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Charter Vessel "Aries" BCK 126 LD

Report

15 June to 5 July 1986

Personnel

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B Ashcroft SFIA 24 and 25 June

Objectives

1. To observe fish behaviour on twin trawls and assess the suitability of twin trawling gear for selectivity experiments.

2. To set up bottom cages for fish damage experiments in Strath Bay, Gairloch.

3. Fish lateral muscles to be collected for Lactic Acid and glycogin analysis.

Narrative

The "Aries" arrived at Gairloch on the 15 June where the trawls and diving gear were prepared and loaded onboard. The vessel worked daily from Gairloch with no time lost due to weather conditions.

Areas were worked off Longa Island and Melvaig for diving operations and in deeper water off Longa, Shiants and Raasay for the RCTV observations.

Results

Objective 1.

There is a new commercial interest in twin trawls which have been shown to have some advantages particularly in Nephrops and shrimp fisheries where a wider strip of seabed is fished using the same power. The practical arrangements however are of interest for scientific research particularly for comparative fishing studies. In these rigs it seems likely that fish that pass between the otter boards will be split equally into the two mouth regions of the two nets and so experimental differences between the two nets can more effectively be compared. Objective 1 examined these possibilities and gave encouraging results showing that the two dual-purpose nets supplied by SFIA and rigged as a twin trawl to our own specification

worked extremely well. (See diagram rigs A and B). Both nets kept the same dimensions and made similar catches for both flatfish and Nephrops. Catches of roundfish were poor (a situation confirmed by commercial vessels working in the area) giving insufficient numbers to estimate the reliability of the twin method for comparative fishing for roundfish. Both the RCTV and divers were on several occasions in a position to observe the area to either side of the centre skid. It was noted that the two wires towing the centre skid were clear of the bottom allowing fish to pass to either side and underneath the wires. It was disappointing that not enough fish species or sizes were seen to assess this method for comparative fishing. In a second trial one net was replaced (Diagram C) by a higher opening net fitted with rockhopper (BT 160). This trial showed that there was no distortion of the symmetry of either net and no problem in the towing or handling by the vessel. It was interesting to note that despite the differences between the two nets no adjustments to the length of the wires was required as both nets were fishing perfectly.

The trawls were rigged as in the diagram.

The light skid between the V doors (weight in air 32 kgs) remaind tight on the seabed. Additional floats were added to its top edge to make it stand up as required. A slight modification should allow these floats to be removed; commercial vessels use heavy clumps (125 to 150 kgs) of chain instead of a skid to keep the inside wings of the trawl on the seabed. From direct observation by both diving in shallow water and remote vehicle in deeper water this did not seem necessary with the rigs used.

Objective 2.

Was achieved with three cages set on the seabed in 20 m of water. A few haddock were caught by trawl in deep water, removed from the codend on deck and transferred in polythene bags of water to one of the cages. Nineteen of the 21 haddock survived the first six hours of captivity; 14 survived the first two days and six were still alive after 26 days.

A new technique for catching the escaping fish from the codend was established and practiced in diving depths using the divers vehicle alongside the trawl but unfortunately no small roundfish were caught in the coastal area at the time of the exercise.

Objective 3.

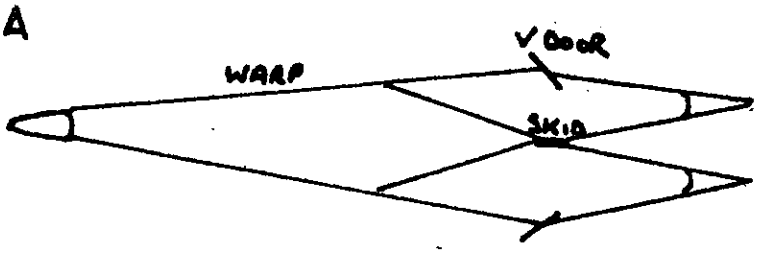
Good film, both still and video, of the twin trawl rigs has been collected and will be prepared for viewing. The data is now being analysed.

Mr Ashcroft (SFIA) joined the cruise for two days and observed the SFIA trawls in action. Copies of the tapes will be forwarded to him.

J Main

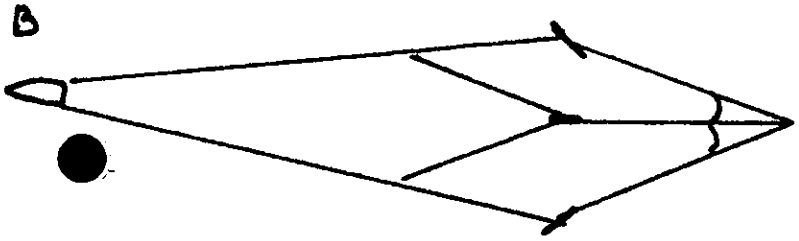
28 August 1986

A



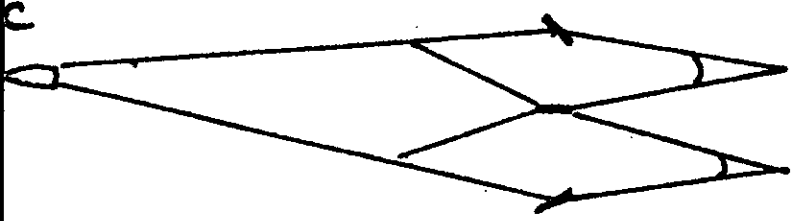
Identical Trawls (SFIA)	Separate Bridles
Wingend spread	9 m both nets
Between wings of trawls	9 m " "
Headline heights	1 m " "
Wingend heights	½ m " "
Door spread	44 m

B



Identical Trawls (SFIA)	Shared centre Bridle
Wingend spread	10 m both nets
Headline heights	0.7 m " "
Wingend heights	0.4 m " "
Door Spread	48 m

C



Hopper Trawl (BT160)	Separate Bridles
Wingend spread	8 m
Headline height	3 m
Wingend height	2 m
Door to Skid	16 m

SFIA Trawl	Separate Bridles
Wingend spread	10 m
Headline height	1 m
Wingend height	½ m
Door to Skid	18 m
Between wingends of trawls	8 m

Warp length 80 m
Bridle length 27.5 m
Bridle length ahead of the skid 55 m
Towing speed between 2 to 2.4 knots