Electronic Monitoring in the Alaska Pollock Fishery: preliminary results of year-1 EFP implementation in 2020

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Background

Volunteer vessels from the Bering Sea and Gulf of Alaska pollock fisheries have been testing electronic monitoring (EM) systems as an alternative to carrying on-board observers using an Exempted Fishing Permit (EFP). The EFP began in January 2020 and continues through 2021. The testing aims to determine the efficacy of using EM for monitoring and to help guide the operational decisions for implementing EM as a compliance tool in the Pollock trawl fishery. This report details preliminary results from the first half of 2020.

Participating vessels carried EM systems from Archipelago Marine Research (AMR). EM data was sent to Pacific States Marine Fisheries Commission (PSMFC) for review using AMR software. Reviewers identified trip and haul level meta-data and recorded any discard events. Participants also submitted logbook records of their trip, either as paper logs submitted to PSMFC or as electronic logs (e-logs) submitted to the National Marine Fisheries Service (NMFS), that included a report of their discards.

Participation

Volunteer participants were 18 vessels in the Bering Sea and 16 vessels in the Gulf of Alaska (Table 1). These vessels had completed 386 trips at the time of this report, with logbooks available and matched for 377 of these trips. Of the trips without paired logbook data, 6 were missing logbooks (all trips for 1 vessel), 2 had a mismatch between the fish ticket number entered with the e-log and that given to PSMFC, and 1 had a split landing between two fish tickets. These latter two issues are noted here for planning purposes, although both could be resolved either with data corrections or, for the split landing, by grouping the landings.

Table 1. Summary of EM participation in the Alaska pollock fisheries by region, 2020, and the availability of logbook data for these same trips.

	All EM Pollock Data			EM Pollock Data with Logbooks	
Region	**Vessels**	**Trips**	**Hauls**	**Vessels**	**Trips**
Bering Sea	18	216	595	18	213
Gulf of Alaska	16	170	357	15	164

Discard Summaries

Most discards seen by EM reviewers were small (<100 lbs.; Figure 1) whether the discard occurred on-deck (these could include allowable discards such as small amounts of catch cleaned from the net or deck, unavoidable discards resulting from events beyond the control of the vessel, or large marine organisms, such as sharks; as well as non-allowable discards) or the discard occurred before the net reached the deck (e.g. net bleeds).

Overall, logbooks reported greater discard volume than EM reviewers (Table 2; Figure 2), however even the higher logbook estimates totaled only ~475K pounds of discards over 377 trips across both regions (an average of 1,259 pounds per trip). Some EM and logbook estimates were quite similar, but it was also relatively common to have a small or medium sized discard reported by either EM or the logbook with no discards reported on the other. There were also many trips with no discards reported by either EM or logbook (63 in the Bering Sea, representing 29% of trips; 61 in the Gulf of Alaska, representing 37% of trips).

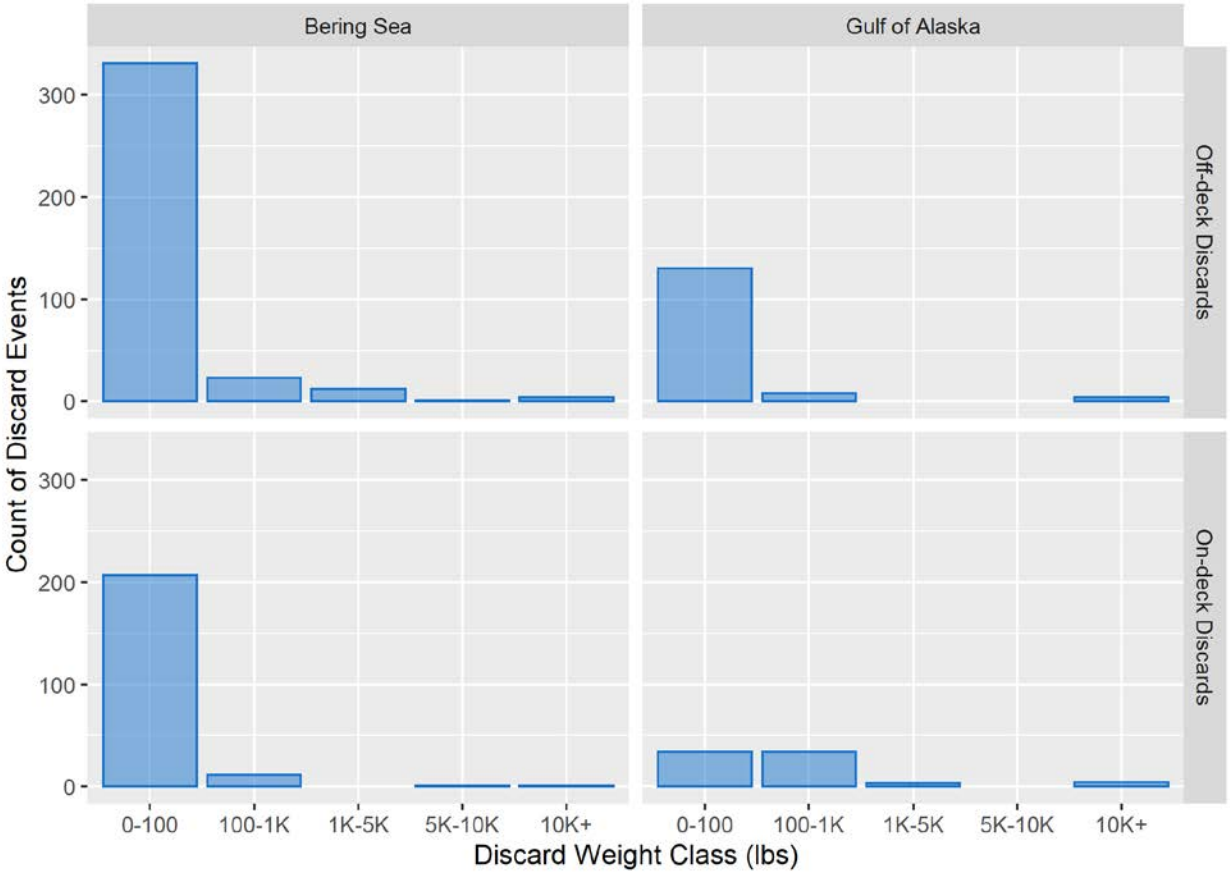

Figure 1. Sizes of EM discards by individual discard event in the Alaska pollock fisheries, 2020.

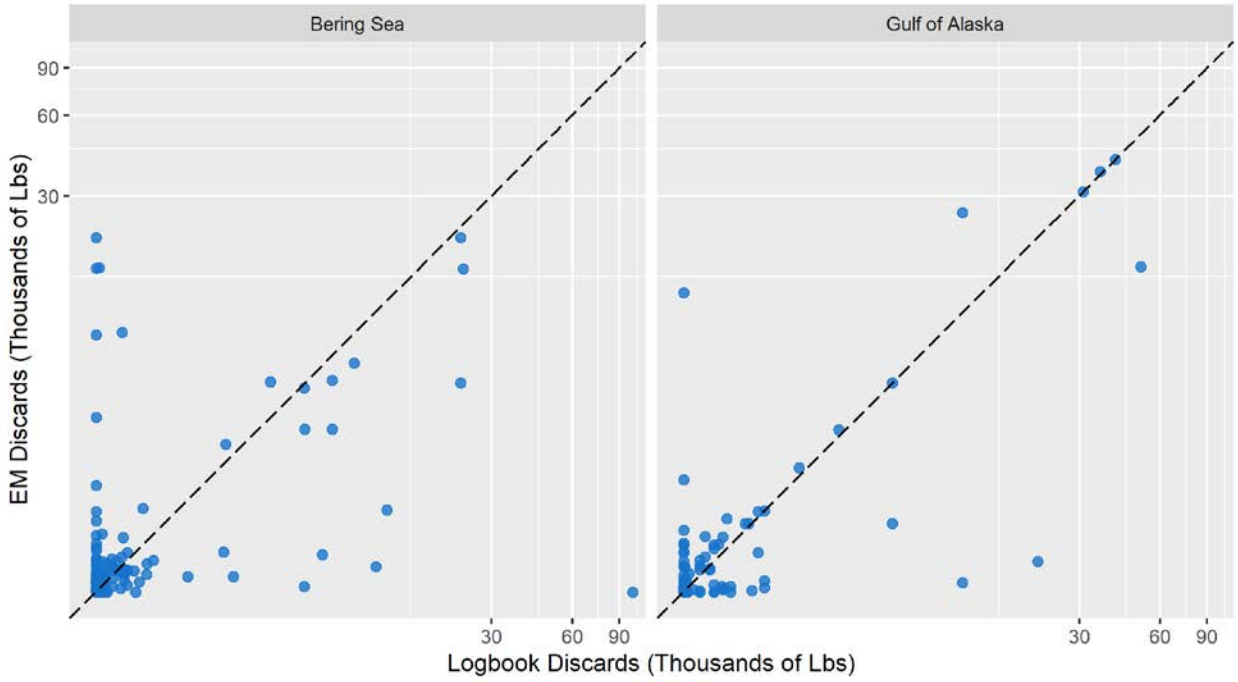

Figure 2. EM versus logbook estimates of discards by delivery in the Alaska pollock fisheries, 2020. Each data point represents a sum of discards for one trip (213 trips for the Bering Sea, 164 for the Gulf of Alaska). The dashed line represents a 1:1 relationship so a perfect match of EM and logbook data will fall on the dotted line. Points above the line indicate the EM estimate was higher while points below the line indicate the logbook estimate was higher. Note that data is shown on log-2 scaled axes so that smaller discards can be better visualized.

Table 2. Comparison of EM and logbook discard volume in the Alaska pollock fisheries for those deliveries where both data sets are available, 2020. On-deck discards include all discards after the catch is on the deck. Total discards incudes both the on-deck discards and net bleeds or other discards occurring prior to the net coming on deck.

Region	Vessels	Trips	Hauls	Total EM Discards (Lbs)	On-deck EM Discards (Lbs)	Total Logbook Discards (Lbs)
Bering Sea	18	213	588	162,033	34,832	251,193
Gulf of Alaska	15	164	346	186,417	77,073	223,369

Large Marine Organisms and Salmon Bycatch

No take or interactions with marine mammals or birds were reported by EM reviewers or on logbooks. The only large organisms captured were sharks. Logbooks reported a total of 9,018 pounds of shark discards while EM reported a total of 12,542 pounds of shark discards. Counts were not consistently reported on logbooks, but EM reviewers reported a total of 37 individual sharks.

EM reviewers recorded two salmon of unidentified species as fate 'unknown'. These salmon were taken out of view of the cameras by crew, and were not seen retained in the hold or discarded. No logbooks reported discarded salmon.

Offload Review

In addition to reviewing at-sea video footage, PSMFC reviewed the offloads of participating vessels. For the Bering Sea, the total haul review time was 47.8 hours while the offload review time was 78.2 hours. Six trips had discards at the dock totaling 196 lbs. For the Gulf of Alaska, the total haul review time was 27.6 hours while the offload review time was 40.9 hours. Seven trips had discards at the dock totaling 1,688 lbs. For both regions the discards at the dock were mostly sharks, but a small number of discards included a mix of pollock, unidentified fish, and skates.

Conclusions and Comments

Logbooks estimated higher amounts of discards overall though it was highly variable trip to trip. While there may have been differences between EM and logbook estimates, the total volume of discards was quite low (1,259 pounds/trip per the higher logbook estimate) compared to typical catch volume. No interactions with marine mammals or birds were reported, but EM reviewers were able to identify and enumerate sharks and also noted two salmon taken out of camera view and recorded as fate unknown.

For both Bering Sea and Gulf of Alaska trips, the time needed to review the offloads was over 60% longer than the time needed for reviewing hauls at-sea, while discards observed at the dock mainly consisted of large sharks and only occurred during 13 trip offloads.

A few issues were identified in analyzing this data that are noted for planning purposes. As described above, logbooks were not received for one vessel. Data quality issues were also observed in the e-log data: we found numerous errors when comparing the e-log data in AKFIN to the e-log copies provided by the vessels. We were able to make corrections within our analysis, but we will also follow-up with NMFS to help track why these errors occurred.