The vessel could only sort halibut from a relatively small fraction of each haul. Accordingly, the vessel only made seven EFP tows in 2015, and modifications would probably be needed to achieve success similar to the other EFP vessels.

Vessel	EFP Groundfish MT	Halibut catch MT	EFP mortality MT	EFP mortality rate	IPHC mortality MT*	Net Savings MT	Dates in EFP
<b>Constellation</b>	7,671	93.1	46.2	50%	74.5	28.3	May 24-July 4; July 17-Sept 26
<b>Legacy</b>	794	22.2	9.1	41%	17.8	8.7	May 16 -June 4
<b>Arica</b>	8,235	109.4	50.7	46%	87.5	36.8	June 9- Sept 28
<b>Cape Horn</b>	3,257	60.3	26.4	44%	48.2	21.8	June 3- July 26; Sept 14-27
<b>Rebecca Irene</b>	921	14.9	6.4	43%	11.9	5.5	July 20-Sept 2
<b>Defender</b>	4,629	57.7	30.3	53%	46.2	15.9	June 22-Sept 25
<b>Unimak</b>	2,525	17.0	8.1	48%	13.6	5.5	Aug 29-Sept 27
<b>Ocean Peace</b>	1,293	25.3	11.8	47%	20.2	8.4	Aug 12-Sept 2
<b>Enterprise</b>	159	0.2	0.1	70%	0.2	0.0	Sept 17-Sept 19
<b>Totals</b>	<b>29,484</b>	<b>400.1</b>	<b>189.1</b>	<b>47%</b>	<b>320.1</b>	<b>131.0</b>	

\* Using 80% as a weighted average across target fisheries

Post-EFP interviews with captains and other key crew are underway now and will continue as vessel’s finish their 2015 fishing. Preliminary discussions indicate that factors determining whether a vessel can effectively deck sort are different than previously thought, with the size of the vessel size not being as critical a factor as capacity of the vessel’s stern tank(s) relative to the vessel’s fishing gear and factory set-up.

An important goal for the 2015 EFP was to evaluate how well the deck sorting and catch accounting protocols were understood and adhered to on a daily basis. Overall, the 2015 protocols worked well. For the vast majority of EFP tows, catch handling procedures and protocols were followed carefully and precisely. Given the complexity of EFP procedures, we feel that the industry’s commitment to make deck sorting work was phenomenal. Training of sea samplers and crew by our field project managers prior to and during deployments was also critical for this encouraging outcome.

The work done by the observer providers to deploy sea samplers was a necessary component to the success of this EFP. The larger number of participating vessels this time placed a considerable burden on the providers, particularly in light of the fact that AKSC’s decision to do an EFP late came in 2014. This left providers little time to prepare and recruit qualified samplers.

Meeting the scheduling demands of participating vessels and their requests to accommodate last minute changes also challenged the providers. Despite this, in every case we know providers were able to deploy sea samplers. In some cases, participants had to adjust their timing around availability constraints but this was to be expected.

The EFP included several notification requirements that added to this complex scheduling challenge. These included giving notice to NMFS seven days prior to an initial EFP trip, and scheduling and conducting pre-cruise briefings 72 hours before initial EFP trips and whenever

new sea samplers, observers, and key crew came on board. In instances where unforeseen challenges arose with meeting the pre-EFP notice deadlines, the NMFS Fishery Monitoring and Analysis (FMA) division provided helpful flexibility.

The EFP rules specified that sea samplers were not allowed to use FMA-issued survival suits, personal locator beacons (PLB), and other equipment. Therefore, all these had to be provided by the EFP vessel or AKSC. PLBs also require registration with SARSAT, NOAA in the name of the individual carrying it. This task required additional coordination so that the units were registered during sea sampler deployments and removed from registration when deployments were completed. All of the above created complex logistics related to the use of sea samplers in the EFP.

One aspect of the 2015 EFP rules that allowed participants to make better use of the EFP was the allowance to “toggle” between EFP and non-EFP tows when weather did not allow for safe deck sorting operations, or operational constraints prevented efficient deck sorting. This flexibility was not available in past EFPs, and vessels had to drop out of the EFP to avoid the costs of shutting down fishing operations when weather conditions were not safe for deck sorting but still suitable for fishing without deck sorting. The ability to switch in and out of EFP mode helped participants minimize disruptions and downtime, but increased the complexity ensuring sea samplers, observers, and crew were aware of the appropriate sampling and reporting requirements.

Some 2015 EFP participants used this flexibility to toggle frequently between EFP, Amendment 80, and CDQ tows. Vessels also utilized this option when they encountered weather conditions where deck sorting was potentially unsafe or when fishing conditions were encountered with little or no halibut. In the latter case, captains determined that the halibut mortality savings through deck sorting would be more than offset by the additional mortality arising from delays caused by the additional time needed to deck sort halibut. Sea samplers were “off duty” at these times, but were of course paid the same daily compensation even if they were not working on some or all of the hauls on some days.

Some participants also kept sea samplers even when they did not intend to do deck sorting (e.g. target fisheries outside of flatfish) for parts of their trips. This was done because they planned to do deck sorting on the next trip and retaining the samplers avoided the possibility that they would not be available because the observer provider needed them for another deployment.

EFP communication procedures for notifying sea samplers and observers which tows were EFP tows generally worked well, but some challenges occurred. In a few instances, proper and timely notice was given that the next haul would be an EFP tow, but equipment needed for the tow to be sorted on deck (e.g. winches, cranes, working halibut chutes) malfunctioned and the tow could not be deck sorted. When this occurred, the proper procedure was for the crew to inform the sea sampler that the codend would be dumped into the stern tank without deck sorting and the EFP procedures for halibut accounting in the factory by crew and the sea sampler should have been done. On a few occasions this did not occur in the proper manner. The lack of clarity in some of these cases created confusion over whether the tow was to be handled as an EFP or Amendment 80 tow (non-EFP tow).

In a very few cases, some deck sorting had already occurred when the piece of equipment malfunctioned and the crew incorrectly decided to treat the remainder of the tow under Amendment 80 rules and reporting. This was not correct because some halibut from the tow had already been removed on deck. In these few cases and after consultation with the project managers and AKSC, participating vessels were instructed to report the occurrence to NMFS just as they would in any situation where a vessel noted the lack of conformance to a specific regulation. When questions arose, field project managers and AKSC staff worked with the vessel to get things back on track and NMFS assisted in this effort in cases where their assistance was sought.

Halibut number, weight, and viability accounting procedures on deck worked well. The sample size and much of the details of these procedures mirrored the 2012 EFP so it was not surprising that they worked again. Overall, sea samplers were able to collect their data from deck-sorted halibut and keep up with the pace of crew's sorting operations, thereby avoiding potential to increase halibut mortality rates by creating a backlog of fish awaiting measurement and viability assessment before they were returned to the water.

At the outset of EFP activities in May, video supplied by one of the EFP vessels indicated that sea samplers on the vessel were not always taking adequate time to do all the steps involved with viability assessments on fish. Careful adherence to the halibut viability key in the NMFS Observer Manual is critical to EFP results. To address this, our field project managers were instructed to emphasize in their training of all sea samplers that the full set of steps for viability sampling needed to be followed exactly, even for fish that are actively moving and clearly appear viable.

At times, field project managers also instructed crew on proper halibut handling on deck while they were being moved to the halibut chute. This occurred most on vessels that had not previously participated in a deck sorting EFP. Whenever sea samplers reported improper handling methods, AKSC contacted the boat and brought the issue up with the captain. If AKSC's project manager was onboard, this was done directly by the manager. In all cases, follow-ups with sea samplers indicated that the problems had been resolved following our discussion with the captain.

The EFP included a requirement for vessels to have cameras viewing the deck to monitor sorting operations. This requirement involved sending camera images for approval by Alaska Region personnel before June 29, 2015 and full operation of the systems by July 15<sup>th</sup>. Participating vessels were able to meet these deadlines and from AKSC's perspective the approval process went smoothly with only a few instances in which vessels had to modify initial camera installations. During the EFP, participants were also required to confirm on a daily basis that the monitoring cameras were operational. Through this process, several vessels identified system interruptions and failures and had to curtail EFP operations until their video monitoring systems were returned to operation. In these cases, vessels reverted to Amendment 80 accounting rules until their systems were fixed.

Video review and validation to confirm that procedures were followed on deck has not been done yet. Once that is completed, the utility of the monitoring system can be assessed and any changes to the systems or the requirements can be made. The monitoring cameras were designed to supplement the monitoring done by sea samplers and observers on each vessel, and to document any non-conformance with EFP procedures. In that regard, AKSC and its project managers did not receive any indication from sea samplers or observers that crew members handled halibut in a manner where it would not be fully accounted for by the sea samplers.

An increased presence of killer whales alongside the vessels was noticed for EFP arrowtooth trips. These occurred in May and early June on some of the EFP boats fishing on the shelf break areas off Akutan, and also on the shelf adjacent to Pervenets canyon. Earlier deck sorting EFPs in 2009 and 2012 had encountered a few orca whales at times but only intermittently and the whales left whenever a longline vessel started fishing in the area. In this EFP, some vessels fishing arrowtooth had a continuous presence of killer whales over several days. Where this occurred, whales were at times observed to be near the chute used to return halibut to the water. To attempt to thwart the whales from consuming halibut, participating vessels tried deck sorting while moving the vessel at the speed normally used for transiting between fishing areas (approximately 8-10 knots). This appeared to successfully prevent predation because the whales generally opted not to follow the vessel. The effects of returning halibut to the water in this manner are not known.

One EFP captain who experienced the whale situation expressed interest in trying to devise a holding tank to temporarily contain the halibut while providing a flow of sea water. This would avoid the need to return the halibut to the water immediately and the captain felt he could steam away at normal towing speed and the whales might not follow. Delaying the return of the halibut to the sea thus might allow it to occur with lower probability of predation. This was not attempted in 2015 because construction of the holding pen required some engineering, and after consulting with NMFS, it was decided that the regulations require that halibut and other PSC be returned to the sea as fast as possible. In this case, that part of the PSC regulation may at times be in conflict with the mandate to minimize mortality to PSC.

The EFP required that a sea sampler be present in the factory anytime fish from the stern tanks were run over the scale. Because the sea sampler was required to be on deck whenever deck sorting occurred and until deck sorting was completed, this meant that the fish in the stern tank could not be run over the flow scale until the sea sampler was back down in the factory. Vessels recognized this limitation from the outset and there were no reports from sea samplers or observers of fish being run over the flow scale without the sea samplers being present in the factory.

Accounting of halibut in the factory went well in the 2015 EFP and crew members followed the procedures to place all halibut recovered in the factory into the tote or bin designated for that purpose. Sea samplers were then responsible for measuring each fish to fully account for halibut that were not sorted on deck. This proved to be a relatively easy task given the generally low number of fish that made their way into the factory after deck sorting.

To provide perspective on the amount of halibut typically collected in the factory in the 2015 EFP, the table below reports the average halibut weight and number of halibut in a tow and the highest weight of halibut in a tow, and overall weight of halibut collected in the factory for each EFP participant.

On average, 12 halibut per tow were collected in the factory and the average weight of all the halibut collected in the factory per tow was 36 kg. The relatively low average number and average weight per tow of halibut collected in the factory includes situations where only a portion of the net was able to be sorted on deck and tows where no sorting on deck was done but halibut were accounted for in the factory under EFP procedures. The tow with the greatest weight of halibut recovered in the factory is reported in the table for purposes of understanding the upper end amount of halibut for EFP tows with minimal or no deck sorting.

Vessel	# EFP Hauls	Total Factory Halibut (MT)	Avg # /Tow	Avg Wt /Tow kg	Greatest Wt /Tow kg
<i>Cape Horn</i>	270	5.2	6	19	185
<i>Rebecca</i>	57	2.3	14	40	325
<i>Arica</i>	450	16	10	35	835
<i>Unimak</i>	150	5.6	11	37	277
<i>Constellation</i>	510	17.6	10	35	360
<i>Defender</i>	280	13.8	15	49	551
<i>Ocean Peace</i>	60	1.9	9	32	259
<i>Enterprise</i>	7	0.13	4	18	50
<i>Legacy</i>	62	3.8	27	60	413

The requirement to oversee the crew’s collection of halibut missed during deck sorting often created long hours for sea samplers down in the factory, particularly on vessels that have minimal fish bin capacity downstream of the flow scale. Because fish could not be run over the scale unless the sea sampler was present in the factory overseeing crew sorting activities, vessels had to provide breaks for sea samplers by shutting down the conveyor belts coming out of the stern tanks periodically to allow sea samplers to take biological breaks, eat meals, etc.

AKSC and the observer provider companies received significant feedback from sea samplers on the issue of long hours overseeing the crew’s collection of halibut in the factory. From some of the post-EFP interviews we have learned that the time needed to run fish over the flow scale varied considerably by vessel. On vessels with small or only minimal bins for sorted catch downstream of the flow scale, the pace of running fish over the flow scale is relatively slow. For the 2015 EFP this meant that some sea samplers were frequently down in the factory for most of their 12-hour shift.

In some cases, EFP vessels were still running fish out of the tank when the sea sampler’s 12-hour shift was completed. This meant that the sea sampler would be requested to extend his/her shift over the 12-hour limit. This was only supposed to occur on rare occasions according to the rules of the EFP. When the frequency of this exceeded the intent of the EFP on some vessels, AKSC

and its field project managers notified the captain that he was not following the EFP procedures. Whenever this occurred we received feedback from sea samplers that the situation had been remedied. This applies only to occurrences where this problem was reported to AKSC however. AKSC's written training materials for sea samplers and their in-person training by project managers stressed the need to inform AKSC if shifts exceeded 12 hours. Nonetheless, we recognize that sea samplers may not have brought this issue up with the vessel personnel, project managers, or reported it to AKSC.

In July and August of 2015, observer providers notified AKSC that they were having some difficulties finding interested sea samplers for the EFP. This was in part due to the pollock "B" season and other fisheries being in full operation. It was also to some extent apparently due to the perception of long hours and tedium associated with overseeing factory collection of halibut.

### **Areas of logical focus based on the findings of the 2015 EFP:**

Four changes to 2015 procedures rise to the top from AKSC's perspective in consideration of how to improve on what occurred this year. These are: 1) Using a single set of modified procedures to account for halibut on EFP trips (no toggling between EFP and Amendment 80); 2) Addressing the long hours needed for catch accounting personnel to oversee the collection of factory halibut by rethinking shifts and procedures so that factory data collection duties are less tedious and demanding 3) Including halibut in observer sampling (not done in 2015) to allow for comparison of the sample estimated quantity of halibut that was not removed on deck (factory halibut) to a census of halibut (weight and numbers) collected by crew in the factory; 4) Testing ideas for holding tanks with sea water flow to see if halibut viability can be increased, the potential for whale predation can be decreased, and additional time is available for measurement and viability sampling without decreasing viability or upwardly biasing viability assessments.

Details associated with these modifications are described below. The areas of focus for this application are, for the most part, the same as those identified in the two guidance documents AKSC received from the Alaska Region and AFSC's FMA. While our approaches to address challenges are consistent with NMFS' guidance, in a few cases our solutions differ. Where this occurs, we have explained our reasoning in the section following the description of procedures.

### **Description of the 2016 EFP procedures in the focal areas**

- 1) Using a single set of catch accounting methods on all tows during EFP trips in 2016 (AKA no toggling)

Changing to a single catch handling and accounting mode is valuable because it would make things clearer for industry and easier for catch accounting/scientific personnel. However, participating vessels still need a way to opt out of sorting on deck when the weather makes it potentially unsafe or when the vessel has located a fishing area where halibut bycatch is very low. In cases where there is very low halibut catch, deck sorting may not be worth the time it takes to get people on deck, sort through the catch and get them back to their other duties. At other times, deck sorting may start but the weather comes up and it must be curtailed. To address the need for flexibility to opt out of deck sorting or do it partially during a trip designated for deck sorting, contents of the net can be dumped with partial or no deck sorting being done. On all tows during

an EFP trip, halibut accounting will be done through the same “standard” procedures described below. The single method for accounting for halibut catch for the 2016 EFP is designed to work in conjunction with items 2 and 3 below.

- 2) Use of observers on EFP trips in lieu of sea samplers and changes to work shifts; accounting for factory halibut during the EFP based on observer sampling; crew collections of all halibut in the factory and measurement of each fish by observers following sampling; comparison of extrapolated amount of halibut from observer sampling to the amount of halibut collected by crew during the data analysis and report writing phase of this EFP.

The long hours and tedium involved with overseeing the crew’s collection of halibut in the factory was problematic for sea samplers in 2015. To address this, work shifts and duties will be modified for 2016. Additionally, observers will perform an adjusted set of catch accounting duties for the 2016 EFP to streamline many of the added duties involved with deck sorting. The use of observers for halibut catch accounting allows the use of equipment issued by FMA and reduces complexity by establishing a single set of observer duties and work areas, instead of dividing duties between sea samplers and observers, as was done in the 2015 EFP. In the 2015 EFP, sea samplers accounted for all halibut under the EFP defined duties, while observers accounted for all other catch under the normal catch accounting procedures. Under this EFP, the observer will account for all catches. In addition, all data will be entered directly into the NMFS’ Catch Accounting system. That system will be modified to properly account for halibut mortality changes arising under the EFP protocols.

To address workload, each EFP vessel will be required to have three observers on EFP trips. Observers will do all their duties on deck and in the factory during 8 hours shifts that do not overlap. This should provide up to four hours per observer per day for error checking and the additional work to enter data for halibut sorted on deck. Work shifts are not to exceed 12 hours per observer.

On deck, the observer will perform the same duties as those done by sea samplers in 2015 to account for halibut sorted on deck and their viability. This means they will use the same stratified random sampling methods and the same deck sheets used to identify halibut for sampling. Fish selected for sampling will be measured and assessed for viability following the same procedures used in the 2015 EFP with data recorded on the same style of deck sheets as under the 2015 EFP. Entry of data into an electronic format will be done via NMFS’ Atlas program following procedures developed by FMA that allows entry of lengths and viabilities of sampled fish as well as the overall number of deck sorted fish. In-season managers in the NMFS Alaska Region (AKR) will receive these data, and modifications to the Catch Accounting System will be made that extrapolate sampled fish to the overall amount of halibut mortality for deck sorted fish in the haul using the viability and length data collected for deck sorted fish. AKSC will work with FMA and NMFS AKR to define the details of these sampling, uploading, and data extrapolation steps.

To ensure that observers have access to all non-deck sorted catch, no fish is allowed to be run out of the stern tank over the flow scale while the observer on duty is on deck during halibut sorting

operations. Following deck sorting, the observer on duty will indicate to the crew they can open the stern tank gate and begin to move the catch out of the tank. At that time, the observer will follow a sampling plan developed by FMA for catch composition sampling. Halibut will be included in observer sampling in 2016, and the fraction that halibut comprises of the weight of species in observer samples will be extrapolated to estimate the weight of halibut recovered in the factory. This factory halibut estimation process will be used in the 2016 EFP to determine the amount of factory halibut for each haul.

Factory halibut will be assigned a mortality rate of 90% in 2016. This rate is based on data from earlier EFP viability assessments and is the same default rate as used in 2015. The weight of factory halibut determined as described above will therefore be multiplied by 0.90 to determine the amount of factory halibut mortality for each haul. The sum of mortality of deck sorted halibut for a haul and mortality of factory halibut for the same haul will comprise the total halibut mortality for the haul.

The crew will be responsible for sorting out all halibut from the sorting belt downstream of observer sampling. Crew will place all halibut into a designated tote or bin as occurred in 2015. Unlike the duties assigned to samplers in 2015, however, observers will not be directly responsible for overseeing the crew's collection of halibut in the factory. The crew can therefore run fish over the scale as normally occurs in Amendment 80 operations, TLAS, and CDQ without the observer present in the factory as long as the observer is not on deck to collect data during deck sorting (door(s) to stern tanks closed and no fish can be run over the flow scale during deck sorting). To facilitate monitoring of the crew's sorting out of halibut in the factory, video monitoring systems meeting NMFS' specifications will be installed in the sorting area of each participating vessel to record/archive crew activities associated with the collection of factory halibut and its placement into a designated bin/tote. The deck and factory video monitoring system will be required to be operational on all EFP trips from the time fish first comes on board until fishing for that trip is completed.

If an observer witnesses crew engaging in any activity is thought to be a departure from the allowed procedures and protocols of the EFP, the observer will give notice to NMFS and NMFS will inform the EFP holder (co-applicant) representing the vessel in question. For minor departures/infractions that are not associated with intentional bias of halibut number, weight, or viability, the notice from NMFS should allow the permit holder to consult with vessel personnel and take steps to address problem. In cases where intentional bias of number and/or weight of halibut or its viability are at issue, the permit holder will, in consultation with NMFS suspend the vessel from further participation in the EFP. In this case, the vessel will not be able to resume EFP activities until NMFS has opportunity to review the monitoring video or in the factory. After NMFS' review of the video occurs, the vessel can only resume the EFP if it is determined by NMFS that the crew did not engage in activities that intentionally bias the counting, weighing, or estimation of viability of halibut in the EFP.

Following the collection of all factory halibut by the crew, the crew will indicate to the observer on duty that all halibut have been collected. Observers will then measure or weigh each halibut and record the appropriate information on the back of the deck sheet. The observer may determine the best time to weigh/measure factory halibut so as to ensure that sufficient time is

available for factory sampling and other duties. Factory halibut collected by crew from individual tows must be kept separate.

For any tow where deck sorting did not occur due to adverse weather or other reasons, all halibut mortality accounting on that tow will be done using observer sampling in the factory. Additionally, the crew and observer will sort out, count and weigh all halibut for that tow following the procedures described above. The 90% mortality rate will be applied to the observer sample extrapolation for non-deck sorted tows during an EFP trip. Procedures for providing sufficient advance notice to observers on EFP trips for tows where no deck sorting will occur will be developed in consultation with NMFS during the drafting of this exempted fishing permit. As such, unless otherwise indicated, the operative assumption will be that tows will be deck sorted following the permit notice procedures.

After the observer on shift has had sufficient time to enter the data from the deck sheets (from deck sorted and factory measured fish) into the Atlas program, crew will be provided the opportunity to make a copy of the deck sheets for that haul so they can enter the data into the Excel spreadsheet used in 2015. This is needed to give EFP participants performance data in as close to real time as is possible while allowing observers to perform data entry and error checking prior to providing crew with a copy of each haul's deck sheets.

At the conclusion of 2016 EFP activities, the EFP holder, in conjunction with NMFS' FMA, will review the estimated amount of factory halibut from observer sampling for comparison to the census of halibut collected in the factory by crew. The objective will be to evaluate the precision and associated variance of extrapolations. This analysis is intended to help inform the decision of which way to account for halibut in future EFPs or for the consideration of ways to implement deck sorting into the regular fisheries for CP vessels.

### 3) Testing concepts for halibut holding tanks on deck

A few of the 2015 participants who experienced interactions with killer whales in arrowtooth flounder fishing have expressed interest in holding the halibut in a pen with circulating sea water to provide an option to returning them to the sea if orcas are present or if length measurement/viability sampling is behind the pace of sorting. In addition to the potential for avoiding predation by whales, this might provide benefits for the data collection process and could increase viability in some cases.

To explore this approach and start to assess how it conforms with practical and other considerations associated with vessel stability and loading requirements, a subset of AKSC vessels (and possibly other EFP participants) will fabricate and install holding systems in the 2016 EFP. To allow these to be used, the EFP will need an additional exemption from the regulations that requires the vessel to return halibut to the water as soon as possible (while minimizing mortality). To allow evaluation of the holding tank systems, the deck sheets for the 2016 EFP will be modified to include a field for whether the holding pen with water supplied was in use for a given tow. Vessels with the tank systems will use them intermittently over the course of their 2016 EFP activities. This will enable examination of the data to see if there is any significant difference in viability for tows with and without the holding tank systems. Interviews

with captains following the EFP will include questions about the practicality and/or safety of use of these tanks on deck, and captains' thoughts on whether they were effective at reducing interactions with killer whales. The collection of data on time out of water as part of the analysis is already incorporated into the existing design of AKSC's deck sheets.

### **Discussion of and rationale behind 2016 EFP elements in the context of NMFS' guidance documents**

NMFS two guidance documents and subsequent discussions with the agency have been quite helpful in the formulation of the 2016 EFP application. Ideally, the timing would have allowed for completion of the 2015 fieldwork and drafting of a final report so NMFS could have had the benefit of a more complete assessment of the overall performance of the 2015 EFP prior to providing guidance to AKSC. Unfortunately, the agency only had a small portion of the data covering only a few weeks of the EFP on a subset of the vessels when it drafted its first guidance document this summer. The second guidance document reflects a better understanding of the outcomes of the 2015 EFP, yet still suffered from incomplete information. Further discussions have provided both the applicants and the agency with a better and more complete grasp of limitations and challenges associated with the development of this EFP. This progress is reflected in this application.

From the outset, it should be noted that our decision to structure the halibut data collections for the 2016 EFP around the use of observers follows NMFS' recommendations. We share the agency's opinion regarding the advantages in terms of equipment usage, simplification and streamlining of training, clearer lines of authority and direction, and the ability to enter and extrapolate data via the NMFS Catch Accounting System.

We do not concur with the agency's recommendations on the number of observers per vessel and per shift. Their suggestion for four observers, two on each 12-hour shift is based on the approach of using expanded observer sampling to determine the amount of halibut in the factory. Having three observers recognizes the workload of their regular duties and those of the EFP. We believe that having each observer work an 8-hour shift for deck and factory work provides sufficient time for EFP and non-EFP duties and allows an additional four hours for data entry and checking. We also believe our approach will effectively address the tedium and physical labor challenges experienced by data collection personnel that occurred in 2015. Perhaps most important in this regard is the removal of a direct oversight role for the crew's collection of halibut in the factory as cameras will perform this function. This will free up time for observers to do their work and avoid the drudgery of overseeing the crew work for extended hours on each shift.

We also think that under the proposed EFP protocols, there will be adequate monitoring and incentives for following EFP procedures in general and specifically for the crew's collection of factory halibut so that it will be a quality data source for comparison to estimations of the amount of factory halibut from observer sampling. Steps outlined above to inform participants of minor departures from EFP protocols and potential suspension from the EFP for intentional bias of halibut catch amounts or viability are expected to be an effective deterrent. The monitoring cameras will serve the same purpose as they currently serve for bin monitoring, where they will be used to verify that deck and factory halibut procedures are followed. Having

quality data from the crew's collection of factory halibut is important because AKSC remains concerned about the use of observer sampling to determine the amount of factory halibut on tows where deck sorting has made halibut a rarer species and particularly where partial deck sorting has occurred and the sampling encounters stratification in terms of portions of the fish in the tank that where the halibut were sorted on deck and other portions where deck sorting did not occur.

We also believe that the suggested use of four observers would have greatly limited the potential for broad participation in the EFP. The costs of carrying four monitoring personnel in low revenue fisheries was one factor that limited participation in the 2015 EFP. In addition, operational limitations arising from carrying two sea samplers and two observers per vessel in the 2015 EFP proved to be prohibitive on some vessels, particularly small vessels with limited capacity for personnel and observers. These factors, together with the challenges of finding adequate numbers of observers during periods of peak demand, suggest that limiting the number of observers required on each vessel may help the EFP achieve its objective for testing deck sorting practices in a broad range of fisheries on a broad range of vessels.

Finally, the only other substantive area where we differ from NMFS recommendations is our maintenance of 2015 EFP procedures for halibut catch and viability sampling on deck. We feel that, on balance, 2015 deck sorted halibut mortality estimation procedures worked well. NMFS' August 2015 guidance document suggested that NMFS would potentially have the observer selecting halibut from a holding tank of deck-sorted halibut. We feel that, rather than preventing bias, this could actually lead to bias. The methods used in 2015 resulted in randomized selection of halibut for measurement and viability sampling. Crew members slid fish from the deck to the work station without any real chance of knowing which one would be sampled. As long as the sea sampler kept the clipboard out of view of the crew and did not telegraph which fish would be selected, crew members were unable to determine which fish was selected for sampling. Based on conversations with sea samplers and field project managers, and from video review, the existing procedures worked well.

**EFP vessel selection, target fisheries, timing, and project area:**

The EFP holder will inform NMFS of the list of AKSC and non-AKSC vessels that will participate in the EFP. We currently anticipate that Alaska Groundfish Cooperative and other trawl limited access (TLAS) catcher processor vessels that target flatfish will participate in the EFP in 2016. Likewise, we feel that CDQ hauls and codends delivered to EFP vessels should be included in this EFP. The cooperative or company entities responsible for these non-AKSC vessels are included in this application and responsibility for the performance in the EFP and regulatory compliance falls to the entities that oversee the operations of these vessels.

All EFP fishing will occur in areas open to non-pelagic trawling in the Bering Sea as well as sub-area 541 of the Aleutian Islands where arrowtooth flounder and Kamchatka flounder are likely targets. Flatfish fisheries will be the EFP focus, although some target fishing for Pacific cod will likely occur during the EFP. Catch compositions and amounts are expected to be similar to non-EFP fisheries conducted during these times and in these areas. EFP fishing is expected to be concentrated mostly east and northeast of the Pribilof Islands, and in the "Horseshoe" (northeast of Dutch Harbor), although locations within the Bering Sea must be left flexible so that vessels are able to operate in open areas as fishing conditions dictate. No access is sought to areas

closed to non-pelagic trawl fishing. No access is sought to areas closed to non-pelagic trawl fishing. Non-pelagic trawls with modified sweeps where required will be used to conduct EFP fishing. Depending on halibut bycatch rates, EFP vessels may use halibut excluders to help control halibut bycatch rates. Use of halibut excluders occurred extensively in the 2015 EFP and is typical of vessels in these fisheries. EFP fishing may occur at any time in 2016 following the date of EFP issuance.

**Non-halibut species use and catch accounting:**

Usage of groundfish and PSC in fishing under this EFP will come out of the 2016 catch allowances specific to each EFP participant. In the case of Amendment 80 vessels, groundfish and PSC will be accounted for against Amendment 80 catch limits. For TLAS, catch and PSC will be accounted for against the groundfish and the portion of halibut PSC assigned to the target fishery within that sector. TLAS vessels will be subject to voluntary agreements or NMFS-issued target and/or PSC closures. The same applies to any EFP fishing assigned to CDQ. **No additional groundfish or halibut quota is requested as part of this EFP application, and all groundfish catch will accrue against the appropriate Amendment 80, CDQ, or TLAS catch and PSC allowances.**

**EFP project management:**

The use of observers to collect data and the entry of data into the NMFS catch accounting program changes the day to day management responsibilities for AKSC relative to 2015. As permit holders, AKSC and other co-applicants are responsible for ensuring the EFP is meeting the objectives and following the prescribed procedures. For this reason, AKSC and other participants will monitor performance for EFP vessels and continue to communicate with captains and representatives of companies operating EFP vessels to ensure that crew activities on vessels meet the intent of the EFP to reduce halibut mortality and achieve the objectives of the EFP. AKSC and other participants will also at times have field project managers on board selected trips to observe that EFP procedures are followed and crew members understand these procedures. AKSC will take the lead for the analysis of data and conducting interviews with captains and other key crew members during and following the EFP to inform AKSC's draft and final reports on the EFP. FMA will assist AKSC in analyzing the precision of factory halibut estimation via sampling as compared to crew halibut collections for all EFP tows.

**Providing notice for EFP trips:**

The deck sorting procedures and requirements apply only to trips in the deck sorting EFP mode in 2016. On non-deck sorting trips, normal Amendment 80, TLAS, and CDQ procedures will be in place. To distinguish between deck sorting EFP and non-deck sorting EFP trips, the applicants will work with NMFS and the observer provider companies to establish an advance notice requirement for the deck sorting EFP. This is needed to ensure that observers are briefed and otherwise ready and available for EFP activities. The advance notice procedures that will be worked out with the agency and observer providers will include both electronic check in and pre-participation notification to agency personnel associated with the Catch Accounting System and other parts of NOAA involved with providing training for, receiving data from, and involved with monitoring and enforcement of fishing activities under this permit.

### **Additional projects that depend on the issuance of this deck sorting EFP**

At this time, we are aware of three research projects that are related to and in some cases dependent upon an operational deck sorting EFP in 2016. The first is additional testing of FMA's chute camera system. We are hopeful this system will be successfully developed so the need for human observer work on deck to account for halibut can be reduced. We have heard that the University of Washington's Applied Physics Lab is working on a parallel effort for automated measurement of halibut. That research would be best conducted on a vessel engaged in the EFP, if it is ready for field testing in 2016.

The second project that is dependent on an EFP in 2016 is one jointly funded by NPRB and SK where the study design calls for putting accelerometer tags on deck sorted halibut that have been assessed for viability. The objective is to compare the assessed viability to the survival rate via the tags that are designed to monitor survival rate in the wild over a 60-day period.

Finally, a research effort to improve understanding of seasonal migration of halibut is being developed through a collaboration between Groundfish Forum and the Chaninik Qaluyat Nunivak (CQN) Working Group. The latter is comprised of stakeholders in western Alaska representing communities from Nunivak through Kuskokwim Bay. The work at this stage is pilot study designed to inform a more comprehensive tagging study in future years. The research is being developed in consultation with the IPHC and they hope to use the EFP to tag some halibut that have been sorted on deck and have undergone viability assessments. These fish would be tagged with coded wire tags similar to the effort IPHC did with the NMFS trawl survey last summer.

### **Exemptions to the Amendment 80 and other regulations needed for this EFP:**

To accomplish the study objectives, specific regulatory exemptions from current Amendment 80 catch handling procedures will be needed:

1. Catch handling regulations currently prohibit catch sorting or removal on deck, prior to observer sampling (50 CFR 679.93(c)(1)). Additionally, these regulations require all catch to be weighed on a NMFS-approved scale. During the EFP, catch estimates and viability assessments of halibut will occur principally on deck (and in the processing area for any halibut missed on deck) according to the methodology described below. These activities would normally occur at the observer work station below deck.
2. Regulations at 50 CFR 679.7(g)(2) prohibit sorting catch prior to observer sampling. Because sampling will occur on deck, a regulatory exemption will be needed.
3. Portion of the PSC regulations that require prohibited species to be returned to the sea as soon as possible while allowing accounting for PSC (to allow holding tanks and tagging of halibut and passing it through the chute

### **Provisions for public release of data and information from EFP and provisions for interim and final reports from EFP:**

All EFP participants must agree to provide their tow-by-tow observer data pertaining to deck sorting performance to the principle investigator for purposes of conducting an analysis of performance during deck sorting trips. Upon completion of the fieldwork described above, the

principal investigator will analyze the EFP data and draft a report summarizing findings. The draft report will be a concise description of EFP objectives and methods, and the qualitative and quantitative findings. This draft report and the raw data used in the analysis will be made available for review by FMA, NMFS, Alaska Region, and IPHC.

Once the principal investigator receives and incorporates draft report comments, a second draft will be compiled and shared with the above agencies. After comments on the second draft are incorporated into the report, the principal investigator will notify the North Pacific Fishery Management Council that the report is ready for presentation, and make it available to Council staff. Finally, the principal investigator will present findings to the Council and its advisory bodies at their convenience.