

Willie

DEPARTMENT OF AGRICULTURE (NI)
AGRICULTURAL AND ENVIRONMENTAL SCIENCE DIVISION

CRUISE REPORT - LF/21/95

NW IRISH SEA NEPHROPS AND BY-CATCH 15-20 October 1995

PERSONNEL

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J. Peel, ASO
B. Scott, UUC Post Doc
C. Pollock, JNCC

OBJECTIVES

1. To trawl station 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.

METHODS

As in previous surveys trawls of 30 to 60 minute duration were completed using a custom made *Nephrops* trawl net of 43.12(±1.25) mesh size with a cod-end of 48.7(±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 *Nephrops* were examined for the prevalence of the parasitic dinoflagellate *Hematodinium* and the pleopods were removed from selected animals for microscopy. *Nephrops* blood and tissue samples were taken for later examination using immunostaining techniques.

The contribution of all fish species in catches was quantified and their length composition determined.

NARRATIVE

Sunday 15 October: DANI personnel and visitors boarded *RV Lough Foyle* during the evening. The vessel sailed at 23h.10 and proceeded south to the *Nephrops* grounds off the County Down coast.

Monday 16 October: Despite a blustery southern breeze stations 35, 2 and 1 were completed, but worsening weather conditions forced the vessel to an anchorage off Skerries for the night.

Tuesday 17 October: The anchor was lifted at 06h.00 and the vessel steamed to station 106 where the net was shot at 07h.48. This was followed by stations 104, 105, 103 and 102. *R.V Lough Foyle* then returned to an anchorage off Skerries for the night. The weather was fine with a gentle SW breeze all day.

Wednesday 18 October: The net was shot at station 107 at 07.45 and was followed by stations 8, 7, 101 and 10. The Chief Officer organised a boat drill during the morning which included a demonstration of lifeboat launching and a tour of safety equipment on the bridge. The night was spent at anchor in Dundrum Bay.

Thursday 19 October: Stations 30, 17, 20 and 109 were completed and the vessel set course for Belfast, docking at 21h.00

Friday 20 October: Scientific personnel disembarked during the morning.

RESULTS

During the cruise 17 stations were performed and all objectives were completed. Station positions are shown in Figure 1 and additional data on each station are presented in Table 1. Table 2 is a summary of data on the mean size, catch rates and proportion of female *Nephrops* in catches. The most predominant by-catch species was whiting (*Merlangius merlangus*) and Figure 2 is the whiting size composition from pooled data. Figure 3 gives the proportion of *Nephrops*, whiting and other fish species in each tow. An interesting observation during the cruise was the capture of a specimen of the common skate *Raja batis* at station 102. The specimen weighed 5kg, had a length of 87cm and measured 66cm across its wings. *R.batis* is thought to be virtually extinct in the Irish Sea (Brander, 1981 and Briggs, 1985) and the fish caught during this cruise is the first recorded since surveys by *R.V. Lough Foyle* began in 1989.

A screening exercise was carried out for the *Nephrops* parasite *Hematodinium*. The following sampling was performed:

1. Forty *Nephrops* (20 male and 20 female) from each station were assessed for infection by microscopic examination of pleopods.
2. Blood films from 81 selected animals were taken for immunofluorescence confirmation of infection.
3. Hearts suspected to contain the parasite were removed for infection confirmation by immunofluorescence.
4. Samples of heart, blood and whole animals were preserved in formalin for histological studies.

Preliminary results from pleopod examination during the cruise indicated an infection level of 2 in animals examined.

Survey data on seabirds were collected (C.Pollock) for a study co-ordinated by the Joint Nature Conservation Committee.

In addition to contributing to the DANI fish database information from the cruise will contribute to EU funded projects on gear selectivity and discarding in the Irish Sea.

REFERENCES

BRANDER, K.M. (1981) Disappearance of common skate *Raja batis* from the Irish Sea. *Nature* 290, 48-49.1

BRIGGS, R. P., 1985. Catch composition in the Northern Ireland *Nephrops* fishery. *Fisheries Research* 3, 47-60.

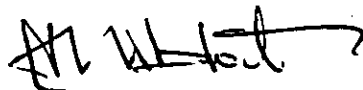
ACKNOWLEDGEMENTS

The Master, officers and crew of *RV Lough Foyle* are thanked for their enthusiastic co-operation throughout the cruise. The scientific staff are to be congratulated for their effective team work in completing the cruise objectives.



R.P. Briggs
(Scientist in Charge)

20 October 1995



A. Niblock
(Master)

FIGURE 1

Map showing location of stations sampled

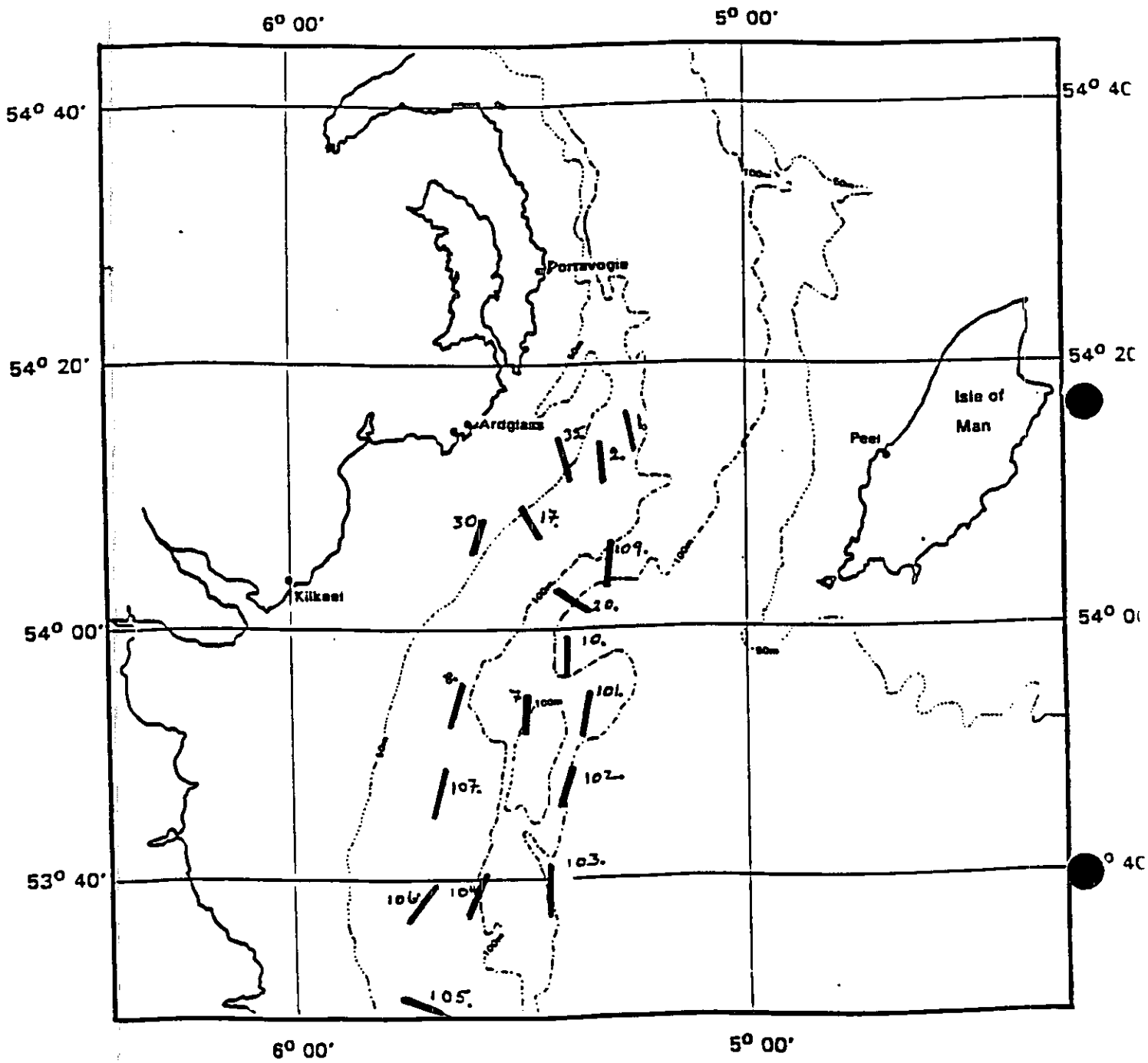


FIGURE 2

Length composition of whiting caught during cruise
(pooled data standardised to catch per 3nm)

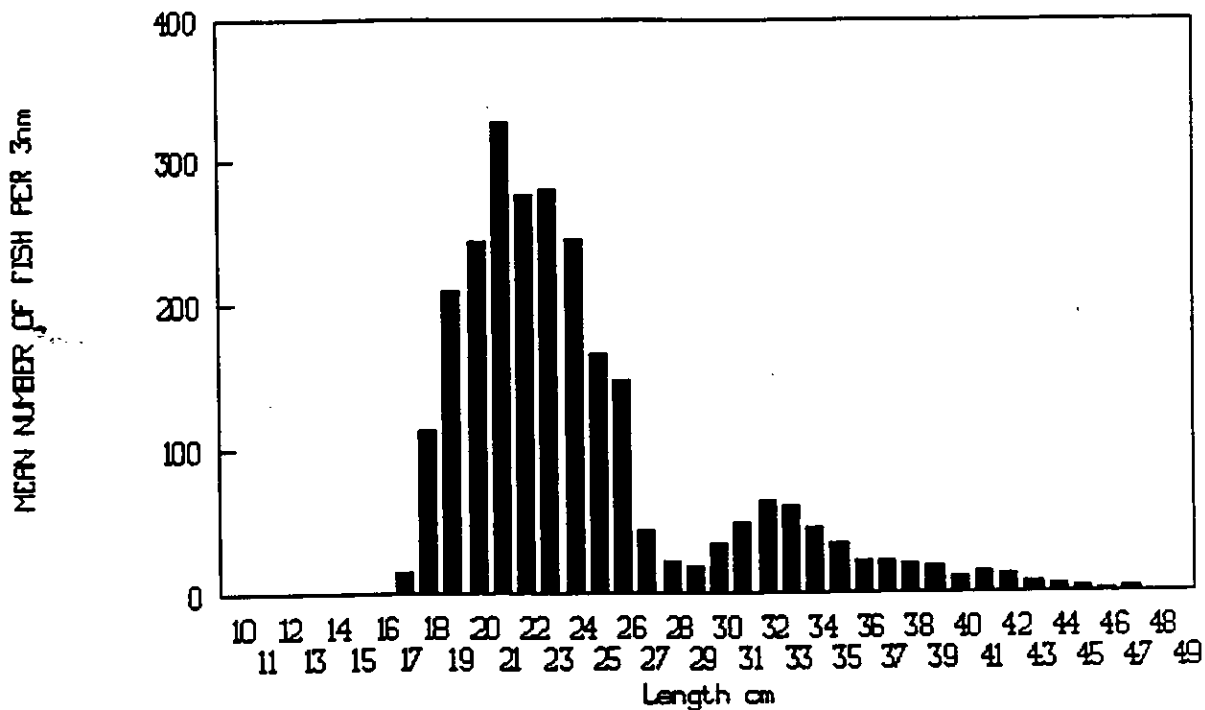


FIGURE 3

Catch bulk standardised to 3nm of ground trawled

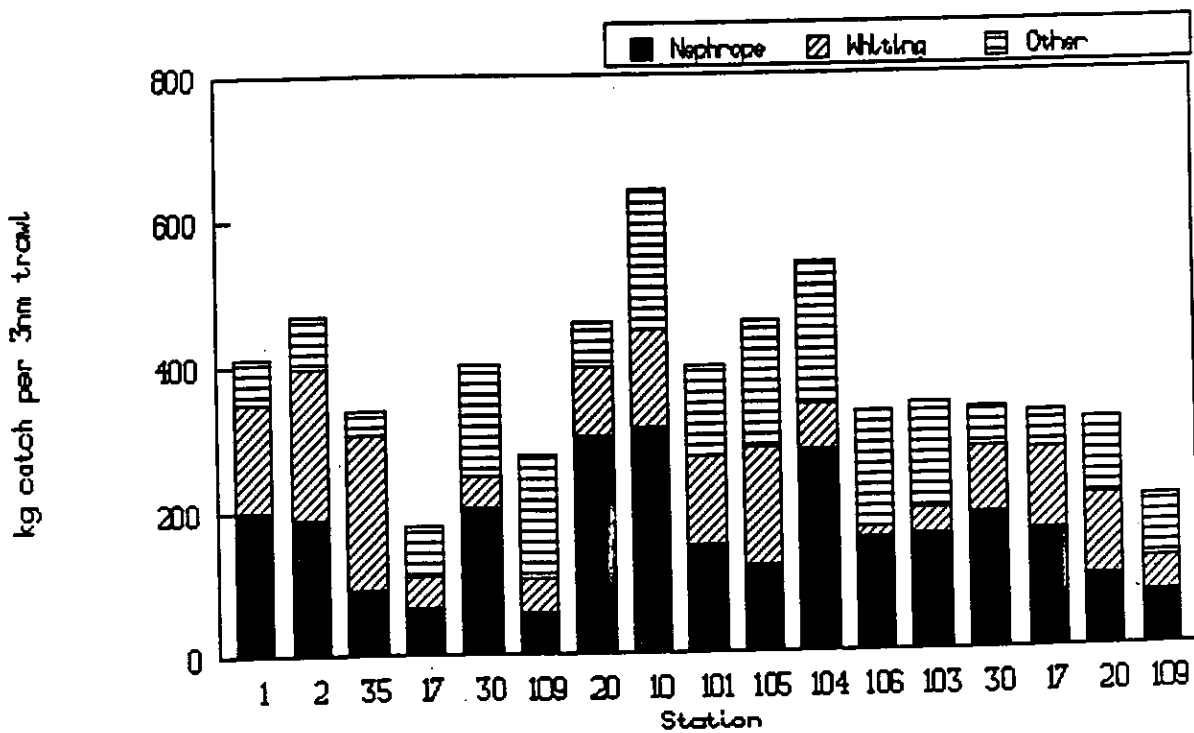


TABLE 1

Stations sampled during October *Nephrops* cruise
(LF2195) and details of catch rates per 3nm trawled

Dates	Trawl stn.	S h o o t i n g			H a u l i n g			mean depth	dist. tow nm	<i>Nephrops</i> catch kg/3nm
		time (GMT)	lat.	long.	lat.	long.	long.			
16 Oct	35	06.45	54 14.7	5 22.5	54 12.7	5 24.2	47	2.2	199.2	
	2	08.44	54 12.8	5 18.6	54 15.4	5 18.7	72	2.7	187.0	
	1	10.47	54 16.4	5 15.9	54 13.9	5 14.7	85	2.6	90.5	
17 Oct	106	06.48	53 38.3	5 44.8	53 36.5	5 41.6	75	2.8	69.0	
	104	08.55	53 40.0	5 38.3	53 36.9	5 38.9	93	2.9	204.5	
	105	11.11	53 30.1	5 41.9	53 30.3	5 37.2	77	2.8	58.3	
	103	13.30	53 38.0	5 26.6	53 40.3	5 24.1	99	2.7	304.3	
	102	15.29	53 46.4	5 23.0	53 48.4	5 20.4	86	2.6	315.0	
18 Oct	107	06.45	54 45.9	5 42.1	54 48.6	5 40.5	82	2.8	151.8	
	8	08.55	53 54.2	5 38.5	53 56.9	5 37.3	85	2.8	122.7	
	7	11.20	53 51.7	5 28.0	53 54.3	5 27.4	98	2.7	278.7	
	101	13.30	53 53.8	5 21.6	53 53.6	5 21.5	105	2.8	155.5	
	10	15.30	53 56.9	5 23.5	53 59.7	5 23.8	92	2.7	163.3	
19 Oct	30	06.45	54 08.3	5 33.5	54 06.2	5 35.9	48	2.5	137.4	
	17	08.41	54 08.3	5 27.7	54 11.0	5 27.5	47	2.7	163.9	
	20	11.08	54 03.3	5 22.0	54 00.7	5 19.9	100	2.9	99.7	
	109	13.22	54 04.8	5 18.7	54 07.4	5 19.0	114	2.7	75.8	

TABLE 2

Catch (kg), mean carapace length (mm) and proportion of
female *Nephrops* caught during the cruise

TOW	STN	CATCH kg/3nm	MEAN CL MALE	MEAN CL FEMALE	PERCENT FEMALE	DEPTH METRES
1	35	199.23	24.80	20.90	44.20	47
2	2	187.00	25.50	20.90	39.60	72
3	1	90.46	25.10	22.20	36.00	85
4	106	69.02	27.50	22.40	20.70	75
5	104	204.52	25.70	20.30	35.00	93
6	105	58.29	28.20	24.20	31.20	77
7	103	304.33	23.30	20.20	40.60	99
8	102	315.02	24.80	18.90	40.00	86
9	107	151.80	24.50	20.60	37.50	82
10	8	122.68	23.60	19.20	41.20	85
11	7	278.68	24.40	20.30	46.90	98
12	101	155.51	26.00	21.80	32.40	105
13	10	163.28	23.00	19.00	36.40	92
14	30	187.35	24.50	21.30	47.50	78
15	17	163.94	24.50	21.50	31.40	47
16	20	99.65	21.90	19.00	46.20	100
17	109	75.84	26.40	20.90	24.40	114