not to be cited without prior reference to the Division

DEPARTMENT OF AGRICULTURE [NI]
AGRICULTURAL AND ENVIRONMENTAL SCIENCES DIVISION

CRUISE REPORT - LF/26/94

NW IRISH SEA NEPHROPS STOCKS 24-25 October 1994

PERSONNEL

R. Briggs, PSO [SIC]
W. McCurdy, SSO
M. McAliskey, SO
J. Peel, ASO
I. McLaughlin, DANI Student

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.

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 for prevalence of advanced stages of the parasitic dinoflagellate *Hematodinium*. Blood and tissue 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.

NARRATIVE

Sunday 23 October: *MRV Lough Foyle* sailed from Belfast at 23h.00 and proceeded south to the *Nephrops* grounds off the County Down coast.

Monday : 23 October: The net was shot at 07h.06 at station 1. This was followed by stations 2,35,17 and 30 in a moderate SW breeze. The night was spent at anchor off Dundrum Bay.

Tuesday 24 October: The first tow was at station 109 which was commenced at 07h.15. This was followed by stations 20,10 and 101. The night was spent at anchor off Skerries.

Wednesday 23 October: The most southern stations 105,104,106 and 103 were completed and the vessel returned for overnight anchorage off Skerries.

Thursday 23 October: Stations 107,8,7 and 102 were completed and the vessel set course for Belfast, docking at 22h.30

Friday 28 October: Scientific personnel and equipment disembarked during the morning.

RESULTS

During the cruise 17 trawl stations were performed and all objectives were completed. The position of these stations are 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 data are shown in table 3 and demonstrates the wide variability between stations. By-catches consisted of over 40 taxa which were identified weighed and measured from sub-samples following the procedures normally used during DANI groundfish surveys. Figure 2 shows the proportions of *Nephrops*, whiting and other species in catches. The predominant by-catch species was whiting (*Merlangius merlangus*) and Figure 3 shows the pooled whiting size composition data expressed as catch at length per 3nm.

Examination of *Nephrops* catches revealed no examples of the advanced stages of infection by *Hematodinium*. This observation matches studies made in other waters and suggest that infection is difficult to detect in autumn. Samples of blood, heart and hepatopancreas were taken from *Nephrops* caught at stations 30,101,103 and 102. The blood was removed by hypodermic syringe containing a formal saline fixative. The fixed blood was then air dried on glass slides. Tissue samples were fixed in a gluteraldehyde/paraformaldehyde and stored for further examination along with the blood samples at Glasgow University.

ACKNOWLEDGEMENTS

I thank the Master, officers and crew of *MRV Lough Foyle* for their enthusiastic co-operation throughout this very successful cruise. The scientific staff are to be congratulated for their example of effective team work in completing all objectives effectively.

R.P. Briggs
(Scientist in Charge)

A.Niblock
(Master)

28 October 1994

not to be cited without prior reference to the Division

DEPARTMENT OF AGRICULTURE [NI]
AGRICULTURAL AND ENVIRONMENTAL SCIENCES DIVISION

CRUISE REPORT - LF/26/94

NW IRISH SEA NEPHROPS STOCKS 24-25 October 1994

PERSONNEL

R. Briggs, PSO [SIC]
W. McCurdy, SSO
M. McAliskey, SO
J. Peel, ASO
I. McLaughlin, DANI Student

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.

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 for prevalence of advanced stages of the parasitic dinoflagellate *Hematodinium*. Blood and tissue 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.

NARRATIVE

Sunday 23 October: *MRV Lough Foyle* sailed from Belfast at 23h.00 and proceeded south to the *Nephrops* grounds off the County Down coast.

Monday : 23 October: The net was shot at 07h.06 at station 1. This was followed by stations 2,35,17 and 30 in a moderate SW breeze. The night was spent at anchor off Dundrum Bay.

Tuesday 24 October: The first tow was at station 109 which was commenced at 07h.15. This was followed by stations 20,10 and 101. The night was spent at anchor off Skerries.

Wednesday 23 October: The most southern stations 105,104,106 and 103 were completed and the vessel returned for overnight anchorage off Skerries.

Thursday 23 October: Stations 107,8,7 and 102 were completed and the vessel set course for Belfast, docking at 22h.30

Friday 28 October: Scientific personnel and equipment disembarked during the morning.

RESULTS

During the cruise 17 trawl stations were performed and all objectives were completed. The position of these stations are 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 data are shown in table 3 and demonstrates the wide variability between stations. By-catches consisted of over 40 taxa which were identified weighed and measured from sub-samples following the procedures normally used during DANI groundfish surveys. Figure 2 shows the proportions of *Nephrops*, whiting and other species in catches. The predominant by-catch species was whiting (*Merlangius merlangus*) and Figure 3 shows the pooled whiting size composition data expressed as catch at length per 3nm.

Examination of *Nephrops* catches revealed no examples of the advanced stages of infection by *Hematodinium*. This observation matches studies made in other waters and suggest that infection is difficult to detect in autumn. Samples of blood, heart and hepatopancreas were taken from *Nephrops* caught at stations 30,101,103 and 102. The blood was removed by hypodermic syringe containing a formal saline fixative. The fixed blood was then air dried on glass slides. Tissue samples were fixed in a gluteraldehyde/paraformaldehyde and stored for further examination along with the blood samples at Glasgow University.

ACKNOWLEDGEMENTS

I thank the Master, officers and crew of *MRV Lough Foyle* for their enthusiastic co-operation throughout this very successful cruise. The scientific staff are to be congratulated for their example of effective team work in completing all objectives effectively.

R.F. Briggs
(Scientist in Charge)

A.Niblock
(Master)

28 October 1994

FIGURE 1.

LF2694: Map showing location of stations sampled

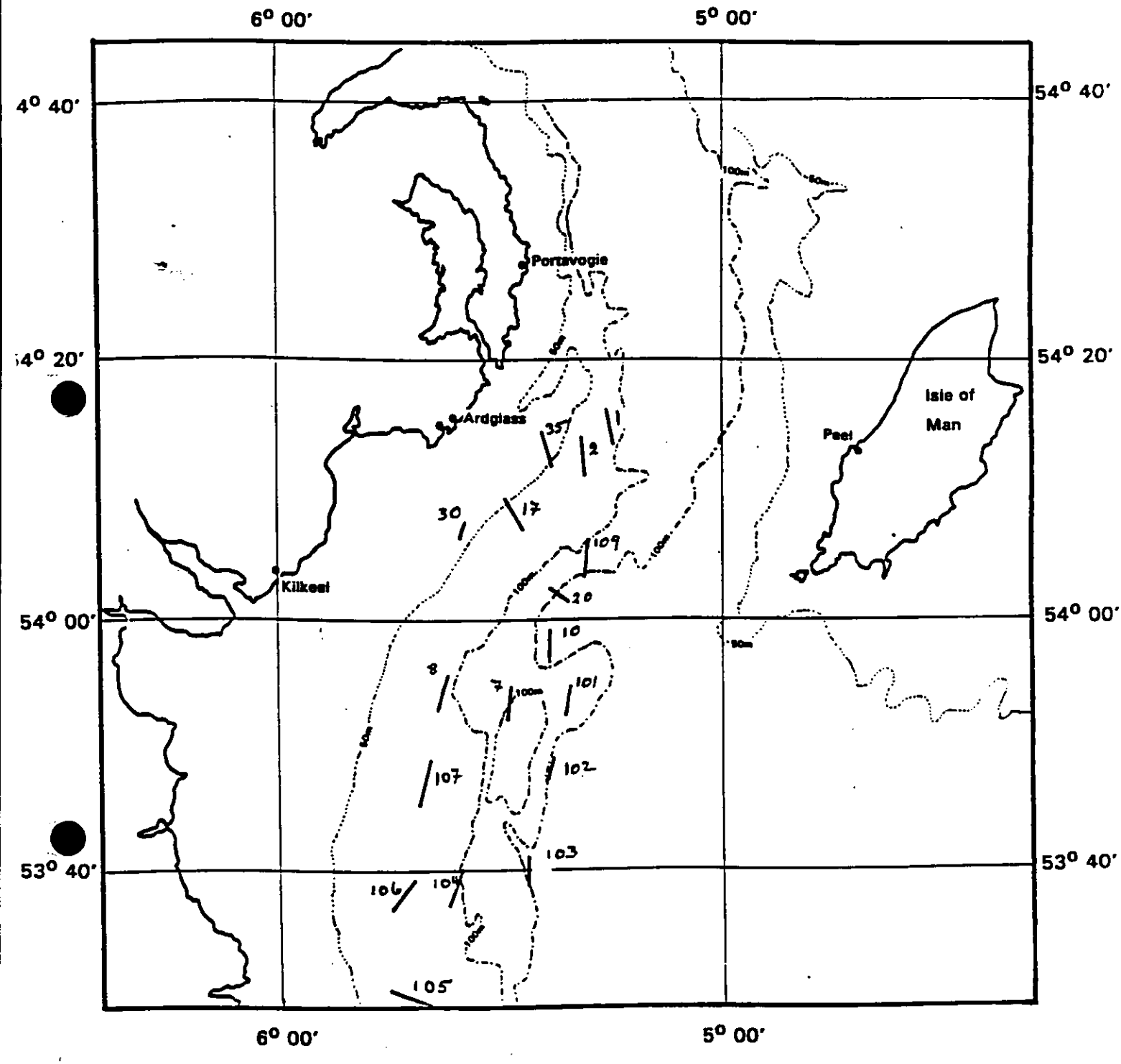

FIGURE 2.

LF2694: Catch bulk standardised to 3nm of ground trawled

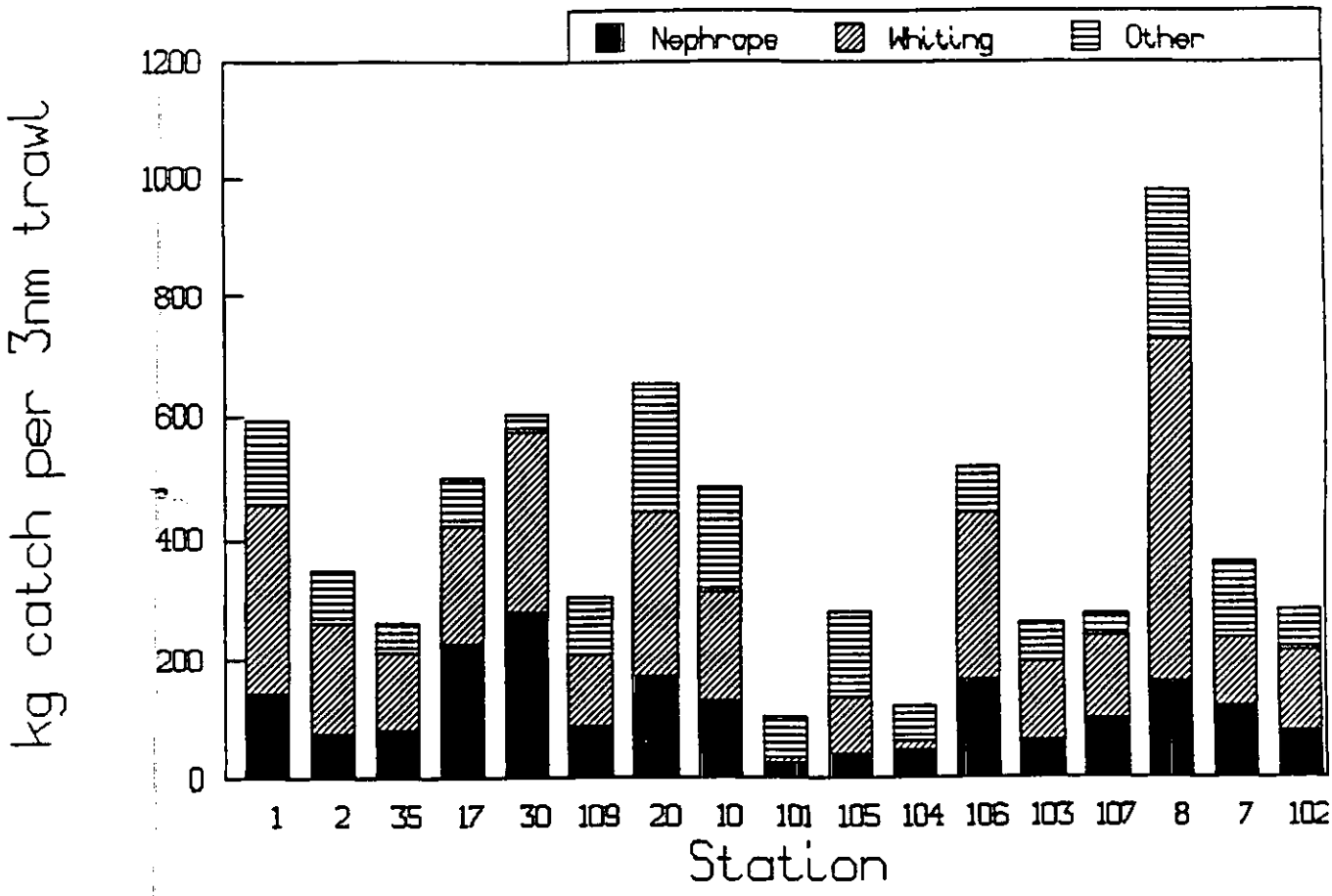

FIGURE 3.

LF2694: Length composition of whiting catch during cruise

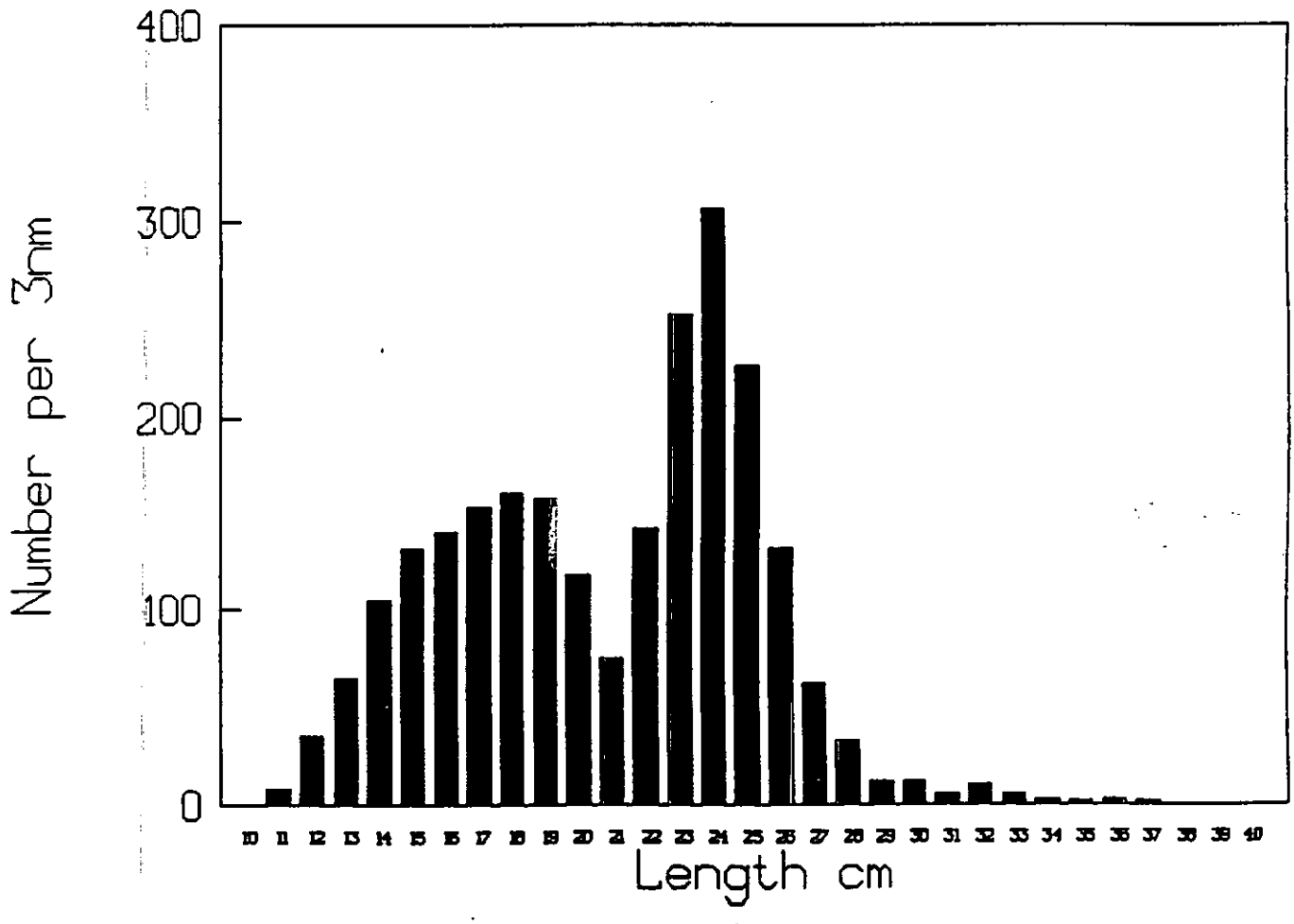

TABLE 1. Stations Sampled During October *Nephrops* Cruise LF2694

Tow No.	Trawl Stn.	Shooting lat.	Shooting long.	Hauling lat.	Hauling long.	mean depth m	dis. tow nm	total *Nephrops* catch kg/3nm
1	1	54 17.9	5 16.5	54 15.4	5 15.4	78	2.7	141.7
2	2	54 14.1	5 19.6	54 11.6	5 18.9	57/84	2.6	76.7
3	35	54 14.7	5 23.0	54 12.3	5 23.6	53	2.6	81.0
4	17	54 09.3	5 27.9	54 06.8	5 27.4	57	2.5	226.8
5	30	54 08.2	5 34.6	54 07.2	5 34.7	48	2.5	282.2
6	109	54 06.9	5 19.0	54 04.2	5 18.3	88/119/106	2.8	81.4
7	20	54 01.4	5 20.0	54 00.9	5 24.5	81/104	2.7	154.0
8	10	53.58.7	5 23.4	54 56.1	5 22.8	92/106	2.6	115.4
9	101	53 54.3	5 21.2	53 51.6	5 21.0	116	2.6	23.9
10	105	53 30.3	5 43.0	53 29.7	5 38.3	68/75	2.8	37.3
11	104	53 37.4	5 37.2	53 37.0	5 44.3	97/83	2.7	44.2
12	106	53 38.1	5 43.3	53 40.1	5 46.9	74/63	2.8	152.2
13	103	53 40.7	5 25.0	53.42.3	5 21.7	90	2.6	54.5
14	107	53.46.0	5 42.5	53 48.2	5 39.3	78	2.8	91.8
15	8	53 53.9	5 38.6	53 55.6	5 37.1	89	2.7	147.8
16	7	53 55.3	5 27.1	53 59.9	5 22.2	104	2.7	110.0
17	102	53 48.7	5 23.0	53 46.0	5 22.3	90/88	2.7	68.3

TABLE 2. LF2694: Catch(kg), mean carapace length(mm) and proportion of female *Nephrops* caught during cruise.

TOW	STATION	CATCH (kg)	MEAN MALE CL	MEAN FEM CL	% FEMALE
1	1	126.10	23.40	20.90	45.10
2	2	67.00	23.60	20.70	42.50
3	35	69.63	22.70	20.00	42.20
4	17	189.27	23.50	20.80	45.50
5	30	235.14	23.80	21.30	42.90
6	109	81.41	25.50	22.30	37.10
7	20	153.98	22.00	19.40	40.90
8	10	115.44	23.30	20.30	42.20
9	101	23.87	24.40	20.90	29.60
10	105	37.32	29.00	23.20	20.30
11	104	44.26	25.10	20.60	27.00
12	106	152.20	24.10	20.70	46.80
13	103	54.49	27.10	22.80	16.60
14	107	91.78	24.20	21.00	33.70
15	8	147.84	23.50	20.80	35.90
16	7	109.95	22.20	19.70	44.80
17	102	68.30	25.30	20.40	26.50

TABLE 3. LF2694: *Nephrops* catch at length over standardised 3nm trawl

MALES

Carapace Length	ST1 TOW 1	ST2 TOW 2	ST35 TOW 3	ST17 TOW 4	ST30 TOW 5	ST109 TOW 6	ST20 TOW 7	ST10 TOW 8	ST101 TOW 9	ST105 TOW 10	ST104 TOW 11	ST106 TOW 12	ST103 TOW 13	ST107 TOW 14	ST8 TOW 15	ST7 TOW 16	ST102 TOW 17
10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13	0	29	0	0	117	0	66	0	14	0	0	0	0	0	0	0	0
14	0	29	107	157	0	0	199	0	0	0	0	63	0	31	0	0	0
15	128	29	107	157	0	0	331	0	0	0	20	63	0	0	62	52	0
16	256	87	215	79	351	48	66	0	14	0	0	253	0	0	62	155	0
17	256	144	515	314	701	24	596	498	14	0	0	316	0	62	373	670	77
18	384	115	258	629	935	170	1588	782	81	0	138	316	20	92	498	876	0
19	128	58	150	79	467	170	1059	995	27	0	157	189	39	339	373	928	334
20	576	87	215	157	234	267	2118	1137	190	0	216	442	20	585	1120	773	462
21	768	375	344	629	935	388	2515	782	203	0	138	758	178	554	1058	876	283
22	1601	317	580	550	1636	364	1787	995	230	107	413	1074	178	985	1742	309	334
23	1857	722	816	1493	2687	339	1456	569	244	71	315	1389	336	985	2302	412	385
24	704	462	923	1415	2103	727	1191	924	176	95	295	1895	395	1139	1493	567	514
25	896	491	451	1336	2337	461	463	640	163	226	256	1263	533	554	996	567	514
26	896	548	472	786	1168	509	662	924	190	71	315	821	257	523	747	464	668
27	384	260	472	629	2103	388	463	426	108	143	275	1137	276	277	373	309	514
28	256	231	258	393	584	194	662	711	108	238	256	568	513	246	622	206	257
29	192	58	86	157	351	242	397	355	122	143	157	126	237	216	373	258	154
30	192	58	21	236	584	97	199	355	95	143	197	189	355	185	249	206	385
31	192	0	64	79	0	194	265	213	81	131	39	253	237	92	311	103	206
32	128	58	21	0	0	145	66	0	27	107	59	63	217	216	124	52	103
33	0	29	21	79	117	121	66	142	27	95	59	0	118	123	62	103	128
34	128	0	0	79	117	48	66	142	27	83	79	126	79	62	62	0	51
35	64	0	43	0	117	24	0	0	14	36	39	189	79	31	62	0	0
36	0	0	0	0	0	97	0	0	0	60	0	126	39	0	62	0	51
37	0	0	0	0	117	73	66	0	0	24	20	0	39	62	0	0	26
38	0	0	0	0	0	0	0	0	0	36	0	0	0	0	0	0	0
39	0	0	0	0	0	24	0	0	0	12	0	0	20	0	0	52	0
40	0	0	0	0	0	0	0	0	0	12	0	0	0	0	0	0	26
41	0	0	0	0	0	48	0	0	0	24	0	0	0	0	0	0	0
42	0	0	0	0	0	0	0	0	0	12	0	0	0	0	0	0	0
43	0	0	0	0	0	0	0	0	0	0	0	0	0	31	0	0	26
44	0	0	0	0	0	24	0	0	0	0	0	0	0	0	0	0	0
45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

FEMALES

Carapace Length	ST1 TOW 1	ST2 TOW 2	ST35 TOW 3	ST17 TOW 4	ST30 TOW 5	ST109 TOW 6	ST20 TOW 7	ST10 TOW 8	ST101 TOW 9	ST105 TOW 10	ST104 TOW 11	ST106 TOW 12	ST103 TOW 13	ST107 TOW 14	ST8 TOW 15	ST7 TOW 16	ST102 TOW 17
10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12	0	0	0	0	0	0	66	0	0	0	0	0	0	31	0	0	0
13	0	0	0	0	0	24	331	0	0	0	0	0	0	0	0	52	0
14	0	0	21	79	0	0	265	0	0	0	20	189	0	31	0	103	0
15	192	231	150	236	234	24	596	71	0	0	20	189	0	31	62	155	0
16	384	260	387	629	584	145	331	71	0	0	79	505	0	31	311	515	26
17	512	231	601	943	351	145	860	426	81	0	20	758	0	123	311	722	231
18	448	173	365	550	1052	218	1390	995	14	24	59	947	0	123	373	1082	180
19	576	173	172	550	1285	121	1456	1422	244	12	157	253	20	308	871	979	283
20	960	173	687	236	1168	339	1986	1493	163	12	295	1074	39	554	1120	1134	385
21	1345	433	580	786	1519	267	2052	1066	108	24	197	1642	138	893	1182	412	385
22	1537	375	580	707	1519	388	1125	1350	122	83	216	2021	118	800	1307	155	180
23	1280	548	387	1257	2804	412	331	355	41	95	59	1074	197	616	1120	361	77
24	384	289	429	1179	1753	218	265	213	41	95	39	1011	197	92	498	52	51
25	320	115	86	393	818	267	0	71	54	71	39	442	99	0	187	155	103
26	128	0	21	157	234	145	0	71	14	48	59	63	20	92	0	206	77
27	64	29	21	79	0	73	132	0	0	0	20	63	0	31	0	103	0
28	0	0	0	79	0	73	132	142	14	12	0	0	0	0	0	103	0
29	64	0	0	0	0	24	0	0	0	0	0	0	0	0	0	0	0
30	0	0	0	0	0	48	0	0	0	0	0	0	0	0	0	103	0
31	0	0	0	0	0	24	0	0	0	0	0	0	0	0	0	52	0
32	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
33	0	29	0	0	0	48	0	0	0	0	0	0	0	0	0	0	0
34	0	29	0	0	0	24	0	0	0	0	0	0	0	0	0	0	0
35	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
36	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
37	0	0	0	0	0	0	0	0	14	0	0	0	0	0	0	0	0
38	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
39	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
40	0	0	0	0	0	24	0	0	0	0	0	0	0	0	0	0	0
41	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
42	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
43	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
44	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0