

PROVISIONAL CRUISE REPORT

VESSEL: MV JOHN STEPHENSON

OWNER: Cheverton Industrial and Marine Services Ltd, Cowes.

CRUISE LOCATION: The Solent

CRUISE PERIOD: 22-29 March 1983

PERSONNEL: D N Langhorne (Senior Scientist)
A D Heathershaw
P M Hooper
E J Moore
A A Read

Visitors: R Cooney)
P Jenkins)Hydrographic Department, MOD
P Westcott)
P D Thorne)IOS Taunton
L Troiano)

OBJECTIVES:

1. To resurvey the area of seabed gravel between Yarmouth and Hamstead Ledge in the West Solent; the area having been previously surveyed by IOS Taunton in January 1981.
2. To carry out simultaneous tidal stream observations at two stations in the gravel area of the West Solent.
3. To carry out preliminary observations for a possible future study on a drying gravel bank.

PROCEDURE AND METHODS:

Objective 1: Trisponder remote stations were set up on the yacht racing staging at the entrance to Lymington river (434875E, 93528N) and on the roof of the hut at the seaward end of Yarmouth pier (435432E, 90002N). Batteries were provided for the former whilst mains power was used for the latter.

The Raytheon echo sounder transducer and EG & G sidescan sonar fish were pole mounted on the starboard side of MV John Stephenson.

The survey craft was navigated using the Trisponder Track Plotter (scale: 1:5000).

Objective 2: IOS Taunton vessel Sandpebbler was moored to an Admiralty No 4 mooring buoy (position: Yarmouth Pier, 1497 m; Lymington yacht racing staging, 3470 m) in an area of short wave length gravel. John Stephenson was anchored in an area of flat-bed gravel (position: Yarmouth Pier, 1570 m; Lymington yacht racing staging, 2916 m).

DNC-3 direct reading current meters were used from each vessel. The depth of each flow measurement was recorded from the meters' internal depth sensor. 100 lbs streamlined lead sinkers were attached beneath each meter.

Objective 3: MV John Stephenson was anchored close to the north face of the Winner Bank at the entrance to Chichester Harbour. At high tide a 16 ft inflatable dinghy tethered to the John Stephenson, was motored onto the bank and anchored. An underwater TV camera and a direct reading current meter were deployed from the inflatable and the data transmitted by cable to the parent vessel. Observations of gravel movement and flow velocity were recorded during the ebb tide prior to the bank drying out.

EQUIPMENT
PERFORMANCE:

1. Trisponder: Excellent.
2. Sidescan sonar: Due to bad sea conditions at the beginning of the cruise the pole mounted system could not be used. Once the sea conditions moderated good records were obtained.
3. Raytheon Echo Sounder: The echo sounder transducer was initially pole mounted with the sidescan sonar transducer. When this system was abandoned, due to bad sea conditions, the transducer was placed in water in the bilges above the keel. Acceptable results were obtained in water depths of up to 20 m.
4. Underwater TV: Good. A protecting frame was fitted in front of the lens to prevent damage from contact with the seabed.
5. DNC-3 Current meters: These instruments with built-in pressure depth sensors are well suited for use in strong tidal streams. One instrument failed, however, after 2 hours operation. The failure could not be rectified on site.

SHIP PERFORMANCE: MV John Stephenson is an excellent vessel for inshore survey work. Her hire charge is also relatively cheap. On delivery her echo sounder did not work. Her anchoring facilities are inadequate for anchoring in strong tidal flow in a gravel sea bed. For the tidal stream observations, discussed above, an IOS Taunton Waverider anchor and additional chain was used. This was considerably larger and heavier than that provided on the boat but nevertheless was insufficient.

RESULTS:

1. Good sonar results were obtained once sea conditions moderated. Preliminary analysis shows that the bedform zones detected in January 1981 still exist. Detailed analysis will reveal whether there are significant changes in wavelength or amplitude of the gravel waves in the different zones.
2. The trials carried out on the Winner Bank were invaluable for revealing the logistic problems of working in such an area. If experiments are to be conducted in this area, with bottom mounted instruments tethered to the parent vessel, then reliable anchoring (mooring) facilities are essential.
3. The tidal stream observations were abandoned due to failure of one DNC-3 current meter and MV John Stephenson dragging her anchor. Larger (heavier) anchors and chain would exceed manual capabilities. As it was, the vessel dragged its anchor over 2 miles before the anchor was recovered.

ITINERARY:

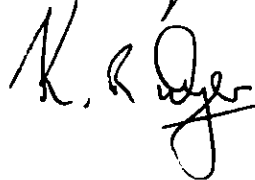
- 22.3.83. IOS Taunton staff travelled to Lymington and thence by ferry to Yarmouth and Cowes. Took delivery of MV John Stephenson, returned to Lymington and set up equipment on board. Set up Trisponder remote station at Yarmouth.
- 23.3.83. Wind NW Force 8. Sea too rough for survey operations.
pm - 3 Hydrographic staff joined for survey instruction.
- 24.3.83. Attempted sonar survey but abandoned due to bad sea conditions.
- 25.3.83. Attempted sonar survey but abandoned due to bad sea conditions. Hydrographic staff returned to Taunton. P D Thorne and L Troiano joined.
pm - converted sonar from pole mounted configuration to normal towing.
- 26.3.83. Sea conditions moderated during the day. Carried out sonar and echo sounder survey of the gravel study area.
- 27.3.83. By boat to Chichester Harbour entrance. Gravel studies on drying bank.
pm - returned to Lymington.
- 28.3.83. Tidal stream observations from two vessels in the West Solent gravel area. First observations 1130 hrs.
1300 hrs - current meter failed on MV John Stephenson.
1415 hrs - John Stephenson dragged anchor.
1530 hrs - Anchor recovered. Abandoned tidal stream observations.
- 29.3.83. Returned MV John Stephenson to Cowes. Recovered Trisponder remote stations. Packed up equipment and returned to Taunton.

SIGNED:



D N LANGHORNE

APPROVED:



K R DYER

Date: 23: 5: 83.