

IMPROVEMENT OF HYGIENIC FISH HANDLING AT FISH LANDING SITES

Suthipong Thanasarnsakorn, Thaweesak Thimkrub, **Khunthawat Manomavidthikarn**

Suthipong@seafdec.org, Thaweesak@seafdec.org, khunthawat@seafdec.org

Marine Engineering Section, Training and Supporting Research Division

Southeast Asian Fisheries Development Center (Training Department), Thailand

Extended Abstracts

Hygienic issues at fish markets and fish landing sites were implemented by the Department of Fisheries. We had an opportunity to work with Department of Fisheries since 2015 to improve the issues through three main items on sorting fish on floor, untreated cleaning water, and more hygienic cleaning method of baskets and fish markets at a private voluntary fishing port in Rayong province.

During preliminary observation concerning on hygienic facilities at the fishing port, the owner provides almost suitable hygiene of size sorting table and pumped underground water for cleaning purposes. However, sorting fishes by species are still done on the floor which will be contaminated with dirty water. Not only contamination on sorting fish on floor, but also unperfected cleaning baskets is by passing water outside baskets one time without brushing inside to remove stick fish scraps. The cleaned baskets are overlay in several rows without any fly protection and drying with sun light.

With the previous described situation and to solve sorting fish by species, four (4) designed species sorting tables were provided for their sorting process. The table contributed to improve hygiene during species sorting because of without cleaning water contamination and convenient to clean under the table. But there are some negative impacts when using species sorting table, these are fatigue of sorting workers for long time standing and transferring workers for dumping fishes on the table resulting to expand working time and to refuse using the table.

In terms of hygienic cleaning water, the owner used underground water.

For unsuitable cleaning of basket that is mentioned previously, it should install medium pressure pump or agriculture water pump with handle nozzle injector. Injecting medium water pressure both inside and outside the baskets can remove almost stick fish scraps.

Due to unsuccessful contribution of hygiene in Rayong, the expand cooperative activities on improvement of hygienic fish market with fish market organization was done again at Yanawa fish market, Bangkok in year 2016. This step, planning and discussion among SEAFDEC staff and expertise of fish market organization was done at Yanawa office. Preliminary observation with recording by CCTV had been done for one month and it was found that:

At Yanawa, it has three fish markets including seawater fish/shrimp, squid, and freshwater fish. Each market has individual working activity because of difference in unloading amount and product species.

Due to limited space at the market, fish vendors use their area for multi-purpose application for unloading, storage, sorting, and selling products. With this reason, vendors used rubber, plastic, or canvas sheet to support sorted fish/shrimp for selling, and some merchants used the supporting sheet for sorting fish/shrimp on floor because of simple and low cost to manage space utilization. Even the protection of contamination is less effective by using the supporting sheet, but they attempted to keep clean on their working area by cleaning with pumped water often. The other weakness points of using supporting sheet on the floor are flood over with dirty water and walking over by workers during work.

The second is squid market, vendors dump several bulks of squid on rubber sheet covered all the concession area where customers can walk-in without cleaning their feet before making auction. This selling process spend not over half hour until squid market ended.

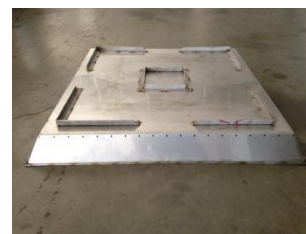
Lastly, the freshwater fish market, freshwater fishes are transported by pickup truck. These fishes were dump on the floor that lay with big plastic sheet, however, many fishes slide out the sheet area that touch on floor surface directly. With big amount of fish on floor, workers can step over fishes to sort them by size and storage in several plastic boxes which customers can enter to buy these fishes in boxes by auction. The selling freshwater fishes will end within not over two hours.

From previous description, every selling market has different owners, customers, and workers in the same area. Until dealing activity ended, working area was cleaned by using pumped river water to remove mucilage, blood, remaining trash and bacterial accumulation on surface floor occurred from marketing activities.

According to the study, there are many hygienic impacts concerns in fish market such as contaminations from cleaning water and dirty residues on working floor. At initiative stage, we had discussed with the in-charge person of fish market organization to mitigate on bacterial contamination from cleaning water and to protect walking over of workers by using stainless steel trays, especially function during sorting and show casing. In which the shape, size, and dimension designation of the tray were designed and discussed with expertise of fish market before fabrication. After these trays were distributed to four pilot volunteer merchants for demonstration use.



Upper view of the tray



Bottom side of the tray

Figure 1 Stainless steel tray

Specific dimension of tray is 1 m width 1 m length and 0.1 m height , 1 inch leg height 5 mm hole around bottom edge of tray to release water out. 1 inch height of leg is to avoid residue water on floor that contaminates fish in the tray. This shape of tray can overlay multi-layers to efficient storage space. Due to durability, light weight, and corrosion free, food grade stainless steel is a suitable choice to be applied.

By observing the use of sorting trays distributed to the voluntary fish market, they can prevent contamination of dirty cleaning water and walking over the fishes. Since limited amount of distributed trays, some sorted fishes were still placed on rubber sheet which is able to be contaminated from floor cleaning water. In contrast, some fish market does not sort fish on rubber/plastic canvas but showcasing sorted fish on the trays waiting for customer.

Even the trays catch our objectives on avoiding bacterial contamination from cleaning water, but with limitation both size and insufficient amount of tray distributed for sorting, heavy weight 20 kgs. each, workers of fish market did not prefer to apply the tray and use their method by laying their rubber/plastic canvas on floor. Not only these several obstructions, but also limit working space in fish market results to slow down working speed and inconvenience in working because of obstacle tray when workers drag and pull insulated containers in working zone. Space application in fish market was varied often for sorting and showcasing. With these reasons, the trays was located along edge of fish market to avoid interference in working of worker in the center of working space. In other words, workers in fish market use crotchet to hook and pull the trays during movement in the working zone, however there are only two hooking points on the tray that are difficult for worker to hook the trays. These limitations and weaknesses of trays cause to refuse by fish markets.

To acquire more information on hygiene of fish market or fishing port, we had a hygiene survey trip to observed various fish landing sites along the Southern part of Thailand. Each fish landing site has individual technique in unloading and sorting fishes. Two efficient fish landing sites in Pattanee and Phuket are the base models in sorting fish species from purse seine fishing boat by using deep bottom plastic tray and sorting table with small edge high. In this case two fishing ports have enough space to support fish market activities. However, when fish landing sites having limited space such as in Ranong and Yanawa Bangkok, fish market owner/organization should prepare various sizes of plastic tray such as 1x2x0.1 m or 1x2x0.25 m and sufficient amount to supply users in fish market. In selling process, fish market owners should use small table to place fishes for showcasing products.

Lastly, marine engineering section under SEAFDEC flag have to acknowledge the Department of Fisheries, voluntary fishing ports in Rayong, fish markets in Yanawa, and Fish Market Organization in supporting the places, suggestions on suitable improvement of hygienic fishing port, and time until each activity completed.

