

R1/6

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

FRV *Clupea*

Cruise 1005C

REPORT

15-29 July 2005

Ports

Loading: Fraserburgh

Sailing: Fraserburgh

Unloading: Fraserburgh

Half Landing: Fraserburgh

Personnel

A Weetman (In Charge)

C Shand

B Ward

Gear

50 mm prawn trawl BT 149B

Day grab and table

Towed TV sledge, umbilical towing cable and cameras (plus backup)

TV drop frame

Objectives

- To obtain estimates of distribution and abundance of *Nephrops* in the Firth of Forth and Moray Firth using underwater cameras.
- To collect sediment samples at each station.
- To use trawl caught samples of *Nephrops* to examine biological features at different sites throughout the survey areas.
- The TV survey will also be used to collect data on other benthic fauna.

Out-turn days per project: 15 days RV0506

Narrative

FRV *Clupea* sailed from Fraserburgh on 15 July 2005, and initially headed north to the Southern Trench, where the TV system and umbilical cable could be tested in deeper water. Following this satisfactory trial at a planned Moray Firth station, the vessel then headed south in poor weather to the Firth of Forth, arriving at St Andrews Bay at 2300. On the first day of survey work, the vessel worked through the stations in a south easterly direction, clearing the more exposed sites while the weather remained relatively calm, covering

thirteen sites before anchoring at Pease Bay that evening. 17 July was calm and bright allowing a further thirteen stations to be cleared that day before *Clupea* anchored at the Isle May for the night. Working west into the Firth of Forth on 18 July, 11 stations were recorded on the south side of the firth and trawling for *Nephrops* was carried out in the evening prior to anchoring off Preston Pans. The following morning, *Clupea* covered four stations in a north easterly direction, heading towards fishing grounds where the largest number of *Nephrops* had been observed out of their burrows at midday on the previous day. Trawling took place over a thirty minute period, but upon hauling, the net was found to be badly damaged. With a north west force 7 wind being predicted for the following day, TV work resumed on the exposed six stations on the south side of the firth in worsening weather, before heading back north to the sheltered anchorage in Kirkcaldy Bay. On 20 July, five TV stations were completed before trawling was carried out over previously surveyed grounds with the back up trawl. Although the catch was very poor, the *Nephrops* were of a larger than average size, as expected. The final five stations along the Fife coast were cleared before anchoring in St Andrews Bay for the night having covered 57 TV sites and three *Nephrops* trawl stations for the area. Leaving the bay at 0730, *Clupea* headed for Fraserburgh in calm conditions until Ratray Head, where the northerly swell slowed the vessel considerably, resulting in the vessel not arriving in Fraserburgh until 1900 that night. The following day was spent in port. On 23 July, *Clupea* headed north into poor conditions, which were not suitable for TV operations. As a result three fishing trawls were carried out covering varied, but suitable, *Nephrops* habitat. Due to the sea conditions, *Clupea* returned to Fraserburgh for the night. *Clupea* headed west the next day, but the sea remained too rough for work to take place until midday when the vessel was off Lossiemouth. As the vessel worked further west, the conditions became more favourable, and by the close of 24 July, eight TV sites had been covered for the day before anchoring in the shelter of Golspie Bay. On 25 July the last ten stations in the Cromarty and Dornoch Firths were completed, followed by a fishing tow and with the vessel anchoring again in Golspie Bay. The state of the sea on 26 July had improved so that the more offshore stations could be surveyed, followed by a trawl tow over previously recorded ground, with a total of eight TV stations and one trawl tow for the day, with the vessel anchoring off Cullen for the night. 27 July was a bright and calm day, and 13 TV stations were covered with little trouble and with the vessel anchoring at Aberdour Bay for the night. On the final day, *Clupea* worked in a large circle in a clockwise direction at the eastern edge of the Moray Firth in conditions that improved greatly as the day progressed. Eight stations were completed before *Clupea* headed to Fraserburgh to begin unloading. The scientific staff left *Clupea* at 1100 on 29 July.

Results

The position of the TV stations and trawl tows are shown on the tables below. Sediment samples were collected at all suitable sites. Video recordings of *Nephrops* burrow densities have been verified, with the results yet to be analysed at the Laboratory.

Nephrops' biological and morphometric data has been collated and will be used as part of the EU data gathering regulations and towards Working Group requirements.

A large unsorted catch of *Nephrops* has been supplied for MSc course work, studying spatial *Nephrops* morphometric variability.

Five samples of 0 group cod have been collected for further study by the Population Biology Group.

In the Firth of Forth 57 TV stations were recorded, and three fishing tows. In the Moray Firth 48 TV stations and five tows were completed. This has provided an improved coverage of both areas, which was made possible mainly due to the reduced time spent at each station by using the remotely operated, sledge mounted mini-Day Grab.

29 still images were taken using a Hassleblad camera, capturing a range of subjects, including scallops, anemones, groups of hermit crabs and *Nephrrops* burrows.

A Weetman
19 August 2005

Seen in draft: A Simpson, OIC *Clupea*

Firth of Forth TV Stations

						Station Number
56	15.36	N	2	20.94	W	1
56	14.7	N	2	17.4	W	2
56	13.2	N	2	18.84	W	3
56	13.26	N	2	22.62	W	4
56	11.28	N	2	19.26	W	5
56	10.8	N	2	17.7	W	6
56	7.98	N	2	19.26	W	7
56	9.36	N	2	22.8	W	8
56	8.46	N	2	18.6	W	9
56	5.94	N	2	18.48	W	10
56	1.14	N	2	17.76	W	11
56	0.12	N	2	18.96	W	12
55	57.12	N	2	15.42	W	13
55	56.4	N	2	6.3	W	14
55	56.34	N	2	0.24	W	15
55	56.58	N	2	0.96	W	16
55	57.66	N	2	3.78	W	17
56	0.3	N	2	11.7	W	18
55	58.98	N	2	13.26	W	19
56	2.04	N	2	21	W	20
56	3.24	N	2	21.66	W	21
56	4.5	N	2	19.92	W	22
56	6.72	N	2	27.12	W	23
56	8.46	N	2	27.42	W	24
56	9.48	N	2	29.82	W	25
56	8.94	N	2	35.1	W	26
56	5.88	N	2	31.38	W	27
56	4.56	N	2	30.12	W	28
56	6.54	N	2	36.84	W	29
56	8.34	N	2	40.32	W	30
56	7.32	N	2	43.08	W	31
56	6.24	N	2	41.94	W	32
56	5.1	N	2	44.94	W	33
56	6.84	N	2	47.82	W	34
56	6.36	N	2	52.86	W	35
56	4.26	N	2	54.12	W	36
56	4.44	N	3	0.66	W	37
55	58.32	N	3	1.02	W	38
55	59.16	N	3	0.06	W	39
56	0.66	N	2	57.6	W	40
56	2.4	N	2	55.44	W	41
56	2.58	N	3	3.48	W	42
55	59.4	N	3	2.94	W	43
55	58.74	N	3	4.32	W	44
56	0.42	N	3	12.54	W	45
56	1.08	N	3	18.06	W	46
56	2.46	N	3	14.28	W	47
56	5.82	N	3	7.92	W	48
56	4.2	N	3	6.48	W	49
56	7.32	N	3	2.1	W	50
56	9.72	N	2	56.88	W	51
56	8.46	N	2	57	W	52
56	7.2	N	2	58.02	W	53
56	7.44	N	2	55.62	W	54
56	8.58	N	2	48.48	W	55
56	9.96	N	2	45	W	56
56	9.06	N	2	38.82	W	57

Moray Firth TV Stations

						Station Number
57	47.16	N	2	3.48	W	1
57	47.28	N	3	7.5	W	2
57	47.76	N	3	8.34	W	3
57	49.44	N	3	12	W	4
57	50.76	N	3	18.06	W	5
57	53.1	N	3	21.42	W	6
57	53.46	N	3	27.42	W	7
57	53.7	N	3	36.72	W	8
57	53.22	N	3	38.28	W	9
57	55.14	N	3	54.78	W	10
57	53.1	N	3	48.6	W	11
57	53.22	N	3	42.24	W	12
57	56.88	N	3	39	W	13
57	55.08	N	3	32.58	W	14
57	47.76	N	3	31.68	W	15
57	47.04	N	3	37.26	W	16
57	41.52	N	3	45.06	W	17
57	42.72	N	3	44.52	W	18
57	42.9	N	3	39	W	19
57	45.36	N	3	37.62	W	20
57	46.02	N	3	22.5	W	21
57	51.72	N	3	11.4	W	22
57	52.08	N	3	8.64	W	23
57	54.24	N	3	5.34	W	24
57	51.6	N	3	1.08	W	25
57	52.98	N	2	57.36	W	26
57	51.18	N	2	56.7	W	27
57	49.02	N	2	46.98	W	28
57	51.72	N	2	54.36	W	29
57	56.46	N	2	49.86	W	30
57	58.32	N	2	47.58	W	31
57	59.58	N	2	42.12	W	32
57	58.56	N	2	35.34	W	33
57	50.28	N	2	34.98	W	34
57	45.96	N	2	36.42	W	35
57	46.74	N	2	37.14	W	36
57	44.58	N	2	29.1	W	37
57	45.72	N	2	27.24	W	38
57	47.4	N	2	21.72	W	39
57	46.44	N	2	18	W	40
57	48.66	N	2	10.92	W	41
57	50.64	N	2	16.92	W	42
57	55.02	N	2	17.94	W	43
57	56.82	N	2	15.18	W	44
57	56.7	N	2	6.66	W	45
57	53.82	N	2	4.38	W	46
57	53.22	N	2	8.28	W	47
57	51.06	N	1	59.64	W	48

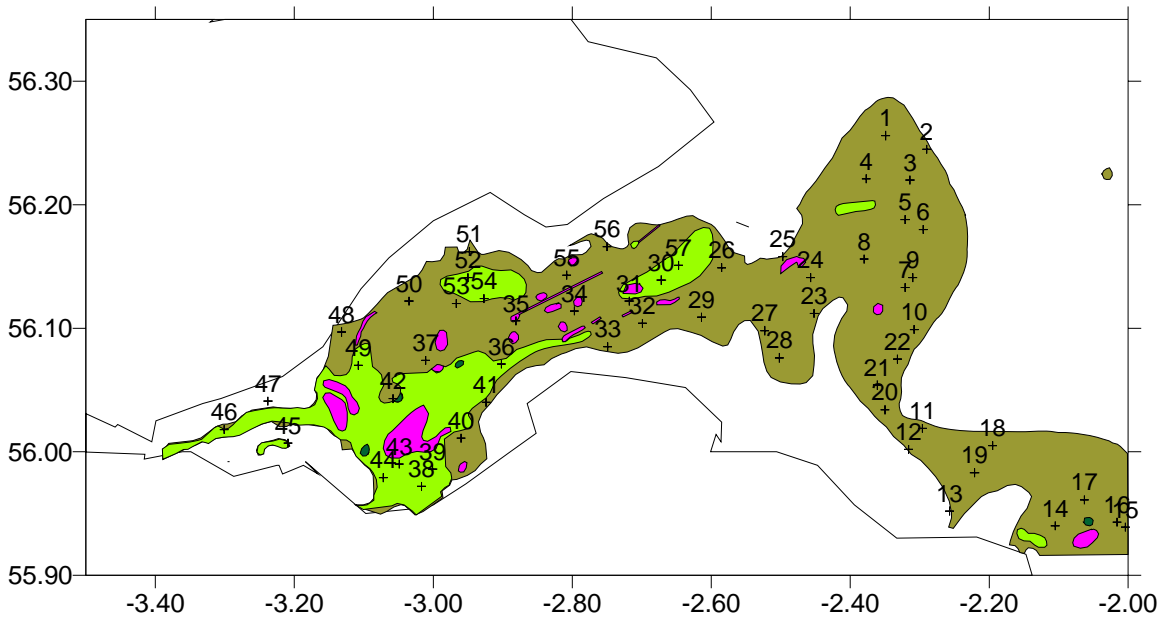
Firth of Forth

Date	Haul Number	Latitude Shot	Longitude Shot	Latitude Hauled	Longitude Hauled
18 07 2005	C05/324	56 04.37N	02 57.93W	56 03.82N	03 00.00W
19 07 2005	C05/325	56 08.30N	02 47.80W	56 09.10N	02 45.75W
20 07 2005	C05/326	56 07.11N	02 58.05W	56 07.37N	02 55.59W

Moray Firth

Date	Haul Number	Latitude Shot	Longitude Shot	Latitude Hauled	Longitude Hauled
23 07 2005	C05/327	57 49.59N	02 01.02W	57 49.59N	02 05.03W
23 07 2005	C05/328	57 46.55N	02 27.35W	57 45.69N	02 32.57W
23 07 2005	C05/329	57 46.20N	02 21.23W	57 44.61N	02 12.92W
25 07 2005	C05/330	57 44.12N	03 31.68W	57 45.08N	03 28.63W

Firth of Forth 2005



Moray Firth 2005

