Evaluation of Post-Harvest Quality Losses of Tuna Catch of Multiday Boats in Beruwala- Kalutara

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Abstract

Fishery industry provides an important source of protein, livelihood for people and foreign earnings. Fish is a highly perishable food, requiring proper handling, processing and distribution, to be utilized in a cost effective and efficient manner. Physical losses, Biochemical losses and Economical losses are three major types of fish post-harvest quality losses that cause food insecurity, low income to fishers, processors and traders. So it is necessary to develop systematic, practical tools for assessing post-harvest losses. The study was focused on Tuna catch of Multiday (IMUL) fishing vessels at Beruwala fishery harbour in Kalutara district. Fishermen who operated multiday fishing vessels were interviewed using a standardized questionnaire to obtain the attitudes and opinion of fishermen regarding the quality control aspects of fishery activities in study area within the period of 8 weeks during 5.30 am to 8.30 am. The minimum sample size among these IMUL vessels was selected using "Likert scale (1932)" and "Moving Average" method, where the minimum sample size determined as the sample size achieved the stable mean in Likert scale. Organoleptic surveys were used to identify level of post-harvest losses. The post-harvest economic loss of the tuna fish was determined according to the market value. The weights of undamaged and damaged fish which are used to produce dry fish when landing were measured using the electronic platform balance. The weight of the salted harvest of tuna and tuna like fish species were, 54 kg of *Thunnus albacares*, 12,244 kg of *Katsuwonus pelamis*, and 69 kg of *Auxis thazard*. When consider the fish harvest: weight of the harvest per boat for yellow fin tuna is 199.65 kg, skipjack tuna 1515.19 kg, big eye tuna 0.01 kg, frigate tuna 6.10 kg and salted weights of the harvest per boat are 1.05 kg, 240.07 kg, and 1.35 kg and post harvest loss percentages are 0.53%, 15.84%, and 22.15% respectively for each fish species. When consider fish harvest for gear category, long line (LL), gill net (GN) , LL+GN and Others (other gears): total weight of harvest 3116 kg, 60000 kg, 23819 kg and 4443.5 kg per each gear category respectively. Total salted weight of harvest is 43 kg, 8882 kg, 3210 kg and 232 kg while estimated total income is Rs. 1,638,080/=: 15,226,325/=: 7,241,100/= and 1,068,530/= per each gear category respectively. Income loss percentage is recorded as 0.34%, 5.23%, 6.58% and 1.43% for each gear category respectively. The effect of above gear categories on total harvest, the total weight of trashed or damaged fish (used for salted) and the total actual revenue for the fish harvest of IMUL vessels sample was analyzed using Analysis of variance (ANOVA), ($p < 0.05$).It revealed, the gear categories significantly effect on total harvest, the total weight of trashed or damaged fish (used for salted) and the total actual revenue for the fish harvest of IMUL vessels. The level of fish post-harvest in Beruwala fishery harbor was determined by using sensory characteristics available in quality control division of DFAR. According to that landed fish can be categorized as 1 quality, 2 nd quality and 3 rd quality based on quality level. ANOVA analysis and results confirmed that the gear categories significantly contribute to the post-harvest economic loss by reducing the post-harvest quality of the tuna fish in Beruwala fishery harbour. Results of the study confirmed that there is no any quantitative loss in fish post-harvest.

Keywords: Post harvest quality loss, Tuna catch, multiday boats, likert scale, Beruwala fishery