Library

In Confidence: Not to be quoted without reference to the Laboratory 12MR79
R1/7 AR

FRV "MARA"
REPORT
Cruise 12/79
19 November-7 December 1979

Objectives

1. To observe the behaviour of the remote towed vehicle using the diver operated wet towed vehicle.
2. To use the remote vehicle to observe and record the behaviour of Nephrops reacting to a typical dual purpose Nephrops/fish trawl.

MARA was loaded on Monday 19 November and both towed underwater vehicles were prepared for television work.

The ship sailed daily from Buckie for the duration of the first week.

Observations were made from the diver operated vehicle using underwater television of the behaviour and attitude of the remote controlled television vehicle. The remote vehicle behaviour was recorded at a variety of towing speeds while manoeuvring in the vicinity of a bottom trawl.

Preliminary observations by divers were made on a factory supplied Boris 520 Prawn/Fish trawl which showed poor ground contact along the wings. Adjustments were made to the groundgear and the positioning of the floats which improved it bringing the whole of the groundgear into contact with the seabed and giving a headline height of 10 feet.

MARA was unable to sail on Monday 26 November due to NW'ly gales. The remainder of the week was used off Buckie on the Bellings Grounds to practice the techniques of handling the remote vehicle (RCTV) before attempting to make detailed observations of the trawl. Observations were made at various positions from the doors to the wing ends and along the top of the net to the codend.

To make useful observations on fish in front of the busom of the footrope a hole 8 feet long by 4 feet deep had to be cut in the lower wing. The vehicle was then manoeuvred into the hole allowing the camera to be positioned just in line with the footrope. Small fish were seen passing over the footrope and into the net during the tow. After hauling, the roundfish catch consisted mainly of small whiting (lengths 15 to 26cms).

During another experiment a light with a red filter was fitted to the vehicle allowing observations to be made during darkness in the area of the footrope. No problems were encountered in positioning the vehicle for observations but on every haul the vehicle or the cable came fast and the trawl gear and the vehicle had to be recovered together.

Useful observations of the behaviour of a variety of fish swimming in front of the busom of the footrope and falling back into the trawl were made and recorded on video tape. These include plaice, turbot and small whiting in daylight and dark.

The ship remained in Buckie on Friday 30 November to allow investigation of a source of interference on the television picture.

On 3 December the ship sailed for the prawn grounds off Nairn where the trawl was shot during the dark and using the technique developed during the previous week the vehicle was positioned in the hole to observe the footrope area. Unfortunately the mud cloud from the doors spreading along the wings of the net made it impossible to make any useful observations. The trawl had to be recovered due to deteriorating weather conditions and the ship sailed for Invergordon. The MARA was storm bound during the Tuesday and again the opportunity was taken to investigate the source of the interference on the camera picture.

Observations with the RCTV were conducted during the next two days during daylight and darkness but only a few observations of prawns in front of the footrope were recorded. Good catches of prawns were made on these grounds and samples were measured and sexed.

Towing the camera system with a red light very slowly over the fishing ground during the early morning dark/dawn period prawns were seen moving around on the mud. The tow continued onto and over the Invergordon smelter dumping area where no living organisms were seen. Again the camera system was towed back over the fishing grounds during daylight but only the occasional prawn was seen.

The MARA was offloaded at Buckie on Friday and the team returned to Aberdeen.

J Main
28 January 1980

Seen in draft: James A Calder (relief O.I.C.)