

**Selectivity Trials using
Square Mesh Panels in a
Scottish Seine -
Preliminary Sea Trials
MFV Kiloran
EC Funded Project TE 2-411**

Consultancy Report No. 47

November 1991

Client: EC DGXIV (FAR Programme)

SEA FISH INDUSTRY AUTHORITY

Seafish Technology

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SUMMARY

This report is part of a continuing series of sea trials examining different methods of fish capture in an attempt to improve and standardise the design and position of square mesh panels or windows within the trawl to reduce the levels of discards whilst retaining acceptable proportions of marketable fish. On these trials double panels were tested in a Scottish seine net in order to decide on the preferred position for further trials.

The practice of seine net trawling is seen as a reasonably passive fishing method but it has been demonstrated over the years that it is a very effective method of fish capture. It is thought that most of the fish caught each haul only enter the net at the latter stages of the hauling period, therefore if a good haul is taken, meshes have a tendency to get blocked by sheer numbers of fish and because of this high levels of discards are often taken. The objective of the trials was to determine if the use of square mesh panels would reduce the discard problem and what differences might occur as a result of the position of the panel.

The trials were carried out from the Scottish port of Peterhead onboard the *MFV Kiloran (INS10)*. The technique used during the trials was that of comparative fishing by use of alternate tows. Initially two 3.3m long 90mm square mesh panels were inserted in the upper part of the straight extension, the first one situated 8m above the codend lifting becket and the second one 14.5m above the lifting becket. The catches from this configuration were compared to those obtained from a standard 90mm diamond mesh extension and codend of the same length and width. This was the control net.

Later in the trial it was decided to move the panels closer to the codend which was achieved by removing some sections of the extension which were made from diamond mesh. The extension length of the control net was reduced by the same amount.

The discards of undersized whiting were reduced but there was also a loss of marketable fish. The same result was found for haddock and the reduced discards and marketable fish were comparable to those for whiting. There was very little cod caught throughout the trials.

The trials cannot be regarded as conclusive and the data will be used along with other data collected on later trials. The reductions in discards nevertheless are not consistent with what would have been expected or found in other towed fish capture methods for demersal fish where square mesh has been used as a means of more effective selectivity.

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1. INTRODUCTION

Seafish, in cooperation with the Danish Institute for Fisheries Technology and Aquaculture (DIFTA), have been contracted by the European Commission to investigate methods to improve selectivity in Scottish and Danish seines by developing escape mechanisms which will reduce discard rates of juvenile round fish. Seafish have undertaken to carry out the work on Scottish seines whilst DIFTA are investigating the Danish seine.

Earlier work carried out has concentrated on improving selectivity within the codends and straight extensions of demersal trawls.

The use of square mesh panels or windows within the extensions of demersal trawls has been shown to be an effective means of reducing the levels of discards of immature fish, especially whiting and haddock. Positive results have been achieved in most demersal fishing operations. The most notable success has been their use in Nephrop trawls to reduce the high levels of round fish discards.

Following the success achieved in these trials, fishermen, other than those involved in the prawn fishery where the use of square mesh panels is mandatory, are voluntarily offering to use square mesh. This must be seen as a step in the right direction.

At the time of writing this report, work is being carried out in the Seafish Flume Tank to investigate the possible problems that could be encountered when putting square mesh into beam trawls. This method of fish capture also has a high level of discards of white fish at times throughout the year and is targeted for sea trials using square mesh at a later date during 1992.

The seine net, which is worked mainly by the Scottish fishermen and used on many of the North Sea fishing grounds is a method seen by many fishermen to be responsible for high discard rates. The objective of this trial was to obtain some preliminary data of discards in a seine net both with and without a panel and also to assess the best position for the panel in future trials. The data is not used to draw firm conclusions at this stage.

2. TRIALS PROCEDURE

The vessel used throughout the trials was the Inverness registered *MFV Kiloran (INS10)* and the owners were Skipper L W Andrews of Lossiemouth and others.

Following favourable results obtained from earlier selectivity work it was decided to conduct these trials using the comparative fishing technique of alternate hauls. On one haul the experimental net with two panels of square mesh netting was used and on the next a standard or control net of the same dimensions but made from 90mm diamond mesh throughout was used.

However, it is difficult to obtain an exact comparison bearing in mind the large area of ground covered during each haul by a seine net vessel working 13 coils of rope per side (2854m). Each haul has to be as close to the previous area as possible without actually covering the same ground. Covering the same ground would in all probability result in a lower catch of marketable fish. Moving too far away from the previous haul could result in a different fish population being sampled.

The skipper and crew were very experienced seine net fishermen and interested in any form of conservation measure, therefore, a minimum of time was wasted setting up a trials procedure.

It was proposed that the vessel should fish in as normal a commercial fishing manner as possible without interfering with the objective of the trial.

The same net was used on each tow which helped eliminate any inconsistencies in the results due to net performance. Two 3.3m panels were made up of 90mm square mesh and separated by 3.2m of 90mm diamond mesh in the upper sheet with 90mm diamond mesh in the lower sheet and were joined to 10m of 90mm diamond mesh codend. This configuration was joined to the existing first section of tapered belly of the net and was used every other haul. To keep the trawl the same length and geometry at all times, a section of 90mm diamond mesh extension and codend of the same length and width as the square mesh sections replaced the experimental gear. This configuration was used every other haul as the control gear. The catches between the two configurations were then compared (Figs 2, 3 & 4). Seventy-three valid hauls were achieved.

3. OBJECTIVE

The objective of these trials was to obtain some preliminary data on levels of discards in seine nets and how these levels may be modified by the use of square mesh panels and also where the most suitable position of the panel or panels would be.

4. THE FISHING GEAR

The net used during the trials was supplied by Jackson Trawls Limited, Peterhead. The net, rockhopper ground gear and accessories were identical to that normally worked by the *MFV Kiloran*.

The 90mm diamond mesh extensions were also supplied by Jackson Trawls but were altered by Seafish staff who fixed the square mesh windows into them.

4.1 Description of Fishing Gear (see Figs 1 & 2)

- 1 x 480 Box seine net.
- Fishing circle 480 meshes x 203mm mesh.
- Codend and extension of 90mm diamond mesh x 120 meshes around.
- 2 x 3.3m panels made up of 90mm square mesh in the upper section and 90mm diamond mesh in the lower section.
- A 9.8m section of 90mm diamond mesh throughout to replace the panels on alternate tows.
- Type 'A' configuration placed the panels 10m above the codend.
- Type 'B' configuration placed the panels 7m above the codend.
- Type 'C' configuration placed the panels 6m above the codend.
- Type 'D' configuration placed the double panels 5m above the codend.
- Type 'E' configuration placed a single 3.3m square mesh panel 5m above the codend.

5. NARRATIVE

Fourteen days were available for the charter and a derogation from the Scottish Office was sought to use the 90mm square and diamond mesh. As the boat had elected for the gear option it was not necessary to revert to the eight day tie-up requirement for September once the derogations were granted. Exemption from all fish landed being deducted from the vessels quota was not granted due to technical problems. The first part of the trials took place from 5th-11th September 1991 inclusive with the second part from 16th-22nd September 1991 inclusive.

The trial was planned to evaluate in the first instance two 90mm square mesh windows when inserted in the extension of a seine net when engaged in a mixed species fishery.

The vessel was manned by Seafish staff throughout the trials (G Delves and B Ashcroft).

The normal fishing pattern for the vessel was to make one week voyages, landing the fish on the same day one week later. This trial followed this pattern and the vessel sailed late on a Wednesday afternoon and landed the fish the following Wednesday morning. There was a short break in port and then the exercise was repeated in the second period.

Seine netting or Scottish fly shooting as it is sometimes called, relies heavily on daylight hours for successful fishing and rarely, if ever, is good fishing had during the dark hours. Therefore it is imperative that maximum fishing effort takes place between dawn to dusk.

The number of hauls that can be carried out in the seine net fishery per day is dependant entirely on the availability of daylight hours. During the first trial period six hauls were taken each day, but on the second period only four hauls were possible. This was due to the reduced daylight hours at this time of year (September).

During the first part of the trial the double 90mm square mesh windows and alternately the 90mm diamond mesh extension were fixed in the trawl 10m above the codend. This configuration is designated Type 'A' (Fig 2).

During the latter part of the first trial the square mesh windows and alternately the 90mm diamond mesh extension were moved closer to the codend by taking out a total of 5m of codend. These experiments were done in three stages - (1) 3m of codend removed, (2) 1m of codend removed and (3) 1m of codend removed, leaving a total of 5m of codend with the 90mm double square mesh panels and the 90mm diamond mesh extension in the control net the same length at 9.8m. These configurations are designated Type 'B' (Fig 2), Type 'C' and Type 'D' (Fig 3).

On day one of the second trial period the top square mesh window plus the 3.2m of diamond mesh which separated the two panels was removed and alternately the same length of diamond mesh extension was removed from the control net. This configuration remained for the rest of the trials and is designated Type 'E' (Fig 4).

6. DATA COLLECTION

As the fish came aboard it was boxed and all the debris and rubbish were logged as part of the bulk catch before being discharged back overboard into the sea.

After all the target species of fish had been boxed, random boxes were taken and samples of these species, namely whiting, haddock and cod, were measured in order to produce length/frequency data of both marketable and discard fish.

Length/frequency distributions for whiting, haddock and cod are shown in Appendices II and III. These compare the results from the net when fitted with the 90mm square mesh window extensions and the net when fitted with the 90mm diamond mesh extension.

The data of the length/frequency distributions include the raised numbers of fish measured, i.e. the data from the sample boxes extended to represent the whole catch.

Included in the length/frequency distributions for the hauls for the three species are the differences in numbers of fish caught in the length range above and below the minimum legal landing sizes. These figures are compared when the net is fitted with square mesh and alternatively with the diamond mesh. These figures are presented as a percentage and represent the reduction in discards and the loss of marketable fish between the five different positions in which the square mesh netting was fixed - Type 'A', Type 'B', Type 'C', Type 'D' and Type 'E'.

7. RESULTS

7.1 Trip 1

The discards and marketable fish percentages shown are as compared to the standard gear. Each codend and panel configuration used was worked for a full daylight period, therefore the discarded fish percentages are taken from a mean average of each days work.

- (a) Type 'A' configuration showed for whiting reduced discards by 41% and marketable fish by 42%. Haddock showed reduced discards by 48% and marketable fish by 63%, however numbers of fish were relatively low.
- (b) Type 'B' configuration showed for whiting reduced discards by 31% and loss of marketable fish by 36%. Haddock showed a reduction in discards by 50% and loss of marketable fish by 34%. Cod showed an increase in discards by 159% and also an increase of marketable fish by 33%. These cod results are discussed later in 7.2
- (c) In Type 'C' configuration the whiting showed a reduction of discards by 13% and loss of marketable fish by 46%. Haddock showed a reduction in discards by 81% and loss of marketable fish by 62%. Cod showed reduced discards by 44% and loss of marketable fish by 37%.
- (d) Type 'D' configuration showed whiting discards increased by 47% and loss of marketable fish by 30%. Haddock showed a reduction in discards by 59% and loss of marketable fish by 37%. Cod showed reduced discards by 20% and increased marketable fish by 25%.

The results shown in Trip 1 were obtained with double 90mm square mesh panels fixed into the 90mm diamond mesh extension at different distances above the codend. Each configuration refers to a fixed position and distance from the codend (Figs 2, 3 & 4).

7.2 Trip 2

The discards and loss of marketable fish percentages shown are again as compared to the standard gear. The following configuration of codend and square mesh panel was worked for the remainder of the charter period (Figs 2, 3 & 4). The quantity of fish caught on trip 2 was substantially below that of trip 1.

Type 'E' configuration showed for whiting reduced discards by 25% and loss of marketable fish by 35%. Haddock showed a reduction in discards by 26% and loss of marketable fish by 65%. Cod showed increased discards by 22% and increased marketable fish by 7%.

The results must be taken as indicative. This is the first occasion square mesh has been worked in a seine net trawling exercise commercially. It would appear the panels did achieve some reduction in discards and loss of marketable fish for haddock and whiting and that there is a difference in the level of discards depending on where the square mesh is fixed in the extension of the trawl.

In the case of cod, the results show the opposite to that of haddock and whiting. It is what was expected, this trial was no exception and the few cod caught followed a similar pattern to that of previous square mesh trials.

7.3 Observations

It is not possible at this stage to give a definitive assessment using these results as to whether square mesh panels when used in the seine net are an effective method of releasing immature and undersized fish as they have been shown to be in other demersal fishing methods. However, although the 90mm square mesh panels used did permit the escape of undersized haddock and whiting in most cases, it also allowed small amounts of marketable fish to escape. However when using configuration 'D' it was noted that although the discards of haddock were reduced discards of whiting increased. It is important that this result should be investigated further. There is a good deal of conjecture as to why square mesh panels work. It may be due to differences in water flow or light conditions in the codend. Variations of these parameters could cause anomalies in the results.

The data shows two populations of haddock (circa 25 and 30cm mean length) and one population size of whiting (circa 29cm). With the sizes there is inevitably an unduly high proportion of loss of marketable fish just above the MLS.

It is thought, due to the passive nature of the fish capture method (seine netting) and from direct observations by the trials personnel and comments from the crew, that the fish do not pass down the trawl from mouth to codend in a steady stream as when trawling. The trawl is moving through the water all the time at a steady pace which gives individual fish time to find a way out through square meshes. In seine netting the fish, regardless of the amount, go down the net in one clump and this is at the latter stages of hauling.

The latter stages coincides with the closing up of the trawl and therefore the closing of the meshes which effectively shuts the escape route. When this is taking place the whole hauling sequence is being speeded up and the net is actually moving through the water at its fastest and it would seem the fish are being swept past the escape (square mesh). It is probably because of this that the results of the trials have shown a degree of variance. In situations where large amounts of relatively small fish are being caught the problem of releasing juveniles would be even more complex.

It has been seen by direct observation and data collected from earlier trials that the behaviour patterns of cod are different to most other species. This behaviour pattern, combined with their greater landing size of 35cm, means that a square mesh panel of the size and configuration used in these trials would be of little consequence in reducing discards. These trials of firstly double 90mm square mesh panels and then a single 90mm square mesh panel proved once again that square mesh plays no part whatsoever in the release of juvenile cod. These comments are reflected in the data collected.

It is significant to note that the total amount of bulk representing by-catch was equivalent to 255 boxes (11,500kg) when using the control nets, but this reduced to 161 boxes (7,200kg) when using the square mesh panels. The differential was consistent haul by haul. This clearly indicated much greater escapes of all marine species with the square mesh. An analysis of this will be necessary in future trials.

The results show no particular preference for the position of the panel. Future trials will concentrate on obtaining a result from the panel in *one* position only.

8. FURTHER WORK

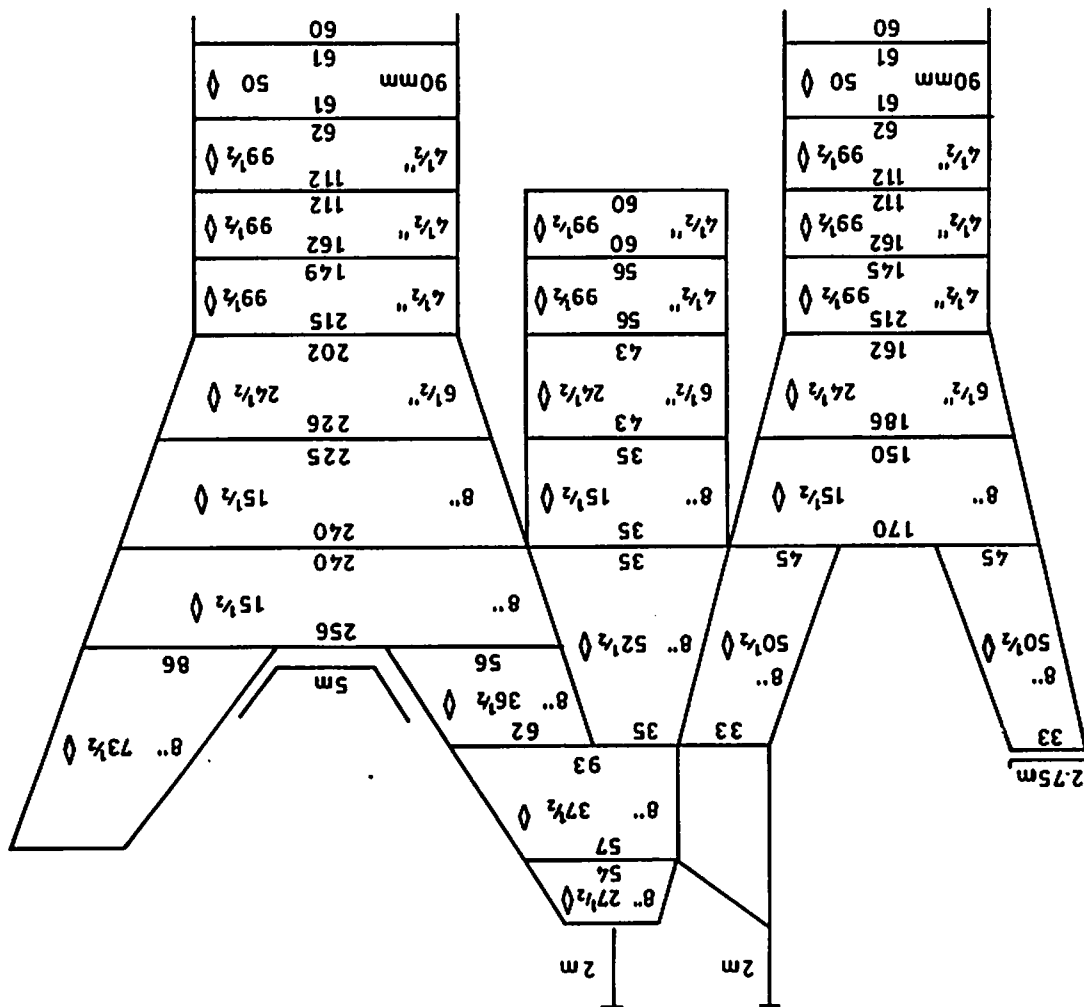
It is intended that further work should be carried out to improve on the selectivity of a seine net in early 1992 and to gather more data on discards of both the target species and by-catch species.

This work will be carried out as a joint project between Seafish Technology and the Danish Institute for Fisheries Technology and Aquaculture (DIFTA) who are also carrying out selectivity trials in parallel using the Danish ^{vector} seine net. These results and the Danish results are to be discussed, whereupon further work will be arranged and the methodology that is to be used during the next trials decided upon.

It is thought in the first instance that guidance should be sought from the fish behaviour scientists at the Marine Laboratory followed by sea trials with an underwater video camera which is a recent Seafish purchase and is presently undergoing sea trials. The camera can be situated in numerous positions within the trawl, whereupon this hopefully will give some positive ideas as to what actually happens to the netting and the fish at different times throughout the seine net operation. It could quite well give some indication as to design requirements to give maximum selectivity potential.

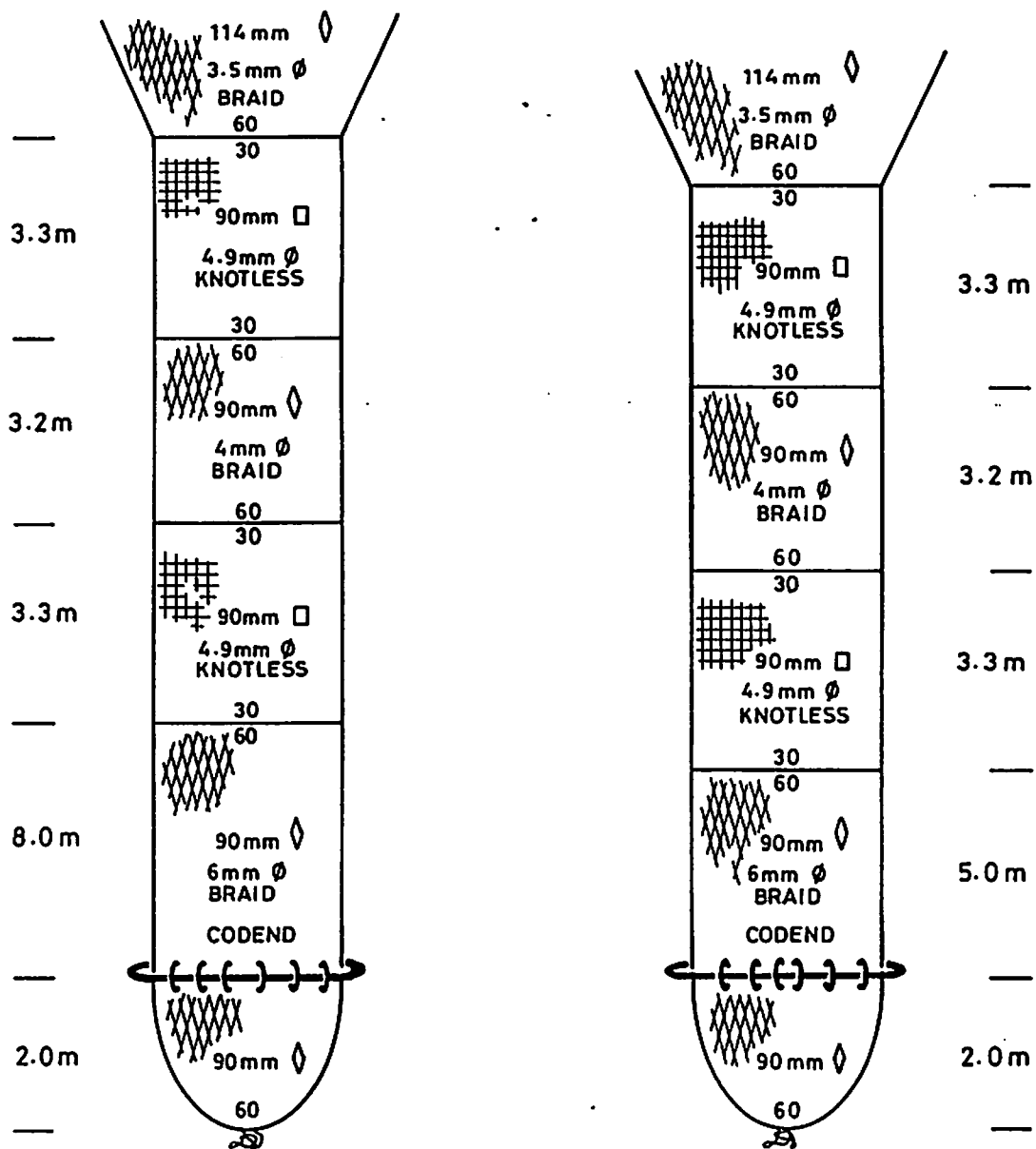
FIGURES

480 BOX SEINE NET MFV 'Kiloran' (INS 10)



SEINE NET CODEND & EXTENSIONS

DOUBLE SQUARE MESH PANEL ARRANGEMENTS

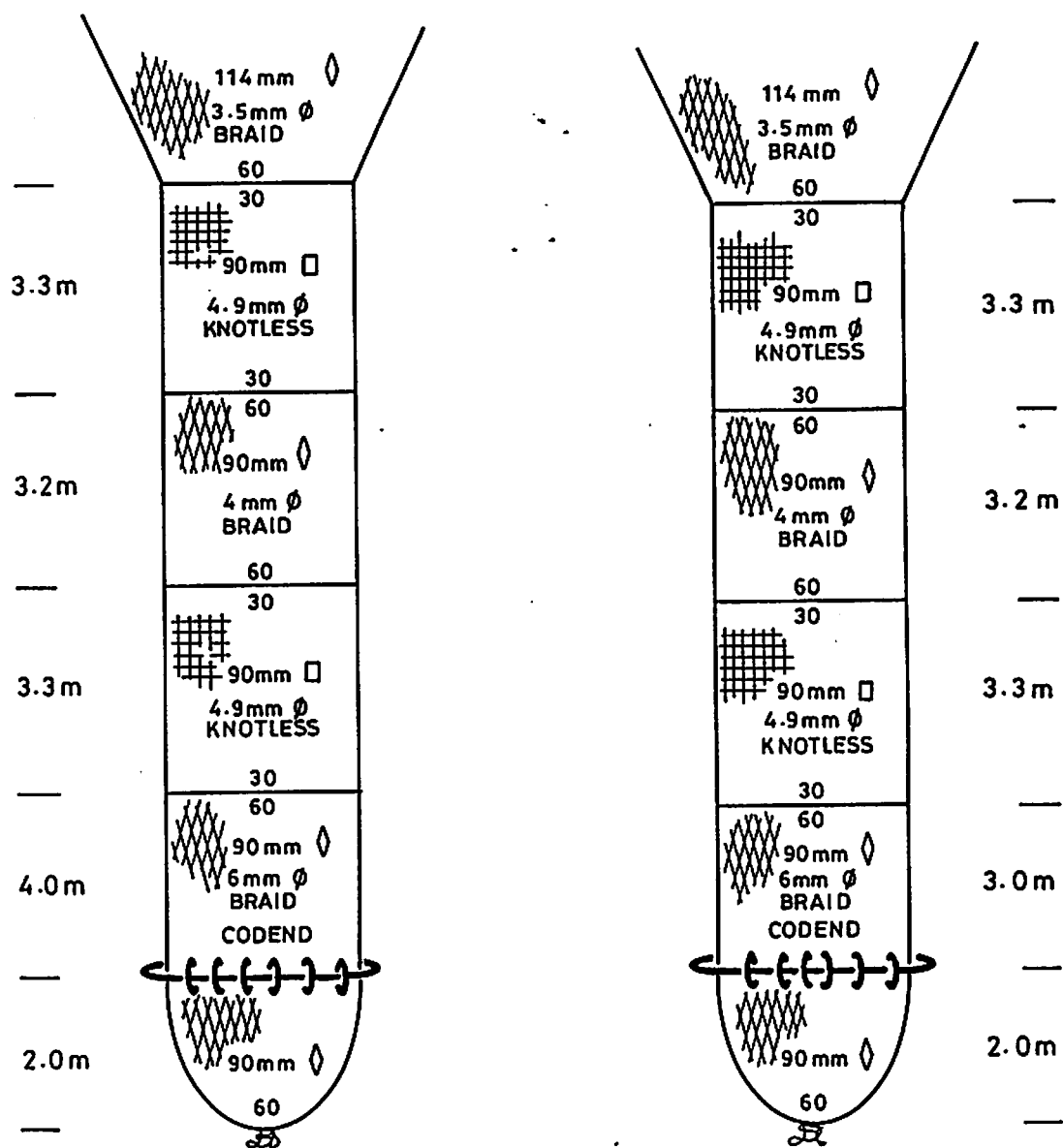


TYPE 'A' CONFIGURATION

TYPE 'B' CONFIGURATION

SEINE NET CODEND & EXTENSIONS

DOUBLE SQUARE MESH PANEL ARRANGEMENTS



TYPE 'C' CONFIGURATION

TYPE 'D' CONFIGURATION

SEINE NET CODEND & EXTENSION SINGLE SQUARE MESH PANEL ARRANGEMENT

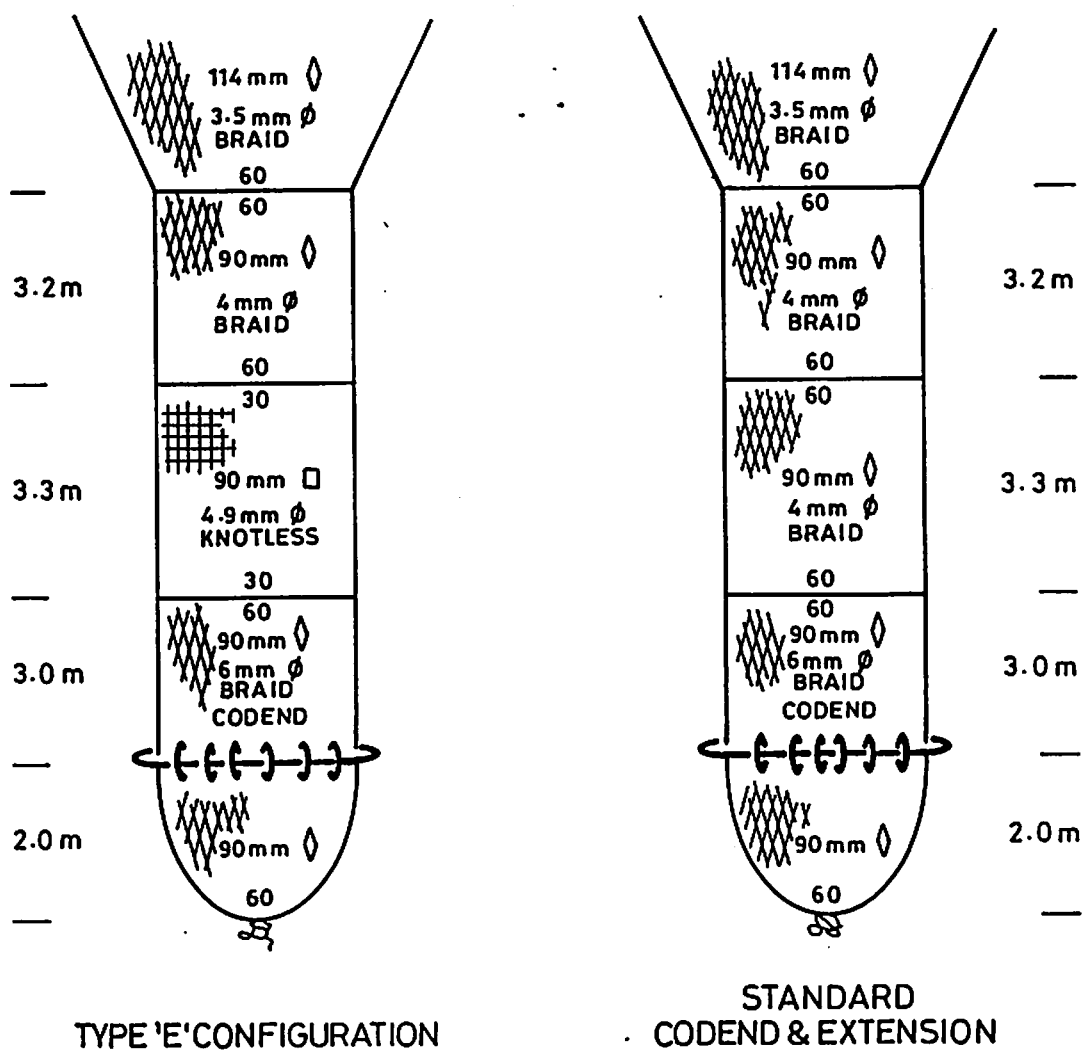


Fig.4

APPENDICES

- I DAILY LOG SHEETS - TRIPS 1 AND 2**
- II LENGTH/NUMBERS DATA (5TH-11TH SEPTEMBER 1991)**
- III LENGTH/NUMBERS DATA (16TH-22ND SEPTEMBER 1991)**

APPENDIX I

DAILY LOG SHEETS - TRIPS 1 AND 2

DAILY LOG SHEETS - TRIP 1

DAY 1

VESSEL M.F.V. <u>HILOKAI INSIO</u> DATE <u>5-9-91</u>												
FISHING AREA	TIME		TYPE OF GEAR	COILS OF ROPE PER SIDE	WATER DEPTH FATHOMS	SPECIES RETAINED					WX SEA STATE	REMARKS.
	SHOOT	HAUL				WHITING BOXES	COD BOXES	HDK BOXES	COD BOXES	OTHERS BOXES		
1st HAUL 58° 35'N 00° 21'W	0545	0725	CONTROL	13	65/ 57	10					NW 2/3	18 boxes bulk whiting.
2nd HAUL 58° 34'N 00° 22'W	0740	0940	CONTROL	13	62/ 55	13		3			NW/ 2/3	30 boxes bulk.
3rd HAUL 58° 34'N 00° 19'W	1010	1205	CONTROL	13	66/ 60	7		1			NNW 3/4	15 boxes bulk.
4th HAUL 58° 37'N 00° 20'W	1215	1400	SQUARE	13	69/ 65	5		1			NNW 4	11 boxes bulk.
5th HAUL 58° 34'N 00° 18'W	1415	1620	CONTROL	13	65/ 65						NNW 4	NIL FISH. Came fast hauling. Slight net damage.
6th HAUL												

Control 48 boxes
Square 26 boxes

DAY 2

VESSEL MFV KILORAN INS 10												
DATE 6-9-91												
FISHING AREA	TIME		TYPE OF GEAR	COILS OF ROPE PER SIDE	WATER DEPTH FATHOMS	SPECIES RETAINED					WX SEA STATE	REMARKS.
	SHOOT	HAUL				WHITING BOXES	COD BOXES	HDK BOXES	COD BOXES	OTHERS BOXES		
1st HAUL 58° - 36' N 00° - 23' W	0545	0745	SQUARE	13	62 54	5		1	1/2		W 1	Shortened Codend by 3m. leaving 5m cod-end + 12m extension. 15 boxes bulk.
2nd HAUL 58° 36' N 00° 25' W	0750	0935	CONTROL	13	62 55	4		4	1/2		W 1	15 boxes bulk
3rd HAUL 58° 36' N 00° 26' W	1005	1140	SQUARE	13	64 59	4		4	1		W 1	17 boxes bulk.
4th HAUL 58° 36' N 00° 28' W	1200	1400	CONTROL	13	65 60	5		6	2		W 1	18 boxes bulk
5th HAUL 58° 36' N 00° 29' W	1410	1600	SQUARE	13	68 64	2		1			W 2/3	10 boxes bulk
6th HAUL 58° 36' N 00° 31' W	1615	1810	CONTROL	13	68 66	5		1			W 2/3	10 boxes bulk.

Control 43 boxes
Square 42 boxes

DAY 3

VESSEL M/V KIKORAN INS 10												
DATE 7-9-91												
FISHING AREA	TIME		TYPE OF GEAR	COLLS OF ROPE PER-SIDE	WATER DEPTH FATHOMS	SPECIES RETAINED					SEX	REMARKS.
	SHOOT	HAUL				WHITING COD	HDK COD	OTHERS	BOXES	BOXES		
1st HAUL	0600	0745	COT ROR	13	64 / 58	5	1				NW	Taking out another in codend. 4m left. 11 boxes bulk.
2nd HAUL	0750	0945	COT ROR	13	61 / 55	6	2				NW	15 boxes bulk.
3rd HAUL	0955	1155	COT ROR	13	65 / 56	2	1				NW	9 boxes bulk.
4th HAUL	1200	1345	COT ROR	13	65 / 57						NW	1 box bulk.
5th HAUL	1350	1540	COT ROR	13	65 / 61	5	2	1			NW	19 boxes bulk.
6th HAUL	1550	1750	COT ROR	13	65 / 60	2	1	1			NW	6 boxes bulk.

Control 45 boxes
square 16 boxes

DAY 4

VESSEL MFV KILORAN INS 10												
DATE 8-9-91												
FISHING AREA	TIME		TYPE OF GEAR	COILS OF ROPE PER SIDE	WATER DEPTH FATHOMS	SPECIES RETAINED					WX SEA STATE	REMARKS.
	SHOOT	HAUL				WHITING BOXES	COD BOXES	HDK BOXES	COD BOXES	OTHERS BOXES		
1st HAUL 58° 49' N 00° 18' E	055	0745	SQUARE	13	72/58						CALM	Take out another 1m from extension. 2 boxes bulk
2nd HAUL 58° 49' N 00° 20' E	0755	0945	CONTROL	13	70/59	2					CALM	6 boxes bulk
3rd HAUL 58° 46' N 00° 20' E	0950	1140	SQUARE	13	63/59	6					CALM	12 boxes bulk.
4th HAUL 58° 46' N 00° 18' E	1150	1340	CONTROL	13	65/59	10	2	1		2	CALM	20 boxes bulk.
5th HAUL 58° 46' N 00° 22' E	1350	1525	SQUARE	13	60/64	5				1	CALM	11 boxes bulk.
6th HAUL 58° 47' N 00° 20' E	1545	1730	CONTROL	13	63/59	7					CALM	14 boxes bulk.

Control 40 boxes
Square 25 boxes

DAY 5

VESSEL MEV KILORAN INSIO				DATE 9-9-91								
FISHING AREA	TIME		TYPE OF GEAR	COILS OF ROPE PER SIDE	WATER DEPTH FATHOMS	SPECIES RETAINED					WX SEA STATE	REMARKS.
	SHOOT	HAUL				WHITING BOXES	COD BOXES	HDK BOXES	COD BOXES	OTHERS BOXES		
1st HAUL 59° 10'N 01° 19'E	0555	0745	CONTROL	13	63/62	1		1			CALM	Taken out a further 1m from extensions. 10 boxes bulk.
2nd HAUL 59° 14'N 01° 17'E	0750	0945	CONTROL	13	63/62	1		5			CALM	18 boxes bulk.
3rd HAUL 59° 12'N 01° 18'E	0950	1145	SQUARE	13	63	1	2	4			CALM	16 boxes bulk.
4th HAUL 59° 15'N 01° 18'E	1155	1345	SQUARE	13	63						CALM	4 boxes bulk. nothing savable.
5th HAUL 59° 11'N 01° 17'E	1350	1545	CONTROL	13	63	1		1			CALM	10 boxes bulk. small haddock.
6th HAUL 59° 10'N 01° 17'E	1600	1805	SQUARE	13	63	1		1			CALM	6 boxes bulk.

Control 38 boxes
Square 26 boxes

DAY 6.

VESSEL MFV HILORAN INS 10												
DATE 10-9-91												
FISHING AREA	TIME		TYPE OF GEAR	COILS OF ROPE PER SIDE	WATER DEPTH FATHOMS	SPECIES RETAINED					WX SEA STATE	REMARKS.
	SHOOT	HAUL				WHITING BOXES	COD BOXES	HDK BOXES	COD BOXES	OTHERS BOXES		
1st HAUL 58° 36'N 00° 21'W	0600	0755	SQUARE	13	61/57	1		1			NW 3	5 boxes bulk.
2nd HAUL 58° 35'N 00° 23'W	0805	0950	CONTROL	13	61/56	3		3			NW 3	12 boxes bulk
3rd HAUL 58° 35'N 00° 24'W	1000	1145	SQUARE	13	61/55	4					NW 3/4	11 boxes bulk.
4th HAUL 58° 35'N 00° 26'W	1200	1400	CONTROL	13	64/60	2		2			NW 5	10 boxes bulk. Parted rope shooting.
5th HAUL 58° 36'N 00° 26'W	1625	1800	SQUARE	13	64/60	2					NW 5	5 boxes bulk.
6th HAUL 58° 37'N 00° 28'W	1805	1950	CONTROL	13	64/59	5		1	1	1	NW 5	13 boxes bulk.

Control 35 boxes
Square 21 boxes

DAY 7.

VESSEL MFV <u>KILORAN INSIO</u> DATE <u>11-9-91</u>												
FISHING AREA	TIME		TYPE OF GEAR	COILS OF ROPE PER SIDE	WATER DEPTH FATHOMS	SPECIES RETAINED					WX SEA STATE	REMARKS.
	SHOOT	HAUL				WHITING BOXES	COD BOXES	HDK BOXES	COD BOXES	OTHERS BOXES		
1st HAUL 58° 15' N 00° 57' W	0600	0755	CONTROL	13	62/61	1					NLY 4	6 boxes bulk.
2nd HAUL 58° 14' N 00° 56' W	0815	1000	CONTROL	13	61/59						NLY 4	Blank haul.
3rd HAUL 58° 13' N 00° 57' W	1010	1150	SQUARE	13	61/59	1					NLY 4	4 boxes bulk.
4th HAUL 58° 12' N 00° 58' W	1200	1345	SQUARE	13	61/58	1		1			NLY 3	6 boxes bulk.
5th HAUL												
6th HAUL												

Control 6 boxes
 Square 10 boxes
 Allow for one blank

DAILY LOG SHEETS - TRIP 2

DAY 1

TRIP 2

VESSEL MFV KILORAN INS 10												
DATE 16-9-91												
FISHING AREA	TIME		TYPE OF GEAR	COILS OF ROPE PER SIDE	WATER DEPTH FATHOMS	SPECIES RETAINED					WX SEA STATE	REMARKS.
	SHOOT	HAUL				WHITING BOXES	COD BOXES	HDK BOXES	COD BOXES	OTHERS BOXES		
1st HAUL 58° 36'N 00° 28'W	0600	0800	CONTROL	13	67 61						SE 2	Upper square mesh panel blanked out. 8 boxes bulk.
2nd HAUL 58° 36'N 00° 26'W	0810	0950	SQUARE	13	65 60	2					SE 2	3 boxes bulk.
3rd HAUL 58° 35'N 00° 25'W	1000	1145	CONTROL	13	60 57	3					SE 3/4	12 boxes bulk.
4th HAUL 58° 35'N 00° 23'W	1155	1345	SQUARE	13	60 53	4		1			SE 4	10 boxes bulk.
5th HAUL 58° 34'N 00° 22'W	1400	1555	CONTROL	13	60 53	7					S 5	18 boxes bulk.
6th HAUL 58° 35'N 00° 21'W	1600	1750	SQUARE	17	60 57	5					S 5	10 boxes bulk.

Control 38 boxes
Square 23 boxes

DAY 2

TRIP 2

VESSEL MEV HIBORAN INS 10												
DATE 17-9-21												
FISHING AREA	TIME		TYPE OF GEAR	COILS OF ROPE PER SIDE	WATER DEPTH FATHOMS	SPECIES RETAINED					WX SEA STATE	REMARKS.
	SHOOT	HAUL				WHITING BOXES	COD BOXES	HDK BOXES	COD BOXES	OTHERS BOXES		
1st HAUL 58° 37'N 01° 54'W	0615	0830	SQUARE	13	51 50						SW 2	lower square mesh panel blanked out. FAST Broken rope no fish.
2nd HAUL 58° 37'N 01° 57'W	0900	1050	SQUARE	13	50 49						W 4	11 boxes bulk very small haddocks.
3rd HAUL 58° 35'N 01° 57'W	1100	1300	CONTROL	13	50						W 4	8 boxes bulk.
4th HAUL 58° 37'N 01° 49'W	1355	1550	SQUARE	13	52	1		1			SW 2	8 boxes bulk.
5th HAUL 58° 34'N 01° 47'W	1600	1745	CONTROL	13	54	1					W 1	7 boxes bulk.
6th HAUL.												

Control 15 boxes
Square 19 boxes

DAY 3

TRIP 2

VESSEL MFV KILORAN INS 10.												
DATE 18-9-91												
FISHING AREA	TIME		TYPE OF GEAR	COILS OF ROPE PER SIDE	WATER DEPTH FATHOMS	SPECIES RETAINED					WX SEA STATE	REMARKS.
	SHOOT	HAUL				WHITING BOXES	COD BOXES	HDK BOXES	COD BOXES	OTHERS BOXES		
1st HAUL 59° 00'N 02° 13'W	0610	0825	CONTROL	13	46			7			SW 2	21 boxes bulk.
2nd HAUL 59° 00'N 02° 15'W	0840	1040	SQUARE	13	45			3			SW 5	10 boxes bulk.
3rd HAUL 58° 58'N 02° 13'W	1050	1245	CONTROL	13	47						SW 6	12 boxes bulk. Net torn.
4th HAUL 58° 57'N 02° 16'W	1250	1500	CONTROL	13	44						WSW 6	10 boxes bulk.
5th HAUL 58° 58'N 02° 16'W	1510	1700	SQUARE	13	45						WSW 6.7	8 boxes bulk. Absolute rubbish.
6th HAUL.												

Control 43 boxes
Square 18 boxes

DAY 4

TRIP 2

VESSEL MEV KILORAN INS 10												
DATE 19-9-91												
FISHING AREA	TIME		TYPE OF GEAR	COILS OF ROPE PER SIDE	WATER DEPTH FATHOMS	SPECIES RETAINED					WX SEA STATE	REMARKS.
	SHOOT	HAUL				WHITING BOXES	COD BOXES	HDK BOXES	COD BOXES	OTHERS BOXES		
1st HAUL 58° 59'N 02° 25'W	0 6 1 0	0 8 1 5	S Q U A R E	13	44						SW 5	Only one square panel in the trawl. Taken out 6.5m of funnel, leaving 5m codend. A few jelly fish only.
2nd HAUL 58° 58'N 02° 20'W	0 8 4 0	1 1 0 0	S Q U A R E	13	46						SW 6/7	6 boxes bulk, all rubbish.
3rd HAUL 58° 58'N 02° 18'W	1 1 0 5	1 2 5 5	C O D E N D	13	46						SW 6/7	11 boxes bulk, all rubbish.
4th HAUL 58° 58'N 02° 16'W	1 3 0 0	1 4 5 5	C O D E N D	13	46						SW 6/7	6 boxes bulk none salvageable.
5th HAUL 58° 59'N 02° 17'W	1 5 0 0	1 7 0 0	S Q U A R E	13	46						SW 6/7	5 boxes rubbish.
6th HAUL												

Control 17 boxes
Square 11 boxes

DAY 5

TRIP 2

VESSEL MFV KIBORAN INS LO												
DATE 20-2-21												
FISHING AREA	TIME		TYPE OF GEAR	COILS OF ROPE PER SIDE	WATER DEPTH FATHOMS	SPECIES RETAINED					WX SEA STATE	REMARKS.
	SHOOT	HAUL				WHITING BOXES	COD BOXES	HDK BOXES	COD BOXES	OTHERS BOXES		
1st HAUL 59° 17' N 00° 03' E	0600	0755	CONTRON	13	82 / 74	1					CALM	One square mesh panel. 4 boxes bulk.
2nd HAUL 59° 17' N 00° 02' E	0800	0955	CONTRON	13	82 / 70		3			1	CALM	5 boxes bulk.
3rd HAUL 59° 18' N 00° 05' E	1005	1155	SQUARE	13	80 / 73						CALM.	1 box bulk. Small Pouting.
4th HAUL 59° 19' N 00° 05' E	1205	1400	SQUARE	13	77						CALM.	2 boxes bulk small codling.
5th HAUL 59° 18' N 00° 03' E	1410	1600	CONTRON	13	82 / 75	1					CALM.	3 boxes bulk.
6th HAUL 59° 15' N 00° 00'	1610	1800	SQUARE	13	80 / 72	1	2			1	S 2	5 boxes bulk.

Control 12 boxes
Square 8 boxes

DAY 6

TRIP 2

VESSEL MFV. KILBURN INS 10												
DATE 21-9-91												
FISHING AREA	TIME		TYPE OF GEAR	COILS OF ROPE PER SIDE	WATER DEPTH FATHOMS	SPECIES RETAINED					WX SEA STATE	REMARKS.
	SHOOT	HAUL				WHITING BOXES	COD BOXES	HDK BOXES	COD BOXES	OTHERS BOXES		
1st HAUL 58° 47'N 00° 18'E	0600	0755	SQUARE	13	66 60	2				COLEY. 2	S'LY 7	12 boxes bulk Whiting + Black.
2nd HAUL 58° 46'N 00° 21'E	0850	0950	SQUARE	13	64 60	1		1			S'LY 7/8	5 boxes bulk very small fish.
3rd HAUL 58° 46'N 00° 19'E	1000	1145	CONTROL	13	64 60	3					S'LY 7/8	8 boxes bulk. Whiting.
4th HAUL 58° 48'N 00° 18'E	1200	1350	CONTROL	13	64 59	2					S'LY 8/9	8 boxes bulk rubbish.
5th HAUL			STOPPED FISHING DUE TO ADVERSE WEATHER.									
6th HAUL												

Control 16 boxes
Square 17 boxes

DAY 7

TRIP 2.

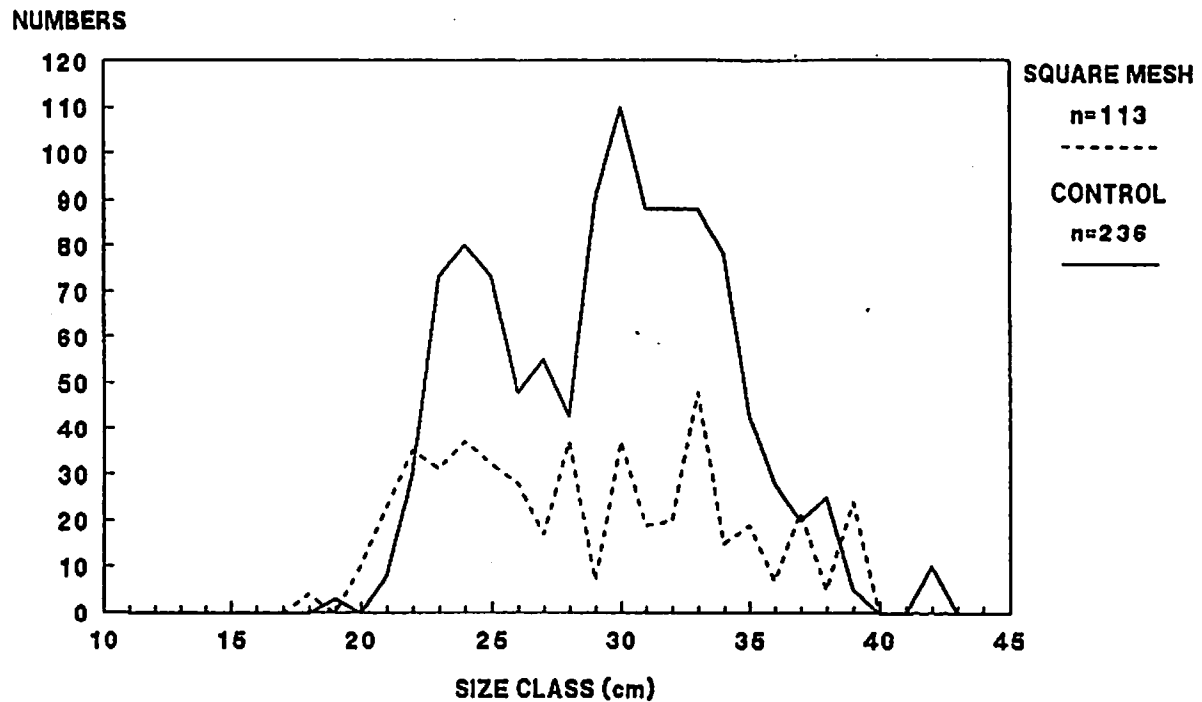
VESSEL MEV MILORAN INS 10												
DATE 22-9-91												
FISHING AREA	TIME		TYPE OF GEAR	COILS OF ROPE PER SIDE	WATER DEPTH FATHOMS	SPECIES RETAINED					WX SEA STATE	REMARKS.
	SHOOT	HAUL				WHITING BOXES	COD BOXES	HDK BOXES	COD BOXES	OTHERS BOXES		
1st HAUL 57° 54' N 00° 38' W	06 15	08 10	CONTROL	13	61						WSW 3	5 boxes bulk small haddock.
2nd HAUL 57° 53' N 00° 37' W	08 20	10 15	SQUARE	13	61						WSW 3	2 boxes bulk
3rd HAUL 57° 53' N 00° 41' W	10 25	12 15	SQUARE	13	63						WSW 4	4 boxes bulk.
4th HAUL 57° 52' N 00° 43' W	12 30	14 15	CONTROL	13	64						WSW 5/6	5 boxes bulk. small fish.
5th HAUL												
6th HAUL												

Control 10 boxes
Square 6 boxes

APPENDIX II

LENGTH/NUMBERS DATA (5TH-11TH SEPTEMBER 1991)

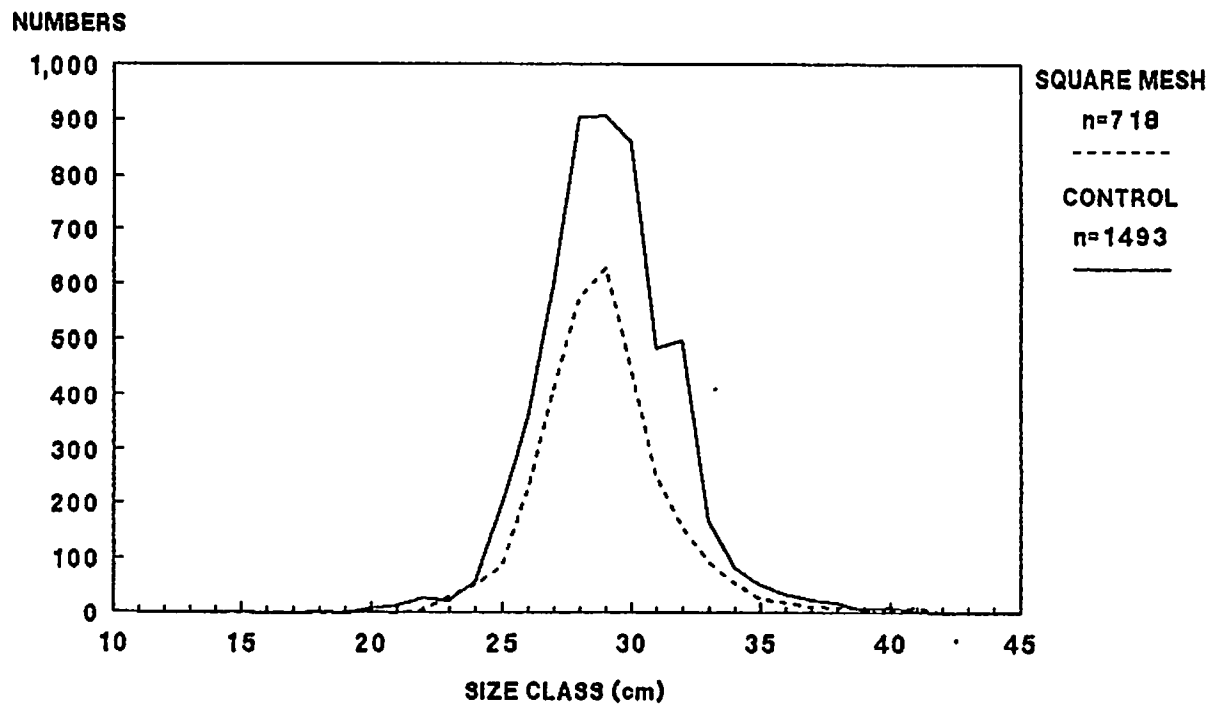
Haddock: Length-Numbers Plot **Double square mesh panel with 10m codend**



MFV "Kiloran" (INS 10) September 1991: 4 hauls

SEAFISH

Whiting: Length-Numbers Plot **Double square mesh panel with 10m codend**



MFV "Kiloran" (INS 10) September 1991: 4 hauls

SEAFISH

SQUARE MESH
 SAMPLE TOTAL: 113
 RAISED TOTAL: 477
 MLS 30cm
 % DISCARDS 55
 % RETAINED 45

CLASS RAISED FREQ.
 cm NUMBERS %

11	0	0
12	0	0
13	0	0
14	0	0
15	0	0
16	0	0
17	0	0
18	4	0.83
19	0	0
20	10	2.09
21	23	4.82
22	35	7.33
23	31	6.49
24	37	7.75
25	32	6.70
26	28	5.87
27	17	3.56
28	37	7.75
29	7	1.46
30	37	7.75
31	19	3.98
32	20	4.19
33	48	10.0
34	15	3.14
35	19	3.98
36	7	1.46
37	22	4.61
38	5	1.04
39	24	5.03
40	0	0
41	0	0
42	0	0
43	0	0
44	0	0
45	0	0
46	0	0
47	0	0
48	0	0
49	0	0
50	0	0
51	0	0
52	0	0
53	0	0
54	0	0
55	0	0
56	0	0
57	0	0
58	0	0
59	0	0
60	0	0
61	0	0
62	0	0

CONTROL
 SAMPLE TOTAL: 236
 RAISED TOTAL: 1086
 MLS 30cm
 % DISCARDS 46
 % RETAINED 54

CLASS RAISED FREQ.
 cm NUMBERS %

11	0	0
12	0	0
13	0	0
14	0	0
15	0	0
16	0	0
17	0	0
18	0	0
19	3	0.27
20	0	0
21	8	0.73
22	30	2.76
23	73	6.72
24	80	7.36
25	73	6.72
26	48	4.41
27	55	5.06
28	43	3.95
29	90	8.28
30	110	10.1
31	88	8.10
32	88	8.10
33	88	8.10
34	78	7.18
35	43	3.95
36	28	2.57
37	20	1.84
38	25	2.30
39	5	0.46
40	0	0
41	0	0
42	10	0.92
43	0	0
44	0	0
45	0	0
46	0	0
47	0	0
48	0	0
49	0	0
50	0	0
51	0	0
52	0	0
53	0	0
54	0	0
55	0	0
56	0	0
57	0	0
58	0	0
59	0	0
60	0	0
61	0	0
62	0	0

DIFFERENCES BETWEEN GEARS
 (PERCENT AND NUMBERS)

	%	n
REDN. DISCARDS:	48	242
LOSS MARKETABLE:	63	367

SPECIES: HADDOCK
 GEAR: 10m codend; alt/tow

MFV "KILORAN"
 SEINE NET TRIALS SEPT. 1991
 DOUBLE SQUARE MESH PANELS

SQUARE MESH
SAMPLE TOTAL: 718
RAISED TOTAL: 3126
MLS 27cm
% DISCARDS 13
% RETAINED 87

CLASS RAISED FREQ.
cm NUMBERS %

11	0	0
12	0	0
13	0	0
14	0	0
15	0	0
16	0	0
17	0	0
18	0	0
19	0	0
20	4	0.12
21	0	0
22	5	0.15
23	31	0.99
24	52	1.66
25	86	2.75
26	229	7.32
27	413	13.2
28	576	18.4
29	630	20.1
30	448	14.3
31	253	8.09
32	156	4.99
33	95	3.03
34	56	1.79
35	26	0.83
36	20	0.63
37	12	0.38
38	10	0.31
39	9	0.28
40	5	0.15
41	10	0.31
42	0	0
43	0	0
44	0	0
45	0	0
46	0	0
47	0	0
48	0	0
49	0	0
50	0	0
51	0	0
52	0	0
53	0	0
54	0	0
55	0	0
56	0	0
57	0	0
58	0	0
59	0	0
60	0	0
61	0	0
62	0	0

CONTROL
SAMPLE TOTAL: 1493
RAISED TOTAL: 5355
MLS 27cm
% DISCARDS 13
% RETAINED 87

CLASS RAISED FREQ.
cm NUMBERS %

11	0	0
12	0	0
13	0	0
14	0	0
15	3	0.056
16	0	0
17	0	0
18	3	0.056
19	0	0
20	8	0.149
21	13	0.242
22	28	0.522
23	23	0.429
24	58	1.083
25	198	3.697
26	360	6.722
27	603	11.26
28	905	16.90
29	908	16.95
30	860	16.05
31	485	9.056
32	498	9.299
33	168	3.137
34	85	1.587
35	53	0.989
36	35	0.653
37	25	0.466
38	18	0.336
39	5	0.093
40	10	0.186
41	3	0.056
42	0	0
43	0	0
44	0	0
45	0	0
46	0	0
47	0	0
48	0	0
49	0	0
50	0	0
51	0	0
52	0	0
53	0	0
54	0	0
55	0	0
56	0	0
57	0	0
58	0	0
59	0	0
60	0	0
61	0	0
62	0	0

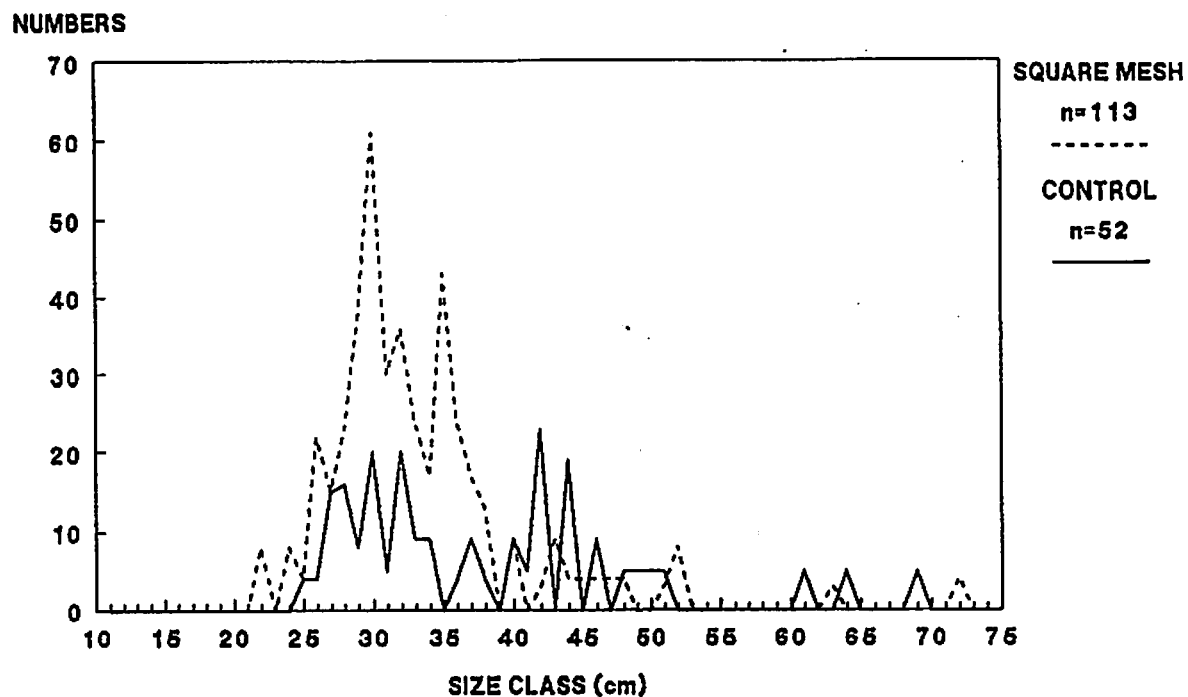
DIFFERENCES BETWEEN GEARS
(PERCENT AND NUMBERS)

REDN. DISCARDS: %
LOSS MARKETABLE: 41 287 n
42 1942

SPECIES: WHITING
GEAR: 10m codend; alt/tow

MEV "KILORAN"
SEINE NET TRIALS SEPT. 1991
DOUBLE SQUARE MESH PANELS

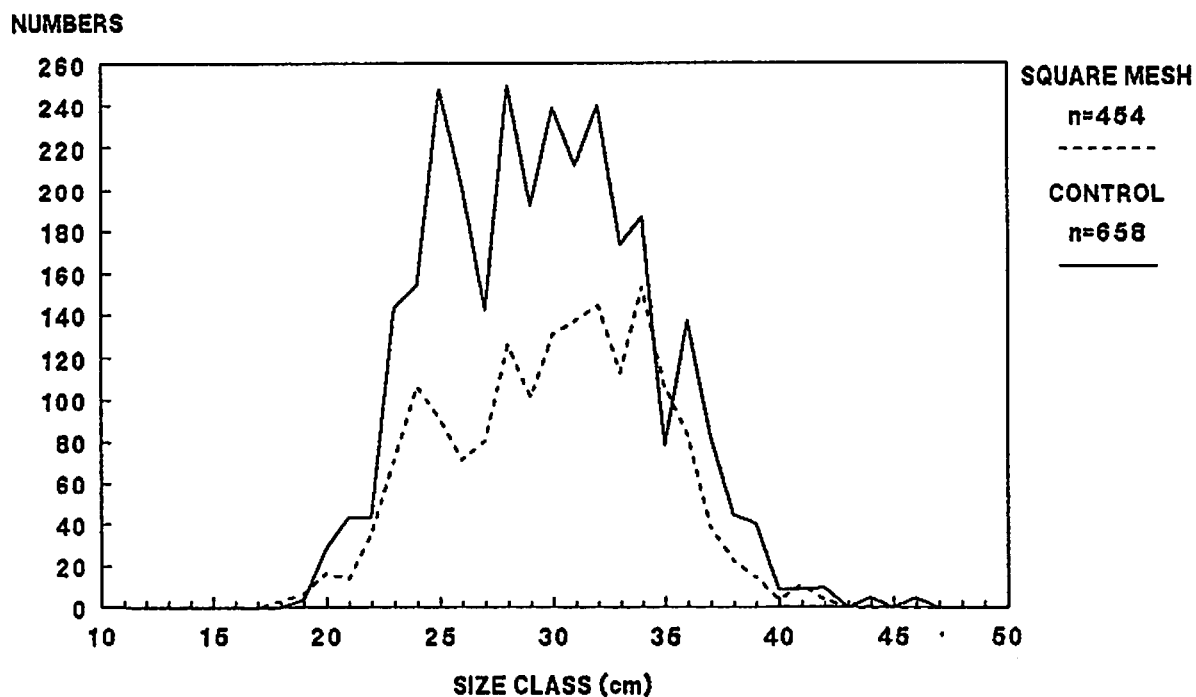
Cod: Length-Numbers Plot
Double square mesh panel with 7m codend



MFV "Kiloran" (INS 10) September 1991: 6 hauls

SEAFISH

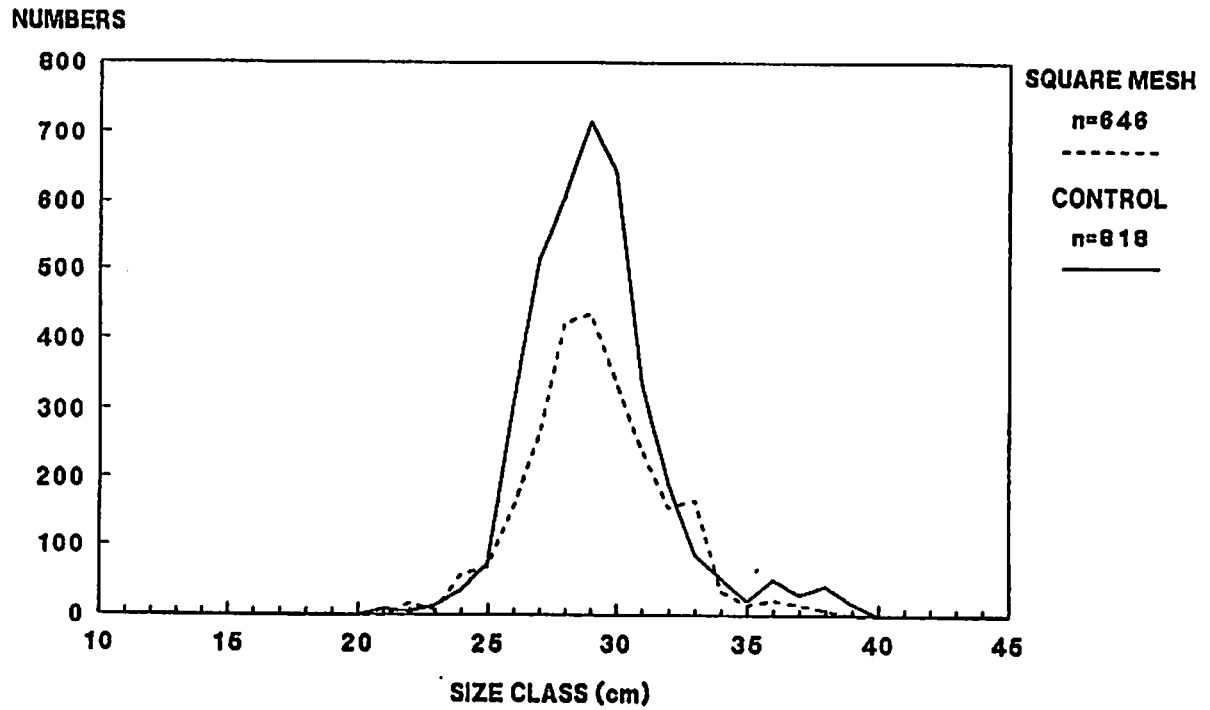
Haddock: Length-Numbers Plot
Double square mesh panel with 7m codend



MFV "Kiloran" (INS 10) September 1991: 6 hauls

SEAFISH

Whiting: Length-Numbers Plot
Double square mesh panel with 7m codend



MFV "Kiloran" (INS 10) September 1991: 6 hauls

SEAFISH

SQUARE MESH
 SAMPLE TOTAL: 113
 RAISED TOTAL: 441
 MLS 35cm
 % DISCARDS 65
 % RETAINED 35

CLASS RAISED FREQ.
 cm NUMBERS %

11	0	0
12	0	0
13	0	0
14	0	0
15	0	0
16	0	0
17	0	0
18	0	0
19	0	0
20	0	0
21	0	0
22	8	1.81
23	0	0
24	8	1.81
25	4	0.90
26	22	4.98
27	15	3.40
28	23	5.21
29	37	8.39
30	61	13.8
31	30	6.80
32	36	8.16
33	24	5.44
34	17	3.85
35	43	9.75
36	24	5.44
37	17	3.85
38	13	2.94
39	0	0
40	9	2.04
41	0	0
42	3	0.68
43	9	2.04
44	4	0.90
45	4	0.90
46	4	0.90
47	4	0.90
48	4	0.90
49	0	0
50	0	0
51	3	0.68
52	8	1.81
53	0	0
54	0	0
55	0	0
56	0	0
57	0	0
58	0	0
59	0	0
60	0	0
61	0	0
62	0	0

CONTROL
 SAMPLE TOTAL: 52
 RAISED TOTAL: 227
 MLS 35cm
 % DISCARDS 48
 % RETAINED 52

CLASS RAISED FREQ.
 cm NUMBERS %

11	0	0
12	0	0
13	0	0
14	0	0
15	0	0
16	0	0
17	0	0
18	0	0
19	0	0
20	0	0
21	0	0
22	0	0
23	0	0
24	0	0
25	4	1.76
26	4	1.76
27	15	6.60
28	16	7.04
29	8	3.52
30	20	8.81
31	5	2.20
32	20	8.81
33	9	3.96
34	9	3.96
35	0	0
36	4	1.76
37	9	3.96
38	4	1.76
39	0	0
40	9	3.96
41	5	2.20
42	23	10.1
43	0	0
44	19	8.37
45	0	0
46	9	3.96
47	0	0
48	5	2.20
49	5	2.20
50	5	2.20
51	5	2.20
52	0	0
53	0	0
54	0	0
55	0	0
56	0	0
57	0	0
58	0	0
59	0	0
60	0	0
61	5	2.20
62	0	0

DIFFERENCES BETWEEN GEARS
 (PERCENT AND NUMBERS)

	%	n
REDN. DISCARDS:	-159	-175
LOSS MARKETABLE:	-33	-39

SPECIES: COD

GEAR: 7m codend; alt/tow

MFV "KILORAN"

SEINE NET TRIALS SEPT. 1991

DOUBLE SQUARE MESH PANELS

63	3	0.68	63	0	0
64	0	0	64	5	2.20
65	0	0	65	0	0
66	0	0	66	0	0
67	0	0	67	0	0
68	0	0	68	0	0
69	0	0	69	5	2.20
70	0	0	70	0	0
71	0	0	71	0	0
72	4	0.90	72	0	0
73	0	0	73	0	0
74	0	0	74	0	0
75	0	0	75	0	0
76	0	0	76	0	0
77	0	0	77	0	0
78	0	0	78	0	0
79	0	0	79	0	0
80	0	0	80	0	0
81	0	0	81	0	0
82	0	0	82	0	0
83	0	0	83	0	0
84	0	0	84	0	0
85	0	0	85	0	0
86	0	0	86	0	0
87	0	0	87	0	0
88	0	0	88	0	0
89	0	0	89	0	0
90	0	0	90	0	0

SQUARE MESH
 SAMPLE TOTAL: 454
 RAISED TOTAL: 1699
 MLS 30cm
 % DISCARDS 43
 % RETAINED 57

CONTROL
 SAMPLE TOTAL: 658
 RAISED TOTAL: 2933
 MLS 30cm
 % DISCARDS 50
 % RETAINED 50

DIFFERENCES BETWEEN GEARS
 (PERCENT AND NUMBERS)

	%	n
REDN. DISCARDS:	50	728
LOSS MARKETABLE:	34	506

CLASS RAISED FREQ.
 cm NUMBERS %

CLASS RAISED FREQ.
 cm NUMBERS %

SPECIES: HADDOCK
 GEAR: 7m codend; alt/tow

11	0	0
12	0	0
13	0	0
14	0	0
15	0	0
16	0	0
17	0	0
18	3	0.17
19	7	0.41
20	17	1.00
21	14	0.82
22	36	2.11
23	72	4.23
24	107	6.29
25	91	5.35
26	72	4.23
27	81	4.76
28	127	7.47
29	102	6.00
30	132	7.76
31	138	8.12
32	145	8.53
33	114	6.70
34	154	9.06
35	107	6.29
36	84	4.94
37	39	2.29
38	23	1.35
39	15	0.88
40	4	0.23
41	11	0.64
42	4	0.23
43	0	0
44	0	0
45	0	0
46	0	0
47	0	0
48	0	0
49	0	0
50	0	0
51	0	0
52	0	0
53	0	0
54	0	0
55	0	0
56	0	0
57	0	0
58	0	0
59	0	0
60	0	0
61	0	0
62	0	0

11	0	0
12	0	0
13	0	0
14	0	0
15	0	0
16	0	0
17	0	0
18	0	0
19	4	0.13
20	29	0.98
21	44	1.50
22	44	1.50
23	144	4.90
24	155	5.28
25	248	8.45
26	203	6.92
27	143	4.87
28	250	8.52
29	193	6.58
30	239	8.14
31	212	7.22
32	240	8.18
33	174	5.93
34	187	6.37
35	79	2.69
36	138	4.70
37	83	2.82
38	45	1.53
39	41	1.39
40	9	0.30
41	9	0.30
42	10	0.34
43	0	0
44	5	0.17
45	0	0
46	5	0.17
47	0	0
48	0	0
49	0	0
50	0	0
51	0	0
52	0	0
53	0	0
54	0	0
55	0	0
56	0	0
57	0	0
58	0	0
59	0	0
60	0	0
61	0	0
62	0	0

MFV "KILORAN"
 SEINE NET TRIALS SEPT. 1991
 DOUBLE SQUARE MESH PANEL

SQUARE MESH
 SAMPLE TOTAL: 646
 RAISED TOTAL: 2430
 MLS 27cm
 % DISCARDS 13
 % RETAINED 87

CLASS RAISED FREQ.
 cm NUMBERS %

11	0	0
12	0	0
13	0	0
14	0	0
15	0	0
16	0	0
17	0	0
18	0	0
19	0	0
20	0	0
21	0	0
22	17	0.69
23	8	0.32
24	57	2.34
25	69	2.83
26	158	6.50
27	263	10.8
28	424	17.4
29	436	17.9
30	339	13.9
31	239	9.83
32	158	6.50
33	168	6.91
34	34	1.39
35	15	0.61
36	22	0.90
37	15	0.61
38	8	0.32
39	0	0
40	0	0
41	0	0
42	0	0
43	0	0
44	0	0
45	0	0
46	0	0
47	0	0
48	0	0
49	0	0
50	0	0
51	0	0
52	0	0
53	0	0
54	0	0
55	0	0
56	0	0
57	0	0
58	0	0
59	0	0
60	0	0
61	0	0
62	0	0

CONTROL
 SAMPLE TOTAL: 818
 RAISED TOTAL: 3756
 MLS 27cm
 % DISCARDS 12
 % RETAINED 88

CLASS RAISED FREQ.
 cm NUMBERS %

11	0	0
12	0	0
13	0	0
14	0	0
15	0	0
16	0	0
17	0	0
18	0	0
19	0	0
20	0	0
21	9	0.239
22	5	0.133
23	14	0.372
24	36	0.958
25	73	1.943
26	308	8.200
27	516	13.73
28	610	16.24
29	716	19.06
30	641	17.06
31	336	8.945
32	192	5.111
33	86	2.289
34	53	1.411
35	21	0.559
36	52	1.384
37	30	0.798
38	42	1.118
39	16	0.425
40	0	0
41	0	0
42	0	0
43	0	0
44	0	0
45	0	0
46	0	0
47	0	0
48	0	0
49	0	0
50	0	0
51	0	0
52	0	0
53	0	0
54	0	0
55	0	0
56	0	0
57	0	0
58	0	0
59	0	0
60	0	0
61	0	0
62	0	0

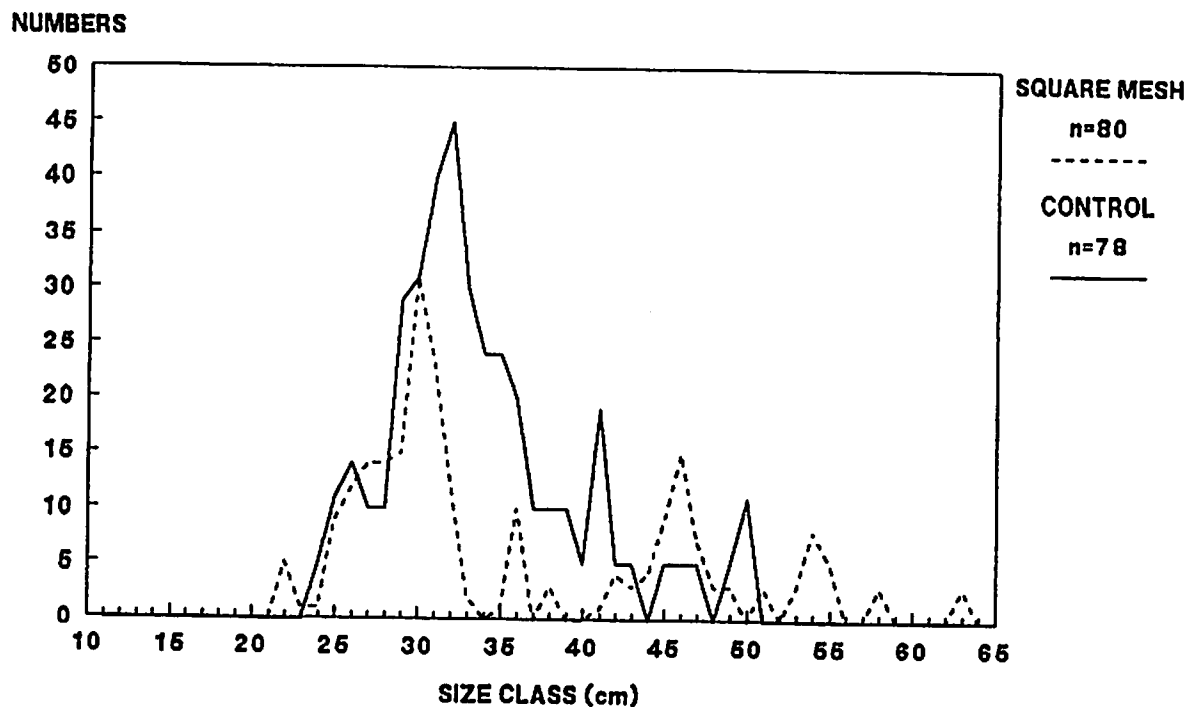
DIFFERENCES BETWEEN GEARS
 (PERCENT AND NUMBERS)

	%	n
REDN. DISCARDS:	31	136
LOSS MARKETABLE:	36	1190

SPECIES: WHITING
 GEAR: 7m codend; alt/tow

MFV "KILORAN"
 SEINE NET TRIALS SEPT. 1991
 DOUBLE SQUARE MESH PANELS

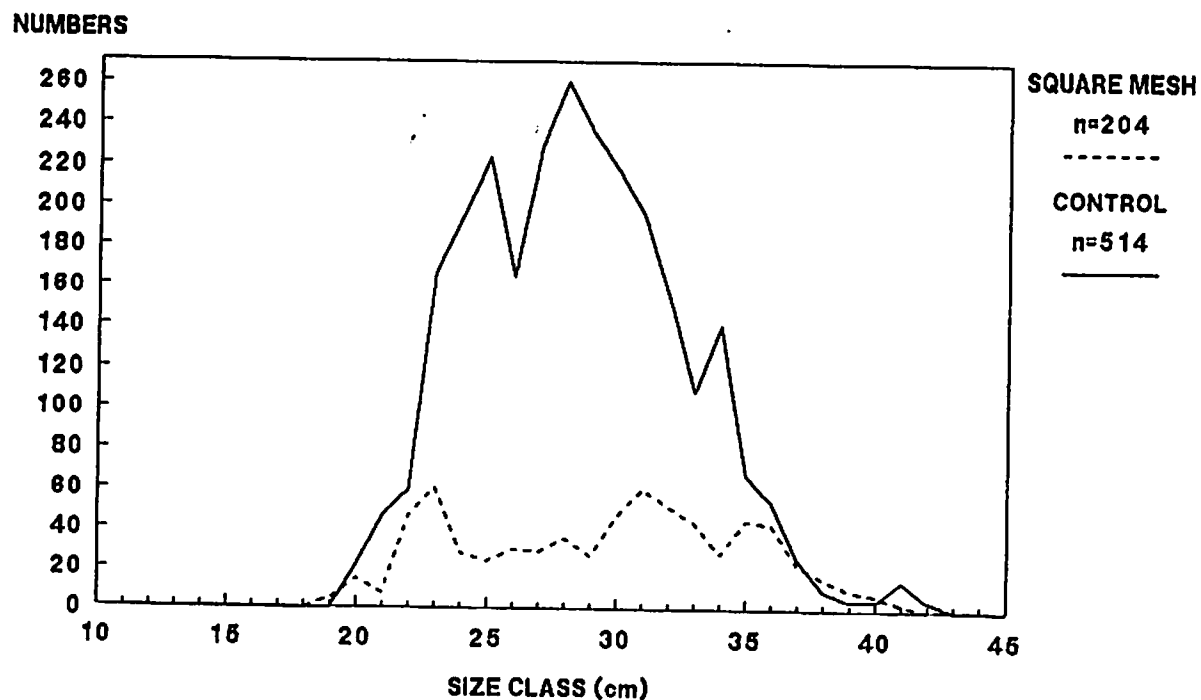
Cod: Length-Numbers Plot
Double square mesh panel with 6m codend



MFV "Kiloran" (INS 10) September 1991: 6 hauls

SEAFISH

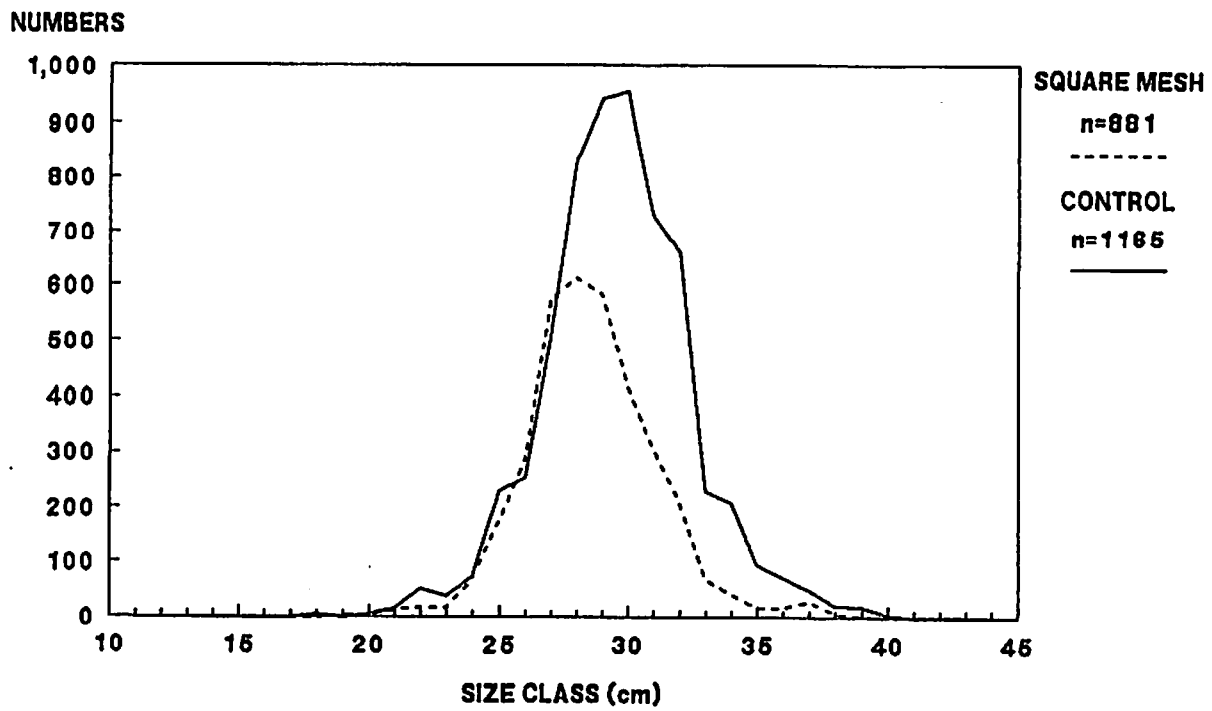
Haddock: Length-Numbers Plot
Double square mesh panel with 6m codend



MFV "Kiloran" (INS 10) September 1991: 6 hauls

SEAFISH

Whiting: Length-Numbers Plot
Double square mesh panel with 6m codend



MFV "Kiloran" (INS 10) September 1991: 6 hauls

SEAFISH

SQUARE MESH
 SAMPLE TOTAL: 80
 RAISED TOTAL: 227
 MLS 35cm
 % DISCARDS 61
 % RETAINED 39

CONTROL
 SAMPLE TOTAL: 78
 RAISED TOTAL: 388
 MLS 35cm
 % DISCARDS 64
 % RETAINED 36

DIFFERENCES BETWEEN GEARS
 (PERCENT AND NUMBERS)

	%	n
REDN. DISCARDS:	44	110
LOSS MARKETABLE:	37	51

CLASS RAISED FREQ.
 cm NUMBERS %

CLASS RAISED FREQ.
 cm NUMBERS %

11	0	0
12	0	0
13	0	0
14	0	0
15	0	0
16	0	0
17	0	0
18	0	0
19	0	0
20	0	0
21	0	0
22	5	2.20
23	1	0.44
24	1	0.44
25	9	3.96
26	12	5.28
27	14	6.16
28	14	6.16
29	15	6.60
30	31	13.6
31	23	10.1
32	12	5.28
33	2	0.88
34	0	0
35	1	0.44
36	10	4.40
37	0	0
38	3	1.32
39	0	0
40	0	0
41	1	0.44
42	4	1.76
43	3	1.32
44	4	1.76
45	9	3.96
46	15	6.60
47	7	3.08
48	3	1.32
49	3	1.32
50	0	0
51	3	1.32
52	0	0
53	3	1.32
54	8	3.52
55	5	2.20
56	0	0
57	0	0
58	3	1.32
59	0	0
60	0	0
61	0	0
62	0	0

11	0	0
12	0	0
13	0	0
14	0	0
15	0	0
16	0	0
17	0	0
18	0	0
19	0	0
20	0	0
21	0	0
22	0	0
23	0	0
24	5	1.28
25	11	2.83
26	14	3.60
27	10	2.57
28	10	2.57
29	29	7.47
30	31	7.98
31	40	10.3
32	45	11.5
33	30	7.73
34	24	6.18
35	24	6.18
36	20	5.15
37	10	2.57
38	10	2.57
39	10	2.57
40	5	1.28
41	19	4.89
42	5	1.28
43	5	1.28
44	0	0
45	5	1.28
46	5	1.28
47	5	1.28
48	0	0
49	5	1.28
50	11	2.83
51	0	0
52	0	0
53	0	0
54	0	0
55	0	0
56	0	0
57	0	0
58	0	0
59	0	0
60	0	0
61	0	0
62	0	0

SPECIES: COD
 GEAR: 6m codend; alt/tow

MFV "KILORAN"
 SEINE NET TRIALS SEPT. 1991
 DOUBLE SQUARE MESH PANELS

63	3	1.32	63	0	0
64	0	0	64	0	0
65	0	0	65	0	0
66	0	0	66	0	0
67	0	0	67	0	0
68	0	0	68	0	0
69	0	0	69	0	0
70	0	0	70	0	0
71	0	0	71	0	0
72	0	0	72	0	0
73	0	0	73	0	0
74	0	0	74	0	0
75	0	0	75	0	0
76	0	0	76	0	0
77	0	0	77	0	0
78	0	0	78	0	0
79	0	0	79	0	0
80	0	0	80	0	0
81	0	0	81	0	0
82	0	0	82	0	0
83	0	0	83	0	0
84	0	0	84	0	0
85	0	0	85	0	0
86	0	0	86	0	0
87	0	0	87	0	0
88	0	0	88	0	0
89	0	0	89	0	0
90	0	0	90	0	0

SQUARE MESH
 SAMPLE TOTAL: 204
 RAISED TOTAL: 691
 MLS 30cm
 % DISCARDS 45
 % RETAINED 55

CONTROL
 SAMPLE TOTAL: 514
 RAISED TOTAL: 2612
 MLS 30cm
 % DISCARDS 61
 % RETAINED 39

DIFFERENCES BETWEEN GEARS
 (PERCENT AND NUMBERS)

	%	n
REDN. DISCARDS:	81	1295
LOSS MARKETABLE:	62	626

CLASS RAISED FREQ.
 cm NUMBERS %

CLASS RAISED FREQ.
 cm NUMBERS %

SPECIES: HADDOCK
 GEAR: 6m codend; alt/tow

11	0	0
12	0	0
13	0	0
14	0	0
15	0	0
16	0	0
17	0	0
18	0	0
19	5	0.72
20	15	2.17
21	8	1.15
22	47	6.80
23	61	8.82
24	28	4.05
25	24	3.47
26	30	4.34
27	29	4.19
28	36	5.20
29	27	3.90
30	47	6.80
31	61	8.82
32	52	7.52
33	44	6.36
34	28	4.05
35	45	6.51
36	43	6.22
37	23	3.32
38	16	2.31
39	10	1.44
40	8	1.15
41	3	0.43
42	0	0
43	1	0.14
44	0	0
45	0	0
46	0	0
47	0	0
48	0	0
49	0	0
50	0	0
51	0	0
52	0	0
53	0	0
54	0	0
55	0	0
56	0	0
57	0	0
58	0	0
59	0	0
60	0	0
61	0	0
62	0	0

11	0	0
12	0	0
13	0	0
14	0	0
15	0	0
16	0	0
17	0	0
18	0	0
19	0	0
20	22	0.84
21	47	1.79
22	60	2.29
23	167	6.39
24	194	7.42
25	224	8.57
26	165	6.31
27	229	8.76
28	261	9.99
29	236	9.03
30	218	8.34
31	196	7.50
32	155	5.93
33	109	4.17
34	141	5.39
35	68	2.60
36	54	2.06
37	26	0.99
38	10	0.38
39	5	0.19
40	5	0.19
41	15	0.57
42	5	0.19
43	0	0
44	0	0
45	0	0
46	0	0
47	0	0
48	0	0
49	0	0
50	0	0
51	0	0
52	0	0
53	0	0
54	0	0
55	0	0
56	0	0
57	0	0
58	0	0
59	0	0
60	0	0
61	0	0
62	0	0

MFV "KILORAN"
 SEINE NET TRIALS SEPT. 1991
 DOUBLE SQUARE MESH PANELS

SQUARE MESH
 SAMPLE TOTAL: 881
 RAISED TOTAL: 3474
 MLS 27cm
 % DISCARDS 17
 % RETAINED 83

CONTROL
 SAMPLE TOTAL: 1165
 RAISED TOTAL: 5999
 MLS 27cm
 % DISCARDS 11
 % RETAINED 89

DIFFERENCES BETWEEN GEARS
 (PERCENT AND NUMBERS)
 % n
 REDN. DISCARDS: 13 86
 LOSS MARKETABLE: 46 2439

CLASS RAISED FREQ.
 cm NUMBERS %

CLASS RAISED FREQ.
 cm NUMBERS %

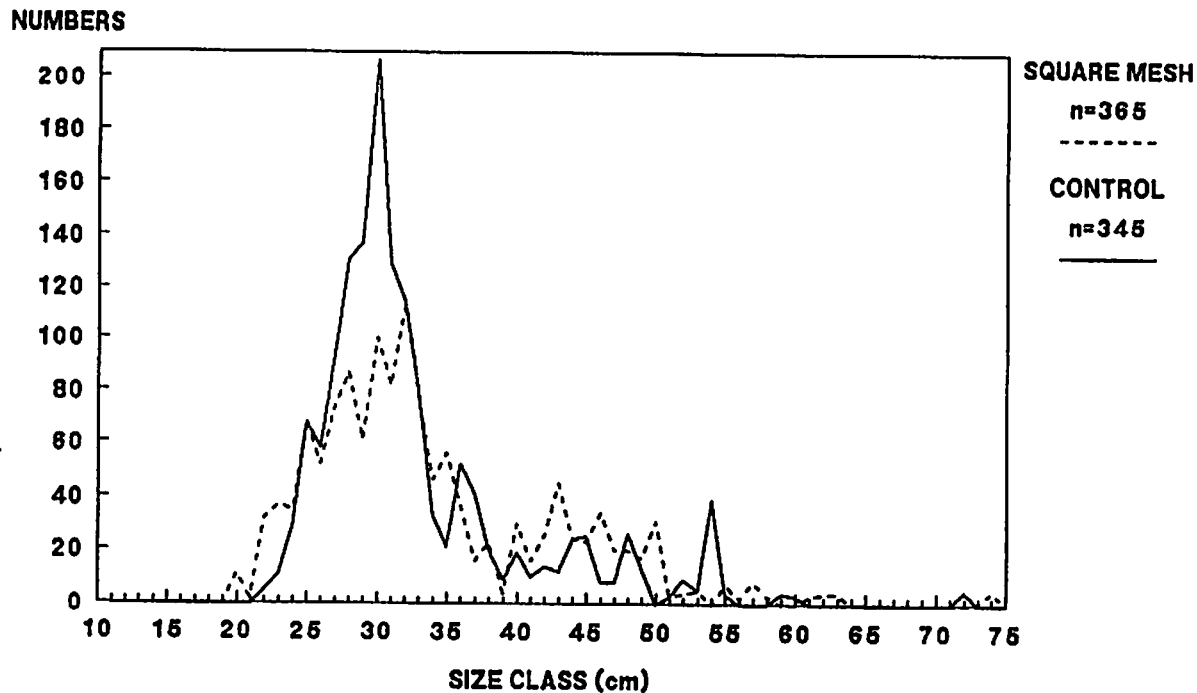
SPECIES: WHITING
 GEAR: 6m codend; alt/tow

11	0	0
12	0	0
13	0	0
14	0	0
15	0	0
16	0	0
17	0	0
18	0	0
19	5	0.14
20	5	0.14
21	14	0.40
22	18	0.51
23	17	0.48
24	67	1.92
25	174	5.00
26	288	8.29
27	576	16.5
28	613	17.6
29	584	16.8
30	418	12.0
31	306	8.80
32	207	5.95
33	68	1.95
34	41	1.18
35	17	0.48
36	18	0.51
37	29	0.83
38	7	0.20
39	2	0.05
40	0	0
41	0	0
42	0	0
43	0	0
44	0	0
45	0	0
46	0	0
47	0	0
48	0	0
49	0	0
50	0	0
51	0	0
52	0	0
53	0	0
54	0	0
55	0	0
56	0	0
57	0	0
58	0	0
59	0	0
60	0	0
61	0	0
62	0	0

11	0	0
12	0	0
13	0	0
14	0	0
15	0	0
16	0	0
17	0	0
18	6	0.100
19	0	0
20	6	0.100
21	16	0.266
22	52	0.866
23	38	0.633
24	73	1.216
25	229	3.817
26	254	4.234
27	512	8.534
28	831	13.85
29	942	15.70
30	955	15.91
31	731	12.18
32	660	11.00
33	228	3.800
34	208	3.467
35	93	1.550
36	71	1.183
37	50	0.833
38	20	0.333
39	19	0.316
40	5	0.083
41	0	0
42	0	0
43	0	0
44	0	0
45	0	0
46	0	0
47	0	0
48	0	0
49	0	0
50	0	0
51	0	0
52	0	0
53	0	0
54	0	0
55	0	0
56	0	0
57	0	0
58	0	0
59	0	0
60	0	0
61	0	0
62	0	0

MFV "KILORAN"
 SEINE NET TRIALS SEPT. 1991
 DOUBLE SQUARE MESH PANELS

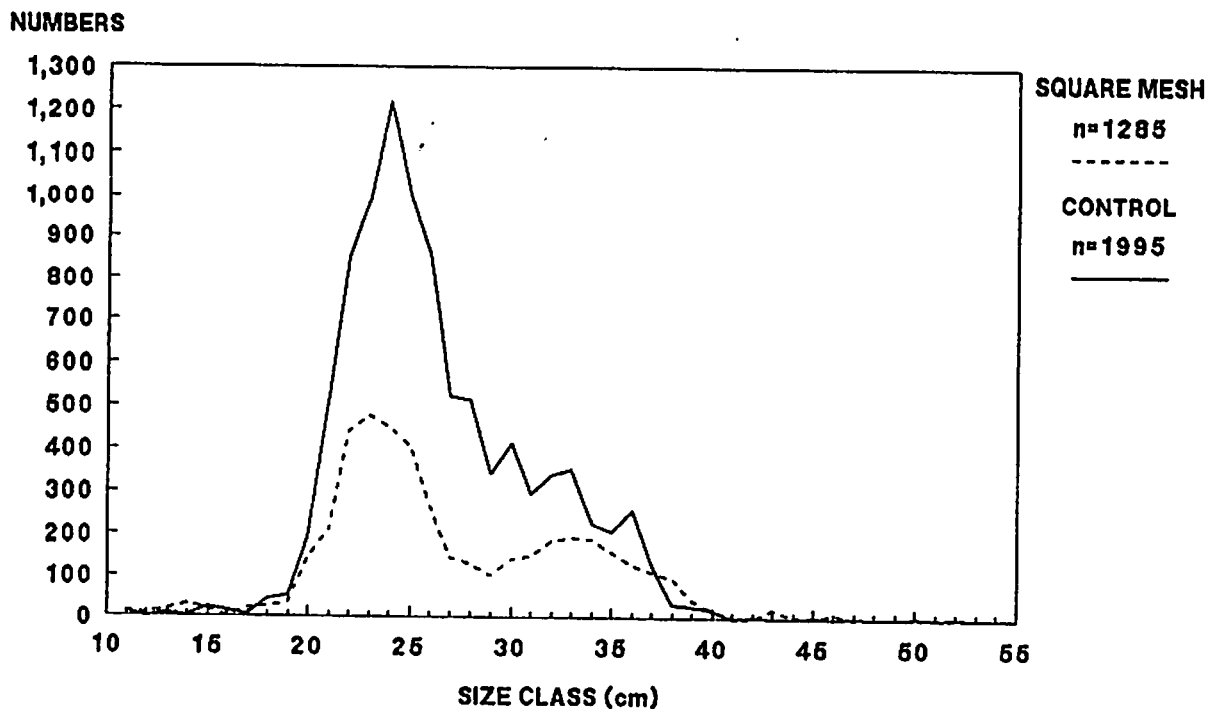
Cod: Length-Numbers Plot **Double square mesh panel with 5m codend**



MFV "Kiloran" (INS 10) September 1991: 22 hauls

SEAFISH

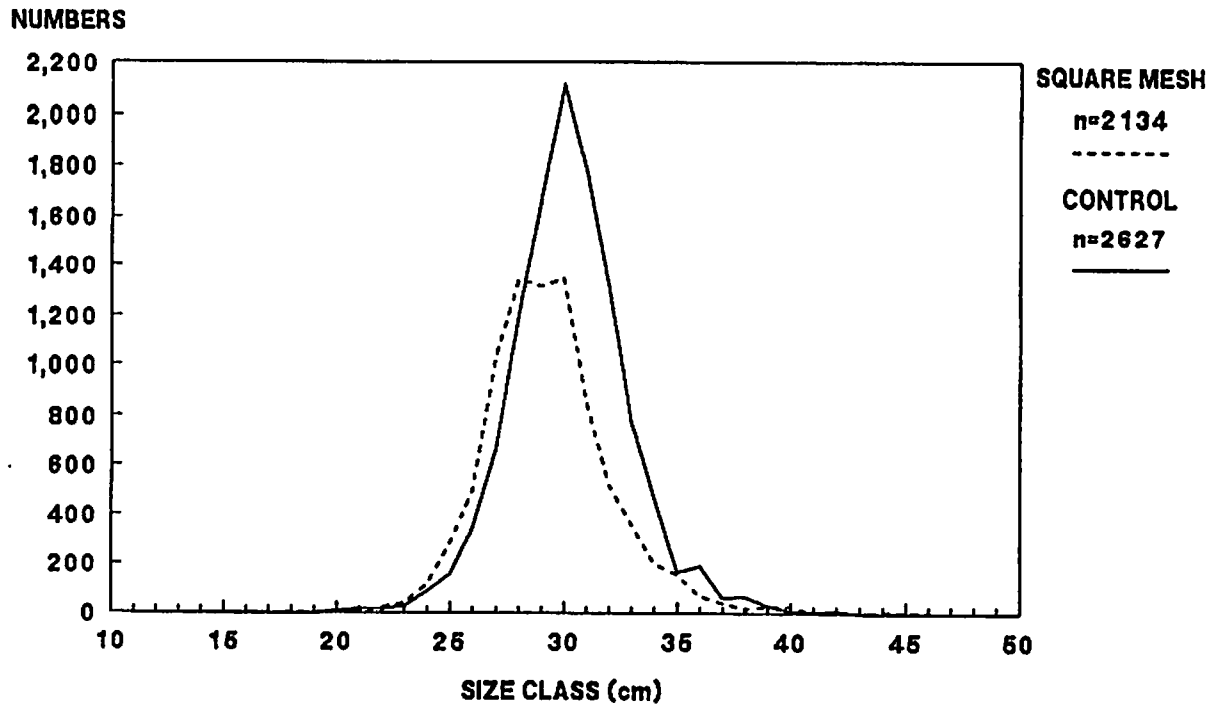
Haddock: Length-Numbers Plot **Double square mesh panel with 5m codend**



MFV "Kiloran" (INS 10) September 1991: 22 hauls

SEAFISH

Whiting: Length-Numbers Plot
Double square mesh panel with 5m codend



MFV "Kiloran" (INS 10) September 1991: 22 hauls

SEAFISH

SQUARE MESH
 SAMPLE TOTAL: 365
 RAISED TOTAL: 1346
 MLS 35cm
 % DISCARDS 65
 % RETAINED 35

CONTROL
 SAMPLE TOTAL: 345
 RAISED TOTAL: 1470
 MLS 35cm
 % DISCARDS 75
 % RETAINED 25

DIFFERENCES BETWEEN GEARS
 (PERCENT AND NUMBERS)

	%	n
REDN. DISCARDS:	20	219
LOSS MARKETABLE:	-25	-95

CLASS RAISED FREQ.
 cm NUMBERS %

CLASS RAISED FREQ.
 cm NUMBERS %

SPECIES: COD

GEAR: 5m codend; alt/tow

11	0	0
12	0	0
13	0	0
14	0	0
15	0	0
16	0	0
17	0	0
18	0	0
19	0	0
20	11	0.81
21	2	0.14
22	32	2.37
23	37	2.74
24	35	2.60
25	68	5.05
26	52	3.86
27	74	5.49
28	87	6.46
29	61	4.53
30	100	7.42
31	82	6.09
32	113	8.39
33	77	5.72
34	46	3.41
35	56	4.16
36	37	2.74
37	16	1.18
38	23	1.70
39	4	0.29
40	30	2.22
41	16	1.18
42	25	1.85
43	45	3.34
44	24	1.78
45	23	1.70
46	34	2.52
47	20	1.48
48	20	1.48
49	17	1.26
50	31	2.30
51	3	0.22
52	4	0.29
53	5	0.37
54	0	0
55	7	0.52
56	2	0.14
57	8	0.59
58	3	0.22
59	0	0
60	0	0
61	3	0.22
62	4	0.29

11	0	0
12	0	0
13	0	0
14	0	0
15	0	0
16	0	0
17	0	0
18	0	0
19	0	0
20	0	0
21	0	0
22	5	0.34
23	11	0.74
24	29	1.97
25	68	4.62
26	58	3.94
27	94	6.39
28	131	8.91
29	137	9.31
30	207	14.0
31	129	8.77
32	115	7.82
33	79	5.37
34	33	2.24
35	21	1.42
36	52	3.53
37	41	2.78
38	20	1.36
39	9	0.61
40	19	1.29
41	10	0.68
42	14	0.95
43	12	0.81
44	24	1.63
45	25	1.70
46	8	0.54
47	8	0.54
48	26	1.76
49	13	0.88
50	0	0
51	3	0.20
52	9	0.61
53	5	0.34
54	39	2.65
55	4	0.27
56	0	0
57	0	0
58	0	0
59	4	0.27
60	3	0.20
61	0	0
62	0	0

MFV "KILORAN"

SEINE NET TRIALS SEPT. 1991
 DOUBLE SQUARE MESH PANELS

63	4	0.29
64	0	0
65	0	0
66	0	0
67	0	0
68	0	0
69	0	0
70	0	0
71	0	0
72	0	0
73	0	0
74	5	0.37
75	0	0
76	0	0
77	0	0
78	0	0
79	0	0
80	0	0
81	0	0
82	0	0
83	0	0
84	0	0
85	0	0
86	0	0
87	0	0
88	0	0
89	0	0
90	0	0

63	0	0
64	0	0
65	0	0
66	0	0
67	0	0
68	0	0
69	0	0
70	0	0
71	0	0
72	5	0.34
73	0	0
74	0	0
75	0	0
76	0	0
77	0	0
78	0	0
79	0	0
80	0	0
81	0	0
82	0	0
83	0	0
84	0	0
85	0	0
86	0	0
87	0	0
88	0	0
89	0	0
90	0	0

SQUARE MESH
 SAMPLE TOTAL: 1285
 RAISED TOTAL: 4446
 MLS 30cm
 % DISCARDS 67
 % RETAINED 33

CONTROL
 SAMPLE TOTAL: 1995
 RAISED TOTAL: 9543
 MLS 30cm
 % DISCARDS 75
 % RETAINED 25

DIFFERENCES BETWEEN GEARS
 (PERCENT AND NUMBERS)

	%	n
REDN. DISCARDS:	59	4221
LOSS MARKETABLE:	37	876

CLASS RAISED FREQ.
 cm NUMBERS %

CLASS RAISED FREQ.
 cm NUMBERS %

SPECIES: HADDOCK
 GEAR: 5m codend; alt/tow

11	13	0.29
12	10	0.22
13	17	0.38
14	33	0.74
15	20	0.44
16	4	0.08
17	21	0.47
18	28	0.62
19	36	0.80
20	147	3.30
21	214	4.81
22	441	9.91
23	479	10.7
24	451	10.1
25	407	9.15
26	269	6.05
27	146	3.28
28	132	2.96
29	105	2.36
30	142	3.19
31	151	3.39
32	186	4.18
33	195	4.38
34	190	4.27
35	161	3.62
36	130	2.92
37	113	2.54
38	97	2.18
39	46	1.03
40	19	0.42
41	2	0.04
42	0	0
43	21	0.47
44	6	0.13
45	0	0
46	11	0.24
47	0	0
48	0	0
49	0	0
50	0	0
51	3	0.06
52	0	0
53	0	0
54	0	0
55	0	0
56	0	0
57	0	0
58	0	0
59	0	0
60	0	0
61	0	0
62	0	0

11	12	0.12
12	0	0
13	10	0.10
14	3	0.03
15	23	0.24
16	15	0.15
17	8	0.08
18	46	0.48
19	53	0.55
20	197	2.06
21	522	5.46
22	851	8.91
23	999	10.4
24	1219	12.7
25	994	10.4
26	856	8.96
27	525	5.50
28	517	5.41
29	344	3.60
30	415	4.34
31	299	3.13
32	341	3.57
33	354	3.70
34	229	2.39
35	209	2.19
36	259	2.71
37	132	1.38
38	35	0.36
39	31	0.32
40	20	0.20
41	0	0
42	6	0.06
43	0	0
44	0	0
45	5	0.05
46	0	0
47	4	0.04
48	0	0
49	0	0
50	6	0.06
51	0	0
52	4	0.04
53	0	0
54	0	0
55	0	0
56	0	0
57	0	0
58	0	0
59	0	0
60	0	0
61	0	0
62	0	0

MFV "KILORAN"
 SEINE NET TRIALS SEPT. 1991
 DOUBLE SQUARE MESH PANELS

SQUARE MESH
 SAMPLE TOTAL: 2134
 RAISED TOTAL: 8340
 MLS 27cm
 % DISCARDS 12
 % RETAINED 88

CONTROL
 SAMPLE TOTAL: 2627
 RAISED TOTAL: 11216
 MLS 27cm
 % DISCARDS 6
 % RETAINED 94

DIFFERENCES BETWEEN GEARS
 (PERCENT AND NUMBERS)

	%	n
REDN. DISCARDS:	-47	-314
LOSS MARKETABLE:	30	3190

CLASS RAISED FREQ.
 cm NUMBERS %

CLASS RAISED FREQ.
 cm NUMBERS %

11	0	0
12	0	0
13	0	0
14	0	0
15	0	0
16	2	0.02
17	0	0
18	4	0.04
19	0	0
20	7	0.08
21	4	0.04
22	25	0.29
23	42	0.50
24	115	1.37
25	280	3.35
26	498	5.97
27	1037	12.4
28	1347	16.1
29	1319	15.8
30	1350	16.1
31	858	10.2
32	518	6.21
33	360	4.31
34	203	2.43
35	155	1.85
36	71	0.85
37	41	0.49
38	22	0.26
39	27	0.32
40	29	0.34
41	6	0.07
42	5	0.05
43	0	0
44	7	0.08
45	4	0.04
46	4	0.04
47	0	0
48	0	0
49	0	0
50	0	0
51	0	0
52	0	0
53	0	0
54	0	0
55	0	0
56	0	0
57	0	0
58	0	0
59	0	0
60	0	0
61	0	0
62	0	0

11	0	0
12	0	0
13	0	0
14	0	0
15	0	0
16	0	0
17	0	0
18	0	0
19	0	0
20	9	0.080
21	16	0.142
22	18	0.160
23	29	0.258
24	87	0.775
25	158	1.408
26	346	3.084
27	666	5.937
28	1203	10.72
29	1678	14.96
30	2117	18.87
31	1782	15.88
32	1320	11.76
33	775	6.909
34	469	4.181
35	166	1.480
36	190	1.694
37	62	0.552
38	67	0.597
39	32	0.285
40	11	0.098
41	5	0.044
42	10	0.089
43	0	0
44	0	0
45	0	0
46	0	0
47	0	0
48	0	0
49	0	0
50	0	0
51	0	0
52	0	0
53	0	0
54	0	0
55	0	0
56	0	0
57	0	0
58	0	0
59	0	0
60	0	0
61	0	0
62	0	0

SPECIES: WHITING

GEAR: 5m codend; alt/tow

MFV "KILORAN"

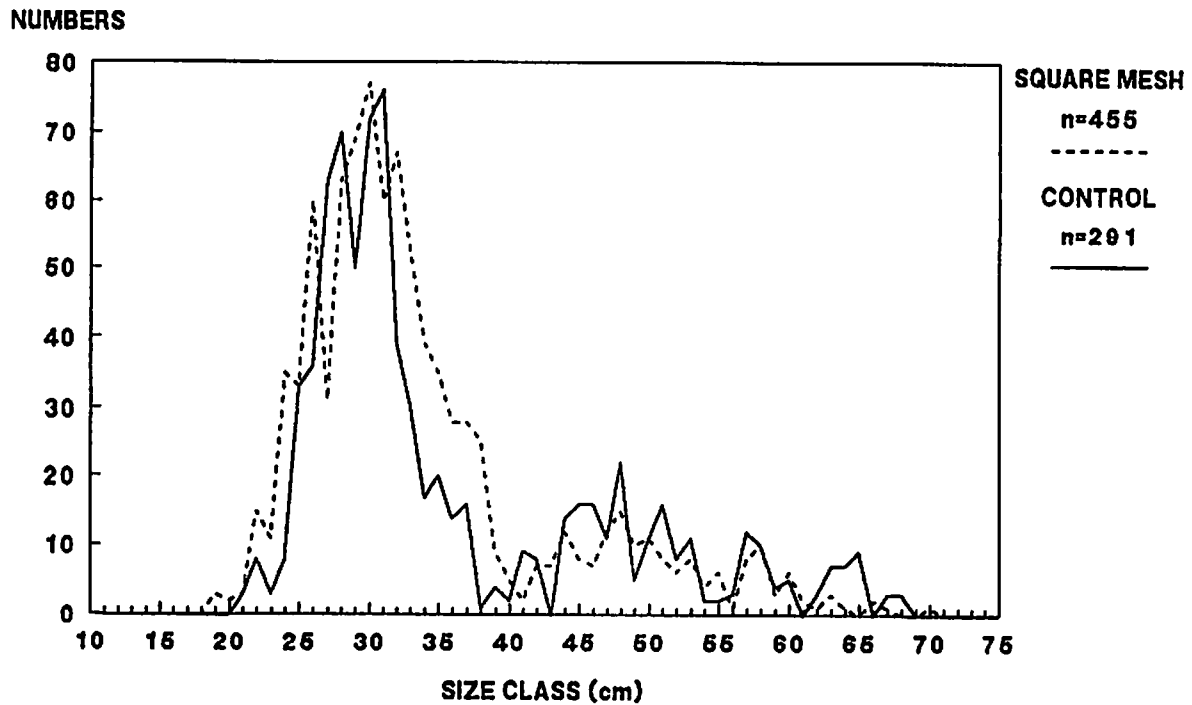
SEINE NET TRIALS SEPT. 1991

DOUBLE SQUARE MESH PANELS

APPENDIX III

LENGTH/NUMBERS DATA (16TH-22ND SEPTEMBER 1991)

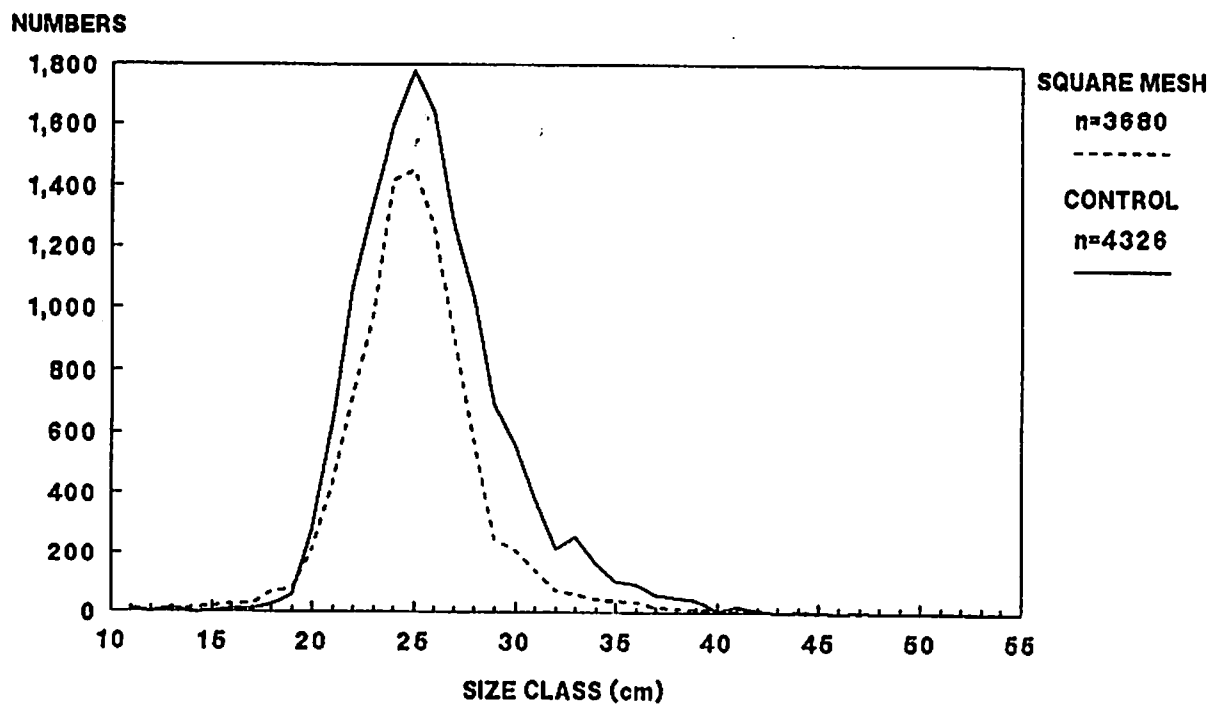
Cod: Length-Numbers Plot
Single square mesh panel with 5m codend



MFV "Kiloran" (INS 10) September 1991: 32 hauls

SEAFISH

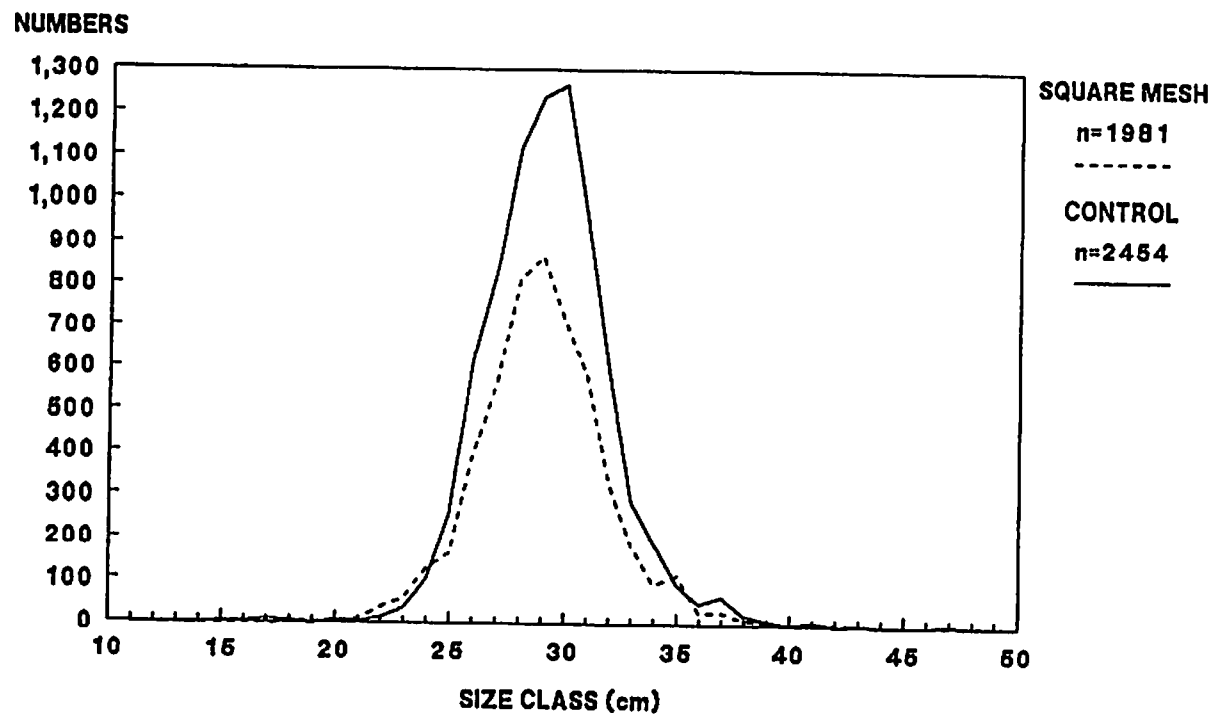
Haddock: Length-Numbers Plot
Single square mesh panel with 5m codend



MFV "Kiloran" (INS 10) September 1991: 32 hauls

SEAFISH

Whiting: Length-Numbers Plot
Single square mesh panel with 5m codend



MFV "Kiloran" (INS 10) September 1991: 32 hauls

SEAFISH

SQUARE MESH
 SAMPLE TOTAL: 455
 RAISED TOTAL: 912
 MLS 35cm
 % DISCARDS 68
 % RETAINED 32

CLASS RAISED FREQ.
 cm NUMBERS %

11	0	0
12	0	0
13	0	0
14	0	0
15	0	0
16	0	0
17	0	0
18	0	0
19	3	0.32
20	2	0.21
21	3	0.32
22	15	1.64
23	11	1.20
24	35	3.83
25	33	3.61
26	60	6.57
27	31	3.39
28	63	6.90
29	69	7.56
30	77	8.44
31	60	6.57
32	67	7.34
33	52	5.70
34	39	4.27
35	35	3.83
36	28	3.07
37	28	3.07
38	25	2.74
39	9	0.98
40	5	0.54
41	2	0.21
42	7	0.76
43	7	0.76
44	12	1.31
45	8	0.87
46	7	0.76
47	12	1.31
48	15	1.64
49	10	1.09
50	11	1.20
51	8	0.87
52	6	0.65
53	8	0.87
54	4	0.43
55	6	0.65
56	1	0.10
57	8	0.87
58	10	1.09
59	3	0.32
60	6	0.65
61	2	0.21
62	1	0.10

CONTROL
 SAMPLE TOTAL: 291
 RAISED TOTAL: 782
 MLS 35cm
 % DISCARDS 65
 % RETAINED 35

CLASS RAISED FREQ.
 cm NUMBERS %

11	0	0
12	0	0
13	0	0
14	0	0
15	0	0
16	0	0
17	0	0
18	0	0
19	0	0
20	0	0
21	3	0.38
22	8	1.02
23	3	0.38
24	8	1.02
25	33	4.21
26	36	4.60
27	63	8.05
28	70	8.95
29	50	6.39
30	72	9.20
31	76	9.71
32	39	4.98
33	30	3.83
34	17	2.17
35	20	2.55
36	14	1.79
37	16	2.04
38	1	0.12
39	4	0.51
40	2	0.25
41	9	1.15
42	8	1.02
43	0	0
44	14	1.79
45	16	2.04
46	16	2.04
47	11	1.40
48	22	2.81
49	5	0.63
50	11	1.40
51	16	2.04
52	8	1.02
53	11	1.40
54	2	0.25
55	2	0.25
56	3	0.38
57	12	1.53
58	10	1.27
59	4	0.51
60	5	0.63
61	0	0
62	3	0.38

DIFFERENCES BETWEEN GEARS
 (PERCENT AND NUMBERS)

	%	n
REDN. DISCARDS:	-22	-112
LOSS MARKETABLE:	-7	-18

SPECIES: COD
 GEAR: 5m codend; alt/tow

MFV "KILORAN"
 SEINE NET TRIALS SEPT. 1991
 SINGLE SQUARE MESH PANELS

63	3	0.32
64	1	0.10
65	0	0
66	2	0.21
67	1	0.10
68	0	0
69	0	0
70	1	0.10
71	0	0
72	0	0
73	0	0
74	0	0
75	0	0
76	0	0
77	0	0
78	0	0
79	0	0
80	0	0
81	0	0
82	0	0
83	0	0
84	0	0
85	0	0
86	0	0
87	0	0
88	0	0
89	0	0
90	0	0

63	7	0.89
64	7	0.89
65	9	1.15
66	0	0
67	3	0.38
68	3	0.38
69	0	0
70	0	0
71	0	0
72	0	0
73	0	0
74	0	0
75	0	0
76	0	0
77	0	0
78	0	0
79	0	0
80	0	0
81	0	0
82	0	0
83	0	0
84	0	0
85	0	0
86	0	0
87	0	0
88	0	0
89	0	0
90	0	0

SQUARE MESH
 SAMPLE TOTAL: 3680
 RAISED TOTAL: 9211
 MLS 30cm
 % DISCARDS 92
 % RETAINED 8

CONTROL
 SAMPLE TOTAL: 4326
 RAISED TOTAL: 13537
 MLS 30cm
 % DISCARDS 85
 % RETAINED 15

DIFFERENCES BETWEEN GEARS
 (PERCENT AND NUMBERS)

	%	n
REDN. DISCARDS:	26	3024
LOSS MARKETABLE:	65	1302

CLASS RAISED FREQ.
 cm NUMBERS %

CLASS RAISED FREQ.
 cm NUMBERS %

11	3	0.03
12	3	0.03
13	12	0.13
14	12	0.13
15	20	0.21
16	27	0.29
17	29	0.31
18	70	0.75
19	82	0.89
20	215	2.33
21	438	4.75
22	720	7.81
23	986	10.7
24	1421	15.4
25	1452	15.7
26	1276	13.8
27	914	9.92
28	579	6.28
29	248	2.69
30	211	2.29
31	146	1.58
32	76	0.82
33	65	0.70
34	48	0.52
35	45	0.48
36	38	0.41
37	18	0.19
38	16	0.17
39	14	0.15
40	11	0.11
41	8	0.08
42	3	0.03
43	2	0.02
44	0	0
45	0	0
46	0	0
47	1	0.01
48	0	0
49	1	0.01
50	1	0.01
51	0	0
52	0	0
53	0	0
54	0	0
55	0	0
56	0	0
57	0	0
58	0	0
59	0	0
60	0	0
61	0	0
62	0	0

11	16	0.118
12	2	0.014
13	15	0.110
14	0	0
15	5	0.036
16	12	0.088
17	12	0.088
18	28	0.206
19	63	0.465
20	278	2.053
21	642	4.742
22	1071	7.911
23	1353	9.994
24	1598	11.80
25	1782	13.16
26	1644	12.14
27	1279	9.448
28	1038	7.667
29	693	5.119
30	561	4.144
31	385	2.844
32	216	1.595
33	259	1.913
34	166	1.226
35	110	0.812
36	96	0.709
37	64	0.472
38	53	0.391
39	46	0.339
40	7	0.051
41	20	0.147
42	10	0.073
43	0	0
44	6	0.044
45	4	0.029
46	0	0
47	3	0.022
48	0	0
49	0	0
50	0	0
51	0	0
52	0	0
53	0	0
54	0	0
55	0	0
56	0	0
57	0	0
58	0	0
59	0	0
60	0	0
61	0	0
62	0	0

SPECIES: HADDOCK

GEAR: 5m codend; alt/tow

MFV "KILORAN"

SEINE NET TRIALS SEPT. 1991

SINGLE SQUARE MESH PANELS

SQUARE MESH
SAMPLE TOTAL: 1981
RAISED TOTAL: 5155
MLS
% DISCARDS 27cm 16
% RETAINED 84

CLASS	RAISED	FREQ.
cm	NUMBERS	%
11	0	0
12	0	0
13	0	0
14	0	0
15	0	0
16	0	0
17	0	0
18	2	0.03
19	3	0.05
20	7	0.13
21	10	0.19
22	37	0.71
23	59	1.14
24	128	2.48
25	163	3.16
26	394	7.64
27	564	10.9
28	813	15.7
29	867	16.8
30	714	13.8
31	582	11.2
32	330	6.40
33	187	3.62
34	92	1.78
35	114	2.21
36	28	0.54
37	30	0.58
38	12	0.23
39	8	0.15
40	4	0.07
41	2	0.03
42	4	0.07
43	1	0.01
44	0	0
45	0	0
46	0	0
47	0	0
48	0	0
49	0	0
50	0	0
51	0	0
52	0	0
53	0	0
54	0	0
55	0	0
56	0	0
57	0	0
58	0	0
59	0	0
60	0	0
61	0	0
62	0	0

CONTROL
SAMPLE TOTAL: 2454
RAISED TOTAL: 7799
MLS
% DISCARDS 27cm 14
% RETAINED 86

CLASS	RAISED	FREQ.
cm	NUMBERS	%
11	0	0
12	0	0
13	0	0
14	0	0
15	0	0
16	4	0.05
17	4	0.05
18	9	0.11
19	6	0.07
20	0	0
21	8	0.10
22	3	0.03
23	14	0.17
24	36	0.46
25	102	1.30
26	260	3.33
27	624	8.00
28	837	10.7
29	1119	14.3
30	1238	15.8
31	1265	16.2
32	946	12.1
33	592	7.59
34	289	3.70
35	191	2.44
36	93	1.19
37	48	0.61
38	64	0.82
39	22	0.28
40	11	0.14
41	2	0.02
42	8	0.10
43	0	0
44	1	0.01
45	0	0
46	0	0
47	0	0
48	3	0.03
49	0	0
50	0	0
51	0	0
52	0	0
53	0	0
54	0	0
55	0	0
56	0	0
57	0	0
58	0	0
59	0	0
60	0	0
61	0	0
62	0	0

DIFFERENCES BETWEEN GEARS
(PERCENT AND NUMBERS)

REDN. DISCARDS: % n
LOSS MARKETABLE: 25 267
35 2377

SPECIES: WHITTING
GEAR: 5m codend; alt/tow

MFV "KILORAN"
SEINE NET TRIALS SEPT. 1991
SINGLE SQUARE MESH PANELS