VESSEL R R S JOHN MURRAY

CRUISE PERIOD 11-17 November 1977

PERSONNEL

P G Watson	SSO	Senior Scientist
J J Cleary	SSO	
R J Clifton	SSO	
Miss C M Jackson	ASO	
Mrs P E Thomson	ASO	

ITINERARY A sketch chart and list of stations are attached

Thursday	November	10	Travel to RVB Barry. Unload and install equipment.
Friday	"	11	Depart RVB Barry 08.30. Proceed to anchor station 1 at Newport Deep. On station 13.00. Commence sediment and water sampling and analysis. 1600 Vessel dragging rapidly and engines not assisting. Return to RVB Barry in W. winds increasing to 60-70 knots. Berthed at 20.30 .
Saturday	"	12	Very strong W. winds. Remained at RVB Barry. Continued analysing samples collected at station 1. Work completed at 2100.
Sunday	"	13	Depart RVB Barry 11.00 proceed to anchor station 1 Newport Deep. On station 1436. Commence sediment and water sampling and analysis. Continuing at hourly intervals until 2038. Unable to prevent anchor dragging. Returned to RVB Barry berthed at 23.00.
Monday	"	14	Strong W. winds. Weather forecast W.F 7-9, increasing storm 10. Remained at RVB Barry. Continued analytical work until 20.00.
Tuesday	"	15	Strong W to NW winds. Planned to sail at 19.00 hrs. Made survey of dock and coastal area for surface film samples. All areas too disturbed. 1300 sailing postponed until 0700 on 16.11.77.
Wednesday	"	16	Depart RVB Barry 07.20 proceeding to anchor station 3, Bridgwater Bay. On station 09.30. Commenced sampling and chemical analysis continuing at hourly intervals until 2200. Analytical work complete at 2330.

Thursday	November	17	At 0715 proceed to anchor station 2, Bridgwater Bay. On station 0735. Calibration of equipment carried out. Commenced sampling 1000 and continued at hourly intervals until 1700. At 1800 return to RVB Barry berthing at 2010. Analytical work complete at 2100.
Friday	"	18	Dismantle and load equipment. Return to Plymouth.

OBJECTIVES

A. At four anchor stations to study the release of chemical compounds from bottom sediments as a result of tidal disturbances.

B. To collect and filter sea water samples from five stations in Swansea Bay for return to Plymouth for bio-assay experiments.

PROCEDURE AND METHODS

1. Sampling

Sediment samples were collected using a Day grab, since the Shipek grab proved unsuitable in the strong currents encountered.

Water samples from just below the surface and near to the bottom were collected with NIO and Van Dornbottles at hourly intervals over 6 or 12 hour tidal cycles.

2. Methods

Salinity and temperature were determined at each sampling point using an MC5-TS bridge. pH was determined on the unfiltered water and then aliquots were filtered using pre-weighed filters (0.45 μ membrane) to determine particulate load. The samples of bottom water were filtered in a nitrogen glove box to minimise oxidation of reduced chemical species.

Chemical analyses were carried out on the filtered water for Zinc, Iron, Ammonia, Phosphate and Tannin-lignin (colorimetrically) and Zinc, Lead, Cadmium and Copper (by Anodic Stripping Voetammetry).

Radon and Methane were extracted from separate (30 L) water samples by flushing with Argon and adsorption onto cooled activated charcoal. Measurements were then made by desorbing Radon into a counting chamber and Methane into a gas chromatograph.

EQUIPMENT PERFORMANCE

1. The SP1800 spectrophotometer failed on 11.11.77 due to a fault in the decoder unit. This was repaired by an engineer during the enforced period at RVB Barry on 12.11.77. Subsequently problems were experienced due to surges during switch over from ship to shore power. It is clearly essential that during these switch over periods instruments are disconnected from the supply.

2. Because of shipping regulations regarding the use of hydrogen gas the chromatograph was deployed in a 'container laboratory' secured to the after deck. Whilst this was generally satisfactory, a badly leaking roof caused considerable problems until a tarpaulin could be obtained to cover it.

3. Problems were experienced with the 30 L Van Dorn bottles due to leaking taps and poorly seating end caps.

All other equipment performed satisfactorily.

RESULTS

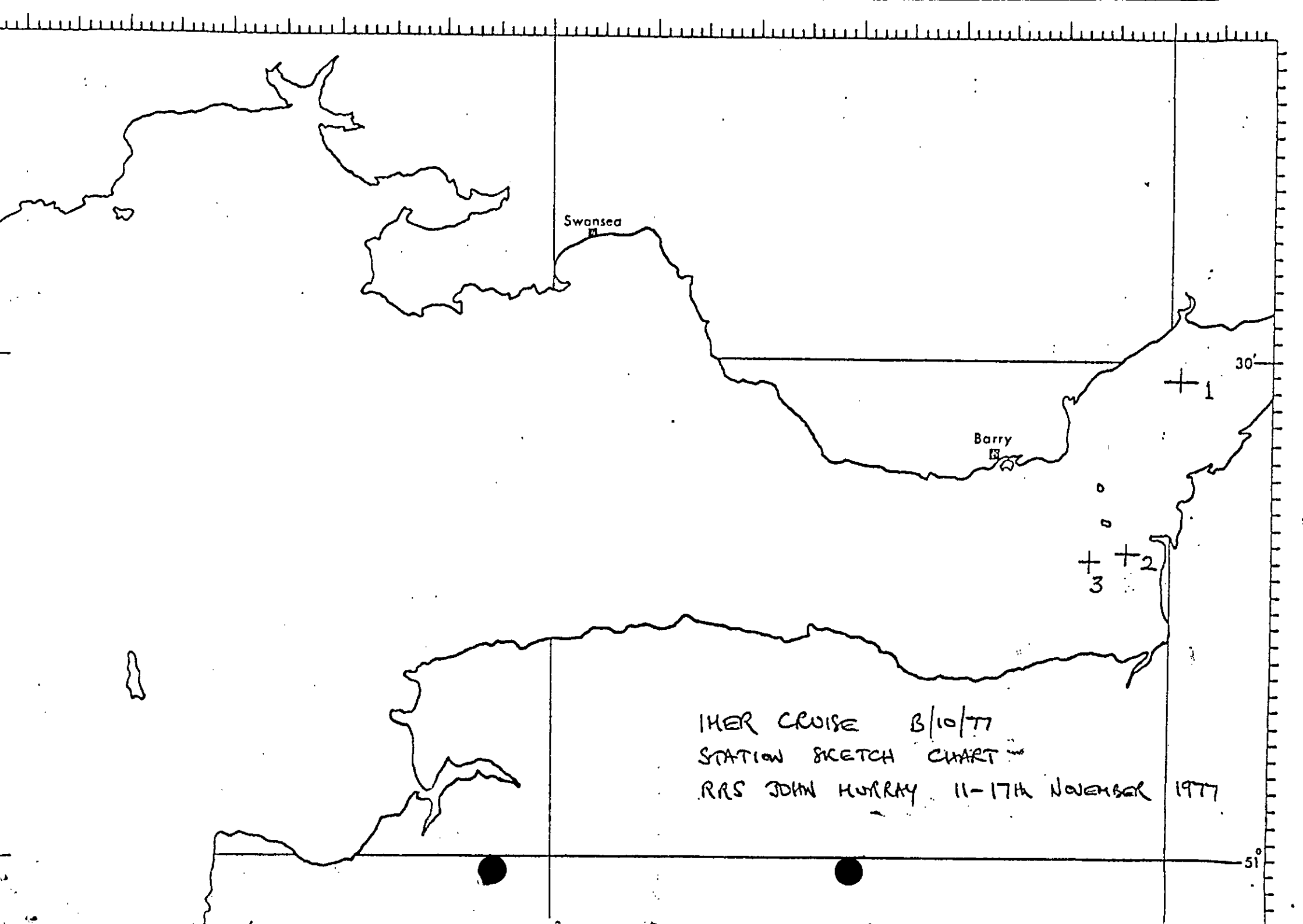
Firm conclusions must await detailed interpretation of the data. A full report will be made at the end of the current work period.

Despite the fact that adverse weather prevented any attempt to sample in Swansea Bay some 60% of the objectives were achieved.

Prepared by: P G Watson
Approved by: A R Longhurst
Date: 24.11.77.

STATION LIST

Station No.		
1	51° 28.5'N	02° 58.9'W
2	51° 18.85'N	03° 4.4'W
3	51° 18.2'N	03° 7.9'W


Swansea
Barry
30'
1
2
3
51°
IHER CRUISE 8/10/77
STATION SKETCH CHART
RRS JOHN MURRAY 11-17th NOVEMBER 1977

CIRCULATION LIST - BRISTOL CHANNEL

Internal

Glover

Hamilton
Robinson
Fay

File
Notice Board - (Brown)

External

NERC

Foxton
Director STS - NORC-London

IOS

Mrs Edwards (BODS)
Cartwright (Bidston)
Charnock (Wormley)
Tucker (Taunton)

IGS

Moore

MBA

Denton

SMBA

Currie

MAFF

Lee
Cushing
Wood

DAFS

Parrish

RVB

Stobie - (2)

DOE

Graham, London

WRC

Eden, Stevenage

Welsh Office

Naylor Firth - (4)

ICI

Pearson

BRISTOL UNIVERSITY

Dineley
Eglinton

UNIVERSITY COLLEGE CARDIFF

Bellamy
Hammond

UWIST CARDIFF

Davies

UNIVERSITY COLLEGE SWANSEA

Knight-Jones (3)

IMPERIAL COLLEGE OF SCIENCE & TECHNOLOGY

Webb

UNIVERSITY OF LIVERPOOL

Abdullah

WATER AUTHORITY

Welsh National
Severn-Trent
Wessex
South West