

VESSEL	M.V. BON ACCORD		
CRUISE PERIOD	12 June - 28 June 1979		
PERSONNEL			
	R. Kirby	SSO	Senior Scientist 12 - 28.6.79
	T.J. Smith	HSO	12 - 28.6.79
	P.J. Hooper	SO	12 - 28.6.79
	B. Norman	ASO	12 - 28.6.79
	W.R. Parker	PSO	12 - 24.6.79
	E.J. Moore	HCD	12 - 24.6.79
	M. Kelly	Lancaster University	12 - 24.6.79
	J. Archer	AUWE Portland	12 - 24.6.79
ITINERARY			
	11.6.79	Travelled to Workington.	
	12.6.79	M.V. Bon Accord docked at 1300 hrs. IGS gear offloaded. IOS gear installed.	
	13.6.79	Continued to set up geophysical and sampling gear. Sailed 1500 hrs and commenced surveying geophysical lines with sidescan. ORE pinger unserviceable. Trisponder unserviceable. Navigating by Decca Mk 21.	
	14.6.79	Using sidescan only in big swell. Survey abandoned owing to weather. 1800 hrs steamed to shelter. 2050 Hrs anchored Gorleston, Wigtown Bay.	
	15.6.79	Severe N/NW gale. No surveying. Tested sampling equipment.	
	16.6.79	0800 hrs raised anchor and sailed to continue geophysical lines with sidescan and ORE pinger.	
	17.6.79	Site survey of proposed sample locations. 3 stations visited. TV sweep followed by box core samples. Geophysical surveys continued during night.	
	18.6.79	3 stations visited. TV sweep followed by box core samples. Extended geophysical coverage during night.	
	19.6.79	5 stations visited. TV and box coring.	
	20.6.79	Continued geophysics with sampling during daylight hours.	
	21.6.79	Continued geophysics until 1600 hrs. Weather deteriorated SW 7 with big swell. Abandoned survey and steamed to Workington entered 2115 hrs.	
	22.6.79	Sailing cancelled owing to weather.	
	23.6.79	Sailed 0800 hrs to extend geophysics coverage.	
	24.6.79	Continued geophysics with sampling during daylight hours. 4 scientists WRP, EJM, MK and JA landed by pilot boat at Workington 1215 hrs. On passage to Bridgwater Bay.	
	25.6.79	Arrived Bridgwater Bay 2000 hrs. Grapnelled for seabed rig until 2230 hrs.	
	26.6.79	Grapnelled for seabed rigs. 1440 hrs winch wire entangled in ships propeller. Vessel anchored. All scientific work terminated.	
	27.6.79	Divers examined fouled propellers and made vessel ready for towing.	
	28.6.79	Vessel towed into Barry, docking at 1115 hrs. IOS gear offloaded. Scientists returned to Taunton.	

OBJECTIVES

The cruise was an initial sedimentological reconnaissance of muddy areas in the NE Irish Sea. The project ultimately aims to establish the fate of fine sediment and the interaction of fine sediments with radionuclides as part of the study of low-level radioactive waste disposal from Windscale.

PROCEDURE AND METHODS

The geophysical equipment used included an EG and G sidescan and ORE 1036 Pinger. A wide spaced grid was established with tight line spacing over selected sample sites. Surveying was undertaken on a 24 hr basis. Each site chosen for detailed examination was photographed using AUWE still cameras, surveyed with underwater TV with areas of interest recorded on video. Finally 1 box core sample was taken at each site. Water samples were taken by Lancaster University for analysis of radio nuclide levels at surface and near bed on the same sites.

EQUIPMENT PERFORMANCE

1. The Decca Trisponder did not function satisfactorily either in the Irish Sea or Bridgwater Bay. In the Irish Sea this was partly explained by the extreme range on occasions, by the use of hired omnidirectional aerials, which were suspected of giving multiple reflections, and possibly due to the ship itself, since no problems had previously been encountered in Bridgwater Bay.
2. The EG and G sidescan operated satisfactorily throughout the survey.
3. The RVS ORE 1036 Pinger presented many problems and was unserviceable on several occasions. The transceiver unit was old and in need of refurbishing. The spares were old and some were unserviceable.
4. The AUWE camera system performed adequately although picture quality was poor owing to suspended material.
5. The TV system presented no problems.
6. The box corer and subsampling system worked satisfactorily.

RESULTS

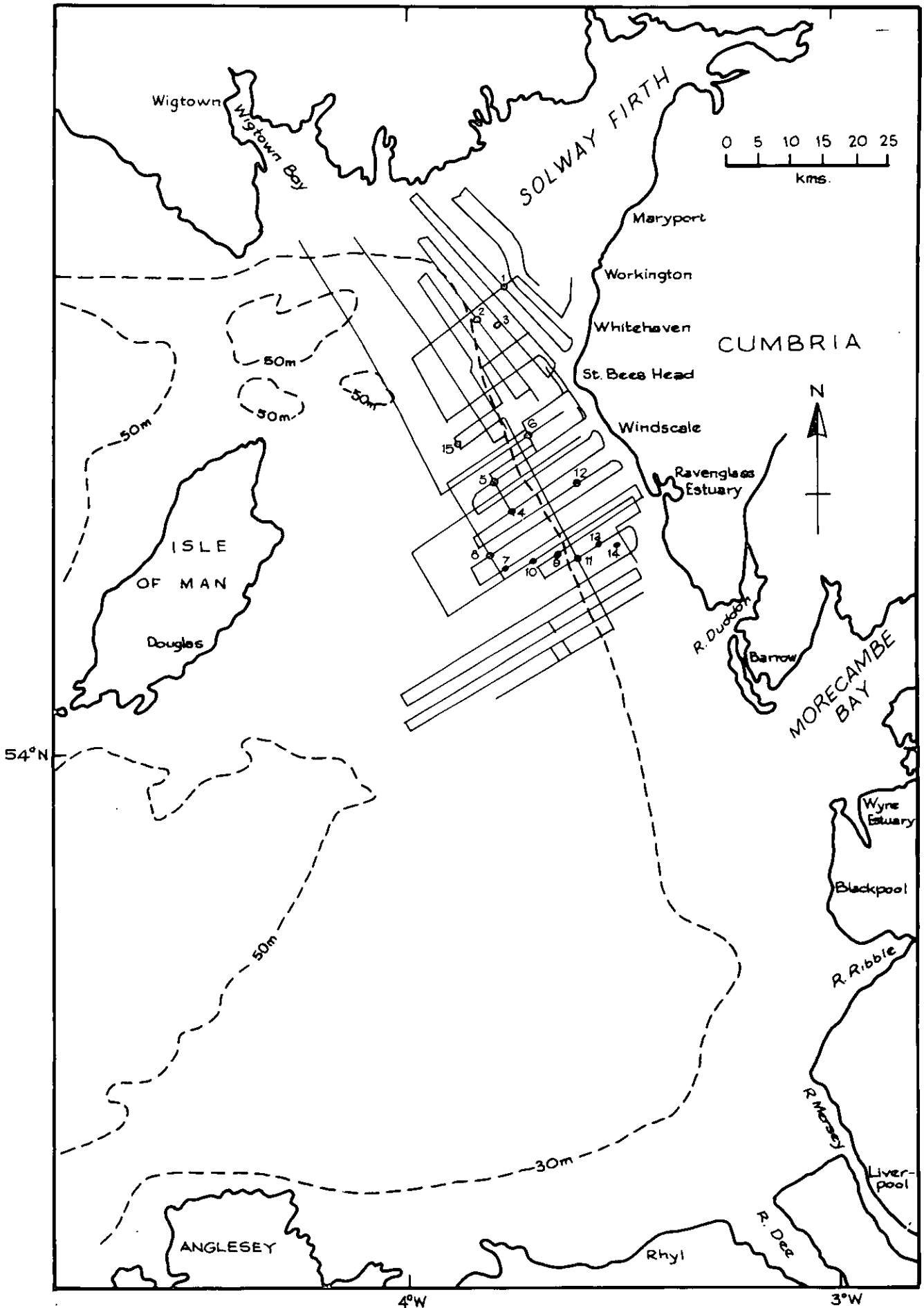
Extensive sidescan coverage was obtained but interpretation difficulties were encountered. Much of the seabed is smooth and featureless and it is not possible to distinguish mud from muddy sand. However the general boundary of the mud area was defined. The seabed was extensively disturbed by trawler marks.

The ORE record quality was generally good in the muddy areas and many reflectors were seen, testifying to the complex Flandrian history. Gas was commonly apparent on the records. The muds off Windscale appear to have accumulated E of a sandwave covered bank which has been progressively buried. The TV confirmed the frequent nature of trawl disturbance to the seabed. Otter board and ground chain marks were observed.

The degree and depth of bioturbation of the samples was something of a surprise but confirmed IGS information. Some

samples consisted entirely of pelleted mud. This highlighted the apparent disparity between the geochemical evidence obtained by MAFF and others, interpreted, from the isotope ratios, as showing progressive steady accretion, with the biological and sedimentological evidence which suggests frequent and rapid re-working. This apparent contradiction will be investigated jointly by MAFF and IOS on later cruises.

PREPARED BY : *R Kirby* (R KIRBY)
APPROVED BY : *K R Dyer* (K R DYER)
DATE : 25.2.80 25.2.80.



Geophysical Survey Track and Sample Stations 12-28 June 1979
Bon Accord