

3 Implementation issues

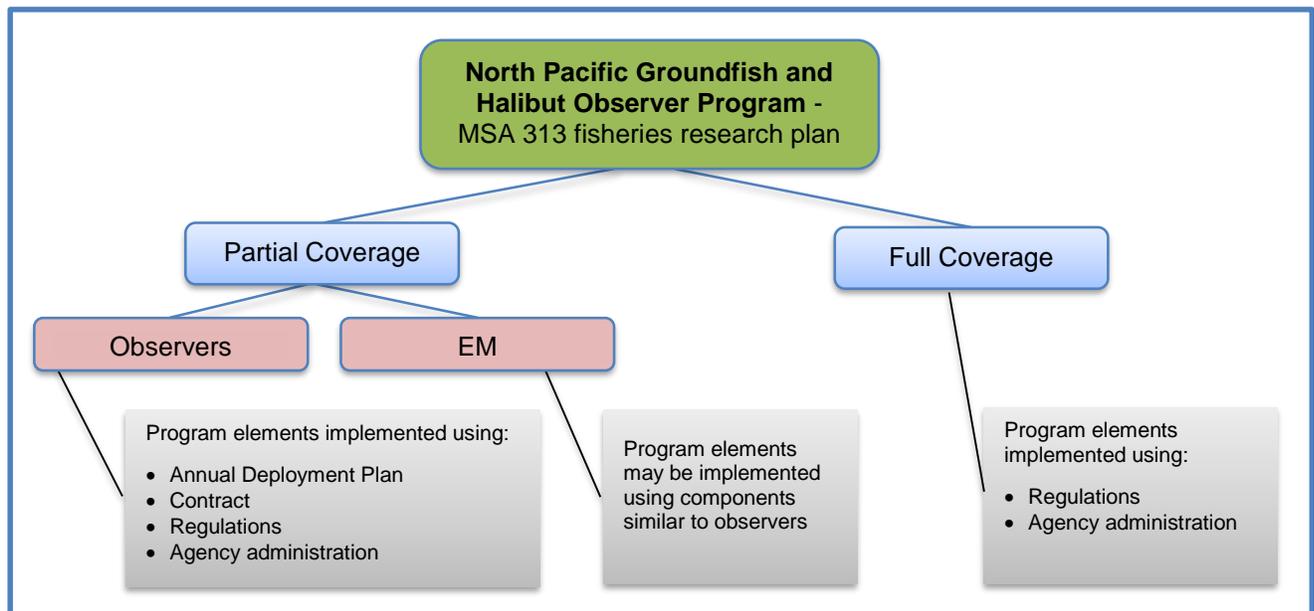
3.1 How will the EM program operate?

3.1.1 Components of a monitoring program - how the current North Pacific Groundfish and Halibut Observer Program is implemented

This analysis considers broadly the costs and benefits of a functioning EM pool as part of the Council's fishery monitoring program. Integrating EM is a complex project with many components, however, and not all of the components will necessarily be implemented in regulation.

As EM is integrated into the Observer Program, the different components of the program may be implemented through regulation, the annual deployment plan, contracts, or administration by NMFS (Figure 2). To facilitate the discussion about how to integrate the different elements of EM into the partial coverage program, the following sections describe how elements of the current partial coverage observer category are implemented.

Figure 2 Diagram of the North Pacific Observer Program



3.1.1.1 Annual Deployment Plan (ADP)

The ADP documents how NMFS intends to assign at-sea and shoreside observers to vessels and processing plants engaged in groundfish and halibut fishing in the North Pacific. The ADP addresses the changing needs of fisheries management and stock assessment by providing a flexible design that may be adjusted annually.

Elements include:

- Defining pool of vessels and shoreside processors eligible to be selected for coverage
- Defining strata based on factors that are known prior to vessel departure (e.g. gear type, vessel size). The strata definitions can change on an annual basis.
- Describing the selection rate for the strata based on estimated effort and budget

- May include policy decisions regarding observer development to address scientific and management needs (for example, the Bering Sea Aleutian Islands Pacific cod fleet voluntarily selecting full observer coverage).

3.1.1.2 Contract

The observer provider contract supplies qualified observers to vessels in a timely fashion and provides logistical and operational support including travel to deployment locations, safety and communications.

Elements include:

- Defining the qualification requirements for observers to be hired by the contractor
- Defining observer duties and data collection requirements
- Identifying the contractor roll in the ODDS call center
- Describing the contractors responsibilities regarding logistic and operational support for observer deployment
- Requiring contractor to describe how the quality and timeliness of observer data will be ensured.
- Describing performance standards contractor must meet to be considered successful and receive a positive past performance rating.

3.1.1.3 Regulations

The Observer Program regulations describes vessel owner or operator responsibilities.

Elements include:

- Logging fishing trips
- Paying fees
- Making vessel available and carrying observers when selected for coverage
- Ensuring observers have a safe environment and are able to collect required data when aboard.

3.1.1.4 Agency Administration

Agency administration of the Observer Program ensures that observers collect high quality data, and that observer data are integrated into catch accounting system in a timely manner so data can be used for management.

Elements include:

- Training observers prior to deployment
- Providing inseason support during deployment
- Debriefing observers at the end of deployment
- Managing and disseminating data collected by observers
- Maintaining and evaluating methods to integrate observer data into catch accounting

3.1.2 EM program components

The following is a general list of the different components that will be considered as part of an EM program. These include:

- EM deployment design
- Participation/eligibility
- Equipment and installation

- Operation
- Data and equipment retrieval
- Retrieval of EM data and Catch Accounting
- EM data retention and storage
- Feedback Mechanisms
- Fees/Funding/Costs

For each of the EM components, the analysis identifies a goal for each component, the scope of the component, and draft performance metrics for evaluating whether goals are met. Note, not all of the identified performance metrics would necessarily be considered in the Annual Report; some might be more appropriate, for example, for a periodic (e.g., 5-year) review of the EM program.

3.1.2.1 EM Deployment Design

Goal: Use best available information to design the EM deployment methods, including the EM selection pool, that meet policy and data collection goals.

Elements could include:

- Use the **ADP** process to define the
 - EM deployment methods and coverage rates
 - EM selection pool (the universe of vessels that can participate in EM based on, for example, vessels size, gear type, area, and/or port)
 - EM data collection goals and methods (types of data collected by EM vessels, seabird handling, depredation)
- Use the **Annual Report** for performance review and analysis of EM coverage and data
 - Representative deployment
 - Data quality
 - Achieved coverage rate and monitoring rate

Metrics to assess this goal (either annually or periodically):

- The Observer Science Committee annually reviews observer deployment, and will comment on both the EM and human observer deployment plans and develop appropriate metrics.
- Ones that are currently tracked in the 2014 Annual Report include:
 - Deployment rates for each stratum: were target sample rates achieved? Quantification of under- and over-coverage rates, non-response rates.
 - Was sampling representative? Temporally, spatially, and representative of trip characteristics (trip duration, vessel size, number of NMFS reporting areas visited, amount of landed catch, number of species in the landed catch, proportion of total landed catch that was due to the most prevalent species)
 - Adequacy of sample size – probability of selecting a sample and having coverage in each stratum and NMFS reporting area

3.1.2.2 Participation/eligibility

Goal: A pool of EM participants that are capable and committed to making EM work on their boats.

Elements could include:

- Opt-in process - NMFS to notify the universe of vessels defined by the selection pool, provide the opportunity for eligible vessels to opt-in, and select vessels that meet eligibility criteria (use ODDS?).

- Eligibility to participate contingent on
 - compliance with the *vessel monitoring plan* (VMP)
 - ~~option: performance standard (low compliance rate with VMP over time or repeat problems with EM system reliability or video quality)~~
 - process for reviewing eligibility decisions
- Selection of vessels to carry EM during selection periods (selection can be by vessel or trip)

Metrics to assess this goal (either annually or periodically):

- Many of the metrics for this goal can be duplicated from the ‘Operation’ category – i.e., is there a pool of EM participants that are regularly meeting their obligations for a functioning EM system?
- Other metrics could track participation over time
 - Number of EM participants that stay in the EM program from year to year

3.1.2.3 Equipment (wiring/sensors, cameras, monitors, hard drives) and Installation

Goal: Appropriate EM equipment gets properly installed on each vessel, at the right port, and in a timely fashion with the least interruption to the fishing plan.

Elements could include:

- Option 1: NMFS contracts with service provider to provide and install equipment on each vessel (partial coverage model)
 - Specifications/performance standards for equipment would be in the contract (few, if any, regulations would be needed to specify equipment)
 - Contractor works with a vessel operator to write a VMP, which can be amended between trips working with the contractor.
 - Equipment/installation would be paid for using observer fees or other funding as available
 - Maintenance/replacement of equipment
 - Vessel operator’s responsibilities to ensure contractor has all needed access and assistance (similar to 2016 pre-implementation plan) prior to and during installation.
 - Compliance monitoring and recourse if installation is not successful
- Option 2: Vessel owner contracts with service provider to provide and install equipment on the vessel (full coverage model)
 - Specifications/performance standards for equipment would be in regulations
 - Contractor works with a vessel operator to write a VMP, which can be amended between trips working with the contractor.
 - How would equipment/installation be paid for?
 - Maintenance/replacement of equipment
 - Vessel operator’s responsibilities to ensure contractor has all needed access and assistance (similar to 2016 pre-implementation plan) prior to and during installation.
 - Compliance monitoring and recourse if installation is not successful
- VMP Process – need for a process for submitting a VMP to NMFS, NMFS approval of the VMP, and process for amending VMP inseason?

Metrics to assess this goal (either annually or periodically):

- Frequency of equipment or installation-related video image quality issues (e.g. poor camera angles, condensation)
- Number of critical failures

- Locations of EM service and installation ports or outport service compared to start/landing ports of EM vessels, and denied requests for outport services
- Average length of time for installation and repairs

3.1.2.4 Operation

Goal: Each vessel operator maintains a functioning EM system throughout the fishing trip and there is a good process for maintaining quality control and addressing equipment failures.

Elements could include:

- Vessel operator's responsibilities in the operational plan, part of the VMP
- Types of responsibilities include stable power supply, function tests, breakdown, hard drive capacity, video quality, catch handling, effort logbook – all from 2016 EM pre-implementation plan, others depending on information gathered during pre-implementation.
- Flexibility to address non-critical equipment malfunctions while at-sea
- Critical EM system malfunction, vessel must remain in port for up to 48 hours for repairs, vessel released if repairs can't be fixed within 48 hours. Malfunction must be fixed prior to departing on subsequent trips
- First trip quality control and electronic record - recommended
- Dockside observer to verify EM data or collect data that cannot be obtained from EM

Metrics to assess this goal (either annually or periodically):

- Frequency of EM system (overall and after initial trip)
- Frequency of operator-related video image quality issues (e.g. water spots, dirty camera lens)
- Completeness of operator requirements – effort logbook, IPHC logbook, fish ticket
- Completeness of duty of care requirements – function tests, continuous power
- Appropriate catch handling – all discards at control points, handling within camera view
- Consistency with seabird goal requirements – mitigation devices used, extended presentation
- Enforcement/compliance metrics could be tracked also; examples from the Annual Report include:
 - Number of compliance reports
 - Non-compliance trends, by category
 - Number of enforcement actions

3.1.2.5 Data/Equipment Retrieval

Goal: EM equipment with data returned to NMFS timely and in good condition.

Elements could include:

- Transmit hard drives/data to NMFS/contractor
- Un-install equipment
- Coordination with contractors (schedules, ports, etc.)

Metrics to assess this goal (either annually or periodically):

- Time lag between last EM trip and equipment retrieval
- Frequency of equipment replacement (by system part – sensors, cameras, CPUs, etc.)

3.1.2.6 Retrieval of EM data/ Catch Accounting

Goal: Extract data from EM system and integrate data into the catch accounting system in a timely manner so that data can be used in management.

Elements could include:

- Methods for video review
- Method for integrating EM data into catch accounting
- Methods for certifying video review entities
- Methods for other types of data (seabird handling, depredation)

Metrics to assess this goal (either annually or periodically):

- Time lag for when EM trips occur and when data is available to the catch accounting system, by target fishery

3.1.2.7 EM data retention and storage

Goal: Retain data from EM systems in an appropriate format.

Elements could include:

- Retrieval for compliance
- Do Federal record requirements apply?

Metrics to assess this goal (either annually or periodically):

- Need to figure out first what the appropriate format should be, and the length of time for keeping different types of data.

3.1.2.8 Feedback Mechanisms

Goal: All participants have the opportunity to provide feedback to address problems and improve the EM Program.

Elements could include:

- Feedback from vessel operators on performance of providers
 - exit survey
- Feedback on performance of vessel operators (equipment maintenance, data quality)
 - score card
- Feedback on NMFS management of EM Program
- Feedback from OLE and GCEL on compliance/enforcement actions

Metrics to assess this goal (either annually or periodically):

- More thought needed - variety of mechanisms available to participants to provide feedback? Complaints from people leaving the EM program about inadequate communication?

3.1.2.9 Fees/Funding/Costs

Goal: Use Observer Program fees or other sources of funding to pay for the EM equipment, installation, and maintenance.

Elements could include:

- Alternative mechanisms to fund EM equipment purchase
- Alternative mechanisms to fund EM equipment installation and maintenance

- How fees are used?
- How to achieve efficiencies and cost savings?
- Costs include equipment purchase, ongoing installation/maintenance, equipment replacement, NMFS management/infrastructure

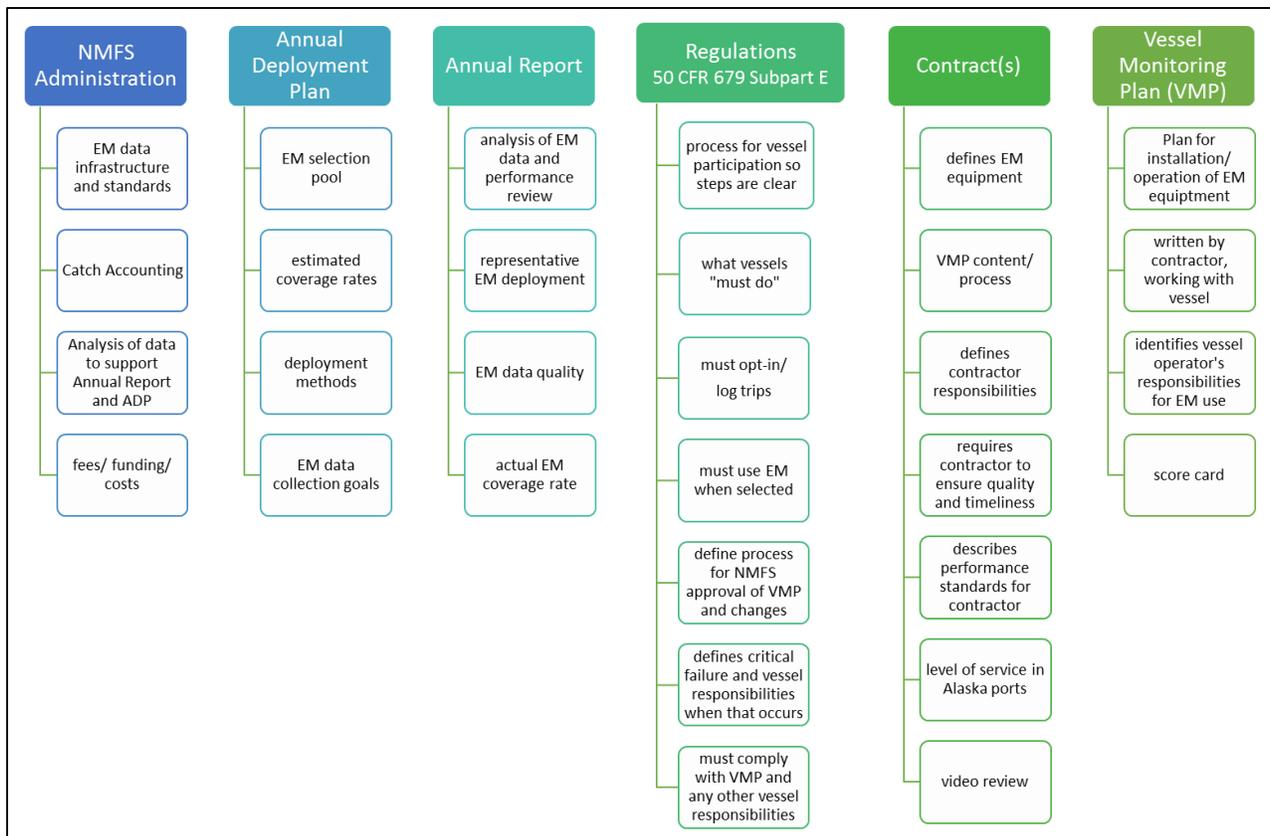
Metrics to assess this goal (either annually or periodically):

- How much of the program is paid for through the observer fee or other funding sources

3.1.3 Implementation vehicle for EM components

Each of these components will be implemented through the various available implementation vehicles, as discussed for the human observer program under Section 3.1.1. These include the regulations, the Annual Deployment Plan (and Annual Report), the EM service provider contract(s), and agency administration. An additional vehicle for the EM Program is the Vessel Monitoring Plan, which defines the placement of EM equipment onboard each individual vessel, and sets out operator responsibilities for maintaining EM equipment and fish handling practices conducive to camera monitoring. Figure 3 provides a preliminary assessment of how the different pieces of the EM program fit together under each of these implementation vehicles.

Figure 3 Preliminary assessment of EM components, organized by implementation vehicle



3.1.1 Process for testing and implementing EM technology in specific fisheries

This analysis evaluates changes to the regulations that would allow EM to become a viable tool for monitoring in the partial coverage fixed gear groundfish and halibut fisheries. In order to ensure that the Council and NMFS can rely on the monitoring data resulting from the use of EM, however, it is necessary

that a particular EM technology, or the fishery into which it is deployed, be developed through a series of steps. This process applies both to different fishery sectors interested in becoming eligible for EM, as well as for new EM technology that might be deployed in the fisheries. At each stage, in order to determine an appropriate scale of EM selection pool as part of the Annual Deployment Process, the Council will need to consider what is known about the reliability of the technology, its suitability for the different fishing patterns or vessel configurations of the subject fleet, and the ability of vessel operators to appropriately interact with the technology onboard. This developmental process has been illustrated below.

- See graphic in separate file

3.1.2 Illustration of a functioning EM program

Figure 4 provides the cycle of the EM program, once implemented. The Annual Deployment Plan will identify selection pools, deployment, and coverage rates for EM as well as human observer pool participants, on an annual basis. Once the draft ADP is released, vessels wanting to participate in the EM selection pool(s) will have a time period to opt-in for the upcoming year, and NMFS will then select vessels to carry EM for all or part of the year, depending on the deployment model selected in the ADP. Once a vessel has been identified to carry an EM unit for part or all of the year, the contracted EM service provider will contact the vessel to ensure that the EM system is correctly installed, and to create a Vessel Monitoring Plan (VMP) detailing the vessel operator's responsibilities with respect to the EM system. Vessels will proceed with their fishing activity, following the guidelines of the VMP. The frequency and manner of data retrieval will be determined in the VMP, and equipment will be retrieved as necessary at the conclusion of a vessel's fishing activity or selection period. Data will be sent for review, and archived as appropriate. The reviewed data will be uploaded to the Observer database and made available to Catch Accounting, for inseason fishery monitoring. At the conclusion of each year, the Observer Annual Report will evaluate the performance of the EM deployment model as part of its overall review of the partial coverage program, and this information will be used to make improvements to EM deployment in future Annual Deployment Plans.

Figure 4 Annual EM cycle

