

R1/10

R1/3

7
SMR76

IM CONFIDENCE - Not to be quoted without reference to the laboratory

CRUISE REPORT

CHARTERED VESSEL "ARNISDALE"

19 July - 13 August 1976
Staff: C S Wardle

- R. Priestley
 - J Main
 - G I Sangster
 - C Shand
 - W Moisiwicz
 - J H B Robertson
 - R. Ferro
 - D Galbraith
 - A Tough
 - E Wright
- } Part time

Aims To examine and make videotape recordings of the reaction of fish to fishing gear components, the 200 HP 4 panel trawl and the 200 HP delagic trawl.

Results The 320 HP Aberdeen trawler "Arnisdale" A621, fishes commercially a 200 HP version of the Marine Laboratory's 4 panel trawl and during the first day of this cruise their gear was examined and described by the divers. Some minor adjustments were made to the chain links between the flying wing and bunt to release tension at the quarter, but otherwise the gear was fishing well. The tickler chain normally used by the crew of "Arnisdale" was found to make negligible difference to the fishing performance.

During the next 7 working days, an experimental rope gear was used with parallel rope wings and diverter boards in order to examine the reaction of fish to the herding ropes, the effect of bias at dividing points, the effect of rising ropes behind chains and the effect of ropes designed to increase the density of the herded group. All these experiments were successfully recorded on videotape by a relay of divers descending the warps to the gear and operating the TV camera each for a 20 minute period. A successful method of working the TV camera cable by hand, off the stern of the "Arnisdale", was developed and used throughout the cruise. The videotape recordings of these experiments are being analysed and serve to illustrate many of the basic reactions of fish to fishing gear components.

During the same period a number of development dives were made with the new version of the 2 man wet towed vehicle. This vehicle is towed by the fishing boat while fishing, by working the towing rope over the whipping drum, off the winch. The lateral and vertical movements of this vehicle were found to be adequate to make continuous observations of either of the diverter boards from all angles. Some videotapes showing the behaviour of the neutrally buoyant diverter board in action were made and include reactions of fish to the warps and the boards.

On 29 July the rope gear was damaged on rocky ground and the 4 panel gear was immediately substituted and the towed vehicle successfully used with the TV camera to make films of 8' V boards and their sand clouds. During the third week, while a pilot steered the vehicle, the TV camera man as passenger was able to make a great variety of shots showing the 4 panel gear and the reactions of many fish to different parts of the trawl. The vehicle proved itself to be entirely practical for this job and 4 hours of videotapes were made during the 4 days.

In the fourth week the delagic gear was badly damaged in the first haul and a further 4 hours of observations were made with the 4 panel trawl. A successful technique using the towed wet vehicle and TV camera was developed to plot the geometry of the sand cloud thrown up by the trawl board.

No working days were lost due to weather and the success of the cruise was due in large part to the close interest, co-operation and understanding of the skipper and crew of the "Arnisdale". The videotapes are now available for viewing and a detailed catalogue of all trawl tapes has been completed and edited versions have been prepared illustrating the 4 panel gear fishing.

The direct diving observations and measurements of the trawl used by the "Arnisdale" are reported separately by J Main and G I Sangster.

C S Wardle
10 November 1976