SEA FISH INDUSTRY AUTHORITY
Industrial Development Unit

Internal Report No. 1129 November 1983

SQUID FISHING TRIALS ABOARD MFV JOKER IN CORNWALL

Author: P. Neve

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SUMMARY

A small Cornish inshore vessel has been rigged with gas lamps and jigging equipment for catching squid. Unfavourable weather conditions prevented a proper assessment of the equipment during the Author's visit, however, a report is expected from the fishermen in due course.

This report describes the installation and includes background information.

P. Neve

INTRODUCTION

Two fishermen in Cadgwith, Cornwall, reported that, on one occasion, whilst bass fishing with mackerel-baited handlines at night over a local inshore rocky mark apparently large numbers of squid were attracted to the surface alongside by the vessel's decklights. A few individual squid were subsequently caught on the baited hooks but the bulk of the catch, approximately 65 kg was simply hooked aboard with a multi-pronged gaff over a period of an hour or so.

Following a request for assistance to develop this potential fishery, it was decided to mount a small trials programme based on light aggregation and simple jigging techniques utilising gas lamps and modified mackerel gurdies.

DESCRIPTION OF VESSEL

The request for assistance was made by Jonathan Fletcher and Keith Thresher who own MFV JOKER, a new (1983) 25ft G.R.P. potter equipped with an 80 h.p. Ford Sabre engine and wheelhouse aft.

Since construction a simple steel and woodwork frame which overhangs the stern has been added to create extra storage space for dhan poles and other items of equipment.

TRIALS EQUIPMENT

The lighting array consisted of two Providus gas lamps which were used during inshore squid fishing trials at Lossiemouth in 1976 (see Reference 1), together with regulator valves and piping. The propane gas bottles were provided by the fishermen themselves and stowed on either side of the transom extension frame (see Appendix 1). A temporary arrangement for mounting the lamps was achieved by the use of a ladder mounted vertically on the

foredeck and stayed laterally together with an alloy tube mounted horizontally above the mid line of the boat and supported at either end by the ladder rungs and the wheelhouse roof/mizzen mast. The lamps were supported from the alloy tube on rope strops and their height above the deck adjusted to produce the correct light/shadow zone interface (see Ref. 2). Suitable twine stays were fabricated to prevent excessive lateral motion of the lamps. Whilst steaming the lighted lamps were lowered into empty teachests (normally used for storing crabs) in order to allow the helmsman to steer without fear of being dazzled.

The two outboard roller trays used with the automatic jigging machines were modified at IDU for single line operation. This resulted in narrower trays each with one roller instead of two but with the same outboard dimension. The modified trays were fastened to the starboard gunwhale with G clamps and suitable wood packing pieces, and supported by rope strops from the landing derrick. The boats own two mackerel gurdies (without stripping gear) were clamped to the gunwhale so as to align with their respective outboard roller (see Appendix I). The mackerel mainlines were retained for use with the gurdies but the mackerel feather traces were replaced with jig traces.

NARRATIVE

The lamps and jigging equipment were prepared for use during the period 15th-17th November. This work had to be coordinated with the vessel's daily crab-potting routine since favourable water temperatures have extended the crab season this year.

Due to weather constraints the earliest opportunity for testing the equipment at sea was the evening of 17th November. Fishing could not be conducted in the areas to the east of the Lizard, where squid had been encountered previously, because of the exposed nature of these locations relative to the prevailing north easterly wind. Instead, it was decided to experiment with the equipment in the mouth of the Helford R iver. The vessel drifted over several patches of hard ground in depths of from 4-6 fathoms with the lamps lit. Echosounder traces showed marks near the seabed which rose into the

midwater zone in response to light attraction. However, the murky water reduced visibility to a depth of 30cm or so and no squid or fish were seen apart from a solitary sand eel and no jigging was carried out. Due to freshening winds it was decided to return to shore until conditions improved. However, northeasterly winds winds continued for the remainder of the Author's visit and no further trials were carried out.

Because of the unfavourable weather conditions experienced during the Author's visit, opportunities for fishing were extremely limited. It was decided to leave the equipment with the fishermen who agreed to use it at the earliest opportunity and report back to IDU in due course.

DISCUSSION

The degree of illumination provided by the two gas lamps was highly satisfactory to the fishermen. Initial lighting problems caused the mantles to burst but this was rectified by first igniting the lamps with a very low pressure pure gas supply and then gradually increasing the supply of gas and air. Initial burning of the mantles and subsequent ignition of the lamps was achieved with a gas-operated blow lamp inserted through the bottom of the glass globes.

Due to vessel motion lateral movements of the lamps may, in the future, necessitate the provision of rigid metal supporting rings or frames. Alternatively, other forms of incandescent lighting such as portable camping lamps may, in the long term, prove more suitable since spare parts should be readily available in this country. The Providus gas lamps currently in use were imported from Italy and, as far as is known, are not obtainable in the U.K.

There was no opportunity to try the chemical underwater lights first used on the G.A. Reay (see Ref. 3) and they have been left with the fishermen for future use.

The mackerel gurdies seem perfectly adequate for squid fishing, although a larger drum may be necessary to accommodate large numbers of jigs and to prevent entanglement. An old car or motorcycle wheel might be cheaply adapted for this purpose. A suitable jigging movement, as recommended by the Japanese, could be imparted by the addition of an offset spindle which would result in an eccentric hauling motion. In shallow water of only a few fathoms the present traces which comprise thirty jigs apiece would be too long for effective use in this depth of water; fewer jigs at the present spacing of 1m or more jigs at shorter intervals are required. Alternatively, some form of continuous jigging technique in which the jigs travel in a roughly circular vertical plane around the boat might be employed.

Several local fishermen mentioned the problem of squid falling off or breaking free from the jigs as they were lifted from the water. This problem has been encountered before (see Ref. 2) and jigs with longer hooks were obtained from Japan. However, the squid caught in Cornish waters are typically very large, up to 2½ kg each, and a new jig design may be necessary, featuring even longer hooks or more rows of hooks. The problem is exacerbated by the use of the outboard rollers which by virtue of their functional design increase the vertical distance the squid must travel before they are brought aboard. The use of a landing net or gaff, to catch squid should they fall off the jigs is not considered feasible

The netting usedin the outboard roller trays invited criticism on the basis that if squid released ink once they fell inboard, the ink would drip back into the water and scare those remaining in the sea. If this problem is real it could be solved either by incorporating a drip tray in the existing design or by substituting the netting tray with a solid metal or plastic chute.

As an alternative to jigging some fishermen have considered the use of pole and line techniques, trammel netting or purse seining for squid. The use of simple light rafts or dinghies over a wide areaand gradual concentration of the squid into one zone for catching might be feasible but would depend to a large extent for its success on successful cooperation between the fishermen.

The squid fishery on the south coast of Cornwall, at least, typically extends over a period of several weeks or months during the Autumn and early Winter (see Ref. 4). It is therefore seasonal and not likely to become a year round fishery. However, prices paid by local merchants for squid range from £8.50 - £12.00 per stone and the value of even a small catch is obviously considerable as far as local fishermen are concerned.

Apart from seasonality there is also the problem of suitable weather conditions. Local fishermen supported the view that squid tend to concentrate over rocky marks in calm weather and considered any form of easterly wind to be unfavourable for fishing, especially since the eastern side of the Lizard is only protected during westerly winds.

Some fishermen had seen echosounder traces which they believed to represent squid. In depths of up to ten fathoms the marks had been dense and similar in appearance to those produced by mackerel. The traditional way of catching squid is to lower a mackerel bait to the seabed and then raise it slowly. This, it is said, often attracts several squid to the surface at a time where they can be gaffed. Although fishermen have seen up to fifty individual squid around the vessel at any one time they believe that they are present throughout the water column as witnessed by the echosounder traces.

There is strong evidence to suggest that squid move inshore to spawn. Crab fishermen reported seeing jelly-like masses adhering to buoy lines and pots and these are almost certainly examples of squid spawn. A few squid have recently been washed up dead on Mullion Beach. Their condition when found suggests that they had died only recently which lends weight to the theory that some squid, at least, die after spawning.

CONCLUSIONS

No definite conclusions can be reached at the present stage of these trials. It is recommended that regular contact be maintained with the fishermen in order to follow up this project.

REFERENCES

1. Inshore squid jigging trials - Moray Firth
FR 470, White Fish Authority - 1977

2. Squid jigging trials aboard ARCTIC HUNTER
FR 450, White Fish Authority - 1976

3. Squid fishing trials aboard FRV G.A. REAY
IR 1126, Sea Fish Industry Authority - 1983

4. An assessment of the English Channel Squid Fishery
FR 428, White Fish Authority - 1976

APPENDIX I - SQUID GEAR ARRANGEMENT ABOARD "MFV JOKER"