

DEPARTMENT OF AGRICULTURE [NI]  
AQUATIC SCIENCES RESEARCH DIVISION

CRUISE REPORT - LF/10/94

NW IRISH SEA NEPHROPS STOCKS     18-22 April 1994

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 assess the incidence of the dinoflagellate parasite *Hematodinium* in *Nephrops* catches.
3. To take samples of bottom sediment at selected stations for future analysis.
4. To retain samples of pandalid shrimps for an AFCD project.
5. To collect cod ovaries for future analysis.

METHODS

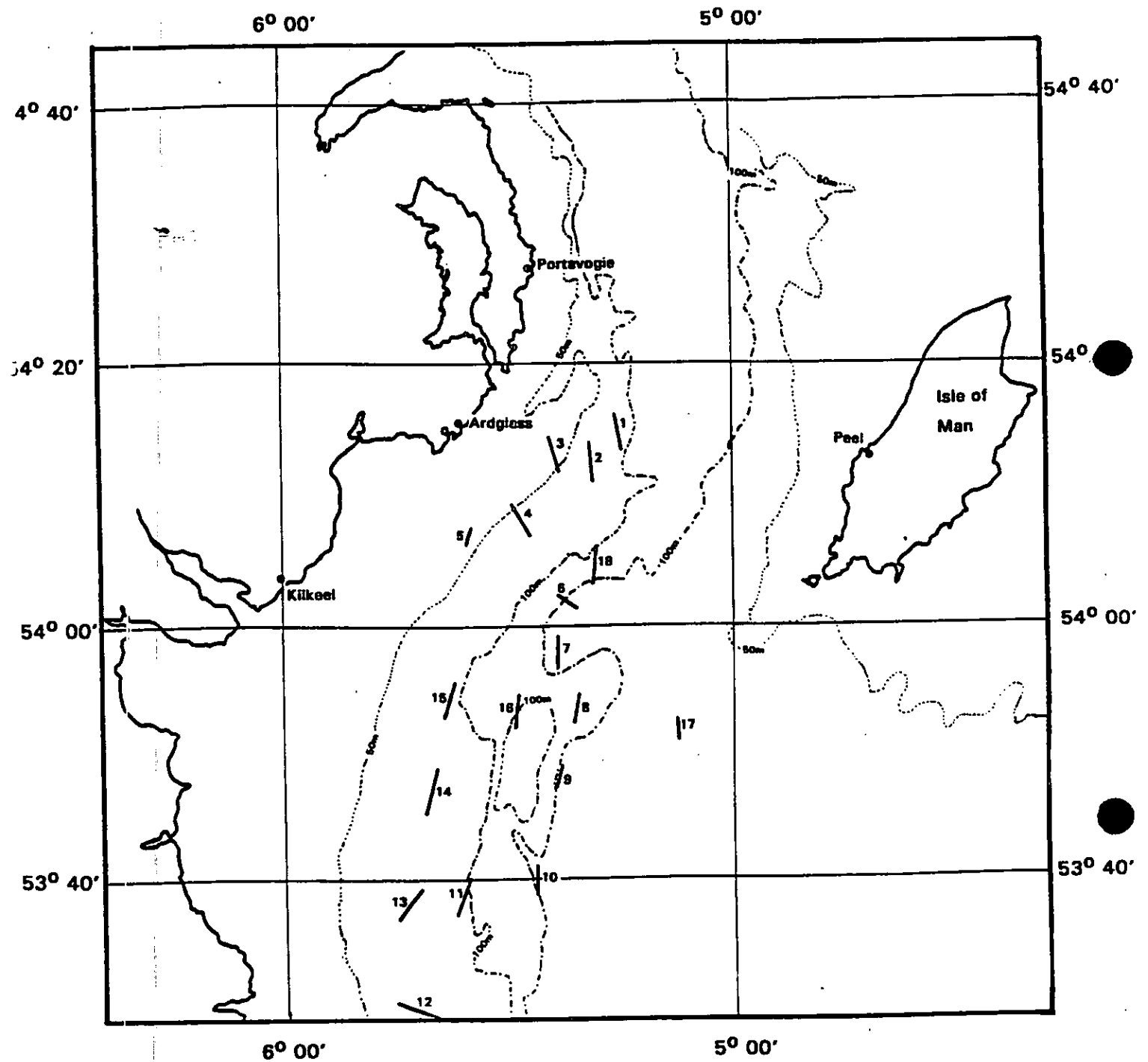
Trawls of 30 to 60 minutes duration were performed at each station as shown in figure 1 using a custom made *Nephrops* net of 43.2( $\pm$ 1.25)mm mesh size with a cod-end of 48.7( $\pm$ 1.57)mm mesh size. Catch bulk was quantified by counting baskets filled from the catch. Sample baskets of catch were 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.

Whole animals were examined and the pleopods removed from *Nephrops* samples from 10 tows and examined microscopically for prevalence of the parasitic dinoflagellate *Hematodinium*. Blood samples were also taken from selected *Nephrops* for future analysis at Glasgow University.

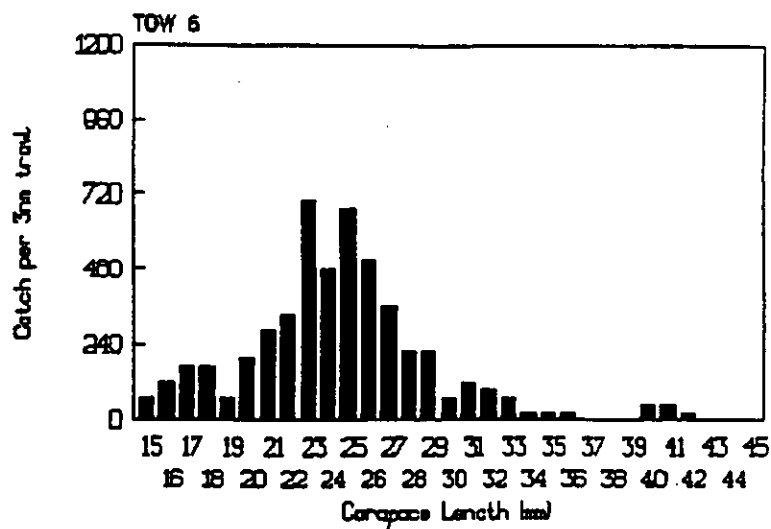
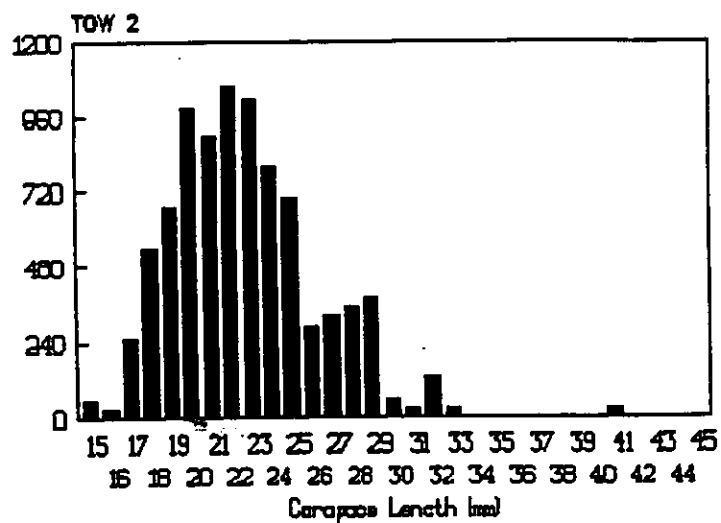
The contribution of all fish species in catches was quantified and their length composition determined. Sediment samples for future analysis were taken using a Day grab at selected stations. The Day grab was deployed from one of the trawl winches.

Figure 1

Map of Irish Sea showing positions of trawls made during *Nephrops* cruise



**Examples of Carapace Length Compositions for Male *Nephrops* from Tows 2 and 6 expressed as number at length caught per 3 nautical miles**



**Figure 3**

**Pooled whiting length composition from all tows expressed as number at length caught per 3 nautical miles**

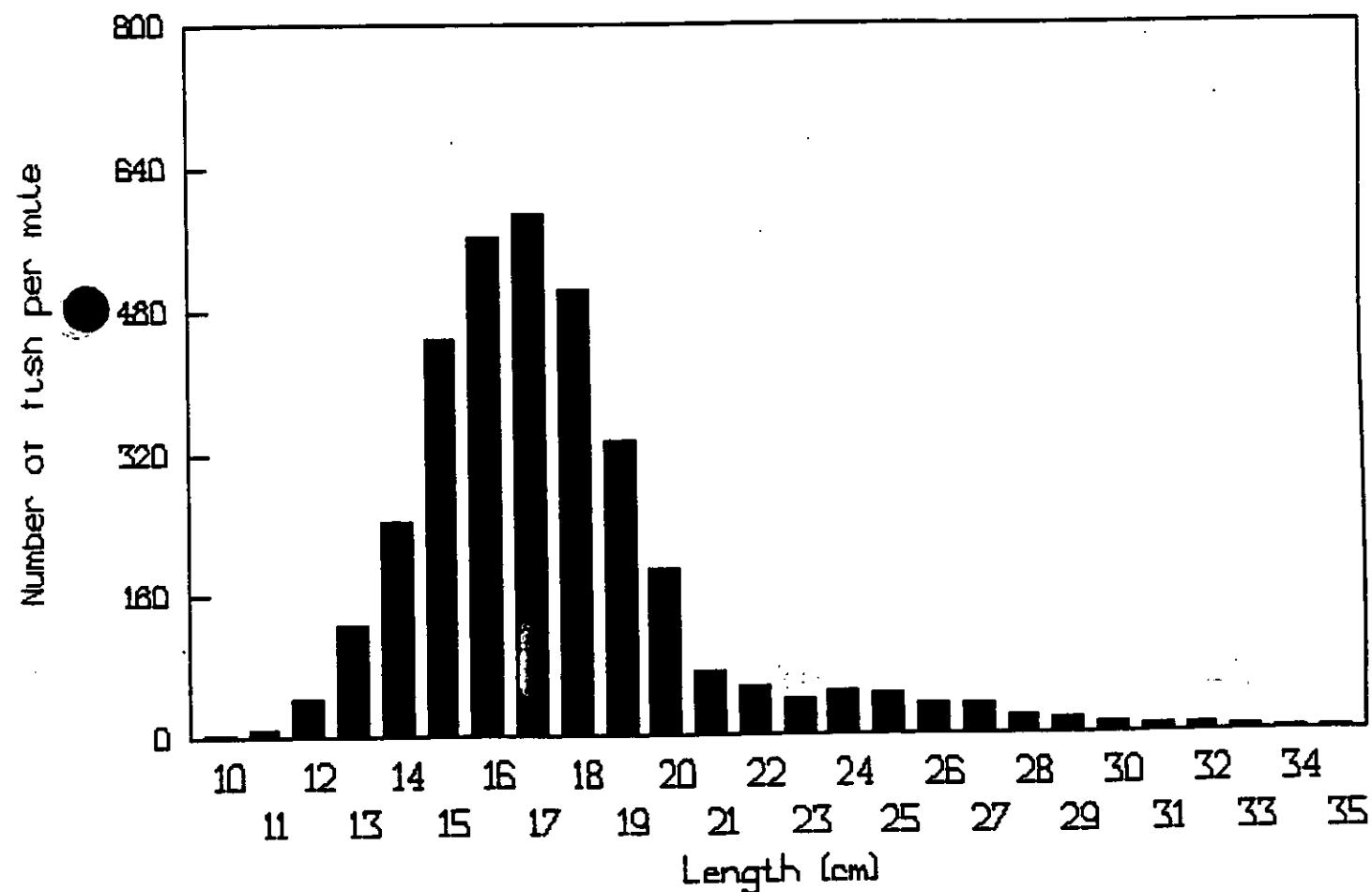


TABLE 1. Cruise LF3293 *Nephrops* cruise:

## Details of trawl stations

total		S h o o t i n g			H a u l i n g			mean*	dis.	<i>Nephrops</i>
Date	Trawl Stn.	time (GMT)	lat.	long.	lat.	long.	depth m	tow nm	catch kg/3nm	
18 Apr	1	10.24	54 16.0	5 15.8	54 14.1	5 14.9	75/86	2.5	218.7	
	2	12.50	54 14.3	5 18.9	54 11.4	5 18.4	77/87	3.0	124.5	
	35	15.00	54 12.6	5 23.0	54 14.9	5 22.5	53	2.4	1.1	
19 Apr	17	07.11	54 10.0	5 27.2	54 07.1	5 27.2	52/67	2.5	21.1	
	30	08.57	54 08.2	5 33.7	54 07.2	5 34.7	47/48	1.3	0.3	
	20	10.54	54 02.6	5 22.2	54 01.4	5 19.8	104/82	2.0	96.8	
	10	12.50	53 59.3	5 23.0	53 56.7	5 23.3	89/99	2.7	79.1	
	101	15.18	53 53.0	5 21.0	53 54.8	5 20.7	116	1.8	20.7	
	102	17.05	53 48.7	5 22.5	53 47.2	5 22.6	92	1.5	26.8	
20 Apr	103	06.53	53 38.9	5 26.1	53 41.3	5 26.0	108	2.4	7.3	
	104	09.08	53 40.2	5 35.8	53 37.6	5 37.8	96	2.9	49.0	
	105	11.24	53 29.9	5 40.9	53 30.7	5 44.0	76/65	2.6	124.7	
	106	13.28	53 37.3	5 44.5	53 39.8	5 42.9	76	2.6	27.3	
	107	15.52	53 45.8	5 41.3	53 48.7	5 40.26	78/87	3.0	40.5	
20 Apr	8/10	07.12	53 55.7	5 37.5	53 53.3	5 38.4	89/94	2.7	42.2	
	7	09.40	53 52.1	5 28.4	53 54.8	5 27.9	96/104	2.8	133.4	
	108	12.54	53 51.8	5 07.5	53 52.4	5 07.0	70/63	1.3	2.0	
	109	16.03	54 04.2	5 18.8	54 06.9	5 18.6	97/127	2.7	12.9	

TABLE 2

Mean Carapace Length and Sex Ratio of *Nephrops*

TOW	MALES mm CL	FEMALES mm CL	PERCENT FEMALE	NEPHROPS kg/n.mile	CATCH kg/hr
1	24.0	21.7	46.9	72.9	191.8
2	22.7	21.7	47.7	41.5	108.8
3	-	-	-	0.35	0.9
4	24.8	22.5	41.5	7.1	18.9
5	-	-	-	0.1	0.3
6	24.5	22.1	43.5	32.3	82.1
7	24.6	21.0	50.9	26.4	68.8
8	28.1	23.2	34.6	6.9	22.6
9	26.3	20.9	53.9	8.9	24.3
10	29.9	23.4	33.1	2.4	5.8
11	29.9	21.5	44.1	16.3	47.4
12	25.7	23.2	40.1	41.6	132.3
13	22.4	20.8	49.3	9.1	23.4
14	25.6	23.2	44.8	13.5	38.6
15	24.1	21.8	42.0	14.1	37.9
16	25.1	21.9	46.5	44.5	120.3
17	-	-	-	0.7	1.7
18	28.3	23.9	37.3	4.0	11.7

TABLE 3

Prevalence of infection (%) by the parasitic dinoflagellate *Haematodinium* in *Nephrops* from selected stations

TOW	STATION	%	MALES(n)	% FEMALES(n)	% OVERALL
1	1		7.9 (241)	11.8 (213)	9.6
2	2		5.5 (271)	8.0 (247)	6.7
4	17		5.2 (234)	7.9 (166)	6.3
6	20		11.0 (214)	21.9 (165)	15.8
8	101		12.6 (214)	27.8 (113)	17.9
10	103		2.9 (206)	8.8 (102)	4.7
11	104		5.2 (248)	8.6 (196)	6.7
12	105		7.3 (218)	6.6 (146)	7.0
13	106		2.0 (214)	4.4 (208)	3.2
15	8/10		8.0 (213)	9.0 (154)	8.4