

**DEPARTMENT OF AGRICULTURE [NI]
AGRICULTURAL AND ENVIRONMENTAL SCIENCES DIVISION**

CRUISE REPORT - LF/03/96

NW IRISH SCALLOP STOCKS 12-16 FEBRUARY 1996

PERSONNEL

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OBJECTIVES

1. To survey the scallop, *Pecten maximus* grounds off the County Down coast and collect the following scallop data:
 - a. catch per unit effort.
 - b. age composition.
 - c. weight, height and length of individual scallops.
 - d. abductor muscle weight.
 - e. gonad weight from selected samples.
2. To retain scallop shell samples for future morphometric studies.
3. Identify and quantify macrofauna associated with scallops.
4. Perform a preliminary surveys of the Northern Ireland scallop ground using RoxAnn

METHODS

The gear used during the cruise was a beam to which was attached four 2-foot scallop dredges of the design used in the commercial fishery. Catches were sorted and the associated fauna identified and quantified where possible. Scallops were weighed and measured (shell height and breadth). Meat yield was determined from abductor muscle and gonad weight. Shells were aged by examination of growth bands on the flat shell and by microscopic examination of hinge ligament scars.

The video camera and sledge were deployed during the cruise and bottom substrate filmed. Some of the data from this were used to adjust the 'ground truth' calibration of RoxAnn which was used during most of the cruise.

NARRATIVE

Sunday 11 February

Scientific personnel, apart from Dr Service boarded *MRV Lough Foyle* on the evening of Sunday 11 February. Dr service boarded at 07h.00 on Monday 12 February.

Monday 12 February

MRV Lough Foyle sailed at 07h.30 and a safety briefing was given by the Fishing Master and Mr McCurdy. The vessel then proceeded to the scallop grounds to the NW of Belfast Lough where severe NE gales were encountered. As safe operation of scallop dredges in these conditions was impossible the decision was made to return to Belfast. *RV Lough Foyle* docked at 10h.30.

Tuesday 13 February

Moderation in the weather enabled *RV Lough Foyle* to put to sea again at 07h.30 and return to the scallop grounds to the NW of Belfast Lough where station 15 in Area IV and stations 1,2,13,9 and 12 in Area V were dredged (Figure 1). The relatively good weather conditions allowed the underwater cameras and sled to be deployed during the afternoon. Although seabed visibility was poor, some of the information from the camera was used to adjust the 'ground truth' calibration of RoxAnn. The vessel returned to Belfast where Dr Service disembarked. The night was spent in dock.

Wednesday 14 February

RV Lough Foyle sailed at 06h.30 in calm weather to the mouth of Belfast Lough where station 4 was fished. This was followed by 8 hauls at stations in Area II, off the northern Ards peninsula (Figure 1). This included two previously unfished stations (100 and 101). The calm conditions permitted the night to be spent at anchor in Ballyhabert Bay.

Thursday 15 February

The anchor was lifted and the vessel steamed to station 7 off the Ards peninsular (Area I). Dredges were shot at 07h.30 in fine weather conditions but only yielded a catch of 3 scallops. Station 7 was fished again but this time no scallops were caught. Stations 5, 6 and 8 however produced good catches. *RV Lough Foyle* then moved northward and repeated two stations in Area II (101 and 100). In these hauls the second beam of 4 dredges, that had not yet been used, was deployed in addition to the beam that had been used so far. This attempt to compare catches of used and unused dredges did not produce meaningful results and so the survey reverted back to using the original single set of dredges at two stations in Area III, at the mouth of Belfast Lough. After these stations had been fished the vessel steamed into Belfast Lough to an overnight anchorage on the north side of the Lough.

Friday 16 February

Stations 2/13, 12/2/1 dredged on the first day of the cruise in Area V were repeated in order to study gear efficiency improvement with use. Although the data needs to be further analysed it is noteworthy that the final haul (tow 25) yielded the largest catch rate observed during the cruise of 64 scallops in 30 minutes. On completion of these two hauls *RV Lough Foyle* set course for home docking into Belfast at 10h.45.

RESULTS

During the cruise 25 valid tows were completed as indicated in Figure 1. Scallops caught were aged and processed as described in the methods section. Table 1 gives the total scallop catch expressed as catch per 4 X 2 foot dredges per half hour of fishing and Figure 2 compares the age composition of scallops from Areas I, II and V. Poor catches from Areas IV and III suggests that these areas are no longer viable scallop grounds. Figure 3 shows the pooled length composition of scallops from all tows in relation to the MLS of 110mm. A preliminary look at the cruise data shows that recruitment to the fishery of 4-5 year old scallops continues and suggests that the stocks are withstanding current fishing effort. Although catch rates by the *Lough Foyle* cannot be usefully compared to those of a commercial vessel, data from this cruise and from other sources suggest that it would be prudent to discourage increases in fishing activity beyond that which has traditionally occurred on these grounds..

Both abductor muscle and gonad weights were measured for each scallop and when combined with data from the 1995 survey (LF0395) will enable further analysis of regional and age related aspects of meat yield and gonad development.

A wide range of benthic fauna associated with scallops were noted and quantified, where possible, as in earlier cruises. Echinoderms were by far the most predominant group while the brown crab *Cancer pagurus* was the most predominant crustacean, especially at the more northern stations. Finfish were rare in catches with juvenile anglerfish, *Lophius piscatorius* being the most common species. These data will contribute towards a time series database on scallop associates that will provide a base to describe the affects of fishing and environmental change.

ACKNOWLEDGEMENTS

I thank the Master, officers and crew of *RV Lough Foyle* for their enthusiastic co-operation throughout this cruise. The scientific staff are to be congratulated for an ever continuing example of effective team work.



Richard Briggs
(Scientist in Charge)



Andrew Niblock
(Master)

16 February 1996

TABLE 1

LF0396 - SCALLOP AGE COMPOSITION DATA

AREA I				AREA III			AREA IV				
AGE	T. 16	T. 18	T. 19	TOTAL	AGE	T. 23	TOTAL	AGE	T.1	T.7	TOTAL
1				0	1		0	1			0
2				0	2		0	2			0
3		3	2	5	3		0	3			0
4		7	21	28	4		0	4			0
5		16	18	34	5	1	1	5	1	1	2
6	1	8	3	12	6		0	6	1		1
7	0	3	6	9	7		0	7	1		1
8	1	1	3	5	8		0	8	0		0
9	0	1	1	2	9		0	9	1		1
10	0	0	0	0	10		0	10	0		0
10+	1		3	4	10+	2	2	10+	1	1	2
TOTAL	3	39	57	99	TOTAL	3	3	TOTAL	5	2	7

AREA II

AGE	T. 8	T. 9	T. 10	T. 11	T. 12	T. 13	T. 14	T. 15	T. 20	T. 21	TOTAL
1											0
2											0
3			2	1						1	4
4			6	1	1	2	6	1	3	1	21
5		1	3	1	1	1	2	1	1	1	12
6		5	5	3	3	4	1	2	0	0	23
7		1	2	1	2	2	1	0	2	0	11
8		1	1	1	3	1	0	2	1	0	10
9		0	0	0	0	1	2	0	0	0	3
10	1	0	0	2	2	1	3	0	0	0	9
10+	1	3	1	7	7	2	24	10	8	8	71
TOTAL	2	11	20	17	19	14	39	16	15	11	164

AREA V

AGE	T. 2	T. 3	T. 4	T. 5	T. 24	T. 25	TOTAL
1							0
2							0
3						3	3
4		2	7	6		18	33
5		4	13	6		14	37
6		2		4		7	13
7			3	1		6	10
8		2	7	2	1	4	16
9			2		1	2	5
10		1	3		3	3	10
10+		3	6	9	5	7	30
TOTAL	0	14	41	28	10	64	157

Figure 1

Scallop Stations Grouped into areas I - V

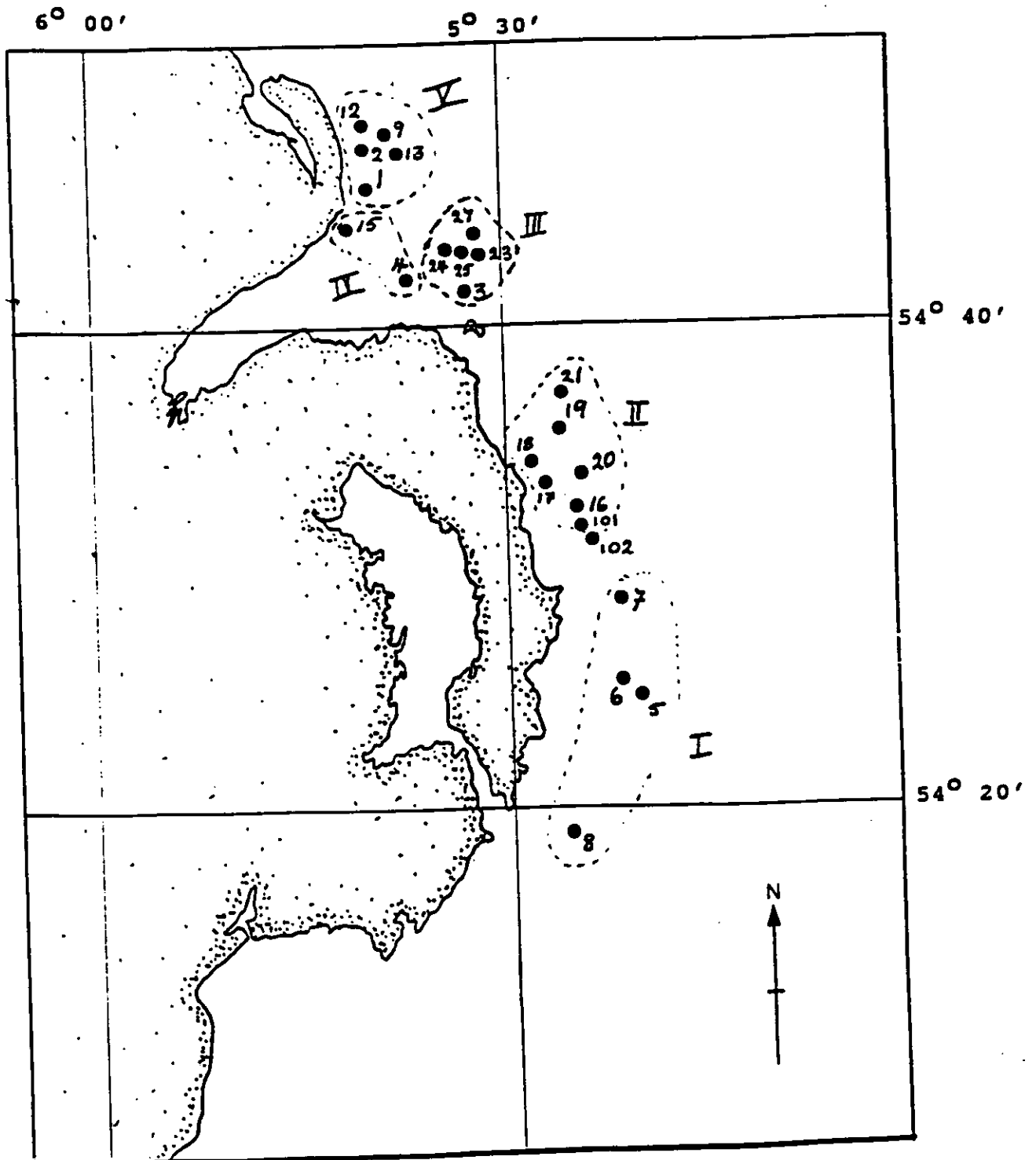


FIGURE 2

AGE COMPOSITIONS OF SCALLOPS FROM AREA I, II, and V

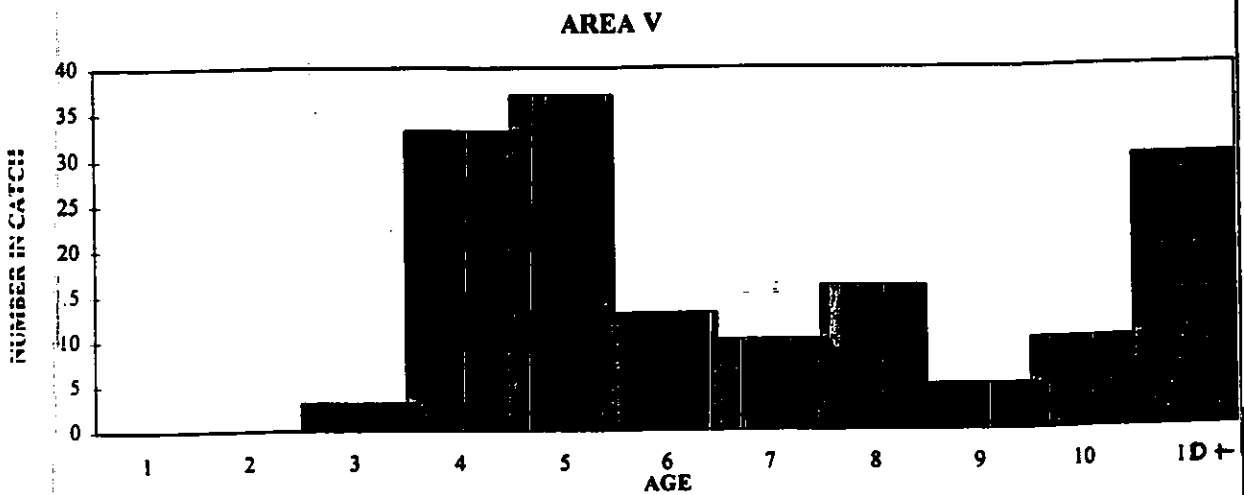
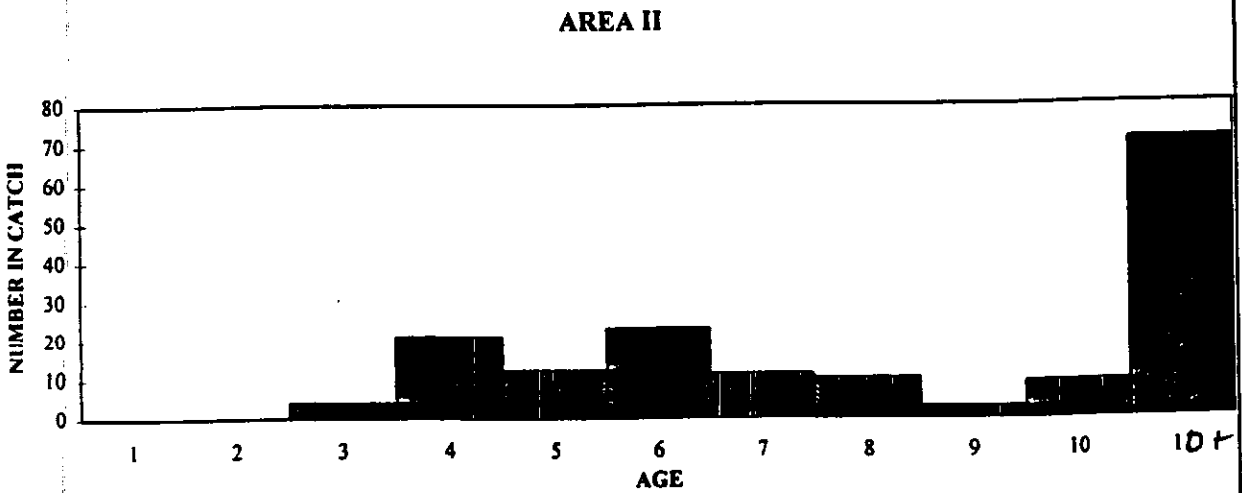
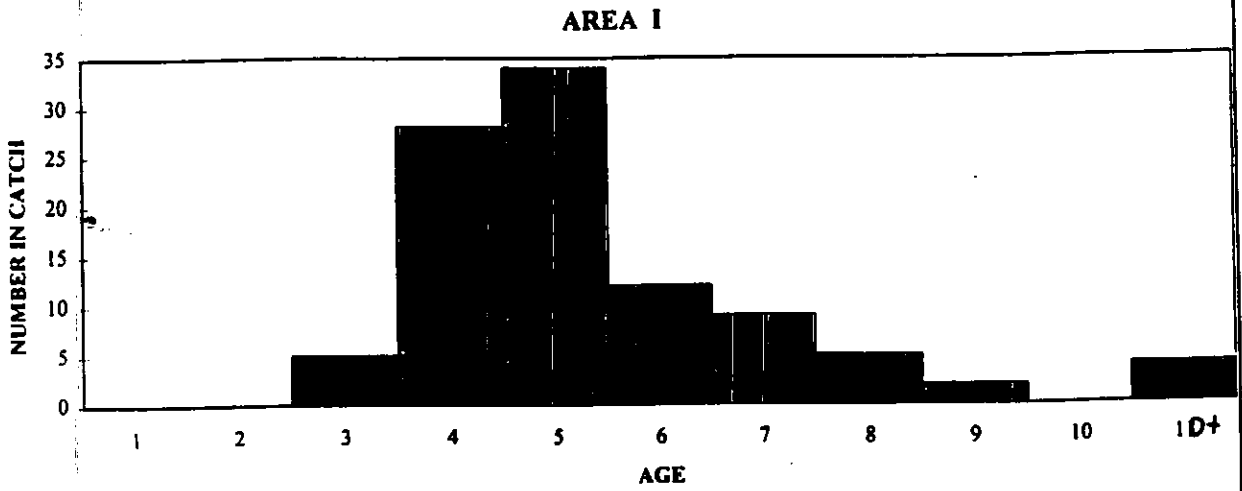


FIGURE 3

Pooled Scallop Length Data from all tows in relation to MLS of 110mm

