

SEA FISH INDUSTRY AUTHORITY
Industrial Development Unit

MULTI-RIG TRAWLING
LOWESTOFT SOLE FISHERY

Internal Report No. 1240

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INTRODUCTION

Following a considerable number of enquiries received by the I.D.U. from fishermen concerning multi-rig trawling, it was decided to arrange an observation trip aboard a Lowestoft based vessel currently involved in this method of fishing.

BACKGROUND

There has recently been a growing trend in Denmark towards twin trawling, particularly in their prawn fisheries. This trend has caught on strongly in the East Anglian Sole fishery with a number of vessels doubling and even trebling their catches of soles by switching to double and treble trawl rigs.

The first Lowestoft skipper to switch to this method of operation was Tony Rodriguez, with his 43ft boat, SUNDANCE. At the beginning of October of this year an observation trip aboard the SUNDANCE was arranged to obtain some first hand information about the gear and its operation.

Skipper Rodriguez has developed a system of working both a double and triple rig arrangement with considerable success using nets designed and constructed by himself.

The vessels involved in the sole fishery have been working from about 1½ to 6 miles off the coast. Some of the vessels in the 180hp

class that have been working double and triple trawl rigs have been outfishing some of the Brixham beam trawlers which have also been working the sole grounds in this area.

The idea behind the multi-rig arrangement is that the method enables a larger area of ground to be covered by allowing a wider spread of groundrope to be worked without towing the proportionately extra net of one much bigger trawl. For example a vessel which normally works an 8 fathom ground rope trawl can (for the same h.p.) tow two six fathom trawls giving an extra 4 fathoms of groundrope cover and hence increasing catching potential without increasing drag and fuel consumption.

THE VESSEL

The SUNDANCE is a 43ft long vessel rigged to operate as a stern trawler with an engine developing 120 h.p. The wheelhouse is situated amidships with the main winch situated foreside of the wheelhouse. The winch is arranged athwartships with leads running forward and then aft to gallows on the quarters of the vessel. The vessel is also fitted with an 'A' frame type gantry.

The vessel is operated by Skipper Rodriguez and two crew members.

This method of fishing did not require any structural alterations to the vessel or existing deck gear or machinery.

THE FISHING GEAR

For the observation trip, the double rig method was used since the skippers third trawl had been damaged on a previous fishing trip.

The method of operation involves the use of a normal two-barrel winch. The gear is rigged by splitting the warps at a point above the doors. In the case of Skipper Rodriguez's gear the split was at 13 fathoms. The splits, running to a specially made 'skid' for towing the

nets centrally between the doors. The two trawls are then towed from the doors on 17ft wire legs on one wing and from the centre skid on 1ft chain legs on the other. The arrangement worked by Skipper Rodriguez is such that the split legs are connected by a length of chain. The central skid is attached to this chain by a free running block allowing the skid to take-up its own position centrally when the gear settles on the ground.

The triple rig uses two skids. In this case the central chain is split in two, with a skid attached to each end, in a fixed position. The two outer trawls are towed as in the double rig, that is, from the doors and a skid, with the third trawl in the centre, towed from the two skids.

The general arrangement of the gear and wire rigs are described in Figure 1.

The nets used were designed and constructed by the skipper. They are based on traditional sole nets but have been scaled down to enable the two or three nets to be towed at once.

The basic dimensions of the nets are as follows:-

Headline	28ft
Top wing	12ft 6ins
Bosum	3ft
Ground rope	38ft
Lower wing	16ft
Bosum	6ft

The trawl doors used in this method are standard wooden flat doors, 5ft 6ins x 3ft. The warps and splits are all 12mm wire. The nets are worked with a 34ft x ½ins tickler chain rigged between wing ends. The groundrope of the nets consists of 3ins rubber discs in the wings and 6ins rubbers in the bosum. An arrangement of chain "danglers" is also used by Skipper Rodriguez, this consists of 3ft lengths of chain hung in bights at 18ins intervals all around the footrope.

The arrangement of the gear and wire rig is such that the gear is fished all level, i.e. the distance from the point where the warps are split, to the wingends of the net are equal in all cases.

The headline and groundline legs are attached directly to the doors - no backstrops or backstop attachment positions are used. Ring bolts were welded onto the extreme corners of the doors to accommodate the legs. This is a similar arrangement of attachment to that used in the Gulf of Mexico shrimp trawl fishery.

The central skid was constructed by Skipper Rodriguez. It was constructed from part of the frame from a scallop dredge. Details of the construction are given in figure 2.

FISHING TECHNIQUE

Skipper Rodriguez working this rig claimed that it is just as easy to fish the double or triple rigs as it is to work a single net. The impression given by the observation trip certainly seemed to back up this claim. Skipper Rodriguez did point out that in the initial stages of working this gear, numerous problems and delays were encountered. This is to be expected when experimenting with new ideas and methods. Once the best procedures for hauling and shooting had been established, the method proved to be relatively simple and straightforward to carry out.

Skipper Rodriguez found that the gear had to be shot at full speed in order that the gear went away without problems of fouling. The nets were shot at about $\frac{3}{4}$ speed initially to ensure that the two or three nets were clear of each other. At this speed the nets stream astern of the vessel at the surface, enabling the skipper to see that the nets are clear.

The doors are lowered into the water and the vessels speed is then increased to full to enable the doors to spread without fouling the nets.

fishing properly. This may be due to damage to the net/cod ends. Since with this operation, not all of the netting is brought aboard at each haul, then it is usual practice (if damage is suspected) to stream the nets at full speed. This is usually sufficient to bring the nets close enough to the surface to examine them.

Catches on the occasion of the observation trip were not very high but were larger than catches made by other boats working single nets in the same area.

CONCLUSION

The observation trip aboard the SUNDANCE highlighted the effectiveness of the multi-rig method of trawling. The operation of the gear is very simple and can be carried out without the addition of any extra equipment or modifications to existing deck gear etc. It is an ideal method for low horse power vessels to improve catching potential without large increases in 'drag and hence fuel consumption'.

From the evidence from established foreign fisheries and the indications from work done so far in the U.K., it would appear that there could be great potential for multi-rig trawling in numerous U.K. fisheries. It is reasonable to suggest that this type of fishing should be given further attention and investigation.

K. Arkley

DOUBLE RIG

FIG. 1.

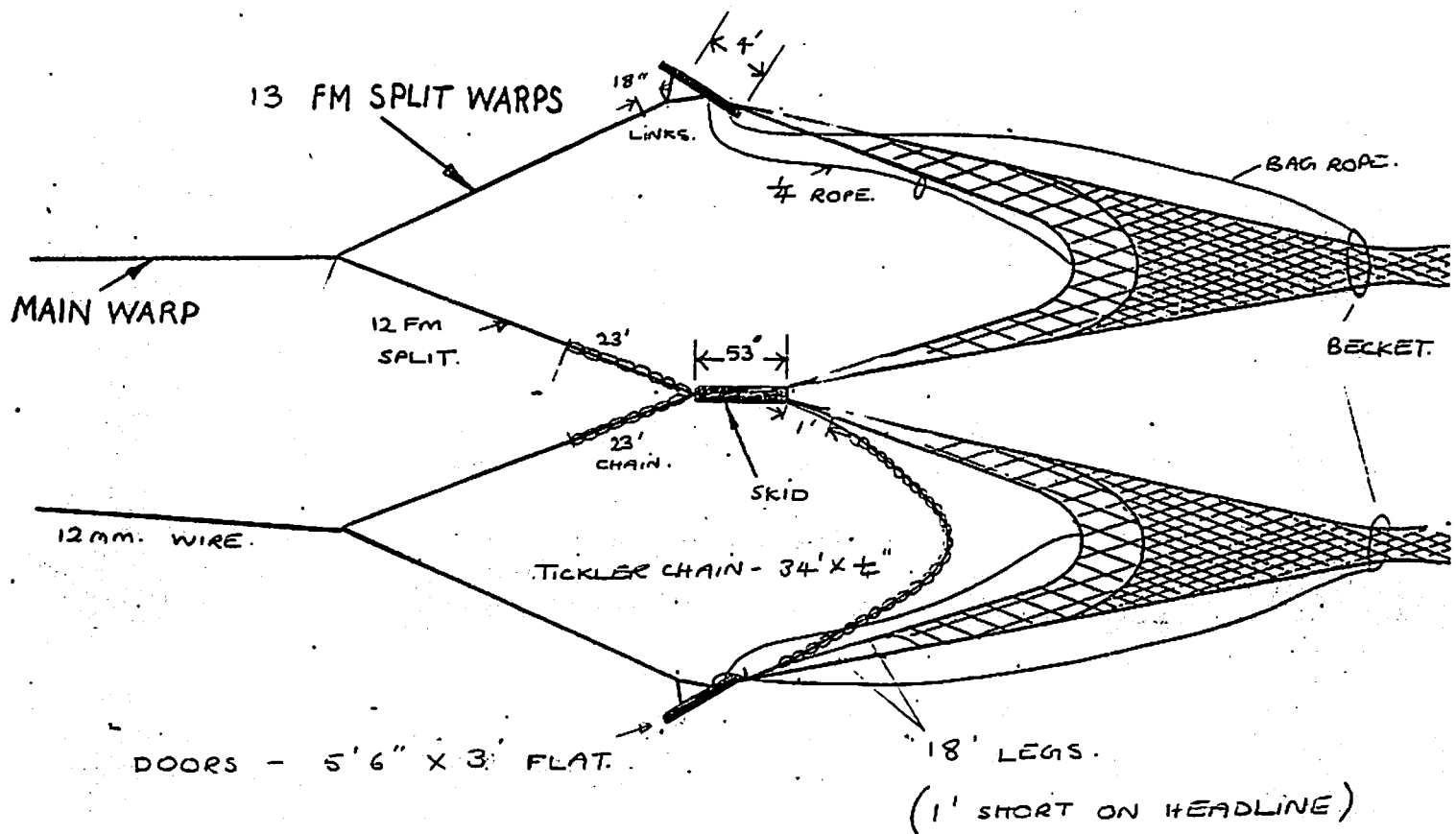
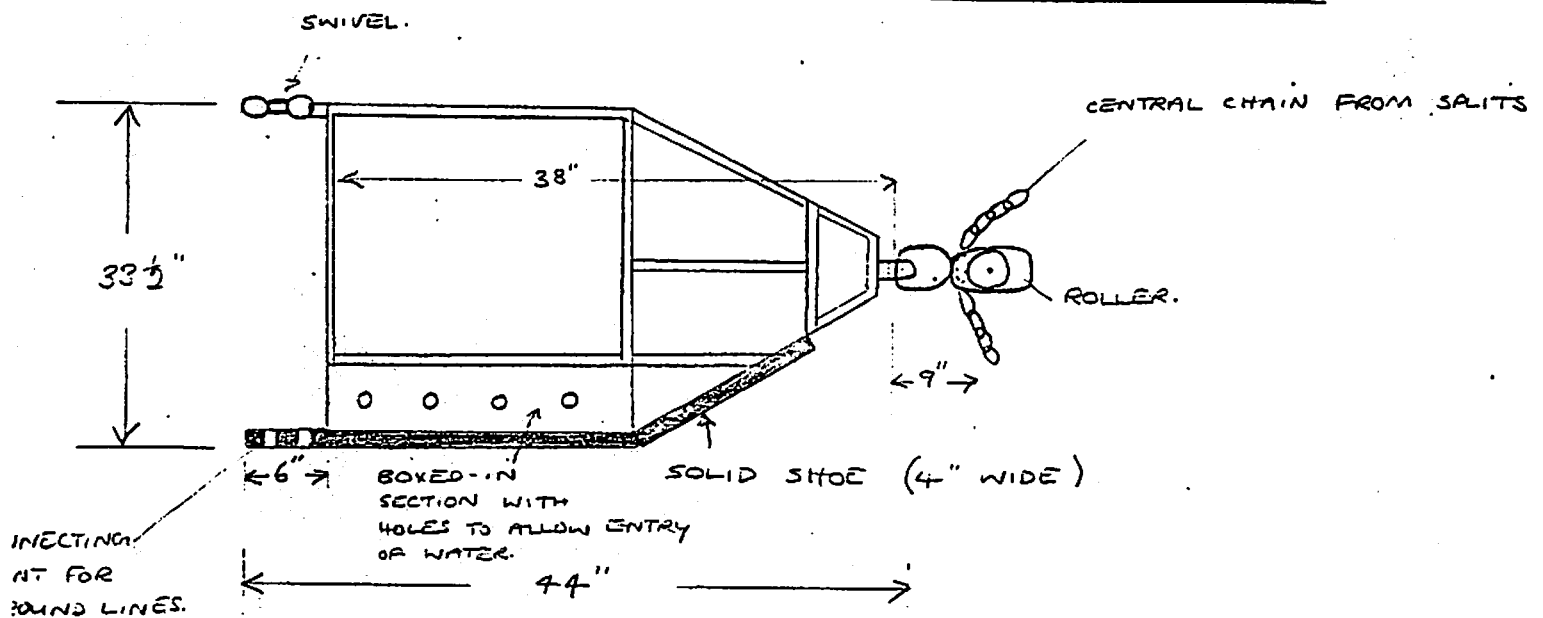


FIG. 2.

DETAILS OF 'SKID'



FRAME CONSTRUCTED OF $1\frac{1}{2}$ " SQUARE SECTION STEEL.

NOT TO SCALE.

