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DEPARTMENT OF AGRICULTURE [NI]  
FISHERIES RESEARCH LABORATORY

CRUISE REPORT - LF/03/90

NW IRISH SEA NEPHROPS STOCKS 19-22 February 1990

PERSONNEL

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OBJECTIVES

1. To test the newly purchased Nephrops fishing gear at sea.
2. To survey the Nephrops fishing grounds of the NW Irish Sea in order to identify suitable stations for future work on Nephrops.

NARRATIVE

Due to poor weather conditions (SW gales) the cruise had a delayed start, with MRV Lough Foyle putting to sea from Belfast at 10.30 on Monday 19 February. The first day was spent steaming south against gale force winds to overnight at anchor off Clogher Head. Improved conditions on Tuesday 20 February allowed trawling to commence and stations 1 to 5 were successfully completed as indicated in Figure 1. The second night was spent at anchor off Carlingford Lough. Trawling continued through Wednesday 21 February with stations 6 to 11 being completed. In view of a poor forecast for the following day work continued until 21.30 on the Wednesday evening while conditions permitted. The night was spent 'dodging' off the County Down Coast in the hope that the weather would improve on Thursday. Gales from the south and forecasts of worsening conditions forced a decision to terminate the cruise and return to home port one day ahead of schedule. The Lough Foyle docked in Belfast at 10.40 on Thursday 22 February.

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 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 using vernier calipers. The contribution of commercial fish species in catches was quantified and the length composition of whiting and hake from selected sub-samples measured. Details of station position, water depth, temperature, trawling speed and length of tow were obtained from instrumentation on the bridge.

## RESULTS

During the cruise 11 stations were trawled (Figure 1) and table 1 shows the duration, length and depth of each trawl. Following some minor adjustments the new trawl net performed well and a quantitative summary of catches is given in table 2. Preliminary analysis of Nephrops size composition data indicated polymodal carapace length frequency distributions at all stations. Examples are shown in Figure 2 where the data have been smoothed to eliminate sudden single length-group fluctuations in length frequency patterns as follows:

$$f_{x_{\text{smooth}}} = 0.25[f(x-1) + 2f_x + f(x+1)]$$

f = observed frequency

x = length category

Spatial variation was observed in sex ratio, size composition and mean carapace length (Table 3) with a range of 22.5-27.2mm for males and 20.9-23.7mm for females. It is likely that several of the stations sampled will be selected for future detailed study of Nephrops population dynamics.

P. Briggs

23 February 1990

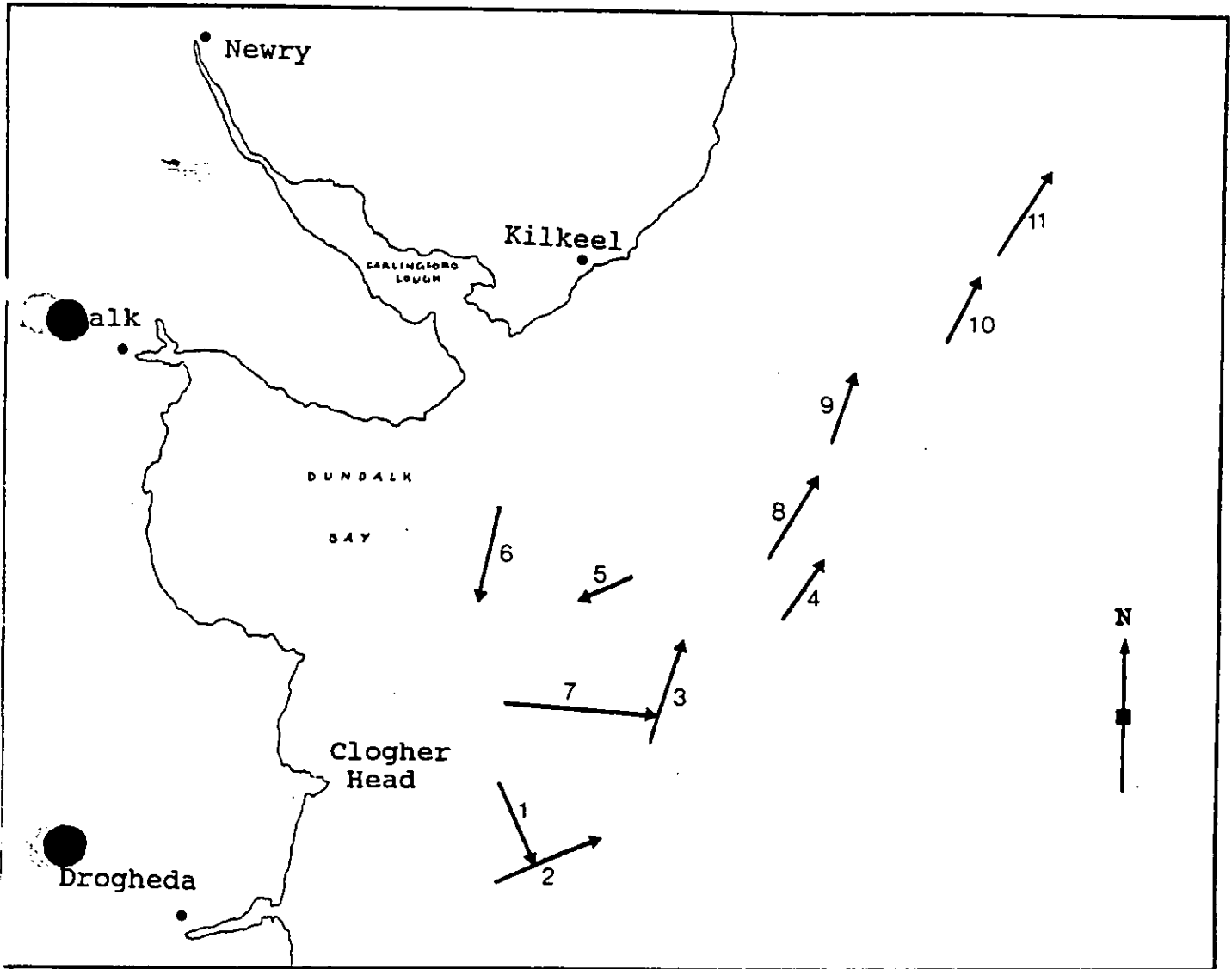
TABLE 3

MEAN CARAPACE LENGTH AND SEX RATIO OF NEPHROPS

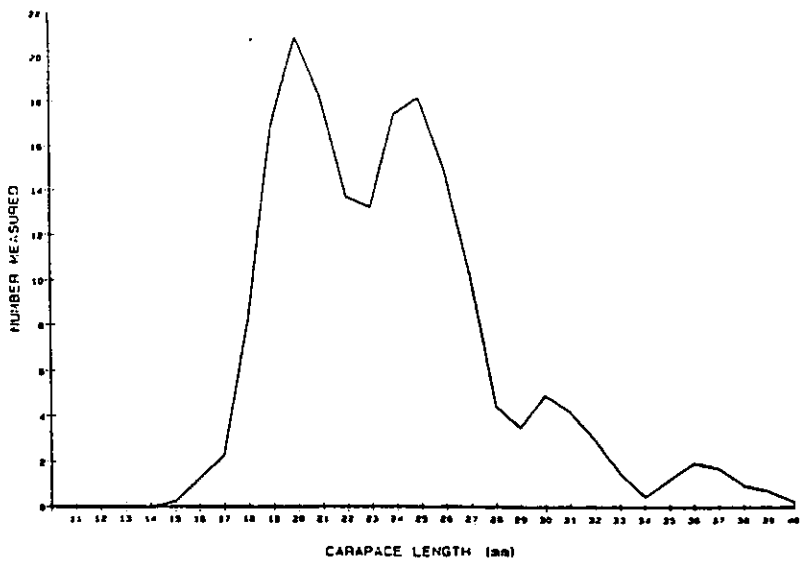
TOW	MALES mm CL	FEMALES mm CL	PERCENT FEMALE
1	26.3	23.7	23.4
2	23.5	22.0	40.2
3	23.8	20.9	53.1
4	23.9	22.1	44.9
5	23.9	22.0	41.9
6	23.6	22.7	24.1
7	22.5	20.9	49.7
8	23.7	21.2	49.1
9	24.9	22.3	33.0
10	27.2	22.9	26.9
11	27.1	22.8	27.0
mean	24.6	22.1	37.6
sd	1.58	0.87	11.09

FIGURE 1

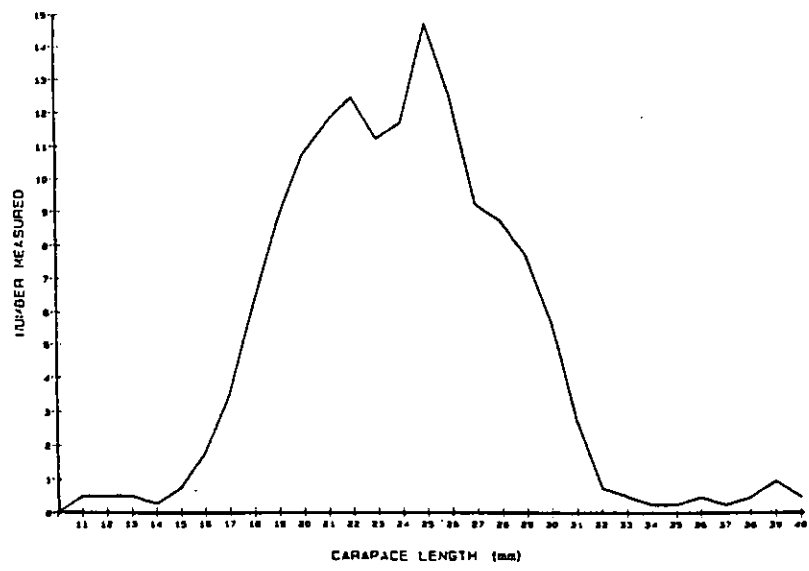
MAP OF WESTERN IRISH SEA SHOWING POSITION OF STATIONS TRAWLED DURING CRUISE



CARAPACE LENGTH DISTRIBUTIONS (smoothed data)



10.4 MALES



10.4 FEMALES

