



UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic Atmospheric Administration
National Marine Fisheries Service
P.O. Box 21668
Juneau, Alaska 99802-1668

September 9, 2019

D1 Trawl EFP Application and NMFS Review
OCTOBER 2019

Simon Kineen, Chairman
North Pacific Fishery Management Council
605 West 4th Avenue, Suite 306
Anchorage, Alaska 99501

Re: Review of an Exempted Fishing Permit application for pollock catcher vessels (CVs) using pelagic trawl gear in the eastern Bering Sea (BS) and Gulf of Alaska (GOA) to evaluate the efficacy of electronic monitoring (EM) systems in lieu of observers for at-sea monitoring of vessels for compliance with fishery management regulations in 2020 and 2021.

Dear Chairman Kineen:

On September 9, 2019, NMFS, Alaska Regional Office, received an application for an exempted fishing permit (EFP) from United Catcher Boats with collaborators from Alaska Groundfish Data Bank, Inc., Peninsula Fishermen's Coalition, and Aleutians East Borough. Issuance of EFPs is authorized by the Fishery Management Plan (FMP) for Groundfish of the Bering Sea and Aleutian Island (BSAI) Management Area and the FMP for Groundfish of the Gulf of Alaska (GOA) Management Area and their implementing regulations at 50 CFR 679.6, Exempted Fisheries. The Alaska Fisheries Science Center has reviewed this application and informed the Alaska Regional Office on September 6, 2019, that the EFP application constitutes a valid study appropriate for further consideration. We are providing the application to the U.S. Coast Guard, State of Alaska, and the North Pacific Fishery Management Council (Council), as required by 50 CFR 600.745(b)(3)(i) and 50 CFR 679.6(c)(2).

The EFP application includes a proposal for pollock CVs using pelagic trawl gear in the eastern BS and GOA to evaluate the efficacy of EM systems in lieu of observers for at-sea monitoring of vessels for compliance with fishery management regulations. The EFP would exempt the participants from regulations that currently prevent full or maximized retention of all catch and observer coverage requirements. The specific regulations from which exemption are requested can be found in the application. The objective of the EFP is to determine whether utilizing camera systems in lieu of onboard observers proves both cost effective and operationally effective for monitoring of catch and discards. To this end, the proposed EFP seeks to achieve the following specific objectives, derived from the Council's EM Cooperative Research Plan:

- Demonstrate that maximized retention can be achieved in pollock trawl CV fisheries.
- Demonstrate that at-sea observers can be replaced with observers at shoreside processing plants such that data needs and data streams for effective fisheries management are maintained.
- Demonstrate that EM camera systems can adequately capture discard events and that video data can be used to verify vessel logbook discard information for compliance monitoring purposes.



- Improve salmon bycatch accounting for CVs, especially for those delivering to tender vessels, through the use of EM camera systems that will enable shoreside observers to collect salmon bycatch census data.

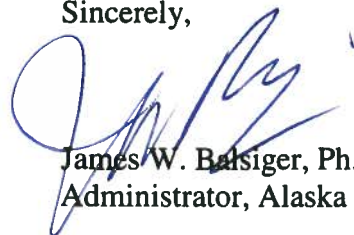
Results from this EFP are intended to inform the Council's EM Trawl Committee and future Council analyses in consideration of implementing EM aboard pelagic pollock CVs in the BS and GOA as a compliance monitoring tool in these fisheries.

Under the proposed EFP, EM will not be directly utilized for catch accounting purposes; accounting of a vessel's catch will be done via fish tickets (eLandings reports) and a census of the Chinook salmon PSC will be done at the shoreside processing facility via a shoreside plant observer, both of which will be provided to NMFS. The requested dates for the permit to be in effect are the 2020 and 2021 pollock fishing years (both A and B seasons in the BS and A/B and C/D seasons in the GOA). For 2020, it is anticipated that 49 pollock CVs (28 BS/GOA component and 21 western GOA component) and nine tender vessels will be participating in the proposed EFP (these numbers are subject to change and will be confirmed prior to final issuance of the EFP). An expansion of participating vessels will be considered for 2021 based upon information learned during the first year of the proposed EFP. CVs delivering to motherships and catcher-processors are not eligible to participate.

After reviewing the proposed EFP in relation to NOAA Administrative Order (NAO) 216-6A, NMFS has determined that the proposed EFP research would not have a significant effect on the human environment. Specifically, the proposed action falls into the category of actions subject to categorical exclusion identified in Appendix E of NOAA's Companion Manual for NAO 216-6A, B12, for the issuance of EFPs.

We are initiating consultation with the Council by forwarding the application, as required by 50 CFR 679.6(c)(2). We understand that you have scheduled Council review of the proposed project at the Council's October 2019 meeting. Please notify Ms. Ruth Christiansen, from United Catcher Boats, and collaborators from Alaska Groundfish Data Bank, Inc. (Ms. Julie Bonney), Peninsula Fishermen's Coalition (Ms. Beth Stewart), and Aleutians East Borough (Ms. Charlotte Levy), of your receipt of the application and invite them to appear before the Council during the October meeting in support of the application. We will publish a notice of receipt of the application in the *Federal Register* with a brief description of the proposal.

Sincerely,



James W. Balsiger, Ph.D.
Administrator, Alaska Region

Enclosures:
EFP Application
AFSC memorandum of approval of the experimental design
Categorical Exclusion supporting this proposal



UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
National Marine Fisheries Service
Alaska Fisheries Science Center
7600 Sand Point Way N.E.
Seattle, Washington 98115-6349

September 6, 2019

MEMORANDUM FOR: James W. Balsiger
Administrator, Alaska Region

FROM: Robert Foy
Science and Research Director, Alaska Region

SUBJECT: Exempted Fishing Permit application United Catcher Boats to
Implement Electronic Monitoring Systems in the Eastern Bering
Sea and Gulf of Alaska Pollock Pelagic Trawl Catcher Vessel
Fisheries.

The Alaska Fisheries Science Center (AFSC) has reviewed the attached Exempted Fishing Permit (EFP) from United Catcher Boats. Although the logistics of the fishing operations and the use of Electronic Monitoring (EM) are well documented, there is uncertainty regarding the methodology of how catch estimates are going to be generated and how those estimates can be combined with the current catch accounting system methodologies. The AFSC requests that further information regarding the following be added to the application.

1. Logbooks have increased in importance as a record of fishing location and fishing depth when observers are not deployed on vessel to collect this information. All logbooks should be digitized and entered into a database that would be provided to the AKRO in a format that would allow it to be linked to the plant observer sampling for bycatch and biological data. Although there will be some loss of spatial resolution due to mixing of tows in a delivery, this will maintain valuable data of the spatial distribution of catch that is used for many types of scientific analyses. While the EFP addresses a simplified logbook approach, the potential loss of specific fishing location associated with an estimated haul weight is detrimental to the usefulness of the data.
2. Explain how 100% review of EM video will be accomplished, how the reviewers will be trained, and how data quality is controlled. The AFSC is concerned that in the future the videos will be subsampled which would lower the precision of the data collected.
3. What methods and quantitative analyses will the "Summary Reports" encompass?
4. The EFP describes the 2019 test year, when vessels carried both EM systems and onboard observers, and more information about was revealed in the 2019 pilot study on the composition of the 400 discard events should be included. Additionally, the EFP notes that, "the third-party reviewer recorded just under 400 individual discard events for catcher vessels in the BS with each of those events estimated at less than 1,000 lbs. and a negligible



number of discard events greater than 1,000 lbs.” It’s unclear what the applicants consider “negligible.”

5. The EFP is requested for two years, yet it is unclear as to what would occur if operational, data quality, or other issues arose in the first year.
6. Species retention information is included, and we recommend that the applicants work with the AFSC’s FMA Division to further define expected quantities of fish “washed” off deck, what is meant by “proper” recording of discarded species, and what types of discards are “beyond the control” of the vessel operator.
7. The EFP includes marine mammal protocols, yet no information on seabird takes and interactions. The EFP allows for deck-loads and short-wiring of hauls, which may increase the opportunity for increased bird and/or marine mammal depredation. We recommend including camera placement to show potential marine mammal interactions of feeding on catch and seabird third-wire interactions.
8. While it is understandable that vessel operators would be unable to obtain the proper permits for collection of marine mammal specimens, we recommend working with FMA and the AKRO to investigate potential technological solutions to collect some information, such as animal size. For example, placement of a calibration grid in camera views during the Vessel Monitoring Plan process could help camera systems collect data on the size of discarded animals, including marine mammals and larger sharks.

With the addition of the above information the AFSC recommends approval of this EFP application and looks forward to working with United Catcher Boats.

CC: F/AKC – J Ferdinand, R Felthoven, P Hagen, C Tribuzio, J Rusin, C Lunsford
F/AKR – M Mackey, B Mansfield, AM Eich

Exempted Fisheries Permit Project Title: Implementing Electronic Monitoring Systems in the Eastern Bering Sea and Gulf of Alaska Pollock Pelagic Trawl Catcher Vessel Fisheries

Date: September 9, 2019

Applicant:

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Purpose and Goal for Exempted Fishing Permit

The Bering Sea (BS) and Gulf of Alaska (GOA) pollock fishery participants, in conjunction with the North Pacific Fishery Management Council (Council), are interested in assessing the efficacy of electronic monitoring (EM) for monitoring compliance with a full salmon PSC retention requirement and in identifying key decisions related to operationalizing EM for compliance monitoring. This EFP is needed to help determine whether utilizing camera systems in lieu of human observers proves both cost effective and operationally effective for monitoring of catch and discards per North Pacific Fishery Management Council and National Marine Fisheries Service (NMFS) requirements. Participants in the BS and GOA pollock catcher vessel fisheries believe that the use of electronic monitoring (in lieu of onboard human observers) for compliance purposes will achieve a cost effective, adaptable, consistent, reliable, and sustainable fishery data collection program and strategy that takes advantage of current and emerging technologies to meet the needs of industry, the Council, and NMFS. Participants believe that EM systems offer a way to enhance data precision, especially as it relates to the enumeration of Chinook salmon PSC. Unlike human observers, EM systems are expansive in their observations of a vessel's fishing and deck operations (e.g., stern camera views and simultaneous coverage of all potential discard locations) and they are on and recording data for 100% of a fishing trip (cameras and associated sensors do not sleep nor are they subject to seasickness). Further,

for smaller catcher vessels, EM systems offer both physical and monetary relief from the impacts associated with carrying an extra person onboard (e.g., limited bunk space; limited deck space; and increased food costs).

In order to fully test the feasibility of EM aboard pollock trawl catcher vessels for compliance monitoring, BS and GOA fishery participants are asking for an Exempted Fishery Permit (EFP) that will provide exemptions for participating vessels from current regulations related to onboard observer coverage and vessel discard requirements. It is anticipated for the EFP to cover the 2020 and 2021 pollock fishing years. This EFP will address direct improvements to compliance monitoring via increased precision in estimates of discards in both the BS and GOA. In addition, this EFP will indirectly support improved salmon accounting in the GOA, as effective EM for compliance monitoring is the necessary vehicle for improving precision via census counts for salmon PSC (i.e., EM is the first step towards replacing at-sea samples with census counts). A census of salmon PSC provides more stable numbers in that it eliminates a single sample having a negative effect on the entire fishery and reduces the variance around the PSC estimate. If deemed warranted, the EFP can be modified for the second year per NFMS' EFP modification process if the changes fall within the scope of the original EFP. If substantial modifications are required in order to meet the EFP objectives, a new EFP would be formulated and submitted for 2021.

Retention and Discard Requirements of the Bering Sea and Gulf of Alaska Pollock Trawl Catcher Vessel Fisheries

The pelagic pollock catcher vessel trawl fleets operating in the BS and GOA represent a substantial portion of Alaska's fisheries, comprising over 100 catcher vessels (ranging in length from 58 feet to 200 feet with BS vessels generally being larger with greater hold capacity than GOA vessels) with 747,981 and 732,096 total metric tons (mt) of pollock available to harvest in 2018 and 2019, respectively. Improved retention/improved utilization (IRIU) regulations require that all pollock be retained when open to directed fishing and up to the maximum retainable amount (MRA) when closed to directed fishing, except in the GOA when the pollock trip limit of 300,000 pounds is exceeded (see below). Incidental catches of other groundfish species (e.g., rockfish) may be retained (or discarded if the operator chooses) by a vessel up to an MRA, which is species-specific and outlined in regulation. Incidental catches in excess of a specified MRA must be discarded. Where they do occur, the majority of discards in the BS and GOA pollock fisheries are a result of regulatory requirements related to incidental groundfish species MRAs, PSC, or the GOA pollock trip limit. MRAs themselves do not require a vessel to retain a species or lower discard rates, but instead lead to a discard requirement if/when catches of incidental species subject to MRAs exceed the allowable amount at a given time. The primary MRA species encountered in the pollock fisheries include rockfish (primarily POP), sablefish, and forage fish in the GOA. The GOA pollock trip limit requires any pollock in excess of 300,000 lbs. (for catcher vessels) and 600,000 lbs. (for tender vessels) be discarded. Additionally, discard events can be associated with ancillary net bleeds and the take of large objects (occurrences are rare and primarily salmon sharks or Pacific sleeper sharks) for which sorting is desirable.

Strict Chinook salmon PSC limits are established by regulation in both the BS and GOA. Amendment 91 (for the Bering Sea-Aleutian Islands Groundfish FMP) and Amendment 93 (for the GOA Groundfish FMP) established hard caps for Chinook salmon taken as bycatch in the pollock trawl directed fisheries in the Bering Sea and Central and Western Gulf of Alaska. If a Chinook salmon PSC limit is reached, the pollock fishery in that area is closed. As such, these amendments also required that all pollock catcher vessels retain 100% of the salmon (all species) taken during pollock directed fishing until the catch is delivered to a processing facility.

With the exception of salmon, BS and GOA trawl catcher vessels are required by law to discard all prohibited species catch (PSC), with minimal harm to these species. PSC species are identified as such because they are the target of other fully utilized domestic fisheries. This includes Pacific halibut, crab (king, Tanner, opilio) and herring caught incidentally during their pollock operations. For other incidental groundfish species, in order to avoid overfishing, when the total harvest amount (from all directed and incidental sources) approaches or reaches the annual quota for that species, regulations at 50 CFR 679.20(d)(2) prohibit retention of that species when they are placed on PSC status (for the fisheries with incidental take) and any catch must be discarded at sea. Species caught incidentally in the pelagic pollock fisheries that have gone on PSC status in the past include Pacific Ocean Perch

(POP) and other rockfish, skates (big and longnose in the GOA), trawl sablefish, and Pacific cod. Because catcher vessel operations make it difficult to sort out and discard every single PSC species at sea, these species will occasionally end up in a vessel's fish hold and delivered to a shoreside processor. Processors are able to send the landed PSC to a fishmeal plant. They are also allowed to process and donate the landed halibut and/or salmon to Sea Share for distribution to food banks. All BSAI and GOA shoreside processors participate in the NMFS Prohibited Species Donation program (Sea Share).

For pelagic pollock catcher vessels, all retention and discard requirements are currently monitored and recorded by human observers; however, the BS and GOA are managed differently and have different onboard observer coverage requirements, which has impacts upon the quality and accuracy of the retention/discard data collected. For catcher vessels in the BS, accounting of salmon PSC is determined by counting each individual salmon at the shoreside processing facility (census count). Shoreside processing facilities in the BS all have a NMFS-approved Catch Monitoring Control Plan (CMCP), dedicated plant observer, and the vessel observer that assists the plant observer when pollock deliveries are made. In the GOA, there are two types of catcher vessel deliveries: vessels that deliver to a shoreside processor and vessels that deliver to a tender vessel. For those shoreside trips where an observer is deployed, salmon PSC is accounted for via census counts for observed deliveries at the processing facility. These numbers are extrapolated to the unobserved portion of the fleet. At shoreside processing facilities in the GOA, there are no dedicated plant observers; during deliveries made to the plant, the vessel observer moves into the processing facility when a pollock offload begins and the vessel observer completes the offload counts of salmon. In contrast, where census counts of salmon can occur at shoreside plants for observed catcher vessel deliveries, observers aboard catcher vessels delivering to a tender do not have the opportunity to census the offload due to logistical and safety concerns. Tender vessels do not carry an observer on board, so an observer is unavailable to monitor the offload of a tender deliver to a shoreside plant. As such, salmon PSC is estimated from at-sea observer samples taken aboard an observed catcher vessel, and that estimate is extrapolated to the entire catch of the trip. The estimates from observed tender trips are then applied to the unobserved portion of the tendering sector.

The key retention and discard requirements outlined above are outlined in regulation in order to achieve specific management goals and objectives established for the pollock catcher vessel fisheries in each area. It is necessary for these management goals and objectives (e.g., 100% monitoring of catch in the BS vs. partial monitoring of catch in the GOA) to be maintained under the proposed EFP.

Bering Sea Shoreside Sector

The BS pollock catcher vessel directed fishery operates as a cooperative catch share program with individual vessel and cooperative allocations (based upon contractual arrangement established in the BS shoreside sector's Inter-cooperative Agreement) of both pollock and Chinook salmon that can be transferred among fishery participants. This management approach is coupled with 100 percent observer coverage requirements directly paid for by the participating vessels. The BS shoreside pollock fleet comprises approximately 81 vessels. Of these vessels approximately 24 also operate in the GOA. The 2018 and 2019 TAC available to the BS fleet was 597,359 mt and 605,390 mt, respectively. There is no vessel trip limit in the BS and pollock discards are negligible (some ancillary bleeding of pollock from a net may occur during the course of a fishing operation or, in rare circumstances, the intentional discard of a partial bag may occur due to safety and stability concerns). The Bering Sea pollock TAC is divided into two seasons: the A season (January 20 to June 10) and the B season (June 10 to November 1).

Gulf of Alaska Shoreside Sector

The GOA pollock directed fishery is prosecuted only by catcher vessels and is managed on an area-wide basis, rather than an individual vessel basis, and is a limited access, derby-style fishery. The GOA fishery is subject to partial observer coverage, rather than 100% observer coverage for the entire fleet, and is designed to deploy observers on randomly selected trips at a specified target rate. Since 2013, the realized coverage rate for the GOA pollock fleet has ranged between 20-28%, depending on the funding available. Observer costs in this sector are funded through a 1.25% fee on the ex-vessel value of landings covered under the system. The GOA shoreside pollock fleet is comprised of approximately 85 vessels, 30 of which operate in both the Central (NMFS Areas 620

and 630) and Western Gulf (NMFS Area 610). The 2018 and 2019 Total Allowable Catch (TAC) for the entire GOA was 157,455 mt and 132,454 mt, respectively. Currently, the GOA pollock TAC is divided into four seasons: A season (January 20 to March 10); B season (March 10 to May 31); C season (August 25 to October 1); and D season (October 1 to November 1). GOA pollock catcher vessels are subject to a 300,000-pound trip limit and any pollock harvested in excess of the trip limit must be discarded at sea.

Western Gulf of Alaska Tendering Sector

The term “tendering” refers to the fishing practice where one vessel (the tender) receives the unprocessed and unsorted catch from a catcher vessel and then transports the received catch to port for processing. This allows the catcher vessel to resume fishing without the delay and cost associated with traveling to port and then back out to the fishing grounds. One tender vessel can serve multiple catcher vessels depending on its capacity. For GOA pollock there is a tender trip limit of 272 mt (600,000 lbs) and tendering is prohibited east of 157° 00' W longitude. Tendering occurs primarily in Area 610 where the pollock fishery is prosecuted mainly by smaller catcher vessels (<60 feet), which benefit greatly from the efficiency offered by tenders. Tender vessels in this area primarily deliver to Sand Point and King Cove. To a lesser degree, tendering also occurs in the western portion of Area 620 for transport to Sand Point, King Cove, or Akutan and occasionally to Dutch Harbor

Recordkeeping and Reporting

Recordkeeping and reporting regulations are detailed at CFR 679.5. These regulations outline landed catch and at-sea discard reporting requirements for shoreside processors, tender vessels, and trawl catcher vessels as well as requirements for vessel logbooks (paper or electronic).

Accounting of a vessel’s catch (both landed harvest and at-sea discards if any) is accomplished through fish tickets (landing reports) generated at the shoreside plant or tender where the delivery is made (eLandings reports for catcher vessel deliveries to plants and tLandings reports for vessel deliveries to tenders). These landing reports will be used by NMFS for EFP catch accounting to account for FMP groundfish (Table 2a to Part 679), prohibited species catch (Table 2b to Part 679), FMP forage fish species, grenadier species, and squids. (Table 2c to Part 679), and non-FMP species (Table 2d to Part 679). Accounting and reporting of a participating vessel’s catch under the EFP will not differ from this process.

Trawl catcher vessels less than 60 feet are exempt from logbook requirements; however, vessels in this size class will be required to maintain one as a condition of participating in this EFP. All at-sea discards must be recorded in the logbook. A preliminary paper logbook for specified catcher vessels <60 feet has been approved by NMFS.

Current Progress on Electronic Monitoring in BS and GOA Pollock Trawl Catcher Vessel Fisheries

The Council has been active in pursuing the development of EM technology for several years. With an operational fixed gear EM program now in place, the Council has now turned its attention to the pelagic pollock trawl sector. The Council has expressed its desire for more precise estimates of bycatch in trawl fisheries and has seen demonstrated value in the ability of EM systems to improve cost efficiencies and provide more precise accounting for catcher vessels that deliver to both shoreside processing facilities and to tender vessels. The Council has reconstituted its EM Workgroup into its Trawl EM Committee to focus on BS and GOA trawl catcher vessels with preliminary application of EM on pollock trawl vessels (not other groundfish trawl vessels) for compliance monitoring. The Trawl EM Committee, with approval from the Council, has identified four main objectives in its Cooperative Research Plan for moving towards a regulatory EM program for pollock catcher vessels in the North Pacific that will be able to be tested through an EFP. These objectives are:

- Objective 1: Improve salmon accounting – to provide stable salmon accounting against the PSC hard cap for WGOA and CGOA pelagic pollock trawl catcher vessels as well as the salmon PSC performance standard for BS pelagic pollock catcher vessels. Prohibited species catch (PSC) limits, including salmon, have the potential to limit the catch of economically valuable pollock target species. In the GOA, the estimates of a rare species such as salmon are highly variable and much less precise than full census counts from all vessels, which would improve the precision of salmon PSC estimation and genetic sampling of

salmon in the GOA pollock fishery especially for the component of the fleet that deliver to tender vessels, which use at-sea samples and not census counts.

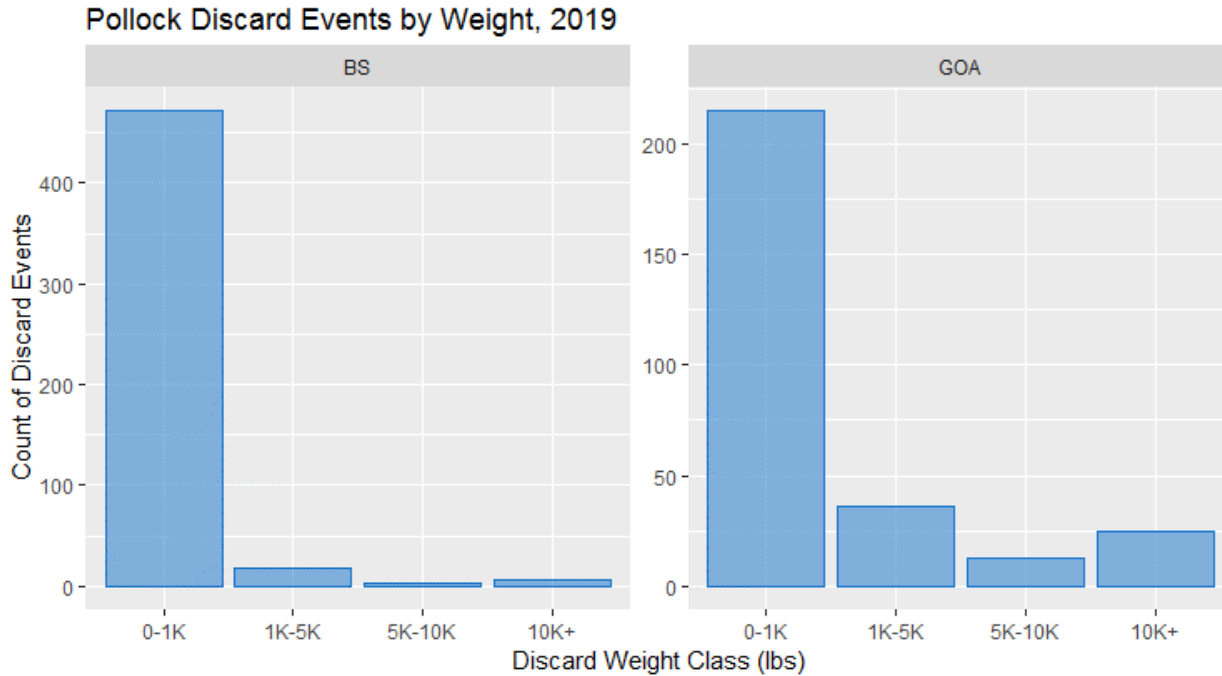
- Objective 2: Reduce monitoring costs – to develop cost efficiencies and free up money for other priorities (i.e., EM coverage in the GOA pollock fishery could allow for an increase in observer coverage/days for other fisheries in the partial observer coverage category) as well as provide a more cost effective monitoring alternative to 100% human observer coverage for the BS shoreside catcher vessels.
- Objective 3: Improve overall monitoring data for catch accounting and compliance – to explore innovative methods to account for PSC species and bycatch species that have the potential to limit participation in the pollock program, which requires high retention of catch; to explore innovative methods to account for protected species; and to achieve more comprehensive coverage. In addition to salmon, prohibited species catch limits for halibut, crab, and herring also have the potential to limit the catch of the pollock target by negatively affecting normal fishing practices or through a closure of the fishery. Other incidental groundfish species may be placed on prohibited status during the course of a pollock fishing season (e.g., skates and rockfish).
- Objective 4: Examine current regulatory retention and discard requirements as necessary to achieve Objectives 1-3. Given existing IRIU and MRA regulations, the proposed EFP will assess the viability of a full/maximized retention pollock fishery coupled with a dedicated shoreside monitoring component as a potential future fishery management option.

National Fish & Wildlife Funded EM Pilot Projects

Beginning in 2019, two projects were funded through the National Fish and Wildlife Foundation (NFWF) in which EM systems were deployed in the pelagic pollock fisheries on nine BS only shoreside catcher vessels, eight GOA only shoreside catcher vessels, ten BS and GOA crossover catcher vessels, fifteen WGOA catcher vessels delivering to tenders and processing plants, and two WGOA tender vessels. These vessels were simultaneously carrying human observers (per currently specified area regulations), thus initiating the Pilot Phase study of deploying EM aboard pollock catcher vessels per Council focus. The work from these two projects has allowed for initial feasibility testing of EM systems aboard pelagic pollock catcher vessels and tender vessels in the Bering Sea and Gulf of Alaska. This work provides opportunity to collect baseline EM data for comparison (e.g., onboard observer estimates of discards vs. EM estimates of discards). These results will then be compared to those collected under the Operational Testing Phase outlined in this proposed EFP with emphasis on the accuracy of EM for recording any discard events that may occur as well as for identifying discarded species.

At the onset of the 2019 work for the BS and GOA shoreside component, each vessel had an individual vessel monitoring plan (VMP) that outlined all the requirements and operator responsibilities, documented the location and function of each of the EM system's cameras and sensors, and described the specific catch handling and discard control points the vessel may use (see attachments 1 to 5). Vessels are required to submit their vessel logbook pages and the removable data drive from the EM system after three consecutive landings. The logbook pages are allowed to be emailed (page photo), faxed, or directly mailed along with the removable data drives to the third-party video reviewer. Pre-paid trackable mailing envelopes, along with extra data drives, were provided to each vessel at the start of the 2019 fishing season; additional pre-paid envelopes and data drives were also able to be obtained at each of the shoreside plants the vessels delivered to. As of August 2019, third-party video reviewer has received 164 hard drives from 24 vessels. Of these 164 hard drives, 145 have been reviewed covering all 24 vessels and resulting in 431 pollock trips and 996 hauls with recorded fishing activity (some hard drives were received that contained video data with transit/non-fishing trips; one hard drive was blank; and one drive did not contain video for three pollock trips because the hard drive was filled to capacity with video from a targeted Pacific cod fishing trip). No major video data quality issues have been reported. From this reviewed fishing activity, the third-party reviewer recorded just over 450 individual discard events for catcher vessels in the BS with each of those events estimated at less than 1,000 lbs. and a negligible number of discard events greater than 1,000 lbs. For catcher vessels in the GOA, there were just over 200 individual discard events estimated at less than 1,000 lbs., approximately 30 discard events between 1,000-5,000 lbs., less than 25 discard events between 5,000-10,000 lbs., and 25 discard events over 10,000 lbs. (see figure below). These discard events were estimated using visual estimation methods (i.e.,

visualizing the quantity of catch that would fit into a basket or tote, and extrapolating out to the discard viewed) or using an average codend capacity weight and estimating how much catch would have fit into the vessel’s codend vs. how much was discarded. As a component of the EFP, participating vessels will be required to provide their codend capacity in their logbooks so that video discard estimates will have greater accuracy.



The WGOA project utilized VMPs developed during the fixed gear EM project (also funded via NFWF) with modifications to reflect the requirements of the pelagic pollock fishery. These modifications included specified camera views, catch handling procedures, and hard drive handling practices (see attachment 6). Hard drives are sent in after the third trip or two weeks from the start of the first trip - whichever comes first. From the A/B Seasons for pollock, the WGOA tendering project produced 24 hard drives (three hard drives from tender vessels and 21 hard drives from catcher vessels), yielding 32 trips from ten of seventeen EM-installed vessels (two trips from tender vessels and 30 trips from catcher vessels) with 100% of the trips received being reviewed as of May 2019. A primary objective of the WGOA project was to determine if EM provides adequate monitoring of the chain of custody for deliveries that utilize tender vessels; this has been successfully demonstrated in the available data. From the reviewed fishing activity, 125 individual discard events were recorded, five of which were considered “large discard events.” These events include species too large or unable to enumerate, all of which were estimated to be under one metric ton (with a single exception). EM review has also been able to detect discards that went undetected by onboard observers. Given logbooks were not previously required in this fishery, several hard drives were mailed without corresponding logbooks. Timely and frequent communication between the EM provider and participants has been critical. Any issues regarding discards, mailing hard drives and logbook documentation, and image quality were immediately addressed via Trip Feedback Forms following each trip review. Skippers and operators have responded favorably to feedback, and there was marked improvement for all issues post-feedback.

Preliminary video review data for the BS and GOA shoreside component indicates that discard estimates (all species combined) generated from EM are higher when compared to discard estimates from both vessel observers and vessel logbooks (the WGOA tendering component has not received enough video data to draw a preliminary conclusion about discard estimate comparisons to logbooks). For the BS and GOA shoreside sector, one of the primary issues faced in using EM is the inability to estimate discard weights by species. This will be addressed in the proposed EFP by providing access to the fish ticket record numbers and fish ticket landings data generated from

the deliveries of those catcher vessels utilizing EM to the third-party video reviewer (see below). Providing access to fish ticket will give the video reviewer real time access to the landings data of vessels utilizing EM. The proportion of species (by weight) contained on fish ticket will allow the video reviewer to apply that proportion to the recorded EM discard data for speciation.

Another benefit of access to fish ticket data, realized by not all logbooks being received for all recorded fishing trips, would be the ability for the third-party reviewer to check logbooks received against the landings data (i.e., the video reviewer would have the ability to verify that they received the corresponding logbooks and hard drives and follow-up with the fishermen if they have not). Currently, the third-party reviewer can match EM hard drives with vessel logbooks based on dates of fishing; while this tells the video reviewer if they are missing one or the other, they have no way to know if a vessel fished and didn't send in either.

Lessons Learned

In addition to the issues identified above, some of the other initial lessons learned include the following items. These issues will be addressed under this proposed EFP in order to improve the quality and accuracy of the EM data received.

- Vessel logbooks contain an option to provide the weight of catch and discards in metric tons (MT) or pounds (lbs.); however, a vessel captain needs to be sure and select an option indicating which they will be using (some logbooks received did not make a selection). As it is not good practice for the third-party reviewer to guess on this, these numbers were excluded from any discard weight summaries.
 - Under the EFP, vessel operators will be required to make an appropriate selection. If this does not occur, it will be documented and communicated on the Vessel Feedback Form.
- Occasionally a vessel will discard a partial codend before bringing it on deck thereby preventing access to the entire catch. Currently, in these cases, when able a human observer visually estimates the amount of catch that was discarded using their best judgment and asking the captain or crew to help estimate the total amount discarded. This documentation may also include why part of the net was discarded and a description of the method used for estimating the discarded catch.
 - Under the EFP, EM cameras have the advantage of recording all partial codend discards before bringing the remaining haul on board the vessel (via specific camera placements). This specific type of large discard estimate will still be made by a visual estimate from the third-party video reviewer, which is similar to protocols for a human observer.
- The development and use of VMPs and FAQ documents for ease of communicating requirements to vessel operators is a critical component in the development and implementation of the EM projects. A well designed VMP needs to clearly outline what actions must be taken by the vessel to report a malfunction and what steps must be taken by the vessel to troubleshoot and minimize the impact of a malfunction on video data collection. A thorough VMP allows the EM provider to clearly relay to the vessel what actions the vessel needs to take to minimize potential impacts to video data collections and what actions the vessel needs to take to resolve the issue. The FAQ document provides information to assist a vessel operator in resolving the most common issues themselves. A high level of direct communication with vessel owners, vessel operators, and EM service providers is a key requirement for the effective execution of individual catcher and tender vessel responsibilities when using EM.
 - Under the EFP, EM service providers will provide feedback to vessels about trips, system usage, catch handling, and any potential concerns in order to help facilitate best practices with EM for compliance monitoring.

Scope, Technical Details, and Methodology of Exempted Fishing Permit

Under this EFP, species retention and discard data will be collected by Electronic Monitoring Systems installed on participating pollock catcher vessels. These systems are comprised of the main recording computer, cameras, and an assortment of sensors for gathering information about fishing practices. The data from these systems are recorded and encrypted on hard drives in the system. Vessels will be required to ensure a system is functional prior to departure, to maintain system function during a trip, and to mail the encrypted data to the video reviewer per

their Vessel Monitoring Plan (VMP). Once hard drives are received, the data will be decrypted and processed. The EM data captured consists of trip/haul start/end date, time, location; and discard date/time/location/weight and species (when possible).

In addition to the EM video data on hard drives, vessels will also be submitting copies of their logbooks to the video reviewer. Trained reviewers will determine the integrity of the EM video, ensure corresponding logbook information has been received and provide estimates of discard data to compare to vessel logbook data, contact vessels and service providers in the instance of performance issues, and store data at their facilities. The logbooks, EM data, plant observer data for salmon census counts, and eLandings/tLandings retained catch and discard reports will comprise a complete vessel dataset. All video data will be reviewed from each EM trip for compliance monitoring purposes to ensure that all salmon make it to the plant for the census count.

The Pacific States Marine Fisheries Commission (PSMFC) will serve as the third-party video reviewer for EM video generated by the BS-GOA shoreside catcher vessels (UCB/AGDB/ AWTA project). Saltwater, Inc. will review EM video generated by the WGOA catcher and tender vessel (AEB/Peninsula Fishermen Coalition project). Both reviewers will provide EM discard data directly to NMFS.

Quality assurance and quality control (QA/QC) procedures for video review and data handling under the two projects will be provided to NMFS as a condition of the permit. PSMFC will develop and use protocols during the video review process to ensure all reviewers are consistent. These protocols will be similar to the current West Coast Whiting EM protocols. Changes to the review process and/or protocols will occur as necessary, with communication between PSMFC, the EFP sponsors, and NMFS Alaska Region. PSMFC will review video for all pollock haul-back events. All reviewers will receive protocol training and will review at least five of the same trips for comparison before review of previously un-reviewed EM data can begin. To maintain data quality, random trips/hauls will be assigned for review by all reviewers and the results will be compared to ensure all reviewers are following the same protocols resulting in consistent estimations. Saltwater will also develop and use protocols for the video review process to ensure consistency between reviewers and will be based on the protocols used by North Pacific groundfish observers onboard trawl catcher vessels. Changes to the review process and/or protocols will occur as necessary, with communication between Saltwater, the EFP sponsors, and NMFS Alaska Region. Saltwater will train reviewers in the video review protocols, fish identification for EM, and the review software. Saltwater's established QA/QC process includes end of trip data checks and a trip debriefing to ensure reviewers are collecting consistent data based on the approved protocol.

The two projects sponsors have applied for additional grant funding through the NFWF for 2020. One component of the funding request for both projects is to support development and use of electronic logbooks versus the current paper logbooks used by vessels. The UCB/AGDB/AWTA project envisions a prototype tablet-based electronic logbook (e-log) designed and implemented for use and testing on a limited number of volunteer vessels. The intent is to have a high level of input from vessel operators in the design phase of the user interface to ensure a user-friendly application that will allow for wide-scale acceptance of the e-log by EM program participants in the future. The e-log data will be transmitted via cellular transmission after each trip, and all data validation and error checking will be done by the e-log application (in conjunction with the vessel operator) prior to the transmission being sent. The e-log data output will be designed to meet the format requirements for the existing NMFS e-log schema so that it can be imported directly into NMFS' systems in the future. The e-log output format will also be designed to be compatible with the PSMFC logbook database structure so that it can be directly imported into that database and then used for the logbook to EM data comparisons. The volunteer vessels will continue to complete and submit the current paper log requirements as they have done in the past, but they will also use the e-log application so that direct comparisons between the two can be conducted for data quality and timelines for entry of the data into the appropriate databases. Through the AEB/PFC project, Saltwater will work with the WGOA fleet to incorporate a logbook into the shipboard EM software. This iterative effort will create a tool that is easy to use for the fleet, meets the requirements of the EFP, and can be transmitted to the NMFS database. Throughout the EFP the software will be tested and modified for use and data purposes. The logbook data will be stored in a database at Saltwater

according to EFP and NMFS requirements. For the all vessels participating in the EFP, fishing location data will be available via Global Positioning Systems (via EM) and Vessel Monitoring Systems (required by regulation).

Areas of Exempted Fishing

The proposed EFP will apply to the Bering Sea and the Gulf of Alaska (NMFS areas 610, 620, 630 and 640).

EFP Duration

The proposed EFP would be issued for two years, covering the full 2020 and 2021 pollock fishing years (both A and B seasons in the BS and A/B and C/D seasons in the GOA). In the BS, all pelagic pollock fishing under all seasons by participating vessels will be considered EFP fishing (i.e., no specific trips will be identified as EFP trips and vessels will not need to notify NMFS that they are beginning/ending an EFP trip). For the GOA, vessels will select EFP / non-EFP trips through the ODDS (Observer Deploy and Declare System); EFP trips are only allowed for federal pelagic pollock trips.

Observer Coverage

For the BS and GOA shoreside component of the proposed EFP, specified BS pollock catcher vessels will be exempted from the 100% requirement for at-sea observer coverage (full coverage category). For any non-pollock directed fishing trips (e.g., Pacific cod), these BS vessels will either log trips in ODDS for the partial coverage sector or opt into the voluntary 100% observer coverage (pay-as-you-go) system. In the GOA, rather than a specific exemption, when fishing for pollock specified catcher vessels will be placed in a zero selection pool under the ODDS system established for partial coverage fisheries such that these vessels will continue to pay the 1.25% observer coverage fee but won't be selected for human observer coverage. These two approaches will apply to those crossover pollock vessels as necessary depending upon which area they are fishing in. Under ODDS, these vessels will be able to log an EFP trip (for pollock) or a non-EFP trip (for other target fisheries) and would be able to log up to three trips (any combination of EFP/non-EFP) as well as cancel trips when necessary. While these vessels would be allowed to simultaneously carry both pelagic and non-pelagic gear (most often on separate net reels aboard the vessel), they will not be allowed to deploy or use the non-pelagic gear for fishing trips logged as part of the EFP. Additionally, all participating BS and GOA catcher vessels will be exempted from the area-specific discard requirements.

For the WGOA tendering component, when fishing for pollock, specified catcher vessels will be placed in a zero selection pool under the ODDS system established for partial coverage fisheries such that these vessels will continue to pay the 1.25% observer coverage fee but won't be selected for human observer coverage. Under ODDS, these vessels will be able to log an EFP trip (for pollock) or a non-EFP trip (for other target fisheries) and would be able to log up to three trips (any combination of EFP/non-EFP) as well as cancel trips when necessary. While these vessels would be allowed to simultaneously carry both pelagic and non-pelagic gear (most often on separate net reels aboard the vessel), they will not be allowed to deploy or use the non-pelagic gear for fishing trips logged as part of the EFP. All specified WGOA catcher vessels will be exempted from the area-specific discard requirements. Tender deliveries received from catcher vessels with EM under the proposed EFP will not be mixed Pacific cod/pollock catch (i.e., the EFP tender vessel must receive 100% pollock) and all shoreside deliveries made by participating tender vessels will be delivered to shoreside plants with an observer.

Tender Provisions

In order to accurately track catch delivered by a tender and to estimate salmon bycatch in the tender sector, all participants utilizing tenders must agree to the following provisions:

1. If an EM CV selects an EFP trip in ODDS, they *must* deliver to an EM EFP tender.
2. EFP tenders that accept EFP catch *cannot* also accept non-EFP catch during the same trip, until EFP catch has been offloaded shoreside.
3. Tenders cannot mix EFP catch from different NMFS reporting areas in the same trip.
4. EFP tenders (and EFP shoreside CVs) must completely offload EFP catch at a single processing plant (no partial offloads).

Electronic Monitoring Systems

All participating vessels will carry an EM system (cameras and associated sensors) for compliance monitoring purposes and will comply with catch handling/species retention requirements, reporting requirements, and other conditions as identified. Fishing operations (area fished, effort, gear used) are not expected to change under the proposed EFP; current fishing strategies and practices are expected to continue. Impacts to the biological and physical environment are not expected to change and will likely be similar to those realized under current fishing operations. No additional groundfish or PSC (salmon, halibut, crab) is being requested as part of this EFP application.

In order to test the feasibility of employing EM for compliance monitoring, full camera and recording systems will be deployed upon specified BS and GOA pelagic pollock catcher vessels and WGOA catcher and tender vessels. EM is intended to accurately capture discard events (i.e., whether a discard has occurred), the amount of discard (i.e., estimated volume in weight), and any rare events (e.g., large animals, gear failure) that may occur.

Catch Accounting

Under the proposed EFP, EM will not be directly utilized for catch accounting purposes; accounting of a vessel's catch will be done via fish tickets (eLandings reports) and a census of the Chinook salmon PSC will be done at the shoreside processing facility via a shoreside plant observer, both of which will be provided to NMFS.

Vessel Monitoring Plans

For each of the vessels under the EFP, a vessel specific Vessel Monitoring Plan (VMP) will be developed that outlines all of the requirements and vessel operator responsibilities, documents the location and purpose of all installed EM camera system components, and describes the specific catch handling and discard locations that the vessel can use. These EM camera systems will be strategically placed at key locations aboard a vessel to ensure all catch can be seen within camera view from the time the catch reaches the vessel until it is either put into the vessel's hold, transported aboard a tender vessel, returned to the water, or offloaded to a shoreside processing facility. Hydraulic sensor pressures will be used to turn the camera video recording on and off in conjunction with fishing activity. An additional component of the VMPs will be Malfunction Protocols that detail the specific steps a vessel must take if an equipment malfunction were to occur at the dock or at sea. These Malfunction Protocols will: 1) outline the steps a vessel is required to take to address an issue; 2) designate how long a vessel will be expected to remain in port to facilitate a repair; and 3) outline what needs to occur if a repair cannot be completed within the designated time frame.

Vessel Participation and Responsibilities (before, during, after a trip) – For 2020, it is anticipated that 49 pollock catcher vessels (28 BS/GOA component and 21 WGOA component) and nine tender vessels will be participating in the proposed EFP (these numbers are subject to change and will be confirmed prior to final submission of the EFP). An expansion of participating vessels will be considered for 2021 based upon information learned during the first year of the proposed EFP. Mothership catcher vessels and catcher-processors are not eligible to participate.

Pre-trip Preparation: Participating vessels will work with the EM provider to develop a written plan that includes detailed information on the placement of all cameras on the vessel and the criteria the EM system must meet per its VMP and pre-season function test (required test to demonstrate an EM system is collecting proper data). It will be the responsibility of the vessel captain to complete a system function test and ensure that all critical systems are operational before leaving port. Consultation between the EM service provider and the vessel is expected to be thorough and the captain is responsible for several aspects of the system including: keeping the system continuously powered while the vessel is at sea; regularly cleaning camera to ensure sharp image resolution; conducting periodic inspections of the system components and conducting regular system checks to ensure the EM system is performing properly; ensuring that camera view areas are adequately lit during night operations; and immediately contacting the EFP applicants, the EM

service provider, the video reviewer, and NMFS if the EM system stops performing. NMFS and the EFP applicants will work to develop a specific provision detailing circumstances for the cessation of pollock fishing under this EFP, which will be included as a component of each participating vessel's VMP.

Camera Function and Logbook Information During a Trip: A participating vessel's captain will record the required vessel logbook information, including an estimated amount of catch, and an estimated amount of discards by species (specified in either pounds or metric tons). For those vessels less than 60 feet vessel logbooks will be required and developed by the EM service provider. In addition, the vessel logbook will contain sections for the captain to record their assigned ODDS trip number (GOA only and including tender vessels), a haul estimate (in either pounds or metric tons) for the catcher vessel, each ADF&G statistical area in which catch was harvested in (with proportion of catch from each area identified if more than one stat area was fished in) as currently required by regulation, and any EM system concerns or malfunctions. The EM system will be turned on as soon as the vessel unties from the dock. Once the first set is initiated (via the vessel's hydraulic system) the video recording will be initiated and will remain on throughout the entirety of the offload for catcher vessels delivering to tenders and shoreside processors in the WGOA component. For catcher vessels delivering to shoreside processors in the BS and GOA component, video recording will also be initiated with the first set (via the vessel's hydraulic system) and will remain on for the entire trip until two hours after the vessel enters the pre-defined port area geofence (currently neither vessel or shoreside observers monitor pollock offloads to the shoreside processor). Video recording will not be required to be initiated while the vessel is initially transiting to the fishing grounds.

Post-trip Transmission and Review of EM Data: For the BS and GOA shoreside sectors, upon the completion and delivery of up to five pollock fishing trips per hard drive, vessels will mail their video hard drives and provide copies of their logbook pages to the Pacific States Marine Fisheries Commission (the third-party video reviewer). Tenders and catcher vessels in WGOA tendering sector will mail their video hard drives and logbooks to Saltwater Inc. as the video reviewer. Video reviewers will have access to EM vessels landing report ID's and fish ticket data to ascertain if the logbook page(s) had been received and to compare logbook discards to EM reviewer discards. After review, discard data will be transmitted through the AKFIN database to the Alaska region through a modified data channel stream that is currently being utilized for the Alaska fixed gear EM fishery. Transmission of this discard data will allow NMFS to determine any egregious discrepancies between vessel reported discard estimates and EM reviewer discard estimates. In addition to this regular transmittal of trip-level discard information, summary reports will be generated providing information on industry self-reported data (via logbooks) and review of EM data to verify compliance with record keeping and reporting regulations. The summary reports will include EM metadata (number of drives, trips, and hauls), comparisons between the vessel logbook and EM discard data, and discard information (i.e., number of discard events over and under 1,000 lbs.). The summary reports are not the sole-source of the EM and logbook data, as these data will be sent to the Alaska Region as they are entered and reviewed.

These summary reports will serve as audit reports of the catch and discard information recorded on a vessel's fish ticket and can be provided to the Trawl EM Committee, the Council, and NMFS as appropriate, but will be produced twice a year in June and December. It is expected that the video data collected under the proposed EFP will be treated akin to observer data such that video data is reviewed and stored to maintain its confidentiality. EM video data collected under the EFP will be retained by the third-party video reviewer for 18 months after the close of the pollock fishery for that year.

Vessel Feedback Loop: Vessel feedback will be communicated directly to the vessel operator/designated contact by both the EM service provider (via email or phone) and by the data review contractor (via email). For those vessels delivering to shoreside processors, this will occur after each data drive is reviewed. For those vessels delivering to tenders, this will occur after every trip. The data review contractor will use a Service Provider Feedback Form (see attachments 8 and 10) to communicate any system malfunctions or data anomalies that are noted during the data review to the EM service provider. The EM service provider will then determine if the issue has already been reported by the vessel and resolved, or if it has not, the service provider will follow up directly with the vessel to ensure any previously unreported issues are resolved. After each data drive is reviewed, the data review contractor will email a Drive Report document (see attachments 9 and 10) to the vessel operator/designated contact as well as to the EFP applicant and collaborators. The Drive Report provides the vessel with a summary of the overall data quality and the vessel's adherence to the program requirements for logbook submission, species retention requirements, and malfunction reporting requirements.

Video Data Disposition

For the BS and GOA shoreside sectors, upon the completion and delivery of up to five pollock fishing trips per hard drive, vessels will mail their video hard drives (or provide them to the shoreside plant to mail) and provide copies of their logbook data to the Pacific States Marine Fisheries Commission (PSMFC) as the third-party video reviewer within 24 hours. Hard drives and envelopes will be provided to ports of delivery to facilitate ease of mailing used hard drives and receiving new ones. PSMFC will be given access to the fish ticket record numbers and fish ticket landings data generated from the deliveries of those catcher vessels utilizing EM under the proposed EFP. This will allow video reviewers at PSMFC ease of tracking deliveries and easily connecting that information with the video/logbook data directly received. Having access to fish ticket information will enable video reviewers to speculate any discards that may occur based on the weight ratio from the landings data.

For the WGOA tendering sector, catcher vessels will have the option of either delivering their hard drives and logbooks shoreside when they deliver to a processing plant or providing them to the tender vessel they deliver their catch to. If a catcher vessel delivers shoreside, they will mail their hard drives and logbooks within two business days upon completion and delivery of up to three pollock fishing trips per hard drive or within two weeks of collecting any trip data (whichever is sooner). If a catcher vessel provides a hard drive to a tender, the tender vessel will maintain a Chain of Custody log (see attachment 7) that documents [what drive and data were received, when they were received, and when they were mailed] all incoming hard drives and logbooks. The tender vessel is then responsible for mailing the data upon completion of their shoreside delivery. All hard drives and copies of logbook data will be mailed to Saltwater Inc. as the video reviewer. New hard drives and envelopes will be provided to both shoreside plants and tender vessels so that catcher vessels may obtain new hard drives from either source. For the WGOA tendering sector, data from specified catcher and tender vessels will be matched by delivery date and time to verify salmon compliance for census count during shoreside offloading of the tender vessel; these deliveries will occur with an observer at the shoreside processing facility. Matching occurs by taking received EM datasets, confirming them with aligned tendering date times, and verifying the times with logbooks and tLandings Reports.

After video and logbook data entry and review, summary reports will be generated providing detailed information on industry self-reported discard data (via logbooks) and review of EM haul data to verify compliance with salmon record keeping and reporting regulations.

Exempted Fishing Operations

Species Retention – Participating vessels in the BS pollock catcher vessel fishery harvest and dump unsorted catch directly below deck and deliver this unsorted catch to shoreside processing facilities. Participating vessels in the GOA pollock catcher vessel fishery deliver their unsorted catch to shoreside processing facilities as well as deliver their unsorted catch to tender vessels. Under the proposed EFP, all catch will be retained to the extent possible.

Participating BS and GOA pollock catcher vessels will operate as a maximized retention fishery such that all catch, with few exceptions, must be landed. These exceptions may include:

- Pollock and other small incidental species removed from the deck and fishing gear during cleaning and other similar vessel operations (for the west coast whiting fishery mutilated fish cleaned from the net or deck up to 1,000 lbs. per trip is the standard);
- Large individual marine organisms, such as fish species longer than six feet in length, provided the species, estimated weight, and the reason for discarding are properly recorded in the vessel logbook; and
- Unavoidable discard of catch resulting from an event that is beyond the control of the vessel operator or crew provided that the estimated weight of all discarded species, the tow number, and reason for discarding are recorded in the logbook. Events beyond the control of the vessel include: 1) safety/stability; 2) the opening of a blow-out panel because the catch is otherwise too large to bring up the vessel's stern ramp; 3) net bleeds/venting of an overfull codend; and 4) discards due to mechanical failure.

All participating vessel operators must complete catcher vessel groundfish trawl gear paper logbooks. Logbook requirements include recording the estimated amount of the discard (recorded in pounds or metric tons) and the disposition and species code of the discarded species by date. There is a comment section in the logbook where operators will provide the reason for the discards. A primary goal of the first year of the EFP is to have the flexibility to define/refine discard categories and appropriate limits, working collaboratively with NMFS to do so. EM documentation of discards that a vessel operator and observer typically don't report include net bleeds at the stern ramp. Many of the discard events recorded in 2019 that were less than 1,000 lbs. occurred due to this type of activity.

Prohibited Species – All prohibited species (salmon, halibut, crab, and herring) will be retained and sorted out at the processing plant along with any groundfish species that is also placed on PSC status during the fishing year. The PSC species will be enumerated by the processing plants via fish tickets and plant observer(s). For salmon, the appropriate biological samples will continue to be collected by shoreside observers based on the defined sampling regime (e.g., salmon scales, genetic tissue samples, snouts from adipose fin clipped Chinook salmon, sex, length, weight).

Pacific halibut is managed by the International Pacific Halibut Commission (IPHC) and is considered a prohibited species in all groundfish trawl fisheries. Under 50 CFR 679.21(a), a vessel operator engaged in directed fishing for groundfish, including pelagic pollock, in the GOA or BSAI must minimize catch of prohibited species and, with the exception of salmon which has a 100% retention requirement, discard all PSC at sea with a minimum of injury. Participation in the Prohibited Species Donation Program (50 CFR 679.26), also known as Sea Share, provides an exception to this discard regulation that will allow for the maximum retention of halibut PSC without any additional permits. All currently active GOA and BSAI processors are listed on the current PSD Program permit (https://alaskafisheries.noaa.gov/permits-licenses?field_fishery_pm_value=Prohibited+Species+Donation+Program), which will allow the retention of all halibut caught incidentally in the BS and GOA pollock fisheries under this EFP, provided it was the intention of the operator that these halibut be available for processing (if suitable for human consumption) and all handling is done in accordance with the PSD Program permit requirements. As a condition of participating under the proposed EFP, all shoreside processors, catcher vessels, and tender vessels will be listed on the PSD Program permit.

A discard exemption for all other PSC species (crab, herring, and designated groundfish) will be required by NMFS and by the State of Alaska.

Maximum Retainable Amounts (MRAs) – Catch of those species that are managed via MRAs will all be retained by participating vessels. Due to the dual nature of management for groundfish retention between NMFS and the State of Alaska, a discard exemption from State regulations will be required along with the necessary exemption from NMFS.

The EFP applicant and collaborators are working with the State of Alaska fishery managers to identify regulations that may require a discard exemption in order for this project to proceed. A Commissioner's permit would be the simplest means for granting discard exemptions. In the Western and Central GOA, State managed species caught with trawl gear include black rockfish (*Sebastes melanops*), dark rockfish (*Sebastes ciliates*), and lingcod (*Ophiodon elongates*), which are all subject to State of Alaska MRA and retention regulations. Blue rockfish (*Sebastes mystinus*) are also solely under the State management but are rarely found north or west of Southeast Alaska. The State has management authority both in state waters and the EEZ for lingcod, dark rockfish, and blue rockfish. For black rockfish, the State has management authority both in state waters and the EEZ in GOA, but only in State waters for the BSAI. Regulations for these species are established for each State management area – Kodiak, Chignik, South Alaska Peninsula, and Bering Sea-Aleutian Islands.

Dark and black rockfish species MRAs in the Kodiak area are typically set at 5% and in the Bering Sea-Aleutian Islands are typically set at 20%. In Chignik and South Alaska Peninsula, black rockfish has an MRA of 5% and 20% for dark rockfish.

Lingcod retention regulations are unique in the Kodiak and Chignik areas such that the species is only retainable beginning July 1st until December 31st with fish 35 inches and greater allowed to be retained up to the MRA of 5% in Kodiak and 20% in Chignik. For the South Alaska Peninsula and Bering Sea–Aleutian Islands there are no closed seasons or size limits and MRAs are set at 20%.

There are no mandatory retention regulations for any of the above species. If landed catches are in excess of the established MRA, the excess must be weighed and reported as a bycatch overage on an ADF&G fish ticket. All proceeds from the sale of this excess catch are surrendered to the State.

GOA Pollock trip limits – Participating vessels in the GOA will be required to retain all pollock in excess of the 300,000 lbs. trip limit. An exemption from this regulation will be needed from NMFS.

The EFP applicant and collaborators will work with NMFS to develop the appropriate performance standards to meet the intent of the current GOA pollock trip limit and MRA limits while still meeting the EFP goal of minimizing at-sea discards (maximized retention). All ex-vessel value above the regulated limits (the overage portion) will be surrendered by the participating vessels and reported as overages by the shoreside processor.

Marine Mammals – All incidentally caught marine mammals will be discarded, provided they are documented in the vessel logbook and reported to the NMFS Office of Protected Resources. Currently, vessel observers record interactions, collect specimens, and record sightings of marine mammals. An observer's first priority is to record takes of marine mammals, collect snouts or heads from pinnipeds (except walrus), and collect tissue samples from cetaceans. Observers are issued a permit under the Marine Mammal Protection Act (MMPA) to collect and retain marine mammal tissue samples and parts; it would not be possible for vessel operators or crew members to collect these data with this permit. While physical collections of marine mammal biological samples would not be collected from specified vessels participating in the proposed EFP, the EM system will record marine mammal interactions and other sightings (e.g., a mammal taken in the codend of the trawl net or a mammal jumping onto the deck of a vessel). Reviewers currently provide weight estimations for sharks and will also provide visual weight estimations for any marine mammal takes that occur. In addition to documenting incidental takes in the vessel logbook, the EFP applicant and collaborators will work with NMFS to develop a reporting process for any incidental takes of marine mammals by participating EFP vessels.

Seabirds – Vessel behaviors regarding deck-loads and short-wiring of hauls are not expected to change due to the use of EM systems on pollock catcher vessels. As noted in the 2019 Technical Memorandum from NOAA, seabird mortality related to trawl gear constitutes about 11 percent of the overall estimated 2010 through 2018 seabird bycatch. For 2010 through 2018, pelagic trawl gear accounted for 18 percent of trawl seabird mortality while less

than 6 percent of the total estimated seabird bycatch from both non-pelagic and pelagic trawl gear was attributed to catcher vessels.¹ Vessels will be required to complete a Threatened and Endangered Bird Species Encounter Reporting Form (USFWS) when an encounter occurs for Short-tailed albatross, Spectacled eider, Steller's eider or other ESA listed species while participating in the EFP.

The current EM camera configuration onboard participating vessels include both a stern ramp view and a wide-angle horizon view camera. The purpose of these cameras is to monitor the trawl net for discards behind the vessel from the time it reaches the surface during haul back, until it is brought onboard at the stern of the vessel. While these cameras were not intended to monitor bird interactions, both the stern view camera and horizon view camera together provide good views of the third wire and any potential seabird interactions can be noted.

Shoreside Plant Observations and Biological Samples – Replacing vessel observers with EM systems will impact offloading monitoring operations at shoreside processing facilities. Under the proposed EFP, responsibilities associated with the collection of pollock biological samples, normally taken by at-sea observers, will shift to observers at the shoreside plant. Currently, pollock catcher vessel observer protocols dictate the following sampling scheme for pollock biological data:

- A. BS Pollock:
 - 1. Length/sex from 20 pollock from every sampled haul
 - 2. Every 5th sampled haul, collection of 2 pollock otolith pairs with maturity scan for all female otolith fish and ~ 8 pollock sex/length/weight specimens (must not be from an otolith fish)
- B. GOA pollock:
 - 1. Length/sex from 50 pollock from every sampled haul
 - 2. 8 pollock otolith pairs with maturity scan for all female otolith fish (every sampled haul)

This biological information will continue to be collected by human observers aboard BS and GOA pollock catcher vessels not participating in the proposed EFP.

Under the proposed EFP, all pollock deliveries (100%) in the BS from those participating catcher vessels with EM will be made to shoreside processing facilities with an additional dedicated plant observer to ensure precise PSC Chinook salmon accounting and the collection of biological samples. This will ensure that individual vessel-level accountability for both Chinook salmon and pollock (as established under the cooperative management program) will be maintained. Shoreside pollock deliveries in the GOA from all participating catcher vessels and tender vessels with EM will be sampled by a plant observer at a rate that results in 30% of the total EM shoreside deliveries being monitored (catcher vessels with EM from the WGOA tendering component that deliver shoreside will be encompassed in the monitoring regime established for GOA shoreside processing plants). This monitoring rate is higher than rates that have been achieved for the GOA trawl partial observer coverage sector for the years 2013 – 2018 and is equal to the desired monitoring rate for the EM fixed gear sector², and will result in 100% salmon census at the trip level. For these shoreside deliveries, the processing facility will need to report the individual ODDS trip number (from the catcher or tender vessel's logbook) on the fish ticket generated for each participating EM catcher vessel delivery they receive (regardless of whether there is a plant observer present). Processing plants that are expected to participate in the EFP include Ocean Beauty Seafoods Inc (Kodiak), North Pacific Seafoods (Kodiak), Trident (Kodiak, Sand Point, and Akutan), Peter Pan Seafoods (King Cove), Silver Bay Seafoods (False Pass), Icicle Seafoods (Dutch Harbor), and Unisea (Dutch Harbor).

At those shoreside processing facilities with an additional plant observer, a random sampling scheme will be developed (and approved by NMFS) for the collection of pollock biological samples (sex/length/weight/otoliths)

¹ Krieger, J.R., A.M., and S.M. Fitzgerald. 2019. Seabird Bycatch Estimates for Alaska Groundfish Fisheries: 2018. U.S. Department of Commerce, NOAA technical Memorandum NMFS-F/AKR-20, 41 p.

² Alaska Fisheries Science Center and Alaska Regional Office. 2019. North Pacific Observer Program 2018 Annual Report. AFSC Processed Rep. 2019-04, 148 p. Alaska Fish, Sci, Cent., NOAA, Natl. Mar. Fish. Serv., 7600 Sand Point Way NE, Seattle WA 98115.

such that the collection of a specified number of pollock every x number of minutes or amount of catch and x times thereafter will occur. Developing a statistically robust sampling scheme will allow for an entire vessel's catch to be sampled at the plant instead of from only the sampled vessel hauls (human observers sometimes miss hauls). In this way, a straightforward random sampling scheme at the plant with easier access to the entire catch will allow for more statistically robust data.

Under the proposed EFP, observer program protocols for Chinook and chum salmon accounting and salmon biological data collection in both the BS and GOA will remain the same.³ The monitoring of the offload for salmon is referred to as the offload salmon retention count. While the offload sampling duties are different for observers dependent on region² (BS or GOA), a full accounting of salmon is required in both areas. All non-salmon species catch information will be transmitted to NMFS via landing reports (fish tickets). Salmon retention data (census counts) collected by the shoreside plant observer will be used by NMFS for in-season management purposes.

EFP Compliance – The EFP applicant and collaborators will work collectively to manage the EFP for the specified vessels. To this end, participating vessels agree to outlined provisions prior to participation and to maintain regular contact and communication with the EFP managers as well as the EM service providers, EM reviewers, and NMFS staff. Vessels are required to adhere to their Vessel Monitoring Plan and report any EM System issues immediately. Vessels are required to immediately report all critical malfunctions to the service provider and the service providers have a specified timeframe to rectify any system issues. Service providers will work with the vessel to resolve any critical issues while the vessel is at sea, and if the issue cannot be resolved at sea, the service provider will work directly with the vessel to schedule a service in port. Service providers will contact each participating vessel prior to the start of each pollock season to ensure all equipment is functioning properly, and to review any new protocols and review the VMP and program procedures with the vessel. For all data drives that are reviewed, a drive report that outlines any issues will be prepared and delivered directly to the vessel, and an EM system issues report will also be sent to the service provider (if issues are encountered) as soon as the data has been reviewed. All service issues and communications will be provided to the EFP managers. Vessels will be required to have a functioning EM system in order to operate without an observer as a participant in the EFP. Any egregious violations of the EFP will result in the permanent loss of EFP privileges for the offending vessel and the requirements that the vessel: 1) carry a human observer for the remainder of their pollock fishing activities and 2) comply with regulatory requirements for MRAs, PSC, and the GOA trip limit.

Analysis and Submission of EFP Report – The EFP applicant and collaborators will provide written and oral reports (interim report February 2021 and final report February 2022) to NMFS Alaska Region and the North Pacific Fishery Management Council for review and consideration. These reports will address the four objectives of the EFP (page 16) and will focus on evaluation of the “Metrics for Success of EM as a Compliance Monitoring Tool” (pages 16-18; Table 1) with data and information from the 2019 Pilot Phase forming a foundation for comparison. These reports would be intended to inform future Council analyses in consideration of implementing EM aboard pelagic pollock catcher vessels in the BS and GOA as a compliance monitoring tool in these fisheries.

Specific Regulations from Which Exemption is Being Requested

To meet the goals and objectives to assess the efficacy of using EM to facilitate shoreside salmon PSC accounting, exemptions from regulations that currently prevent full or maximized retention of all catch and observer coverage requirements are necessary. The specific regulations for which an exemption is requested are:

- Regulations at § 679.7(a)(16) and § 679.20(e) require a vessel to discard specific species after an MRA has been reached in the BS and GOA.
- Regulations at § 679.7(b)(2) require a catcher vessel to discard pollock after the vessel has reached the 300,000 lbs. trip limit.

³ <https://www.fisheries.noaa.gov/resource/document/north-pacific-observer-sampling-manual>

- Regulations at § 679.20(d)(2) prohibit retention of a species when they are placed on PSC status (for the fisheries with incidental take) such that any catch must be discarded at sea.
- Regulations at § 679.20(d)(1)(iii) states a vessel may not retain incidental species in an amount that exceeds the MRA when directed fishing for that species is prohibited.
- Regulations at § 679.21(a) requires a vessel operator engaged in directed fishing for groundfish, including pelagic pollock, in the GOA or BSAI to minimize catch of prohibited species and, with the exception of salmon which has a 100% retention requirement, discard all PSC at sea with a minimum of injury (note that halibut would already be exempt due to the PSDP).
- Regulations at § 679.51(a)(2) require a catcher vessel directed fishing for pollock in the BS to carry an observer at all times
- Regulations at § 679.51(iii) state that the time required for an observer to complete sampling, data recording, and data communication duties may not exceed 12 consecutive hours in each 24-hour period.

Exemptions are needed from the first five bulleted regulations in order for participating vessels to achieve maximized retention for all harvested species (i.e., minimize discards to the greatest extent practicable). An exemption from the sixth bulleted regulation is necessary to fully test the use of EM as a compliance monitoring tool for ensuring that no salmon are discarded at sea. And an exemption is needed from the last bulleted regulation in order to provide critical flexibility at the shoreside plant as the EFP applicants work to coordinate the necessary number of shoreside observers under all potential EM delivery scenarios, especially under the first year of the EFP.

Facilitating Council Objectives for EM in the BS and GOA Pollock Trawl Catcher Vessel Fisheries

The proposed EFP and its requested exemptions are necessary in order to demonstrate that current compliance monitoring needs for the BS and GOA pollock fisheries can be achieved via EM aboard vessels and that necessary biological data collection requirements for the target species can be shifted to observers at shoreside processing plants. To this end, the proposed EFP seeks to achieve the following specific objectives, which are derived from the Council's overarching objectives contained in its Cooperative Research Plan:

- Objective 1: Demonstrate that maximized retention can be achieved in pollock trawl catcher vessel fisheries.
- Objective 2: Demonstrate that at-sea observers can be replaced with observers at shoreside processing plants such that data needs and data streams for effective fisheries management are maintained.
- Objective 3: Demonstrate that EM camera systems can adequately capture discard events (when they occur) and that video data can be used to verify vessel logbook discard information for compliance monitoring purposes.
- Objective 4: Improve salmon bycatch accounting for catcher vessels, especially for those delivering to tender vessels, through the use of EM camera systems that will enable shoreside observers to collect salmon bycatch census data.

The long-term vision for the potential future management of the BS and GOA pollock fisheries, as initiated by the North Pacific Fishery Management Council through its Trawl EM Committee, does not align with the current fishery regulations thereby necessitating the need for an EFP. Under the proposed EFP, it is not anticipated for pollock trawl catcher vessel fishing behaviors and patterns to change dramatically when considering fishing activity prior to the proposed EFP. The metrics listed below are intended to facilitate the Council's objectives (as listed on page 5) for EM as a compliance monitoring tool in the BS and GOA pollock trawl catcher vessel fisheries. These metrics will be evaluated on a seasonal basis (and not on a trip basis) in order to provide a broader overview of the resulting behaviors for participating vessels.

Metrics for Gauging the Success of EM for Compliance Monitoring:

- Electronic monitoring equipment reliability and malfunctions (Objectives 1 and 3). Strategic placement of EM camera equipment aboard pollock catcher vessels is intended to provide unobstructed, uninhibited, and unencumbered views of an individual vessel's entire fishing operation. While equipment malfunctions are to be expected, especially when operating in the often harsh environmental conditions of the North

Pacific, the EFP team will be tracking the number and type of EM equipment malfunctions that occur. EM systems that are not functioning properly result in a lack of video data unavailable for review. Consistent malfunctions, requiring time and resources to address, will negatively impact the reliability of the use of these systems for ensuring that no salmon are discarded at sea (and accounting for any incidents that may occur) and for providing the ability to document and estimate other discard events when they may occur.

- Functionality of vessel feedback loop between the vessel operator and the EM service provider/third party reviewer (Objectives 1, 2, and 3). An important subset to the overarching metric above relates to protocols for effective communication between a vessel operator and the EM service provider/third party reviewer. This notices the vessel that their equipment is working as intended and addresses any problems encountered or areas of concern. EM service providers develop individual Vessel Monitoring Plans in conjunction with a vessel operator, pre-trip and at-sea Malfunction Tables, and a Frequently Asked Questions (FAQ) document to help guide operators through commonly encountered EM system issues. Additionally, technicians are available to vessels operators via email and phone communications at any time. The EFP team will be monitoring the frequency and type of communications that occur, including how any system malfunctions encountered were addressed. Consistent malfunctions require money to address, which would negatively impact the overall costs associated with the use of EM; however, successful communications should be able to reduce the negative monetary and data impacts associated with system malfunctions.
- Discrepancies between vessel logbook and video discard estimates (Objective 3). Catch accounting for all retained target, incidental, and PSC species will occur via shoreside observers and the generation of fish ticket data from the shoreside processing facility. Discard estimates generated from review of the EM data will be used to verify discard data entered by the skipper into a vessel's logbook, which is included on the fish ticket data generated at the shoreside processor. Where discrepancies occur, the EFP team will be tracking the number of occurrences and the scale of the occurrence to ensure reliability of vessel logbook data for precise catch accounting data.
- Cost metrics between EM and human observers (Objective 2). Based on the Alaska fixed gear EM Program, costs associated with EM encompass EM service provider project coordination; third-party data review, processing, and analysis; EM equipment services; and EM technical services. These costs will be compared with the daily human observer rate for the full coverage catcher vessels in the BS and the partial coverage observer costs for catcher vessels in the GOA.
- Changes in vessel fishing behavior due to a relief from current discard requirements (Objective 4). Removing discard requirements associated with defined PSC species, MRAs of incidental species, and the GOA pollock trip limit will result in maximized retention pollock fisheries in the BS and GOA. The EFP team will be tracking whether there is an increase in the number of BS and GOA deliveries comprised of significant amounts of MRA species, whether there is an increase in the number of BS and GOA deliveries with significant amounts of PSC species (other than salmon), and whether there is an increase in the number of GOA vessels with pollock deliveries in significant excess of 300,000 lbs. A vessel performance standard will be developed to ensure that GOA catcher vessels are not continually in excess of the 300,000 lbs. trip limit such that a vessel in violation of the performance standard will lose their EFP privileges. A significant seasonal increase in these variables, when compared to historical trends, could be indicative of a change in a vessel's incentives for avoiding and/or minimizing catches of all non-target species and maintaining IRIU catches of the target species as required by current regulations. Examining vessel incentives under current discard requirements (including the identification of those species and instances where discarding is operationally difficult and costly) and comparing them to realized incentives when discard requirements are relaxed will help to inform regulations for optimized retention pollock fisheries in the BS and GOA.
- Impacts to shoreside monitoring (Objectives 1, 2, 3 and 4). Replacing vessel observers with EM systems will impact offloading monitoring operations at shoreside processing facilities because there will no longer be a vessel observer to move into the shoreside processor to assist with offload monitoring duties. If those shoreside responsibilities conducted by the vessel observers are not replaced, this could negatively impact salmon accounting. In the GOA, no salmon accounting would occur and, in the BS, the shoreside plant

observer would not receive assistance/relief by the vessel observer; therefore, additional dedicated plant observers are necessary. The EFP team will track the time and costs associated with placing an additional human observer to the processing plant for PSC accounting and general catch monitoring (e.g., ensuring that catch is properly sorted; that required biological samples are taken; and that fish tickets are completed accurately).

- Impacts to tendering operations (Objectives 1, 2, 3, and 4). Currently, tender vessels have no monitoring requirements and they are capable of taking multiple deliveries from multiple fisheries. Under the EFP, tender vessels will be required to document the number of delivered trips that are EFP compliant, with the assertion being that EM pollock deliveries be separated from other catch. If catch is unable to be separated or if non-EFP trips are mixed with other catch, then salmon accounting census would be negatively affected (it is not likely mixed trips will occur as processors require a homogenized catch for processing). The EFP team will evaluate the number of EFP trips affected by the deliveries, and whether or not tender vessels change their operations to maximize the number of EFP trips delivered to them during fishing operations.
- Impacts to the current collection of biological samples for pollock (Objectives 3 and 4). Replacing vessel observers with EM systems will impact the collection of biological samples of the target pollock species taken onboard a catcher vessel. If those biological samples taken onboard a vessel by the human observer are not replaced, this could negatively impact the collection of information used in stock assessments; therefore, these samples would need to be collected at the shoreside processing plant. The EFP team will track the time associated with the duty of collecting these samples at the shoreside processing facility. In addition, the EFP will compare the current level of pollock biological information as it is used in the BS and GOA stock assessments with the level of pollock biological information collected at a shoreside plant (e.g., trip by trip level information from a plant vs. haul by haul level information aboard a vessel). From that comparison, the EFP team can evaluate the need for maintaining current vessel biological data collection protocols (e.g., biological samples taken onboard a vessel vs. at a plant) for preserving or enhancing the precision of pollock stock assessments.
- Impacts to marine mammal monitoring (Objectives 3 and 4). Currently, vessel observers record interactions, collect specimens, and record sightings of marine mammals. The collection of this physical biological data could be negatively impacted by the removal of vessel observers. Given the current status of marine mammal interactions with pollock CVs in BS and GOA, the EFP team will work to identify the types of marine mammal information EM data can provide as well as the potential impacts to marine mammal management by the removal of vessel observers. The EFP team will also work to identify if there are types of information/samples currently collected by an observer that could potentially be collected by a vessel crew member.
- Challenges in meeting the terms of the EFP (Objectives 1, 2, 3, and 4). To be identified as they occur during the course of the proposed EFP.

Table 1. EFP Metrics

Council Objective	Category	Metric
1, 3	Electronic monitoring equipment reliability and malfunctions	# and type of EM equipment malfunctions
1, 2, 3	Functionality of vessel feedback loop between the vessel operator and the EM service provider/third party reviewer	Frequency and type of communications How system malfunctions encountered were addressed
3	Discrepancies between vessel logbook and video discard estimates	# and scale of occurrences Comparison to 2019 observer estimates from Pilot Phase

2	Cost metrics between EM and human observers	Cost comparison of EM vs. human observer onboard a vessel
4	Changes in vessel fishing behavior due to a relief from current discard requirements	# of occurrences and amount of significant changes in deliveries of: MRA species; PSC species (other than salmon); trips in excess of 300,000 lbs (in GOA)
1, 2, 3, 4	Impacts to shoreside monitoring	Time and cost of additional shoreside observers
1, 2, 3, 4	Impacts to tendering operations	# of EFP trips affected (unable to count as EFP) # operations changed to accommodate EFP vessels
3, 4	Impacts to the current collection of biological samples for pollock	Time associated with shoreside pollock sampling responsibility Comparison of current vs. EFP shoreside biological data collected
3, 4	Impacts to marine mammal monitoring	Identify what data EM can provide Identify potential impacts to management
1, 2, 3, 4	Challenges in meeting the terms of the EFP	To be identified

Participating Vessel Information

Information for participating catcher vessels and tender vessels (all of whom are voluntary participants) as well as shoreside processors for the BS and GOA and WGOA components will be provided to NMFS prior to the start of the proposed EFP for 2020.

EFP Project Team

Ruth Christiansen (United Catcher Boats), Julie Bonney (Alaska Groundfish Data Bank, Inc.), and Charlotte Levy (Aleutians East Borough) are the primary industry leaders for the administration and execution of the EFP project. Their key roles include recruiting vessel volunteers, NFWF grant administration, and general project management (e.g., coordination with shoreside processors, communications with other project partners, communications with NMFS staff and the Council’s Trawl EM Committee).

Mike Orcutt and Archipelago Marine Research is the EM service provider for the BS and GOA shoreside components of the EFP project.

Courtney Paiva and the Pacific States Marine Fisheries Commission is the third-party video reviewer for the BS and GOA shoreside components of the EFP project.

Jared Fuller and Saltwater, Inc. serve as both the EM service provider and the video reviewer for the WGOA tendering/shoreside component of the EFP project.

Applicant Signature:

Ruth Christiansen