

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

Prepared by Aileen Smith and Courtney Paiva, Pacific States Marine Fisheries Commission

Background

Volunteer vessels from the Bering Sea and Gulf of Alaska pollock trawl 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 Alaska pollock trawl fishery. This report details results from the 2020 EFP.

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 24 vessels in the Bering Sea and 17 vessels in the Gulf of Alaska (Table 1). These vessels completed 773 trips, with logbooks available and matched for 756 of these trips. Of the trips without paired logbook data, 14 were missing logbooks (all were from 2 vessels), 2 had a mismatch between the fish ticket number entered with the e-log and that was 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.

Region	All EM Pollock Data			EM Pollock Data with Logbooks	
	Vessels	Trips	Hauls	Vessels	Trips
Bering Sea	24	527	1843	24	518
Gulf of Alaska	17	246	573	16	238

Discard Summaries

Discards were compared between EM and logbook records at the trip level. For these comparisons, most species were grouped together by total weight, although large organisms were evaluated separately (see following section). Additionally, a few logbooks reported discards of species that were not required to be reported and that would not have been reported by EM reviewers (e.g. jellyfish) so these were excluded from analysis.

Most discards seen by EM reviewers were small (<100 lbs.; Figure 1) whether the discard occurred on-deck (allowable discards including small amounts of catch cleaned from the net or deck, unavoidable discards resulting from events beyond the control of the vessel; 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 ~555K pounds of discards over 756 trips across both regions (an average of 734 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. Reviewers on some occasions noted issues with the camera set-up (e.g., glare on the video or camera malfunctions) that might lead to discrepancies with the logbook. Additionally, some discrepancies could be attributed to net cleaning events, where EM reviewers did not see or record these events except during the rare occurrence where the net cleaning occurred during hauling/sorting activity. There were also many trips with no discards reported by either EM or logbook (256 trips, representing 34% of trips).

Table 2. Comparison of EM and logbook discard volume in the Alaska pollock trawl fisheries for those deliveries where both data sets are available, 2020. On-deck discards include all discards after the net has come on the deck. Total discards includes 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	24	518	1,798	375,493	235,943	335,552
Gulf of Alaska	16	238	556	177,079	66,680	219,578

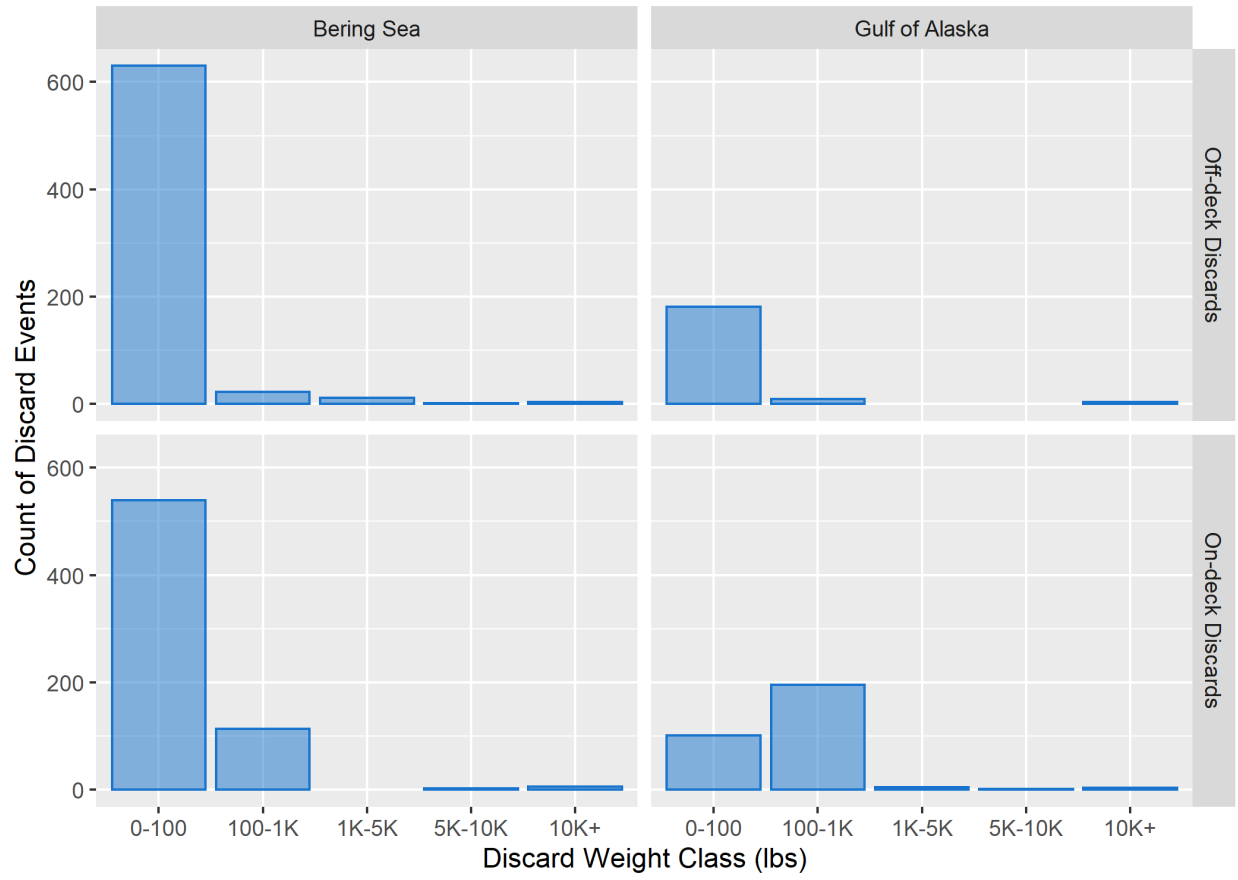


Figure 1. Sizes of EM discards by individual discard event in the Alaska pollock trawl fisheries, 2020.

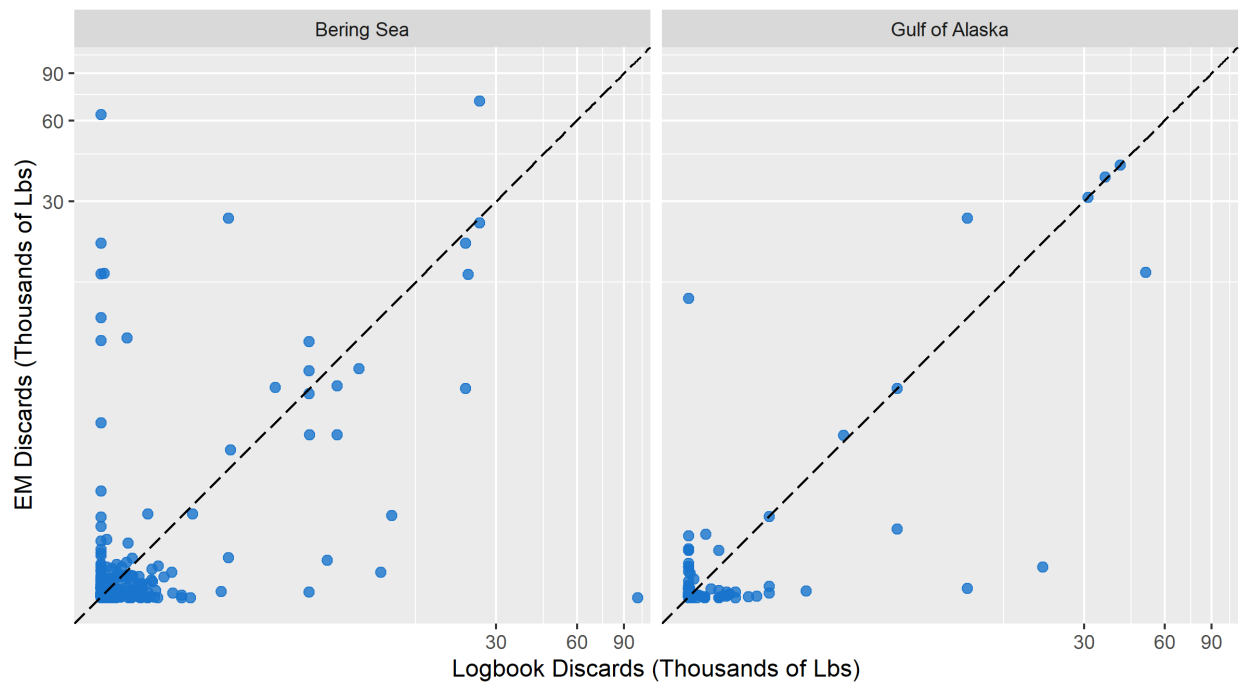


Figure 2. EM versus logbook estimates of discards by delivery in the Alaska pollock trawl fisheries, 2020. Each data point represents a sum of discards for one trip (518 trips for the Bering Sea, 238 for the Gulf of Alaska). The dashed line represents a 1:1 relationship so a perfect match of EM and logbook 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.

Large Marine Organisms and Salmon Bycatch

One take of a marine mammal, a Steller sea lion, was reported by EM reviewers. The only other large organisms captured were sharks. Logbooks reported a total of 70,144 pounds of shark discards while EM reported a total of 116,812 pounds of shark discards. During the 2nd half of the 2020 Pollock fishery, sleeper shark and salmon shark length/weight tables were provided to vessels and PSMFC. Vessels were instructed to measure and record the length of these sharks on their logbooks. Some vessels only estimated the shark weight, whereas other vessels used the length/weight chart for their weight estimate. During the 2nd half of 2020, PSMFC estimated length for discarded sleeper and salmon sharks, and used the length/weight chart for the review discard estimate. Counts were not consistently reported on logbooks, but EM reviewers reported a total of 141 individual shark discards.

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 141.4 hours while the offload review time was 194.3 hours. Thirty trips had discards during or after offload totaling 3,193 lbs. Of these discards, 80% (2,557 lbs.) were 10 large-species sharks. For the Gulf of Alaska, the total haul review time was 49.1 hours while the offload review time was 63.2 hours. Twenty-seven trips had discards during or after offload totaling 13,065 lbs. Of these discards, 95% (12,387 lbs.) were 31 large-species sharks. For both regions the discards/separate catch removed from the hold at the dock were mostly sharks, but some 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 (734 pounds/trip per the higher logbook estimate) compared to typical catch volume. During review, no interactions with birds were reported, and there was one instance of a Steller sea lion catch. EM reviewers were able to identify and enumerate sharks and also noted two salmon taken out of camera view and recorded as fate unknown.

The time needed to review the offloads was about 1.5 times the time needed for reviewing hauls at-sea, while discards observed at the dock mainly consisted of large sharks (14,944 lbs., or ~92% of the total at-dock discard weight of 16,258 lbs.). At-dock discards occurred for a total of 57 trips.

A few issues were identified in analyzing this data that are noted for planning purposes. Paper logbooks were not received for one vessel, while e-log data for some of the trips for one vessel were not available as of the time of writing this report. 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.