

SHORT COMMUNICATION

FISHING TRIALS WITH TRAWLS IN BRAHMAPUTRA RIVER

The mighty Brahmaputra which flows through Assam is the most important source of fishery activities in the state. The Brahmaputra is one of the largest rivers of the world and provides ample scope to the fishermen of Assam to operate various types of fishing crafts and gear. Large number of seine nets, dragnets, gill nets and lift nets are operated in the river in addition to hooks and lines, fishing traps, cast nets, drag nets and other miscellaneous fishing gear.

Trawl fisheries is a well established fishing method in the marine sector. It is not in vogue in Indian rivers. For the first time, mini trawls were operated on a trial basis in river Brahmaputra. Mini trawls are usually operated in the sea and backwaters by the artisanal fishermen from motorized fishing crafts. Mini trawls using otter boards are operated from dug-out canoes very close to the shore in some parts of Kerala and Karnataka (Ramamurthy and Muthu, 1969). Trawling in a river estuary has been reported by Liggins and Kennelly (1996) and Broadhurst *et al.* (1996) in New South Wales, Australia and in Ashtamudi estuary by Muralikrishna and Onishi (2002). Mini trawls are operated by fishermen by hand in estuary of Kasargod district (Remesan and Ramachandran, 2005). Experimental mini trawling operations were carried out in reservoirs by George (2002) and George *et al.* (1982). Experimental two boat bottom and mid water trawling was carried out by Kartha and Rao (1991) in Gandhisagar reservoir. Vijayan *et al.* (1990) field tested a 12.77 m two seam mini trawl net designed for operation from 8.4

m OAL dugout canoe with 11 hp outboard engine. Dawson (2002) has described about trawling in reservoirs.

A trawl shaped drag net locally known as *Harhori jaal* is operated by the fishermen by hand in shallow waters in river Brahmaputra. Similarly, another bag shaped drag net locally known as *Moi jaal* is mainly operated from canoes for catching bottom dwelling fishes and prawns in the lower stretches of the river. A mini trawl net was fabricated for trial fishing and operated in river Brahmaputra at Guwahati, Palasbari and Chandrapur.

Details of trawl net and otter boards

The design details of 11.20 m demersal trawl net used for trial fishing in Brahmaputra river is given in Fig. 1. The main webbing of the mini trawl was fabricated using 0.5 mm diameter high density polyethylene (HDPE) twine and the cod end was fabricated using 0.75 mm diameter HDPE twine. Uniform mesh size of 30 mm was used for the whole net. Polypropylene (PP) rope of 10 mm diameter was used for the head rope and foot rope of the trawl net. Thirteen aluminium floats of 50 mm diameter were used in the head rope and lead sinkers weighing 10 kgs were used in the foot rope of the trawl. The details of wooden flat rectangular otter boards are given in Fig. 2. Wooden flat rectangular otter boards of 20 mm thickness of size 80 x 40 cm of each weighing 15 kg were used as shearing device. The mini trawl net was operated from CIFT designed and constructed FRP fishing craft of 7.42 m OAL

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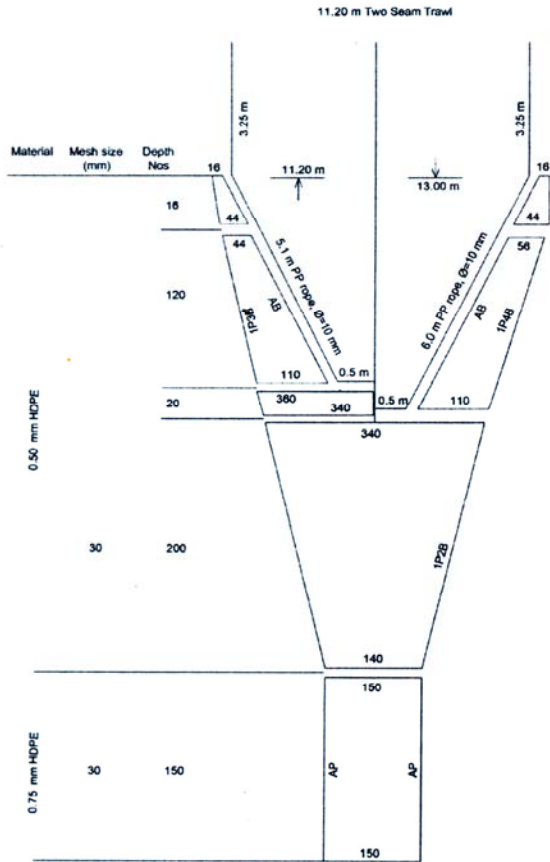


Fig. 1. Design details of 11.20 m two seam demersal trawl.

powered with a 9.9 hp outboard motor (OBM) during December 2005 and January 2006. Trawling was done with an average towing speed of 1.5 knots using flat rectangular otter boards.

The details of fishing trials with mini trawl net are given in Table 1. Trawling was done at depths ranging from 5-15 m. The average duration of haul was 10 min. The depth-warp ratio was maintained at 1 : 3. A total of 15 hauls were made during the period. The catch per effort was calculated in kg h^{-1} . A portable echo-sounder, Simrad EY-60 was used along with a hand held global positioning system, Megellan, GPS to know the depth and the

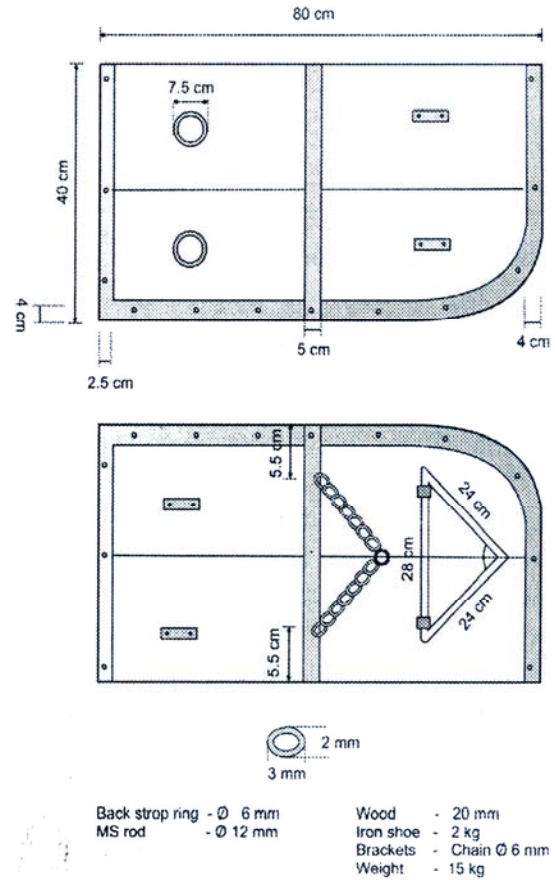


Fig. 2. Design details of flat wooden rectangular otter board.

bottom contour in the river and geographical positions respectively, before commencing of trawling operations. Water current meter developed by CIFT (Sivadas, 1980) was used for recording the speed of water current in the river for suitability of trawling. The risk of loosing the net due to uneven bottom and strong current limited the duration as well as area of operation. The catch comprised small catfishes *Mystus vittatus*, prawns *Macrobrachium* spp and Gangetic ailia, *Ailia coila*.

Because of soft clay and uneven nature of bottom in most parts of the river, trawling operations could not be carried for long stretches in the river. The presence of

Table 1. Details of experimental mini trawl operation in river Brahmaputra.

Area of operation	Depth of operation (m)	Catch	Catch kg h ⁻¹
Guwahati	5-15	<i>Mystus vittatus</i> , <i>Macrobrachium</i> spp, <i>Ailia coila</i>	0.6
Palasbari	10-15	<i>Mystus vittatus</i> , <i>Macrobrachium</i> spp	0.8
Chandrapur	10-15	<i>Mystus vittatus</i> , <i>Macrobrachium</i> spp	0.2

underwater obstructions like tree trunks, stones *etc.*, and strong water current limit the operation of active gear like trawls in the rivers. The chief character of river Brahmaputra is the strong current especially during flood months. The water current speed is maximum in the upper Assam region (Dibrugarh to Tezpur) and it gradually decreases towards lower Assam (from Guwahati to Dhubri). The uneven bottom and strong water currents ranging from (2-4 knots) and debris in the bottom of the river make it difficult to carry out successful trawling in the river.

George has suggested a 12 to 14 m OAL mechanized fishing craft with a 130-150 hp engine and to limit the area of operation of mechanized fishing either from Guwahati to Dhubri or from Naugaon to Dhubri. The efficiency of trawling operations could be increased by using larger boats with high powered engines to trawl in fast flowing waters. However, bottom trawling is one of the most destructive fishing gear because they directly threaten species richness and biodiversity as they catch a variety of non target, undesirable species. It is not advisable to use trawls in rivers due to its destructive nature, and negative impact on the fragile resources. Trawling is a highly capital intensive fishing method and also incurs exorbitant operational and recurring costs which the common riverine fisher would find extremely difficult to meet. Emission from the engines and overfishing could spell threat to the fishery resource and degradation of the

environment. However, experimental trawling could be used for carrying out sampling studies.

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