

Mrs Edwards

RL/3 IN CONFIDENCE

TCR79

RV TRIDENS

Cooperative Cruise Report

6 - 17 August 1979

#### Aims

To observe and measure a semi pelagic trawl for round fish, developed to work in areas with an undulating seabed (sand ridges).

To observe the behaviour of a 6 metre beam trawl giving special attention to the behaviour of flatfish in relation to the tickler chains.

#### Procedure

The TRIDENS sailed from Aberdeen on the evening of Tuesday 7 August and proceeded to Burghead Bay arriving am on the 8th. Trials continued uninterrupted during the next 3 days working either in Burghead Bay, Dornoch Firth or Spey Bay. 9 trawl hauls were completed before the ship returned to Aberdeen on Friday evening for the weekend. The ship sailed again at midnight on Sunday 12 and a further 3 trawl hauls were made on the 13th in Burghead Bay completing the first part of the exercise.

The next 2 days were devoted to the 6 metre beam trawl when 6 hauls were made before the ship had to return to Aberdeen late on Wednesday 15 August.

The water clarity during the whole exercise was poor but reasonably video tapes w have been made on all 18 dives by the observers in the towed underwater vehicle.

#### Results

A detailed examination of the semi pelagic (sand ridge) trawl was made including the various adjustments made by adding or shortening chain to the footrope; lowering the towing point on the polyvalent boards, adding kites to the wing ends, adding chains to the panels or observing the influence a netzonde and cable has on the headline. Measurements were made of the geometry of the trawl including the spread of the polyvalent trawl boards.

Towing at 3.5 knots with 75 fms of warp out and the net without floats or kites gave a spread between the doors of 17 fms (the lower wing of the net was attached to the door). The wing end height was 12 feet. The net with kites added to the wing ends gave 16 fms between the doors and a wing end height of 17 feet.

By using the TUVII it was possible for the diving observers to obtain unique television film of a beam trawl being towed at various speeds up to  $5\frac{1}{2}$  knots and on a variety of sea beds from smooth sand to stoney ground.

Flatfish were seen on a number of occasions to escape out of the path of the gear just in front of the shoes of the beam. Fish were also directed away from the mouth of the beam by the centre towing bridles which trailed on the sea bed when towing at speeds less than 4 knots.

The behaviour of the beam was steady on almost all occasions and did not dig into the seabed as had previously been supposed in the range of speeds observed between 2 -  $5\frac{1}{2}$  knots. The leading tickler chain did not dig in and could be lifted off the seabed by the observer without difficulty from the underwater vehicle. The other tickler chains as far as could be observed through the sand cloud were exactly the same in their behaviour. The electrodes (without power) which were attached to the beam had no influence either on the beam itself or the fish which were in the path of the trawl.

Two, 30 minute video films are being made from the tapes demonstrating the behaviour of both the sand ridge trawl and the beam trawl in action.

J MAIN

2 October 1979