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CRUISE REPORT

FREDERICK RUSSELL 22/84

NATURAL ENVIRONMENT RESEARCH COUNCIL

INSTITUTE FOR MARINE ENVIRONMENTAL RESEARCH

VESSEL	RRS FREDERICK RUSSELL			
CRUISE PERIOD	7 - 13 December 1984			
PERSONNEL	J A Lindley	SSO		
	A W G John	SSO		
	N R Collins	HSO		
	D B Robins	HSO		
	N C Halliday	SO		
	A Standen	Research Student		
ITINERARY	Friday 7 December	1600	Depart	Plymouth
	Friday 7 December	1806-2052	Station	14
	Saturday 8 December	0029-0326	Station	13
		0953-1442	Station	1
		1754-2030	Station	2
	Sunday 9 December	0010-0218	Station	3
		0618-0912	Station	12
		1212-1424	Station	11a
		Passage through straits of Dover		
	Monday 10 December	0324-0600	Station	4
		1236-1524	Station	9
		1906-2112	Station	8
	10-11 December	2248-0248	Station	8a
	11 December Tuesday	0500-0730	Station	7
		0842-1048	Station	6
		1242-1612	Station	5
		Passage through straits of Dover set course for Lyme Bay (stn 1)		
	12 December Wednesday	1430-1448	Hand net Haul 50°31°N 0°19W	
		Alter course for Plymouth due to deteriorating weather		
	13 December Thursday	0730-1000	Unloaded gear at Plymouth	

OBJECTIVES To study aspects of overwintering strategies of neritic copepods.

(1) To determine the abundance, identity and viability of calanoid copepod eggs in representative sea bed sediments under a range of depths of water. The sediment samples will also be used for the study of dinoflagellate cysts.

(2) To identify aggregations of planktonic calanoid copepods on the sea bed (to feed on sedimented detritus) when suspended food in the water column is scarce and to determine the structure of the populations of calanoid copepods.

(3) To assess the comparative importance of lipid reserves in calanoids, particularly Pseudocalanus elongatus and Acartia clausi.

METHODS

(1) Samples of the sea bed sediment were taken with a Craib corer and a Day grab. Samples of the sediment were divided and part was frozen, part refrigerated, part preserved in formalin and part incubated in filtered sea water.

(2) Samples of plankton were taken with a Macer sledge and a Lowestoft 30" sampler at all stations to compare concentrations of planktonic calanoid copepods near the sea bed with those higher levels in the water column and to assess from the population structures the intensity of successful breeding activity at each station.

(3) Live animals were sorted; some were measured and dried for dry weight and CHN analysis and some placed in chloroform-methanol mixture for lipid analysis by IMB.

RESULTS

(1) Cores were successfully taken at stations 7 and 8a only. Elsewhere various combinations of sediment type, sea state and malfunction of the corer prevented successful coring. Samples were obtained with the grab at stations 1 2 4 5 6 7 8 9 11a and 12.

(2) Lowestoft net and Macer sledge samples were successfully taken at all stations.

(3) Specimens of the small calanoid copepods Acartia clausi and Pseudocalanus elongatus were taken in hand net hauls at stations 2 3 4 12 and an additional haul at 50°31'N 0°19'W. A haul at station 5 contained neither of these species but specimens of Calanus and Hyperiids (Parathemisto) were obtained form this haul. The diatom Rhizosolenia styliformis was abundant at the station. A hand net haul at station 1 contained few copepods but high numbers of the diatom Coscinodiscus wailsii.

(4) Salinity and temperature were recorded continuously throughout the cruise. The salinity varied between 35.4°/₀₀ and 34.5°/₀₀ and temperature ranged from 12.4°c to 9.0°c.

EQUIPMENT AND OPERATIONAL PROBLEMS

(1) Mufax fault. The helix drive clutch did not always engage correctly when the unit was switched on. The helix drive did not always synchronise correctly resulting in garbled traces; this could occur in the middle of an operation. On this cruise these faults constituted an inconvenience and did not affect any operations.

(2) Craib corer faults. The corer proved unreliable in operation, particularly the ball closure mechanism despite numerous adjustments. Attachment of a bungee cord from the horizontal frame to a distal point on the vertical bar which contributes to the ball closure mechanism provided the 4 successful cores. Sea state and drift also caused problems with the deployment of the corer.

(3) Damage to the Macer sledge. The sledge sustained damage during deployment on hard bottoms but this did not prevent successful sampling.

PREPARED BY: J. A. Lindley

APPROVED BY: B. L. Bayne

DATE: 9.1.85.

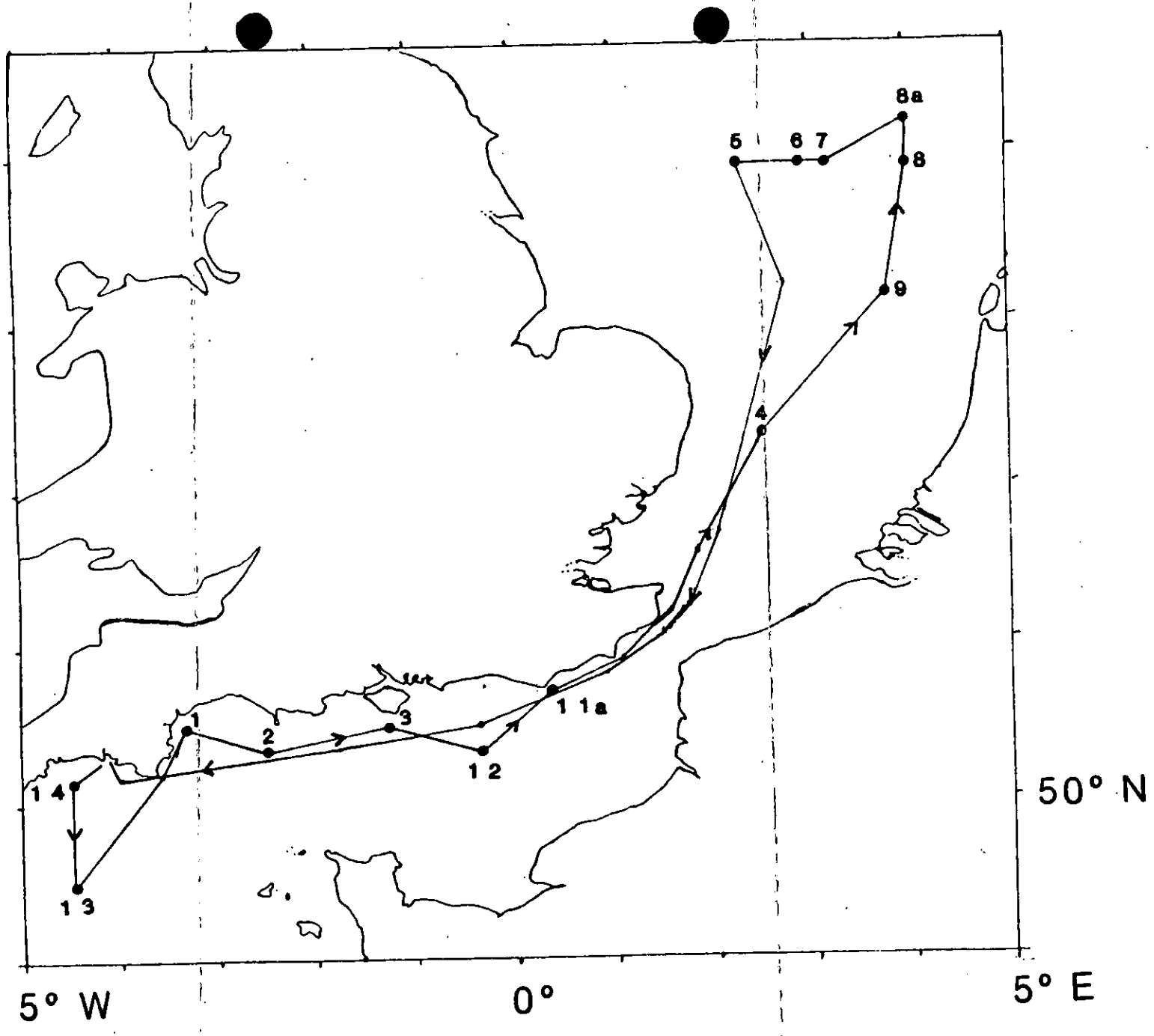
CIRCULATION LIST

Internal	External
B L Bayne	NERC Swindon (Foxton)
G A Robinson	IOS Mrs Edwards (MIAS)
J M Colebrook	DAFS McIntyre
R Williams	RVS Skinner (2)
P C Reid	MBA Denton
Cruise Personnel	MAFF
Notice Board	

TABLE 1. Positions, times, dates, surface temperature and salinity at stations.

STATION	POSITION	DATE	TIME	DEPTH (M)	TEMP °C	SALINITY °/oo
14	50 10'N,4 30'W	7 12 84	1806-2052	60	11.7	35.1
13	49 30'N,4 30'W	8 12 84	0029-0326	84	12.3	35.3
1	50 30'N,3 20'W	8 12 84	0953-1442	26	11.7	35.0
2	50 20'N,2 30'W	8 12 84	1754-2030	50	12.1	35.1
3	50 30'N,1 15'W	9 12 84	0010-0218	38	11.6	34.6
12	50 20'N,0 20'W	9 12 84	0518-0912	47	12.3	35.2
11a	50 44'N,0 22'E	9 12 84	1212-1424	26	11.1	34.9
4	52 20'N,2 30'E	10 12 84	0324-0600	39	12.1	35.2
9	53 10'N,3 50'E	10 12 84	1236-1524	19	11.2	35.0
8	53 55'N,4 00'E	10 12 84	1906-2112	40	9.9	34.6
	54 10'N,4 00'E	10-11 12 84	2248-0248	46	9.8	34.7
7	53 55'N,3 12'E	11 12 84	0500-0730	40	9.7	34.6
6	53 55'N,2 55'E	11 12 84	0842-1048	40	9.2	34.7
5	53 55'N,2 18'E	11 12 84	1242-1612	34	9.1	34.7
H	50 31'N,0 19'E	12 12 84	1430-1612			

H= Additional hand net haul



Cruise track and station positions