In confidence: not to be quoted without reference to the Laboratory

FRV 'Mara'

Cruise 5/78

REPORT

1-12 May 1978

Personnel:			
	C S Wardle	PSO	May 1-5 (In charge)
	J Main	HSO	May 8-12 (In charge)
	R Priestley	HSO	May 1-5
	G I Sangster	SO	
	C W Shand	SO	
	A J Tough	PTO IV	

Objectives

Development of techniques for observation of gear and fish behaviour.

1. Communication test with TUV II.

2. Assess the possibility of remotely controlling the TUV II as an observation vehicle from the surface using information from the TV camera.

3. Testing diver hand held flow meters and dye packs on the net.

4. Testing and developing a divers net panel declination meter.

5. Testing the sighting and measuring equipment for measuring the sand cloud geometry from a trawl door.

Procedure

The first day was lost due to bad weather making it impossible for the divers to operate in Spey Bay. The next day the operation was carried out off Burghead Bay where preliminary tests were done on towing the TUV II as a remote vehicle but the water was dirty with visibility reduced to less than 6 feet. With improved weather conditions the remainder of the weeks work was conducted in Spey Bay.

On the second week, 'Mara' operated from Macduff working in Aberdour Bay where the water clarity was excellent. 'Mara' took the opportunity during the week to investigate a number of additional trawling areas off Macduff and Whitehills but all were found unsuitable either to the water being too deep for diving, too near the shore or too short for towing the trawl.

Results

1. Tests with two sets of communication equipment were conducted with the TUV II and found to be excellent. A newly developed microphone gave improved clarity from the diver speaking to the surface.

2. TUV II was tested as a remote controlled vehicle by using one diver to manipulate the rudder and diving planes and the other diver to point the TV Camera. All instructions for moving the controls and the camera were given from the towing vessel using the TV camera as the only eye. The TUV II was successfully manoeuvred alongside the trawl whilst towing at 3 knots and an excellent video film recording the operation was obtained. This video film has been retained for further analysis. The success of these tests indicate that the development of a stable vehicle for TV with remote control can be practical using a single TV camera both to steer and make observations of fishing gear at commercial fishing depths.

3. Preliminary tests were carried out using diver hand held flow meters and dye packs. The technique allowed the divers to demonstrate an accelerated flow of water on the inside of the net increasing towards the codend. Inside the codend there was no flow, and behind the codend the flow was reversed in direction.

The dye flow observations gave similar results. Both techniques will be used for further routine measurements.

4. The new diver declination meter was tested and showed angles on the top panels of the net from 5° behind the headline to 15° before the codend and a distortion bulge at the extension piece of 25°. This instrument will be used to help map the geometry of gears in future oruises.

5. The equipment for measuring the sand cloud geometry was tested and checked prior to use on 'Mara' cruise 6/78.

J Main
27 June 1978

Seen in draft - W T Mair