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R.V. TELLINA

Report for Cruise 4/1967

Staff:

P. A. Ayres
P. M. Connor

Duration:

30th March-8th April 1967

Aims:

Investigation of the nature of the seabed in the vicinity of sewage outfalls and sludge dumping areas in the Thames Estuary to include:-

- (a) bacterial content of deposits
- (b) physical nature of deposits
- (c) organic content of deposits and other chemical tests if possible
- (d) benthos

Narrative:

TELLINA left Lowestoft on the morning of 30th March and docked at Sheerness Harbour at 1800 hours. Staff travelled to Sheerness by road on the morning of the 31st with sampling equipment. Incubators were set up in the store of the Medway Conservancy Board at Garrison Point. At 0800 hours on 1st April the ship sailed to an area near the West Shoebury buoy; north of the main shipping lanes, and a series of grab hauls was made. In the afternoon TELLINA returned to Sheerness and bacterial counts of the samples were completed. On 2nd April the previous days samples were counted and equipment sterilized for further sampling. Further grab hauls were made on the 3rd extending uptide towards Southend Pier. Samples were examined on return to Sheerness. At 0600 hours on the 4th TELLINA sailed to an area east of that previously sampled and further grab hauls were made up to slack water. A separate survey of benthos was abandoned due to unfavourable tidal conditions and the ship returned to port. On the 5th TELLINA left at 0600 hours for the sludge dumping areas of the Black Deep but returned to Sheerness after a warning of imminent gales. The gales came and persisted until the 6th when the programme was abandoned and staff returned by road to Burnham. TELLINA left Sheerness and docked at Lowestoft at 1330 hours on Friday 7th.

Results:

The Baird grab ($\frac{1}{2}$ sq. metre) failed to operate successfully largely due to the strong tide and on the few occasions when it closed the fine sand of the bottom deposits washed out during hauling. The Van Veen grab ($\frac{1}{10}$ sq. metre) with additional lead weights was successfully used throughout the survey. The modified Emery sampler loaned by W.P.R.L. failed to retain any bottom deposit suitable for subsequent analysis.

- (a) Sixty two stations were worked in an area extending almost three miles from the outfall, and 208 sub-samples were examined bacteriologically. Cores of approximately 1" depth were taken in sterile glass tubes for bacterial counts. Counts of up to 260 and 420 bacteria/gm E. coli and coliforms respectively were obtained from bottom deposits, with highest concentrations east and west of the outfall between 0-3 fathoms (L.W. datum). On the first day samples of the water taken uptide of the outfall at each station gave counts of E. coli between 0-2/ml.
- (b) Samples were composed largely of clean sand with increasing amounts of mud shell and stones towards L.W. mark. Anaerobic conditions on the surface were not observed adjacent to the outfall.

- (c) Sub-samples were taken from all stations for estimation at the laboratory of volatile organics. Observations were made of water temperature and salinity using the salinity/temperature bridge.
- (d) Grab hauls were examined for benthos which was generally sparse and confined mainly to two areas in shallow water (0-3 fathoms at L.W.) where cockles, polychaete worms and anemones constituted the main fauna.

Acknowledgements:

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Fisheries Laboratory
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20th April 1967

Initialled:

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