Analysis to Integrate Electronic Monitoring into the North Pacific Groundfish and Halibut Observer Program

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1 Introduction

This document analyzes a proposed management change to establish electronic monitoring (EM) as a part of the North Pacific Fishery Management Council (Council)'s fishery research plan for the fixed gear groundfish and halibut fisheries of the Gulf of Alaska (GOA) and Bering Sea and Aleutian Islands (BSAI). The Council's fishery research plan is generally referred to as the North Pacific Observer Program, and its purpose is to collect data necessary for the conservation, management, and scientific understanding of the Council's groundfish and halibut fisheries. This document analyzes alternatives that would allow a system of cameras onboard vessels to monitor the harvest and discard of fish at sea, as a supplement to existing human observer coverage.

This analysis was developed with input from a Council committee, the fixed gear EM Workgroup (EMWG). In 2014, the Council appointed the EMWG to develop and refine an EM program for integration into the Council's Observer Program. The EM Workgroup provides a forum for all stakeholders, including the commercial fishing industry, agencies, and EM service providers, to cooperatively and collaboratively design, test, and develop EM systems, and to identify key decision points related to operationalizing and integrating EM systems into the Observer Program in a strategic manner.

This document is an Environmental Assessment/Regulatory Impact Review/Initial Regulatory Flexibility Analysis (EA/RIR/IRFA). An EA/RIR/IRFA provides assessments of the environmental impacts of an action and its reasonable alternatives (the EA), the economic benefits and costs of the action alternatives, as well as their distribution (the RIR), and the impacts of the action on directly regulated small entities (the IRFA). This EA/RIR/IRFA addresses the statutory requirements of the Magnuson Stevens Fishery Conservation and Management Act, the National Environmental Policy Act, Presidential Executive Order 12866, and the Regulatory Flexibility Act. An EA/RIR/IRFA is a standard document produced by the North Pacific Fishery Management Council (Council) and the National Marine Fisheries Service (NMFS) Alaska Region to provide the analytical background for decision-making.

1.1 Council purpose and need

The purpose of this analysis is to consider broadly the costs and benefits of a functioning fixed gear EM pool as part of the Council's fishery monitoring program.

In February 2016, the Council adopted the following statement of purpose and need:

> To carry out their responsibilities for conserving and managing groundfish resources, the Council and NMFS must have high quality, timely, and cost-effective data to support management and scientific information needs. In part, this information is collected through a comprehensive fishery monitoring program for the groundfish and halibut fisheries off Alaska, with the goals of verifying catch composition and quantity, including of those species discarded at sea, and collecting biological information on marine resources. While a large component of this monitoring program relies on the use of human observers, the Council and NMFS have been on the path of integrating technology into our fisheries monitoring systems for many years, with electronic reporting systems in place, and operational EM in a compliance capacity in some fisheries. More recently, research and development has focused on being able to use EM as a direct catch estimation tool in fixed gear fisheries.
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> The fixed gear fisheries are diverse in their fishing practices and vessel and operational characteristics, and they operate over a large and frequently remote geographical distribution. The Council recognizes the benefit of having access to an assorted set of monitoring tools in order to be able to balance the need for high-quality data with the costs of monitoring and the ability of fishery

participants, particularly those on small vessels, to accommodate human observers onboard. EM technology has the potential to allow discard estimation of fish, including halibut PSC and mortality of seabirds, onboard vessels that have difficulty carrying an observer or where deploying an observer is impracticable. EM technology may also reduce economic, operational and/or social costs associated with deploying human observers throughout coastal Alaska. Through the use of EM, it may be possible to affordably obtain at-sea data from a broader cross-section of the fixed gear groundfish and halibut fleet.

The integration of EM into the Council's fishery research plan is not intended to supplant the need for human observers. There is a continuing need for human observers as part of the monitoring suite, and there will continue to be human observer coverage at some level in the fixed gear fisheries, to provide data that cannot be collected via EM (e.g., biological samples).

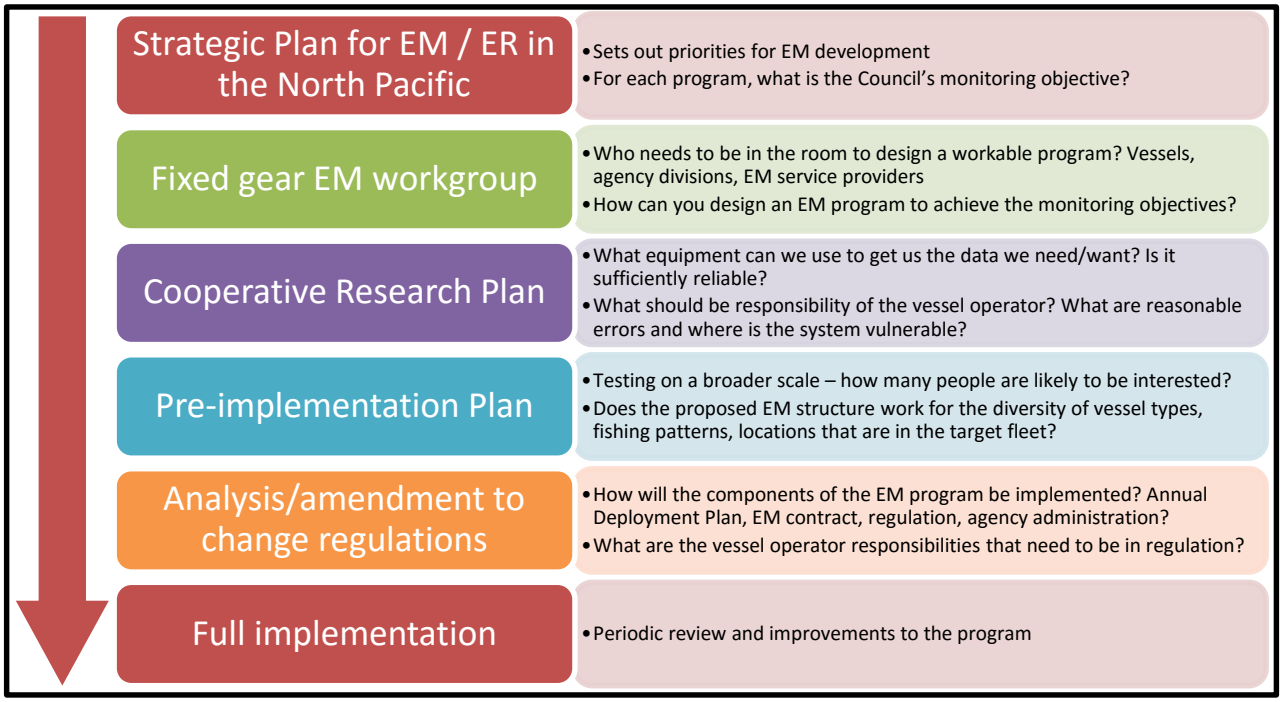
The Council and NMFS have considerable annual flexibility to provide observer coverage to respond to the scientific and management needs of the fisheries. By integrating EM as a tool in the fisheries monitoring suite, the Council seeks to preserve and increase this flexibility. Regulatory change is needed to specify vessel operator responsibilities for using EM technologies, after which the Council and NMFS will be able to deploy human observer and EM monitoring tools tailored to the needs of different fishery sectors through the Annual Deployment Plan.

1.2 History of action

The Council has been actively considering the use of electronic monitoring as part of the suite of fishery monitoring tools since the development of an analysis to restructure the Observer Program, on which the Council took final action in 2010, and which was implemented in 2013. Since that time, the Council, the agency, and industry members have all been active in the development of EM. Figure 1 shows the steps of the EM development process. The building block of EM development is the "Strategic Plan for EM / ER[1] in the North Pacific" (NMFS 2013), which was reviewed and adopted by the Council in June 2013. The document lays out a plan for integrating monitoring technology into data collection programs for the North Pacific. Through that document, the Council identified their initial priority for developing camera systems, targeting a monitoring option for vessels 40-57.5 feet in length, which have difficulty accommodating a human observer onboard. These vessels had only recently become subject to observer coverage under a restructuring of the Observer Program, and many of the vessels are small halibut boats, with limited crew and space onboard for an additional person. The Council committed to developing EM as a monitoring alternative for collecting data to be used in catch estimation for this fleet.

[1] Electronic reporting

Figure 1 Steps in the Council's EM development process



The Council created a Fixed Gear EM Workgroup in April 2014, as a forum for all stakeholders to work together on EM development. Stakeholders include representatives of the commercial fishing industry sectors, agencies (Council, managers, enforcement, the Observer Program), and EM service providers (equipment and service providers as well as video reviewers). The purpose of the Workgroup was to cooperatively and collaboratively design, test, and develop EM systems that are consistent with Council goals to integrate EM into the Observer Program. With the establishment of the Workgroup, the EM development dynamic went from unproductive relationships (especially from 2012 to early 2014) to a cooperative process. While there are still differences among the members, there is now a mechanism in place to address and resolve differences. The time commitment from members is fairly intensive, however; the group met 4-5 times per year in 2014 and 2015, and is scheduled for a similar commitment in 2016. A National Fish and Wildlife Foundation grant has provided some financial support for industry participation. The Workgroup will likely continue to meet actively through full implementation, at which time the group may transition to a different role with reviewing and improving the program.

The Cooperative Research Plan, effective in 2015, was the first effort to bring together various EM pilot testing work that had been done previously, and begin to test systems designed to assess the efficacy of EM for catch accounting of retained and discarded catch. The research plan also helped to identify key decision points related to operationalizing and integrating EM systems into the Observer Program for fixed gear vessels. This morphed into a Pre-implementation Plan for 40-57.5 foot longline vessels in 2016, which continued to include research elements for other gear types, different EM equipment, and other longline size classes. The Workgroup established a two-step process whereby new technology or program elements should be first field-tested for workability, and then more broadly operationally-tested in a pre-implementation environment. In this way, the Workgroup can evaluate whether a program element is conducive to deployment on the diversity of fixed gear vessels, by different operators employing individual fishing patterns. This process is also conducive to continued research and development, both of new technologies, and deploying EM gradually into different sectors of the fixed gear fleet.

The development of an EM analysis and regulatory amendment is linked to the research and pre-implementation plans, as these field efforts help to identify the appropriate questions for informing implementation decisions and Council alternatives for how EM can be used in a comprehensive monitoring plan. Even though the current EM development effort has focused on the Council's priority of small longline vessels that have difficulty in carrying a human observer, the analysis has broadened to address a regulatory change applying to all fixed gear vessels. The EM program design elements and sampling techniques are conceptually similar on all fixed gear vessels, although distinct from those of trawl vessels.

The analysis identifies how each element of the EM program will be implemented. While some aspects of EM require a regulatory change, other components are implemented through the Annual Deployment Plan, through a contract with an EM service provider, or through agency administration. The regulations need to identify operator responsibilities for fixed gear vessel operators using EM. On an annual basis, the Council has the flexibility, through the Annual Deployment Plan, to go through the two stage process (field-testing and operational-testing) to ensure that new sectors can be brought into the EM program. The Workgroup is developing a pre-implementation program for pot vessels for 2017, and is considering expanding the longline pre-implementation pool to any size longline vessel. The Workgroup is also interested in starting work on developing EM systems appropriate to the under 40 foot longline vessels, which are currently not required to carry observers. New technology can also be tested through pilot implementation programs within the EM pool through the Annual Deployment Plan, and use of specified systems will likely be implemented through the contact to the EM service provider.

The proposed timeline for the development of EM for small fixed gear vessels has been an aggressive one, requiring considerable workload by Council and agency staff and the Workgroup, and the Council has prioritized this work above other projects at many stages. Under the current best scenario timeline, regulations would be prepared in 2017, and the integrated program would be implemented for the 2018 fishing year. Table 1 lays out concurrent timeframes for EM fieldwork and pre-implementation since the beginning of this Council effort in 2014, through eventual implementation in 2018. The EM fieldwork and pre-implementation that occurs before EM is implemented into the monitoring program has to be financed with independent funding sources, currently a combination of Federal funding and a National Fish and Wildlife Foundation grants. Once EM is implemented, the partial coverage observer fee will be used for both human observer coverage and EM deployment. Table 2 provides a more detailed rendering of the milestones between Council final action, scheduled for December 2016 under the best case scenario, and implementation in 2018.

Table 1 Best case timelines for EM fieldwork, Council process, and Observer Annual Deployment Plans

Year	Fieldwork / Pre-implementation (Pre-Imp)	Council process, regulations	Observer Program/ Annual Deployment Plan (ADP)
2014	*Fieldwork*	*EMWG develops 2015 Cooperative Research Plan (CRP), discusses alternatives for analysis*	*Oct – 2015 ADP places 10 vessels that are participating in EM research into the no selection pool*
2015	*Feb – SSC reviews CRP* *Jan-Jul – operational longline, stereo camera, pot cod field research*	*Feb – SSC, Council review CRP* *Oct – propose a 2016 Pre-Implementation plan to Council*	*Oct – 2016 ADP proposes all EM Pre-Imp vessels in no selection pool*
2016	Jan-Dec – Pre-implementation on 53 longline vessels 40-57.5'. Jan-Apr – pot cod field work Jan-Jul – Stereo camera research on 3-5 longline and pot vessels	Oct – initial review for EM analysis to integrate EM into observer program. Dec – final action on EM analysis	Oct – 2017 ADP proposes all EM Pre-Imp vessels in no selection pool
2017	Jan-Dec – Second pre-implementation year for longline vessels >40', and proposed pre-implementation for pot vessels. Potential research on other technology.	Jan-Aug – Develop proposed and final regulations for integrating EM, hold MSA-required hearings in AK, WA, OR	June – Annual Report provides prelim analysis on allocating observer fee between observer and EM deployment Oct – 2018 ADP allocates funding to observers and EM deployment
2018	**Integrated observer/EM monitoring program**		

Table 2 Detailed implementation timeline and milestones, under a best case scenario

Month	Milestone	Comments
December 2016	**Council final action**	
March 2017	Publish **proposed rule**/notice of availability of **FMP Amendment**	
April/ June 2017	Public comment period and hearings	60-day comment period and hearings requirements are in MSA 313(c)
June 2017	**Annual Report** to Council presenting NMFS's recommended EM selection pool for upcoming year (2018).	The EM selection pool is the universe of vessels that can participate in EM based on, for example, vessel size, gear type, area fished, port.
June/ August 2017	Write/review **Final rule** Approve **FMP Amendment**	Assumes 1 month GC review, which is less than the average review time.
August/ September 2017	Write **ADP**; review by OAC, Plan Teams	
	Final rule publishes before September 1	30 day cooling off period required before it is effective. Effective October 1, at the latest
	Contract(s) awarded	(estimate)
October 2017	Council reviews draft **ADP**	ADP includes the EM selection pool, an EM selection rate, etc., based on analysis of costs, partial coverage budget, selection pool size, etc.
	NMFS announces EM opt-in period and the defined EM selection pool	
	Vessel opt-in period	Opt-in using ODDs.
December 2017	Final **ADP**, with EM selection pool, EM selection rate, etc.	
	Start Vessel Monitoring Plan and installation process	
January 2018	NMFS starts selecting vessels for EM coverage	

1.3 Description of Management Area

The proposed action affects fixed gear groundfish and halibut catcher vessels throughout the BSAI and GOA groundfish management areas, and throughout the Alaska halibut management areas.

- Insert maps

2 Alternatives

In February 2016, the Council adopted the following alternatives to be analyzed as part of the Council's EM Integration analysis. The Council may select different alternatives for different sections of the fixed gear fleet (e.g., for longline vs pot gear, or by vessel size class), or may choose multiple alternatives for regulatory implementation, but specify annually in the ADP which vessels will be using which EM program.

Alternative 1: Status quo - EM is not a tool in the Council's Research Plan

Alternative 2: Allow use of EM for catch estimation on vessels in the EM selection pool

Option: Require full retention of key species with associated dockside monitoring

Alternative 3: Allow use of EM for compliance monitoring of vessel operator logbooks used for catch estimation

2.1 Alternative 1 – Status quo

Under the status quo, at-sea fisheries monitoring in the partial coverage category is accomplished with a human observer pool, with a flexible deployment plan that allows the Council and NMFS to make annual policy choices on which vessels qualify for different selection pools, and the selection rates assigned to each pool.

2.2 Alternative 2 – Allow EM for catch estimation on vessels in the EM selection pool

Alternative 2 would change the regulations to allow EM to be used in addition to human observers for the purpose of monitoring fishing activity in the partial coverage category of the Observer Program. When the use of EM is authorized for eligible participants through the Annual Deployment Plan's EM selection pool, EM video will be reviewed for catch estimation purposes. Vessel operators would be required to comply with a predetermined set of operator responsibilities.

2.3 Alternative 3 – Allow EM for compliance monitoring of operator logbooks used for catch estimation

Under Alternative 3, the regulations will be changed such that participants in the partial coverage EM selection pool would be required to complete operator logbooks for key species, which would be used as the basis for catch estimation. To verify the accuracy of the logbooks, a review of the footage from EM cameras would be used to audit the operator logbooks.

2.4 Comparison of Alternatives

- Summarize the main features of the alternatives, with decision table as appropriate (focusing on tradeoffs with data quality and costs?)

2.5 Alternatives considered but not carried forward

The EM Workgroup recommended that the Council consider a trailing amendment to this analysis, to evaluate the feasibility and potential cost savings associated with EM cooperatives, where a particular group of vessels would contract specifically with an EM provider to meet their monitoring needs over the course of a year. It was represented that this concept shows promise for meeting the goals of the program with respect to providing cost savings, while maintaining a high level of data quality. The complexity of the Federal contracting system, however, is such that fully specifying and analyzing this alternative as part of the initial Council EM Integration analysis would have delayed initial review on that package, and consequently would have delayed the possibility of 2018 implementation. As a result, the Workgroup and the Council recommended that this concept be evaluated as a trailing amendment.