

# Draft 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). 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, describes best practices, and includes suggested language to satisfy the required components. Templates are also available on NMFS's website for each fishery sector and gear type:

[http://www.westcoast.fisheries.noaa.gov/fisheries/groundfish\\_catch\\_shares/electronic\\_monitoring.html](http://www.westcoast.fisheries.noaa.gov/fisheries/groundfish_catch_shares/electronic_monitoring.html)

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

## Vessel Monitoring Plan Contents

The vessel monitoring plan should include the following sections:

- A. Contact information – This section includes contact information for the vessel owner, vessel operator, and EM service provider for NMFS and Pacific States Marine Fisheries Commission (PSMFC) 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 PSMFC understand where discards will take places.
- 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 trouble-shooting instructions from the EM service provider.

#### 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, PSMFC, 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, PSMFC, and the vessel operator can contact for technical support and program operations.

#### 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 (i.e., pots, longline, bottom trawl, or midwater trawl).
3. Indicate what sector(s) the vessel will be participating in (i.e., shorebased whiting, MS/CV, or shorebased fixed gear).
4. Provide the vessel's homeport.

#### 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 and compartments that will be used to calculate volumetric estimates of weight. Provide photos of bins and baskets to assist video reviewers in identifying them on camera.

#### 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), sensors, monitor, and other EM equipment.
3. List the frame rates, image resolution, frequency of data logging, sensor trigger threshold values, and other EM system specifications.
  - a. Sensor data should be recorded by the system every 10 seconds for the duration of the fishing trip when powered on.

- b. Cameras should 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 shorebased whiting vessels, cameras must be recording while the gear is being retrieved, 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.
  - iii. For fixed gear vessels, cameras must be recording while the gear is being retrieved, 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 following type of language that should be included:

- “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.”

#### E. Catch Handling Procedures

1. Describe the location and procedures for any catch handling, sorting and measuring 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.
  - b. NMFS has provided language below that needs to be included in all plans of certain 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 instructions:

#### “General Catch Handling

- Any and all sorting must occur in clear view of the camera.
- Crew members must not block camera views while sorting.
- All discards must occur at a discard control point designated on the vessel diagram in Appendix A.

- ☑ 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."

1. Vessels targeting whiting should include the following additional 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.
  - Sorting mutilated fish into a tote of known size within camera view before discarding will 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."

2. Vessels using fixed gear should include the following additional instructions:

**"Prohibited Discards (must be retained)**

- ☑ All salmon 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 in Appendix A).
    - Prohibited and Protected Species:
      - Dungeness crab caught seaward of Washington or Oregon
      - 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”

#### 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. Both drum and hydraulic sensor
  - ii. Keyboard, if manual recording is required
  - iii. Monitor
  - iv. Control box
  - v. Green screen
  - vi. Lighting if the vessel will fish at night
  - vii. 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. GPS
  - iii. Keyboard, if manual recording is not required
  - iv. 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 **Archipelago 24 Hour Support Line- 1-844-267-3474** 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 Service Provider **Archipelago 24 Hour Support Line- 1-844-267-3474** 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."

**Table 1. Summary of types of dockside malfunctions of EM system and associated equipment, and actions to be taken.**

<b>Malfunction Type</b>	<b>Critical/Not Critical</b>	<b>Report to AMR?</b>	<b>Report in Log?</b>	<b>Possible Solution Downgrades to Not Critical (non-exclusive list)</b>	<b>Action if Malfunction Not Resolved or Not Downgraded</b>
Drum sensor	Not critical	Y	Y	Carry spare reflectors.	Vessel operator may depart on trip, but must trigger video recording manually. Malfunction must be repaired before next trip.
Hydraulic sensor	Not critical	Y	Y	Restart system. Follow troubleshooting guidance.	Vessel operator may depart on trip but must trigger video recording manually. Malfunction must be repaired before next trip.
Drum and hydraulic sensors	Critical	Y	Y	Restart system. Follow troubleshooting guidance. Carry spare reflectors.	Vessel operator may not depart on trip until malfunction is repaired or vessel operator voluntarily obtains observer.
GPS	Critical	Y	Y	Restart system.	Vessel operator may not depart on trip until malfunction is repaired or vessel operator voluntarily obtains observer.
Keyboard	Not critical	Y	Y	Carry spare USB keyboard. Connect spare keyboard	Vessel operator may depart on trip provided cameras are recording without keyboard. Malfunction must be repaired before next trip.
	Critical if manual record is required.	Y	Y	Carry spare USB keyboard. Connect spare keyboard.	Vessel operator may not depart on trip until malfunction is repaired or vessel operator voluntarily obtains observer.

<b>Malfunction Type</b>	<b>Critical/Not Critical</b>	<b>Report to AMR?</b>	<b>Report in Log?</b>	<b>Possible Solution Downgrades to Not Critical (non-exclusive list)</b>	<b>Action if Malfunction Not Resolved or Not Downgraded</b>
Monitor	Critical	Y	Y	Connect to a different VGA monitor.	Vessel operator may not depart on trip until malfunction is repaired or vessel operator voluntarily obtains observer.
Control box	Critical	Y	Y	Restart system, follow troubleshooting guidance.	Vessel operator may not depart on trip until malfunction is repaired or vessel operator voluntarily obtains observer.
Green Screen	Critical	No, unless unresolved.	Y	Restart system, follow troubleshooting guidance.	Vessel operator may not depart on trip until malfunction is repaired or vessel operator voluntarily obtains observer.
Lighting	Critical	No	Y	Vessel operator will not retrieve gear at night	Vessel operator may depart on trip provided he does not retrieve gear at night (i.e., 30 minutes before official sunset to 30 minutes after official dawn). Malfunction must be repaired before next trip.
Camera(s)	Critical	Y	Y	Restart system, follow troubleshooting guidance. Carry and connect spare camera.	Vessel operator may not depart on trip until malfunction is repaired or vessel operator voluntarily obtains observer.

**Table 2. Summary of types of at-sea malfunctions of EM system and associated equipment, and actions to be taken.**

<b>Malfunction Type</b>	<b>Critical/Not Critical</b>	<b>Report to AMR?</b>	<b>Report in Log?</b>	<b>Possible Solution Downgrades to Not Critical (non-exclusive list)</b>	<b>Action if Malfunction Not Resolved or Downgraded</b>
Drum sensor	Not critical	Y	Y	Carry spare reflectors.	Vessel operator may resume fishing but must trigger video recording manually.
Hydraulic sensor	Not critical	Y	Y	Restart system. Follow troubleshooting guidance.	Vessel operator may resume fishing but must trigger video recording manually.
Drum and hydraulic sensors	Critical	Y	Y	Restart system. Follow troubleshooting guidance. Carry spare reflectors.	Vessel operator may resume fishing but must trigger video recording manually.
GPS	Critical	Y	Y	Restart system.	If not resolved, vessel operator must return to port.
Keyboard	Not critical	Y	Y	Carry spare USB keyboard. Connect spare keyboard.	Vessel operator may resume fishing provided cameras are recording without keyboard. Otherwise return to port.
	Critical if manual record is required.	Y	Y	Carry spare USB keyboard. Connect spare keyboard.	If not resolved, vessel operator must return to port.

<b>Malfunction Type</b>	<b>Critical/Not Critical</b>	<b>Report to AMR?</b>	<b>Report in Log?</b>	<b>Possible Solution Downgrades to Not Critical (non-exclusive list)</b>	<b>Action if Malfunction Not Resolved or Downgraded</b>
Monitor	Critical	Y	Y	Connect to a different VGA monitor.	If not resolved, vessel operator must return to port.
Control box	Critical	Y	Y	Restart system, follow troubleshooting guidance.	If not resolved, vessel operator must return to port.
Green Screen	Critical	No, unless unresolved.	Y	Restart system, follow troubleshooting guidance.	If not resolved, vessel operator must return to port.
Lighting	Critical	No	Y	Vessel operator will not retrieve gear at night	Vessel operator may resume fishing provided the vessel operator does not retrieve gear at night (i.e., 30 minutes before official sunset to 30 minutes after official dawn).
Camera(s)	Critical	Y	Y	Restart system, follow troubleshooting guidance. Carry and connect spare camera.	If not resolved, vessel operator must return to port.