

Research Note

Shore Seines of Visakhapatnam in the East Coast of India

G. Rajeswari and R. Raghu Prakash

Research center of Central Institute of Fisheries Technology
Visakhapatnam - 530 003, India

The Shore seines are traditional gears used to exploit the inshore fishery along East Coast of Andhra Pradesh. This gear varies in their construction and mode of operation from one region to another. Two types of seines are operated along the Visakhapatnam Coast. The seines operated without cod end are locally called as *Alivi vala*. The Seines operated with cod end are called *Pedda vala*. The paper gives technical details of the two types of shore seines, its design, materials used, method of fabrication and operation.

Keywords : Shore seine, design feature, Indigenous fishing gear, Alivi Vala, Pedda Vala

Andhra Pradesh, having a coastal line of about 974 Km, contributes nearly 1.50 lakh tons of fish from marine sector. The artisanal fishing sector plays an important role in the fishing activity in Andhra Pradesh. About 3,42,539 indigenous gears are operated by artisanal fisher men of Andhra Pradesh. To exploit the fishery resources, gill nets, shore seines, boat seines, cast nets and hook and lines are the traditional gears widely used along the East coast of India. Among different gears, shore seines are very popular gears and are widely used by artisanal fishermen to exploit the inshore fishery.

Gray *et al.* (2003) described the catch characteristics of beach seine from estuaries. Different types of traditional gears operated along the east coast of India have been described by various authors. (Anon, 1981., Rao *et al.*, 1985). About 87,276 seines are being used in Andhra Pradesh (Anon, 2000). Shore seines are operated during calm weather conditions to catch inshore fishes.

A detailed study of the technical details of shore seines is essential for the further improvement of the gear as well as for conservation of the resources. In the present

communication, the detailed description of shore seines operated along the Visakhapatnam Coast is presented. The design, construction and operation method of shore seines were collected along the Visakhapatnam Coast. Parameters expressing the design characteristics like material, mesh size, diameter etc. were measured and recorded. The mode of operation, season of operations etc were also collected.

Two types of seines are operated along the Visakhapatnam Coast. The seines operated without cod end are locally called as *Alivi vala* (Fig. 1). The Seines operated with cod end are called *Pedda valla* (Fig 2). These nets that were first introduced in Andhra Pradesh in 1963, were made with cotton and later on replaced with nylon. This big net without cod end consists of a wall of webbing with tapering ends. The net is made of 210/2/3 nylon. The main central piece is fabricated with 10 mm mesh having 18 m length and 20 m width. 20mm mesh size of 175 m length and 20 m width tapering to 14 m is attached on either side of middle piece. About 16 units of netting having 30 mm mesh size and 20 m length is attached on either side. The mesh size is gradually increased from 10 to 30 mm and gradually

tapered from 20 m to 6 m on either side. Selvage of 17 meshes of 20mm size and 210/8/3 twine is attached to head and foot rope on either side of central piece and 27 selvage meshes of 20mm mesh size and 210/8/3 twine size is tied to central piece. The remaining part of net on either side is directly attached to head rope and foot rope with 210/12/3 nylon twine. 16 mm diameter HDPE ropes of about 1000 m length are used as head and foot ropes. Thermocol floats (polystyrene) of 15 inches diameter are attached at an interval of 5 m and stone sinkers of 150 g. attached to the foot rope at 0.5m intervals.

The technical details of Pedda vala are presented in Table-1. Pedda vala operated at Visakhapatnam Coast has very long wings with small cod end. This net also has a head rope of 470 m length and a maximum depth of 56 m. The depth gradually increases from the outer panel of net to the middle portion. The gear is fabricated in 5 segments. The front part of net (A) is a 200 m. length of HDPE 16 mm rope. The first segment of the wing part (B) of this net is fabricated with 4mm coir rope of 1800 mm mesh size having 100 meshes length and 40 meshes width on both the sides. The second segment of the net (C) is fabricated with 210/10/3 nylon of

100 mm mesh size having 350 meshes length and 400 meshes depth on both sides. The third segment of the net (D) is fabricated with 210/10/3 nylon webbing of 70 mm mesh sizes having 55 meshes length and 825 meshes width. The middle conical part (E) is made by attachment of 3 triangular webbing pieces. Both the side pieces of the conical part (E1 & E2) are made of 210/10/3 nylon webbing with a mesh size of 50 mm having 175 meshes length and 825 meshes width reduced to 105 meshes. The middle piece of the conical part (E3) is with 50 mm mesh size having 175 meshes length and 220 meshes width increasing to 600 meshes. The cod end (F) is attached to the conical part and is fabricated with nylon 210/10/3 with 10 mm mesh size having a length of 13.5m and depth 9m. Thermocol floats of 8" diameter are fixed at the intervals of 3.5m along the head rope. Stone sinkers of about 2.0 kg are tied to the foot rope at 9 m intervals.

Both alivi vala and Pedda vala are operated in a similar way. The net is operated by about 15-20 fishermen. One end of the net is held by one group of fishermen on the beach and the other end of the net is carried by two persons in a stitched boat up to 5-10 m depth. The net is spread out in a semi circular pattern encircling the

Table 1. The technical details of Peddavala

Specifications	A	B	C	D	E	F (cod-end)
Material	HDPE	Coir webbing	Nylon	Nylon	Nylon	Nylon
Diameter	16 mm	4 mm	210/10/3	210/10/3	210/10/3	210/10/3
Mesh size		1800 mm	100 mm	70 mm	50 mm	10 mm
Type of Knot			Single trawl knot			
Length	200m.	100 meshes	350 meshes	55 meshes	175	13.5 m
Width		40	400	800	E1-825/105 E2-220/600 E3-825/105	9 m
Floats thermocol		8mm at every 3.5m.				
Sinkers stones		2 Kg at every 9 m				
Head rope		12mm	12mm	12mm	12mm	12mm
Foot rope		12mm	12mm	12mm	12mm	12mm

inshore water and the other end of the net is handed over to another group of fishermen on the beach. The two group of fishermen drag the net to the shore from both the sides. The fishes that are in the encircled area gets collected in the cod end. The net is usually set at high tide and hauled up during low tide.

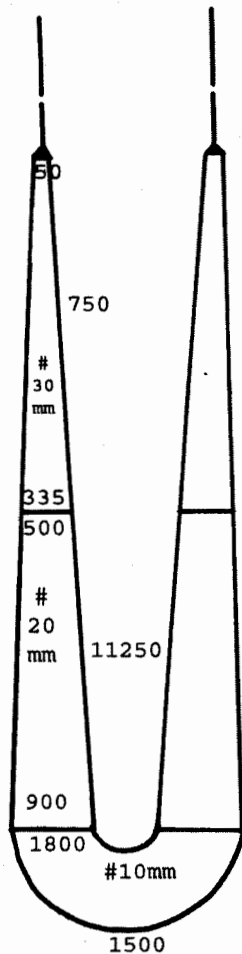


Fig. 1. Alivi Vala

The shore seines are operated during calm weather conditions at even grounds. During the post monsoon season the inshore waters which has relatively higher productivity, form a nursery ground for shoaling fishes like Sciaenids, Clupeids, anchovies, and mullets and they are attracted to the coast. The shore seines are mostly operated from October to February months along Visakhapatnam Coast. The catches from the

shore seine comprised of *Sardinella gibbosa*, *Sardinella fimbriata*, *Dussumieria acuta*, *Upeneus vittatus*, *Upeneus sulphureus*, *Rastrelliger kanagurta*, *Stolephorus commersonii*, *Stolephorus indicus*, *Scomberomonus guttatus*, *Trichiurus russelli*, *Lepturocanthus savala*, *Euthynnus affinis*, *Leiognathus splendens*, *Caranx ignobilis*, *Opisthopterus tardoore*, *Mugil cephalus*, *Eleutheronema tetradactylum*, *Lactarius lactarius*, *Johnius carutta*, *Parastromateus niger* and *Cynoglossus macrolepidotus*.

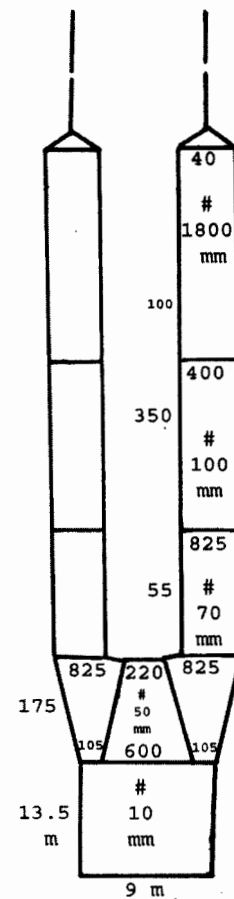


Fig. 2. Pedda Vala

It was observed that the cod end mesh size was only 10mm and consequently large quantity of juveniles of Anchovies, Sardines and prawns were caught in the cod end of shore seine. Beach seine is an active unselective gear (Stergiou *et al.*, 1996). Use of strategically placed panels of transparent mesh would improve size selectivity and reduce bycatch (Grey *et al.*, 2000). Size selectivity in shore seine can also be achieved

by increasing the mesh size of cod end and using of square mesh cod ends.

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