

R1/6

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

FRV *Clupea*

Cruise 0398C

REPORT

18-27 February 1998

Personnel

M R Robertson	HSO (in charge)	18-27 February
P J Copland	HSO	18-27 February
E H Pinn	Contract Worker	18-27 February
C W Shand	HSO	18-23 February
P J Barkel	PTO	18-23 February

Gear: RCTV vehicle, RoxAnn, Day grab, Thermosalinograph

Objectives

1. To assess the suitability of the RCTV vehicle as a high-speed ground truthing system for RoxAnn acoustic data.
2. To establish a RoxAnn calibration transect in the Moray Firth.
3. To carry out a preliminary acoustic survey of Guillam Bank.
4. To log continuous surface temperature and salinity data and to collect surface nutrient samples from throughout the area of interest.

Out Turn Days: 10 days BKE1

Narrative

Clupea sailed from Fraserburgh at 1400 hours on Monday 18 February and made for Burghead Bay, arriving there at 2015 hours and dropping anchor for the night. The following morning, trials with the RCTV commenced at 0815 hours off Burghead and over Guillam Bank and continued until 1830 hours when the vessel dropped anchor off Nairn.

At 0745 hours on 20 February, *Clupea* made for positions to the south of Guillam Bank and continued with towed vehicle trials until 1100 hours when a baseline RoxAnn survey of the Bank commenced. Transects, running north/south, were occupied and acoustic data logged during daylight hours until the evening of 22 February when the vessel sailed for Fraserburgh, arriving there at 1930 hours.

On the morning of 23 February, after scientific staff had disembarked and the RCTV plus all ancillary equipment were unloaded, *Clupea* sailed for positions off Fraserburgh to carry out RoxAnn calibration runs. This task was completed by 1600 hours and the vessel then sailed for and occupied the first cyst sampling station north of Kinnairds Head. Sampling for cysts

continued for the rest of that day and throughout the following day until 1900 hours when the vessel moved to Dunbeath Bay for the night.

Further RoxAnn transects were occupied during 25 February and Day grab comparisons were carried out during 26 February.

All work was completed by 1000 hours on 26 February and *Clupea* sailed for Fraserburgh, arriving there at 1200 hours.

Results

1. Over four days, the RCTV system was deployed a total of 16 times and towed at various heights above the seabed and at speeds varying from three to seven knots (see Table 1). Four hours of video observations of the sediments encountered were also recorded. The RCTV sledge proved to be an effective and useful ground-truthing tool at speeds of up to four knots however, at higher speeds, problems with the towing and steering systems were encountered. A marked drop in video quality at these higher speeds was also noted.
2. A RoxAnn calibration track was established off Fraserburgh, positions: 57°44.00'N 02°09.379'W and 57°42.989'N 02°00.00'W. The 4.5 mile transect was occupied four times. Acoustic data were obtained by hull and shark transducers while ground-truthing sediment samples were collected by Day grab.
3. A preliminary survey of Guillam bank was completed. Acoustic, video and ground-truthing data were collected from throughout the area and will be analysed later in the laboratory.
4. Surface salinity and nutrient samples were collected from throughout the Moray Firth.
5. RoxAnn acoustic data were logged from 16 NW and from 7 E/W transects in the Moray Firth (see Table 2). The information collected will be added to an existing database and analysed later at the Laboratory.
6. A total of 14 grab stations were occupied and samples collected for dinoflagellate cyst analysis (see Table 2).

M R Robertson
25 June 1998

Seen in draft: A Simpson, OIC

Table 1
RCTV Tows
Clupea 0398C

Date	Tow No.	Start Lat	Start Long	End Lat	End Long	Tow Speed (knots)	Water Depth (metres)	Duration (minutes)	Comments
19-02-98	1	57 43.590N	03 31.534W	57 42.931N	03 32.888W	3	35	22	
19-02-98	2	57 44.476N	03 27.906W	57 44.960N	03 25.993W	4.5	32	20	
19-02-98	3	57 45.375N	03 23.097W	-	-	6.5	-	-	Lost drive to rotors
19-02-98	4	57 45.494N	03 22.217W	-	-	6.5	-	-	Chain off rotors
19-02-98	5	57 45.716N	03 20.370W	57 44.960N	03 25.404W	3-7	32	20	
19-02-98	6	57 44.286N	03 44.764W	57 41.972N	03 49.847W	3-5	37	30	
20-02-98	7	57 41.704N	03 49.523W	57 43.763N	03 45.279W	3	22.5	15	
20-02-98	8	57 40.592N	03 47.958W	57 41.882N	03 44.787W	5	45	25	
20-02-98	9	57 40.691N	03 49.000W	57 42.029N	03 44.738W	3	52	20	
21-02-98	10	57 41.400N	03 40.000W	57 42.783N	03 39.825W	3	25	30	
21-02-98	11	57 53.422N	03 49.624W	57 54.445N	03 49.735W	3-4	19	16	
21-02-98	12	58 01.270N	03 45.368W	58 00.129N	03 45.155W	4	27	20	
21-02-98	13	57 54.198N	03 40.082W	57 55.386N	03 39.952W	4	42	30	
21-02-98	14	58 05.216N	03 34.995W	58 04.000N	03 34.972W	4	21	20	
22-02-98	15	57 50.860N	03 29.972W	57 890N	03 29.776W	4	46	20	
22-02-98	16	58 03.095N	03 29.666W	58 04.000N	03 29.551W	4	36	20	

Table 2

RoxAnn Transects

Clupea 0398C

	Tow No.	Start Lat	Start Long	End Lat	End Long
NS Transects	1	57 37.50N	03 50.00W	57 46.00N	03 50.00W
	2	57 53.00N	03 50.00W	57 59.00N	03 50.00W
	3	57 47.50N	03 45.00W	57 39.00N	03 45.00W
	4	57 53.30N	03 45.00 W	58 02.00N	03 45.00W
	5	57 41.40N	03 40.00W	58 04.00N	03 40.00W
	6	58 06.00N	03 35.00W	57 42.80N	03 35.00W
	7	57 43.50N	03 30.00W	58 08.00N	03 30.00W
	8	58 14.00N	03 25.00W	57 44.70N	03 25.00W
	9	57 45.20N	03 20.00N	58 14.00N	03 20.00W
	10	58 14.00N	03 15.00W	57 44.30N	03 15.00W
	11	57 43.75N	03 10.00W	58 14.00N	03 10.00W
	12	58 14.00N	03 05.00W	57 43.80N	03 05.00W
	13	57 43.00N	03 00.00W	58 14.00N	03 00.00W
	14	58 14.00N	02 55.00W	57 42.60N	02 55.00W
	15	57 42.60N	02 50.00W	58 14.00N	02 50.00W
	16	58 14.00N	02 45.00W	57 42.00N	02 45.00W
EW Transects	1	57 41.50N	03 53.70W	57 41.50N	03 39.00W
	2	57 46.50N	03 48.00W	57 46.50N	02 42.50W
	3	57 51.50N	02 42.50W	57 51.50N	03 44.50W
	4	57 56.50N	03 55.00W	57 56.50N	02 42.50W
	5	58 01.50N	02 42.50W	58 01.00N	03 51.00W
	6	58 04.50N	03 42.00W	58 06.50N	02 42.50W
	7	58 11.50N	02 42.50W	58 11.50N	03 26.00W

Cyst Grab Stations

Clupea 0398C

Station No	Lat	Long
1	57 42.822N	02 18.637W
2	57 43.272N	02 37.264W
3	57 44.900N	02 55.898W
4	57 45.464N	03 15.000W
5	57 42.800N	03 35.000W
6	57 40.000N	03 53.343W
7	57 38.145N	04 00.000W
8	57 41.100N	04 06.000W
9	57 43.832N	03 53.343W
10	57 50.000N	03 45.000W
11	57 55.900N	03 50.000W
12	58 02.000N	03 45.033W
13	58 10.000N	03 28.200W
14	58 20.000N	03 07.800W