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

1984 RESEARCH VESSEL PROGRAMME

REPORT: RV MARINER: CRUISE 1

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

STAFF: C D Byrne (SIC)
R J Law
M S Rolfe
J Thain
P Hudson
J Pomfret (NWA)

DURATION: Left Burnham 0800 Sunday 29 July
Arrived Burnham 1530 Friday 3 August.
All times Greenwich Mean Time

LOCALITY: Tees Dumping Area

- AIMS:
1. To determine the dispersion of effluent discharged from a dumping vessel.
 2. To carry out oyster larvae bioassay using water samples collected from the wake of a dumping vessel.

NARRATIVE:

Staff left Burnham at 0800 on the 29th July and arrived at Furness Wharfe Middlesborough at 1430 to load gear onto RV MARINER. Analytical equipment and equipment for the oyster bioassay were set up at ICI's Central laboratory Billingham. On 30th July after finishing setting up equipment MARINER set sail for the dumping area. The equipment was tested and water sampling and vertical profiling was carried out at seven stations using the Guildline package the UV and Rhodamine B Aqua trackas. The towed body and profiling frame were evaluated and it was found the profiling frame allowed too much ambient light to reach the UV Aqua tracka at depths less than 25 metres. MV MARINER then returned to Hartlepool. The water samples were taken back to the laboratory for analysis and oyster larvae tests. Rhodamine B was added to one of the tanks of the dumping vessel MV YARROW in preparation for the next days dumping.

On the 31st July MARINER left Hartlepool for the seaward side of the dumping area. Water samples were taken along with vertical profiles. The MARINER then met the dumping vessel in the middle of the dumping area. The dumping vessel made passes up current of the anchored research vessel. Vertical profiles were subsequently made as the waste slick was carried past MARINER. Water samples were also collected for analysis and oyster bioassay. Nine passes were made before the experiment was abandoned due to rapidly deteriorating weather.

On the 1st August the problem experienced the previous day with the Rhodamine Aqua tracka was sorted out. MARINER again set off for the dumping ground; however the heavy swell prevented any measurements being taken.

On the 2nd August MARINER attempted to meet the dumping vessel in the middle of the dumpsite to repeat the exercise carried out on the 31st July. The bad weather of the previous day persisted and the exercise was called off. MARINER returned to Middlesborough where the gear was loaded into vehicles for return to Burnham.

RESULTS:

Although the work was hampered by bad weather the results are promising

1. Measures of the dilutions for the nine runs show dilution to be higher than expected. The wake of the dumping vessel was easily picked up by the Aqua tracka and pH meter.
2. Results of the Oyster bioassay show remarkably good correlation with the chemical analysis of the water samples.

Further processing needs to be carried out on the data.

C D Byrne
7 August 1984

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