

# Operation of Multi-Meshed Gill Nets in Kakinada Bay

G.Narayanappa, S.V.S.Rama Rao, J.Sitarama Rao and R.M.Naidu  
Research Centre of Central Institute of Fisheries Technology, Kakinada - 533 003

This communication deals with the results obtained with the multi mesh gill nets in Kakinada bay operated from a traditional Nava. Multi-meshed gill nets with three different mesh sizes namely, 30 mm, 40 mm and 50 mm with depth-wise arrangement were operated along with traditional gill nets of same mesh sizes to evaluate the relative catch efficiency of the different mesh sizes. These investigations revealed the effectiveness of 30mm meshsize over the rest and the predominance of Clupeids in the catches.

Several workers have studied the efficiency and determined optimum mesh size for exploitation of a particular species of fish. (Joseph & Sebastian, 1964; Sreekrishna *et al.*, 1972; Sulochanan *et al.*, 1975 and Panicker *et al.*, 1978). An attempt was made to operate gill nets of 3 different mesh sizes distributed depthwise to assess their efficiency for exploiting different types of fish simultaneously. The results of these operations are incorporated in this communication.

## Materials and Methods

The experimental nets consisted of 9 sets of multi-mesh webbing (Fig. 1) of mesh size 30, 40 and 50 mm fabricated with nylon 210x1x2 and 3 simple gill nets each of similar mesh size. The area of webbing both in multi mesh and simple gill net of a particular mesh size remained the same. The nets were operated between 5 and 10 m depth and data collected on the fish caught and their level of occurrence.

## Results and Discussion

The particulars of catch along with CPUE with multi mesh gill net and simple gill nets of different mesh sizes are given in Table 1. The total catch is more with simple gill nets than with multimesh gill net by 46.5% . 30 mm mesh proved to be effective in both multi mesh and simple gill net units.

Table 1. *Catch per unit effort of multi meshed and simple gill nets*

Gear	Multi meshed gill net Catch/1000 sq. m of webbing in kg			Simple gill net Catch/1000 sq.m of webbing in kg		
	30 mm	40 mm	50 mm	30 mm	40 mm	50 mm
Species landed						
<i>Engraulis</i> spp.	3.75	0.45	0.07	4.46	0.56	0.21
<i>Pellona</i> spp.	0.99	0.58	0.29	1.42	0.39	0.36
Ribbon fish	1.00	0.16	0.15	1.33	0.33	0.11
Sardines	0.30	0.06	0.13	0.60	0.24	0.19
<i>Polynemus</i>	0.20	0.04	0.09	0.39	0.18	0.13
<i>Sciaenid</i> spp.	0.18	0.15	0.03	0.15	0.18	0.12
Others	0.53	-	-	0.18	0.06	-
Total	6.85	1.45	0.76	8.75	1.94	1.12

The percentage composition of different species in total catch and that of multi mesh gill net and simple gill net is shown in Table 2.

Table 2. *Percentage composition of catches in total and from the catch of simple and multi meshed gill nets*

	Percentage in total catch	Percentage in simple gill net	Percentage in multi meshed gill net
<i>Engraulis</i>	40.69	41.40	47.29
<i>Pellona</i> spp.	19.53	19.59	19.42
Ribbon fish	15.42	15.93	14.52
Sardines	7.95	9.39	5.37
<i>Polynemus</i> spp.	5.30	6.26	3.58
<i>Sciaenids</i>	3.74	3.98	3.46
Others	4.70	3.81	6.35

The table also shows that both multi mesh gill net and simple gill net landed almost identical percentage composition of species.

In order to assess the vertical distribution of fishes, the catches were analysed from the positions of gilling in the net. For this purpose each net was divided into upper middle and bottom layers having a depth of 1.5 m each. The catch landed from each layer was recorded and the percentage of different fish landed from each area are shown in Table 3.

Table 3. *Percentage composition of fish landed in different layers of net*

	Upper	Middle	Lower
<i>Engraulis</i> spp.	21.0	40.3	38.7
<i>Pellonas</i> spp.	25.5	28.2	46.3
Ribbon fish	24.0	31.0	45.0
Sardines	24.0	52.0	24.0
Total	22.5	36.5	41.0

As seen from the table it is clear that *Engraulis* spp. and sardines were landed more from middle layer while other fishes were caught more from the bottom layer. In total, the bottom layer is more effective, landing 41% of the total catch followed by middle layer with 36.5% and upper layer with 22.5%.

It is evident from this study that for the better exploitation of the fishery, 30 mm gill net is more effective. Middle and bottom layers of the webbing fetched more catch.

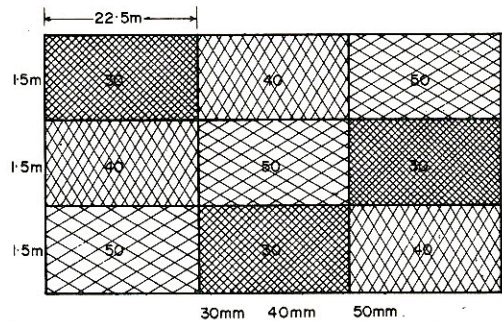


Fig. 1. Arrangements of different mesh sizes in set

The authors are grateful to Dr. C.C.P.Rao for his keen interest and encouragement and Shri M.R.Nair, Director, Central Institute of Fisheries Technology, Cochin for permission to publish this communication. Thanks are also due to Shri C.S.Haribabu, Technical Assistant for his technical support.

**References**

Joseph, K.M., Sebastian, A.V.(1964) *Fish. Technol.* **1**, 130

Panicker, P.A., Sivan, T.M., Mhalathakar, H.N.& George Mathai, P. (1978) *Fish.Technol.***15**, 61

Sreekrishna, Y., Sitarama Rao, J., Percy Dawson, Joseph Mathai, T.& Sulochanan, P. (1972) *Fish.Technol.***9**, 133

Sulochanan, P.Sadanandan, K.A., Joseph Mathai, T.& Syed Abbas, M.(1975) *Fish.Technol.* **12**, 52