

IMER B/9/77

RVB 13/77

VESSEL

RRS JOHN MURRAY

CRUISE PERIOD

25 October - 6 November 1977

PERSONNEL

I R Joint	SSO	Senior Scientist
R F C Mantoura	SSO	
M B Jordan	HSO	
A J Bale	SO	
R M Howland	SO	
T Kendall	SO	
A J Pomroy	ASO	

ITINERARY

A sketch chart and station list are attached to this report.

Tuesday	October	25	Locked out Barry 0830. Relaid moored current meter 1200. Began sampling on line transect through stations 1 to 5 at 1251.
Wednesday	"	26	Completed sampling on line transect at 0149. Began sampling on track 1, at 0150 and completed track 1 at 2305.
Thursday	"	27	Anchored station 3 at 0703; current meter measurements began at 0830 and continued at 45 minute intervals. Sampling and experimental work began at 0830 and completed at 2330.
Friday	"	28	Sampling and experimental work began at 0830 and completed at 2300.
Saturday	"	29	Sampling and experimental work began at 0800 and completed at 2300.
Sunday	"	30	Sampling and experimental work began at 0800. Current meter measurements and all experimental work stopped at 1755 because of adverse weather. Locked in Barry at 2000.
Monday	"	31	In Barry all day.

Tuesday	November	1	Locked out Barry 1030. Sampled in track 3. Locked in Barry 2100.
Wednesday	"	2	Locked out Barry 1900: sampling on line transect through station 1 to 5 began at 2030.
Thursday	"	3	Sampling completed on line transect at 0930. Locked in Barry 1100 because of bad weather.
Friday	"	4	Locked out Barry 1330. Sampled on track 2 to station 9 in Swansea Bay. Sampled stations 9 to 24 from 1745 until 2035. Continued sampling on track 2 at 2100.
Saturday	"	5	Completed sampling track 2 at 0930. Began sampling on track 3 at 1300 and completed at 2300.
Sunday	"	6	Locked in Barry at 1030.

OBJECTIVES

- a) To measure the spacial variability of dissolved organic and inorganic nutrients, phytoplankton and zooplankton.
- b) To measure the fluxes of organic and inorganic nutrients between phytoplankton, heterotrophic microbes and omnivorous zooplankton, and to measure the rates of primary and secondary production.
- c) To make current meter measurements at two stations.

PROCEDURES AND METHODS

The methods were those outlined in the cruise programme.

a) The following measurements were made on tracks 1, 2 and 3, on the line transect through stations 1 to 5 and on the grid of stations 9 to 24; salinity, temperature, turbidity, nitrate, nitrite, phosphate, silicate, ammonia, dissolved organic carbon and chlorophyll. Zooplankton were sampled by pump using a deck mounted serial collecting system and by oblique hauls with a Lowestoft sampler.

b) At the experimental station, 3, water samples were maintained at ambient temperature and the following measurements made at regular time intervals;

- i) dissolved organic carbon
- ii) numbers of heterotrophic microbes
- iii) Assimilation rates of ^{14}C glucose by microbes. Daily measurements were made of the rates of primary production and excretion of organic carbon by phytoplankton. Grazing experiments were done with known numbers and species of zooplankton, feeding on natural particulate matter labelled with $^{14}\text{CO}_2$; the excretion of dissolved organic matter and primary amines by mysids was also measured.

- c) A direct reading current meter was deployed for $6\frac{3}{4}$ tidal cycles at station 3.

EQUIPMENT AND
OTHER FAILURES

MSES were unable to supply the Plessey thermosalinograph for the beginning of the cruise and the instrument was not available until day 4 of the cruise.

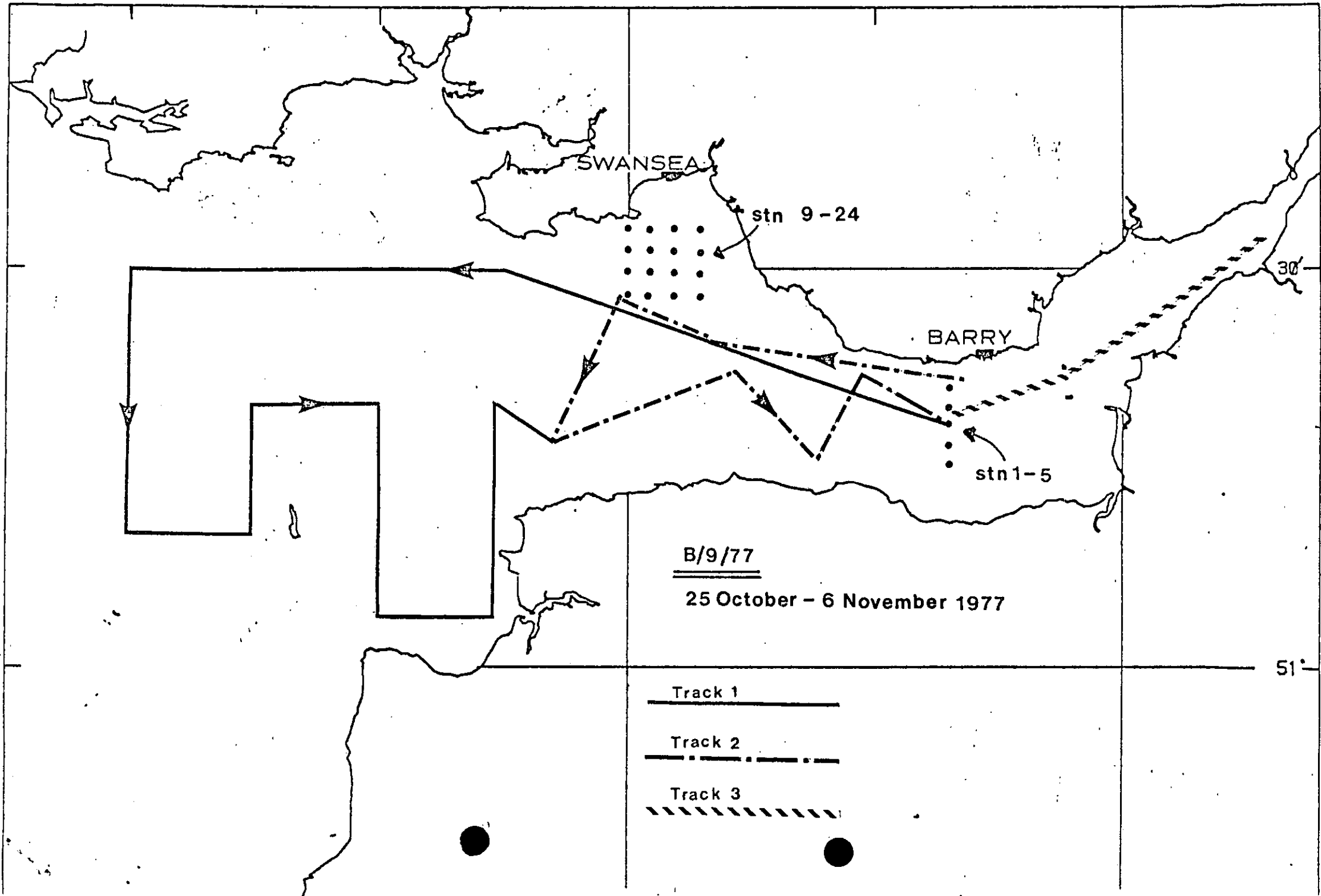
Adverse weather curtailed work on station 3 and only $3\frac{1}{2}$ of the proposed 5 days could be worked. None of the proposed 5 days at station 14 could be worked because of bad weather. However, all other sampling was completed and most objectives were achieved.

Prepared by:
Approved by:
Date:

I R Joint
R S Glover
15 November 1977

STATION LIST

	Lat. N.	Long. W.
1	51° 20.5'	03° 21'
2	51° 19.25'	03° 21'
3	51° 18'	03° 21'
4	51° 16.75'	03° 21'
5	51° 15.5'	03° 21'
9	51° 28.9'	04° 00.5'
10	51° 30.3'	04° 00.5'
11	51° 31.7'	04° 00.2'
12	51° 33.1'	03° 59.7'
13	51° 33.1'	03° 57.5'
14	51° 31.6'	03° 57'
15	51° 30.3'	03° 57.3'
16	51° 29'	03° 56.8'
17	51° 29'	03° 55.2'
18	51° 30.3'	03° 55.2'
19	51° 31.7'	03° 55.4'
20	51° 33'	03° 55.1'
21	51° 33'	03° 53'
22	51° 31.7'	03° 53'
23	51° 30.2'	03° 53'
24	51° 29.0'	03° 53'



CIRCULATION LIST - BRISTOL CHANNEL

Internal

Glover
Longhurst

Hamilton
Robinson
Fay

File
Notice Board - (Brown)

External

NERC

Foxton
Director STS - NERC - London

BRISTOL UNIVERSITY

Dineley
Eglinton

IOS

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

UNIVERSITY COLLEGE CARDIFF

Bellamy
Hammond

IGS

Moore

UWIST CARDIFF

Davies

MBA

Denton

UNIVERSITY COLLEGE SWANSEA

Knight-Jones (3)

SMBA

Currie

MAFF

Lee
Cushing
Wood

IMPERIAL COLLEGE OF SCIENCE & TECHNOLOGY

Webb

DAFS

Parrish

UNIVERSITY OF LIVERPOOL

Abdullah

RVB

Stobie - (2)

WATER AUTHORITY

Welsh National
Severn-Trent
Wessex
South West

DOE

Graham, London

WRC

Eden, Stevenage

Welsh Office

Naylor Firth - (4)

ICI

Pearson