CHAPTER VII
EXTENSION ACTIVITIES

The trawlers of Karnataka use nets with different mesh sizes depending upon the time of trawling. The codend mesh size varies from 10 to 22 mm, which is small and could harvest the large quantity of juveniles. Hence it is essential to conduct the awareness program on responsible fishing. Fishermen’s responsibility in the utilization of selective fishing is becoming an important subject. Although responsible exploitation of the natural resources of the sea through more selective fishing operations is now being realized as a necessity, the recommendations for more selective fishing have not proven easy to put into practice. Many research institutions have conducted research on the selectivity of fishing methods involving various fish species. However, communications and exchange of information among the fishery industries and communication and exchange of information among the fishery industries and the research sector in the country are in general, very limited. An overall lack of available research data related to the subject is still persists. As problem related to the selectivity of fishing gears are in general common to many of the countries.

The importance of Training of fishers in concepts of selective fishing is recognized and in this regard, consultation with the fishermen is required in order to design appropriate education/extension programmes. (taking into consideration time constraints of vessels operators and when necessary income compensation during the training period). Effort should be made for the dissemination of information to small scale fishermen to explain fisheries management issues. Further to convince and encourage the fishing communities to behave responsibly in harvesting resources. This can be best achieved by showing that it is to their advantage to do so. In many cases, it is advisable to first demonstrate the results of the selective fishing techniques to key fishermen. Allow them to test and examine the results for their acceptance. In certain situations financial incentive may be provided. The information contained in this data sheet is based on work carried out during this study to evaluate the use of square mesh selector panels as a means of releasing
juvenile round fish from demersal towed fishing gears in an attempt to reduce levels of discarded fish.

To understand how the panels work it is necessary to study the behavior of fish as they pass form the trawl mouth to the codend. This has been done through the video films on underwater observations. Over a number of trials, the results obtained with the panels have shown consistent reductions in discard levels of species like threadfin breams, rock cods, pomfrets, bull’s eye, cephalopods and shrimps from nets fitted with square mesh codend when compared with conventional nets made from diamond mesh. As a technical conservation measure, the use of square mesh panels is simple, effective, practical and relatively inexpensive to undertake.

7.1. The use of square mesh netting

With conventional diamond mesh netting have a natural tendency to close-up once the netting comes under tension applied along the direction of tow. In components of the trawl such as the extension and codends, the increased tension caused by the build-up of catch tends to cause a closing of the meshes in these areas resulting in a reduced area of escape for undersized fish. Since size selection is dependant on the mesh opening, the process is vulnerable to changes in the shape of the netting within the codend and extension. One way of improving the selection is to use square mesh netting panels incorporated into the extension. In this way the meshes can be kept more open over a larger area and the positioning of these panels can be varied to optimize the escape of juvenile fish.

To produce this square mesh effect with conventional diamond mesh the netting is turned so that half of the mesh bars are parallel and half at right-angles to the direction of tow of the net. This is achieved by cutting the panels out of conventional sheet netting “on the bar”. Then the netting is not stretched or constricted by water pressure or affected by any other tensions. All the meshes maintain their square shape thus increasing the potential escape area for juvenile fish. Conventional knotted diamond mesh netting can be used for these panels but as per Sea fish authority report, the use of knotless material is preferred. This material has a number of advantages over knotted netting amongst which are: it
maintains a more regular 'square' mesh shape, the absence of knots presents an improved escape area and abrasion damage to the fish is minimized as they pass through the meshes. Finally, panel distortion is reduced as the possibility of knot slippage is eliminated. It should be noted that although it is described as square mesh knotless netting it is sold as “diamond” knotless netting and cut on the square. If knotless netting is damaged it is repaired by cutting out the damaged area and replacing it with a ‘patch’ which is ‘laced in’ along the four sides of the resulting hole. If this is well done it is not a disadvantage and is probably easier for the less skilled fisherman.

7.2. Designing the panels

Based on the result obtained during this study period, 30 mm square mesh netting panels was used to demonstrate the construction of 30 mm square meshed codend. The selector panels are constructed as a complete section of codend to allow more flexibility with their use and simplify their fitting. Each panel section is made up with the square mesh top panel and laced on to lower panel then it is ready for insertion into the desired position within the nets existing extension configuration.

7.3. Fitting the Panels

All the panels described use a diamond mesh: square mesh joining rate of 2:1 when fitted into the extension/codend section of a net. The bottom panels are joined at a normal 1:1 rate. Once the panel width has been determined it is cut out from sheet netting. It is an advantage to selvedge the square mesh section separately before lacing together. Since it has been cut from diamond mesh sheet netting, it has a tendency to try and pull back into diamond mesh configuration. By selvedging the panel prior to lacing together, the section maintains its square mesh shape more easily.

If the netting section to which the square mesh panel is to be attached has a four-mesh selvedge, then the square mesh panel should have two mesh selvedges. This is achieved by lacing the first three vertical bars together over the full length of the selvedge edge of the panel. It is also important to strengthen the horizontal joining edges of the panel to prevent the meshes parting on the first row of the panel.
This is best achieved by lacing the first two horizontal bars together in a similar way to the selvedge edge.

The joining of the square mesh selector panel section to the existing net can also be simplified by braiding a row of diamond meshes onto the first row of square meshes. This facilitates a conventional diamond mesh join with a simple 2:1 baiting rate. Alternatively, the meshes of this first row can be joined onto the middle of the horizontal bar of the square mesh directly by clove hitching.

Based on the results found during this study and to prevent the onslaught of juveniles, six training programmes were conducted in the coastal districts conducted on “Awareness of responsible fishing and conservation of fishery resources for the fisher folk of coastal Karnataka viz. Mangalore, Malpe, Gangolli, Honnavar, Thadadi and Karwar. Each programme was participated by more than fifty local fishermen, Fishermen associations and officer of the Department of Fisheries.
Fig 46: Inauguration of the training program at Thadadi (North canara)

Fig 47: Training on awareness of responsible fishing being held
Fig 48: Interaction between fishermen and the trainer

Fig 49: Training program held at Karavar
Fig 50: A view of square mesh codend