

MINISTRY OF AGRICULTURE, FISHERIES AND FOOD  
FISHERIES LABORATORY, LOWESTOFT, SUFFOLK, ENGLAND

1989 RESEARCH VESSEL PROGRAMME

REPORT: RV CORYSTES CRUISE 5

STAFF:	S M Rowlett	Part-time
	H L Rees	Part-time
	P Hudson	
	D Limpenny	
	G Lees	Part-time
	S W Feist	Part-time
	M Lambert	Part-time
	P Matthiessen	Part-time
	J Thain	Part-time

DURATION: Left Lowestoft 1020 h 25 April  
Arrived Lowestoft 1115 h 9 May  
All times are Greenwich Mean Time

LOCALITY: North Sea

AIMS:

1. To collect sediments by grabbing and coring for physical, biological and chemical analysis at the Tyne sewage sludge disposal site.
2. To collect Modiolus and other epifauna off the Humber for biological and chemical analysis.
3. To examine the dispersion of liquid industrial waste using an oyster larvae bioassay.
4. To collect sediment samples from widely spaced stations for an assessment of regional geochemistry.
5. To collect sediments from various sewage sludge disposal grounds for a study of the distribution of pesticides and PCBs.
6. To examine the incidence of fish diseases off the North-East coast of England.
7. To collect samples from the Seaham area as part of a study of the dispersal and effects of mine waste.
8. To examine sand waves in the area of the Indefatigable Bank using sidescan sonar as part of a study of sediment transport in the area.
9. To collect samples of fish for chemical analysis from various areas along the east coast.
10. To examine flyash disposal grounds using the MAFF U/W video sledge.

NARRATIVE:

Corystes sailed from Lowestoft at 1120 h on 25 April. Sidescan surveys were carried out at two aggregate extraction sites off Southwold (additional aims

During the morning of 26 April a sidescan survey was carried out in the area of the Indefatigable Bank (aim 8) after which Corystes steamed to the Tyne/Tees area.

A series of trawls were worked between Blyth and Tees during the period 27-29 April to assess the incidence of fish diseases in Dab and Cod; samples of fish for chemical analysis were also retained (aims 6 and 9).

On 30 April the colliery waste disposal areas off Wearmouth and to the south of Seaham were surveyed using sidescan sonar.

Corystes docked in North Shields that evening; Mr Lees, Mr Feist and Ms Lambert left the ship and Dr Rees, Dr Matthiessen and Mr Thain joined. A survey of the dispersion of industrial waste was carried out on 1 and 2 May followed by further sidescan work in the Wearmouth/Seaham area on 3 and 4 May (aims 3 and 7).

Also on 4 May, eight 2-metre beam trawl samples were taken at and for the south of the Tyne sewage sludge dumpsite. The epifauna and sludge-derived artefacts were quantified on ship. The amount of litter present at or near to the dumpsite - including persistent plastic materials - continues to be a cause for concern, and is in line with the complaints of fishermen in the area. On the morning of 5 May, 23 Day grab samples were taken in the regularly sampled tyne 'sediment box', and sub-samples retained for trace metals analyses. Two Tennant core samples were then taken at 50 m depth off Blyth, and down-core sub-samples for particle size, trace metals and benthic infauna retained (Aim 1).

On the morning of 6 May, further Tennant core samples were taken at and to the south of the Tyne sewage sludge dumpsite, and treated as above.- Corystes then rendezvoused with the Northumbrian Water Authority sludge disposal vessel, and water samples in and around the dispersing sludge slick were taken for bioassay experiments (Aim 3). Corystes then anchored off the Tyne mouth, and Drs Rowlatt, Matthiessen and Thain were exchanged for Mr Sheahan and Miss Lambert. A sediment sample was obtained off the Tyne mouth by Day grab for pesticide/PCB analyses (Additional aim).

Eleven stations on a transect running through the Tyne sewage sludge dumpsite were worked using a Day grab on 7 May. Samples of sediment and benthos were retained (Aims 1, 5). The u/w sledge was then deployed on a line running through the southern edge of the dumpsite, and still and video images obtained. Corystes then sailed overnight via Teesmouth (to obtain a further sediment sample for pesticide/PCB analysis) for the Humber, collecting grab samples at intervals for regional geochemical assessment (Aim 4).

Stations at and around the Humber dumpsite were worked on 8 May using a heavy-duty rock dredge, and samples of horse-mussels obtained for later chemical analysis (Aim 2). A representative sample of the benthic fauna and the supporting sediment was then taken at the dumpsite using rock and anchor dredges, for demonstration purposes (Additional aim). Following the use of a Shipek grab to obtain a sediment sample for pesticide/PCB analysis (aim 5), the u/w sledge was deployed on stony ground in the northern part of the dumpsite, and still and video images obtained. Corystes then sailed to the Humber mouth to obtain an additional sediment sample for pesticide/PCB analysis.

Fish samples for chemical analysis were obtained by Granton trawl on the morning of 9 May (Aim 9). This was followed by rock dredge and Day grab

sampling in the inner Dowsing area, and off Blakeney, Norfolk (aim 2). Further grab samples were collected at intervals en route to Lowestoft, to complete aim 4. Corystes docked at 1115, 9 May.

RESULTS:

1. Aims 1 to 9 were successfully achieved, along with three additional aims. Aim 10 was deferred, pending assessment of the fly-ash disposal site with a frame-mounted (rather than towed) video camera.

2. 506 cod were examined for ulceration (epidermal erosion) visceral granulomatosis and skeletal deformities. 1 fish had an ulcer and 4 had skeletal deformities; a combined disease prevalence of <1%. This is very low.

1548 Dab were examined. 169 exhibited lymphocystis, ulceration or epidermal hyperplasia. The disease incidence is shown below by size class.

Size Class /cm	Lymphocystis	Epidermal Hyperplasia	Ulceration
15-19 cm (n = 737)	28 (3.8%)	16 (2.2 %)	11 (1.5%)
20-24 cm (n = 614)	46 (7.5%)	22 (3.6%)	13 (2.1%)
25+ (n = 197)	15 (7.6%)	6 (3.0%)	12 (1.9%)

3. All other results will be available on completion of laboratory analysis of samples.

SEEN IN DRAFT: J. R. F. (master)  
P. M. (fishing skipper)

S M Rowlett  
H L Rees  
Scientists-in-Charge

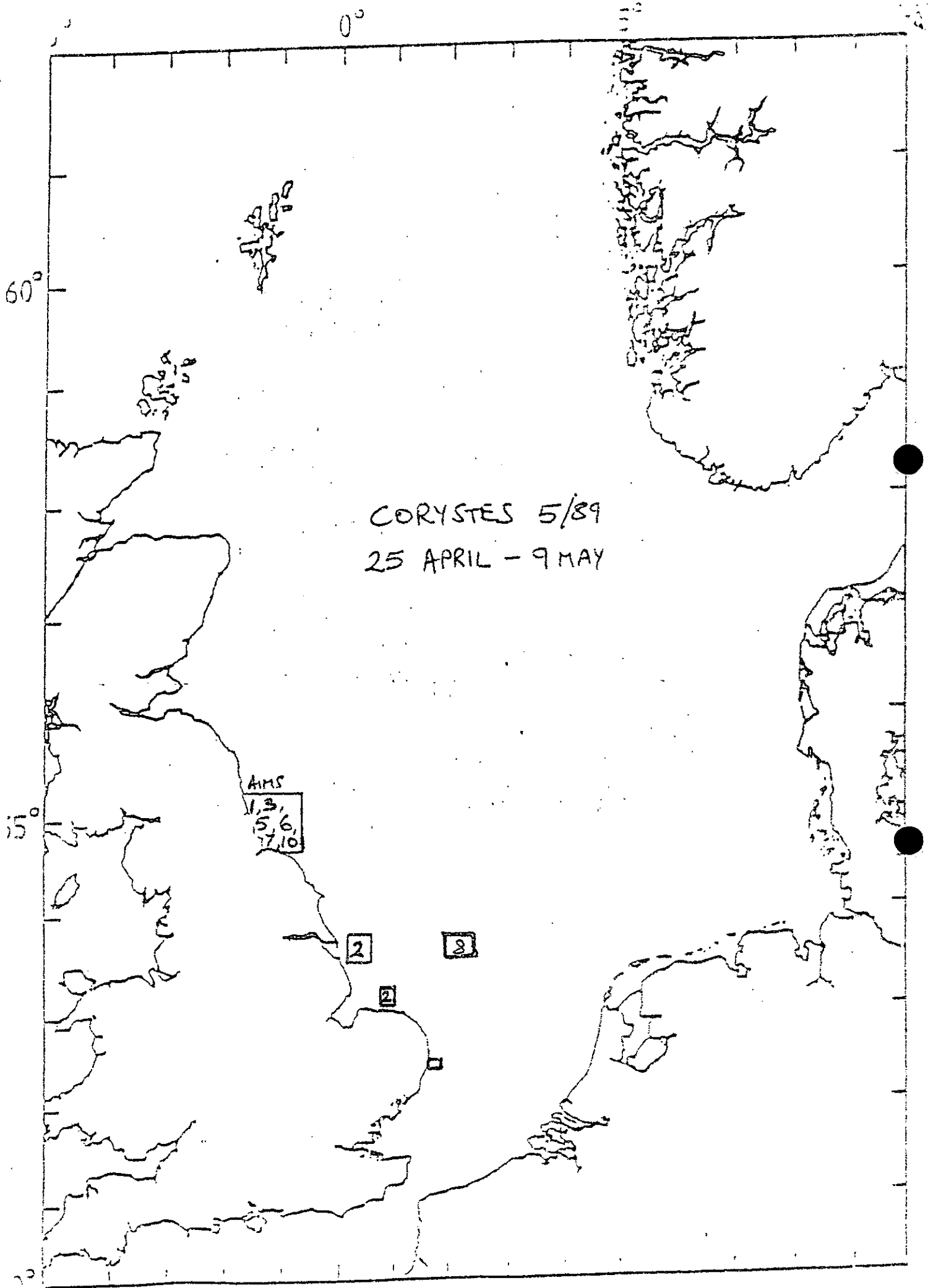
INITIALLED: JEP



5 June 1989

DISTRIBUTION:

Basic List +  
P Hudson  
D Limpenny  
G Lees  
S W Feist  
M Lambert  
P Matthiessen  
J Thain



CORYSTES 5/89  
25 APRIL - 9 MAY

AMS  
1, 3,  
5, 6,  
7, 10

2

8

2

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