

MINISTRY OF AGRICULTURE, FISHERIES AND FOOD
FISHERIES LABORATORY, LOWESTOFT, SUFFOLK NR33 0HT, ENGLAND

1992 RESEARCH VESSEL PROGRAMME

PROGRAMME: RV CORYSTES : CRUISE 11/92

STAFF:

- J M Rees (Scientist in Charge)
- D Kirkwood (28 Sept-4 Oct)
- J Read (28 Sept-4 Oct)
- D Sivyer (28 Sept-4 Oct)
- N Faber (28 Sept-4 Oct)
- J Taylor (28 Sept-4 Oct)
- N D Pearson (4-12 Oct)
- B Riches (4-12 Oct)
- A Emery (4-12 Oct)
- M O Green (University of Cambridge) (4-12 Oct)
- S Hall (SOAFD) (6-10 Oct)
- S Heaney (SOAFD) (6-10 Oct)

DURATION:

28 September-12 October

LOCALITY:

North Sea, Wash and Humber

AIMS:

Part a

1. To identify and quantify the fate of river-borne nutrients entering the Wash and Humber estuary, examining nutrient distributions and critical processes from the river inputs through to the North Sea in subtidal sediments and overlying water.
2. To measure factors affecting benthic nutrient recycling in subtidal sediments along a transect across the North Sea.

Part b

1. To locate a muddy sand site in 25 m of water in Newburgh Bay, Aberdeen, Scotland for a long deployment of the Tetrapod. This site is exposed to northerly gales with the potential for extreme long period wave activity important for the resuspending of Cohesive sediments. The effects of the storm on the Benthos will be part of a longer term study by SOAFD.
2. To survey the proposed site and identify the sediment characteristics.
3. To identify the hydrographic environment in the vicinity of the proposed deployment site.
4. To deploy the Tetrapod, Quadrapod and guard buoys in Newburgh Bay for a long deployment (to be serviced in December by RV Scotia and recovered in January).

LOCALITY:

North Sea, Wash and Humber

PLAN (all times GMT):

Part a

After sailing at 1000 h on the 28 September RV CORYSTES proceeded to the North Killingholme sediment process site (HSP2) on the Humber. On the morning of the 29th sediment cores were taken with the NIOZ corer and nutrient samples taken from top and bottom to complete the sediment process site. The Humber plume Nutrient Grid was then completed during the remainder of the day. On the morning of the 30th the Wash sediment process site was completed. The Wash Nutrient grid was completed during the afternoon and early evening. Over the remainder of the 30th and 1 October the North Sea Nutrient grid was undertaken except for the Thames transect because of time constraints. On Friday the 2nd the BELS2 sediment process site and the remainder of the North Sea Nutrient Grid was completed. During the morning of the 3rd the OSP (Outer Silver Pit) sediment process site was finished and CTD nutrient stations were completed on passage back to Lowestoft.

Part b

Having left Lowestoft at 1630 h on the 4th, two CTD stations were completed on the 5th on the Tyne and Tees Plumes. Dr Steve Hall and Steve Heaney (SOAFD) joined on the morning of the 6th off Aberdeen and the CORYSTES proceeded to the proposed Tetrapod deployment site just north of Aberdeen. Here a Day grab and TV sledge survey proved the area to be ideal with muddy sand predominating. However, due to shipping activity near the port of Aberdeen, the tetrapod site was moved north approximately 5 miles which was also a muddy sand. The Tetrapod and Quadrapod (UC) were deployed for a 24 hr test deployment on the morning of the 7th. A further Day grab survey was undertaken to characterise the local benthos (SOAFD). A Sidescan and RoxAnn survey was completed in the evening. A test deployment of the Benthos U/W Plankton camera was undertaken to test if sediment flocs can be observed and hence floc settling velocity estimated.

The Tetrapod and Quadrapod were recovered on the 8th and NIOZ cores taken to estimate vertical variation in benthos (SOAFD). As the weather conditions worsened and the forecasts continued to look poor, the Tetrapod and Quadrapod were deployed early on the evening of the 8th. The Guard Buoys and a CTD section were completed on the morning of the 9th before steaming south for a CTD (nutrient) station on the plume of the river Tay. Having dropped the SOAFD personnel off in Methil (Firth of Forth), sector scanner trials were undertaken for the whole of the 10th (Acoustic Tag range trials, Calibration with known objects and beam pattern estimation). Nutrient CTD were undertaken on the 12th before docking in S Shields on the morning of the 13th.

RESULTS:

Part a

1. Four sediment Process sites were completed in the Humber, Wash and at BELS2 and OSP.

2. The Humber and Wash plume nutrient grids were completed.
3. The North Sea Nutrient grid was completed except for the Thames region.

Part b

1. A muddy sand site was found in Newburgh Bay, Aberdeen and the Tetrapod and Quadrapod deployed for 70 days.
2. The deployment site was surveyed with TV sledge, Sidescan, RoxAnn and Day Grabs and proved to be an ideal site of muddy sand with no obstructions (rock outcrops etc) in 25 m of water.
3. Results (Fig 1 and 2) from the trial deployment of the Tetrapod proved to be very successful with an ideal orientation of the rig in relation to the flows.

J M Rees
(Scientist-in-Charge)
2 November 1992

SEEN IN DRAFT:

J R F
P M

INITIALLED:

C E P

DISTRIBUTION:

Basic List+
R Dickson
S Malcolm
J M Rees
D Kirkwood
N D Pearson
E Shreeve
B Riches
J W Read
A Emery
D Sivyer
N Faber
J Taylor
M O Green (University of Cambridge)
S Hall (SOAFD)
S Heaney (SOAFD)

Deployment 81 (Aberdeen)

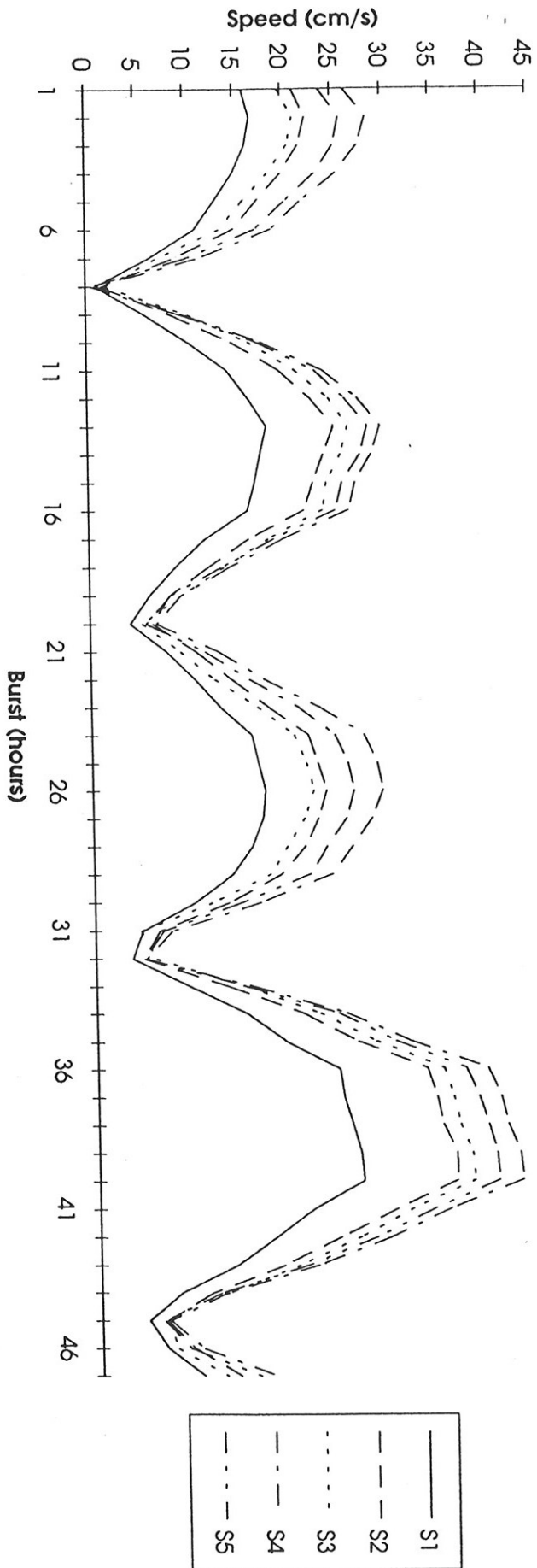


Fig 1

Deployment 81 (Aberdeen)

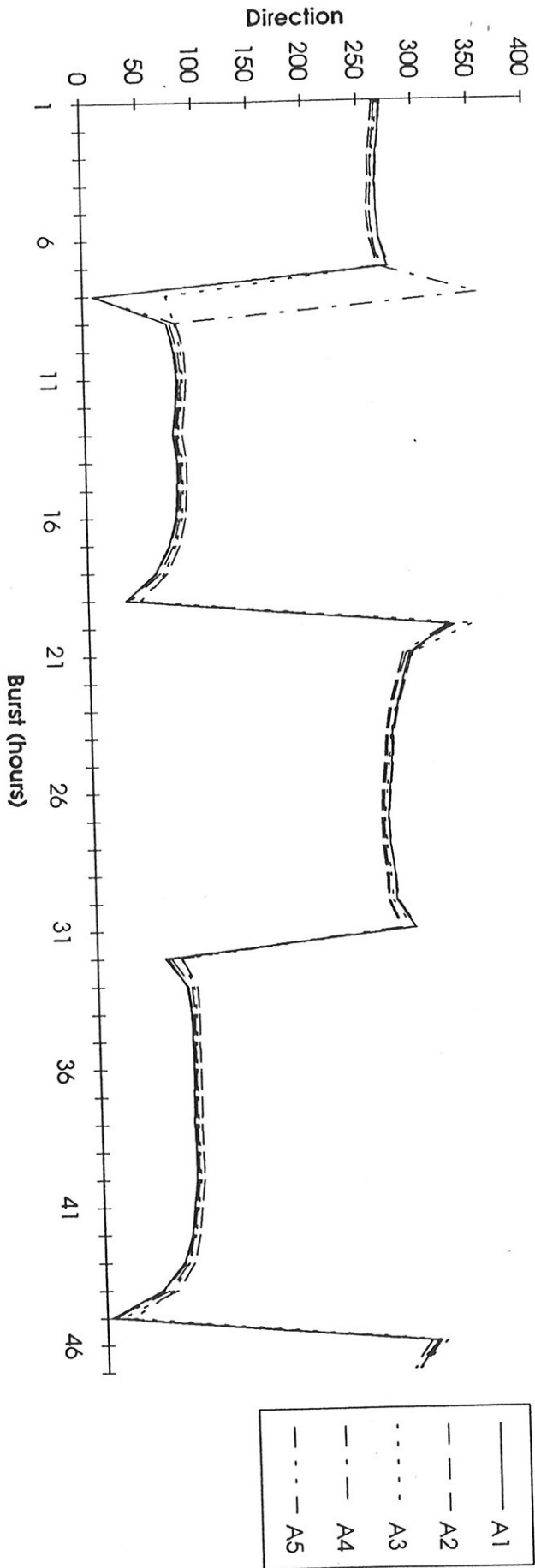


Fig 2.