Fish By-Catch ... Bonus From The Sea
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Fish By-Catch... Bonus from the Sea

Report of a Technical Consultation on Shrimp By-Catch Utilization held in Georgetown, Guyana, 27–30 October 1981

Jointly sponsored by:
The Food and Agriculture Organization of the United Nations and International Development Research Centre
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Possibilities of Marketing Shrimp By-Catch in Central America

Miguel S. Peña  Food and Agriculture Organization of the United Nations, Rome, Italy

By-catch in the eastern Pacific mainly comprises species of high consumer demand. If they were fully utilized and the marketing of titi shrimp were modified, profits would increase noticeably. The economic advantages to be derived from a more rational use of these species and the creation of new markets are analyzed in this paper from data gathered during fishing trips made in February and March 1979. As the possibilities and problems are common to all countries in the area, a regional plan to coordinate joint efforts is advocated.

Study aboard shrimp trawlers in Panama Bay during February and March 1979 showed that shrimp by-catch in the Pacific territorial waters of Nicaragua, Panama, and Colombia comprises species of fish of high consumer demand in international markets. If these species were fully utilized, revenues would increase substantially. Data used in this paper come from trawling operations in which I was involved, classifying and weighing fish from three zones in the Panama Bay and determining their marketability.

A study was launched to determine composition and volume of by-catch, which was to be followed by marketing analyses and research on preservation techniques on board, in order to assess profitability of exporting these species. Although only the first stage has been completed, a glimpse of possible future profits can be had if one looks at retail prices and transportation costs.

The term “shrimp by-catch” has been used in this paper to mean species other than white, red, or carabali shrimps that are considered large enough to be kept by the shrimpers. Thus, some species of shrimp (e.g., titi, fidel), easily marketable abroad, come under this definition of by-catch.

Methods

A form was prepared for records of number of species, size, weight, and relative volume. Fishing trips were of 3–4 days — too short a time to allow shrimping far from the coast. The crews did not consider the areas to be the best shrimping grounds so the results of my study may not reflect the true picture of by-catch in the area. In fact, the species (e.g., surmullet) of interest thrive also in areas where shrimp trawlers do not normally operate.

Normal trawling operations were carried out, i.e., a zone was abandoned when the test trawl did not detect any shrimp or where titi shrimp prevailed over white; average duration was 2–3 hours and trawls were repeated when the catch proved satisfactory. Seven fishing trips were made, three in February and four in March, for a total of 22 days at sea; 75 castings were made, and the trawls were in operation for a total of 214 hours.

Observations

The crews

Among the many factors involved in the possible utilization of the by-catch, trawler crews are the most important. Their attitude toward landing the fish catch, their training, salary system, and potential income increases, etc. are at present unknown but are crucial. The shrimp-trawling activities have been geared to the demand for shrimp tails in the American market, so even the condition of the whole shrimp is not a concern.

Present use of the by-catch

The by-catch in the area can be divided into two categories: marketable fish and species that require special processing on board or ashore. I do not deal with the latter group in this paper. The former comprises fish potentially marketable abroad and species popular in the domestic market.
Almost all the fish marketable abroad are jettisoned to the sea, because either their value is not realized by the crew (e.g., different varieties of sole) or there is some uncertainty of demand. The species popular in the domestic market are not systematically thrown overboard. Rather, the last few days' catch is kept: a part is sold to intermediaries and the rest is taken home by the crew. When a vessel will be operating in an area for some time, these species are used as barter with merchants ashore. The crew always know someone who will exchange fish (and, apparently, also shrimp) for a number of different products (i.e., groceries, tobacco, lottery tickets, etc.).

The large amounts of tiri shrimp jettisoned to the sea have begun to attract considerable attention. During the second trip alone, I saw hundreds of kilograms of yellow tiri shrimp thrown overboard simply because they were smaller than average, although their quality — firmness and taste — was quite acceptable. Also, during the last trip, considerable amounts of tiri shrimp of acceptable size were thrown overboard because either the catch was "tired" as a result of excessively long trawls (4 hours) or the volume caught was so large that the time between the landing of the twin trawls was insufficient for proper handling of the whole catch.

The colour of tiri shrimp, when alive, would render its marketing difficult in Europe; however, once it has been cooked, it closely resembles white shrimp. This fact, combined with its fairly good size and the existence of markets for whole shrimp, makes the species commercially attractive.

On-board selection operations

When the catch is unloaded on the deck, shrimp are either headed immediately or just separated from the fish and headed later. In either case, the fish considered valuable are put aside, for up to 2 hours, without even being hosed down. If more attention were paid to these fish from the outset, their quality would doubtlessly be enhanced. The fish should be washed and stored in the hold before the shrimp are headed because it would take only 5–10 minutes for a couple of workers to do. However, as the crews are used to paying attention only to shrimp, any additional tasks would have to be accompanied by direct salary increases.

Processing tiri shrimp on board

The chronological order of operations on deck is sorting shrimp from by-catch and discarding waste, heading white shrimp, and heading tiri shrimp. However, the time spent on heading tiri shrimp is the longest, followed by sorting catch and discarding waste.

That is to say, the product of lower market value is the most time-consuming (on board) and also the most painstaking, involving squatting for hours and inflicting scratches and cuts on the crews' hands. These findings apply only to average-size tiri shrimp, for the smaller yellow tiri shrimp are entirely jettisoned to the sea.

Tests conducted with small tiri shrimp were encouraging, indicating that an easily marketable product similar to European-depth shrimp could be obtained if the shrimp were boiled and coloured artificially. This process could be undertaken on board, as is done on many European vessels. The crew would welcome a shift from the method of heading to boiling, as it would lighten their work load markedly.

Underutilized Species of Fish

There are some potentially marketable species in the different fishing zones. In my opinion, the most important are catfish, cachaco, small mackerel, and croaker, although squid, sole, plaice, and surmullet are also included.

In some countries, among them Nicaragua, attempts have been made to export catfish to the USA; however, they have not been successful, perhaps because the quality of the shipments is not uniform nor is the supply constant. In contrast, the problem with cachaco is merchandising. As with tiri shrimp, if this fish were a different colour, it could be easily sold in Europe at a good price. All mackerel and croaker less than 25 cm long are routinely discarded. This fact is almost inconceivable, as these are two of the most popular and sought-after species in the domestic markets.

During the fishing trips, all of the underutilized species were tasted and were highly rated by national and foreign personnel, who included people from different social strata. After having tasted boiled surmullet, sole, squid, and tiri shrimp, I feel that European consumers would find them quite acceptable.
The countries to which the fish are most likely to be exported are Spain, France, Italy, Germany, and England.

Conclusions and Recommendations

During the fishing trips I took in 1979, my observation was that the by-catch in Panama Bay potentially has a high market value and could command a good selling price if commercially exploited. The composition of the catch in other countries of the area, including Nicaragua and Colombia, is almost identical, although relative percentages are unknown.

Economic incentives for the crew to bring in the catch are fundamental; in the case of titi shrimp, the introduction of a new, simpler method of handling — boiling rather than heading — may be enough incentive to encourage shrimpers to explore the potential for the species.

If working procedures were modified and simple fish-handling methods were introduced, most, if not all, the marketable species could be kept on the vessels (both those with ice-filled tanks and those with refrigeration equipment) for the short (3–4 day) trips.

In the three countries in the area where it has been shown that most species in the by-catch are in demand on international and domestic markets, it is strongly recommended that at least one shrimp vessel be used solely for the by-catch (in some instances, there are government-owned vessels). These vessels would initially be a “test bench” for the modifications to be introduced and, later, (when the method has been perfected) be used as schools for the training of new crews.

As the by-catch in the region is quite similar, a regional plan is strongly recommended, making use of the Panamanian experience. This would make a collective approach possible, thus reducing the costs of the program.

It is vital for the shrimp industry in this area to open new markets, avoiding total dependence on the U.S. New markets would not only mean increased demand but, in some cases, higher prices — e.g., for titi shrimp — and use of previously wasted fish.