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FRV *Clupea*

Cruise 1498C

REPORT

14-31 August 1998

Personnel

J Kinnear	B2 (in charge)
C Shand	B2
D Bova	B1
A Weetman	A4 (14-21 August)

Objectives

a) To obtain estimates of distribution and abundance of *Nephrops* in the Firth of Clyde and South Minch using underwater cameras (if time permits stations in the North Minch will be sampled).

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.

d) The TV survey will also be used to collect data on other potential commercial species.

Out-turn days per project: 18 days MO1T

Narrative

Clupea sailed from Fraserburgh at 1400 hours on Friday 14 August and steamed for the Clyde. Television survey work commenced at 0800 hours on the 16th. Weather conditions were poor for TV work, but all the Clyde stations were completed by the 19th. Weather conditions deteriorated still further on the 20th, preventing *Clupea* from steaming to the West side of Kintyre. *Clupea* then made for Campbeltown for the half landing. Continuing poor weather prevented the vessel from sailing until the evening of the 22nd. *Clupea* then sailed to Tiree Passage where work recommenced at 0730 hours on the 23rd. Steady progress was made although the stations at Stanton Bank were not attempted due to the continuing poor weather and two of the most southerly stations in the South Minch had to be abandoned. All the other stations in the area were completed by the 27th. *Clupea* then steamed north and completed a five extra stations in the North Minch finishing the last station in Loch Snizort at 2300 hours on the 28th. *Clupea* then steamed for Fraserburgh, docking at 1700 hours on the 29th. Water samples were collected *en route* in the Moray Firth for ASP analysis.

Methods

Stations were selected randomly by computer within muddy substrate types as identified by BGS sediment data charts and known *Nephrops* grounds. A total of 91 television sledge runs of 10 minutes duration were made. Calculation of the area surveyed in each run are made by using a rangefinder to monitor the height of the camera from the sea bed, and distance travelled by the sledge was accurately measured using an electronic signal from an odometer wheel. Preliminary counts of burrow numbers were made during each run and the material recorded on video tape. Sediment samples were taken for particle size analysis at each suitable station using a Day Grab. The samples will by analysed in the Laboratory using laser particle size analysis.

Trawl hauls of 30 minutes duration (50 mm prawn trawl BT 149B) were conducted specific sites, *Nephrops* were measured, sexed and the reproductive stages of the females were noted. The information will be used in the stock biomass calculations.

Summary of TV and Trawl Data

The attached chart shows the relative positions of the camera and trawl stations. Forty-two television stations were completed in the South Minch, 44 in the Clyde and five in the North Minch. Eight trawl stations were also completed, five in the South Minch and two in the Clyde. (+ one foul haul not recorded). The trawls were made on varying mud sediments according to the BGS charts and direct observation of sediment type.

Preliminary estimates of mean *Nephrops* burrow density for each station are shown in Table 1. More detailed analysis of the video tapes will be conducted in the Laboratory. Mean size of *Nephrops* and the % of mature females in the catch are shown in Table 2 for each trawl station.

J Kinnear
30 September 1998

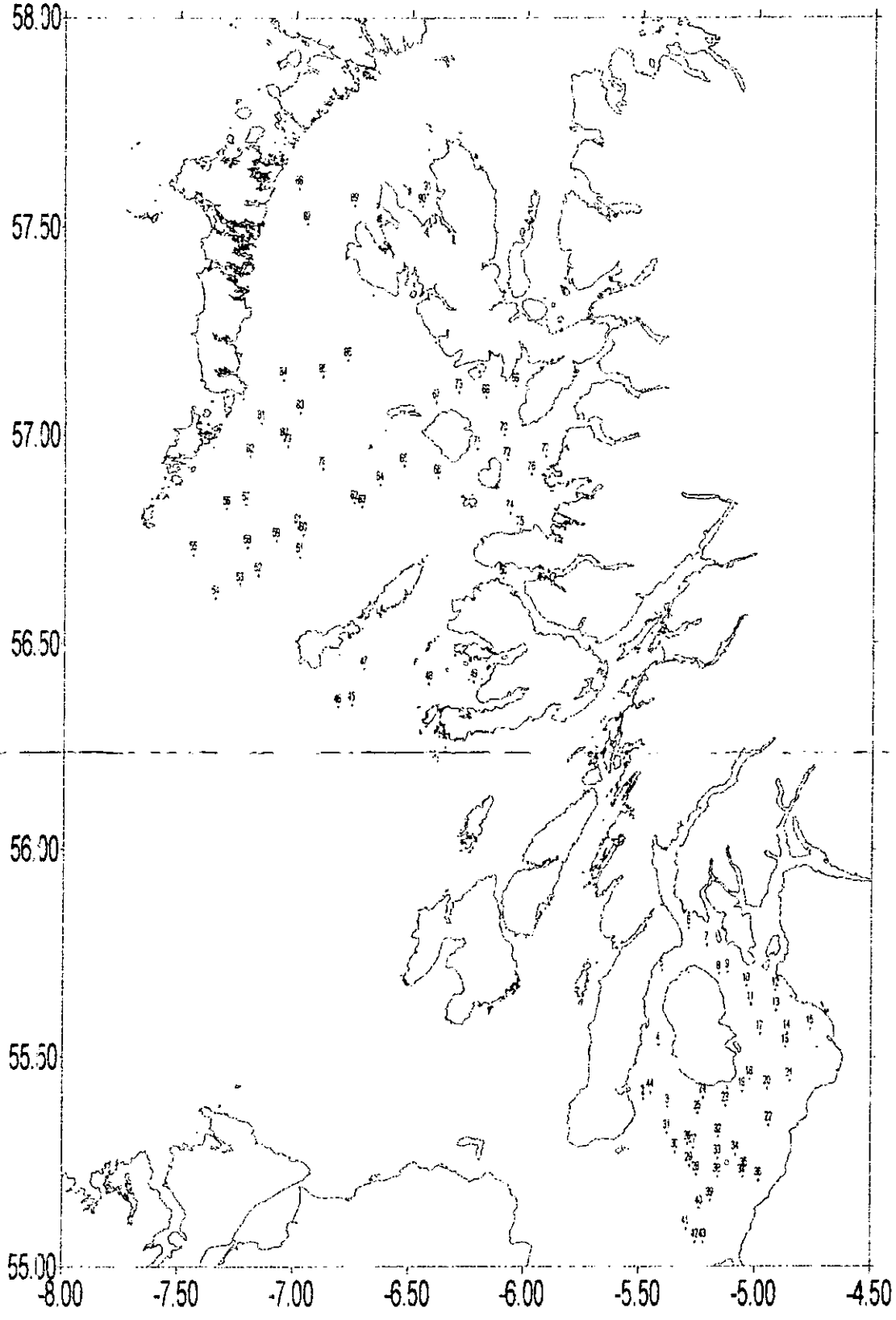
Seen in draft: A Simpson, OIC

CLYDE				SOUTH MINCH			
Haul No.	Latitude N	Longtitude W	Nephrops burrows per 10m2	Haul No.	Latitude N	Longtitude W	Nephrops burrows per 10m2
1.00	55.4033	-5.4817	2.80	45.00	56.3510	-6.7557	0.22
2.00	55.4033	-5.4817	7.47	46.00	56.3468	-6.8167	0.00
3.00	55.3833	-5.3767	4.65	47.00	56.4372	-6.7028	7.49
4.00	55.5300	-5.4183	3.07	48.00	56.4007	-6.4215	6.15
5.00	55.7083	-5.4050	6.93	49.00	56.4052	-6.2257	4.42
6.00	55.8108	-5.2887	6.71	50.00	56.6555	-6.0972	10.23
7.00	55.7700	-5.2100	6.42	51.00	56.7085	-6.9818	5.43
8.00	55.7017	-5.1583	2.75	52.00	56.6633	-7.1617	1.99
9.00	55.7050	-5.1217	6.36	53.00	56.6417	-7.2400	na
10.00	55.6717	-5.0400	6.80	54.00	56.6083	-7.3450	na
11.00	55.6267	-5.0183	na	55.00	56.7133	-7.4433	1.55
12.00	55.6600	-4.9133	2.59	56.00	56.8217	-7.2983	1.34
13.00	55.6117	-4.9100	0.64	57.00	56.8317	-7.2150	1.37
14.00	55.5583	-4.8633	na	58.00	56.7300	-7.2083	1.24
15.00	55.5683	-4.7633	2.42	59.00	56.7467	-7.0833	2.18
16.00	55.5250	-4.8700	3.49	60.00	56.7600	-6.9683	1.20
17.00	55.5567	-4.9783	7.63	61.00	56.7783	-6.9900	2.03
18.00	55.4467	-5.0233	7.82	62.00	56.8350	-6.7483	2.71
19.00	55.4200	-5.0550	4.95	63.00	56.8250	-6.7150	3.26
20.00	55.4250	-4.9467	5.88	64.00	56.8800	-6.6367	2.61
21.00	55.4433	-4.8500	2.91	65.00	56.9233	-6.5333	5.57
22.00	55.3400	-4.9400	0.00	66.00	56.8950	-6.3867	5.18
23.00	55.3867	-5.1267	1.21	67.00	57.0750	-6.3933	10.00
24.00	55.4067	-5.2233	13.28	68.00	57.0867	-6.1750	7.97
25.00	55.3683	-5.2467	6.71	69.00	57.1133	-6.0483	3.77
26.00	55.2950	-5.2900	13.60	70.00	56.9983	-6.0967	7.34
27.00	55.2867	-5.2650	7.64	71.00	56.9650	-6.2133	12.67
28.00	55.2233	-5.2500	11.29	72.00	56.9383	-6.0833	11.88
29.00	55.2450	-5.2817	0.00	73.00	56.8100	-6.0700	0.21
30.00	55.2750	-5.3433	2.56	74.00	56.7717	-6.0267	12.52
31.00	55.3217	-5.3783	7.47	75.00	56.9033	-5.9783	9.52
32.00	55.3117	-5.1583	8.45	76.00	56.9467	-5.9167	6.52
33.00	55.2617	-5.1600	1.52	77.00	56.9167	-6.8850	6.30
34.00	55.2700	-5.0817	na	78.00	56.9717	-7.0367	8.26
35.00	55.2317	-5.0450	14.07	79.00	56.9883	-7.0533	11.47
36.00	55.2083	-4.9817	0.00	80.00	57.0283	-7.1500	11.77
37.00	55.2167	-5.0517	7.94	81.00	56.9483	-7.1983	6.35
38.00	55.2183	-5.1600	5.10	82.00	57.0517	-6.9833	5.76
39.00	55.1600	-5.1917	11.10	83.00	57.1300	-7.0550	5.33
40.00	55.1417	-5.2383	8.14	84.00	57.1367	-6.8850	4.37
41.00	55.0917	-5.2950	10.56	85.00	57.1767	-6.7767	4.53
42.00	55.0600	-5.2567	3.06	86.00	57.1000	-6.2967	7.22
43.00	55.0600	-5.2217	10.69		NORTH	MINCH	
44.00	55.4167	-5.4517	11.61	87.00	57.5067	-6.9533	2.54
				88.00	57.5917	-6.9883	7.31
				89.00	57.5500	-6.7500	13.52
				90.00	57.5483	-6.4583	8.42
				91.00	57.5783	-6.4350	9.54

Table 1. Preliminary TV station results.

Area	Haul No.	Lat.	Long.	Mean size		% females
				Males	Females	mature
Clyde	T1	55.5540	-4.9745	30.2	28.7	58.5
Clyde	T2	55.2188	-5.1845	24.5	23.0	37.1
S.Minch	T3	56.4150	-6.2800	26.2	25.1	37.1
S.Minch	T4	56.8412	-7.2427	29.6	28.9	76.0
S.Minch	T5	56.8930	-6.3842	32.8	30.5	72.1
S.Minch	T6	56.9317	-6.0717	27.9	26.4	51.4
S.Minch	T7	57.0250	-7.1330	37.8	31.5	75.0

Table 2. Trawl summary.



Clupea Nephrops cruise 1998 - TV monitoring positions