VESSEL RRS JOHN MURRAY

CRUISE PERIOD 9 - 15 January 1976

PERSONNEL

I R Joint	SSO	Senior Scientist
W W Brown	SSO	
P H Burkill	HSO	
T Kendall	SO	
A J Pomroy	ASO	
N R Milbourne	ASO	

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

Friday January 9		Locked out Barry 0830, Arrived on Station 1 at 1015. Samples taken until 2230.
Saturday " 10		Hourly sampling started at Station 2 at 0800. Sampling abandoned at 1700 because of weather, Locked in Barry 2130
Sunday " 11		In Barry because of bad weather.
Monday " 12		Locked out Barry 1130. Arrived Station 3 at 1245. Hourly sampling until 0100.
Tuesday " 13		Sampling started at Station 4 at 0840 Last sample taken at 2100.
Wednesday " 14		Sampling started at Station 5 at 0800 Last sample taken at 2100.
Thursday " 15		Sampling started at Station 6 at 0630. Last sample taken at 1630. Locked in Barry at 1745.

OBJECTIVES

1. To measure rates of primary and secondary production.
2. To investigate dissolved inorganic and organic nutrients.

PROCEDURES & METHODS.

1. At each station, water samples were taken at the beginning of each day for the following determinations
   a) $^{14}CO_2$ uptake rate by phytoplankton in a simulated in situ incubator.
   b) Excretion of organic compounds produced during photosynthesis at six light intensities.
   c) Oxygen uptake rates by water samples incubated at ambient temperature for periods up to 24 hours.
   d) Uptake rates of ^{14}C glucose and ^{14}C amino acid mixtures, and the production of $^{14}CO_2$ from these compounds by water samples incubated at ambient temperature.

At stations 1, 3, 4 and 6 living zooplankton were collected with the metre net for the following experiments.

e) 20 animals of the same species were incubated for 24 hours with known concentrations of three algae, Isochrysis, Chryptomonas and Phaeodactylum and the change in cell number determined by Coulter Counter.
f) 20 animals of the same species were incubated for 24 hours in filtered seawater. The water was then filtered for analysis of particulate carbon and nitrogen and the water was analysed for dissolved ammonia and urea.

2. At each station, the following measurements were made over one tidal cycle.

a) Continuous measurement of turbidity of the surface water with the Partech turbidity meter.
b) Continuous measurements of salinity and temperature could be made for just 4 hours on the first day before the Plessey thermosalinograph stopped recording temperature. After this, readings were taken every 15 minutes, of salinity and temperature with an MC5.
c) Every hour readings were taken with the MC5 and Partech at 5 meter intervals down the water column.
d) Water samples were taken every hour at the surface and near the bottom for subsequent analysis of dissolved organic carbon and nitrogen.
e) Water samples were taken every hour at the surface for the determination of ATP, chlorophyll, particulate carbon and nitrogen, dissolved inorganic nutrients, ammonia and urea. The UV absorption spectrum was determined for each water sample using the Pye Unicam SP1800 spectrophotometer. Each water sample was also plated on selective media for the emmeration of bacteria and fungi.
f) Every four hours, the same procedures were carried out on additional water samples taken at mid depth and bottom.

EQUIPMENT AND OTHER FAILURES

The RVB Plessey thermosalinograph stopped recording temperature after 4 hours on the first day. There was a break somewhere in the cable between the recorder and the thermistor which we could not trace.
All other equipment performed well.

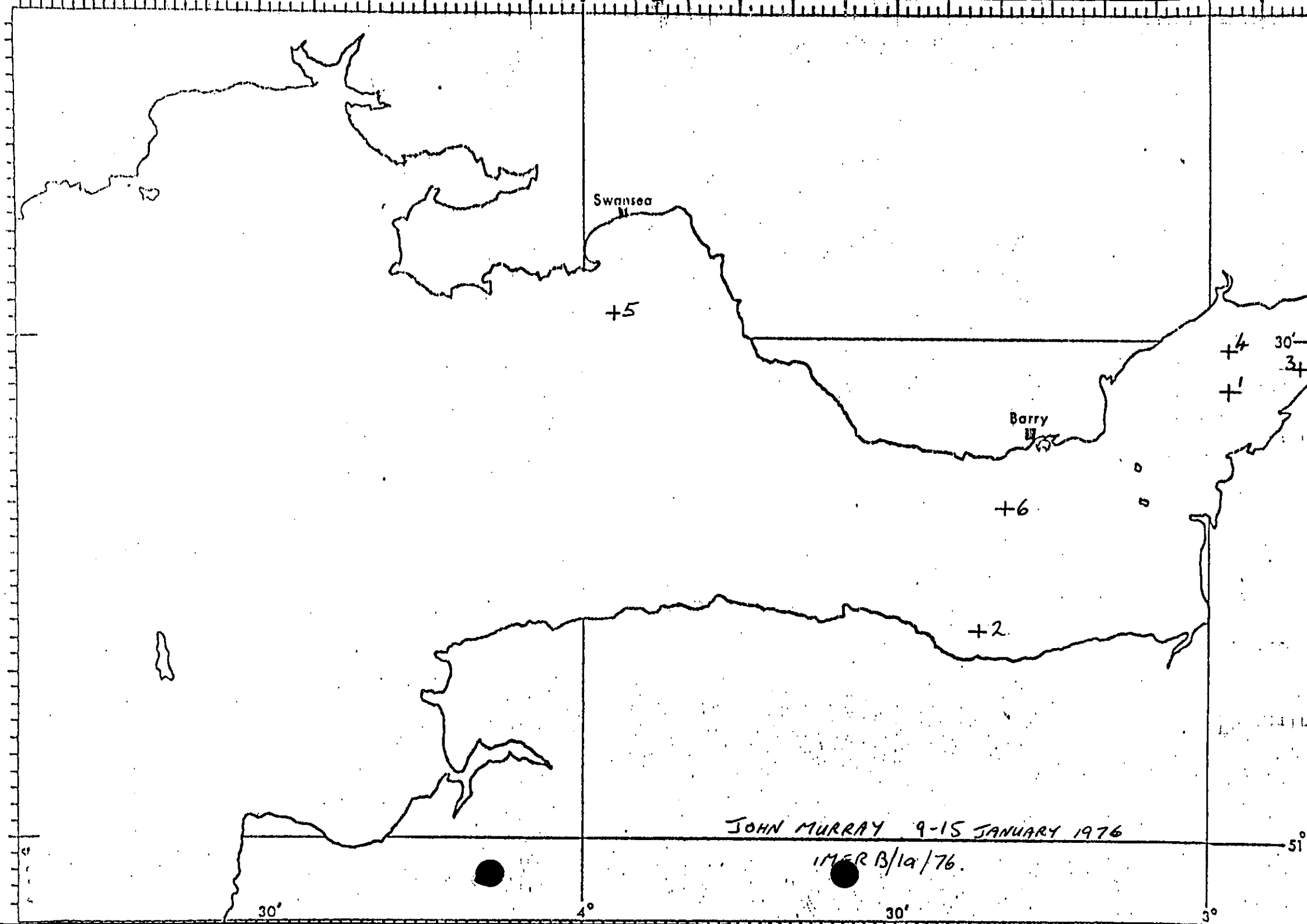
RESULTS

Six stations were worked. Bad weather prevented work on three of the stations proposed in the cruise programme. However, two extra stations were worked upstream of the Holm Islands on days when conditions were bad in the rest of the Bristol Channel.

Prepared by: I R Joint
Approved by: A R Longhurst
Date: 30 January 1976.

STATION LIST

No	Lat. N.	Long. W.
1	51° 26.8'	02° 58.3'
2	51° 12.6'	03° 22.0'
3	51° 28.05'	02° 51.0'
4	51° 29.4'	02° 58.4'
5	51° 31.1'	03° 57.3'
6	51° 19.8'	03° 19.8'


Swansea
Barry
+5
+6
+2
+4
+1
30'
3
JOHN MURRAY 9-15 JANUARY 1976
IMER B/19/76.
51°
30'
4°
30'
3°

CIRCULATION LIST - BRISTOL CHANNEL

Internal

Glover
Longhurst
Hamilton
Robinson
Fay
File
Notice Board - (Brown)

External

NERC

Foxton

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

Garnett, London

CWPU

Wise, London

WRC

Eden, Stevenage

Welsh Office

Naylor Firth - (4)

ICI

Pearson

BRISTOL UNIVERSITY

Dineley
Eglinton

UNIVERSITY COLLEGE CARDIFF

Bellamy
Hammond

UWIST CARDIFF

Edwards

UNIVERSITY COLLEGE SWANSEA

Banner
Knight-Jones
Nelson-Smith
Brooks
King

UNIVERSITY COLLEGE LONDON

Morris

IMPERIAL COLLEGE OF SCIENCE & TECHNOLOGY

Webb

UNIVERSITY OF LIVERPOOL

Abdullah

WATER AUTHORITY

Welsh National
Severn-Trent
Wessex
South West