

**SEA FISH INDUSTRY AUTHORITY**

**Seafish Technology**

**IMPROVED SELECTIVITY IN TOWED DEMERSAL FISHING GEAR**  
**PROPOSALS FOR PROGRAMME OF WORK TO BE CONDUCTED IN ICES**  
**FISHING AREAS VII d, e & f**

Internal Report No. 1419

October 1991

K Arkley

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Contents

	Page No.
<b>SUMMARY</b>	
1 <b>INTRODUCTION</b>	1
2 <b>AREAS OF OPERATION</b>	3
2.1    ICES Fishing Area VIIe	4
2.1.1   Industry Contacts	4
2.1.2   Looe	5
2.1.3   Brixham	7
2.2    ICES Fishing Area VIIf	8
2.2.1   Industry Contacts	8
2.3    ICES Fishing Area VIId	9
2.3.1   Industry Contacts	9
3 <b>CONCLUSIONS</b>	11

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SUMMARY

Square mesh trials to reduce the level of discards have so far concentrated on the North Sea and on the species cod, haddock and whiting in particular.

The English Channel (ICES Area VII d, e and h) and the Bristol Channel (ICES Area VII f and g) provide mixed fisheries in which some species are very important to the profitability of the fleet over a short season. The importance of this is recognised in the fact that the current regulations permit the use of an 80mm mesh codend in contrast to 90mm in the North Sea.

The fishermen's associations and the National Federation of Fishermen's Organisations are concerned that any introduction of a square mesh panel by either the E.C. or the U.K. in a unilateral ruling would cause the fishing vessels to lose substantial quantities of these valuable seasonal fish catches. Nevertheless, they have also expressed concern that discards of all species are too high and they would like to see some work done on resolution of the problem. At this time it has to be stated that there are no plans known to introduce mandatory use of the square mesh in this area.

The report describes the complexity of the fishery in Areas VII d, e and f and proposes immediate action in Area VIIe to investigate discards and their reduction in the Autumn whiting fishery. The trials would probably be centred on Looe.

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1 INTRODUCTION

Some of the fisheries in the ICES fishing area VII sectors have a large diversification of species of which many appear seasonally as high-value 'by-catches' to the main target species.

Species such as red mullet, grey mullet, bass, squid, black bream, cuttlefish etc. can be a very important source of income to many of the inshore fishermen in the Channel areas.

There has been some concern expressed by fishermen and their industry representatives that not enough work has been carried out to investigate the effects of the use of square mesh selector panels in fisheries where these species are encountered. They express a genuine concern that the discard problem must be tackled but in a way which recognises the mixed nature of the fishery.

Most of the work carried out to date has concentrated on species like cod, haddock and whiting in the North Sea.

As part of Seafish's continuing programme of work to investigate ways of improving the selectivity of towed demersal fishing gears, the opportunity to evaluate the effectiveness of square mesh selector panels in fisheries where these 'less common' species are encountered is seen as very valuable.

It is important to establish whether the compulsory introduction of such a selection device intended to reduce discard levels, would have any serious adverse effects on the catch rates of marketable species such as those previously mentioned. Alternatively more knowledge of the behaviour of these species and careful application of selection devices could reduce discards.

If standard regulation-type square mesh panels are found to be unsuitable for these fisheries then the opportunity must be taken to try and modify the existing designs or develop new configurations to suit. There are however no known plans to make the use of square mesh mandatory in Area VII.

Because ICES area VII under consideration covers a large area including numerous ports of operation, the opportunity arises to examine a varied range of fisheries and variations in the fishing method.

## 2 AREAS OF OPERATION

The ICES fishing area under consideration, namely area VII sectors d, e and f, covers the English channel from VIId in the East through VIIe at the Western end and VIIf covering the North coast of Cornwall into the Bristol Channel (see chart). At this stage VIIg and h have been excluded.

It is suggested that for each of the fishing areas under consideration trials programmes are carried out based on variations in fishing method/gear, the type of problems encountered (i.e. a discard problem or concern over loss of marketable species) and the species being caught, taking into account seasonality.

Using these criteria it is suggested that a representative port(s) be selected in each of the area VII sectors as bases for operations. The proposed bases for operations are:-

Area VIId - Newhaven

Area VIIe - Looe and Brixham

Area VIIf - Newlyn/Padstow

The proposal is to undertake fishing trials using representative vessels in each of the areas highlighted at selected times of the year to target the species in question.

The objectives would be as follows:-

- To assess the impact on the commercial fisheries of any legislation involving the use of a square mesh panel or increase in mesh size.
- To try to devise a practical solution which would improve selectivity and reduce discards.

## 2.1 ICES Fishing Area VIIe

### 2.1.1 Industry Contacts

Dave Pessel - Vessel owner

Chairman of Plymouth Trawler Owners Association

Tony Berry - Vessel owner (Looe)

Vice Chairman of NFFO South West Committee

Barry Dodd - Vessel owner (Brixham)

Brixham Trawler Agents

NFFO South West Committee Member

Following discussions with fishermen and fishermen's representatives in the South West of England, it was suggested that the area VIIe sector could be best covered by selecting a representative pair trawling team operating out of Looe in Cornwall and a single boat trawler operating out of the Devon port of Brixham.

The Looe fishing fleet, more specifically the trawling fleet, consists almost entirely of pair trawlers (approximately 11 or 12 pair teams and 3 or 4 single boats).

This method of fishing is very effective in this area, to such an extent that the fishermen claim that it is the only way they can make a living when quantities of fish on the grounds are small.

There is some concern being voiced about the large quantities of small whittings that are often taken during the autumn fishery. The introduction of square mesh selector panels into nets used in this fishery could prove very beneficial in limiting the numbers of discarded fish.

The worry in this area, as in all the area VII sectors d, e and f, is how will the introduction of any selection devices and/or increases in mesh size effect the catch rates of their main 'money earning species'? It is hoped that the proposed trials will establish these effects, if any.

### 2.1.2 Looe

The vessels operating out of this port are predominantly in the size range 30-50ft (100-300h.p). The boats work mainly day trips from the tidal harbour and while pair trawling usually work 2-3 hauls/day depending on the grounds being worked.

Although the legal minimum mesh size is 80mm in area VII most of the pair trawlers are at present using 85mm-90mm codends. The nets used are predominantly supplied by Alex Strachan Nets of Fraserburgh.

It is suggested that the fishing trials should concentrate on the evaluation of devices using mesh size combinations of:-

- 80mm square mesh : 80mm diamond
- 80mm square mesh : 90mm diamond

Since most vessels are using the same or very similar gear types and methods, any results obtained from one representative pair team should be valid for the bulk of the fleet.

The usual fishing procedure is for both vessels to carry nets and each to shoot the gear alternately. Any comparative fishing exercise undertaken to evaluate a selection device against a standard rig would most probably have to take the form of the 'alternate tow' procedure.

Bearing in mind that most of the Looe vessels operate 'two-handed', it would seem that the alternate tow procedure would fit in well with the existing commercial operation. One tow would be performed by using one vessel's standard unmodified net, with the following tow carried out by using the net from the other vessel of the team fitted with the selection device.

By repeating this exercise over a representative time period and conditions and swapping the net types between vessels, it should be possible to obtain valid results.



Due to the size of these vessels and the nature of the operation and considering the limited staffing available to Seafish, the exercise would have to be manned by two Seafish staff, one on each vessel.

Details of actual trials procedure and catch monitoring/analysis are to be formulated separately.

The Looe pair trawling team of BUDDING ROSE and LEVAN MOR have provisionally been selected as representative of the fishery.

BUDDING ROSE - 36ft, 200h.p. engine, Skipper Paul Goldthorpe  
LEVAN MOR - 35ft, 240h.p. engine, Skipper Tim Lentell

Both skippers and owners have been approached about the proposed trials and are totally supportive of the work.

Charter agreements have yet to be drawn-up. Evidence of vessels earning's in this fishery are supplied IN CONFIDENCE for Seafish use only. (The information supplied also shows the breakdown of typical catches and the reliance on the high value species like squid and red mullet by vessels in this fishery.)

The actual timing of the exercise is influenced by numerous factors, however, since one of the main concerns in this fishery is whiting, the aim is to undertake trials when this species is showing in reasonable quantities in order to provide the best chance of success.

The best whiting catches appear in the autumn from August through to November. From this point of view this exercise should be undertaken as soon as possible.

Other species under consideration like squid and red mullet are also encountered during these months. Squid are expected to form an important part of the earnings of these vessels from September through to Christmas. Red mullet will also be showing regularly in catches throughout the Autumn. Some hake are also taken around October/November and also cuttlefish.

### 2.1.3 Brixham

The trawlers operating out of Brixham work the grounds in a general area between Start Point and Portland. These vessels are in the 40-60ft class. Here again vessels operate as day boats or up to 36 hour trips depending on the grounds being worked. Trip lengths are constrained by the problem of maintaining fish quality on these smaller vessels.

Here again the same worries exist with species like squid and red mullet.

It is claimed that generally the squid and red mullet caught in this area of the Channel are of a smaller size compared with those caught by the Looe fleet. However, this may be associated with the fact that the Looe fleets have a tendency to use a larger mesh size in their codends while the Brixham fleet tend to stick to the legal minimum of 80mm.

It has been suggested that the trawlers operating out of Brixham could provide the data as representative of the single boat fleet in this area, VIIe.

The seasonality of the fisheries is similar to the Looe fleet, with September through to November being some of the best months for squid and red mullet.

The timing of this exercise has not been finally established. However, bearing in mind the seasonality of the fisheries and all other factors permitting, ideally it would be sensible to run this trial at a similar time to the Looe trials in order to evaluate the effects of the selection devices applied to two different fishing methods in the same fisheries. Staff availability at Seafish and other commitments however would not permit the two trials to take place at the same time.

Preliminary discussions have been undertaken with fishing representatives from the port of Brixham and a number of suitable vessels have been suggested. At this stage no single vessel has been selected. No problems are envisaged in acquiring a vessel for charter since most fishermen are anxious to see some work carried out as soon as possible.

It has been proposed that comparative fishing trials, again using the alternate tow procedure, should be carried out to evaluate the use of square mesh selector panels concentrating on the 80mm diamond mesh/80mm square mesh configuration.

Bearing in mind that these vessels commonly work 36 hour trips and space is limited (specifically accommodation space), the practicalities of conducting a standard comparative fishing trial with a two man team are going to be difficult.

## 2.2 ICES Fishing Area VIII

### 2.2.1 Industry Contacts

Proposed - Mervyn Mountjoy - Vessel owner

Chairman/Secretary of Newlyn Fishing Boat Owner's Association

At this point in time no contact has been made with representatives from this sector with regard to this project.

General discussions have established that the main problems for attention relating to this project relate to ones of discard levels of juvenile fish.

Considering Seafish's considerable amount of work carried out in this field in other areas, it is felt that this situation can be approached and dealt with in a similar manner to previous work. At this stage we are aware of a spring fishery for whittings conducted on the Tervose Head grounds which requires attention. At certain times during this fishery considerable quantities of juvenile fish are caught resulting in high discard levels.

Since this problem is predominantly encountered in the Spring it has been suggested, due to Seafish's limited resources, that the area VIIIf situation be further examined later in the year. At that time discussions should be held with industry representatives to obtain further details.

It has been established that the area VIIIf fisheries based around Newlyn and the North Cornwall ports are sufficiently different to warrant separate consideration.

Either Newlyn or Padstow have been suggested as ports from which to select representative vessels to conduct trials.

It is hoped that more information will be obtained regarding the fisheries in VIIIf with regard to this work as soon as the opportunity arises.

## 2.3 ICES Fishing Area VIId

### 2.3.1 Industry Contacts

David Scott - Vessel owner

Chairman of NFFO

Chairman of Newhaven (Sussex) Fish and Flake Ice Society Ltd

It is felt that the representative port for VIId should be Newhaven in Sussex. The vessels operating out of Newhaven in the general range 30-50ft tend to operate on a daily basis working predominantly single trawls with some seasonal pair trawling in the spring/early summer for bass and black bream.

As in the rest of the Channel, the catch consists of mixed species with species like red mullet and squid again forming a large part of the earnings.

The fishing seasons for the main species under consideration are very similar to the opposite end of the Channel with perhaps one or two weeks separating the peak catching times.

The trawls used in this port are mainly supplied by John Day of Brixham or are constructed by the fishermen themselves.

Since the main concerns in this area relate to worries about the effect of square mesh panels on catch rates of the main revenue earning species, as in the other sectors, it is envisaged that the Newhaven trials would take the same format as those proposed for Brixham. The seasons for the main species under consideration are:-

Grey mullet - April

Squid - August, September, October to Christmas (small to large).  
Value increases with size (generally).

Red mullet - August, September and October.

Bass - November, some summer fishing.

Whiting - October, November (peak), December, tailing off in January.

Bearing in mind these seasons and the timing of the trials proposed for the other areas, it would seem a sensible proposal to conduct the Newhaven trials to coincide with peak catches of species like red mullet and squid. An exercise timed for late summer/early autumn would present good opportunities for evaluating the effect of the square mesh panels on small squid, red mullet and whiting.

This timing would also give a good contrast to the other trials which are proposed for late autumn/early winter.

As with the Brixham trials, no vessels have been selected as yet but industry contacts have selected vessels and skippers that are interested in carrying out sea trials.

Vessels in Newhaven use the minimum legal mesh size of 80mm and so it would seem sensible to evaluate the 80mm diamond/80mm square mesh configurations.

### 3 CONCLUSIONS

In summary, it is suggested that the area VII work should commence as soon as possible with trials on pair trawlers operating out of Looe using the recommended pair team of BUDDING ROSE and LEVAN MOR.

These pair teams provide a good format for comparative fishing trials using the alternate tow procedure and industry contacts have assured good access to data/information from other similar pair teams working closely with each other within the Looe fleet. Access to landing details will provide valuable comparative data.

Both vessels work identical nets alternatively which allows alternate tow procedure to be used without disruption of the normal commercial fishing operation.

It has been agreed that the 90mm diamond/80mm square mesh and 80mm diamond/80mm square mesh configurations as standard square mesh panel arrangements should be used with the option of evaluating one or two experimental configurations as alternatives.

The single trawl method should be evaluated using a Brixham based trawler conducting an alternate tow type comparative fishing exercise ideally at a similar time to the Looe trials. The same configurations should be examined.

The fisheries in VIIf will require a further separate consideration after discussions with industry representatives. However, at least one fishery has been highlighted for attention, that being a whiting fishery off Trevoise Head which encounters high discard levels in the Spring. It is felt that Seafish can apply knowledge gained from similar fisheries in other areas to help alleviate this problem in VIIf.

Since the situation in VIId appears to be very similar to VIIe, apart from a slight variation in the seasons for some of the species concerned and the obvious geographical regional differences, then comparative fishing trials timed for late summer/early autumn would appear to be the best proposal. Here again it is proposed to look at the 80mm diamond/80mm square configuration.

Information regarding netting specifications etc. has been collected for the relevant areas and gear types in order that selection devices and netting panels can be made-up.

Some alternative configurations to the standard square mesh panel arrangement are being designed and prepared for evaluation during the proposed trials. Seafish are awaiting a delivery of knotless netting from suppliers Nichimo in Japan for use in construction of the square mesh panels (expected end of October).

On completion of netting panels and gear, charter parties and project proposals etc. it is hoped that the first stage of the project, i.e. fishing trials from Looe, could be underway by early November.

# ICES Fishing Regions around the UK

