

R1/6

Not to be cited without prior reference to the Marine Laboratory, Aberdeen

FRV *Clupea*

Cruise 1499C

REPORT

24 August - 8 September 1999

Personnel

J Kinnear (In charge)
C Shand
I Tuck
A Weetman
M Cryer Visitor (NIWA)

Objectives

- a) To obtain estimates of distribution and abundance of *Nephrops* in the Moray Firth and Firth of Forth using underwater cameras.
- b) To collect sediment samples at each station.
- c) To use trawl caught samples of *Nephrops* to examine biological features at different sites throughout the survey areas and to collect samples for hydrocarbon analysis.
- d) The TV survey will also be used to collect data on other potential commercial species, if time permits.

Out-time Days per Project: 16 days MO1T

Narrative

Clupea sailed from Fraserburgh at 1100 hours on Tuesday 24 August 1999 and steamed for the Firth of Forth. Television survey work commenced at 0800 hours on the 25th starting at the most easterly stations in the Firth of Forth and working south and west. The initial survey in the Forth consisted of 40 stations, which were completed by the evening of the 27th. An additional 15 extra stations were then added which were selected using adaptive survey methods. Sediment samples were taken at each station and stored for future analysis. Three trawls were undertaken for samples. *Clupea* left the Firth of Forth on the evening of the 29th and steamed to Fraserburgh for the half landing.

Work recommenced in the Moray Firth on the 31st. A complete failure of the ship's navigation computer meant that *Clupea* had to return to Fraserburgh for repairs. Repairs were done overnight and a further 54 stations were completed during the next six days. Sediment samples were taken at each station and two trawls were made. On the 6th and 7th initial trials were conducted to evaluate methods of estimating burrow occupancy rates. *Clupea* returned to Fraserburgh on the evening of the 7th and was off-loaded the following day.

Results

Preliminary estimates of mean *Nephtys* burrow density for each station are shown in Table 1. The distribution and comparative densities are shown on the charts.

More detailed analysis of the video tapes will be conducted in the Laboratory.

J Kinnear
14 September 1999

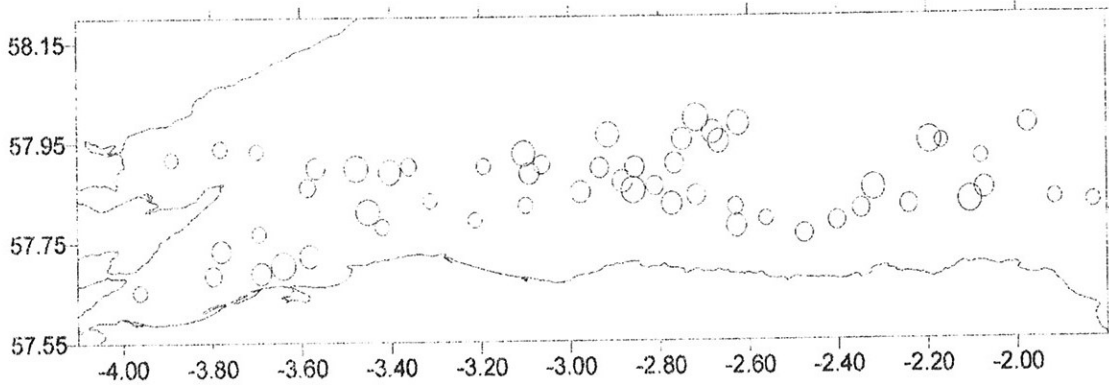
Seen in draft: A Simpson, OIC

Nephrops norvegicus TV Survey 1999

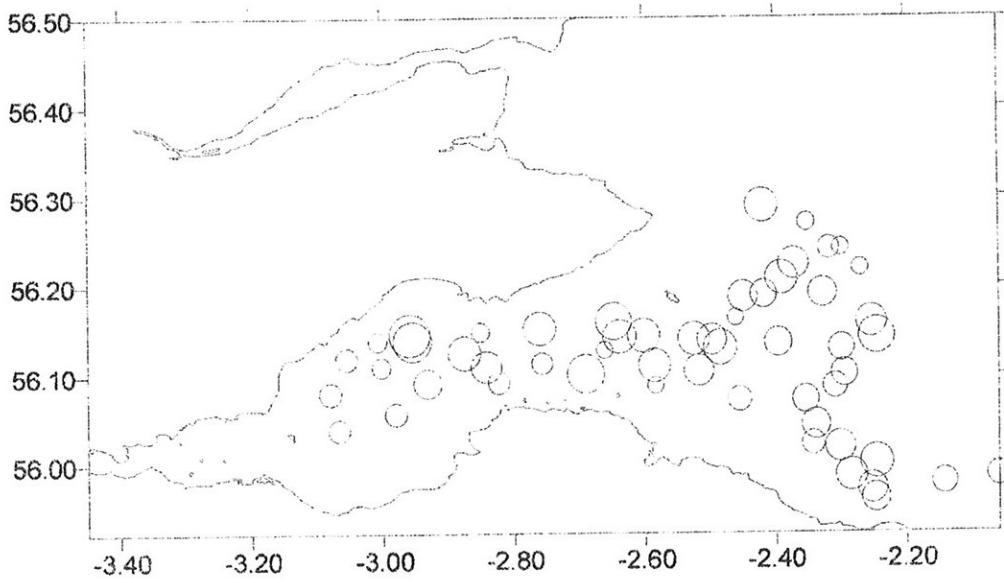
MORAY				FIRTH OF FORTH			
Haul No.	Latitude	Longitude	Nephrops burrows 10m2	Haul No.	Latitude	Longitude	Nephrops burrows 10m2
99701	57.8212	-1.8302	0.00	99801	56.2702	-2.3515	0.62
99702	57.9778	-1.9740	2.72	99802	56.2410	-2.3173	2.71
99703	57.8482	-2.0723	3.03	99803	56.2415	-2.2993	0.30
99704	57.9118	-2.0790	0.43	99804	56.2188	-2.2695	0.38
99705	57.9457	-2.1943	5.82	99805	56.1913	-2.3272	6.39
99706	57.8170	-2.2408	2.03	99806	56.2078	-2.3905	8.31
99707	57.8090	-2.3478	2.19	99807	56.2890	-2.4193	8.69
99708	57.7857	-2.4022	2.08	99808	56.1870	-2.4492	6.84
99709	57.7908	-2.5807	0.00	99809	56.1360	-2.3953	6.00
99710	57.8385	-2.7167	2.84	99810	56.1300	-2.4843	8.95
99711	57.8488	-2.8573	5.56	99811	56.1437	-2.6008	8.28
99712	57.8955	-2.8543	2.72	99812	56.1047	-2.5165	7.14
99713	57.9465	-2.6663	4.07	99813	56.1128	-2.7560	2.54
99714	57.9938	-2.7168	6.27	99814	56.1273	-2.6605	0.00
99715	57.9805	-2.9140	5.14	99815	56.1425	-2.6377	8.81
99716	57.9245	-3.1022	5.17	99816	56.1103	-2.5843	8.11
99717	57.8837	-3.0902	3.09	99817	56.0878	-2.5832	0.00
99718	57.8460	-2.9762	3.51	99818	56.0723	-2.4547	4.05
99719	57.8193	-3.0890	0.22	99819	56.0230	-2.3422	3.59
99720	57.7910	-3.2118	0.00	99820	56.0190	-2.3007	7.33
99721	57.8308	-3.3118	0.00	99821	56.0015	-2.2453	8.66
99722	57.8088	-3.4510	5.47	99822	55.9613	-2.2467	6.17
99723	57.9002	-3.3592	1.09	99823	55.9793	-2.1425	4.59
99724	57.8970	-3.4763	5.57	99824	55.9872	-2.0600	3.69
99725	57.8983	-3.5662	2.81	99825	56.1592	-2.2530	7.58
99726	57.8587	-3.5842	1.02	99826	56.1298	-2.2983	5.19
99727	57.9320	-3.6977	0.00	99827	56.1015	-2.2938	5.31
99728	57.9372	-3.7787	0.13	99828	56.0870	-2.3080	3.98
99729	57.9167	-3.8885	0.00	99829	56.0722	-2.3535	5.48
99730	57.7663	-3.6942	0.00	99830	56.0915	-2.8222	2.87
99731	57.7315	-3.7782	3.17	99831	56.0907	-2.9307	6.52
99732	57.8497	-3.9607	0.00	99832	56.0567	-2.9792	3.24
99733	57.6833	-3.7960	1.86	99833	56.0382	-3.0883	2.87
99734	57.6875	-3.6885	3.25	99834	56.0797	-3.0792	3.16
99735	57.7210	-3.5797	3.35	99835	56.1187	-3.0547	2.96
99736	57.7023	-3.6395	6.17	99836	56.1092	-3.0012	1.55
99737	57.7785	-3.4188	0.05	99837	56.1452	-2.9583	12.76
99738	57.8888	-3.4017	4.87	99838	56.1252	-2.8750	8.60
99739	57.8990	-3.1925	0.05	99839	56.1483	-2.8502	1.16
99740	57.9015	-3.0630	1.53	99840	56.1517	-2.7600	8.33
99741	57.8947	-2.9327	2.52	99841	56.1008	-2.6895	10.91
99742	57.8870	-2.8817	3.32	99842	56.1092	-2.8415	7.37
99743	57.8570	-2.8097	1.94	99843	56.1382	-3.0070	1.45
99744	57.9032	-2.7650	2.70	99844	56.1382	-2.9545	11.42
99745	57.9508	-2.7483	3.28	99845	56.1597	-2.8470	10.09
99746	57.9652	-2.6797	4.00	99846	56.1403	-2.5242	7.95
99747	57.9828	-2.6220	4.77	99847	56.1390	-2.4968	6.97
99748	57.8215	-2.7715	3.68	99848	56.1430	-2.2448	10.00
99749	57.7768	-2.6270	3.70	99849	56.0440	-2.3378	6.52
99750	57.8152	-2.6295	1.08	99850	55.9872	-2.2843	7.75
99751	57.7605	-2.4752	1.99	99851	55.9720	-2.2517	7.04
99752	57.8515	-2.3197	5.37	99852	56.1630	-2.4607	0.00
99753	57.9437	-2.1667	0.00	99853	56.1897	-2.4175	5.36
99754	57.8290	-1.9155	0.06	99854	56.2238	-2.3710	7.55
99755	57.8253	-2.1040	5.92				

Table 1. Preliminary results.

MORAY FIRTH



FIRTH OF FORTH



Provisional data showing the variation in Nephrops burrow densities in the Moray Firth and Firth of Forth