

# PORTABLE BARGE FOR ESTUARINE RESEARCH

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Shrimp biology research conducted by the National Marine Fisheries Service Gulf Coastal Fisheries Center, Galveston Laboratory, required that personnel work for extended periods in estuaries along the Texas coast. Since conventional craft could not be used for transporting personnel and equipment (total weight in excess of 5,000 pounds) to these areas, a barge was designed and built for this purpose.

## BARGE

The barge (Fig. 1) consists of three pontoons, a deck, and a frame to support a canvas cover. A parts list is presented in Table 1. Numbers in parentheses in this article correspond to those used for identification in Figure 1 and Table 1.

### Pontoons

Each pontoon has two 8-ft sections made from aluminum plates (1 and 2) with welded seams. The rear section cutaway exposes two aluminum pipes (5) used for reinforcement and a watertight bulkhead (6) that are welded into each 8-ft section. The sections are bolted together (9) to form one 16-ft pontoon. An aluminum plate (3) with four  $\frac{1}{2}$ -inch studs is welded to the back of the center pontoon to accommodate an outboard transom bracket (4). Five aluminum angles (10) are welded to the top of each 8-ft section.

### Deck

Twenty aluminum channels (8) are bolted to the angles on top of each pontoon to form a

16-ft by 16-ft frame to support the decking. After the channels are secured, eight brackets (14 and 15) that accommodate the legs of the pipe frame are bolted into place. Eight sheets of marine plywood (16) forming a platform are then laid over the channels and secured around the outside edges with sheet metal screws.

### Pipe Frame and Canvas Cover

The frame (17-26a) is constructed of galvanized pipe and pipe fittings. Numerous unions are installed in the framework to reduce bulk and simplify handling of sections during assembly and disassembly. Pipe installed between each leg of the frame serves as a safety rail and provides tie-down points for the canvas cover (not shown). Mosquito netting (not shown) is tied to the top of the frame.

This barge, powered by an outboard motor (18 hp recommended), is a stable, self-propelled work platform that can be used to conduct research in remote estuarine areas.

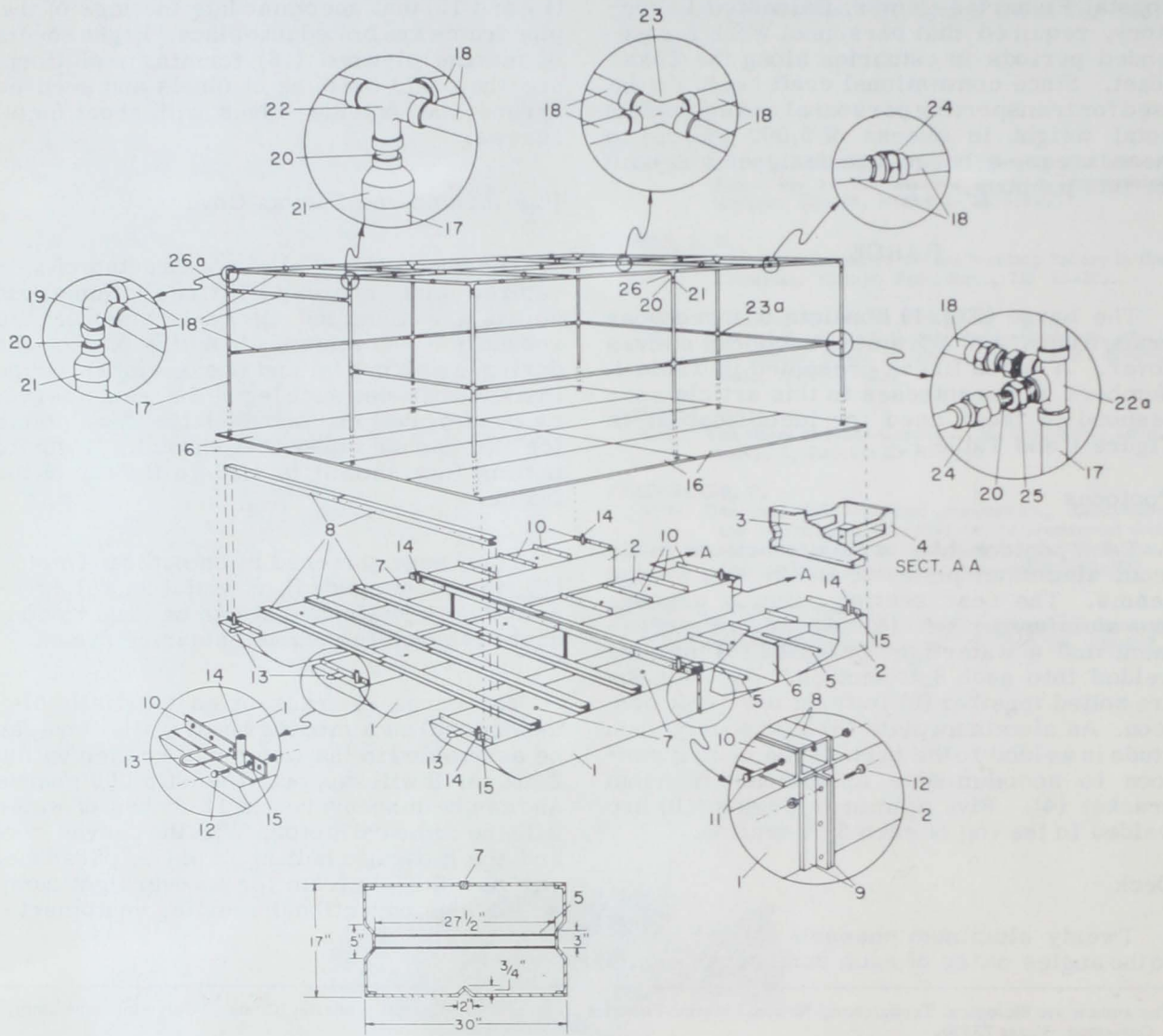
The barge is transported (partially disassembled) on a modified boat trailer and can be assembled in the water by two men within 2 hours. It will support at least 5,000 pounds and can be maneuvered in 18 inches of water with the outboard motor. With the canvas roof and the mosquito netting in place, personnel can use the platform for an overnight camp site using conventional camping equipment.

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Contribution No. 352, NMFS Gulf Coastal Fisheries Center, Galveston Laboratory.

MARINE FISHERIES REVIEW  
Reprint No. 961

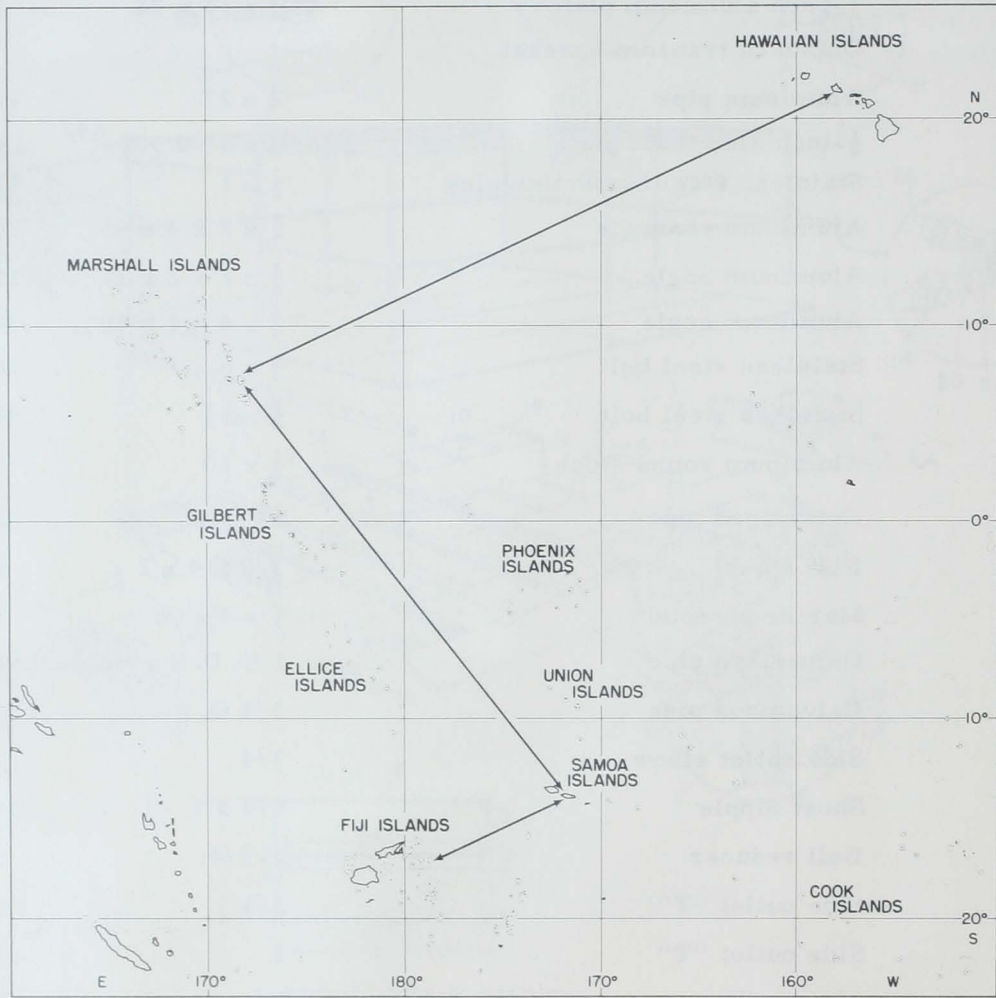


SECTIONAL VIEW OF PONTOON

Fig. 1 - Assembly diagram for barge.

Table 1. --Materials list for barge

Identification number	Description	Size (inches)	Number required
1	Front pontoon - 1/8-inch aluminum plate	17 x 30 x 96	3
2	Rear pontoon - 1/8-inch aluminum plate	17 x 30 x 96	3
3	1/2-inch aluminum plate	1/2 x 17 x 30	1
4	Outboard transom bracket		1
5	Aluminum pipe	2 x 27	12
6	1/2-inch aluminum plate	1/2 x 17 x 30	6
7	Stainless steel inspection plug	1/2 x 1	12
8	Aluminum channels	1/4 x 2 x 4 x 96	20
9	Aluminum angle	1/2 x 2 x 2 x 17	12
10	Aluminum angle	1/2 x 4 x 4 x 30	30
11	Stainless steel bolt	1/2 x 6	10
12	Stainless steel bolt	1/2 x 1 1/2	80
13	Aluminum round stock	1/2 x 10	5
14	Galvanized pipe	1 1/2 O.D. x 8	8
15	Flat stock	3/8 x 4 x 2	8
16	Marine plywood	1/2 x 4 x 96	8
17	Galvanized pipe	1 O.D.	62 feet
18	Galvanized pipe	3/4 O.D.	174 feet
19	Side outlet elbow	3/4	4
20	Short nipple	3/4 x 1	24
21	Bell reducer	1-3/4	8
22	Side outlet "T"	3/4	2
22a	Side outlet "T"	1	3
23	90° cross	3/4	2
23a	90° cross	1	3
24	Union	3/4	31
25	Bushing reducer	1-3/4	16
26	90° "T"	3/4	6
26a	90° "T"	1	4



Track of M/V 'Anela,' charter cruise, February 8-May 9, 1972.