

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

1982 RESEARCH VESSEL PROGRAMME

REPORT: RV CORELLA : CRUISE 14

(PROVISIONAL: Not to be quoted without prior reference to the author)

STAFF:

M S Rolfe  
S M Rowlatt  
D S Limpenny  
A J R Cotter until 17 October  
Mr B I S Rees (UCNW Menai Bridge) until 17 October  
C D Byrne from 17 October  
F G Shreeve from 17 October

DURATION:

Left Lowestoft 1159 h 8 October  
Arrived Lowestoft 1229 h 24 October

AIMS:

1. To conduct an 'intensive' monitoring survey of the Liverpool Bay disposal ground (i) sediment grabbing for biological, physical, chemical and bacteriological analysis and (ii) trawling for fish and benthos for chemical analysis.
2. To assess seasonal incidence of disease in fish stocks in Liverpool Bay by trawling (continuing CLIONE 5/82 survey).
3. To conduct an 'intensive' monitoring survey of the Bristol Channel disposal area (including the main and bad weather sewage dumping grounds and the Swansea Bay spoil ground) as in Aim (i) but preceded by side scanning for bottom morphology.
4. To conduct a sidescan sonar survey off Falmouth in relation to the possible re-siting of the existing sewage sludge dumping ground.
5. Sightings of dumping vessels in operation will be recorded (DAS Enforcement).

NARRATIVE:

CORELLA left Lowestoft at 1159 h on 8 October and arrived in Liverpool Bay at 0600 h, 11 October when a grid of 100 grabbing stations was commenced (Aim 1), using a 0.14 m<sup>2</sup> Day grab. Work was interrupted for a time by bad weather on 12 October but completed by 2300 h on 13 October. Four Granton trawl stations were worked on 14 October just north-east of the dumping ground and fish and benthos were collected for chemical analysis (Aim 1). In addition all commercial fish species were measured and closely examined for external signs of abnormality (Aim 2). Trawling was continued on the following day in two areas previously worked during CLIONE 5b/82, these being 15 and 25 miles north west of the Liverpool Bay sewage disposal ground. While in this deeper water away from the main influence of dumped waste, the opportunity was taken to collect sediments and epibenthos for chemical analysis by grabbing and Agassiz trawling, respectively. In view of forecast bad weather, CORELLA then returned to Liverpool Bay where Agassiz trawling was continued through the night until 0205 h, 16 October, after which CORELLA took shelter in Red Wharf Bay. No work was possible for the remainder of that day and on 17 October CORELLA steamed before the wind to Fleetwood docking at 1106 h, to take on fuel, water and stores and to allow Dr Cotter and Mr Rees to disembark and be replaced by Messrs Byrne and Shreeve.

CORELLA sailed from Fleetwood at 1106 h 18 October. It was originally planned to work in the Bristol Channel area during the second week of the cruise but weather forecasts indicated that no work would be possible in that area, which is fully exposed to the strong south-westerly winds. It was therefore decided to continue work in the relatively sheltered Liverpool Bay until the weather showed signs of improvement. On 18 October, 15 grab stations near the Liverpool Bay dumping ground (in AEP2 Box B) were reworked by grabbing to obtain sediment samples during the spring tide period. These stations had been first sampled seven days previously during neaps. This was followed by a side scanning survey over and inshore of the dumping area and a further five grab stations off Rhyl. This was completed at 1628 h 19 October. With further south-westerly gales forecast it was decided to remain in Liverpool Bay. On 20 October a wide-spread grid of 40 grab stations was worked over the dumping ground and the area likely to be influenced by waste disposal. This provided a valuable opportunity to look at the distribution of bacteria derived from sewage over a relatively short time, viz, one day, as the earlier grabbing survey had been necessarily extended over three days because of bad weather and the larger number of stations. The grabbing was completed at 2139 h 20 October and followed by a further 12 hours of sidescanning to add to that completed the previous day. CORELLA then left Liverpool Bay, bound for Lowestoft. The weather improved greatly on the homeward run and CORELLA docked at 1229 h 24 October.

#### RESULTS:

Aim 1 was successfully completed. A grid of 100 grab stations was worked followed later by a more widely-spaced grid of 40 stations. Bacteriological analysis was successfully achieved; counts were generally low, probably on account of the effects of bad weather on sewage sludge settlement. Samples of plaice, whiting, lesser spotted dogfish and mackerel were obtained for chemical analysis, also epibenthos from four areas of Liverpool Bay (AEP2 boxes A, B, C and D) were collected together with epibenthos from a station 25 miles north west of the disposal area. A total of ca 24 h side-scanning was made between the disposal ground and River Mersey entrance. This will provide useful information in the interpretation of sediment distribution and transport pathways.

Aim 2: A total of eight Granton trawl stations were worked. Fish stocks were low especially at the offshore stations. Plaice and dabs formed 80% of the 1484 fish measured and examined from the vicinity of the disposal area. 5% of the dabs had fin rot and/or ulceration. Only 122 fish were caught and examined from the four offshore stations.

Aim 3 was finally abandoned because of bad weather, which is regrettable as the Bristol Channel area has not been monitored since 1977.

Aim 4, which was of low priority, was not carried out, mainly because of the weather.

Aim 5: Several dumping vessels were sighted in Liverpool Bay. All appeared to dump in the appropriate area.

M S Rolfe

8 November 1982

#### INITIALLED:

H W H

#### SEEN IN DRAFT:

G S

P C N

#### DISTRIBUTION:

Basic List. +

M S Rolfe

S M Rowlatt

D S Limpenny

A J R Cotter

Mr E I S Rees

C D Byrne

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