

Steps & decision points needed to use EM data in catch accounting

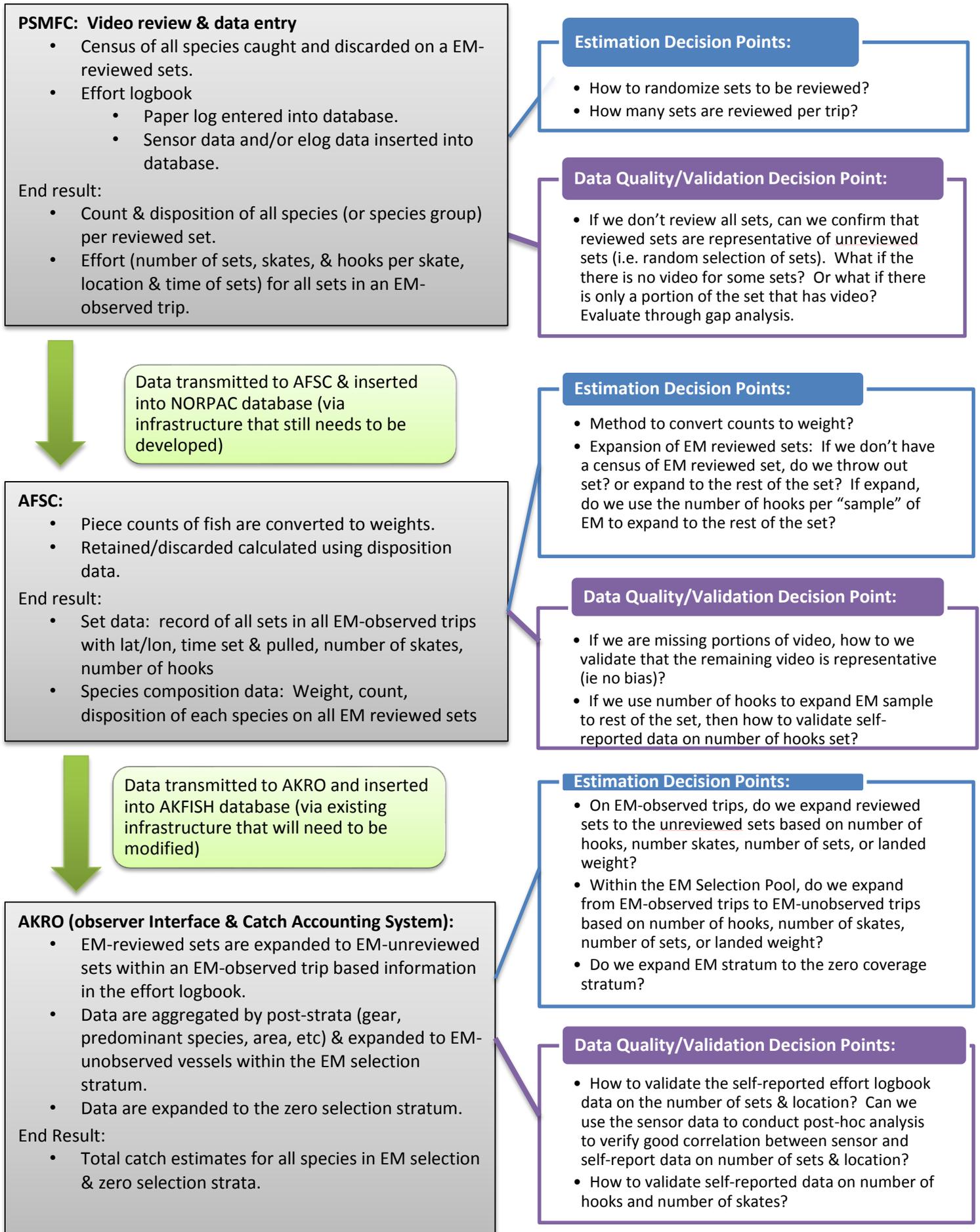
NMFS is not yet using EM data being collected through the EM Cooperative Research Plan in catch accounting. However, the goal during pre-implementation is make the necessary infrastructure modifications and catch estimation programming changes to incorporate EM data into the catch accounting system so that it is available for inseason management. EM data processing occurs at 3 locations: Pacific States Marine Fisheries Commission, Alaska Fisheries Science Center (AFSC) and the Alaska Regional Office (AKRO). Figure 1 illustrates the data processing steps that need to occur during each of these phases as well as the data transfer that will need to occur between these entities. On the right-hand side of the figure, we have noted estimation decision points (in blue) and data quality/validation decision points (in purple) that need to be taken into consideration as the data estimation process is implemented.

In an attempt to use consistent terminology, we have defined the layers in the EM sampling hierarchy:

EM sampling terminology

- **EM Selection Pool:** the vessels that meet the Council's criteria for EM and who opt into EM. It may be that not all vessels in the EM Selection Pool will carry cameras for all of their fishing activity.
 - **EM-unobserved vessels:** the vessels that are in the EM selection pool, but who are not selected to carry EM for a time period.
 - **EM-observed vessels:** vessels in the EM selection pool that are selected to carry EM for a time period.
 - **EM-observed trip:** the trips taken by EM-observed vessels where they are carrying EM.
 - **EM reviewed sets:** the sets within an EM-observed trip that are selected for EM review. The number of EM reviewed sets could be all or some portion of the sets within an EM-observed trip.
 - **unreviewed sets:** the sets within an EM-observed trips where the video is not reviewed. This could be because there was incomplete video for the trip, or due to sub-selection and sampling of the sets within an EM-observed trip.

Figure 1. Roadmap & decision points for using EM data in catch accounting.



Deriving weight from EM data

To inform the decision point about how to derive weight of fish from EM data, an analysis comparing different approaches will be completed. We plan to use data collected during 2015 EM Cooperative Research Plan for these comparisons. The analysis of method 1 will use data from the research and development project. The analysis of method 2 will use data from the IPHC survey data

Method 1: Obtain length from EM and convert length to weight using standardized length/weight ratios from observer data

Options for getting length from EM:

- Use stereo cameras mounted at the rail to get length
- Use a chute (either a graduated chute or a camera chute)
- Vessel operators hold fish in front of a “measuring board” and length is determined when the video is reviewed (note – this approach is not currently being tested in the CRP).

Method 2: Obtain piece counts from EM and apply average weight by species to piece counts using other sources of information.

Options for sources of information on average weights:

- AFSC observer data
 - Use current year data
 - Use multiple years of data
- Survey data
 - Longline survey
 - IPHC survey
 - Trawl survey
- Results from research studies