

PROVISIONAL CRUISE REPORT

VESSEL: RV Squilla

CRUISE LOCATION: West Solent

CRUISE PERIOD: 28 July to 3 August 1981

PERSONNEL:

D N Langhorne	(Senior Scientist)	29 July-2 August
R A Haine		" " -" "
P D Thorne		" " -" "
G P Le Good		" " -31 July
A A Read		" " -" "
A P Salkield		31 July-2 August
D J Corns		" " -" "

OBJECTIVES:

a) To continue the measurements of the threshold and rates of movement of gravel in relation to boundary layer flow. (DOE Commission Project S26).

b) To carry out preliminary field trials to ascertain the noise levels and frequency spectra produced by gravel movement.

PROCEDURE AND METHODS:

Observations were concentrated in the area of long wavelength (12-16 m) gravel waves which occur on the south side of the West Solent. Measurements of boundary layer flow and gravel movement were made from a bottom rig which was deployed from the vessel at anchor. The rig was the same as that used on the previous cruise (RV Squilla, 25-30 June 1981) except that certain modifications had been made to the sediment trap and tail fin. In addition, pitch and roll sensors and a hydrophone assembly were fitted to the rig. As on the previous occasion boundary layer flow data was obtained from 4 Ott flow sensors and gravel movement was recorded from underwater TV.

The measurements of noise produced by gravel moving was made using the LCT 10 hydrophone assembly and associated amplifiers. Preliminary analysis was performed using an Hewlett Packard Spectrum Analyser (HP 3580).

EQUIPMENT PERFORMANCE:

1. a. Sediment trap: The sediment trap was modified before the cruise by

- redesigning the leading edges of the side walls.
- extending the length of the catchment tray.
- reducing the height of the collecting box.
- fitting baffle plates on the catchment tray to reduce circulation.
- fitting a larger tail fin.

As a result of these modifications better samples were obtained than those on the previous cruise. It was considered that less of the fine sediment was lost from the trap.

b. Ott flow sensors: Good.

c. Pitch and roll sensors: Good. On some occasions the tilt of the rig exceeded the 20° pitch limit on the sensors.

EQUIPMENT
PERFORMANCE:
(Contd)

d. Underwater TV: During the cruise, periods of very poor seabed observations occurred. These were initially thought to be due to suspended sediments (cf: previous cruise when no such results were obtained). Later in the cruise it became apparent that the automatic focus on the camera system was not operating correctly. It remains uncertain as to whether the poor results were due to bad underwater visibility or camera malfunction.

e. Trisponder: Good.

2. Self generated noise: Satisfactory preliminary results were obtained.

3. Ship performance: Generally good. Owing to ship movement with a single anchor it would be an advantage if there was a longer wire on the main boom.

Because of the large quantities of drifting weed, it was necessary to shut down the generators from time to time to clean the filters on the water cooling system.

RESULTS:

Reliable boundary layer flow measurements were obtained for most of the cruise. The results were only interrupted by drifting weed. The observations of gravel movement were often spoilt by poor TV performance. The modified sediment trap proved to be very successful and good samples were obtained. When positioned close to the crest, under strong flow conditions it was possible to obtain adequate samples at five minute intervals.

Self generated noise: Sufficient data were obtained to provide the necessary information for further development of the technique.

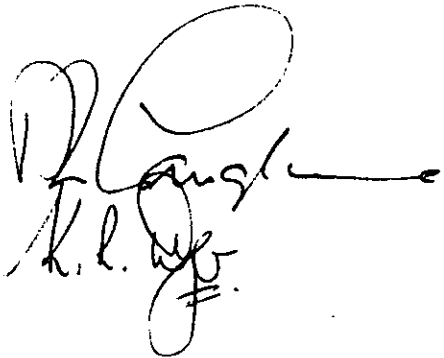
ITINERARY:

- 27.7.81 IOS equipment was transported to RV Squilla at Plymouth.
- 28.7.81 RV Squilla sailed for Yarmouth (Isle of Wight) with an overnight stop at Weymouth.
- 29.7.81 IOS staff travelled to Yarmouth and set up equipment on board and Trisponder remote stations on Yarmouth Pier and Lyminster Yacht staging.
- 30.7.81 Sailed for Yarmouth Pier 0830. Anchored in area of gravel waves for mobility studies. Returned and berthed on Yarmouth Pier 2030.
- 31.7.81 Sailed 0830. Continued gravel studies. Berthed 1800.
- 1.8.81 Sailed 0830. Continued gravel studies. Berthed 1945.
- 2.7.81 Sailed 0830. Continued gravel studies. Recovered equipment 1800. Berthed 2030.

ITINERARY:
(Contd)

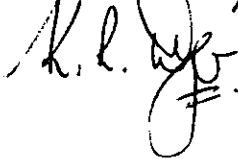
3.8.81 RV Squilla sailed for Plymouth.
IOS staff returned to Taunton

PREPARED BY:



(D N LANGHORNE)

APPROVED BY:



(K R DYER)

DATE: 3.9.81