

Indexed J.R.

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

1986 RESEARCH VESSEL PROGRAMME

REPORT: RV CLIONE: CRUISE 4

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

STAFF:

- R J Law (SIC)
- D J Harper
- T W Fileman
- Catherine Fileman
- Denise Miller
- P M Hudson (12-22 March)
- M Marchand, IFREMER, French Observer (22 March-1 April)

DURATION:

Left Lowestoft 1030h 12 March
Arrived Lowestoft 0030h 1 April
All times are Greenwich Mean Time

LOCALITY:

English Channel and Irish Sea

AIMS:

1. To conduct a baseline survey of concentrations of trace metals in seawater from coastal and offshore areas. This completes the survey begun on CLIONE 14/85 carried out in connection with the ICES Baseline Survey of Contaminants.
2. To carry out a preliminary survey of cadmium and mercury concentrations in seawater around the sewage sludge and dredged spoil disposal sites, prior to an in-depth survey of their distribution in Liverpool Bay.
3. To analyse samples of coastal and offshore water from various locations for hydrocarbons, also as an input to the ICES survey (Aim 1).
4. To collect samples of suspended particulate material from 1 or 2 sites in the eastern Irish Sea for hydrocarbon analysis, in connection with studies of the impact of development of the Morecambe Bay gas field.
5. To recover the NBVR tetrapod, currently deployed off St Bees Head.
6. If time allows, to recover, service and replace current meter arrays (6) currently deployed in the eastern Irish Sea.

NARRATIVE:

CLIONE left Lowestoft at 1030h, 12 March and steamed south. Work began at 0733h 13 March in the English Channel south of Selsey Bill, and during the day samples of surface water were taken from 13 stations through the Solent and in the English Channel west of the Isle of Wight. CLIONE steamed west overnight and sampling began again at 0933h 14 March south of the Lizard. During 14 and 15 March a further 16 stations in the Bristol Channel, Swansea Bay and Carmarthen Bay were sampled. On 16 March two hydrographic stations were worked in St Georges Channel, at the northern end of the Celtic Deep, in water depths of 93 and 107m, before CLIONE continued on to Liverpool Bay. On 17, 18 and 19 March samples were taken from a total of 32 stations covering Liverpool Bay and the area off the River Ribble. This sampling was confined to the daylight hours of 17 and 18 March, during the nights of 17/18 and 18/19 March samples of particulates were collected for hydrocarbon analysis throughout a tidal cycle at two stations off the Ribble, whilst at anchor. A strong wind blew on 20 March preventing any work that day, but water sampling and checking of current meter moorings began at 0938h 21 March, finishing at 1252h after 3 stations had been completed. CLIONE then proceeded to the Isle of Man, docking at Douglas at 1630h. Strong westerly gales prevented CLIONE sailing on 22 March as planned, after Paul Hudson had left the ship and been replaced by the French observer, Michel Marchand. It was not until 1525h on 24 March that CLIONE was finally able to sail, 2 further stations being worked en route to the Irish coast at 1559h and 1741h. Although the strong gales persisted for the next two days adequate shelter was provided by Ireland and sampling began at 0725h 25 March just north of Dublin. On 25 and 26 March a total of 15 stations were worked, 6 north of Dublin along the Eire and Ulster coasts for surface water, 4 depth stations across the North Channel, and 5 stations including 1 depth station north-west and south-west of the Isle of Man. The last station was begun at 1834h 26 March and CLIONE then steamed west, laying for the night off Dublin. Sampling along the Eire coast was completed on 27 March between 0737h and 1737h, six surface water stations being sampled between Dublin and the Tuskar Rock. After this the plan was to cross to Ushant during 28 March and to sample along the French Channel coast, but further westerly gales forced a run to Lands End. This was unsuccessful and CLIONE encountered very heavy weather, taking refuge overnight at anchor off St Mary's in the Isles of Scilly. On 29 March the weather moderated sufficiently to allow CLIONE to work on the north coast of the English Channel, but the proposed sampling in French waters had to be abandoned. Surface water sampling began again at 2025h on 29 March west of the Eddystone light and was completed at 1240h on 31 March. During this time samples were collected off Plymouth and Salcombe, in Lyme Bay, off Portland Bill, and off the Sussex and Kent coasts; 15 stations in all. CLIONE then continued to Lowestoft, docking at 0030h on 1 April.

RESULTS:

1. Most of the proposed sampling programme was completed in British and Irish waters, but no samples were taken from French waters because of bad weather. 75 samples were taken in all. Concentrations of dissolved reactive mercury varied from 0.5 to 1.5 ng l⁻¹. Concentrations of dissolved cadmium and lead were from 10 to greater than 200 ng l⁻¹ and 10 to 60 ng l⁻¹ respectively, with both the highest values occurring in Swansea Bay.

- Aim 2. This was successfully achieved, samples being collected from 32 stations. Dissolved reactive mercury concentrations were 1 to 2 ng l⁻¹, total mercury concentrations (determined on unfiltered seawater) were found to be 3.2 to 24 ng l⁻¹. In both cases the highest concentrations were close to the dredged spoil disposal grounds. Dissolved cadmium and lead concentrations were 20 to 100 ng l⁻¹ and 20 to 160 ng l⁻¹ respectively, both the highest values occurring off the River Ribble.
- Aim 3. Largely successful, as for Aim 1 no samples could be taken from the French coast. Samples of subsurface water were collected from 86 stations. Duplicate samples were taken at 15 stations by the French observer to allow a bilateral comparison of data to be made.
- Aim 4. Successfully achieved. 24 samples of particulates were collected from two anchor stations in the eastern Irish Sea for hydrocarbon analysis.
- Aim 5. This was not attempted owing to bad weather.
- Aim 6. 3 current meter stations (M, N and R) were checked visually and found to be correctly positioned and apparently undisturbed, including 1 previously reported to be out of position. At station T the surface buoy was found to be still in position but no attempt could be made to recover it. Various pieces of equipment from this station were collected from the Isle of Man and returned to Lowestoft.

R J Law
3 April 1986

INITIALLED:

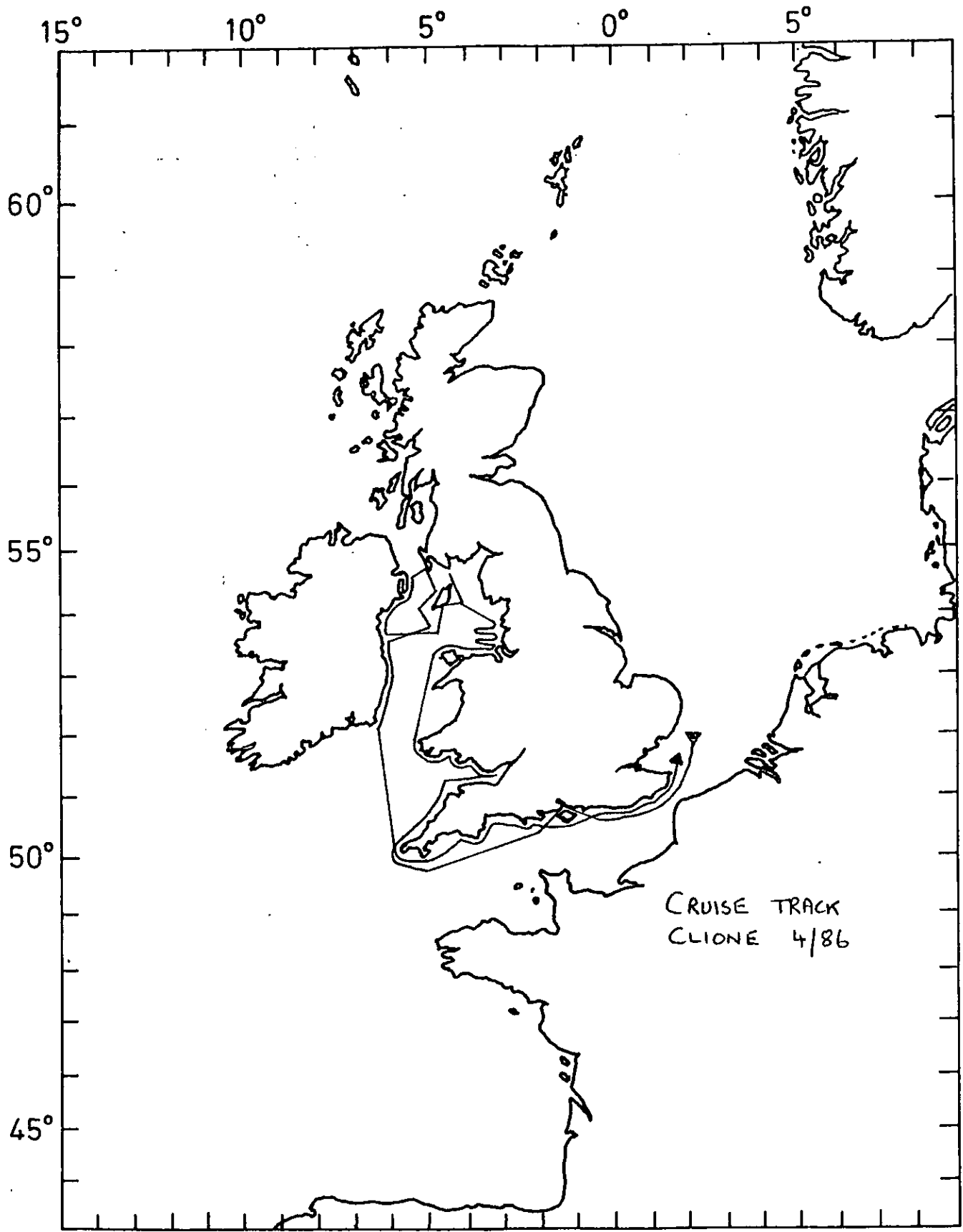
A.W. H.

SEEN IN DRAFT:

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R C Newrick (Fishing Skipper)

DISTRIBUTION:

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CRUISE TRACK
CLIONE 4/86