

VESSEL R.V. SARZIA  
 CRUISE PERIOD 29 March - 7 April 1978  
 PERSONNEL

Dr. K.R. Dyer	PSO	Senior Scientist	29.3 - 6.4.78
Dr. R.D. Flood (US)	NATO	Post Doctoral Fellow	29.3 - 7.4.78
A.J. Marks	HSO		29.3 - 2.4.78 & 6.4.78
M.R. Lees	SO		29.3 - 2.4.78
M.A.S. Moore	SO		1.4 - 3.4.78
G. Le Good	SO		3.4 - 7.4.78
P. Taylor (MSES)	SO		29.3 - 7.4.78
J.O. Malcolm	HSO		1.4 - 2.4.78 & 6.4.78
E.J. Moore	HGCD		1.4 - 2.4.78

ITINERARY

29 March	Loaded equipment in Plymouth. Set up and tested equipment in Plymouth Sound.
30 March	0730 hrs sailed for Southampton Water. On passage completed oblique asdic surveys and 5 camera stations
31 March	in areas of furrows in Central English Channel. Docked Southampton 1900 hrs.
1 April	Anchored fore and aft at Position A in Southampton Water. Divers installed current meters in a furrow and obtained core samples. Commenced measurements of velocity, salinity and temperature. Divers laid barium powder. Detailed oblique asdic surveys within Southampton Water.
2 April	Measurements continued at Position A.
3 April	Measurements at Position A completed at 0120 hrs. 1145 hrs vessel anchored fore and aft at Position B. Velocity and salinity measurements commenced 1440 hrs.
4 April	Measurements continued at Position B.
5 April	Measurements at Position B completed 1410 hrs. 1500 hrs berthed Southampton. Reanchored at Position A 1800 hrs.
6 April	Measurements of velocity and salinity commenced 0422 hrs. Divers installed current meters in furrows at 1315 hrs. Measurements completed at 1650 hrs. Divers and equipment unloaded at Southampton. Vessel on passage to Plymouth 1730 hrs.
7 April	Docked Plymouth, cleared ship and returned to Taunton.

OBJECTIVES

1. Sidescan sonar and underwater photography of furrows in central English Channel.
2. Velocity and suspended sediment measurements across furrows in Southampton Water to examine the processes of their formation.
3. Lay barium markers across furrows in Southampton Water for sedimentation rate measurements.
4. Sampling and coring across furrows.
5. Continuous salinity and velocity measurements throughout the water column to study the mixing processes.

PROCEDURE AND  
METHODS

An EG and G dual sidescan sonar was used together with an UW camera (MSES) in the English Channel. In Southampton Water a Bissett Berman STD sensor (loaned by Dr. R.D. Pingree) together with shipboard units developed by MSES were used to measure salinity and temperature continuously at a fixed depth. Frequent profiles were obtained with a Robertson Research Labs. recording conductivity meter and an Electronic Switchgear MS5 T-S bridge. At Position A 3 Braystoke DRCM's were spaced at fixed heights in the water column. Three additional Braystoke rotors, mounted on small stands, were placed on either side and in the middle of a furrow. Partech silt meter sensors were also mounted on the stands. At Position B four DRCM's were used spaced through the water column. Velocities were recorded averaged every minute. A Bell and Howell 7 track instrumentation tape recorder was used to record the STD and silt meter information.

EQUIPMENT  
PERFORMANCE

The sensor of the Robertson Research conductivity probe leaked after about 36 hours use. The cooling fan for the Bell and Howell recorder failed and had to be replaced. This restricted recording of the STD to a chart recorder for  $1\frac{1}{2}$  days. The directions on the DRCM's all failed after a few hours. This did not detract from the results obtained however.

RESULTS

The current measurements will be analysed to give the shear stresses inside and outside the furrows, the Richardson number distribution in the body of the flow and the residual circulation. The STD records will be analysed to estimate the contributions at different frequencies to the mixing processes. Cores of the sea bed will be examined to determine the sedimentary structure beneath the furrows and subsequent surveys will be made in Autumn 1978 and Spring 1979 to determine the depth of burial of the barium layer.

PREPARED BY :  (K R DYER)

APPROVED BY :  (K R DYER)

DATE : 14 March 1980 14 March 1980

STATION LIST

ENGLISH CHANNEL

CAMERA Station 1	50° 19' N	2° 32' W
2	50° 19' N	2° 22' W
3	50° 15' N	2° 01' W
4	50° 21' N	1° 36' W
5	50° 27' N	1° 15' W

SOUTHAMPTON WATER

POSITION A	50° 51.63' N	1° 21.85' W
POSITION B	50° 51.82' N	1° 21.67' W

TRACK CHART  
Furrow survey  
30-31 March 1978

