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FRV "Scotia" 6pt2SR85

Cruise 6/85 Part 2 LD

Report

26 June - 1 July 1985

Personnel

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Objectives

1. To measure 'in-situ' target strength of herring using the dual-beam system.

2. To test depth monitoring equipment.

3. To measure light intensity, turbidity and bioluminescence.

Narrative

"Scotia" left Aberdeen on the afternoon of 26 June and proceeded to anchor off Slains to calibrate the echo-survey sounder. It was noted at this point that the EK400 Scientific Sounder was very insensitive when the hull transducer was in use, although it appeared to operate perfectly with the towed transducer. On completion "Scotia" sailed for Balta where herring traces had been reported.
No apparent herring marks were seen on route, and on arrival at Balta the dual beam towed body was deployed for towing trials. Previous trials had shown marked instability even at low speeds, but the addition of 40kg of lead appears to have made a marked improvement, and towing speeds of up to 8 knots were reached successfully. At the same time cable fairings were tried on the new cable for the standard towed body to try to reduce the vibration which had been seen when first used, and these also proved successful.

A survey for herring was then started, but no apparent traces were found, and "Scotia" anchored overnight in Balta Sound, where the dual beam equipment was calibrated. The survey was continued southward during the following day, and some strong fish echoes were observed south of Bressay. These were found to be small Norway pout, and no herring were found until 1 July, when some very shallow traces east of Balta were sampled by trawl, and proved to be adult herring. The dual beam system was then used to obtain data for target strength measurement, and this was repeated the following day a few miles further east. Another trawl sample gave a similar distribution of fish. The survey was continued to the south, but fish traces were only found east of Orkney too late for further dual beam work.

The Scanmar Catch Control system for use on the Gulf III plankton sampler was tested during the cruise as opportunities arose. The towed hydrophone had been mounted in a modified Simrad paravane to avoid recurrence of damage found during previous trials, Initially the paravane was unstable due to the altered weight distribution and to the 2 wire towing arrangement, but the addition of lead to the nose of the paravane and the use of standard netsonde cable rectified the problem.

A marker interface loaned to the Laboratory by Scanmar for evaluation was also tested. This allowed the position of the sensor (depth and height off the bottom) to be displayed on the EK400 sounder. Trials were carried out with the sensor on the headline of the trawl, on the Gulf III sampler and on the light measurement frame with good results, and information was relayed accurately from both close to the surface and near the bottom.

Measurements of light intensity at the surface and at various depths were taken whenever possible. In addition, estimates of the turbidity of the water were obtained, as were traces of bioluminescent activity in each of the areas surveyed. Light attenuation and turbidity remained remarkably constant over the period of the survey, but levels of bioluminescence were extremely variable, being almost non-existent at some sites.

"Scotia" returned to Aberdeen on the morning of 4 July.

Conclusions

All the aims of the cruise were successfully achieved, although the difficulty in finding suitable fish concentrations reduced the amount of target strength data obtained. Problems previously encountered with the deployment and towing of various acoustic transducers seem to have been satisfactorily solved, and the instruments under trial all worked well.

S T Forbes

23 July 1985

Seen in draft: W Findlay