

## Recap of purpose/need, alternatives, and decision points agreed on to date 11/18/2014

Based on minutes from September 2014 EM Workgroup meeting, *annotated*

### Draft elements of the purpose and need

- Affirm Council's goal is to improve discard estimation of fish (including halibut PSC). Also management goal to monitor mortality of seabirds.
- Affirm that EM is one of the suite of tools available for effective fisheries monitoring, and that there is also a continuing need for human observers as part of that suite. There will be human observer coverage at some level at some times in all portions of the fishery, to provide data that cannot be collected via EM (e.g., biological samples).
- In restructuring the Observer Program, the Council assumed that an electronic monitoring option would be integrated into the program for vessels that have trouble accommodating a human observer.
- There are varying degrees of economic, operational and social hardship experienced by vessel operators and crew, on vessels that have insufficient space to carry an observer.
- Initial priority is a monitoring tool on vessels that are not taking human observers. Effectively this means <40 ft vessels, and vessels 40-57.5 ft where taking an observer is problematic.
- Goal is to develop EM for longline and pot vessels (sampling is conceptually similar for both gear types, and there are established pilot programs for both).
- Next priority is EM as an alternative to carrying an observer for any fixed gear vessel (including >57.5 ft), to reduce monitoring costs and/or improve quality of fishery-dependent data at sea.
- Affirm that we want to retain as much flexibility as possible for deciding who will be able to take EM, based on the annual monitoring needs for the fisheries. We recognize that we do need regulatory change to specify the vessel's responsibilities for using monitoring tools in the long term, including cameras and other tools. But we also understand that the structure of the annual deployment plan could provide flexibility to deploy combinations of tools for different categories.

### Draft Alternatives

Alternative 1: Status quo observer sampling of trips, with some vessels either in the zero selection pool, or receiving conditional releases from the requirement to carry an observer

Alternative 2: EM stand-alone for catch estimation of discards

- a) Standard camera
- b) Stereo camera at rail

Alternative 3: EM integrated with a combination of tools for catch estimation of discards

- a) Standard camera with self-reported data (*note, this data is intended to supplement the video record, e.g. self-reported effort information, and could be collected a number of ways, from a simple data sheet to an e-logbook*)
- b) Stereo camera at rail with self-reported data
- c) Standard camera with self-reported data and dockside monitoring
- d) Stereo camera with self-reported data and dockside monitoring
  - ***HM proposes dockside monitoring as standalone option under any alternative***

Alternative 4: Discard chute containing stereo camera integrated with a combination of tools for catch estimation of discards

- ***HM proposes changing this to integrated EM with discard measurement (tool TBD)***

Alternative 5: Logbook used for catch estimation, with EM audit

- a) Census of vessels
- b) Sample of vessels

## Decision points

Some of these decision points are at the program level, and may need to be incorporated into the alternative structure; others are very specific, and will likely be answered through research. The Workgroup has more work to do to tease out exactly how each of these will be addressed. The group discussed the goal of making 2016 a pre-implementation year, to test an operational plan, from sampling of vessels to take EM to incorporation of EM data into the catch accounting system and other uses for observer-based data.

*For most of these, we need to have pre-implementation year (2016) decisions for October 2015, and final decisions for October/December 2016, for what will be regulated. Some decision points (e.g. deployment) may vary from year to year, and will be decided annually as part of the Annual Deployment Plan.*

Implementation decision points:

- ~~Whether and~~ how to phase in implementation of EM, such as geographically and/or over categories of users. *Council has agreed with phased-in implementation.*
- Pre-implementation year (~~recommendation~~ for 2016.)? EFP? Other mechanism?

Deployment decision points:

- What gear: both longline and pot (~~EMWG recommendation~~). *Longline will likely be focus for first pre-implementation year.*
- Vessel sizes: vessels <57.5ft that can't take observers (highest priority)
  - vessels >57.5 would be lower priority and not addressed at this time
- Option 1: Vessels opt into EM strata on annual basis, based on fisherman's assessment of their situation relative to observer coverage and/or electronic monitoring
  - Random selection of vessels that opt in; vessels carry EM for some time period
- Option 2: Vessel apply to be in EM strata on annual basis, and NMFS determines which vessels cannot take observer and moves those vessels into EM strata on annual basis
  - Random selection of vessels for EM; vessels carry EM for some time period
- Sub-options – instead of random selection of vessels, these are other selection ideas that could be applied to deployment options 1 or 2
  - Install the EM on all boats in the EM category for all trips, then randomly select trips to turn on the cameras
  - Install the EM on all the boats in the EM category for all trips, then sub-sampled the EM for analysis and review

Field services decision points:

- Ports: restrict to set ports, or allow EM to be deployed in any port
- Duration of time carrying EM: 2-month, 6-months, annual
- How to accomplish EM installation and data collection
  - First trip quality control check
  - how to collect hard drives

Data services decision points:

- Determine what will be the source of data (video, self-reported, other) for each data element:
  - Species identification
  - Species count
  - Percent retained (disposition)
  - Weight conversion method for discarded catch
  - Set time and date, retrieval time and date
  - Set location, retrieval location

- Fishing effort (number of hooks, hook spacing)
- Trip beginning, ending date (*video reviewers note that it may be difficult to determine from video*)
- Halibut viability – *IPHC measurement of viability is based on injury codes that determine discard mortality rates (DMRs); right now video only provides release methods. We will need to collect data to build the relationship between the release method and discard mortality rates.*
- For each of the data elements:
  - What is the resolution of those data elements that is reliable (i.e. can identify species reliably or can identify species group)
  - What is the resolution that we need for each data element – haul-specific or trip-specific
  - Timeliness required for data analysis
  - What is the level of data needed – sub-sample of the hauls (and sampling design for subsampling) or census of hauls (*impacts of nonsampling errors*)
- What level of data review is necessary – e.g., 100% review, 30% review
- Video review necessary for rail cameras and validation (deck) cameras
- Length of time for processing sets after hydraulics are turned off
- How much of discard is drop-off vs intentional discard

#### Technology decision points:

- what type of camera (chute or rail; stereo or standard)
- validation (deck) cameras – required or not (*video reviewers strongly encourage*)
- what types of sensors
- elog vs paper log

#### Vessel responsibility decision points:

- Handling of catch
  - Handling of discards (where and when discards can occur)
  - Measuring board for length; pre-determined weight totes
- Maintenance responsibilities (self-test routines, cleaning lens, etc)
- What happens if there is an EM system failure
- Vessel infrastructure requirements (power, etc)
- Vessel responsibilities during installation and removal of EM equipment
- How to time-synch the different data streams (video, sensors)
- Bird handling procedures

#### Cost structure decision points:

- What is the budget available for EM program? Analyze a set of possible alternatives using the fee collected from the vessels <57.5ft as a starting point (e.g., \$500,000 - \$5 million)
- Vessels pay for EM systems
- NMFS pays for EM systems out of observer fee
- Data analysis paid for by NMFS either in-house or third party vendor

#### Enforcement decision points:

- What tools are available in an audit program if a vessel's logbook is not accurate? Can't do Canadian system of requiring payment for full review. Industry agreements? EM as a privilege that can be revoked?