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FRV "Clupea"

Cruise 12/89 12CR89

REPORT

16-25 October 1989

Personnel -

G I Sangster	HSO (in charge)
J Main	SSO
R Kynoch	ASO
P J Barkel	PTO
B Smith	Craftsman

Objectives

1. To obtain catch comparison data between a standard fish/prawn net and the same net fitted with a separator panel.

2. To obtain video film of fish behaviour relative to the gear and particularly to the warps and support bridles ahead of the 2 wire twin trawling system.

Narrative

The RCTV system, diving equipment and computer data logging apparatus were loaded onto "Clupea" at Kyle of Lochalsh on the afternoon of 16 October and prepared for work. "Clupea" sailed at 0500 the next morning and completed 3 trawling hauls in the "Home Stretch", "Burma Road", and "Shiants" fishing grounds. Poor weather ruled out both scuba diving and RCTV observations of the gear. A major malfunction to the Scanmar trisponders forced the ship to head for Stornoway to collect Scanmar equipment air-freighted from Aberdeen. Work continued in the Tolsta Head area on the 18th, but an attempt to obtain RCTV video films of the gear in action in clear water conditions resulted in taking out the bellies of both nets in stoney grounds outside Broad Bay. The scientific staff, officer in charge and deckhands worked from 0730 to 1900 on the 19th to mend the 2 nets. Work continued on the 20th in the Minch before again running to Stornoway ahead of a south westerly gale. Poor weather continued, but diving and RCTV television observations were successfully carried out in the Broad Bay area on the 21st when one of the trawls was again damaged. Severe south westerly gales prevented the ship from sailing on the 22nd. A brief window in the weather pattern allowed "Clupea" to run for only slightly more sheltered waters in the North Raasay Sound grounds where 2, 3-hour hauls were completed, in strong south westerly winds. The ship sheltered in Portree harbour that night. A further 1½ hour haul in Raasay Sound, the following morning, was possible but was halted by severe gales. "Clupea" sailed for Kyle of Lochalsh and berthed at 1600 on the afternoon of 24 October. All equipment was off loaded on Wednesday 25th and the staff and some crew returned home by minibus.

Results

The 2 objectives discussed in turn.

1. Ten trawl hauls were possible in the limited time available due to the severity of the weather. Underwater light levels and water transmission at the fishing depth were measured before and after each haul to determine, when necessary, the conditions under which species separation might not occur. The total contents of each net (standard trawl and separator trawl with upper and lower codends) were kept apart in different deck ponds and then separated into species. The total contents of each of the 3 codends were then measured to provide (a) the size range of each species and (b) the total number of each species in each codend.

Preliminary haul by haul analysis showed that the standard net retained more small fish than the separator net. A detailed analysis will be undertaken in the Laboratory.

2. The strong winds which prevailed throughout the cruise allowed only limited use of the free diving and RCTV technique. Inadequate water clarity and available light prevented RCTV recordings of fish behaviour ahead of the twin trawl rig. However, in shallower, sheltered waters, of 40–50 m direct observations were made on the 2 trawls which provided satisfactory evidence that the gear geometry was correct, towing at 2.5 to 3 knots with 350 m of warp aft. The Scanmar units attached to both trawls on every haul in deeper water (depth 100–140 m) gave further evidence of dual net symmetry. The mean wing end spreads of the standard and separator trawls were 14.4 m (range 12.2 to 17.3 m) and 13.38 m (range 9.2 to 14.7 m) respectively. Headline heights were 2.34 m and 2.23 m respectively. The distance between the 2 nets ranged between 26.5 and 31.6 m towing at a mean speed of 2.9 knots.

Observations and video films by the divers (depth 28–30 m) and RCTV (depth 40–50 m) showed that the centre skid perfomed well keeping the 50 m long forward support warp extensions off the sea bed by 8.5 m at the joining swivels and producing a good sand cloud between the 2 nets. These video recordings, in excellent visibility, will be edited into existing film to produce an updated version. No observations of fish behaviour relative to this gear were obtained in the mouth area of either net.

G Sangster

13 November 1989

Seen in draft: W Smith