

not to be cited without prior reference to the Laboratory

DEPARTMENT OF AGRICULTURE [NI]
FISHERIES RESEARCH LABORATORY

CRUISE REPORT - LF/7/89

NW IRISH SEA SCALLOP STOCKS 20-24 February 1989

PERSONNEL

R.P. Briggs PSO [SIC]
D.J. Agnew HSO
A.W. Heaney ASO
J.A.D. Peel TASO

OBJECTIVES

1. To carry out sea trials with new scallop gear using RV Lough Foyle.
2. To dredge scallop grounds sampled in previous charter cruises around County Down coast from Carnlough to Ardglass and measure the following population parameters:
 - a. catch per unit effort.
 - b. age composition
 - c. weight, height and length of individual scallops
3. Collect selected samples of scallop abductor muscle tissue for future metal analysis.
4. Fix samples of gonad tissue for histological study.
5. Identify and quantify macrofauna associated with Pecten maximus.
6. Perform sea trials with Day Grab.
7. Continue work on the installation and calibration of acoustic equipment.

NARRATIVE

RV Lough Foyle left Belfast at 09-30 on Monday 20 February. During the first day stations 1-4 were dredged [figure 1] within the outer Belfast Lough area and the night was spent at anchor in the Lough, as was done every night during the cruise. Stations 5-8 south of Portavogie were dredged on the second day [21.02.89] returning to Belfast Lough to shelter from forecasted southern gales and to land a crew member whose son was seriously ill in hospital. Prior to anchoring one further station [9] was dredged north of the Lough. Day three commenced at stations 10-

11 south of Carnlough [figure 1]. Although the sea bed in this area was very peaky and did not yield any scallops stations 12-15 south of Larne gave reasonable catches. The next day [23.02.89] was spent in the area between Portavogie and Donaghadee where stations 16 to 22 were dredged. Commercial scallop vessels were seen in this area and catches were good. The day was finished by completing one more tow in the outer Belfast Lough area [station 23] where, in addition to 8 old scallops, a specimen of the brachiopod Terebratulina was found. This was preserved in EPF for future examination. The final day of the cruise [24.02.89] was spent dredging stations 24-27 in the vicinity of Belfast Lough where a few scallops and some queens [Chlamys opercularis] were caught. The cruise ended at 13.00 when RV Lough Foyle docked in Belfast.

METHODS

The gear used during the cruise was a beam with four 2-foot scallop dredges of the design currently used in the commercial fishery. Each dredge was fitted with a small meshed liner to aid retention of juvenile animals. Catches were sorted and the associated fauna was identified and counted. The length and weight of commercial fish species was recorded. Scallops were aged, weighed and measured [shell length and height]. Selected age classes [normally 6-year-olds] had their abductor muscle removed which was frozen for future metal analysis. Gonads were examined and specimens at different stages of maturation fixed in Bouin's fluid for histological study. Shell samples from specific areas [stations 6 & 12] were retained for detailed morphometric analysis on return to Coleraine.

RESULTS

Figure 1 shows the approximate position of each station and details are given in appendix 1. Table 1 shows the number of scallops caught per hour at each age and the number below the minimum landing size of 110mm shell length. While a marked absence of 1-year-olds and 2-year-olds was noted from catches at all stations the proportion of 3-4 year olds varied between areas as was noted in previous surveys. Although it would be incorrect to make comparisons between catch per unit effort data collected here and those from chartered commercial vessels the data suggests that the stocks are sustaining current exploitation levels. Gonads examined indicated advanced stages of maturity in all areas supporting the view that spring spawning scallops dominate these populations. Data from metal analysis of abductor muscles and histological investigations will be analysed, when available, along with the population data collected on the cruise.

The fauna associated with Pecten maximus was found to consist of over 30 taxa with the Echinodermata and Crustacea being well represented [table 2]. The angler fish Lophius piscatorius was the most common fish species present. Especially noteworthy was the occurrence of one specimen of the brachiopod Terebratulina at station 23. Although documented from the general area of study, only one specimen was found during the cruise.

Attempts were made to interface the newly acquired acoustic fish finding gear with the vessel's Shipmate navigation equipment, so that position co-ordinates can be incorporated directly with acoustic data. Although there was some success with this operation the bridge readout was adversely effected and so more work is required in this area. A system to calibrate the acoustic equipment to depth was successfully developed.

A routine for operating a Day Grab from the vessel's hydrographic winch was tried and will be used in future cruises.

R.P. Briggs, SIC
24 February 1989

FIGURE 1

POSITION OF STATIONS SAMPLED

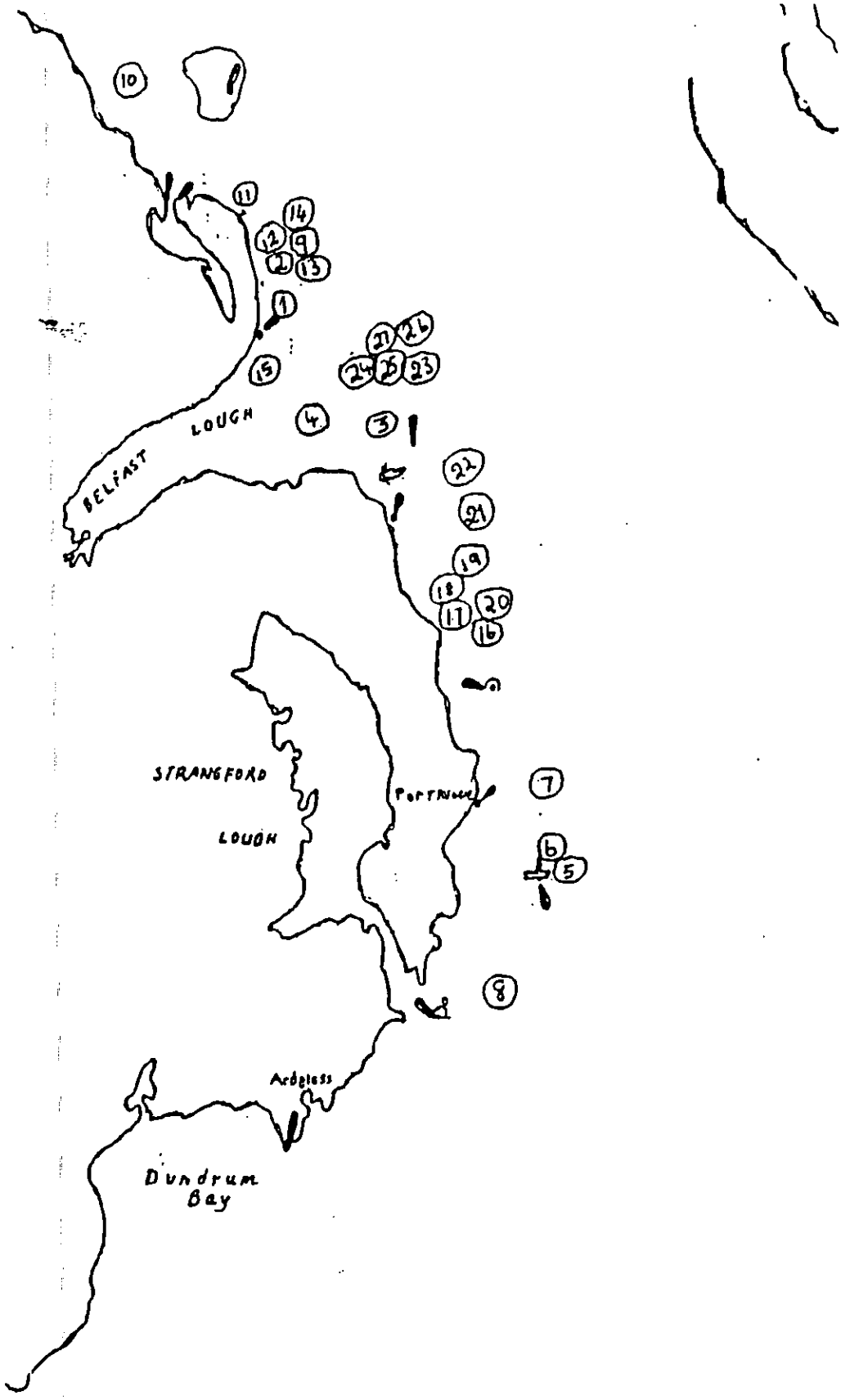


Table 1

AGE COMPOSITION OF SCALLOP SAMPLES
 [numbers corrected to catch per hour by 4 x 2' dredges]

AGE	1	2	3	4	5	6	7	8	9	9+	total	<110
1	-	-	11	29	13	8	3	5	2	5	76	11
2	-	-	8	21	15	6	2	4	3	6	65	20
3	-	-	2	7	4	1	-	2	2	7	25	11
4	-	-	-	1	1	1	-	1	1	3	8	-
5	-	-	-	1	2	1	2	1	-	-	7	-
6	-	1	4	16	16	9	4	4	-	15	69	14
7	-	3	18	15	7	7	-	-	-	4	54	29
8	-	3	11	26	25	10	8	5	3	5	96	17
9	-	-	-	2	1	1	-	-	1	10	15	2
10	-	-	-	-	-	-	-	-	-	-	-	-
11	-	-	-	-	1	1	-	-	4	2	8	1
12	-	-	15	27	18	12	5	10	1	18	106	54
13	-	1	17	14	11	5	1	-	1	1	50	42
14	-	-	2	-	-	-	-	-	-	-	2	2
15	-	2	13	22	10	14	8	5	2	2	78	24
16	-	-	29	19	20	4	3	1	1	2	79	41
17	-	4	30	37	31	4	2	2	1	5	116	50
18	-	4	30	29	12	4	5	5	2	4	95	38
19	-	-	22	37	18	5	4	-	-	1	87	44
20	-	-	1	10	11	14	1	2	1	7	47	19
21	-	-	2	4	6	-	8	12	2	34	68	2
22	-	-	-	-	-	-	-	-	-	-	-	-
23	-	-	-	-	-	-	4	2	-	10	16	-
24	-	-	10	12	-	6	-	4	6	24	62	16
25	-	-	-	6	4	4	2	10	6	38	70	20
26	-	-	2	-	-	-	-	-	2	6	10	2
27	-	-	-	-	-	-	-	-	-	-	-	-

Table 2

FAUNA ASSOCIATED WITH PECTEN MAXIMUS

SPECIES	OCCURRENCE	
Echinodermata		
Antedon bifida	**	
Asterias rubens	****	
Luidia spp	**	
Astropecten irregularis	**	
Anseropoda placenta	***	
Porania pulvillus	**	
Stichastrella rosea	**	
Henricia oculata	**	
Crossaster papposus	***	
Solaster endeca	**	
Ophiothrix fragilis	***	
Echinus esculentus	***	
Crustacea		
Xantho spp	**	
Macropipus depurator	**	
Cancer pagurus	**	
Macropodium spp	***	
Eupagurus bernhardus	***	
Mollusca		
Eledone spp	**	
Arctica islandica	*	
Pecten maximus	****	
Chlamys opercularis	**	
Chlamys furtiva	*	
Chlamys tigrina	*	
Neptunea antiqua	**	
Modiolus modiolus	**	
Buccinum undatum	***	
Littorina spp.	**	
Aporrhais pespelicani	*	
Pisces		
Trisopterus minutus	*	
Callionymus lyra	**	
Lophius piscatorius	***	
Scyliorhinus canicula	**	
Scophthalmus rhombus	*	
Pleuronectes platessa	*	* : 1 specimen at 1 station
Microstomus kitt	*	
Hippoglossoides platessoids	*	
Brachiopoda		
Terebratulina spp.	*	** : present at 2-5 stations
Sipuncula		
Golfingia elongata	*	*** : present at 6-10 stations
		**** : present at 11-27 stations

ABUNDANCE KEY

* : 1 specimen
at 1 station

** : present at 2-5
stations

*** : present at 6-10
stations

**** : present at 11-27
stations

Appendix 1

STATION	SHOT		HAULED		DEPTH m
	[long-lat]		[long-lat]		
1	54 46.04N	5 39.75W	54 48.50N	5 40.26W	24-30
2	54 48.17N	5 40.58W	54 46.50N	5 40.40W	35-26
3	54 44.20N	5 33.32W	54 42.76N	5 33.88W	33-33
4	54 43.00N	5 37.00W	54 43.50N	5 39.80W	20-15
5	54 30.00N	5 23.00W	54 27.00N	5 20.40W	40-48
6	54 25.80N	5 20.60W	54 25.83N	5 21.07W	40-43
7	54 26.30N	5 21.90W	54 29.30N	5 21.56W	55-53
8	54 19.65N	5 25.37W	54 22.69N	5 22.48W	42-46
9	54 49.57N	5 38.58W	54 49.34N	5 39.64W	100-100
10	54 57.45N	5 51.94W	54 53.93N	5 46.02W	50-60
11	54 52.77N	5 46.26W	54 50.33N	5 38.84W	-
12	54 50.38N	5 41.68W	54 47.30N	5 40.32W	40-38
13	54 48.06N	5 40.52W	54 50.40N	5 40.84W	28-40
14	54 50.58N	5 40.76W	54 48.26N	5 39.88W	31-28
15	54 46.96N	5 40.68W	54 43.86N	5 41.96W	33-25
16	54 35.75N	5 27.00W	54 33.08N	5 25.03W	42-35
17	54 35.57N	5 27.75W	54 35.44N	5 27.15W	28-33
18	54 35.44N	5 27.36W	54 37.88N	5 28.76W	28-40
19	54 37.40N	5 29.29W	54 35.45N	5 27.15W	34-34
20	54 35.00N	5 25.85W	54 33.23N	5 24.89W	45-53
21	54 34.19N	5 25.33W	54 39.02N	5 26.13W	42-47
22	54 40.00N	5 26.67W	54 41.79N	5 27.15W	53-60
23	54 44.45N	5 29.63W	54 46.25N	5 31.07W	92-89
24	54 45.69N	5 34.62W	54 45.11N	5 33.98W	
25	54 45.47N	5 34.10W	54 45.39N	5 32.94W	
26	54 46.15N	5 31.50W	54 46.07N	5 28.79W	92-90
27	54 45.32N	5 29.75W	54 45.32N	5 32.04W	86-74