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FRV *Clupea*

Cruise 7/90

7CR90

REPORT

11-29 June 1990

Personnel

J Main	SSO	
G Sangster	HSO	
P Barkel	PTO	
R Kynoch	ASO	
I Leaver	ASO	(11-18 June)
N Collie	PTO	(11-18 June)
C Wardle	SPSO	(14 June)
H Inada	(Research Visitor)	(14 June)

Objectives

1. To develop a system for handling a new design of ringed codend cover.
2. To compare the selectivity of a codend with and without the rings on the cover.
3. To study the separation of cod from flatfish by observing their behaviour to a new design of separating panel in the area just ahead of the codend.

Narrative

The scientific staff joined the *Clupea* on Monday 11 June at Kyle and prepared the RCTV and trawl gear for operation.

The vessel was delayed from sailing until Tuesday awaiting a relief engineer officer. The vessel sailed at 1300 hrs and made a passage for Stornoway for the night.

Trawling operations were conducted in the Broad Bay area until 15 June when the trawl came fast and suffered major damage including the loss of the codend, cover and three flow meters. Searches were made on the surface and by use of the RCTV over the same tow but without success.

The first part of the programme was terminated because of the loss of the trawl gear.

The cod/flatfish separator trawl was prepared for operation at Stornoway.

On 16 June diving observations showed that the main separating panel was incorrectly rigged in a position three to four meters behind the footrope. The cod/flatfish separator was also observed and with small adjustments was acceptable for direct observation of fish behaviour in this area.

During Sunday 17 June the trawl was taken ashore to re-rig the whole trawl so that the separating panel was in the correct position with the leading edge over the hoppers. One haul was made in the afternoon to confirm that the gear was correct and ready for operation.

The half landing was taken on Monday 18 June and Messrs Leaver and Collie returned to Aberdeen.

Due to the lack of cod in the Broad Bay area the operation was moved first to the Butt of Lewis then the Flannan Isles but again with little success.

During the first haul at the Flannan Isles the pan and tilt failed on the RCTV but good shots were still obtained in very clear water. No cod were observed.

The vessel returned to Broad Bay and anchored at 2200 on 20 June. The RCTV was tested on deck before shooting and the cable was found to have a major fault. The vessel returned to Stornoway on 21 June to off load the cable and change engineer officers.

On 22 June, just before sailing, a main fuel line in the engine burst confining the vessel in port for the day whilst shore engineers effected a repair.

The new cable arrived from Aberdeen and was fitted. Trawling operations were again conducted in Broad Bay on 23 June to confirm that the flatfish separation was performing as required.

In an attempt to find cod it was decided to start working our way south to the Clyde. The first haul was conducted in the Little Minch on a well known tow but again the trawl was badly damaged and required to be taken ashore for repair. The vessel sailed directly for Campbeltown. On passage the steering failed and for a short period the vessel was on emergency steering. This was quickly repaired and the vessel arrived at Campbeltown at 0730 on 25 June where the net was taken ashore and repaired.

The remainder of the trip was conducted from Campbeltown fishing off Bennan Head, Sanda Island and Davaar.

The vessel docked at Ardrossan and off loaded in the evening of 28 June.

Results

Codend Cover Tests

To prevent masking of the codend meshes by the small mesh cover, three 50 mm hoops of plastic water pipe, 2.5 m in diameter were slotted through rings attached to the outside of the cover to create a constant space between the codend and cover. These hoops were designed to be easily dismantled whilst coming onboard with a reasonable weight of fish. This is essential when space on the stern of a commercial vessel is limited.

Both of these aims were accomplished after minor alterations. Flow measurements were collected whilst the codend hoops were attached giving readings above the headline of 3.6 knots, above the codend and cover of 2.35 knots, between the cover and codend of 1.20 knots and inside the codend of 0.32 knots. Two valid selectivity hauls were conducted and the 50% retention length was approximately 23 cm for this nominal 90 mm codend.

Unfortunately a comparison of water flows and catches with and without the hoops in position was not possible due to the loss of the gear and flow meters. No samples of fish muscles were collected for lactic acid and glycogen levels for the same reasons. Interesting film of the behaviour of escaping fish in the cover was obtained.

Cod/Flatfish Separator

The separator was observed by divers and adjusted to give the required shape. Modifications were made to the sloping panels to direct the fish to the correct position for separation. With the lack of cod the initial effort concentrated on directing flatfish into the lower codend. From the direct observations small adjustments were made, improving the separation.

Start of exercise	Upper level	Lower level
Plaice	552	765
L Sole	53	111
C Dab	450	803
Misc flats	94	277

Final version	Upper level	Lower level
Plaice	57	494
L Sole	26	85
C Dab	19	390
Misc flats	92	274

No definite conclusions can be made regarding the cod because of the small numbers. After the final adjustments of the panels, more large cod over 35 cm entered the middle codend than the lower codend.

J Main

28 August 1990

Seen in draft: W Smith