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DEPARTMENT OF AGRICULTURE [NI]
AQUATIC SCIENCES RESEARCH DIVISION

CRUISE REPORT - LF/32/93

NW IRISH SEA NEPHROPS STOCKS **6-11 December 1993**

PERSONNEL

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OBJECTIVES

1. To trawl selected stations sampled during earlier cruises and perform qualitative and quantitative analysis of catches.

2. To retain stomachs of selected fish species of future analysis.

3. To initiate benthic video studies

4. To sample specimens of *Nephrops* for stomach analysis.

5. To take blood samples from *Nephrops* to aid diagnostic work on the incidence of the dinoflagellate parasite *Hematodinium*.

METHODS

Trawls 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 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 all fish species in catches was quantified and their length composition determined. The stomachs of selected fish species were removed and frozen for future examination. *Nephrops* samples were preserved in 4% formal saline solution for future stomach contents analysis. Blood samples were taken by hypodermic syringe from selected specimens of *Nephrops*. These samples were then fixed in 4% formal saline and air dried on glass slides for future staining and examination for *Hematodinium* infection.

Due to the poor weather conditions the underwater video camera and sledge were not deployed during the cruise. Details of station position, water depth, trawling speed and length of tow were obtained from the instrumentation on the bridge.

NARRATIVE

Monday 6 December:

MRV Lough Foyle sailed from Belfast at 06h.00 and proceeded through severe SW gales to the Nephrops grounds off the County Down coast where tows 1-3 were completed. The windy weather prevented the underwater video equipment being deployed. The night was spent at anchor in Dundalk Bay.

Tuesday 7 December:

Despite strong winds from the west four stations were completed (Tows 4-7) with reasonable catches of *Nephrops* and whiting. The night was spent at anchor in Dundrum Bay.

Wednesday 8 December:

The net was shot at 08h.00 at Station 28 off Kilkeel followed by station 15 SW of this. Weather conditions were poor with storm force winds forecast for the remainder of the week. In view of this forecast and continual deterioration in weather the decision was made to terminate the cruise. Lough Foyle docked in Belfast at 19h.00.

RESULTS

During the cruise 9 trawl stations were performed and although shortened because of appalling weather conditions all objectives were completed for the stations trawled. The position of these stations is shown in Figure 1. Table 1 is a summary of data on the stations fished and the mean size, catch rates and proportion of female *Nephrops* are shown in table 2. *Nephrops* size frequency plots from tows 1-3 are shown in Figure 2 and demonstrate modes likely to represent year classes. By-catches consisted of over 40 taxa which were identified weighed and measured, from sub-samples where necessary. The predominant by-catch species was whiting *(Merlangius merlangus)* and Figure 3 shows the pooled whiting size composition data. Although cod catches were poor some cod stomachs were collected for future analysis. A number of *Nephrops* were preserved in 4% formal saline for stomach analysis and blood samples were taken from a range of Nephrops size classes for assessment of *Hematodinium* infection.

R.P. Briggs
(Scientist in Charge)

Captain A. Niblock
(Master)

8 December 1993

ABLE 1. Cruise LF3293 Nephrops cruise:

Details of trawl stations

Date	Trawl Stn.	Shooting time (GMT)	Shooting lat.	Shooting long.	Hauling lat.	Hauling long.	mean* depth m	dis. tow nm	Nephrops catch kg/hr
5 Dec	1	10.32	54 18.0	5 17.1	54 15.9	5 14.0	64/92	2.7	15.47
	18	13.08	54 14.0	5 17.4	54 15.3	5 17.7	73	1.4	2.68
	17	14.29	54 15.2	5 19.5	54 12.6	5 19.5	58/70	2.7	1.66
7 Dec	13	08.15	54 05.3	5 37.2	54 07.1	5 34.2	44/47	2.7	72.42
	27	10.35	54 09.8	5 27.1	54 07.3	5 27.3	54	2.7	36.80
	new	12.50	54 06.6	5 30.3	54 04.8	5 33.2	59/61	2.6	46.37
	29	15.45	54 56.8	5 48.0	54 54.6	5 50.9	48/46	2.8	84.76
8 Dec	28	08.13	54 00.9	5 45.2	53 58.6	5 46.9	40/45	2.6	72.68
	15	10.13	53 54.0	5 56.2	53 52.2	5 58.9	38/33	2.6	201.17

ABLE 2

MEAN CARAPACE LENGTH AND SEX RATIO OF NEPHROPS

Sample sizes are given in brackets and reflects the scarcity of females

TOW	MALES mm CL	FEMALES mm CL	PERCENT FEMALE	NEPHROPS CATCH kg/hr	kg/n.mile
1	24.4	21.4	23.5	15.47	5.60
2	22.0	19.0	34.2	2.68	1.90
3	24.0	20.6	32.5	1.66	0.60
4	23.3	21.8	39.3	72.42	27.20
5	23.9	21.4	30.8	36.80	13.60
6	22.2	20.5	41.9	46.37	16.50
7	23.3	21.4	35.5	84.76	30.08
8	22.3	20.5	34.3	72.68	26.80
9	22.3	20.5	45.0	201.17	78.60

Figure 1

Approximate position of stations (LF3293)

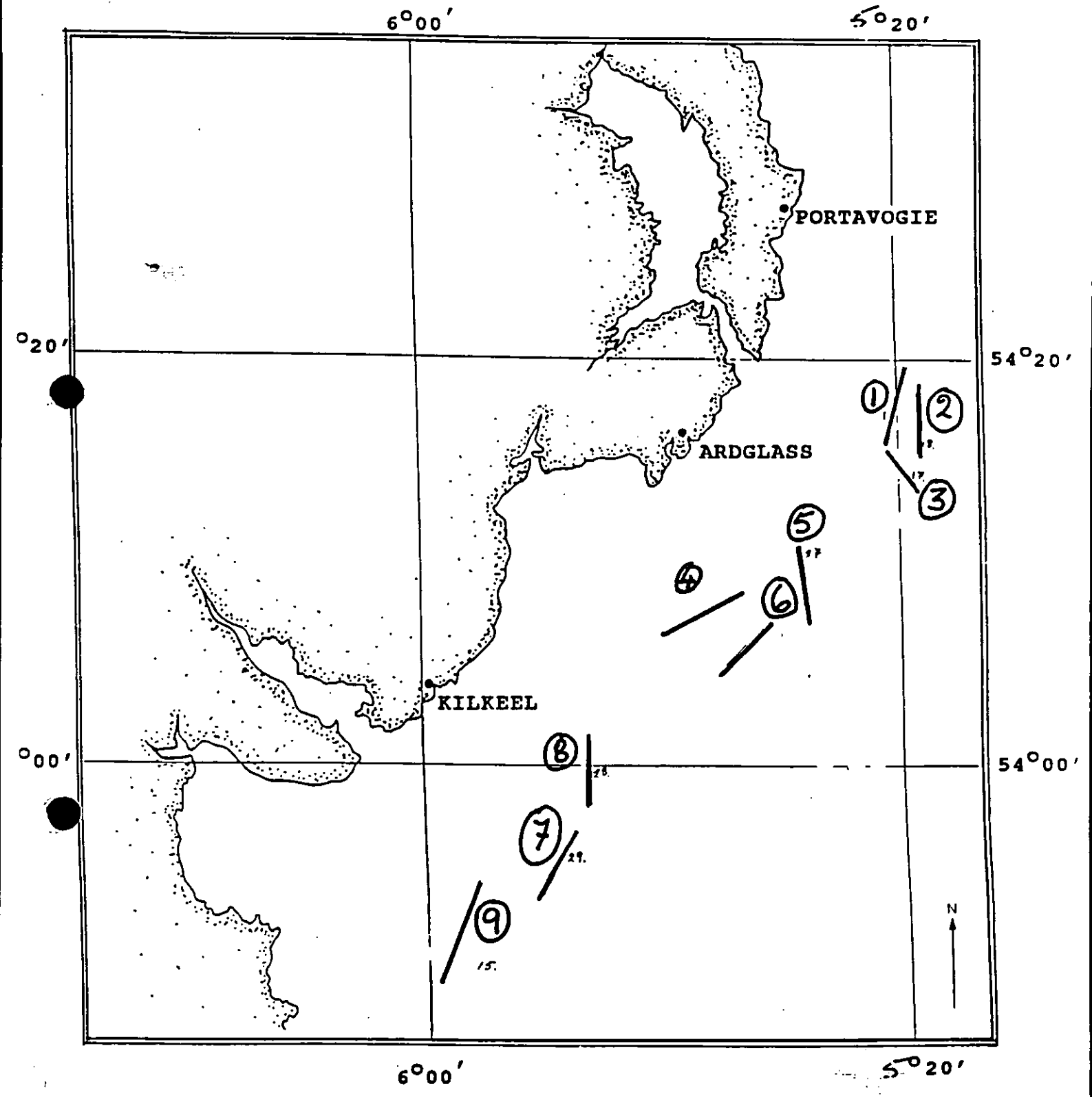

Figure 2
NEPHROPS SIZE COMPOSITION
(showing likely age modes)

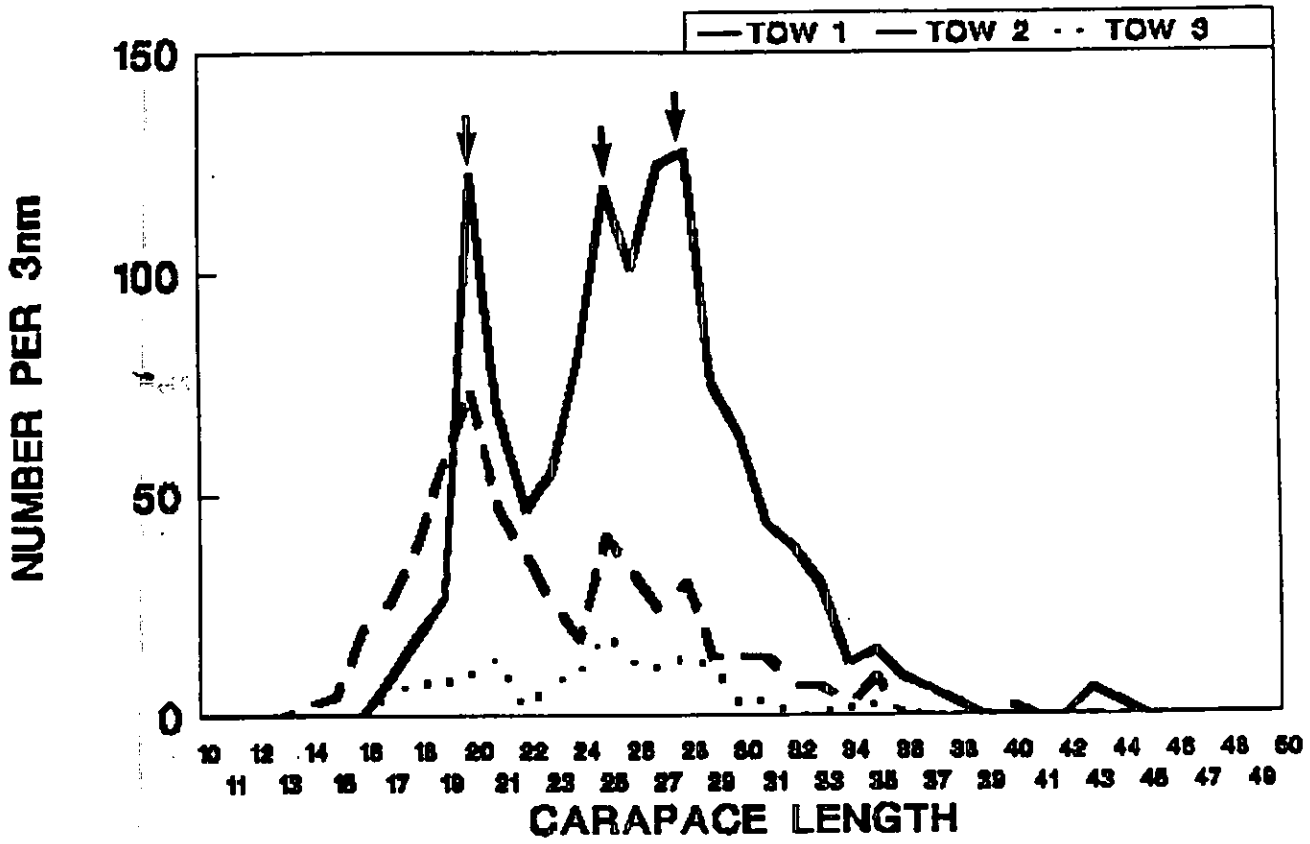

Figure 3
WHITING SIZE COMPOSITION
(pooled data from cruise)