NOAA FISHERIES

West Coast Groundfish Electronic Monitoring Program

Vessel Monitoring Plan Guidelines

Updated December 2024

Section 1: Introduction

Section 1.1 West Coast Groundfish Electronic Monitoring Program

In 2011, NOAA Fisheries (NMFS) implemented a catch share program for the West Coast Groundfish Trawl Fishery. The Pacific Coast Groundfish Fishery's Trawl Catch Share Program, also called the Trawl Rationalization Program, consists of an Individual Fishing Quota (IFQ) Program for the shorebased trawl fleet and cooperative programs for the at-sea mothership and catcher/processor trawl fleets.

The catch share program divides the amount of catch allocated to the trawl fishery into shares controlled by individual fishermen or groups of fishermen (cooperatives). Under this program, fishermen have more flexibility for harvesting their catch than under the previous management structure.

The Trawl Rationalization Program requires 100 percent monitoring at-sea and dockside in order to ensure accountability for all landings and discards of allocated species. Catcher processors and motherships are required to carry two observers at all times, depending on the length of the vessel, and catcher vessels are required to carry one observer, including while in port until all fish are offloaded. In addition, first receivers, which are processors that are licensed to receive IFQ landings, are required to have catch monitors to monitor 100-percent of IFQ offloads. Vessel owners and first receivers are responsible for obtaining and funding catch share observers and catch monitors as a necessary condition of their participation in the program. Beginning in 2022, electronic monitoring (EM) may be used by catcher vessels as an alternative to meet the requirement for 100 percent monitoring at-sea.

Section 1.2 Electronic Monitoring Program Vessel Monitoring Plan Guidelines

As part of an application for an EM Authorization, a vessel owner must develop and submit an individual Vessel Monitoring Plan (VMP). A vessel owner's EM service provider may prepare and submit a VMP on behalf of the vessel owner. The VMP describes how fishing operations on the vessel will be conducted and how the EM system and associated equipment will be configured to effectively monitor fishing activities and document any discards. The VMP should be developed during and after EM system installation working with your service provider. NMFS will review the VMP to ensure that the equipment installed and the proposed operations of the vessel would effectively monitor vessel operations. This document provides additional information on what NMFS is looking for in a VMP and describes best practices and suggested language to satisfy the required components. Vessel owners may propose and NMFS may consider alternative, but equivalent, methods to meet the requirements of the EM program in the VMP. Templates are also available on NMFS's website for each fishery sector and gear type.

Contact the Permits Branch with questions and assistance in completing your VMP: (206)526-4353.

Section 2: Vessel Monitoring Plan Contents

The vessel monitoring plan should include the following sections (See 50 CFR 660.604(c)(3)(iii)):

A. Contact information – This section includes contact information for the vessel owner, vessel operator, and EM service provider for NMFS to use during the year.
B. General vessel information – This section lists the basic information about the vessel and operations, like the vessel name, registration number, and target fishery.
C. Vessel layout – This section describes the layout of the vessel, equipment, and activities to help NMFS and your EM service provider understand where discards will take place.
D. EM equipment set-up – This section documents the settings of the EM system, such as the time period that cameras will be recording.
E. Catch handling procedures – In this section, you should describe the way crew will handle catch, sort it, and discard it, to enable video reviewers to identify the species and estimate weight.
F. EM system malfunctions – This section should describe the way the vessel operator will handle different malfunctions of the EM system and associated equipment.

Some other information you may want to include in the VMP is a checklist of EM tasks for each day or trip that the captain can use as a reference; instructions and tips for completing the logbook; and instructions from the EM service provider for operating and troubleshooting the EM system.

Section A. Contact Information

1. Provide the name, address, phone number, and signature of the vessel owner, and the date of the application.
2. Provide the name, address, phone number, email address, and preferred method of contact, of a primary point of contact for vessel operations. *This should be the person, such as the vessel captain, that NMFS and the EM service provider would call to provide feedback on catch handling, logbook reporting, etc. and that can make changes accordingly*.

3. Provide the name, address, and phone number of your EM service provider(s), and contact information for a primary point of contact at the EM service provider(s) that NMFS and the vessel operator can contact for technical support and program operations.

Section B. General Vessel Information

1. Provide the vessel name and documentation number/state registration number.
2. Indicate what type of gear the vessel will be using and for what target fishery (i.e., pots, longline, bottom trawl, whiting midwater trawl, and/or non-whiting midwater trawl).
3. Indicate what sector(s) the vessel will be participating in (i.e., shorebased IFQ or mothership sector).
4. Provide the vessel's homeport.

Section C. Vessel Layout

1. Include a diagram of the vessel layout including deck measurements and locations of sorting, a measuring board, and discard control points.
2. Include the measurements of all bins, baskets, compartments, and other tools, that will be used to calculate estimates of weight. Provide photos of bins, baskets, and other measuring tools, to assist video reviewers in identifying them on camera.

Section D. EM Equipment Set-up

1. Describe the number and location of cameras and provide images of the locations and corresponding views.
2. Describe and provide images of the location of lighting, control center, global positioning system (GPS), sensor(s), monitor(s), external UPS, and other EM equipment.
    a. From 30 minutes before official sunset until 30 minutes after official dawn, the vessel should provide adequate lighting to the following vessel areas such that the manipulation of trawl nets and fish handling can be clearly recorded by the EM cameras: fish hold openings, deck spaces, the trawl ramp and stern, surface of the water behind the trawl ramp or stern where the gear is breaking the surface, and discard control points.
3. List the frame rates, image resolution, frequency of data logging, sensor trigger threshold values, and other EM system specifications.(F)
    a. Sensor data should be recorded by the system every 10 seconds for the duration of the fishing trip when powered on.
    b. Cameras must be recording the entire time that catch is being sorted or stored or transferred to the mothership, and while catch is onboard until the offload begins.
        i. For MS/CV vessels, cameras must be recording while the gear is being retrieved and until the codend is transferred to the mothership. The cameras may shut off after the codend has been transferred.
        ii. For all other gear types, cameras must be recording while the gear is being retrieved and until all catch is sorted and stored.

One camera that provides an overview of the deck and holds must remain on in between hauls and on the return to port until offload begins.

Below is an example of the type of language that should be included for D.3:

- "*The EM system records sensor every 10 seconds for the duration of the fishing trip when powered on.*
- *The EM system is configured to record video whenever there is fishing activity taking place. To achieve this, video recording is triggered whenever the hydraulic sensor detects pressure equal to or greater than 125 psi or the drum sensor registers 1 or more turns. The system continues to record video for 2 hours after fishing activity, as indicated by the sensor readings dropping below the specified thresholds. The deck view will record continuously after the first trigger until the EM system is powered down.*"

Section E. Catch Handling Procedures

1. Describe the location and procedures for any catch handling, including sorting and measuring of discards, the number of crew sorting catch.
    a. If catch handling or weight estimation will be done differently for different species, the VMP should describe the different procedures.

   NMFS has provided example language below for different gear types.
2. Describe what steps will be taken to ensure that all catch remains in camera view. Video reviewers need to see the fate of catch in order to properly count it. Fish that were not seen retained will assume to have been discarded.

All VMPs should include the following type of instructions:

"General Catch Handling

- ☑ *Any and all sorting must occur in clear view of the camera.*
- ☑ *Crewmembers must not block camera views while sorting.*
- ☑ *All discards must occur at a discard control point designated on the vessel diagram.*
- ☑ *All catch handling must be complete before the next haul is brought onboard.*
- ☑ *Vessel operator must provide adequate lighting for cameras.*
    - *Lighting must not shine directly at cameras and impede video reviewers' ability to view fishing activity."*

Whiting VMPs

Vessels targeting whiting should include the following additional types of instructions:

"Species-Specific Catch Handling - Trips Targeting Whiting:

- ☑ *Mutilated fish - Mutilated fish that are squashed, maimed, or fish with carcass torn up by other events can be discarded.*
    - *Discarded mutilated fish must be sorted to species into a tote of known size within camera view before discarding to assist video reviewers in estimating weight.*
    - *Discarded mutilated fish must be noted in logbook.*

- ☑ *Debris (trash, mud, rocks, and other inorganic debris), Large marine organisms (marine mammals, sea turtles, and non-ESA listed seabirds, and fish longer than 6-ft) may be discarded in camera view.*
- ☑ *Unavoidable discard that is the result of an event that is beyond the control of the vessel operator or crew, such as a safety issue or mechanical failure, is allowed.*
    - *Record weight by species, reason for the discard, and the location of tow in the logbook."*

Bottom Trawl and Non-whiting Midwater Trawl VMPs

Vessels using bottom trawl and/or non-whiting midwater trawl gear to target non-whiting species should include the following additional types of instructions:

"Species-Specific Catch Handling – Maximized Retention Bottom Trawl and Non-whiting Midwater Trawl Trips:

- ☑ *Mutilated fish - Mutilated fish that are squashed, maimed, or fish with carcass torn up by other events can be discarded.*
    - *Discarded mutilated fish must be sorted to species into a tote of known size within camera view before being discarded to assist video reviewers in estimating weight.*
    - *Discarded mutilated fish must be noted in logbook.*
- ☑ *Debris (trash, mud, rocks, and other inorganic debris), Large marine organisms (marine mammals, sea turtles, and non-ESA listed seabirds, and fish longer than 6-ft) may be discarded in camera view.*
- ☑ *Unavoidable discard that is the result of an event that is beyond the control of the vessel operator or crew, such as a safety issue or mechanical failure, is allowed.*
    - *Record weight by species, reason for the discard, and the location of tow in the logbook."*

"Species-Specific Catch Handling – Optimized Retention Bottom Trawl and Non-whiting Midwater Trawl Trips:

- ☑ *Allowable discards must be sorted to species before being placed in designated discard tote, and discarded in camera view at the location designated in diagram only.*
    - *Allowable non-IFQ fish and invertebrates/trash must be sorted in separate totes (fish tote and invertebrate/trash tote) in camera view*
- ☑ *Halibut - All halibut must be placed in view of the camera and on or near a measuring tool for measurement prior to discarding.*
- ☑ *Mutilated fish - Mutilated fish that are squashed, maimed, or fish with carcass torn up by other events, not predation, can be discarded.*
    - *Discarded mutilated fish must be sorted to species into a tote of known size within camera view before being discarded to assist video reviewers in estimating weight.*
    - *Discarded mutilated fish must be noted in logbook.*
- ☑ *Debris (trash, mud, rocks, and other inorganic debris), Large marine organisms (marine mammals, sea turtles, and seabirds, and fish longer than 6-ft) may be discarded in camera view.*

- ☑ *Unavoidable discard that is the result of an event that is beyond the control of the vessel operator or crew, such as a safety issue or mechanical failure, is allowed.*
    - *Record weight by species, reason for the discard, and the location of tow in the logbook.*
- ☑ *Prohibited and protected species*
    - *Vessels must discard the following species, in view of the camera:*
        i. *Pacific halibut (see discard requirements above)*
        ii. *Dungeness crab caught seaward of Washington or Oregon or South of Point Reyes, California*
        iii. *Green sturgeon*
        iv. *California halibut (except as allowed by state regulations)*
        v. *And nearshore groundfish species below state commercial minimum size limits*
        vi. *Non-ESA listed Seabirds*
        vii. *Sea turtles*
        viii. *Marine mammals*

ALL SALMON, EULACHON, AND SHORT-TAILED ALBATROSS MUST BE RETAINED except that on trips with scientific observers, eulachon may be discarded after observer sampling is complete

- ☑ *Heads and Guts from Processing at Sea: (For Sablefish J-Cut at sea)*
    - *Cut the fish in clear camera view*
    - *Tote the heads and guts in camera view*
    - *Discard tote contents at control point*
    - *Only heads and guts may be discarded*

- ☑ *Additional allowable discards (with proper catch handling, display, measuring, and logbook recording):*
    - *IFQ species on the IFQ Allowable Discard List*
    - *Non-IFQ species not on the Non-IFQ Prohibited Discard List*
    - *Allowable discards must be sorted to species before being placed in designated discard tote, and discarded at the location designated in diagram only.*
        - *Allowable non-IFQ fish and invertebrates/trash must be sorted in separate totes (fish tote and invertebrate/trash tote)"*

IFQ ALLOWABLE DISCARD LIST

Flatfish	***Roundfish***
Rex sole	*Pacific Whiting*
Arrowtooth Flounder	*Lingcod*
English Sole	*Sablefish*
Dover Sole (discarded deep sea sole may be counted as dover sole)	
Pacific Sanddab (other sanddabs discarded may be counted as Pacific Sanddab	

NON-IFQ PROHIBITED DISCARD LIST

Flatfish	***Rockfish***	***Roundfish***
Greenland Turbot	*Northern Rockfish*	*Walleye Pollock*
Slender Sole	*Black Rockfish*	*Slender Codling*
Hybrid Sole	*Blue Rockfish*	*Pacific Tom Cod*
C-O (C-O Turbot) Sole	*Shortbelly Rockfish*	*Salmon*
Bigmouth Sole	*Olive Rockfish*	*Eulachon*
Fantail Sole	*Puget Sound Rockfish*	
Spotted Turbot	*Semaphore Rockfish*	*Short-tailed albatross*

Fixed Gear VMPs

Vessels using fixed gear should include the following additional type of instructions:

"Prohibited Discards (must be retained)

- ☑ *All salmon and short-tailed albatross must be retained.*

Allowable Discards

- ☑ *Allowed to discard (with proper catch handling, display, measuring, and logbook recording):*
  - *All IFQ and non-IFQ fish, except salmon.*
- ☑ *All IFQ and non-IFQ species must be measured and displayed to camera before discarding.*
  - *Show all sides of fish, spread dorsal spines of thornyheads, and show any unique characteristics for accurate species ID.*
- ☑ *Pacific Halibut- All halibut must be placed in view of the camera and on or near a measuring tool for measurement prior to discarding.*
- ☑ *Mutilated and predated fish – Predated and mutilated fish, including sablefish, which are intended to be discarded must be placed in a tote together before discarding at the end of the haul. This will help when counting fish.*
  - *Place carcasses that have a head and tale on measuring area before discarding.*
- ☑ *Invertebrates, debris (trash, mud, rocks, and other inorganic debris), Prohibited and Protected Species, and non-IFQ fish must be discarded in camera view at a designated discard location (see vessel diagram).*
  - *Prohibited and Protected Species:*
    - *Dungeness crab caught seaward of Washington or Oregon or South of Point Reyes, California*
    - *Green Sturgeon*
    - *Eulachon*
    - *Seabirds*
    - *Sea turtles*
    - *Marine mammals*

*****ALL SALMON MUST BE RETAINED*****

☑ *Unavoidable discard that is the result of an event that is beyond the control of the vessel operator or crew, such as a safety issue or mechanical failure, is allowed.*

- *Record weight by species, reason for the discard, and the location of haul in the logbook.*

☑ *Heads and Guts from Processing at Sea: (For Sablefish J-Cut at sea)*

- *cut the fish in clear camera view*
- *tote the heads and guts in camera view*
- *discard tote contents at control point*
- *only heads and guts may be discarded"*

Section F. EM System Malfunctions

1. Describe the detailed steps that will be taken to minimize the potential for EM system malfunctions. Some examples:
    a. Completing a functionality test before each trip as required can identify malfunctions before starting the trip.
    b. Checking camera lenses between and during hauls to make sure they are clean and clear of water spots, dirt, etc., and cleaning them if not.
    c. Establishing redundant or back-up systems, such as a back-up power supply or two hydraulic sensors can ensure that small power interruptions or sensor malfunctions do not interrupt data collection.

    Your EM service provide may have some other suggested approaches.

2. Describe the steps that will be taken when malfunctions occur to ensure the adequate monitoring of catch. Work with your EM service provider and NMFS to determine what types of malfunctions are critical (require returning to port), what types of malfunctions are not critical, and how a critical malfunction can be fixed at sea. Regardless of the type of malfunction, the vessel operator must stop fishing and attempt to fix the issue before proceeding (if gear is in the water, the vessel operator may finish retrieving gear before stopping). Below are some examples of different malfunctions, whether NMFS considers them critical or not, and how it could be addressed in the VMP.
    a. NMFS considers the following malfunctions critical (would require the vessel operator to delay the trip or return to port, unless an observer is onboard):
        i. Keyboard, if manual recording is required
        ii. Monitor
        iii. Control box
        iv. Green screen
        v. Lighting, if the vessel will fish at night
        vi. Most camera malfunctions (talk with your EM service provider and NMFS to determine if certain cameras can be designated as not critical)

b. NMFS considers the following malfunctions not critical (a vessel operator may continue fishing):
    i. Either drum or hydraulic sensor
    ii. Both drum and hydraulic sensor, if recording can be triggered manually
    iii. GPS
    iv. Keyboard, if manual recording is not required
    v. Lighting, if the vessel will not fish at night

Example language for handling EM system malfunctions is below.

"Malfunction Prior to Departure:

1. *If the system malfunctions prior to departure, call EM Service Provider **24 Hour Support Line [PHONE NUMBER]** to report and troubleshoot the problem. Some possible solutions are listed in **Table 1**.*
2. *If the malfunction cannot be resolved, take the Action described in **Table 1** corresponding to the type of malfunction.*
3. *Report the date/time, nature of malfunction, and outcome in the logbook.*

Malfunction While Fishing:

1. *If the system malfunctions while gear is in the water, vessel may complete hauling gear out of the water, but **GEAR CANNOT BE RESET until the problem is resolved**.*
2. *Call EM Service Provider **24 Hour Support Line- [PHONE NUMBER]** to report and troubleshoot the problem. Schedule a service event for your return to port to have the issue resolved as quickly as possible. Some possible solutions are provided in **Table 2**.*
3. *If the malfunction cannot be resolved, take the Action described in **Table 2** corresponding to the type of malfunction.*
4. *Report the date/time, nature of the malfunction and the outcome in the logbook.*

Power Loss

In the event of a temporary loss of power, return power to the system immediately, and record the time, date, and duration of the power interruption in the logbook."