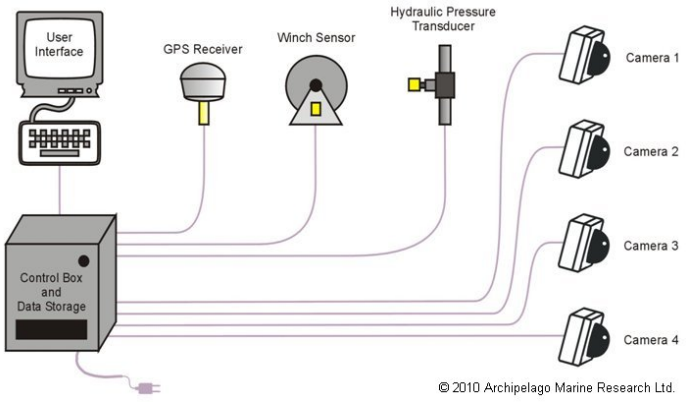
System Overview

The EM system is designed to collect data about vessel location and fishing activity every 10 seconds. Video can be configured to record only fishing events or continuously depending on the project requirements.

The system has the following components:

- A computer control box for logging digital video imagery and other vessel data.
- A removable hard drive for data storage.
- Display monitor and keyboard for system monitoring by operator.
- Sensor for Global Positioning System accurate to within 100 meters.
- Winch or net drum count sensor used to determine fishing activity.
- Sensor for hydraulic pressure used to determine fishing activity.
- High resolution closed circuit cameras suitable for marine environmental conditions of a sufficient number to capture imagery to clearly observe all gear and catch handling operations.



Data Confidentially

Archipelago will ensure that any and all vessel specific EM data obtained in the course of this study is treated as strictly confidential. Any and all information gathered and obtained by Archipelago shall be proprietary to NOAA. Archipelago shall forward originals and copies of any and all information gathered or obtained to NOAA as it is required. EM information may be provided to Fisher upon request.

Installation Specifications

During the EM system installation, our technician will work with you to determine the set-up most suited to your vessel. However, it would be helpful if you do some preparation before our technician arrives to ensure the installation proceeds efficiently.

Power

What you need to know:

- ***The EM control box must be continuously powered while the vessel is at sea.***
- The EM system requires either a power source of 110-240 volts AC (minimum 400 watts) or a dedicated 12-volt circuit with a 20-amp fuse.
- EM systems running on 12-volt power will draw a maximum of 5 amps.
- Safety Recommendations:
  - Vessels should have an auxiliary 12-volt power source that is electrically isolated from the engine starting battery. The auxiliary battery (or battery bank) should be a quality component, deep cycle rated to at least 60 Amp-Hours. A battery isolator should be installed between the engine alternator, the starting battery and the auxiliary battery. The isolator allows a single output alternator to separately charge the two batteries with priority on the engine starting battery. The vessel alternator must be of sufficient output to handle the charging requirements for the two batteries. This type of 12- volt power delivery will insure that the vessel engine and charging system can always be started.

What you can do to prepare:

- Set up an adequate power source within a few feet of the EM control box location.

Control Box

What you need to know:

- The EM control box houses computer circuitry and measures 8" by 7.5" by 12" (W/H/D).
- EM systems include a flat screen monitor and keyboard.

What you can do to prepare:

- Choose a cool, clean, well ventilated, dry location inside the vessel cabin; consider proximity to the power source and routing requirements for sensor wires (see below).

Wire Runs

What you need to know:

- Several wires connect the control box to the components on deck.

What you can do to prepare:

- Map out the wire routing between the control box and the components listed below. The wire runs should be out of the way of fishing activity to stay free from damage
- Make sure a minimum 1 1/2" watertight hole (e.g., gooseneck fitting) is available to pass wires from the deck to the vessel cabin.

GPS

What you need to know:

- The EM system includes a dedicated GPS receiver that records positional information.

What you can do to prepare:

- To ensure the best reception the GPS receiver should be in a location that has a clear, unobstructed view of the sky in all directions. On the cabin top or mast is ideal for our use.
- GPS locaton should also be away from any possible sources of electromagnetic interference.

Rotation Sensor

What you need to know:

- The EM system includes a rotation sensor to help determine when fishing activity is taking place.

What you can do to prepare:

- Choose a location on the drum or winch frame where the sensor will be out of the way of fishing activity and stay free from damage.

Hydraulic Sensor

What you need to know:

- The EM system includes an electronic hydraulic pressure transducer to help determine when fishing activity is taking place.

What you must do to prepare:

- Determine the supply side (pressure) side of the hydraulic system to provide access for sensor.
- Access to the line must be a **vessel provided and installed ¼" National Pipe Thread (NPT) female gauge port;** use an existing gauge port or attach a "T" fitting to the hydraulic line in a location free from damage by fishing deck activities (e.g., engine room, hydraulic manifold at cabin wall).

Cameras

What you need to know:

- Typically, two to four cameras are used; they are mounted in locations near catch handling activities.
- In fisheries where catch can drop off or be discarded at the side of the vessel an outboard camera mount is necessary. Light weight deployable poles or bars are mounted to overhang enough for cameras to get views of the water side of the vessel rail.
- Image recording is usually set to be triggered by fishing activity and will remain recording until fishing activity has ceased.

What you can do to prepare:

- Scope out appropriate mounting locations for cameras to provide views of catch coming out of the water, catch sorting and discarding locations.
- Contact our staff to get advice on fabrication requirements if necessary.

If you have questions please contact: **Kim Astle, EM Field Operations Manager,** toll free at **1-888-383-4535** or e-mail **NewEnglandEM@archipelago.ca** or Amy Van Atten at 508-495-2266 or Amy.Van.Atten@noaa.gov.