

# GEAR USED IN THE SEA SCALLOP FISHERY

By William F. Royce\*

For more than a decade the sea scallop fishery of the United States has been conducted by vessels landing principally at the port of New Bedford. Smaller quantities have been landed at New York and Boston and numerous small ports from New Jersey to Maine. In 1942, 7,183,000 pounds of sea scallop meats were landed on the East Coast of the United States and of this quantity, 5,446,000 pounds were landed at New Bedford.

The animal which supports this fishery, the sea or giant scallop (*Pecten magellanicus* Gmelin) is a mollusk with two shallow, disc-shaped shells which may reach a diameter of 8 inches. It is known to occur on grounds from New Jersey to Labrador, and local populations are found along the shore generally, in waters of 10-fathom depth or greater. The offshore fishery, which is prosecuted by the larger vessels and which accounts for the bulk of the production, is pursued almost entirely on Georges Bank. Most of the fishing is done in 30 to 40 fathoms of water on the parts of the Bank known as the Northern Edge, Southeast Part, and South Channel. The Northern Edge grounds are about 185 miles from New Bedford and are fished principally during the summer months. The closer South Channel area is about 80 miles distant and is fished principally during the winter months.

The bottom where the scallops are found is usually sand or sand and mud mixture. However, much of it is covered with boulders. Extremely rugged gear is required.

The sea scallop, unlike other mollusks, cannot close its shell tightly and thus retain water within. As a result, after it is caught, it dies very quickly and spoils unless shucked immediately. On all of the vessels fishing the offshore grounds, the sea scallops are shucked as soon as they are caught. The single muscle or meat is the only part of the animal saved, and this is shucked out and packed in cloth bags holding about 4 gallons each. These bags are thoroughly iced down in the hold. After arrival at port, the dealer purchasing the scallops frequently repacks them in consumer-size packages for either fresh or frozen shipment.

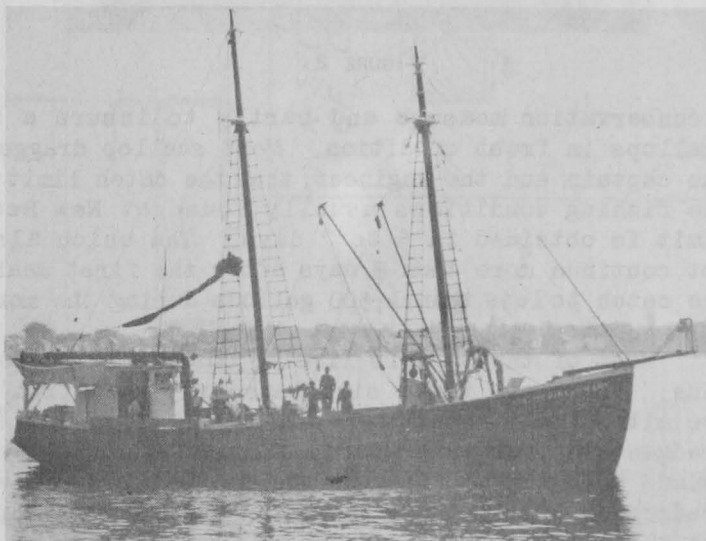


FIGURE 1

The vessels used in the New Bedford scallop fishery are necessarily very seaworthy craft. Usually, they are 60 to 70 feet in length, weigh 30 to 70 gross tons, and have 150 to 250 horsepower Diesel engines. Many of the vessels go dragging for fish during the winter months and change over to scalloping during the summer months. Construction is almost identical to that of a medium-size dragger.

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The only changes necessary for scalloping are the addition of two booms for handling the heavy dredges, and shucking tanks for shucking and cleaning scallops. The same double drum fishing winch, cables, and forward gallows frames are used.

Figure 1 shows a typical modern dragger rigged for sea scalloping. This vessel, the Catherine and Mary, is 65 feet registered length, 56 gross tons, and is powered with a 180 horsepower engine. Note in the photograph the two booms on the forward mast which are rigged especially for handling the dredges. The gallows frames, through which the towing wire passes on a block, are visible on each side opposite the forward mast. The Catherine and Mary changes its rig from dragging to sea scalloping as market conditions require. Figure 2 is a close-up of

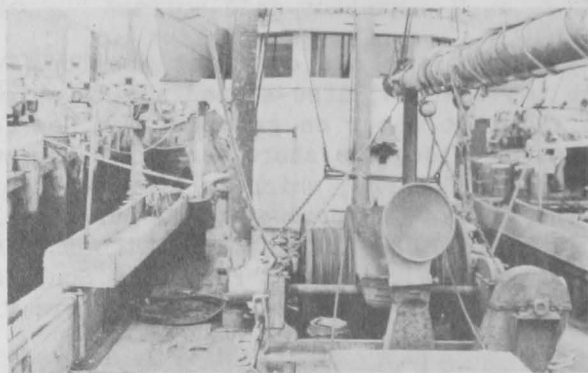


FIGURE 2

the after deck of another sea scallop vessel. It shows the winch just aft of the hatch and the two shucking tanks alongside the wheelhouse.

For several years, the fishermen's union, which mans the scallop draggers operated from all the larger North Atlantic ports, has prescribed that the catch in a single trip shall amount to not more than 150 gallons per man. This limitation was adopted partly as

a conservation measure and partly to insure a shorter trip and the landing of scallops in fresh condition. Most scallop draggers carry a crew of 10, including the captain and the engineer; thus the catch limit is usually 1,500 gallons. Under the fishing conditions usually found at New Bedford in the summer months, the limit is obtained in 5 to 7 days. The union also prescribed that fishing shall not continue more than 8 days after the first scallops are caught, and this limits the catch to less than 1,500 gallons during the more rigorous months of the winter.

Most of the vessels fishing out of New Bedford use two dredges, each 11 feet wide. These are towed simultaneously, one from each forward gallows frame, and are alternately brought up and dumped on deck. Because of the rough bottom, the dredges are made very sturdy (Figure 3). The complete dredge weighs about 1,000 pounds when empty. Some of the smaller draggers with less power have used lighter dredges of 8 to 10 feet in width. Other dredges up to 13 feet wide have been tried but the 11-foot dredge is now fairly standard.

Figure 3 shows most of the details of construction. Some things cannot be shown in the drawing and others require some explanation. The holes for the links used in attaching the bag are spaced 4 inches apart around the frame. Single holes and links are used on the top and sides and double holes and links on the bottom. The top bar is sloped forward and downward as indicated in the diagram and the holes for the links are on the front edge of the top bar. The fishermen explain that this construction has been adopted because the dredge occasionally turns over. If this happens, then the links are not worn out and torn off since they are placed on the front of the top bar in a protected position. On the sides and bottom, the holes are placed on the back edge of the bars where the links are adequately protected. The side of the bail is constructed so that the angle of the dredge may be changed to suit bottom conditions. When the bottom is soft, the frame is tipped forward so that the scraper blade tends to ride up over the bottom

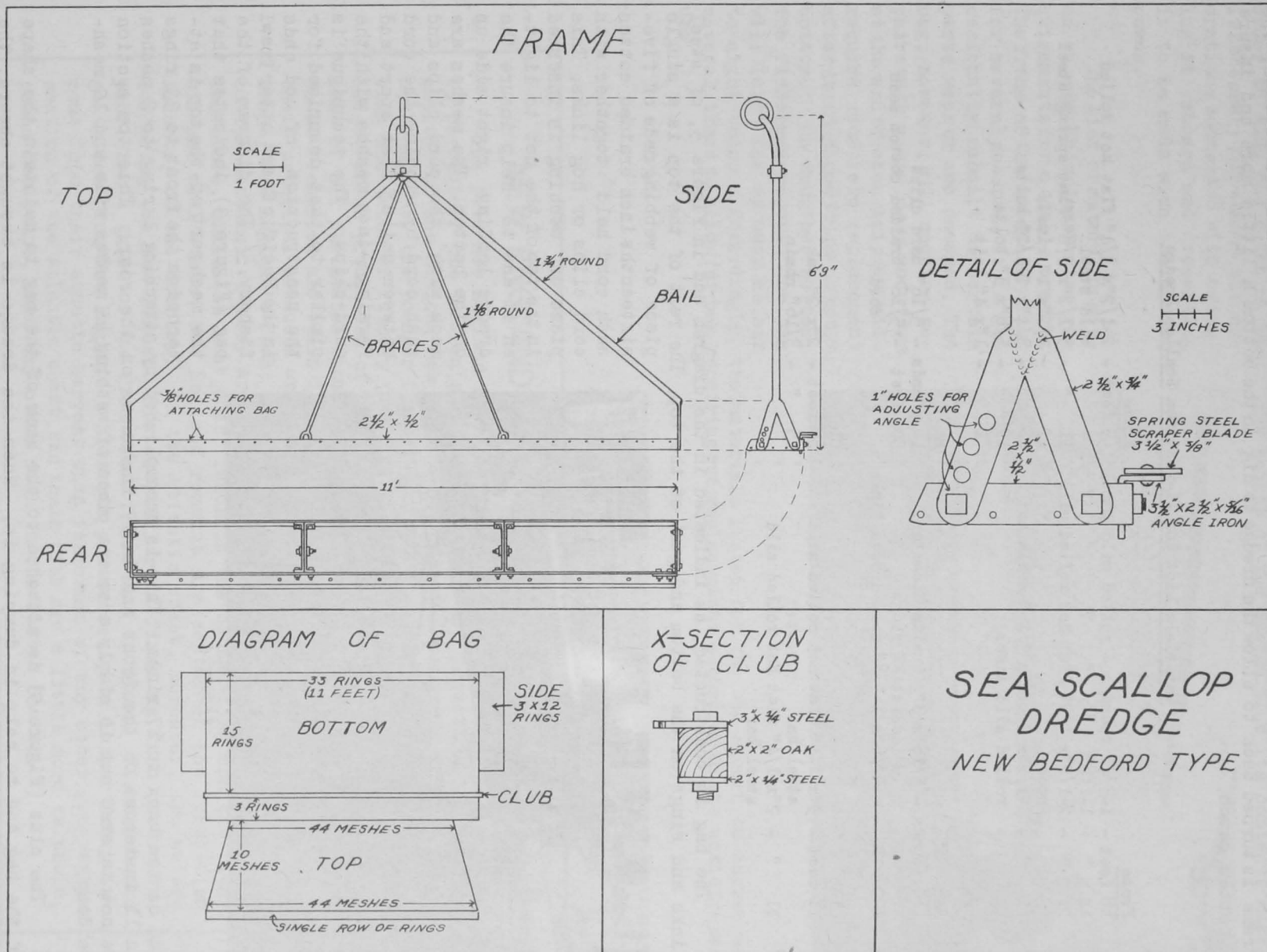


FIGURE 3

and prevents the bag from filling up with sand and mud. On harder bottoms, the frame is turned back to allow the dredge to dig in the bottom a little more and insure a better catch.

Materials List for 11-foot Sea Scallop Dredge

<u>Frame</u>		<u>Frame</u>	
18 feet - 1-3/4" round hot rolled mild steel	'	5 feet - 2-1/2"x 3/4" flat hot rolled mild steel	'
14 " - 1-1/8" " " " " " "	'	11 " - 3-1/2"x 3/8" flat spring steel	'
21 " - 2-1/2"x 1/2" flat hot rolled mild steel	'	12 - 1/2"x 1" rivets	'
11 " - 3-1/2"x 2-1/2"x 5/16" angle hot rolled mild steel	'	18 - 3/4"x 2-1/2" bolts	'
		12 - 5/8"x 3" bolts	'
		1 - 1"x 4" bolt	'
			'
<u>Bag</u>		<u>Bag</u>	
160 pounds - 5/16"x 3" (inside diameter) welded steel rings	'	10 pounds - 5/16" cord clips	'
130 " - 5/16"x 1-1/8" open dredge links	'	500 feet - 5/16" braided cotton sash cord	'
			'
<u>Club</u>		<u>Club</u>	
11 feet - 3"x 1/4" flat hot rolled mild steel bar	'	11 feet - 2"x 2" oak	'
11 " - 2"x 1/4" flat hot rolled mild steel bar	'	15 " - 3/16" chain	'
			'

The bag is constructed, as indicated in the diagram and in Figure 5, of steel links and rings on the bottom and part of the top. The rest of the top is a single piece of webbing made of five-

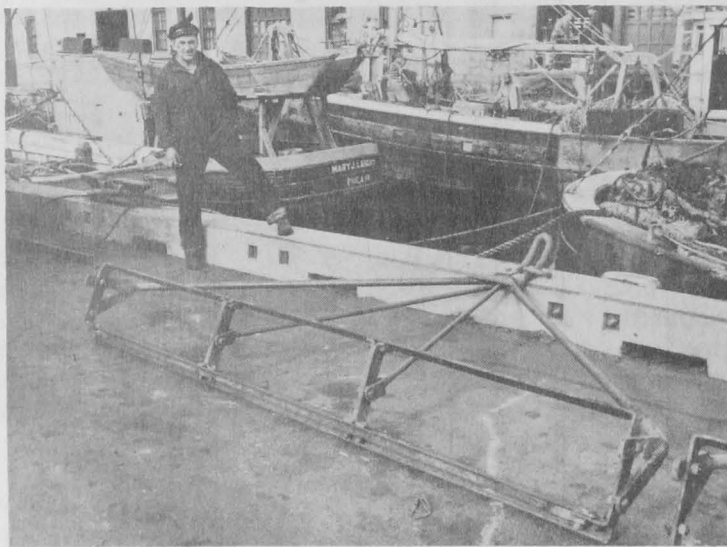


FIGURE 4

sixteenths inch braided cotton sash cord held together with cord clips or hog links. This piece of webbing is inserted in the top of the net to lighten it and to help insure the dredge landing right side up on the bottom. The meshes are made with the cord clips and sash cord by winding the cord between nails 5 feet apart and forming 6-inch meshes with the cord clips. The technique is similar to that described for the construction of cod ends in the Pacific Coast otter trawl fishery.<sup>1/</sup> The diagram of the bag (Figure 3) indicates that the mesh part of the top is attached on the front to 33 rings and on the back to 27 rings. This is accomplished by attaching 1 ring to 2 meshes in 11 instances on the front and in 17 instances on the rear. This top section is not tapered but is simply a square piece of webbing 44 meshes wide and 10 meshes deep.

The club (Figure 5) is attached to the back of the bag to maintain the shape of the bag and to help in dumping it. When the dredge is brought aboard, the 1/"Rope Cod Ends," by Carl B. Carlson, published in Fishery Market News, May 1945. Also available as Separate No. 101.

chain attached to the club is hooked to the block and the entire bag hoisted in order to dump the catch on deck. The weight of the dredge plus its contents makes it necessary for almost all operations connected with bringing it aboard and resetting it to be made with the aid of power.

The list of materials given on page 10 indicates the requirements for a single dredge. The frame of the dredge may last for several seasons. It is occasionally rebuilt as certain parts wear or are damaged. The bag, however, will require repairs with extra links and rings at the end of each trip and will require complete replacement after about three trips on rough bottom. On smoother bottom, the fishermen report the bag will last for as many as six to eight trips. Accordingly, the materials listed for the bag should be increased several times to allow for bag repairing and replacements according to the anticipated use.

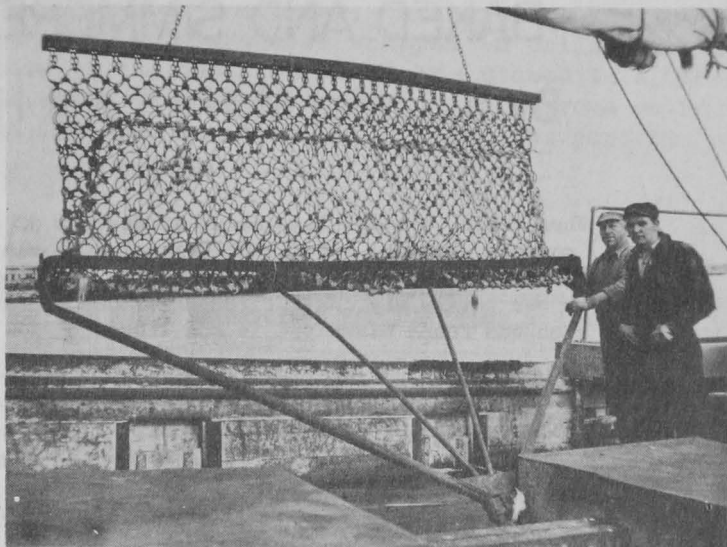


FIGURE 5



## NEW ENGLAND'S PLACE IN U.S. FISHERIES

The five New England States that support marine fisheries provide 15 percent of the Nation's supply of fish. By tradition the fishery capital of the Nation, New England now sees its supremacy in this field challenged by the younger fisheries of other sections. In total production and value of fishery products it is far outstripped by the Pacific coast, whose production of one and three-quarter billion pounds exceeds that of all the States from Maine to Texas combined. However, the Pacific coast fisheries are built largely around pilchard, salmon, and tuna, and their principal products are canned fish and fish oil and meal. By contrast, New England's fish, with few exceptions, go directly from the sea to the consumer as they are caught, or as parchment-jacketed fillets. Therefore, while the west coast leads in the canned-fish and the fish-oil and meal trade, New England remains the center of the fresh-fish industry of the country. On the Atlantic coast, moreover, the waters bordering the New England States still rank first as fish producers, providing a third of the fish taken from Maine to Texas. Fishermen who go to sea from New England's historic ports receive a larger total income from their aquatic harvest than fishermen of any other geographic section of the Atlantic coast, and their fish are a little more valuable, pound for pound, than any other fish in the United States.