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NOTE

Selective Device for Separation of Shrimp and Fish in Trawls

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A new separator device with horizontally divided codend has been developed for segregation of shrimp and fish during shrimp trawling. The results of fishing trials carried out with the device indicated that about 90% of the shrimp was caught in the lower part of codend and fish was dominant (87%) in the upper part. The advantages of this device are also highlighted.

Studies on selectivity in shrimp trawl assume importance in the context of conservation and other management measures. Over the years extensive studies were carried out at central Institute of Fisheries Technology on trawl selectivity so as to separate the catch of juveniles and young ones of shrimp and fish. Subsequently development of selective device for shrimp trawling has also been given priority. In shrimp trawling the shrimp constitutes only 10 to 30% and rest is comprised of other non-target species. The increasing trend in the quantum of non-target species, otherwise termed as by catch, due to indiscriminate and non selective trawling, has made onboard separation of shrimp and fish a time consuming and laborious process. To overcome these difficulties a new separator device has been developed to separate the shrimp from other fish during fishing itself. The concept of separator trawl was experimented by Karlsen & Mathai (1977), Ashok & Sheshappa (1991) and Anon (1998). The present communication deals with the fishing trials carried out with a new grid type separator device.

This device consisted of a circular grid of 80.0 mm diameter made of 8.0 mm steel rod, and horizontally divided into two equal halves with a steel rod. The lower half of the grid was provided with square mesh webbing of 50 or 60 mm mesh size. This grid was attached ahead of the codend at an angle of 45° to 50°. The cod end was also horizontally divided into lower and upper parts. The details of grid and rigging are shown in fig. 1. The difference in the swimming pattern of shrimp and fish

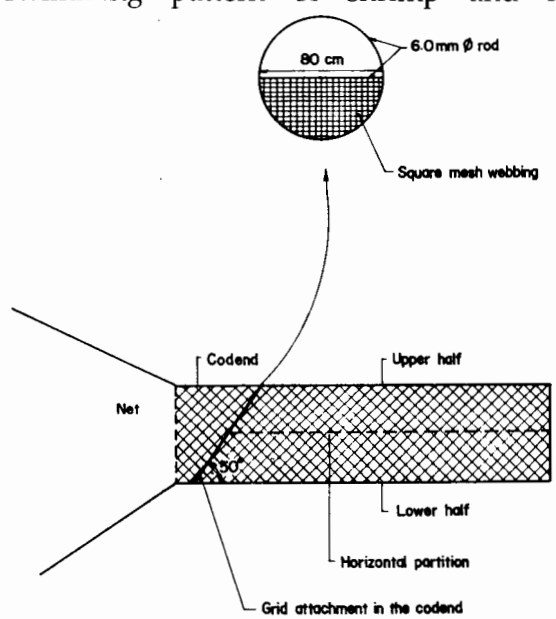

Fig. 1. Shrimp and fish separating device.

(shrimp swims to the lower layer and fish to the upper layer inside the net) has been taken as basic principle for the development of the separator device. Accordingly, shrimps are taken along with the flow of water directly to the lower codend through the square mesh of the grid and the fish enters the upper part of the codend. The webbing provided in the lower half of the grid served as a barrier and also guided most of the fish to swim upward and enter the upper part of codend. However, some small fish passed through the square mesh and entered the lower codend.

Fishing trials were carried out with a 32.0-m shrimp trawl attached with separator device from departmental vessel at a depth range of 10 to 15 m off Cochin. The data on the composition of catch in the lower and upper cod ends collected during each haul indicated effective separation of shrimp and fish in the lower and upper portion respectively. The catch details and the percentage of shrimp and fish in each part of the codend are given table 1.

Table 1. Proportion shrimp and fish in lower and upper codend

Species	Catch in kg	
	Lower codend	Upper
Shrimp	55.00 (90.16%)	6.00 (9.84%)
Fish	25.00 (13.15%)	165.00 (86.85%)

The advantages of this type of separator device are 1) The fabrication of this device is simple and inexpensive and can be easily installed in the shrimp trawl 2) The time spent on sorting can be saved considerably 3) The shrimp catch is clean and free from jelly fish as most of the jelly fish enter the upper codend 4) The damage to the shrimp can also be avoided because of the separation of fish 5) If the fish catch in the upper codend is of juveniles or of poor quality, it can be released back to the sea without lifting the codend. Hence it can be concluded that the use of this device will improve the fishing efficiency and quality of shrimp catch.

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