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JA 2MR77

CRUISE REPORT

FRV MARA

28 February - 18 March 1977

| Personnel | | |
|---|---|---|
| | J Main | HSO In Charge |
| | R Priestley | HSO |
| | G I Sangster | SO |
| | E Wright | ASO |
| | W Leys | PTO IV |
| | A Tough | PTO IV |
| | P Barkel | PTO IV |

Objectives

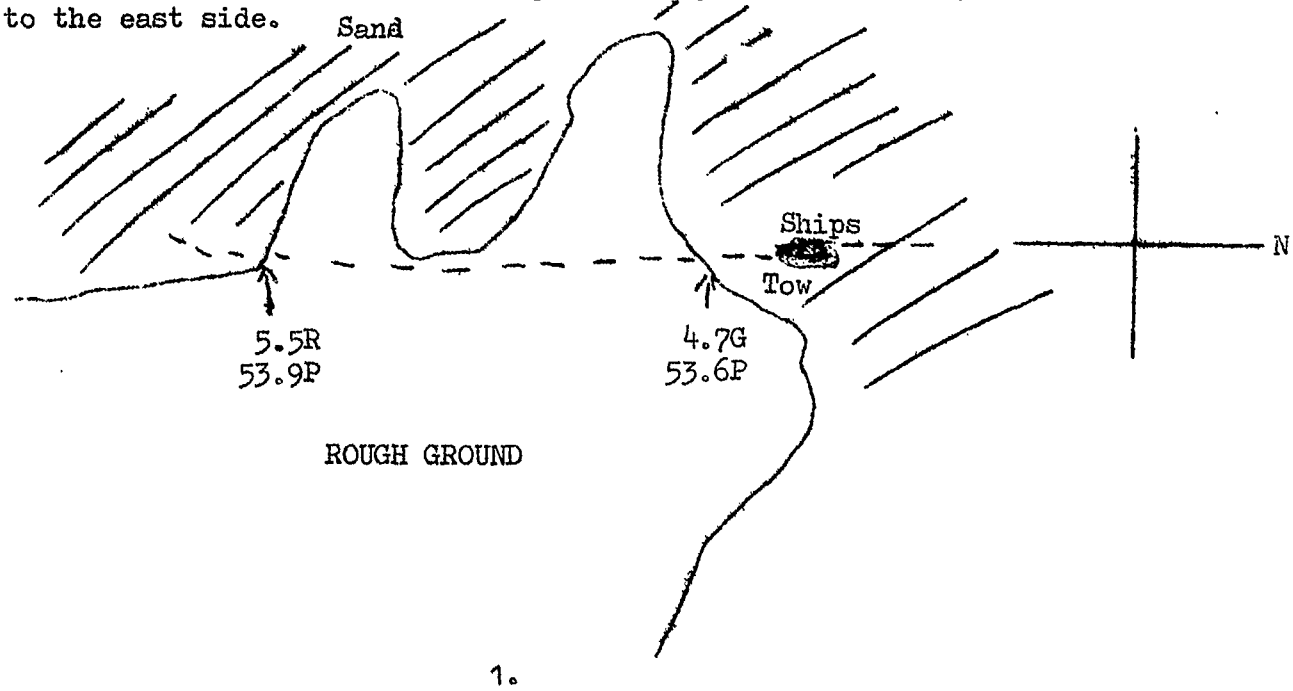
1) To make instrument and TV observations of the performance of both the Lossie and Boris Mystic trawls working in the transition from smooth sand to rough bottom.
2) To observe the behaviour of various trawl boards working from smooth sand to rough ground at various towing speeds.
3) To measure the sand cloud generation by trawl boards towing at various speeds.
4) To observe the reaction of trawl boards encountering underwater obstructions.

Procedure

The whole of the programme was carried out working daily from Buckie in the Spey Bay area.

The first objective was carried out giving a detailed picture using the echo sounder and Decca plotter of the hard ground to the east end of the Lossie tow. This survey has increased the Lossie experimental trawling area from $2\frac{1}{2}$ miles to 5 miles for clean ground and opened up an additional $2\frac{1}{2}$ square mile area for rough ground experiments.

Using the towed 2 man wet underwater vehicle, a few runs over the hard ground were made to assess the distribution and size of the stones and boulders in this new area. This showed small stones at the edge of the ground increasing to 4 to 5 ft boulders to the east side.



From this information a test area was selected and this proved to give a 14 minute tow at 3 knots over a variety in size of boulders on the rough ground with clean sand at each end.

With the very bad weather conditions prevailing during the whole cruise and the wind only dropping below force 4 on two of these days diving conditions were very difficult, with poor water clarity. Close up television pictures of flat, vee, cambered and polyvalent boards travelling over sand, stones and boulders were successfully recorded on video tape on all of the tests. Bobbin rigs on both nets were also observed on hard ground with interesting results. They demonstrated how the 4 panel trawl can work its way over 4-5 ft boulders without damage, while the Boris Mystic came fast on only a 3 ft boulder, stopping the ship. Also demonstrated on this bobbin rig was the jamming of the strops from bobbins to fishing line when coming onto hard ground, winding the belly down onto the top of the bobbins and only being held back from going right out by the leach lines. This could be a possible reason for belly damage not considered before. Deck tension meters to record the load on the boards were carefully matched to the TV pictures, recording on video tape of individual impacts of boards to boulders of sizes from 1 to 6 ft and tensions of 1½ to 37 cwts. above normal.

One attempt was made at measuring the sand cloud generated by the otter boards but the poor visibility and the heavy swell it was impossible to maintain the vehicle in position long enough to fix all of the points but from the tapes board and warp angles will be measured. A new technique for measuring the sand cloud was tested on this occasion and proved to give excellent results.

J MAIN
13 May 1977

Seen in draft: W T Mair