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FRV "Clupea".

Cruise: 10/88

10CR88

REPORT

10-28 October 1988

Personnel

- G I Sangster HSO (in charge)
- J Main SSO
- C W Glass HSO
- R Kynoch ASO
- P J Barkley PTO
- B Smith Craftsman

Objectives

1. To observe, measure and film 2 identical 300-hp Jackson rockhopper trawls (BT 158) with 85 mm diamond mesh codends, rigged to a two-warp, separately bridled twin trawl rig using diving, RCTV and "Scanmar" techniques.
2. To observe fish reactions around the centre skid area.
3. To complete at least 20 trawling hauls and compare the catches in the two codends. Environmental factors to be measured before, during and after each haul.
4. To assess the merits of the twin trawl for future selectivity experiments.

Narrative

The two Jackson twin trawls were rigged on the quayside at Buckie during the afternoon of 10 October and loaded onto "Clupea's" net drum on the morning of 11 October. The ship sailed at 1330 hrs that same day for trials with this rig in the South Deeps to allow the crew and officers to familiarise themselves with this type of gear, not previously used on "Clupea". Repeated shooting and hauling enabled the officers and crew to perfect a working system. The ship sailed for Invergordon on the evening of 11 October ahead of a strong easterly wind. Further handling trials continued on 12 and 13 October on the Nairn, Burghead and North Lossie grounds. "Clupea" then sailed for the Orkneys to commence comprehensive fishing hauls. Direct observations of this twin rig were made, using free diving and RCTV on the Copinsay grounds and in the shallow waters of Inganess Bay on 14 October. Continuous strong south east winds forced "Clupea" to continue the cruise on the west side of Orkney in the North Shoal, Hoy Sound and Stormy Deeps areas, until the half landing was taken at Stromness on 18 October. Severe gales prevented the commencement of work again until 20 October. The experiments continued on these same fishing grounds from 20 October until lunchtime of 25 October. A lull in the easterly gales provided "Clupea" with the opportunity to make a passage through the Pentland Firth and she arrived in Buckie at 2330 hrs on 25 October. Trawling and filming continued uninterrupted until 27 October on grounds 10-15 miles north and east of Macduff. The ship berthed at Buckie on the evening of 27 October. All equipment was off loaded on Friday 28 October and the staff returned by minibus to Aberdeen.

Results

Each of the four objectives are discussed in turn:-

1. The strong winds which prevailed throughout the cruise allowed only limited use of the free diving and RCTV techniques. However, on the occasions suited to these

techniques, direct observations were made on the two trawls which provided satisfactory evidence that the gear geometry was correct, towing at 3 knots with 350 m of warp aft. The 'Scanmar' units attached to both trawls on every haul gave further evidence of dual net symmetry. Wing end spreads of 10-11 m and headline heights of between 3.2 to 3.5 m were recorded. On a number of hauls 'Scanmar' data gave distances of 20 to 23 m between the two nets depending on water depth and the amount of trawl warp aft. Observations by divers showed that the centre skid performed well, keeping the forward warp extensions off the sea bed and producing a good sand cloud between the two nets. Video films were recorded of the deck shooting and hauling procedures and will be edited to produce a short film.

2. Both surface weather conditions and inadequate water clarity at the fishing depth prevented RCTV recordings of fish behaviour in the area around the centre skid.

3. Twenty four trawl hauls of two hours duration were completed during daylight. Underwater light levels were measured before, during and after each haul. The catches from the two codends were kept apart in different deck ponds and then separated into species. The total contents of each codend was then measured to provide (a) the size range of each species and (b) the total number of each species in each of the two codends. The total bulk of fish in each codend did not vary by more than one basket except for a 9 basket/13 basket split on one occasion.

4. Preliminary haul by haul analysis of the total numbers of each species showed a very even split between the two codends. A detailed analysis by the Laboratory's Computing and Statistics Section is in progress to assess this fishing technique for future selectivity experiments.

G Sangster

5 January 1989

Seen in draft: W Smith