

INFORMATION FOR PUBLIC SCOPING  
OF ELECTRONIC MONITORING  
IN THE  
PACIFIC COAST LIMITED ENTRY TRAWL  
GROUNDFISH FISHERY

September, 2013

## Table of Contents

ACRONYMS .....	3
1. Introduction .....	4
1.1 Scoping Process for EM .....	5
1.1.1 Overview .....	5
1.1.2 Timeline for Considering EM .....	5
1.2 Background.....	5
1.2.1 Context for Electronic Monitoring Deliberations .....	5
1.2.2 Why 100% Monitoring?.....	6
1.2.3 Why Monitor With Observers? .....	6
1.2.4 Why Monitor With EM? .....	7
1.2.5 Trawl Catch Share Program Electronic Monitoring (EM) Workshop Report .....	7
1.3 Purpose and Need for the Proposed Action.....	8
1.3.1 Draft Purpose and Need Statement (modified version of EM Workshop Report) 8	
1.4 Goals and Objectives .....	9
1.4.1 Council Recommended EM Regulatory Objectives .....	9
1.4.2 MSA and FMP Policy Goals and Objectives .....	9
1.4.3 NMFS Policy Directive .....	9
1.4.4 MSA Management Standards .....	10
1.4.5 Pacific Groundfish FMP Goals and Objectives .....	12
2. Electric Monitoring Options for Consideration.....	14
2.1 Midwater Trawl for Catcher Vessels Delivering At-Sea.....	14
2.2 Midwater Trawl for Shoreside IFQ Deliveries.....	16
2.3 Bottom Trawl Large and Small Footrope, including Flatfish Trawl.....	16
Bottom Trawl Large and Small Footrope, including Flatfish Trawl.....	16
2.4 Vessels Participating in Trawl catch share Program Using Fixed Gear.....	17
3. Types of Regulations: Prescriptive, Performance Standards, and Management Standards .....	18
4. Appendix .....	20

## ACRONYMS

EM	Electronic Monitoring
GEM Committee	Groundfish Electronic Monitoring Committees
GEMPC	Groundfish Electronic Monitoring Policy Committee
GEM TAC	Groundfish Electronic Monitoring Technical Advisory Committee
IFQ	Individual Fishing Quota
NEPA	National Environmental Policy Act
MSA	Magnuson-Stevens Fishery Conservation and Management Act
QP	Quota Pounds
VMS	Vessel Monitoring System

# 1. INTRODUCTION

---

In 2011, NMFS implemented a Council developed catch share program for the West Coast limited entry groundfish trawl fishery. The program requires that each vessel acquire quota pounds (QP) to cover its catch (including discards) of nearly all groundfish species.<sup>1</sup> Proper functioning of the program requires some form of at-sea monitoring to ensure that discards are enumerated for each vessel. The catch share program specified that this monitoring function be achieved through 100% at-sea observer coverage. The cost of this observer coverage is a burden on industry that is currently being born largely through government subsidies. Those subsidies are phasing out and there are concerns about the impacts that bearing a greater portion of the observer costs will have on industry. Electronic monitoring (EM) is being explored as a potential technically and economically viable substitute for the use of human observers in the function of compliance monitoring for the catch share program.

At the November 2012 Council meeting, the Council directed that an EM workshop be held. The announced purpose of the workshop was to develop the policy context and identify necessary elements for a thorough Magnuson-Stevens Act (MSA) process to consider possible regulatory changes providing for the use of EM in the West Coast groundfish trawl catch share program. If electronic monitoring is implemented, the current 100 percent catch observer coverage requirement could be changed. The workshop was held February, 2013, and the workshop report is provided in Appendix B.

The Council decided at the April, 2013 Council meeting to move forward with consideration of the possible use of EM for the trawl catch share program (trawl rationalization). At that time, the Council decided that the primary focus of integrating EM into the trawl catch share program would be to achieve the compliance monitoring required for individual accountability of catch and bycatch, as opposed to using EM to meet needs for biological data or other scientific information monitoring. A set of regulatory objectives and calendar from the February EM workshop report were adopted. Also, at the April meeting a set of recommendations on the 2013 EM field study was approved for forwarding to Pacific States Marine Fisheries Commission. A similar field study was conducted in 2012. Both studies focus on comparison of video and observer data.

At the June 2013 Council meeting, the Council established two EM committees to focus on the development of options for EM use in the trawl catch share program and the development of this scoping document. In August 2013 both the Groundfish Electronic Monitoring (GEM) Policy Committee (GEMPC) and the GEM Advisory Technical Committee began the process of furthering the Council scoping process.

---

<sup>1</sup> Exceptions were made for some species rarely caught in the trawl groundfish fishery.

## 1.1 Scoping Process for EM

### 1.1.1 Overview

Scoping is an early and open public process conducted in compliance with the National Environmental Policy Act (NEPA). Through public meetings of the Council, workshops and established committees comments are sought during the scoping process. Generally, discussions of the purpose and need for a proposed action are discussed along with goals and objectives throughout the Council deliberative process. This scoping process is intended to address program design issues, develop alternatives that should be considered, and discuss impacts (both negative and positive) of the alternatives that should be covered in an environmental analysis and other Council policy documents.

### 1.1.2 Timeline for Considering EM

The following is the process adopted by the Council and updated by Council staff for its deliberations on EM.

**Table 1. EM calendar scoping and regulatory process calendar.**

<u>Dates</u>	<u>Process Considerations</u>
Summer 2013	<ul style="list-style-type: none"><li>• Execute at-sea and shoreside field studies</li></ul>
Sept 2013	<ul style="list-style-type: none"><li>• Scoping session on EM</li></ul>
Nov 2013	<ul style="list-style-type: none"><li>• Consider initial results of NMFS/PSFMC 2013 field season<sup>a/</sup></li><li>• Adopt alternatives for analysis.</li></ul>
June 2014	<ul style="list-style-type: none"><li>• Consider full analysis of alternative.</li><li>• Select preliminary preferred alternative.</li></ul>
Sept 2014	<ul style="list-style-type: none"><li>• Select final preferred alternative.</li></ul>
Sept 2014 through 2015	<ul style="list-style-type: none"><li>• Secretarial approval process and implementation, including<ul style="list-style-type: none"><li>○ regulation drafting and paperwork reduction act submissions,</li><li>○ securing contracts for video review,</li><li>○ commercial installation and testing, and</li><li>○ observer program adjustments.</li></ul></li></ul>

a/ Staff Note: based on the 2012 field season, significant results may not be available until the spring of 2014.

## 1.2 Background

### 1.2.1 Context for Electronic Monitoring Deliberations

Prior to the trawl rationalization program, the West Coast groundfish observer program monitored approximately 20 percent of the trips taken on groundfish trawl vessels. The trawl rationalization program relies on the monitoring of all trips. See pages E-16 and E-17 for the current language on electronic monitoring in Appendix E of the trawl rationalization program in the groundfish FMP. Modification of this language would occur through a regulatory amendment.

### 1.2.2 Why 100% Monitoring?

One hundred percent monitoring is required to provide for the individual accountability on which the program relies, to fully achieve the potential program benefits, and to prevent the complexity and challenging enforcement circumstances which would arise if some vessels were monitored and others were not. The trawl fishery is a multispecies fishery in which the allowable harvest levels for some stocks (potentially including overfished species) constrain total harvest. If a vessel were not monitored on a particular trip, the elimination of individual accountability would generate an incentive to alter fishing behavior and target stocks that are more difficult to catch without encountering high levels of constraining species. The trawl rationalization program has helped the fleet make tremendous gains in bycatch avoidance. During an unmonitored trip the incentive to avoid bycatch would be minimal. Alternative regulations would have to be developed for unmonitored trips, adding to regulatory complexity. Those regulations would have to assume high bycatch rates for constraining species in order to ensure that the trawl allocations not be exceeded. The assumption of such high bycatch rates would increase vessel operation costs (require the vessel to use more quota) and diminish quota potentially available for the remainder of the fleet. To provide more opportunity, different bycatch rates could be created for different harvest areas. However, this would increase regulatory complexity with a greater number of management lines and assumed bycatch rates, make the calculation of trip catch more complex and time consuming, and potentially burden enforcement with determination of whether any tows on the trip crossed into the high bycatch area. This example assumes that area of catch is the only parameter affecting high bycatch rates of constraining species. Other parameters such as the sonar signal on which fishermen set their gear and the configuration and manner in which the gear is fished may also affect bycatch rates. For example, halibut excluders might be disabled on unmonitored trips in order to increase CPUE. Finally, the Council is in the process of considering how to more fully achieve the potential benefits of the individual incentives provided by the trawl rationalization program by liberalizing a number of regulations governing trawl vessels (e.g. gear regulations). If some vessels were unmonitored, two sets of regulations might need to be maintained, one for monitored vessels the other for unmonitored vessels, further increasing regulatory complexity. For these reasons, 100 percent monitoring is required for effective function of the program.

### 1.2.3 Why Monitor With Observers?

Currently 100% monitoring is achieved through the use of observers on the vessels. The Council's final action on trawl rationalization included a provision allowing vessel observes to be supplemented with cameras (one of the most common forms of electronic monitoring), but not allowing the use of cameras to completely fulfill the monitoring function. At the time the Council took final action, the program had already been in development for over five years and consideration of camera monitoring may have further delayed implementation. The trawl rationalization program entailed a tremendous change to the fishery and, while the change was expected to be positive, there was concern about the potential for unexpected consequences. Even though cameras had been successfully used to monitor the whiting fleet on an experimental basis, the incentives provided by individual

accountability also create an incentive to avoid detection, which was not present during the development of the camera monitoring program for the whiting fishery. The West Coast Groundfish Observer Program was successfully monitoring about 20 percent of the trips and, thus providing a familiar tool. While the incentives to avoid detection could also lead to behaviors frustrating the observer's role, a human observer has more ability than a camera system to detect and respond to contingencies and collect information useful to modifying the monitoring program. Thus, the decision to not include cameras as an alternative to observes was made in the context of uncertainties about the performance of the overall program and cameras and potential delays in program implementation that may have resulted from a more careful considering of the camera options.

#### 1.2.4 Why Monitor With EM?

The circumstances, under which electronic monitoring was originally rejected, have changed. Fishery managers have now had two years of experience under the program, which has provided a better understanding of how the fishery performs and how fishermen operate under the program. This has reduced some of the uncertainty about potential unintended consequences. Now, increasing information is becoming available on the performance of electronic monitoring and there is time to more carefully consider the utility of electronic monitoring relative to human observers. There are a number of needs that an alternative to monitoring with observers may address. First, for vessels, the need to pay for vessel observers is one of the most expensive compliance costs associated with participation in the trawl rationalization program. For the first years of the program, NMFS has subsidized observer costs to help the fleet though the period of adjusting to the new management system. Overall fleet profits, and consequently the price of quota, will be below what they might otherwise be if less expensive monitoring is available. Second, small vessels may be disproportionately affected by observer costs. Vessels are billed for observers on a per day basis, and because smaller vessels may have a lower total revenue per day at sea observer costs reduce vessel net revenue disproportionately more than for larger vessels. On this basis, over time it might be expected that quota will migrate to larger vessels and there will be fewer smaller vessels in the fleet—assuming small vessels do not have other countervailing advantages. Third, because of the overhead involved with maintain observer availability in small, somewhat isolated ports with relatively low demand for observers, at least one observer company has indicated that it may pull out of at least one of the small ports on the West Coast. In addition some observer companies may not be willing to provide observers for safety reasons. Thus, over time, smaller ports may be disadvantaged by the observer requirement, relative to larger ports. Fourth, if overall monitoring costs can be reduced (those borne by both private parties and the public), national net economic benefits may be increased. And finally, the observer fee system puts pressure on vessels to fish in unsafe conditions. Because vessels are billed on per day both for at-sea and for standby time, vessels may incur higher costs for standing down due to marginal weather conditions.

#### 1.2.5 Trawl Catch Share Program Electronic Monitoring (EM) Workshop Report

The Pacific Fishery Management Council held a workshop on the potential use of electronic monitoring (EM) in the trawl fishery catch share program, February 25-27, 2013. The full

report is available at: [http://www.pcouncil.org/wp-content/uploads/D7b\\_EM\\_WKSHOP\\_RPT\\_APR2013BB.pdf](http://www.pcouncil.org/wp-content/uploads/D7b_EM_WKSHOP_RPT_APR2013BB.pdf))

During the EM workshop there was a discussion of the potential regulatory requirements for an EM system and the need for regulatory flexibility, both with respect to technologies employed and processes. The needed flexibility would allow private industry to develop efficient and effective monitoring system and to continue to innovate as new technologies become available over time. It was suggested that rather than being prescriptive, regulations should specify performance standards which must be met. This recommendation is in line with Executive Order 12899, which requires that each agency “identify and assess alternative forms of regulation and shall, to the extent feasible, specify performance objectives, rather than specifying the behavior or manner of compliance that regulated entities must adopt.”

### **1.3 Purpose and Need for the Proposed Action**

#### **1.3.1 Draft Purpose and Need Statement (modified version of EM Workshop Report)**

Since implementation of the Pacific coast trawl rationalization program, there is a continuous need to maintain the full functionality of the program, including individual accountability and adequate monitoring of the fisheries for compliance with existing regulations. The program currently utilizes 100 percent observer coverage, however; future costs to continue this level of coverage may not be economically feasible to fishery participants and managers, or provide operational flexibility for program participants. Therefore, there is a need to adequately monitor the program in an economical and flexible manner yet meet the goals and objectives of national policies and standards, the Pacific Groundfish FMP, and the catch share program.

NMFS and the Council identified that EM may be a viable option to monitor fisheries for compliance; therefore, the purpose of developing an EM program for the Pacific coast groundfish trawl fisheries is to meet the regulatory objectives identified by the Council at the June 2013 meeting (See section 1.4.1).

While considering policy adjustments to meet these needs, there is also a need to ensure continued collection of adequate scientific data on the fishery. The effect of any changes in observer coverage on the quantity and quality of other biological and habitat data will need to be considered during development of an EM program and appropriate adjustments made if EM is implemented.

## 1.4 Goals and Objectives

### 1.4.1 Council Recommended EM Regulatory Objectives

The regulatory objectives for this action pertain to catch share program compliance monitoring. As proposed by workshop participants from the EM Workshop Report and recommended by the Pacific Council at the June 2013 meeting, the regulatory objectives are to:

1. reduce total fleet monitoring costs to levels sustainable for the fleet and agency;
2. reduce observer costs for vessels that have a relatively lower total revenue;
3. maintain monitoring capabilities in small ports;
4. increase national net economic value generated by the fishery;
5. decrease incentives for fishing in unsafe conditions;
6. use the technology most suitable and cost effective for any particular function in the monitoring system; and
7. reduce the physical intrusiveness of the monitoring system by reducing observer presence;

while

8. maintaining current individual accountability for catch and preserving equitable distribution of monitoring coverage among members of the fleet,
9. supporting the collection of biological information necessary for managing the fishery, for stock assessments, and to meet other needs for scientific data, with no degradation relative to pre-trawl catch share program standards,<sup>1</sup>
10. taking into account agency budgets and abilities to support any new policy,
11. maintaining capabilities for ACL management (e.g. for non-quota species), and
12. following an implementation path most optimal for the fishery.

These regulatory objectives are for an action to develop an EM program for trawl catch share program compliance monitoring, not for the collection of scientific data. The first seven items in the above list are direct regulatory objectives, i.e. reasons for considering EM. Items eight through twelve in this list are considerations, i.e. the Council would not be undertaking this action in order to achieve items eight through twelve but rather in pursuing the first seven objectives will be bounded by items eight through twelve. These objectives do not displace the original objectives for the trawl catch share program (Amendment 20 objectives) or the groundfish FMP.

### 1.4.2 MSA and FMP Policy Goals and Objectives

This section contains the primary goals and objectives cited in the MSA and the groundfish FMP and related amendments.

### 1.4.3 NMFS Policy Directive

On May 3, 2013, NMFS released its Policy on Electronic Technologies and Fishery Dependent Data Collection to “ adoption of electronic technology solutions in fishery-dependent data collection programs” (NMFS, 2013). A complete copy of this policy has been posted on the EM page of the Council web site

(<http://www.pcouncil.org/groundfish/trawl-catch-share-program-em/>). The objective for this policy is stated as follows:

It is the policy of the National Oceanic & Atmospheric Administration’s (NOAA’s) National Marine Fisheries Service (NOAA Fisheries) to encourage the consideration of electronic technologies to complement and/or improve existing fishery-dependent data collection programs to achieve the most cost-effective and sustainable approach that ensures alignment of management goals, data needs, funding sources and regulations.

Appendix A contains the full policy directive and objectives.

#### 1.4.4 MSA Management Standards

**Table 2. National Standards from the Section 301 of the MSA.**

NS-1	Conservation and management measures shall prevent overfishing while achieving, on a continuing basis, the optimum yield from each fishery for the United States fishing industry.
NS-2	Conservation and management measures shall be based upon the best scientific information available.
NS-3	To the extent practicable, an individual stock of fish shall be managed as a unit throughout its range, and interrelated stocks of fish shall be managed as a unit or in close coordination.
NS-4	Conservation and management measures shall not discriminate between residents of different States. If it becomes necessary to allocate or assign fishing privileges among various United States fishermen, such allocation shall be (A) fair and equitable to all such fishermen; (B) reasonably calculated to promote conservation; and (C) carried out in such manner that no particular individual, corporation, or other entity acquires an excessive share of such privileges.
NS-5	Conservation and management measures shall, where practicable, consider efficiency in the utilization of fishery resources; except that no such measure shall have economic allocation as its sole purpose.
NS-6	Conservation and management measures shall take into account and allow for variations among, and contingencies in, fisheries, fishery resources, and catches.
NS-7	Conservation and management measures shall, where practicable, minimize costs and avoid unnecessary duplication.
NS-8	Conservation and management measures shall, consistent with the conservation requirements of this Act (including the prevention of overfishing and rebuilding of overfished stocks), take into account the importance of fishery resources to fishing communities by utilizing economic and social data that meet the requirements of paragraph (2), in order to (A) provide for the sustained participation of such communities, and (B) to the extent practicable, minimize adverse economic impacts on such communities.
NS-9	Conservation and management measures shall, to the extent practicable, (A) minimize bycatch and (B) to the extent bycatch cannot be avoided, minimize the mortality of such bycatch.
NS-10	Conservation and management measures shall, to the extent practicable, promote the safety of human life at sea.

1.4.4.1 Trawl Rationalization Goals and Objectives (Amendment 20)

**Table 3. Trawl Rationalization goals and objectives from Amendment 20.**

<p><u>Goal</u></p> <p><i>Create and implement a capacity rationalization plan that increases net economic benefits, creates individual economic stability, provides for full utilization of the trawl sector allocation, considers environmental impacts, and achieves individual accountability of catch and bycatch.</i></p>
<p><u>Objectives</u></p> <p>The above goal is supported by the following objectives:</p> <ol style="list-style-type: none"> <li>1. Provide a mechanism for total catch accounting.</li> <li>2. Provide for a viable, profitable, and efficient groundfish fishery.</li> <li>3. Promote practices that reduce bycatch and discard mortality and minimize ecological impacts.</li> <li>4. Increase operational flexibility.</li> <li>5. Minimize adverse effects from an IFQ program on fishing communities and other fisheries to the extent practical.</li> <li>6. Promote measurable economic and employment benefits through the seafood catching, processing, distribution elements, and support sectors of the industry.</li> <li>7. Provide quality product for the consumer.</li> <li>8. Increase safety in the fishery.</li> </ol>
<p><u>Constraints and Guiding Principles</u></p> <p>The above goals and objectives should be achieved while the following occurs:</p> <ol style="list-style-type: none"> <li>1. Take into account the biological structure of the stocks including, but not limited to, populations and genetics.</li> <li>2. Take into account the need to ensure that the total OYs and allowable biological catch (ABC) are not exceeded.</li> <li>3. Minimize negative impacts resulting from localized concentrations of fishing effort.</li> <li>4. Account for total groundfish mortality.</li> <li>5. Avoid provisions where the primary intent is a change in marketing power balance between harvesting and processing sectors.</li> <li>6. Avoid excessive quota concentration.</li> <li>7. Provide efficient and effective monitoring and enforcement.</li> <li>8. Design a responsive mechanism for program review, evaluation, and modification.</li> <li>9. Take into account the management and administrative costs of implementing and oversee the IFQ or co-op program and complementary catch monitoring programs, as well as the limited state and Federal resources available.</li> </ol>

## 1.4.5 Pacific Groundfish FMP Goals and Objectives

### 1.4.5.1 General FMP

**Table 4. Pacific Groundfish FMP Goals and Objectives**

<p><u>Goal 1 - Conservation.</u> Prevent overfishing and rebuild overfished stocks by managing for appropriate harvest levels and prevent, to the extent practicable, any net loss of the habitat of living marine resources.</p>
<p><u>Goal 2 - Economics.</u> Maximize the value of the groundfish resource as a whole.</p>
<p><u>Goal 3 - Utilization.</u> Within the constraints of overfished species rebuilding requirements, achieve the maximum biological yield of the overall groundfish fishery, promote year-round availability of quality seafood to the consumer, and promote recreational fishing opportunities.</p>
<p><b>Objectives.</b> To accomplish these management goals, a number of objectives will be considered and followed as closely as practicable:</p>
<p><b><u>Conservation</u></b></p>
<p><u>Objective 1.</u> Maintain an information flow on the status of the fishery and the fishery resource which allows for informed management decisions as the fishery occurs.</p>
<p><u>Objective 2.</u> Adopt harvest specifications and management measures consistent with resource stewardship responsibilities for each groundfish species or species group. Achieve a level of harvest capacity in the fishery that is appropriate for a sustainable harvest and low discard rates, and which results in a fishery that is diverse, stable, and profitable. This reduced capacity should lead to more effective management for many other fishery problems.</p>
<p><u>Objective 3.</u> For species or species groups that are overfished, develop a plan to rebuild the stock as soon as possible, taking into account the status and biology of the stock, the needs of fishing communities, recommendations by international organizations in which the United States participates, and the interaction of the overfished stock within the marine ecosystem.</p>
<p><u>Objective 4.</u> Where conservation problems have been identified for non-groundfish species and the best scientific information shows that the groundfish fishery has a direct impact on the ability of that species to maintain its long-term reproductive health, the Council may consider establishing management measures to control the impacts of groundfish fishing on those species. Management measures may be imposed on the groundfish fishery to reduce fishing mortality of a non-groundfish species for documented conservation reasons. The action will be designed to minimize disruption of the groundfish fishery, in so far as consistent with the goal to minimize the bycatch of non-groundfish species, and will not preclude achievement of a quota, harvest guideline, or allocation of groundfish, if any, unless such action is required by other applicable law.</p>
<p><u>Objective 5.</u> Describe and identify EFH, adverse impacts on EFH, and other actions to conserve and enhance EFH, and adopt management measures that minimize, to the extent practicable, adverse impacts from fishing on EFH.</p>
<p><b><u>Economics</u></b></p>
<p><u>Objective 6.</u> Within the constraints of the conservation goals and objectives of the FMP, attempt to achieve the greatest possible net economic benefit to the nation from the managed fisheries.</p>
<p><u>Objective 7.</u> Identify those sectors of the groundfish fishery for which it is beneficial to promote year-round marketing opportunities and establish management policies that extend those sectors fishing and marketing opportunities as long as practicable during the fishing year.</p>
<p><u>Objective 8.</u> Gear restrictions to minimize the necessity for other management measures will be used whenever practicable. Encourage development of practicable gear restrictions intended to reduce regulatory and/or economic discards through gear research regulated by EFP.</p>

**Utilization**

Objective 9. Develop management measures and policies that foster and encourage full utilization (harvesting and processing), in accordance with conservation goals, of the Pacific Coast groundfish resources by domestic fisheries.

Objective 10. Recognize the multispecies nature of the fishery and establish a concept of managing by species and gear or by groups of interrelated species.

Objective 11. Develop management programs that reduce regulations-induced discard and/or which reduce economic incentives to discard fish. Develop management measures that minimize bycatch to the extent practicable and, to the extent that bycatch cannot be avoided, minimize the mortality of such bycatch. Promote and support monitoring programs to improve estimates of total fishing-related mortality and bycatch, as well as those to improve other information necessary to determine the extent to which it is practicable to reduce bycatch and bycatch mortality.

**Social Factors.**

Objective 12. When conservation actions are necessary to protect a stock or stock assemblage, attempt to develop management measures that will affect users equitably.

Objective 13. Minimize gear conflicts among resource users.

Objective 14. When considering alternative management measures to resolve an issue, choose the measure that best accomplishes the change with the least disruption of current domestic fishing practices, marketing procedures, and the environment.

Objective 15. Avoid unnecessary adverse impacts on small entities.

Objective 16. Consider the importance of groundfish resources to fishing communities, provide for the sustained participation of fishing communities, and minimize adverse economic impacts on fishing communities to the extent practicable.

Objective 17. Promote the safety of human life at sea.

## 2. ELECTRIC MONITORING OPTIONS FOR CONSIDERATION

---

This section provides a summary of current considerations for EM developed by participants of the EM Workshop, February 2013:

- 2.1 Midwater Trawl for Catcher Vessels Delivering At-Sea
- 2.2 Midwater Trawl for Shoreside IFQ Deliveries
- 2.3 Vessels Participating in Trawl Rationalization Program Using Fixed Gear
- 2.4 Bottom Trawl Large and Small Footrope, including Flatfish Trawl

Some options are similar for each sector and noted where applicable.

### 2.1 Midwater Trawl for Catcher Vessels Delivering At-Sea

#### Midwater Trawl for Catcher Vessels Delivering At-Sea

##### Maximum Retention / Full Accountability Fishery:

- Non selective discards only (“Non selective” discards are discards made without selecting for species – for example, as a result of bleeding a net.)
- Regardless of why or how the discard happened, the vessel will be held accountable for the discard and deductions will be debited from IFQ vessel accounts.

##### Electronic Monitoring Plans (EMP):

- Each camera system application will have elements unique to the vessel (similar to the catch monitor plan for first receiver site licenses)

##### System Components:

- Tamper Proof or Tamper Evident System, Secure/Watertight Data Storage, Digital Cameras, Encrypted Data, Sensors, Deck/Stern Lighting, Bridge Monitor, GPS, VMS, Geo Fencing, E-logbook, Maximum Retention, Video Analysis by Sustainable Fisheries Division (SFD) and Pacific States Marine Fisheries Commission (PSMFC).

##### System Configuration:

- Consistent with previous standards, i.e. EFP and PSMFC pilot.
- E logbook compatibility

##### Data Analysis:

- Responsibility of SFD/PSMFC
- Models to consider
  - (1) A system similar to the one used by Archipelago for the shoreside whiting fishery EFPs. This approach involved an analysis team reviewing all data

## Midwater Trawl for Catcher Vessels Delivering At-Sea

or subsamples from all vessels from the time of first set to the vessel's return to port and is labor intensive. See [Attachment 4](#) to Electronic Monitoring Workshop Report.<sup>2</sup>

(2) Others options?

### Regulation Considerations:

- Time and Area Restrictions.
  - Option 1: Prohibit night fishing. Currently there is a limited prohibition on night fishing: “Vessels fishing in the Pacific whiting primary seasons for the Shorebased IFQ Program, MS Coop Program or C/P Coop Program shall not target Pacific whiting with midwater trawl gear in the fishery management area south of 42°00' N. lat. between 0001 hours to one-half hour after official sunrise (local time).”(660.131(f))
  - Option 2: Allow night fishing, with adequate artificial lighting (NOTE: Viability of artificial lighting needs to be demonstrated. Some comment indicates that artificial light conditions may be superior to daylight for video monitoring).
- Use EM as implemented for Amendment 10 as template (see [Attachment 4](#) and [Attachment 5](#) to this report).
- Update equipment specs to reflect upgrades in the technology.
- Use specs approval process to update technology specifications in the future.
- Will need regulations or other administrative process to determine methodology for estimating discards, large and small, for deducting vessel accounts.
- Others?

### E-logbook:

- Verification of randomly selected video against log book entries allows for audit procedure that reduces the need to review 100% of the video data
- Log Book is a self reporting component that along with camera establishes trust and verification of the data. State long books will need to be modified for reporting discards and expanded specifications.
- E-logbook needs to be compatible with camera, i.e. timestamp and GPS
- E-logbook will use state log book as template and convert format from paper to electronic, i.e. same approach used in e fish tickets
- Federal and state regulations will need to be addressed making groundfish log books a Federal Requirement.
- E-logbooks have a significant “value added” component to their development and implementation.

---

<sup>2</sup> Software analysis model being developed and tested by Alaska Science Center to narrow video review to times when events occurring on the deck with potential species identification through software capable video imagery analysis. Because it is expected that this would require a minimum of 4 years to perfect, EM Workshop participants recommended that it not be included in options for consideration.

## **Midwater Trawl for Catcher Vessels Delivering At-Sea**

### **Biological Sampling**

- Presume the pre-IFQ NW Science Center sampling program will continue.
- Observers deployed on a percentage basis, with data extrapolated across the fleet.

Note: Compliance with monitoring requirements would apply only while a vessel is participating in the trawl catch share program.

## **2.2 Midwater Trawl for Shoreside IFQ Deliveries**

[Covers both whiting targeting and other targeting with midwater gear (e.g. pelagic rockfish)]

Same as for “Midwater Trawl for Catcher Vessels Delivering At-Sea” except

[no differences at this time]

## **2.3 Bottom Trawl Large and Small Footrope, including Flatfish Trawl**

### **Bottom Trawl Large and Small Footrope, including Flatfish Trawl**

Same as for “Midwater Trawl for Catcher Vessels Delivering At-Sea” except

- Maximum Retention / Full Accountability Fishery
  - Add a suboption to allow discard of small sized sablefish and lingcod.
- Data Analysis – additional comments
  - Cameras, to date have not proven adequate for species identification let alone length and weight calculations.
  - For trawl, passing under a camera using some type of measurement scale has proven feasible in some controlled experimental environments.
  - Could prove to be extremely labor intensive which increases the cost significantly.
  - Software analysis may provide mechanism for species identification and catch accounting, but years away from implementation

### **Bottom Trawl Large and Small Footrope, including Flatfish Trawl**

- Halibut viability measures may be needed:
  - Option 1. All halibut considered dead under the camera option.
  - Option 2. Long-term potential for developing a different type of halibut viability model (additional research required)
  - Option 3. Use the historical observer information to estimate a likely average halibut mortality rate by gear type and fishery and to update those estimates over time based on observer data from more recent observations.
  - Others options?
- **Going Forward:**
  - We need PSMFC cameras on bottom trawl vessels this summer! With no history on camera deployment on bottom trawl we are operating at a severe disadvantage.
  - One potential would be a species identification camera/software system deployed in the net itself (a potential application of the research being done by Alaska Science Center, but we are years away).

## **2.4 Vessels Participating in Trawl catch share Program Using Fixed Gear**

Same as for “Midwater Trawl for Catcher Vessels Delivering At-Sea” except

- May only need full retention on
  - Option 1: IFQ species,
  - Option 2: rockfish and sablefish – assuming that cameras can provide some basic species differentiation for other species.
  - SubOption (to combine with either Option 1 or 2): allow discard of small sized sablefish and lingcod.
- There are no fixed gear state logbooks from which to develop an E-logbook.
- Halibut viability measures may be needed:
  - Option 1. All halibut considered dead under the camera option.
  - Option 2. Long-term potential for developing a different type of halibut viability model (additional research required)
  - Option 3. Use the historical observer information to estimate a likely average halibut mortality rate by gear type and fishery and to update those estimates over time based on observer data from more recent observations.
  - Others options?

### **3. TYPES OF REGULATIONS: PRESCRIPTIVE, PERFORMANCE STANDARDS, AND MANAGEMENT STANDARDS**

---

Participants at the February 2013 Electronic Monitoring Workshop and Council members at the April 2013 Council meeting expressed interest in the consideration of performance standards. Performance standards are measures by which one determines the adequacy of a particular action. Rather than dictating the specific action to be taken to achieve a particular end, a performance standard is established and an activity is then evaluated against whether or not it meets that standard. Regulations that dictate how an end is to be achieved are generally termed “prescriptive.” Generally, regulations are not either solely prescriptive nor solely performance based but rather are on a continuum between.

Performance standards can be applied at different levels. A performance standard applied at the policy level could be used to evaluate whether or not a particular program is meeting its public policy objectives. The national standards are a type of policy performance standard which are operationalized through the development of criteria such as annual catch limits (ACLs) against which adequacy of fishery management measures can be measured. A performance standard applied at the regulatory level provides flexibility to the regulated entity to determine how it will meet the regulatory objective. For example, a bimonthly trip limit is a performance standard that provide flexibility to fishermen to determine how and when they will take their catch. Catch share programs are performance standard based programs that provide even broader flexibility. In the development of electronic monitoring regulations, performance based criteria might be used to provide fishermen with flexibility to develop and adopt new technologies. One of the most important features of a performance standards is clear criteria for evaluation and ability for timely evaluation of whether a particular entity is meeting the criteria.

In general, the flexibility provided by performance standards provide industry greater opportunity to minimize costs but does not provide an incentive for developing and adopting technologies or practices that exceed those standards. For example, a performance standard pertaining to video coverage and clarity would allow fishermen to take advantage of lower cost equipment that meets the standards, as the equipment becomes available. However, if fishermen are not responsible for the costs of video review there might not be a direct incentive for fishermen to develop vessel based and adopt practices or technologies that speed the video review that occurs later on shore.

Another type of regulation is the management standard. Management standards can be effective depending on the types of challenges they are intended to overcome and the level of management standard. At the lowest level, the standard is only intended to ensure that information deficits are overcome and an entity is only required to go through a planning process, without regard to adequacy of the plan developed and whether or not it is

implemented. At the higher end, an entity is required to go through a planning process, develop a plan that meets certain criteria, and submit to audits or other monitoring to ensure that the plan has been implemented. The electronic monitoring plans (EMP) proposed in the strawmen electronic monitoring considerations would be a high level type of management standard regulation.

## 4. APPENDIX

---

### Appendix A *NATIONAL MARINE FISHERIES SERVICE POLICY DIRECTIVE 30-133, MAY 3, 2013*

Department of Commerce \* National Oceanic & Atmospheric Administration \* National Marine Fisheries Service

<i>NATIONAL MARINE FISHERIES SERVICE POLICY DIRECTIVE 30-133 MAY 3, 2013</i>	
<i>Administration and Operations</i>	
<i>POLICY ON ELECTRONIC TECHNOLOGIES AND FISHERY-DEPENDENT DATA COLLECTION</i>	
<b>NOTICE:</b> This publication is available at: <a href="http://www.nmfs.noaa.gov/directives/">http://www.nmfs.noaa.gov/directives/</a> .	
<b>OPR:</b> F/OP <b>Type of Issuance:</b> Initial	<b>Certified by:</b> F/OP (M. Holliday)
<b><i>SUMMARY OF REVISIONS:</i></b>	

#### Introduction.

This policy provides guidance on the adoption of electronic technology solutions in fishery-dependent data collection programs. Electronic technologies include the use of vessel monitoring systems (VMS), electronic logbooks, video cameras for electronic monitoring (EM), and other technologies that provide EM and electronic reporting (ER). The policy also includes guidance on the funding for electronic technology use in fishery-dependent data collection programs.

Constraining budgets and increasing demands for data are driving the need to evaluate and improve existing fishery-dependent data collection programs, in particular with respect to cost-effectiveness, economies of scale and sharing of electronic technology solutions across regions. The demands for more precise, timelier, and more comprehensive fishery-dependent data continue to rise every year.

The implementation of fisheries management regulations that require near real-time monitoring of catch by species at the vessel level have challenged the methodological and budgetary limits of data collection methods such as self-reporting, on-board observers, and dockside monitoring. A policy and process to consider the adoption of electronic

technology options can help ensure the agency's fishery-dependent data collection programs are cost-effective and sustainable.

Objective.

It is the policy of the National Oceanic & Atmospheric Administration's (NOAA's) National Marine Fisheries Service (NOAA Fisheries) to encourage the consideration of electronic technologies to complement and/or improve existing fishery-dependent data collection programs to achieve the most cost-effective and sustainable approach that ensures alignment of management goals, data needs, funding sources and regulations. To achieve this:

1. NOAA Fisheries encourages the consideration of all electronic technology options to meet science, management, and compliance data needs.
2. Fishery-dependent data collection programs will be designed and periodically reviewed by NOAA Fisheries regions to ensure effective, efficient monitoring programs that meet industry and government needs, increase coordination between regions, and promote sharing of research, development and operational outcomes.
3. Fishery-dependent data collection programs may be comprised of a combination of methods and techniques including self-reporting, on-board observers, and dockside monitoring, as well as the use of electronic technologies including electronic reporting and video monitoring.
4. Where full retention regulations and associated dockside catch accounting measures are in place, NOAA Fisheries supports and encourages the evaluation/adoption of video cameras to meet monitoring and compliance needs in federally managed fisheries.
5. NOAA Fisheries encourages the use of electronic technologies that utilize open source code or standards that facilitate data integration and offer long-term cost savings rather than becoming dependent on proprietary software.
6. NOAA Fisheries, in consultation with the Councils and subject matter experts, will assemble guidance and best practices for use by Regional Offices, Councils and stakeholders when they consider electronic technology options. Implementation of electronic technologies in a fishery-dependent data collection program is subject to the Magnuson-Stevens Act and Council regulatory process, other relevant state and federal regulations, and the availability of funds.
7. No electronic technology-based fishery-dependent data collection program will be approved by NOAA if its provisions create an unfunded or unsustainable cost of implementation or operation contrary to applicable law or regulation. Funding of fishery-dependent data collection programs is expected to consider the entire range of funding authorities available under federal law, including those that allow collection of funds from industry.

8. Where cost-sharing of monitoring costs between the agency and industry is deemed appropriate and approved under applicable law and regulation, NOAA Fisheries will work with Councils and stakeholders to develop transition plans from present to future funding arrangements.

#### Authorities and Responsibilities.

This policy directive establishes the following authorities and responsibilities:

(1) The NOAA Fisheries Science Board and Regulatory Board are the Executive-level sponsors of the execution of this policy, including oversight of the development of guidance and best practices. Staff support to the Boards will be provided by the Offices of Policy, Sustainable Fisheries, and Science and Technology. Technical assistance will be provided by *ad hoc* working groups, NOAA Fisheries Headquarters (HQ), Region and Science Center subject matter experts, and other agency or contract resources as requested by the Science or Regulatory Board, subject to the availability of funds. Approval of guidance and best practices is subject to Leadership Council concurrence and Assistant Administrator approval.

(2) Regional Administrators and the Office of Sustainable Fisheries - Implementation of this policy will rely on Regional Offices (and the Office of Sustainable Fisheries with respect to Atlantic Highly Migratory Species) initiating consultations in FY 2013 with their respective Science Centers, Councils, States, Commissions, industry, and other stakeholders on the consideration and design, as appropriate, of fishery-dependent data collection programs that utilize electronic technologies for each Federal fishery.

#### Measuring Effectiveness.

(1) The consultations by the Regional Administrators and the Office of Sustainable Fisheries will be initiated in FY2013 with the goal of completing by the end of calendar year 2014 a schedule of where and how to adopt appropriate electronic technologies, if any, for all fishery management plans (FMPs).

The following metrics will be used to evaluate progress towards the implementation of this policy:

- The number of FMPs with defined fishery-dependent data collection monitoring goals.
- The number of FMPs reviewed to identify fisheries where the adoption of additional electronic technologies would be appropriate for achieving data needs.
- For fisheries where additional electronic technologies are identified as appropriate, the number of FMPs with electronic technologies incorporated into fishery-dependent data collection programs.

Status reviews of the metrics will take place twice a year by the Regulatory and Science Boards.

#### References.

Procedural directives will be issued to implement this policy as needed. This policy directive is supported by the glossary of terms listed in Attachment 1.

Signature and Date Line.

---

Sam D. Rauch III      Date  
Acting Assistant Administrator  
National Marine Fisheries Service

## **Attachment 1**

### **GLOSSARY Terms**

***Electronic Technology(ies)*** – Any electronic tool used to support catch monitoring efforts both on shore and at sea, including electronic reporting (e.g., e-logbooks, tablets, and other input devices) and electronic monitoring (Vessel Monitoring Systems, electronic cameras, and sensors on-board fishing vessels).

***Electronic Monitoring (EM)*** – The use of technologies – such as vessel monitoring systems or video cameras – to passively monitor fishing operations through observing or tracking. Video monitoring is often referred to as EM.

***Electronic Reporting (ER)*** – The use of technologies – such as smart phones, computers and tablets – to record, transmit, receive, and store fishery data.

***Fishery-dependent Data Collection Program*** - Data collected in association with commercial, recreational or subsistence/customary fish harvesting or subsequent processing activities or operations, as opposed to data collected via means independent of fishing operations, such as from research vessel survey cruises or remote sensing devices.

***Full Retention*** – A type of fishery where total catch is retained and brought to shore, without discards. This is a generic definition, used in the Policy Directive for illustrative purposes only. There are multiple stages in the fishing process where intentional and unintentional discards can occur. Such variations (e.g., maximum retention, operational discards, prohibited species catch, etc.) require specific definition in each fishery for regulatory compliance and/or enforcement purposes.

## **Appendix B**

***TRAWL CATCH SHARE PROGRAM  
ELECTRONIC MONITORING (EM) WORKSHOP REPORT  
Portland, Oregon  
February 25-27, 2013***

[http://www.pcouncil.org/wp-content/uploads/D7b\\_EM\\_WKSHOP\\_RPT\\_APR2013BB.pdf](http://www.pcouncil.org/wp-content/uploads/D7b_EM_WKSHOP_RPT_APR2013BB.pdf)