

Indexed 13/12 JMC

16

MINISTRY OF AGRICULTURE, FISHERIES AND FOOD
FISHERIES LABORATORY, LOWESTOFT, SUFFOLK, ENGLAND
1985 RESEARCH VESSEL PROGRAMME

REPORT: RV CLIONE: CRUISE 14
(PROVISIONAL: Not to be quoted without prior reference to the author)

STAFF: R J Law (SIC)
D J Harper
T W Fileman
P M Hudson
Catherine Fileman
Denise Miller

DURATION: Left Lowestoft 1525 h 8 November
Arrived Lowestoft 0938 h 29 November
(All times are Greenwich Mean Time)

LOCATION: North Sea, Skagerrak

AIMS:

1. To conduct a baseline survey of trace metal concentrations in coastal and offshore waters of the North Sea, including sampling at the reference station (58°10'N 9°30'E) established by ICES for the 1985 Baseline Survey of Contaminants.
2. To carry out a study of dispersion of oily water discharges at the Auk and Forties oil fields, using a towed fluorimeter.
3. To collect samples of water from within the oily water discharge plumes for analysis onshore of associated chlorophenols and other organic compounds by GC-MS.
4. To analyse samples of coastal and offshore water from various locations in the North Sea for hydrocarbons, to provide data for the ICES Baseline Survey.
5. To collect samples of fish from the Tyne/Tees area for analysis of metals and organochlorine pesticide residues, in connection with the ICES/JMG Baseline Study of Contaminants in Fish.

(Aim 5 is an additional aim not on the original cruise programme.)

NARRATIVE:

CLIONE sailed from Lowestoft at 1525 h on 8 November and proceeded north to the River Humber, where she anchored off the North Killingholme oil jetty at 0650 h on 9 November. Samples of surface water were taken for metals and hydrocarbon analysis at intervals over a tidal cycle, between 0845 h and 2132 h, after which CLIONE moved to an anchorage inside Spurn Point for the night. On 10 November water sampling continued in the outer Humber and off the north Lincolnshire and Holderness coasts between 0958 h and 2028 h, after which CLIONE proceeded to Bridlington Bay,

anchoring at 2345 h. Strong NW gales kept CLIONE at anchor throughout 11 November, but hopes of better weather on 12 November led to CLIONE leaving Bridlington Bay at 0400 h, and setting off towards the next working area off the River Tees. These hopes proved ill-founded however and the whole of 12 November was spent dodging. On 13 November the weather had moderated and 11 water stations were sampled between 0344 h and 1738 h off the Tees and Tyne. The towed body was then deployed for a short time to confirm that the Guildline CTD and the Aquatracka were working correctly, which proved to be the case. Fishing commenced off the Tyne at 0643 h on 14 November and continued until 1824 h. Five two-hour hauls were made, and all the catches were poor.

Profiling of the oily water discharge plume at the Auk Alpha production platform using the towed body was carried out between 1100 h and 1704 h on 15 November. Two further water sampling stations were worked at 1750 h and 1835 h, and CLIONE then continued towards the Forties oil field. Winds of up to 60 knots prevented work throughout 16 November, and although the wind had reduced to 20-30 knots on 17 November a heavy swell persisted which delayed the start of work until 2000 h. Profiling of the discharge plume from Forties Bravo then continued until 2239 h, at which time rising wind and swell made it necessary to bring the towed body aboard.

CLIONE then sailed eastwards towards the Norwegian coast. Water sampling for metals and hydrocarbon analysis continued off SW Norway on 18 November; SE Norway and the reference station in the Skagerrak on the 19th, and off NW Denmark on the 20th. At 0906 h on 21 November CLIONE docked for water in Esbjerg, sailing again at 0831 h on 22 November. Water sampling began again at 1121 h south of the Horns Reef and continued as CLIONE steamed south towards the German Bight, where further samples were taken on 23 November. Between 24 and 26 November water samples were taken from German, Dutch, French and Belgian coastal waters. At 1200 h on 26 November a little light relief was provided by a Belgian air force exercise; during which a helicopter crewman was lowered onto and later recovered from CLIONE's afterdeck. It had been intended to finish the survey by sampling in the Southern Bight and central North Sea (around the Dogger Bank) on 27 and 28 November respectively, but worsening weather forced a change of plan, and on 27 November samples of water were collected from the Thames estuary whilst proceeding upstream against the ebb tide. Sampling began near the Sunk light vessel at 0912 h and finished off Tilbury at 1636 h, when darkness made further work impossible. CLIONE later anchored for the night off Walton-on-the-Naze, where work began again at 0859 h on 28 November. Water samples were collected along a line eastwards from Walton to the median line, and then northwards until sampling ceased at 1800 h. CLIONE then proceeded to Lowestoft, anchoring overnight in Corton Roads and docking at 0938 h on 29 November.

RESULTS:

Aim 1. Water samples were collected from 98 stations, including the reference station. Coverage of coastal waters was very good, but in offshore areas was sparse owing to bad weather. Some analysis of dissolved cadmium, lead and reactive mercury was carried out onboard. Surface water sampling was successfully carried out

using an all Teflon system, and no problems were encountered using Kevlar wire on the hydrowinch at the deep (650 m) reference station.

Aim 2. Auk, 17 passes with the fluorimeter were made at distances of 250, 500 and 750 m from the platform and towing depths of 5 to 50 m.

Forties, 11 passes were made at distances of 250 and 500 m, and instrument depths of 10 to 40 m.

Both the CTD and Aquatracka in the towed body behaved well, as did the HP-1000 computer. This was used to log data at 2 second intervals during passes through the discharge plumes, and for salinity and surface temperature at 5 minute intervals continuously during the cruise.

Aim 3. This was unsuccessful. Preliminary analyses suggest that the sample taken at Auk was not located within the plume and bad weather at Forties precluded further sampling.

Aim 4. Samples were collected from 95 stations. Degree of coverage as for aim 1.

Aim 5. The requirement was for 25 individual fish above a minimum size from each of 6 species (cod, whiting, plaice, sole, dab, flounder) and for any spurdogs caught. Samples of 25 whiting, 25 plaice, 20 cod and 2 spurdogs were obtained.

Robin Law

29 November 1985

Seen in draft: JRF, PM

Initialled: PCW, HWH

Distribution:

Basic list +

R J Law

D J Harper

T W Fileman

P M Hudson

Catherine Fileman

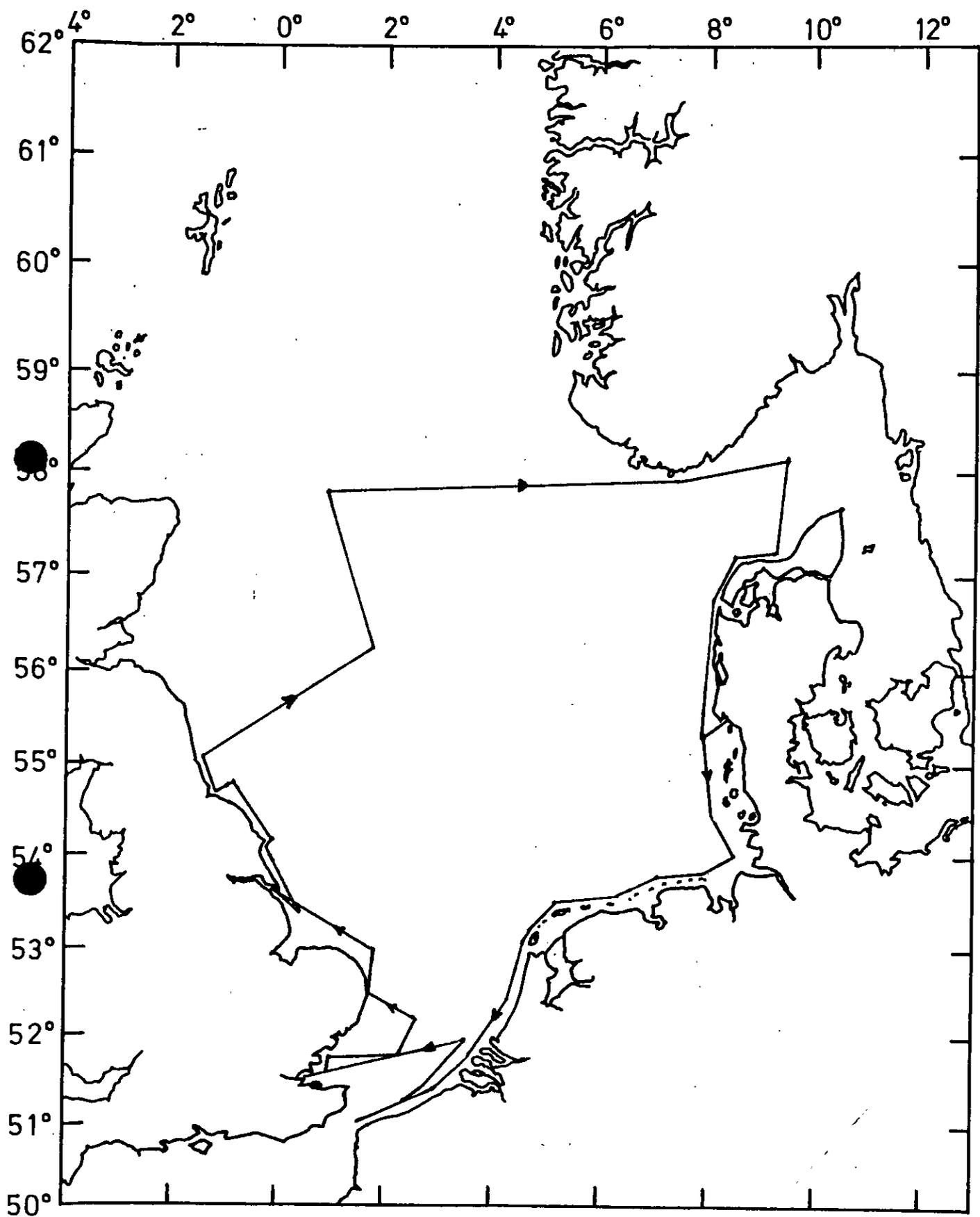
Denise Miller

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D Bedborough (DEn)



CLIONE 14/85

TRACK CHART