

Electronic Monitoring Catch Estimation Process Outline

EM workgroup – July, 2016

1 Video review process and availability of EM data

1.1 Video Review Protocols

- Description of the video review protocols
- Data collected during video review
- QA/QC procedures (e.g. double-review)

1.2 Moving data from video review into catch estimation

- Description of the flow of information and infrastructure to move data from video review into CAS (Figure 1).

2 Catch estimation process

This section will be an update of the catch estimation discussion paper presented to the SSC in June. See Figure 2 for summary of the catch estimation process from haul-level to Fishery-level estimates.

2.1 Estimators

- Description of tradeoffs and pros/cons of SRS and ratio estimator. See Table 1 for summary.

2.2 Haul-level Estimates

- Description of census of haul to obtain counts of retained and discarded catch.
- If missing video within the haul, then either ignore the haul or expand to the rest of the haul using a ratio estimator. Take SSC comments into consideration regarding how to validate the size of the haul.

2.3 Trip Level Estimates

2.4 Vessel-Level Estimates

2.5 Fishery-level Estimates

2.6 Assumptions

3 Data quality/validation considerations

3.1 Impacts on catch estimation

- Impact of obtaining data from fleets with no coverage now (<40 ft)
- Impact of converting counts to weights - importance of observer data & potential gaps
- Halibut wastage estimates from EM - release method, but no viability
- Impact of using species groups for difficult to distinguish species (e.g. SR/RE; Kam/Arrow; short/linespine sculpins) - importance of observer data & potential gaps

3.2 Species identification from EM data

- Summary of previous EM work in Alaska & species ID (e.g. Cahalan et al)
- Proportion of catch with known disposition in different fisheries from 2015 & 2016 data
- Comparison of EM and dockside monitoring (2015 results)
- Comparison of observer and video data (2015 study)

3.3 Gaps video and sensor data

- For catch estimation it is important that any gaps in video coverage that result in missing information are random and hence expansion from the remaining imagery will not introduce bias to the estimation process.
- Results from 2016 pre-implementation on completeness of video & sensor data from PSMFC
 - o Results on frequency of missing data vs number of trips per year
- Validation of effort at the haul-level in estimation process if there is missing data

3.4 Image quality

- Results from 2016 pre-implementation on reliability of video quality and reasons for medium & low quality from PSMFC

3.5 Timeliness of data

- Results from 2016 pre-implementation on length of time for video review.
- Can we provide an estimate of entire process? How long does it take for hard-drives to arrive at PSMFC (e.g. do we have any data on this from FedEx receipts?)? How long does it take for staff to start a review (i.e. is there a wait time?)?

4 Use of EM data for inseason management

- Updated information describing challenge species for inseason management in the EM fleet, timeliness needs, etc. (provided originally as Appendix A in EM cooperative research plan http://www.npfmc.org/wp-content/PDFdocuments/conservation_issues/Observer/EM/EMCRP1-21-15.pdf).

Table 1. Summary of potential tradeoffs that NMFS is considering between Simple Random Sample and ratio based estimators

	Simple Random Sample (SRS) estimator	Ratio-based estimator
Pros	<ul style="list-style-type: none"> • Don't need at-sea retained catch or landed catch • Potentially less time required for video review (only need discarded catch) • Simpler approach if it is easier to only monitor discards 	<ul style="list-style-type: none"> • Potentially lower variance than SRS estimator • Takes into account the size of the sample unit (e.g. hauls or trips) so that larger sample units contribute more to the overall estimate than smaller sample units • Better estimates of catch and discards if there is a lot of variability between size of sample units
Cons	Potentially higher variance than ratio-based estimator if the size of sample units (e.g. hauls or trips) varies	Potentially more time required for video review (to obtain data on both retained and discarded catch)

Figure 1. Flow of information from video review to the Alaska Fisheries Science Center (AFSC) through the catch estimation process in the Alaska Regional Office (AKRO) catch accounting system.

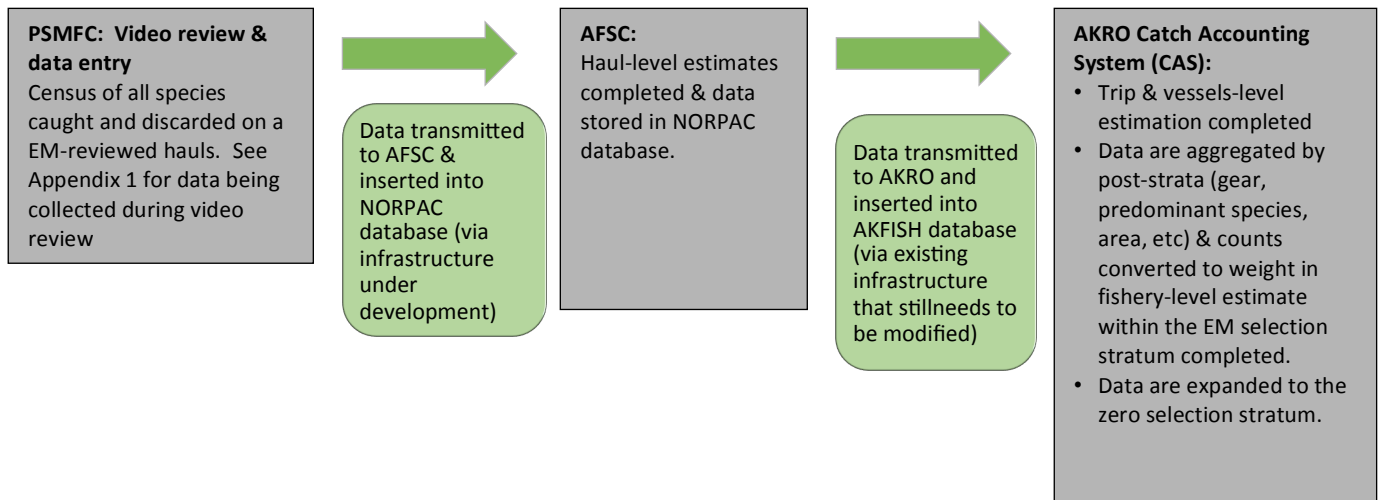


Figure 2. Summary of catch estimation process using EM data and a ratio estimator.

