## -Draft-2015 Annual Deployment Plan for Observers in the Groundfish and Halibut Fisheries off Alaska

## September 2014





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## **Suggested Citation**

NMFS (National Marine Fisheries Service). 2014. *Draft* 2015Annual Deployment Plan for Observers in the Groundfish and Halibut Fisheries off Alaska. National Oceanic and Atmospheric Administration, 709 West 9th Street. Juneau, Alaska 99802.

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## 1. Executive Summary

This draft 2015 Annual Deployment Plan (ADP) documents how the National Marine Fisheries Service (NMFS) intends to assign fishery observers to vessels fishing in the North Pacific during the calendar year 2015.

- NMFS recommends using the trip-selection method (i.e., the trip-selection pool) to assign
  observers to vessels in 2015. NMFS does not propose using the vessel-selection method for
  smaller vessels in 2015. Using the trip-selection method will correct sampling frame
  problems that were identified with the vessel-selection method in the 2013 Annual report,
  and reduce the impact on specific vessel operators and crew relative to 2013 and 2014
  because only single trips will be selected.
- NMFS proposes two trip-selection strata for 2015:
  - o *Small vessel trip-selection*: This pool is comprised of catcher vessels that are fishing hook-and-line or pot gear and are greater than or equal to 40 ft, but less than 57.5 ft in LOA. The vessels in this stratum were in the "vessel-selection" pool in the 2013 and 2014 ADPs.
  - o *Large vessel trip-selection*: This pool comprises three classes of vessels: 1) all catcher vessels fishing trawl gear, 2) catcher vessels fishing hook-and-line or pot gear that are also greater than or equal to 57.5 ft LOA, and 3) catcher-processor vessels exempted from full coverage requirements. This stratum was termed the "trip-selection" pool in the 2013 and 2014 ADPs.
- Selection probabilities will be 12% for small vessel trip-selection stratum and 24% for large vessel trip-selection stratum. This represents an identical selection rate in the former vessel-selection stratum and a 50% increase in the large vessel trip-selection pool relative to the coverage rates in 2014.
- NMFS does not plan to grant conditional releases in the large vessel trip-selection pool in 2015 consistent with Council and NMFS policy established in 2014.
- NMFS proposes that conditional releases in 2015 be granted only for vessels in the small vessel trip-selection stratum that do not have sufficient life-raft capacity to accommodate an observer.
- NMFS proposes reducing the impact of human observers on small boats in 2015 in two ways. First, the selection rate is lower for the small vessels relative to large vessels. This lower selection rate accommodates the fact that small vessels are more likely to be space constrained. Second, by assigning an observer on a trip-by-trip basis rather than for an extended duration, any given vessel has only a 12% chance of having an observer for a fishing trip. In many cases, small vessels that take a limited number of trips during the year will have a very low overall probability of taking a human observer. NMFS believes this approach exercises reasonable discretion to mitigate the impact of human observation on fishing operations, considers the well-being of the fishing crew while providing NMFS and the Council information needed for management.

- Vessels selected by NMFS to participate in Electronic Monitoring (EM) Cooperative Research will be in the no selection pool (i.e., not subject to observer coverage) while participating in such research.
- NMFS will continue to collect genetic samples from salmon caught as bycatch in groundfish fisheries to support efforts to identify stock of origin. The same sampling protocol established in the 2014 ADP will be used in 2015.
- Trawl vessels that fish for Pacific cod in the BSAI will be given the opportunity to opt-in to full observer coverage and carry an observer at all times when fishing in the BSAI using the same approach as 2014.
- NMFS will continue to communicate the details of the ADP to affected participants though letter, public meetings, and posting information on the internet. Outreach activities during 2014/2015 fall and winter will focus on vessels that are transitioning from vessel-selection to trip-selection.

### 2. Introduction

## 2.1 Purpose and authority

This draft 2015 Annual Deployment Plan (ADP) documents how the National Marine Fisheries Service (NMFS or Agency) intends to assign at-sea and shoreside observers to vessels and processing plants engaged in fishing operations in the North Pacific under the authority of the Fishery Management Plan for Groundfish of the Bering Sea and Aleutian Islands Management Area (BSAI FMP), the Fishery Management Plan for Groundfish of the Gulf of Alaska (GOA FMP), and the Northern Pacific Halibut Act of 1982. Data collection by observers is currently the only reliable and verifiable method available for NMFS to gain fishery discard and biological information on fish, and data concerning seabird and marine mammal interactions with fisheries. Onboard observers also perform the critically important task of collecting biological data such as species composition, weights, and tissue samples that are important for stock assessment scientists and researchers. Much of this information is expeditiously available (e.g., daily or at the end of a trip, depending on the type of vessel) to ensure effective management.

Details on the legal authority and purpose of the ADP are found in the Final Rule for Amendment 86 to the BSAI FMP and Amendment 76 to the GOA FMP (77 FR 70062, November 21, 2012). This ADP follows section 313 of the Magnuson-Stevens Fishery Conservation and Management Act (MSA, 16 U.S.C 1862), which authorizes the North Pacific Fishery Management Council (Council) to prepare a fisheries research plan that requires the deployment of observers into the North Pacific fisheries and establishes a system of fees. The ADP describes the science-driven method for observer deployment that enables observers to perform their duties, including species identification, quantification and disposition of catch, documenting interactions with marine mammals and seabirds, and collection of biological specimens to support research and assessment of biological resources in the North Pacific. This ADP specifically describes observer deployment for the partial coverage category (50 CFR 679.51(a)) in the halibut and groundfish fisheries in 2015.

### 2.2 Process and Schedule

NMFS and the Council created the ADP process to provide flexibility in the deployment of observers to gather reliable data for estimation of catch in the groundfish and halibut fisheries off Alaska. NMFS and the Council recognized that the amount of observer coverage available for any given year would be dependent on available revenue generated from fees on groundfish and halibut landings. The ADP process allows NMFS to adjust deployment in each year so that sampling can be achieved within financial constraints. Some aspects of observer deployment can be adjusted through the ADP, including the rates of coverage, the assignment of vessels to a specific partial coverage selection pool, or the allocation strategy used to deploy observers in the partial coverage category.

The ADP process ensures that the best available information is used to evaluate deployment, including scientific review and Council input, to annually determine deployment methods. On an annual basis, NMFS develops an ADP to describe how observers will be deployed for the

upcoming calendar year and prepares an annual report that evaluates the performance of the prior year's ADP implementation. The schedule for the 2015 ADP is as follows:

- June 2014: NMFS presented the 2013 Annual Report to the Council and the public. The 2013 Annual Report provided a comprehensive evaluation of observer program performance including, costs, sampling levels, issues and potential changes for the 2015 ADP. The 2013 Annual Report identified areas where improvements are needed to (1) collect the data necessary to manage the groundfish and halibut fisheries, (2) maintain the scientific goal of unbiased data collection, and (3) accomplish the most effective and efficient use of the funds collected through the observer fees. This review informed the Council and the public about how well various aspects of the program are working.
- September 2014: Based on information and analyses from the 2013 Annual Report and Council recommendations, NMFS prepared and released this draft 2015 ADP containing recommendations for deployment methods in the partial coverage category.
- September October 2014: The Council and its SSC will review this draft 2015 ADP and any associated Plan Team and Observer Advisory Committee (OAC) recommendations. Based on input from its advisory bodies and the public, the Council may choose to clarify objectives and provide recommendations for the final 2015 ADP. NMFS will review and consider these recommendations; however, extensive analysis and large-scale revisions to the draft 2015 ADP are not feasible. This constraint is due to the short time available to finalize the 2015 ADP prior to the December 2015 Council meeting, and practical limitations on planning for deployment (including contracting with an observer provider) and associated processes that need to be in place by January 1, 2015.
- December 2014: NMFS will finalize the 2015 ADP and release it to the public prior to the December 2014 Council meeting.

The analysis and evaluation of the data collected by observers and the ADP development is an on-going process; in June 2015, NMFS will present the 2014 Annual Report that will form the basis for the 2016 ADP.

## 3. 2013 Annual Report Summary

In June 2014, NMFS released the 2013 Annual Report that provided an evaluation of the first full year of the restructured observer program (NMFS 2014). The 2013 Annual Report provided analysis of observer deployment under the 2013 ADP (NMFS 2012), including an overview of the fees and budget associated with deployment, enforcement of the observer program regulations, a summary of public outreach events, and a scientific evaluation of observer deployment conducted by the Observer Science Committee (OSC) (Faunce et al. 2014). This draft 2015 ADP builds upon NMFS recommendations in the Annual Report and review and recommendations of that report by the Council.

As part of the Annual Report, the OSC investigated the deployment methods used in 2013 and found the trip selection process to be working well whereas the vessel selection process had

several problems that reduced data quality (Faunce et al. 2014). In summary, several important issues regarding the vessel selection stratum were raised during review of the 2013 Annual Report:

- (1) The sample frame in vessel selection was poorly defined. Vessels in the vessel selection pool were selected from a list of vessels that fished within a particular selection period during the year prior to deployment (i.e., 2012). Changes in fishing effort between 2013 and 2012 created an inaccurate list of vessels from which to sample, thereby introducing substantial data quality concerns into the sampling process.
- (2) the conditional release policy for the vessel selection pool imparted bias into the observer data:
- (3) the combination of a poorly defined list of vessels and the conditional release policy required NMFS to select enough vessels in each selection period to meet anticipated selection goals. These issues substantially decreased sampling efficiency that culminated with NMFS abandoning a random selection of vessels to achieve a desired level of coverage.

Based on these findings, NMFS recommended, and the Council supported changing the random selection unit from a vessel to a trip for vessels formerly in the vessel-selection pool (see Appendix A). Moving all vessels to the trip-selection pool is anticipated to correct the sampling frame problem while also reducing the burden on industry by shortening the period for which an observer is onboard a vessel. This approach is responsive to public comments that the selection of a vessel for a two-month period under the vessel selection method was overly burdensome and disruptive to the industry. In the previous approach, once a vessel in the vessel-selection pool was selected for coverage, it was essentially subject to 100 percent coverage for all trips during that two-month period. Vessels that made multiple trips during that two-month period were particularly impacted. In some cases, vessels were selected for multiple two-month periods. This exacerbated the logistical costs and impacts on vessel operators and crew.

Placing all partial coverage vessels in trip-selection in 2015 is anticipated to mitigate the impact of observation on small boats with operational and space constraints. First, the selection rate is lower for the small vessels relative to large vessels. This lower selection rate accommodates the fact small vessels are more likely to be space constrained. Second, by assigning an observer on a trip-by-trip basis rather than for an extended duration, any given vessel has a relatively low chance of having an observer for a fishing trip. Overall, this represents a very low probability of taking a human observer. Therefore, the small boats most impacted by having a person on-board have a limited chance of being selected, and once selected, the impact is for the duration of a fishing trip, instead of all trips during a two-month period. NMFS believes this approach exercises reasonable discretion to mitigate the impact of human observation on fishing operations, considers the well-being of the fishing crew while providing NMFS and the Council information needed for management.

## 4. 2015 Deployment Methods

NMFS proposes to use the trip-selection method as the sole method of assigning observers to fishing events in 2015. Trip-selection refers to the selection of the fishing trip as the sampling

unit, in recognition that this is the highest unit in the hierarchical sampling design of the North Pacific Observer Program. Trip-selection is facilitated through the Observer Declare and Deploy System (ODDS). Users are given a username and password as well as a telephone number they can use to log anticipated fishing trips. Logged trips are individually and independently assigned a random number and the trip is assigned an observer if the number is below or equal to predetermined selection rates.

## 4.1 At-Sea Selection Pools (strata)

For the purpose of observer deployment, the partial coverage deployment strata are defined as follows:

- No selection: The "no selection" pool is comprised of catcher vessels less than 40 ft length overall (LOA), or vessels fishing with jig gear, which includes handline, jig, troll, and dinglebar troll gear, or vessels that are conditionally released due to life raft capacity (see section 4.3). In addition, vessels selected by NMFS to participate in the EM Cooperative Research will be in the no selection pool while participating in such research (Appendix D). Note: Vessels participating in EM Cooperative Research will still be required to log trips in ODDS, but will be given a release in ODDS that will over-ride their selection probabilities.
- *Small vessel trip-selection*: This pool is comprised of catcher vessels that are fishing hook-and-line or pot gear and are greater than or equal to 40 ft, but less than 57.5 ft in LOA. The vessels in this stratum were in the "vessel-selection" pool in the 2013 and 2014 ADPs.
- Large vessel trip-selection: This pool comprises three classes of vessels: 1) all catcher vessels fishing trawl gear, 2) catcher vessels fishing hook-and-line or pot gear that are also greater than or equal to 57.5 ft LOA, and 3) catcher-processor vessels exempted from full coverage requirements (50 CFR 679.51(a)(2)(iv)). This stratum was termed the "trip-selection" pool in the 2013 and 2014 ADPs.

## 4.2 Projected At-Sea Deployment (sample size)

NMFS uses estimates of anticipated fishing effort and available sea-day budgets as the primary inputs into simulation models used to generate anticipated outcomes from different selection rates (Appendix B). The most recent complete full-year of fishing effort (2013) was used as a proxy for fishing effort in 2015.

The at-sea budget for the deployment of observers was set equal to that from the 2014 ADP: 5,518 days. This value results from conversions of dollars to days derived from confidential contract information negotiated between NOAA's acquisition and grants office and the selected observer provider. NMFS anticipates the budget for 2015 deployment to be approximately \$5.5M, of which \$3.2M is projected revenue from the fee for the 2014 calendar year. The remaining funding includes fees carried over from 2014 and federal funds from NMFS. The projected fee proceeds for the 2014 fishing year are \$1.1M less than the 2013 assessments. This

is due to reductions in both the prices and quotas of key species. Decreased fee proceeds have implications for coverage in 2016.

NMFS analyzed a suite of potential rate combinations between the two trip-selection strata that could be afforded in 2015 (Appendix B). However, since the Council's June 2014 motion (Appendix A) requested that NMFS maintain a higher observer coverage rate for all trawl vessels and fixed gear vessels ≥57.5 ft LOA, NMFS only considered those combinations where the selection rate was smaller for the small vessel trip-selection strata than the large vessel trip-selection strata.

NMFS proposes to set selection rates in ODDS at 0.1200 (12%) for trips logged by vessels in the small vessel trip-selection stratum and 0.2376 (24%) for trips logged by vessels in the large vessel trip-selection stratum. This represents an identical selection rate in the former vessel-selection stratum and a 50% increase in the selection rate in the large vessel trip-selection pool relative to the coverage rate in 2014 for vessels in this stratum. The selection probabilities targeted (not realized) in whole percentages over the past three years are shown in Table 4-1.

Stratum	Small vessel tr	ip-selection	Large vessel trip-selection	
ADP year	rate (%)	unit	rate (%)	unit
2013	11	vessel	11 - 15	trip
2014	12	vessel	16	trip
2015	12	trip	24	trip

Table 4-1. Selection probabilities for selection pools from 2013-2015.

NMFS examined the relative risk of obtaining no observer coverage within a NMFS Reporting Area for a gear type for the year using the selection rates proposed in this Draft 2015 ADP (Appendix B). The analysis demonstrates that more sampling is required in the small vessel strata versus the large vessel strata to achieve the same risk (e.g. median percentile). This result is due to the fact that there are fewer and shorter trips in the small vessel stratum than the large vessel stratum; if effort is lower, it is more likely that there will be no observer coverage than if effort is higher. Although this outcome suggests an increase in the selection rate in the small vessel stratum is warranted, there are also other considerations that run counter to this outcome such as a desire to address logistical challenges and to mitigate the impacts of observer on smaller vessel operators and crew who are still adapting to onboard observers.

In its June motion, the Council recommended that NMFS maintain a higher observer coverage rate for all trawl vessels and fixed gear vessels >57.5ft LOA. This priority is consistent with past Council recommendations and is intended to balance the need for information on prohibited species catch (PSC) on larger fixed gear and trawl vessels, while also providing at-sea discard and biological information from catch on smaller vessels. In addition, moving small vessels into the trip-selection stratum presents a variety of logistical and outreach challenges for the agency. These vessels were formerly not required to log trips into ODDS. Successful compliance with ODDS will be critical for defining the sampling frame and ensuring the integrity of the random selection process. In addition, once selected, NMFS and its observer contractors will need to deploy observers on vessels in accordance with their selected trip. For these reasons the agency

does not propose to increase the small vessel selection rate above 0.12 for 2015. NMFS will continue to evaluate deployment rates and departures from the intended deployment plan in future Annual Reports.

## 4.3 Conditional Release Policy

The 2013 Annual Report (NMFS 2014) raised a number of concerns with conditional releases in the vessel-selection stratum (i.e., the small vessel trip-selection stratum in this draft ADP). Nearly half of the vessels selected in the vessel-selection stratum were released from observer coverage in 2013 (NMFS 2014). This conditional release policy potentially introduces bias in the sample if released vessels fish differently from sampled vessels. This policy also reduced NMFS ability to reach anticipated sampling goals using random sampling, and increased the burden of observer coverage on vessels that were not released. Due to these data concerns, NMFS recommended against allowing conditional releases for reasons other than a life raft at the June 2014 Council meeting.

To inform potential recommendations on a conditional release policy for the 2015 ADP, the Council requested NMFS to evaluate whether a length > 40' LOA would better define the sample frame for the new small trip-selected vessels. NMFS evaluated the distribution of trips and vessels by size category, and whether there was a notable change in the probability of a NMFS area and gear combination being observed (Appendix C). The analysis does not shows clear support for a new upper bound of the no-selection strata based on vessel-length in consideration of alternative conditional release policies.

Consistent with the Council's recommendation from June, 2014, NMFS does not plan to grant conditional releases in the large vessel trip-selection pool in 2015; and proposes that conditional releases in 2015 only be granted for vessels in the small vessel trip-selection stratum that do not have sufficient life-raft capacity to accommodate an observer.

This policy represents a change from the 2014 ADP that provided conditional releases from observer coverage for vessel operators in the vessel-selection stratus who provided reasonable information that accommodating an observer would displace crew members or additional IFQ permit holders. The new release policy would narrow the scope of when a vessel operator could obtain a conditional release. However, the impact of observation on small boats with operational and space constraints will be mitigated in two ways: 1) the selection rate is lower for the small vessels, which are more likely to be space constrained, then for larger vessels; and 2) once selected, the impact is for the duration of a single fishing trip. NMFS believes this approach exercises reasonable discretion to mitigate the impact of human observation on fishing operations, considers the well-being of the fishing crew while providing NMFS and the Council information needed for management.

This conditional release would only apply in cases where the vessel has a four-person life-raft with a four person crew. Vessels with a six-person life raft would not receive a conditional release because NMFS has evidence that very few trips by vessels in the 40 ft to 57.5 ft LOA category have taken more than five crew (about 1% of trips). In addition, vessels will be able log

trips in advance, will know which trips are selected for coverage, and will therefore be able to plan ahead. For example, a vessel could log 3 trips in advance and plan to take an IFQ client on non-selected trip if the extra person will put them at max capacity for their six-person life raft.

In order to implement releases for vessels which meet the criteria of a four-person life-rafts and four-person crews, vessel operators would need to submit a request for a conditional release based on the four-person life raft and four-person crew criteria in advance of fishing. NMFS would send a letter to all participants in the small vessel trip-selection pool and provide them an account in the ODDS with instructions on how to access the system, and how to submit the necessary information to petition for a conditional release for life raft capacity.

Any vessels that wish to be considered for a release based on life raft capacity would be required to submit a request in the ODDS stating their life raft capacity, life raft serial number, and crew size. NMFS would require the information four weeks prior to the vessel starting fishing to provide sufficient time to evaluate the request and issue a release if warranted.

The scope of this proposed conditional release policy is unknown at this time and was not factored into the rate determinations in Appendix B. It is possible that the ability to log multiple trips, combined with the known outcome of those trips could continue to create biases in the data. NMFS will provide information back to the Council on the scope and impact of these releases in subsequent Annual Reports.

## 4.4 Chinook Salmon Sampling in the Gulf of Alaska

Genetic sampling of Chinook salmon in the GOA remains a priority for NMFS in 2015. This priority follows the implementation of Amendment 93 to the GOA FMP (77 FR 42629, July 20, 2012), which required all vessels fishing for pollock in the central and western GOA to retain salmon until delivery to a processing facility. The same sampling protocol established in the 2014 ADP (NMFS, 2013) for Chinook salmon will remain in effect for 2015.

Under Amendment 91 to the FMP of the BSAI, dockside observers obtain tissues from every salmon caught as bycatch within every delivery of the BSAI trawl pollock fishery. Outside of this fishery, the observer program takes advantage of the random deployment of at-sea observers to obtain a representative sample of the fishery catch. Observers deployed on trawl trips that target pollock in the GOA will obtain genetic samples from all salmon bycatch in the offload. Outside of the pollock fisheries, tissues will be obtained from all salmon found within observer at-sea samples of the total catch. These genetic samples are used by the Alaska Fishery Science Center to identify the stock of origin of Chinook salmon caught as bycatch in groundfish fisheries and are important for the management of Chinook PSC.

### 4.5 BSAI Full Coverage Compliance Agreement

Since 2013, NMFS has provided trawl vessels fishing for Pacific cod an option to carry an observer at all times when fishing in the BSAI. The additional coverage benefits the management of that fishery and reduces the population of trips in the partial coverage category,

thus increasing the coverage rates for the trips remaining in partial coverage. In 2013, this fleet met their anticipated coverage rate of 100% (NMFS, 2014). NMFS anticipates this fleet will meet their anticipated coverage rate of 100% in 2014, and will provide additional information in the 2014 Annual Report in June 2015.

NMFS is extending the voluntary full coverage option through 2015, and recognizes this activity would be best addressed in the long-term through a regulatory change. Entities participating in the BSAI Pacific cod trawl fishery that want full coverage in 2015 must submit a signed compliance agreement to NMFS on or before December 1, 2014 (Appendix E). Vessels operating under a full coverage compliance agreement would pay partial coverage observer fees as required in regulation, but would also need to contract directly with observer providers and also directly pay for those observer costs. In addition, vessels operating under the full coverage compliance agreement must comply with the partial coverage regulations, including logging trips into ODDS.

## 5. Communication and Outreach

NMFS will continue to communicate the details of the ADP to affected participants though letter, public meetings, and posting information on the Internet. Information about the Observer Program is available at:

http://www.alaskafisheries.noaa.gov/sustainablefisheries/observers/default.htm and Frequently Asked Questions are available at:

http://www.alaskafisheries.noaa.gov/sustainablefisheries/observers/faq.htm

A series of Frequently Asked Questions regarding ODDS is available at:

https://chum.afsc.noaa.gov:7104/apex/wwv\_flow\_file\_mgr.get\_file?p\_security\_group\_id=14379
19156609270&p\_flow\_id=140&p\_fname=ODDS%20FAQ.pdf

Outreach activities during 2014/2015 fall and winter will focus on changes to the ADP (transition from vessel-selection to trip-selection). A letter will be sent to vessel owners who will be newly entering into the trip-selection pool (vessels 40-57.5 ft LOA) in mid-October. The letter will include an ODDS user name and password and instructions on how to log trips.

The public outreach meetings will also focus on ODDS and how to log trips and include an ODDS demonstration. NMFS' goal is to reach a broad range of communities while operating within budget constraints. Prior to Jan 1, outreach will focus on those areas with large participation in early Pacific cod fishery and then shift to a focus to communities in southeast Alaska prior to IFQ fishery in March (Table 5-1). We are also available to conduct additional meetings via teleconference and/or WebEx as requested pending NMFS staff availability and local interest, we would need a community partner to organize locations and equipment availability in the local port.

Table 5-1 Proposed public outreach meeting locations and schedule.

Location	Date
Seattle, Fish Expo	Nov 19-21
Homer	1st week in Dec
Kodiak	1st week in Dec
Petersburg	1 <sup>st</sup> week of March, 2015
Sitka	1 <sup>st</sup> week of March, 2015

### 6. References

NMFS (National Marine Fisheries Service). 2012. 2013 Annual Deployment Plan for Observers in the Groundfish and Halibut Fisheries off Alaska. National Oceanic and Atmospheric Administration, 709 West 9th Street. Juneau, Alaska 99802. Available at: http://alaskafisheries.noaa.gov/sustainablefisheries/observers/ADP Final 2013.pdf

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## Appendix A. Council motion on the Annual Report and ADP

C-2 Observer Program Annual Report – Council motion June 5, 2014

1. The Council requests NMFS and AFSC develop the draft 2015 ADP for Council review with the following considerations.

The Council supports NMFS recommendations to move participants in the vessel selection pool into the trip selection pool. The Council requests NMFS and AFSC analyze the 2013 vessel selection pool data, as well as likely changes in the burdens associated with carrying an observer on vessels in the trip selection pool, to determine whether a vessel length other than 40' better defines the new trip selection sample frame in the 2015 ADP, in order to remove provisions for conditional release. The Council requests this information in order to make recommendations to NMFS and AFSC as part of the draft 2015 ADP review. The Council is concerned with potential bias introduced in the partial coverage category through conditional releases.

- 2. The Council requests NMFS maintain a higher observer coverage rates for all trawl vessels and fixed gear vessels over 57.5' in the revised trip selection pool in order to expand coverage on PSC limited fisheries, consistent with past Council recommendations.
- 3. The Council requests NMFS take the following SSC and OAC recommendations into consideration in the development of the draft 2015 ADP and the 2014 Annual Report, as well as ongoing agency evaluations and improvements to the program.
  - Provide additional information on observer rates and coverage by gear type, in addition to numbers of trips and deployment.
  - Examine potential associations of PSC with trip attributes on observed vessels.
  - Continue the evaluation of PSC and bycatch estimation from observed vessels to the entire fishery.
  - In the annual report, include a section outlining changes made to the program that have been made in the current year's ADP.
  - Begin to address the question of how and when the program transitions to optimization of observer days according to particular fishery data and management needs.
  - Recommend the agency work with fishermen and processors in the development of a trip identifier.
  - Provide more detailed program cost information in order to assess inefficiencies in the program, especially in contrast to observer day costs in the full coverage category. In addition, evaluate ways to achieve cost efficiencies in the partial observer contract.
  - Include <40' vessels in electronic monitoring testing to the extent possible.
- 4. The Council appreciates the development of performance metrics and encourages NMFS to continue to develop tools to evaluate data quality and deployment performance.

5. The Council continues to support supplementary Federal funding for the Observer Program in order to provide bridge funding between calendar years and cover collected fees that have been set aside due to sequestration rules.

# Appendix B. Calculation of the Selection Rate for the Draft 2015 Annual Deployment Plan

#### Introduction

Following the NMFS recommendation put forth in the 2013 Annual Report (NMFS, 2014), the Draft 2015 Annual Deployment Plan proposes that the method known as "trip-selection" be the sole method of assigning observers within the 'partial-coverage' category (i.e., the portion that is sampled) of the fleet. Trip-selection is accomplished through the Observer Declare and Deploy System (ODDS). Trip-selection members are sent a letter prior to the start of the calendar year with their username and password so that they may access the ODDS and log planned fishing trips. Each logged trip is assigned a random number of four digits as low as 0 and up to and including 1 (e.g., 0.0000, 0.1234, 1.0000, etc.). This random number is then evaluated against a pre-programmed selection rate. If the random number is below or equal to the selection rate the trip is selected for observation, otherwise it is not. For this reason, a selection rate is required prior to the start of the year for which trips are going to be logged.

In their June  $5^{th}$  2014 Motion, the North Pacific Fishery Management Council stated their desire to retain separate rates for two categories of vessels: a lower selection rate for the vessels formerly in the "vessel-selection" stratum, and a higher selection rate for those vessels in the former "trip-selection stratum". Under the assumption that both of these groups of vessels will be assigned an observer using trip-selection, they are hereafter referred to as "little t" (t) and "big T" (T) respectively.

The purpose of this analysis is to describe the methods and results of the selection rate determination.

#### Methods and Results

Data developed by the staff of the Sustainable Fisheries Division of the Alaska Regional Office and the Fisheries Monitoring Division of the Alaska Fisheries Science Center for the 2013 Annual Report (NMFS, 2014) was used in this analysis. All analyses were performed using the R language for statistical computing (R Core Team, 2014) following the general procedures used previously in the 2013 and 2014 Annual Deployment Plans.

## Determining the afforded rate

The selection rate that can be afforded in the coming year depends on several factors. These include the amount of fishing that is expected to occur and the available budget. The available budget for 2015 was set equal to that of 2014: 5518 days, as provided by the Fishery Monitoring Division of the AFSC. The most recent full year for which deployment and fishing effort (trips) data were available (2013) was used as a proxy for 2015 fishing effort.

A range of possible combinations of selection rates between *t* and *T* were explored. The sampling rate for the small vessel component of the fleet was held fixed and the number of observed days was computed. The number of days remaining after sampling the small vessel

stratum was then allocated to sampling the large vessel stratum. This process was repeated in a simulation exercise.

In the first step of this exercise, the number of trips observed in the small vessel stratum  $(n_t)$  was determined by multiplying the total number of trips in t (Nt) by the initial (fixed) rate  $r_t$ . For each of 100 simulation trials, the total number of days observed  $(D_t)$  was computed as the sum of

days on those observed trips  $(d_t)$ ,  $D_t = \sum_{t=1}^{n_t} d_t$ . The number of days available to sample the large

vessel stratum,  $T(D_T)$  was then obtained by subtracting the days spent observing the smaller vessels from the total number of days budgeted,  $D_T = 5518 - D_t$ . The 100 values of  $D_t$  yielded 100 values of  $D_T$ .

In the second step of this exercise, trips in T were sequentially selected to be sampled and the cumulative sum of the number of days on those sampled trips  $(d_T)$  was subtracted from  $D_T$  until  $D_T$  remaining  $\leq d_T$ . The total number of trips sampled  $(n_T)$  divided by the total T trips yielded the rate obtained in the large vessel stratum  $(r_T)$ . This process was repeated 10 times for each of the 100 (step 1) simulation trials, e.g. for each of the 100  $D_T$  obtained above. This yielded 1000  $r_T$  values for a given  $r_t$  value.

The above two-step simulation exercise was conducted for a range of initial small vessel rates  $(r_t)$  beginning with 0.12 and increasing at increments of 0.01 to a final value of 0.19. The median value for  $r_T$  that accompanied each increment of  $r_t$  was:

r <sub>t</sub>	median r <sub>⊤</sub>
0.12	0.236
0.13	0.232
0.14	0.227
0.15	0.221
0.16	0.216
0.17	0.210
0.18	0.205
0.19	0.200

From this suite of options, an  $r_t$  value of 0.12 was selected by NMFS for the Draft 2015 Annual Deployment Plan. This corresponds to an average selection of one trip every 8.3 trips logged. For reference, weighting all vessels equally, the average vessel-selection vessel in 2013 fished 5.8 trips spanning 25 days and carried an observer for 0.4 of those trips. The average rate of observed trips to total trips among individual vessels in this stratum was equivalent to one observed trip every 20 logged.

Using the selected  $r_t$  of 0.12, a second set of more refined simulations were performed. For each simulation trial, the process ODDS uses to select trips was simulated; each trip in t and T was assigned a four-digit random number, and was virtually selected for observer coverage if below 0.12 in t and below 0.236 in T. The number of days in each selected trip was summed across all selected trips to generate the total number of observed days (B) in both strata (small and large trips selection) for each simulation trial. The mean observed days over 10,000 simulation trials

was computed. Because the mean number of observed days was not originally equal to the number of days budgeted, this final process was repeated using an adjusted  $r_T$  until this condition was true. The final rate for  $r_T$  was 0.2376. This corresponds to an average selection of one trip every 4.2 trips logged. For reference, weighting all vessels equally, the average trip-selection vessel in 2013 fished 13 trips spanning 57 days and carried an observer for 1.9 of those trips. The average rate of observed trips to total trips among individual vessels in this stratum was equivalent to one observed trip every 7.6 trips logged. The mean value of B from simulations was 5,517 and the maximum value obtained was 6,127 days (Figure B-1, upper panel).

#### Risk of going over-budget

Contrary to the 2013 and 2014 Annual Deployment Plans, the simulations described here were not designed to sample at a rate such that 90% of the simulated *B* values were at or below budget. Instead, they are designed so that the median (50%) of the simulated *B* values are at or below budget. The percentage of simulated outcomes above a given budget was generated using a cumulative distribution function (Figure B-1, lower panel).

## Evaluation of all possible rates

The selection rates for the 2015 Draft Annual Deployment Plan can be evaluated using performance metrics. The performance metric used here is the probability of failing to obtain any observed trips in a NMFS Area, and gear type, following the methods described in the 2013 Annual Report (NMFS, 2014; Faunce et al., 2014). Probabilities of failing to obtain an observed trip were obtained using the hypergeometric distribution for cells defined by gear type, NMFS Area, and strata (T and t). Greater sampling rates in t are required to achieve the same likelihood of failing to obtain any observed trips compared to T (Figure B-2). A summary of the data depicted in Figure B-2 for the proposed selection rates in each stratum are shown in the table below.

Metric	Stratum	
	t: former vessel-selection	T: former trip-selection
	(12.00 % sample rate)	(23.76 % sample rate)

Probability of having no observed trips at the end of the year within NMFS Areas and Gear Type Cells\*

5% of the cells have probabilities less than	0	0
25% of the cells have probabilities less than	0	0
50% of the cells have probabilities less than	0.002	0
75% of the cells have probabilities less than	0.464	0.002
95% of the cells have probabilities less than	0.774	0.439
100% of the cells have probabilities less than	0.880	0.760

<sup>\*</sup> values for T computed using a selection rate rounded to the nearest two digits (0.24).

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Faunce, C., J. Cahalan, J. Gasper, T. A'mar, S. Lowe, F. Wallace, and R. Webster. 2014. Deployment performance review of the 2013 North Pacific Groundfish and Halibut Observer Program. U.S. Dep. Commer., NOAA Tech. Memo. NMFS-AFSC-281, 74 p. http://www.afsc.noaa.gov/Publications/AFSC-TM/NOAA-TM-AFSC-281.pdf

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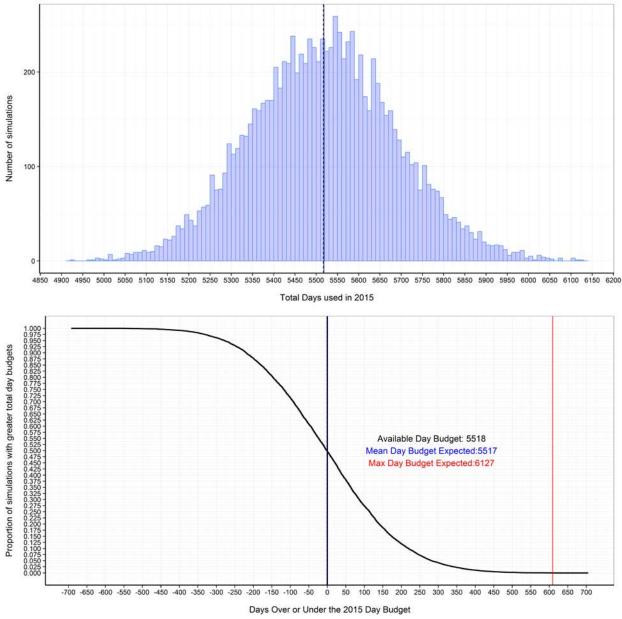


Figure B-1: Upper panel: Histogram distribution of the amount of observer days required to sample from a mixed population of t at 0.1200 (12%) and T at 0.2376 (23.76%) resulting from 10,000 simulations. The mean outcome is depicted in a blue vertical dotted line (5517 days) and the available 2015 day budget is depicted in a solid black line (5518 days). Lower panel: The percentage of 10,000 simulations with annual observer day budgets greater than the available budget of 5518 days. The horizontal x-axis has been adjusted to reflect the days in a given simulation relative to the available budget. The available budget and mean outcome are depicted as in the top panel, while the maximum outcome is depicted in the vertical red line to the right.

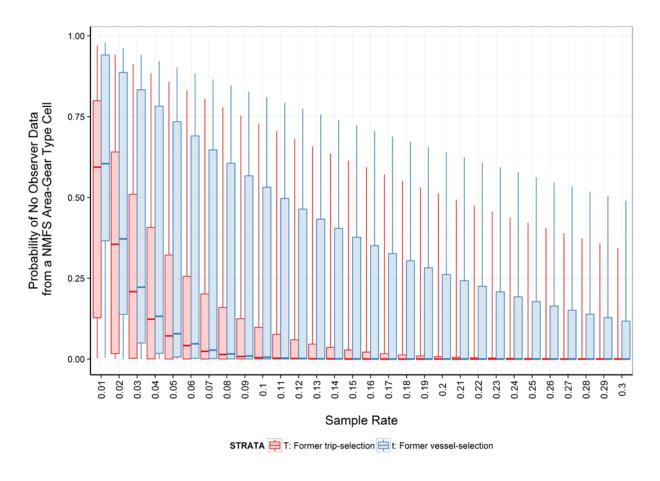


Figure B-2: Boxplot distribution of the probability of failing to obtain any observed trips within an estimation cell defined as NMFS area and gear type for the entire duration of 2015 within the t (blue) and T (red) strata as a function of changing selection probabilities (sample rate; r). Boxplot distributions have been modified to reflect 90% of the outcomes within whiskers, whereas the lower and upper boxes depict the 25th and 75th percentiles and horizontal lines depict median (50th percentile) values. Selection rates are depicted only up to 0.3 (30%) to improve readability.

# Appendix C. Accommodating removal of conditional release provisions: how the 2013 vessel-selection stratum changes as smaller vessels are removed

#### Introduction

"Conditional release" is the term used to describe when a vessel has requested and is granted exceptions from the requirement to carry a NMFS-trained observer under Amendments 86 and 76 to the Fishery Management Plans of the Bering Sea and Aleutian Islands (BSAI) and the Gulf of Alaska respectively. NMFS conditional release policies have been the subject of considerable debate since the establishment of the vessel-selection stratum of the North Pacific Observer Program in 2013. This stratum for 2013 and 2014 is composed of pot or hook-and-line gear vessels sized between 40 and 57.5 feet in overall length. This stratum definition was largely derived from a model aimed at maximizing the differences in landing report catch weight by gear type and vessel-size (NPFMC *et al.*, 2010). Since requirements for fisheries observers prior to 2013 extended only to vessels > 60 feet in length, the vessel-selection stratum contains the majority of vessels that are new to observation in the North Pacific.

The Council recommended that NMFS grant conditional releases in 2013 and 2014 due to logistical, economic, and safety concerns on these vessels new to observers. Releases have been granted because there is not enough bunk space on the vessel to accommodate crew and an observer, if the housing of an observer results in displacement of a crew member or IFQ holder, or if taking an observer may require increased safety requirements such as a life raft of increased capacity.

Conditional releases were granted disproportionately among the two partial-coverage deployment strata in 2013. Releases from coverage were granted in less than 1% of logged trips within the trip-selection stratum whereas vessels selected for observer coverage in the vessel-selection stratum had half of their trips released from coverage (Tables 5 & 7, Faunce *et al.*, 2014). This pattern is expected to also be evident in 2014 since there was no change in the conditional release policies or deployment strata definitions from the prior year.

In the review of the 2013 observer program, NMFS and the Council's Scientific and Statistical Committee raised concerns about the impact of conditional releases on the quality and quantity of observer data. In the Annual Report NMFS made two relevant recommendations: 1) that vessels formerly in the vessel-selection stratum be moved into the trip-selection stratum and 2) that conditional releases are applied to all activities within a sampling unit (e.g., a two-month period for a selected vessel in 2013 and 2014) or are not granted at all (NMFS, 2014). In their June 5<sup>th</sup> 2014 Motion, the North Pacific Fishery Management Council requested an analysis that reads:

"The Council requests NMFS and AFSC analyze the 2013 vessel selection pool data, as well as likely changes in the burdens associated with carrying an observer on vessels in the trip selection pool, to determine whether a vessel length other than 40' better defines the new trip selection sample frame in the 2015 ADP, in order to remove provisions for conditional release. The Council requests this information in order to make recommendations to NMFS and AFSC as part of the draft 2015 ADP review. The Council is concerned with potential bias introduced in the partial coverage category through conditional releases."

The following work addresses this motion.

#### Methods and Results

Although not explicitly stated, the Council motion implies an evaluation of the potential effects of removing vessels below a certain size from the requirements of human observation under the assumption that vessels above a certain size would not be given conditional release provisions. It is important to note that the removed vessels would then belong to the zero-coverage category of the North Pacific Observer Program. In order for the new vessel length to "better determine the new trip-selection stratum", the Council is signaling their desire to evaluate the metric that defines the breaks among strata from catch to conditional release provisions.

Since vessels below a certain size would be moved into zero-coverage, data-quality concerns are addressed here based on the amount of data remaining in the former vessel-selection stratum as vessels below a certain size are moved into the zero selection stratum. There are two reasons for this: 1) total catch estimates would continue to be generated by applying discard rates from observed vessels in this stratum to landed catch from all vessels in this stratum and the zero selection stratum, and 2) the analyses in Appendix 1 demonstrate that changes to the population size in the former vessel selection stratum will not significantly alter the selection rate in the former trip-selection stratum since the latter stratum is much larger than the former. In addition, an analysis of prior conditional releases by vessel size is required. A clear pattern by vessel size would support an alternative definition of the former vessel-selection stratum based on the rationale described above.

Data developed by the staff of the Sustainable Fisheries Division of the Alaska Regional Office and the Fisheries Monitoring Division of the Alaska Fisheries Science Center for the 2013 Annual Report (NMFS, 2014) was used in this analysis. All analyses were performed using the R language for statistical computing (R Core Team, 2014).

<u>Changes to the vessel-selection stratum as vessels below a certain length are removed</u>

The number of unique vessels in the 2013 vessel-selection stratum and the number of trips they fished was the focus of this data summary. The number of trips and vessels within this stratum were tallied according to vessel length in one-foot increments. In order to gain further insight into the effects of NMFS Area and Gear, the above process was then repeated for trips using these additional factors.

Trips appear evenly distributed among different vessels between 40 and 57 feet in length. The number of trips remaining in the stratum steadily declined as vessels of increasing size were removed (Figure C-1). The decline in total remaining trips in this stratum is largely due to the Gulf of Alaska hook-and-line sector, with greater losses in NMFS areas 630 (Central) and 650 (Southeast Outside) as vessels of increasing length are removed from the stratum (Figure C-2).

Similar to the patterns exhibited in trips, the number of vessels in each length increment appears to also be evenly distributed. The number of vessels remaining in the former stratum steadily declined as vessels of increasing size were removed (Figure C-3).

Review of past conditional releases by vessel size

Data on the number of vessels in this stratum that were selected to carry observers and those that were granted conditional releases were summarized by vessel length (Figure C-4). As already mentioned, the number of conditional releases granted in this stratum during 2013 was quite large. Over the span of the entire year, the ratio of released vessels to selected vessels was 0.52:1, meaning that over half of the selected vessels were granted a conditional release. There was no obvious pattern in the data related to vessel size. For example, vessels in every one-foot length increment were selected for coverage at some point of 2013, and at least one vessel belonging to all size increments was granted a conditional release with the exceptions of the 49, 53, and 55 foot increments. In addition, a smaller proportion of selected vessels at the smallest length class of vessels (40-41 feet) obtained a conditional release than substantially larger vessels (e.g. 50-52).

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- Faunce, C., J. Cahalan, J. Gasper, T. A'mar, S. Lowe, F. Wallace, and R. Webster. 2014. Deployment performance review of the 2013 North Pacific Groundfish and Halibut Observer Program. U.S. Dep. Commer., NOAA Tech. Memo. NMFS-AFSC-281, 74 p. http://www.afsc.noaa.gov/Publications/AFSC-TM/NOAA-TM-AFSC-281.pdf
- NMFS (National Marine Fisheries Service). 2014. North Pacific Groundfish and Halibut Observer Program 2013 Annual Report. NOAA/NMFS, 709 W. 9<sup>th</sup> St, Juneau, AK. 106 p. plus appendices.
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- http://alaskafisheries.noaa.gov/analyses/observer/amd86\_amd76\_earirirfa0311.pdf R Core Team. 2014. R: A language and environment for statistical computing. R Foundation for Statistical Computing, Vienna. http://www.R-project.org/.

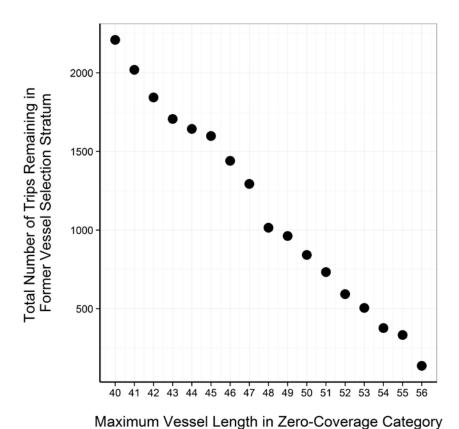


Figure C-1: The number of trips that remain in the former vessel-selection stratum when vessels of a given size or smaller are removed and placed into the zero-coverage category. For reference, 40 on the horizontal x-axis depicts the entire stratum, whereas there are no vessels remaining if all vessels less than 57' (denoted as 56' on x-axis) are removed.

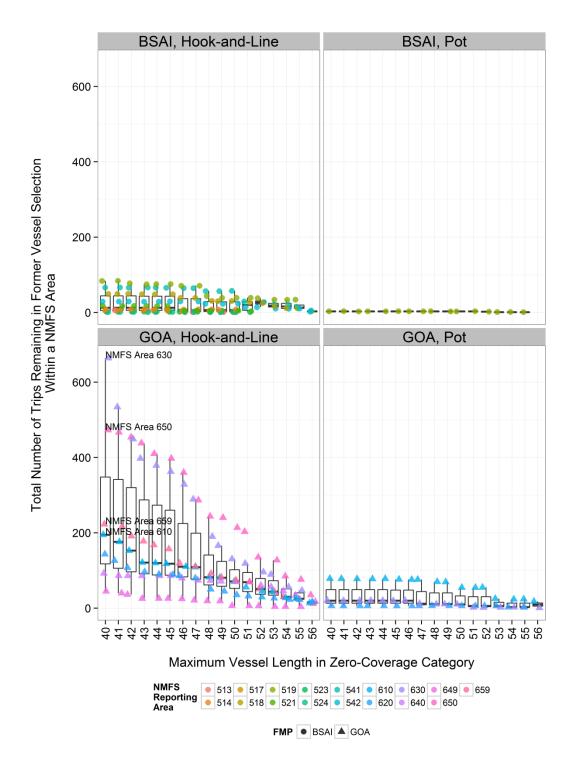


Figure C-2: Boxplot distribution of the decline in the number of trips that remain in the former vessel-selection stratum considering vessels of a given size or smaller are removed and placed into the zero-coverage category. Data are organized by gear-type and NMFS Reporting area. For reference, 40 on the horizontal x-axis depicts the entire stratum (i.e. the status quo in 2013 and 2014), whereas there are no vessels remaining if all vessels less than 57' (denoted as 56' on x-axis) are removed.

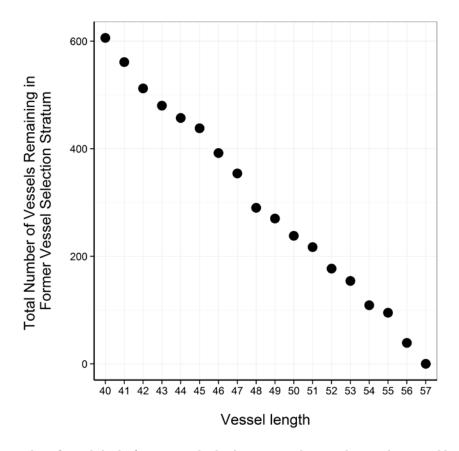


Figure C-3: The number of vessels in the former vessel-selection stratum that are above a given vessel length.

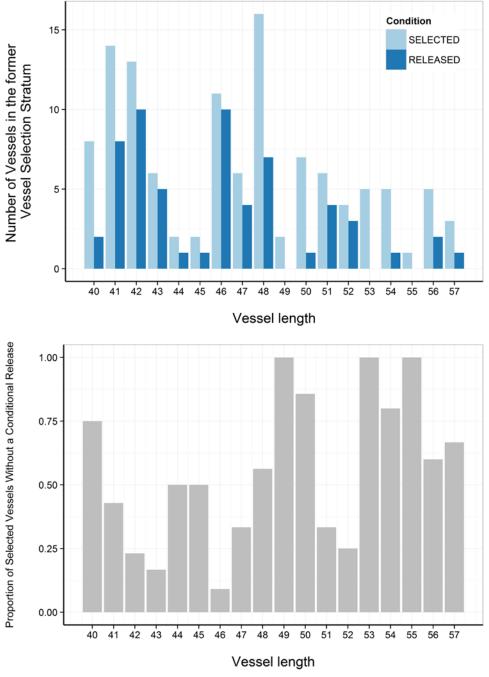


Figure C-4: Top panel: Number of vessels in the former vessel-selection stratum in one foot length categories that were selected for observer coverage and those that were given a conditional release. Bottom panel: The proportion of selected vessels in one foot length categories that were not given a conditional release.

# Appendix D. Example letter requesting volunteers for Electronic Monitoring (EM) cooperative research

In 2014, the Council established a EM Workgroup as a Council committee, to allow industry, agency, and EM service providers a forum to cooperatively and collaboratively design, test, and develop EM systems that are consistent with Council goals and objectives to integrate EM into the Observer Program<sup>1</sup>. Multiple research tracks are being undertaken under the EM cooperative research plan in order to collect information that will help inform future Council alternatives for EM to enable catch estimation. As part this research, NMFS sent out the following letter offering release from observer coverage for volunteer vessels, while they are participating in the study. Using the priorities listed in the letter, 10 vessels were selected by NMFS to participate in the EM cooperative research.

EXAMPLE LETTER
Dear < operator name >

The North Pacific Groundfish and Halibut Observer Program is seeking volunteers to participate in a cooperative research project using electronic monitoring (EM) technology to collect data on board commercial fishing vessels. The goal of the research is to determine whether EM technologies can be used to complement or improve existing data collection programs and whether this can be achieved in a cost-effective and sustainable manner. The Observer Program is looking for approximately 10 volunteer vessels to participate in the program.

Vessels participating in this cooperative research by volunteering for EM systems in 2014 will be removed from the Observer Program's vessel selection pool process for the duration of the vessel's participation in the cooperative research.

Priority will be given to vessels that meet the following criteria:

- Are currently in the vessel selection coverage category of the observer program;
- Were previously released from coverage in 2013 or 2014;
- Are 40-57.5 feet in length fishing IFQ quota.

Please note that while these are our priorities, we will consider any fixed gear vessel whose owner expresses an interesting in helping us on this EM development project.

EM systems will be installed in Homer, Kodiak, Petersburg, or Sitka, AK. Once the vessel's participation has ended, these systems will be removed at one of these ports. Vessels that are selected will have the option to carry an electronic logbook (e-log). E-logs are available to be deployed on any longline or pot vessels that are interested. NOAA enforcement allows use of the e-log for the International Pacific Halibut Commission (IPHC) regulation requirements. A paper printout from the e-log can be provided to the port sampler in-season or sent to the IPHC after the fishing season.

<sup>&</sup>lt;sup>1</sup> More information about the EM Workgroup is available on the Council's website: <a href="http://www.npfmc.org/observer-program/">http://www.npfmc.org/observer-program/</a>

It is also anticipated that a Request for Proposals (RFP) will be released later in the year for approximately 5-10 vessels to participate in a second phase of cooperative research in which vessels will be paid to carry both an EM system and an observer. We are offering financial compensation for this aspect of the cooperative research as it will likely require more effort on the part of the participating vessels. This phase of the research will be open to all vessels in partial coverage using fixed gear. We are in the planning phase of this RFP process and more details will follow.

If you would like to participate in this EM cooperative research in Alaska, please contact Elizabeth Chilton at 206 526-4197 or via e-mail at <a href="mailto:elizabeth.chilton@noaa.gov">elizabeth.chilton@noaa.gov</a> by May 30<sup>th</sup>, 2014. We look forward to working with you in this cooperative research endeavor as it will likely influence the future of fisheries monitoring in Alaska.

## Appendix E. Full Coverage Compliance Agreement Letter for the BSAI Pacific Cod Fleet

## EXAMPLE LETTER REQUESTING FULL COVERAGE IN BSAI PACIFIC COD FISHERY

(Include your return mailing address)

(Date your letter)

James W. Balsiger National Marine Fisheries Service P.O. Box 21668 Juneau, Alaska 99801

Dear Dr. Balsiger:

We are writing to request that the National Marine Fisheries Service assign the attached list of vessels with 100% observer coverage for 2015 any time these boats are fishing in the Bearing Sea Aleutian Islands (BSAI) in 2015. This will enable trawl catcher vessels in the BSAI Pacific cod fishery to take observer coverage in addition to that required for the partial observer coverage category.

We understand that we will be required to comply with all applicable regulations, including logging all fishing trips that are not AFA pollock prior to the start of a trip. Trips will be logged in the Observer Declare and Deploy System (ODDS).

Once the trips are logged, we understand that we will procure an observer through one of the five certified observer providers and pay for this observer coverage directly to the observer providers. In addition, we understand that the observer fee liability under §679.55 would continue to apply.

We agree to, and understand, the following:

- 1. individuals taken over and above existing observer coverage requirements are observers as defined at §679.2;
- 2. vessel owners and operators will comply with the prohibitions protecting observers that are at §679.7(g) and will meet the vessel responsibilities described at §679.51(e);
- 3. vessel owners and operators are subject to general requirements applicable to observers described at §600.746;
- 4. vessel owners or operators must log all fishing trips and follow applicable regulations when they are in the partial coverage category; and
- 5. landings will be subject to the observer fee under §679.55.

Sincerely,

Vessel Name:
Federal Fisheries Permit Number:
ADF&G Vessel Number:
Printed Name of the vessel owner:
Signature of the vessel owner:
Vessel Name:
Federal Fisheries Permit Number:
ADF&G Vessel Number:
Printed Name of the vessel owner:
Signature of the vessel owner:
Vessel Name:
Federal Fisheries Permit Number:
ADF&G Vessel Number:
Printed Name of the vessel owner:
Signature of the vessel owner:
Signature of the vessel owner:
Vessel Name:
Vessel Name:
Vessel Name: Federal Fisheries Permit Number: