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DEPARTMENT OF AGRICULTURE [NI]  
FISHERIES RESEARCH LABORATORY

CRUISE REPORT - LF/09/90

NW IRISH SEA NEPHROPS STOCKS 3-7 June 1990

PERSONNEL

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OBJECTIVES

1. To sample stations identified during the February and April Nephrops cruises.
2. To to collect saediment samples for granulometric analysis at each trawl station
3. To take samples of surface water at a range of stations

NARRATIVE

MRV Lough Foyle left Belfast at 23.30 on Sunday 3 June and proceeded south to station 1 off the south Down coast (Figure 1). During day 1 (weather SW3-4) stations 1-6 were trawled and sediment samples taken from the beginning and end of each trawl. The night was spent dodging ready for the next days sampling when stations 1-12 were completed. Due to an unfavourable weather report a decision was made to spend the second night at anchor off Newcastle, Co. Down. Work was slowed down on Wednesday 6 June because of increasing winds (NW 7-8) with sediment sampling being discontinued after station 14 due to the danger in operating the Day grab in the prevailing conditions. Forecasts of strong NNW winds for Thursday 7 June meant that plans to sample stations off the Cumbria coast were abandoned and stations 20 -25 off the County Down coast completed instead. This resulted in the cruise finishing ahead of schedule with MRV Lough Foyle docking in Belfast at 22.30 on Thursday 7 June.

## METHODS

Trawls (25) of 30 to 60 minutes duration were performed at each station as shown in figure 1 using a custom made Nephrops net of 43.2( $\pm$ 1.25)mm mesh size with a cod-end of 48.7( $\pm$ 1.57)mm mesh size. Catch bulk was quantified by counting baskets filled from the catch. Sample baskets of catch were weighed and a sub-sample was sorted to provide an assessment of species composition. The Nephrops in each sub-sample were divided into male and female components and the ovary maturity stage of the females noted. Carapace length frequency distributions of both male and female Nephrops were measured and the number of recently moulted (soft shelled) animals counted. The contribution of commercial fish species in catches was quantified and the length composition of whiting from selected sub-samples measured. Sediment samples for future analysis were taken using a Day grab at the beginning and end of each tow, when conditions permitted. Surface water was sampled for nutrient analysis at a range of stations as indicated in Figure 1 and were stored in triplicate: a) Frozen, b) unfrozen, c) with 1ml chloroform. Details of station position, water depth, temperature, trawling speed and length of tow were obtained from instrumentation on the bridge.

## RESULTS

During the cruise 25 stations were sampled (Figure 1) and table 1 shows the duration, length, depth, water temperature and Nephrops catch rate at each station. Preliminary analysis of the data showed spatial variability in the Nephrops populations as in earlier cruises. Mean sizes and sex ratio at each station are given in table 2. Stations were selected from those sampled to study Nephrops variability in detail. The data collected also provided useful information on suitable study areas for the square mesh trawl project shortly to be embarked upon.

R.P. Briggs  
8 June 1990

Table 1

## DETAILS OF STATIONS SAMPLED

TOW	DURATION minutes	LENGTH miles	DEPTH m	SURFACE TEMP. (°C)	NEPHROPS CATCH kg/hr
1	70	3.00	89	-	67.9
2	60	2.80	92	-	42.9
3	56	2.70	70	12.0	15.5
4	50	2.38	88	12.3	159.0
5	45	2.40	94	12.4	128.7
6	65	2.55	50	12.3	2.5
7	65	2.66	20	10.8	56.4
8	55	2.71	33	12.6	-
9	65	2.91	38	12.1	-
10	64	3.01	46	11.2	30.2
11	46	2.04	43	11.3	-
12	40	1.98	52	11.8	44.0
13	47	2.65	43	11.0	181.8
14	59	2.72	47	10.6	79.7
15	60	2.77	67	10.7	34.4
16	50	2.65	66	10.5	27.0
17	50	2.51	66	10.8	7.2
18	53	2.20	45	10.6	1.5
19	45	2.61	58	10.5	9.7
20	60	3.12	69	10.4	2.3
21	57	3.00	55	10.6	101.7
22	55	2.90	61	10.6	62.9
23	37	1.93	83	10.2	81.4
24	39	1.92	90	10.2	66.6
25	41	1.90	75	10.1	63.1

TABLE 2

MEAN CARAPACE LENGTH AND SEX RATIO OF NEPHROPS

TOW	MALES mm CL	FEMALES mm CL	PERCENT FEMALE
1	26.1	24.0	51.9
2	26.3	23.7	54.8
3	26.6	24.4	50.4
4	25.6	24.4	55.8
5	24.8	23.2	54.9
6	30.4	26.3	60.3
7	24.6	24.4	64.0
8	-	-	-
9	-	-	-
10	26.9	27.2	74.7
11	-	-	-
12	27.9	27.2	57.7
13	25.3	27.1	76.2
14	23.8	26.0	60.8
15	27.5	26.8	59.8
16	29.2	26.6	45.9
17	29.2	26.4	39.0
*18	32.0	27.5	37.9
19	24.5	25.5	64.9
20	25.0	24.4	53.6
21	26.5	26.3	63.3
22	27.1	26.3	66.8
23	23.6	23.8	57.3
24	24.1	24.1	61.8
25	24.2	24.3	60.4

\* very small sample (58 Nephrops)

FIGURE 1

MAP OF WESTERN IRISH SEA SHOWING POSITION OF STATIONS TRAWLED DURING CRUISE

