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A NET FOR SAMPLING THE INTERTIDAL ZONE  
OF AN ESTUARY

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## A NET FOR SAMPLING THE INTERTIDAL ZONE OF AN ESTUARY<sup>1</sup>

Our problem was to develop a net for estimating relative abundance of postlarval brown shrimp (*Penaeus aztecus*) and white shrimp (*P. setiferus*) in the intertidal zone of Galveston Bay. This zone includes

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marsh, beach, tidal creek, and tidal flat habitats. The problem was complicated because of the variation in tides, bottom composition, vegetation, and water depth. Allen and Inglis (1958) described a push net and Renfro (1963) described a small beam trawl that can be used in the shore zones to sample small shrimp, but the push net and the beam trawl cannot be fished

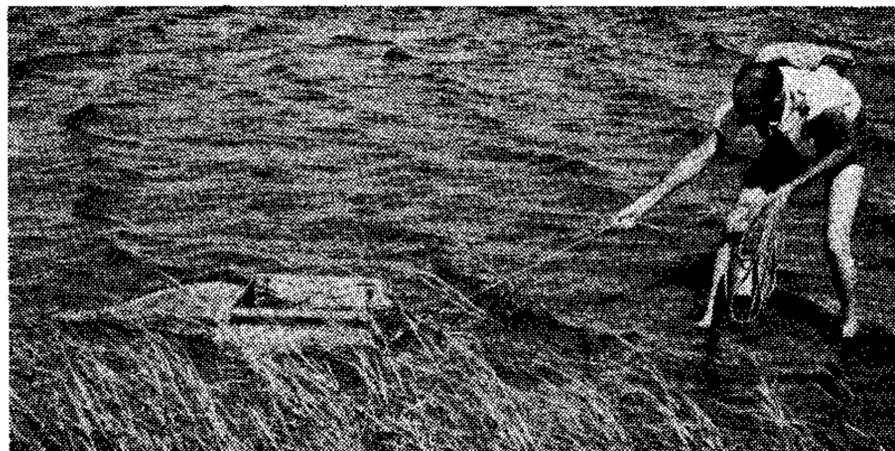
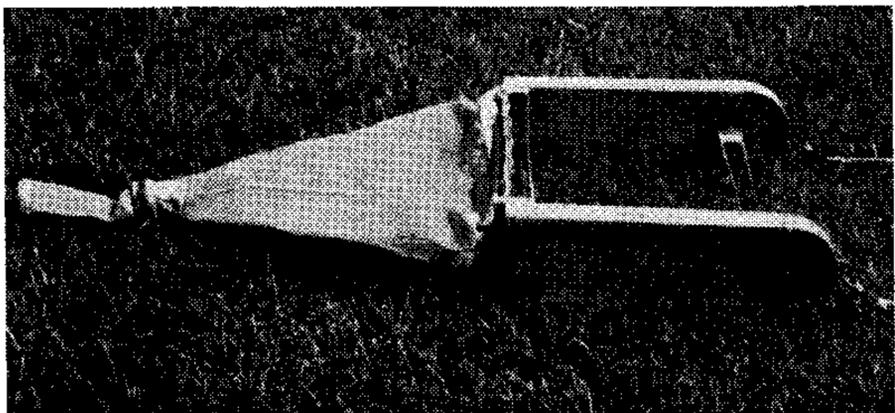


FIG. 1. The marsh net for sampling the intertidal zone of an estuary (upper). The marsh net in operation (lower).

at a constant speed in habitats with soft mud bottoms. This problem was solved by developing a device somewhat similar to a bottom dredge net used by fishermen in the Philippines (Umali 1950).

The sampling device, descriptively called a marsh net, is shown in Fig. 1. The metal frame of the sampler is constructed of No. 22 galvanized sheet metal and 1/4-inch

(6 mm) welding rods. Frame construction and dimensions are shown in Fig. 2. A 0.5-meter plankton net of nylon monofilament screen is laced to the posterior end of the frame. The net has a bayonet-type cod end for easy removal. The mesh size of the plankton net and cod end is about 1 mm (bar measure). The frame and net weigh 5 kg. Costs were \$25 for the metal frame and \$23 for the plankton net and cod end.

Collecting procedure was the same in all habitats of the intertidal zone. The net was placed at one end of the sampling area and 30 m of rope was paid out in an arc to prevent the operator from disturbing the sampling site. The net was then retrieved by hand at a rate of about 0.3 m/sec.

The marsh net was successful in capturing small penaeid shrimp in the intertidal zones of Galveston Bay. Catch per 30-m tow often exceeded 100 individuals. The net also caught large numbers of juvenile fish and crabs.

Advantages of the marsh net over the push net described by Allen and Inglis (1958) and the beam trawl described by Renfro (1963) are: 1) the sampling distance does not have to be measured before taking the sample, 2) the net can be

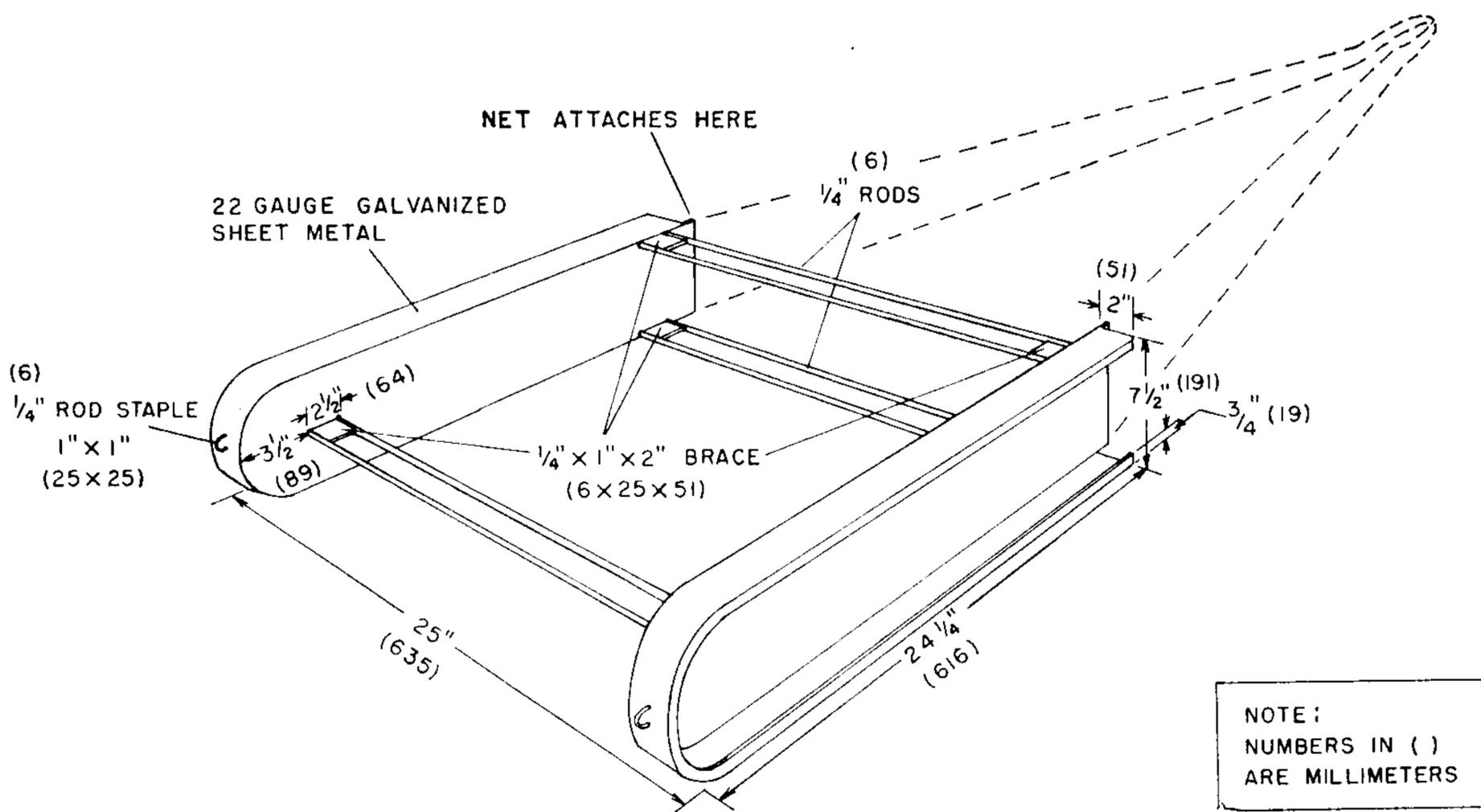


FIG. 2. The marsh net frame.

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towed at a constant speed more easily, 3) samples can be taken over soft mud bottoms, and 4) sampling is not as tiring to the operator.

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