

IMER 5/81
RVS 12/81

VESSEL RRS JOHN MURRAY

CRUISE PERIOD 2nd - 9th September 1981.

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ITINERARY A sketch chart is attached.

Tuesday 1st September Travelled to Barry. Loaded ship and set up equipment.

Wednesday 2nd " Sailed 0930. Commenced monitoring grid.

Thursday 3rd " Completed monitoring grid at 2200 and vessel set course for the area in the Celtic Sea to carry out deep diving trials of the U.O.R.

Friday 4th " 1700 Reached trials area. Collected water sample from 10 ms for experiment to measure ammonia uptake by phytoplankton and bacteria. Calibrated depth sensors and commenced towing trials.

Tuesday 8th " Completed towing trials at 2345. Vessel steamed to area south of Oxwich Bay.

Wednesday 9th " 0700 Commenced side-scan sonar search for sunken fishing boat on behalf of the D.T.I. Search called off at 1230 with no results. Vessel headed for Barry. Entered locks at 1630, alongside at 1715. Unloaded ship and returned to Plymouth.

OBJECTIVES

- 1) To monitor the performance of the Bristol Channel to update the validation of ecosystem model GEMBASE.
- 2) To study the relationships between light, chlorophyll, primary production and fluorescence on a C.P.R. route.
- 3) To carry out deep diving trials on the Undulating Oceanographic Recorder (U.O.R.).
- 4) To carry out incubation experiments to determine the uptake of ammonia by phytoplankton and bacteria.

PROCEDURE &
METHODS

Permission to work on the Plymouth to Roscoff route was denied by both the French authorities and the Admiralty shortly before the cruise was to start. Consequently the second objective of the cruise had to be abandoned and the cruise was shortened.

To monitor the Bristol Channel a small suite of variables was continuously recorded along the track shown in Fig. 1.

To test the performance of the U.O.R. 72 fixed depth tows were completed using 193 combinations of wire length, fairing, diving plane angle and bridle position. 13 undulating tows were made using the new U.O.R. servo system which performed satisfactorily at speeds greater than 7.5 knots.

The depth range of the U.O.R. was improved marginally (by approximately 10%) by the use of Zippertube fairing on the cable, but performance was variable due to changes in the degree of twisting of the fairing around the wire cable from tow to tow. Twisting of the polyester fairing around the towing cable was more marked and the undulation range was less than tows with the bare wire.

Maximum and minimum depth of undulation using the new body were less than with fixed wing tows using the old body. The new U.O.R. was found to be trimmed at a different angle to the old body and performance of the new body was improved by adding extra weight to the nose of the instrument. Interpretation of the U.O.R. performance was hampered by intermittent faults in the M.D.T.R. recording and/or play-back units.

The results of the experiments to determine ammonia uptake await further analysis in the laboratory.

EQUIPMENT
PERFORMANCE &
CRUISE SUCCESS

Although a major part of the cruise had to be abandoned due to major naval exercises, the remaining objectives were carried out successfully. Especial mention of the superlative co-operation of the officers and crew of the John Murray must be made and their assistance was largely instrumental in achieving the success of this cruise.

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19/10/67

Date:

