



## TECHNICAL ASPECTS, DESIGN AND OPERATION OF SCOOP NET OF RATNAGIRI, MAHARASHTRA

**Miss. Mayuri U. Dongare,**  
Department of Fisheries Engineering,  
College of Fisheries, Shirgaon,  
Ratnagiri-415 629, India.

**Dr. Ashish S. Mohite,**  
Professor & Head,  
Department of Fisheries Engineering,  
College of Fisheries, Shirgaon,  
Ratnagiri-415 629, India.

### **ABSTRACT**

*The present study encompasses the traditional fishing method of Scoop net practiced in Ratnagiri, Maharashtra. Scoop net locally known as Ind or Indi, was a semicircular bag like net operated in 4 to 5 ft depth of water to catch bivalves. Blue or green coloured PE multifilament twine of 210D×2×3 was used to fabricate the main webbing and its mesh size ranged from 20 to 30 mm. Semicircular bow like wooden frame was prepared by bending Nirgandi wood stick (*Sonnertia alba*) of 3.5 to 5.5 cm diameter and both the ends of stick were tied with the help of 2 to 3 mm diameter PP rope to form a bow like structure. Polypropylene rope of 3 to 4 mm diameter having 70 to 94 cm in length was used at the centre of the net as a pulling chord. One or two oval or round shaped HDPE or cork floats were used at one end of the pulling chord, to locate the gear in case it got lost during the operation.*

**KEY WORDS** Traditional fishing methods, Scoop net, *Ind*, *Indi*

## INTRODUCTION

The design and efficiency of traditional fishing gears draw strength from a practical knowledge accrued over several generations of human enterprise and they remain valid and effective even today. Thus, the present generation has still a lot to learn from this treasure of traditional knowledge (Remesan, 2009). The west coast of India is rich in tradition related to fisheries for two reasons. Firstly, the traditional fishing communities and the like, have a rich legacy of traditional knowledge and secondly, there exists a very wide continental shelf on the west coast enabling better harvesting of fish (Sharma *et al.*, 2012).

The present study is an attempt to document the variations observed with respect to the technical specifications, material used, mode of operation, etc in the traditional fishing method of Scoop net practiced in Ratnagiri, Maharashtra.

## MATERIALS AND METHOD

Ratnagiri (16°58'57" N latitude and 73°18'43" E longitude) an important fishing centre was selected as the sampling area for the present study. Structured interview schedule comprising of two major sections was formulated to collect data required for the present study. The first section dealt with the particulars of the traditional gear owners and second for the detail specifications of the respective traditional gears operated. The information included in the first section was recorded according to Sreekrishna and Shenoy (2001) whereas, information in the second section was collected according to George *et al.* (1983) and Akerman (1986). The technical specifications of the traditional gear, design and mode of operation were recorded. Collected data was statistically analyzed as required (Snedecor and Cochran, 1967).

## RESULTS

Scoop net locally known as *Ind* or *Indi*, was a semicircular bag like net operated in 4 to 5 ft depth of water. Main target species were Bivalves. The scoop net was observed to be operated from Karla and Sakhartar fish landing centres of Ratnagiri. The gear comprised of conical bag like net supported by semicircular wooden frame. Technical specifications of the Scoop net are stated in the Table 1, its design in Fig 1 and its rigging and operation are depicted in Photo 1 and Photo 2; respectively.

For construction of the bag like conical net, PE multifilament twine of 210D×2×3 was used. Mesh size of 20 to 30 mm was used for the construction of the netting and was fabricated

with the help of blue or green coloured twine. Semicircular bow like wooden frame was prepared by bending *Nirgandi* wood stick (*Sonnertia alba*) of 0.85 to 1.5 m length and diameter of 3.5 to 5.5 cm. The stick was bent to form semicircular shape and both the ends of the stick were tied with the help of 2 to 3 mm diameter PP rope to form a bow like structure. Polypropylene rope of 3 to 4 mm diameter, 70 to 94 cm in length was generally used at the centre of the net as a pulling cord. Two bridle ropes of similar specifications were also used from its two sides and these two side ropes were tied to the central pulling cord, for ease of operation of the Scoop net. One or two oval or round shaped HDPE or cork floats were used at one end of the pulling cord. Floats are generally used to find the gear in case it is lost during operation.

The main net webbing was tied mesh to mesh to the wooden frame by lacing it with PE twine of similar size as that used for the main webbing and was tied at regular intervals. The depth of net was maintained around 30 to 55 cm and the cod end meshes were closed using PE twine of same specifications. From two sides of the semi-circular frame, two bridle ropes were tied which were then attached to the pulling cord at the centre. One or two floats were attached to the other free end of the pulling cord.

The fishermen operated the Scoop net in chest deep waters by submerging it into the water and placing it on the bottom of the water body, keeping its mouth vertically open by holding the bridle line in one foot. Then the fisherman dragged the muddy bottom along with the bivalves in to the net with the help of the other foot. Fisherman kept shifting the operation of the net at different spots on the bottom. After sufficient quantity of bivalves were collected inside the net, the net was lifted to the water surface. The collected bivalves were washed with the water and then stored in a small craft, mostly a dug-out canoe. The process was repeated till sufficient quantity of bivalves were harvested.

## **DISCUSSION**

Scoop net fishing of north Kerala was studied by Remesan, (2009) while Devi *et al.*, (2013) documented the fishing with the help of various types of Scoop nets locally know as *Longthrai* from central valley region of Manipur. They found that in central valley region of Manipur Scoop net were constructed using nylon netting or mosquito net which was mounted on the bamboo frame or jute frame with long handle attached to the frame. Slightly similar type of construction was seen during present investigation. Scoop net, fabricated of slightly thinner twine of PA multifilament having specification of 210D×1×2 or 210D×1×3 used for the construction of webbing of 1.5 m long with 0.7 m diameter at mouth and about 0.2 m at the cod

end; was recorded by Remesan, (2009) in Kerala. He also reported that, the mesh size of webbing ranged from 20 to 25 mm while in Ratnagiri, similar sizes mesh size i.e. 20 to 30 mm was used for construction of main webbing or bag. Manna *et al.*, (2011) studied the fishing crafts and gears of river Krishna. They observed that, circular Scoop net of 1.5 m long and 0.3 m diameter long handle was used to attract the fishes with light at night and then capture the fish by lifting the net. In daytime, Scoop net was used to catch slow moving fishes. In the shallow waters of 0.5 to 1.5 m depth, fishes were visible from the surface and were easily caught with this net.

## CONCLUSION

The documented information on the technical specifications and operation of the traditional fishing method of Scoop net locally known as *Ind* or *Indi* practiced in Ratnagiri, Maharashtra would serve as a base line information for the technological modifications the net may undergo to increase its efficiency in the coming years.

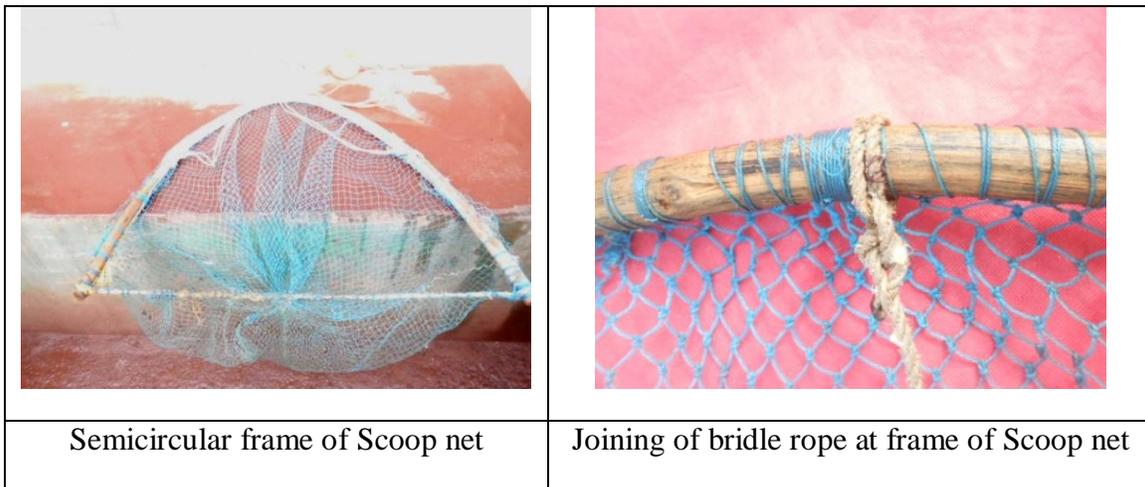
## ACKNOWLEDGEMENT

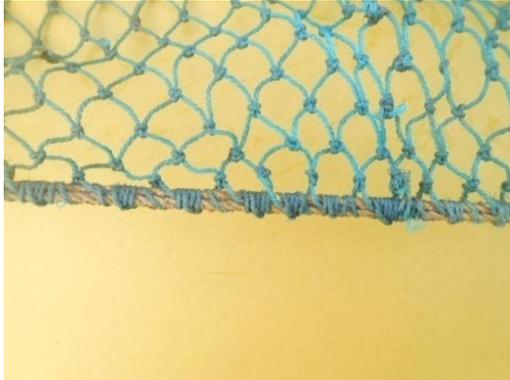
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**Table 1 TECHNICAL SPECIFICATIONS OF SCOOP NET / IND**

Stations name	Karla, Sakhartar
Local name	<i>Ind / Indi</i>
Depth of operation (ft)	4 to 5
Target species	Bivalves
<b>Specifications of Twine</b>	
Twine type	PE multifilament twine (210D×2×3)
Colour	Blue / Green
Mesh size (mm)	20 to 30
Mean Mesh size (mm)	24 ± 0.12
<b>Specifications of Frame</b>	
Material	Wood of <i>Nirgandi (Sonertia alba)</i>
Shape	Semicircular
Diameter (cm)	3.5 to 5.5
Mean Diameter (cm)	4.54 ± 0.21

Length (m)	0.85 to 1.5
Mean Length (m)	0.95 ± 0.21
Depth of net (cm)	30 to 55
Mean Depth (cm)	45.4 ± 0.20
<b>Specifications of Pulling chord</b>	
Material	Polypropylene (PP)
Diameter (mm)	3 to 4
Mean Diameter (mm)	3.6 ± 0.19
Length (cm)	70 to 94
<b>Specifications of Floats</b>	
Material	HDPE / Cork
Shape	Oval / Round
No. of floats used	1 or 2



	
<p>Stapling of meshes by joining rope</p>	<p>Attachment of pulling cord</p>
	
<p>Attachments of floats</p>	

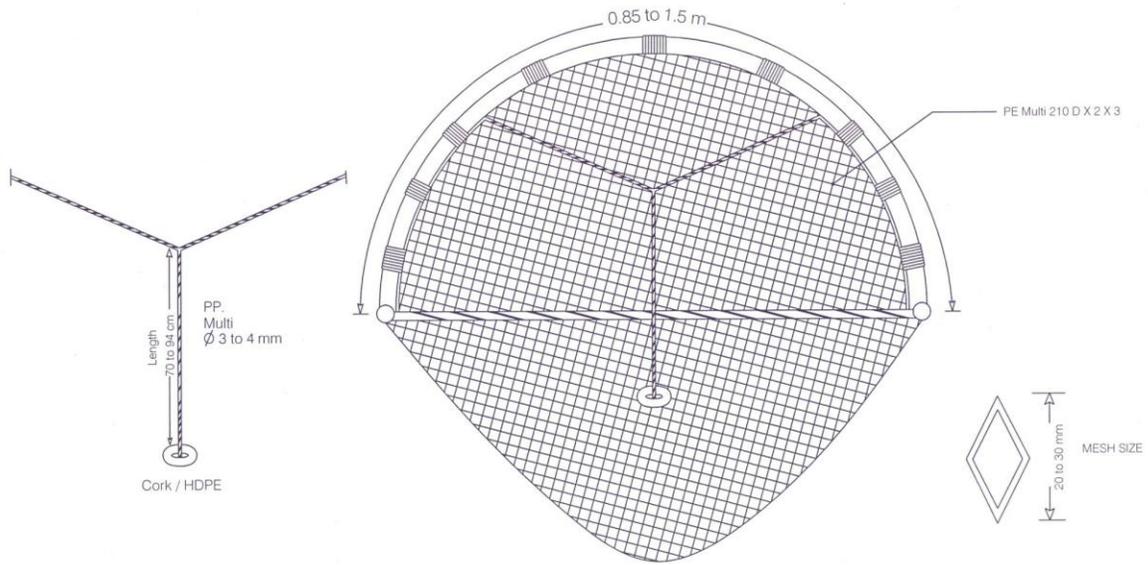
**Photo 1 Gear accessories and rigging of Scoop net (*Ind*)**





Harvesting of bivalves with the help of Scoop net

**Photo 2 Operation of Scoop net (*Ind*)**



**Fig 1 DESIGN OF SCOOP NET / IND**

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