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FRV *Clupea*

Cruise 0496C

REPORT

11-18 March 1996

Personnel

G G Urquhart	PSO	11-15 March (in charge part 1)
C D Hall	SSO	11-18 March (in charge part 2)
M J Burns	ASO	11-15 March
N J Collie	PTO	11-15 March
C W Shand	HSO	14-18 March
P J Barkel	PTO	14-18 March

Gear

BT 116 Bottom trawl, Dual Methot, spar buoy, "oil-rig" plankton sampler, RCTV, camera drop-frame, large and small Isaac-Kydd depressors

Objectives

Part 1

1. To monitor the performance of the new Dual Methot plankton sampler.

2. To test new gear instrumentation, including CEDRIC (cod-end diameter recorder), head-line height monitor, deck-tension meters and combined load-cell and depth meter.

3. Deploy and recover 6 m spar buoy fitted with GPS receivers and UHF transmitter.

4. To monitor the performance of standard and small Isaac-Kydd (IKMT) depressors.

5. Test "oil-rig" plankton sampler.

Part 2

1. Monitor the performance of the remote controlled TV vehicle during use on a standard fishing gear.

2. Compare a DC motor drive system with the existing AC drivers with the aim of reducing video interference.

3. Assess the performance of new instrumentation and acoustic scanner.

Out-turn days per project: 4 days GBF1, 4 days IAI1

Narrative

Staff and equipment travelled to join *Clupea* at Fraserburgh on the morning of 11 March. The gear was stowed and the vessel sailed at 1400 hours. During the passage west, two pairs of CEDRIC

transponders were attached to the cod-end of BT116 and one tow was carried out. The Hydrotracker GPS tracking equipment was installed in the spar buoy and run successfully on the vessel.

On 12 March, repeated tows with the Dual Methot were carried out in the Moray Firth to assess the new design, and performance measurements were carried out to measure drag, attitude and running depth over a range of speeds. In the evening the "oil-rig" plankton sampler was deployed and the resultant samples inspected. The GPS spar-buoy was deployed to assess the ballast required to ensure stable flotation.

On Wednesday 13 March, a series of tows with the 1.9 m and 2.2 m IKMT depressors were carried out to measure their drag and depressing force. During the evening, the GPS receivers inside the spar-buoy were rigged ready for deployment.

During the morning of Thursday 14 March, the GPS spar-buoy was deployed. The vessel stood off to allow the buoy to drift and to assess its performance in an open sea-way. Recordings were made of its track using the internal GPS and the modem link to the vessel. In the afternoon, further tows were carried out with the Dual Methot to complete performance measurements.

On Friday 15 and Saturday 16 March, further performance trials were carried out on the Dual Methot net. The camera drop-frame was deployed to assess the possibility of using new photographic film processing techniques. The RCTV was towed with AC and DC motors attached to assess their effect on video quality, using a standard video and RF modulated SIT cameras, and performance measurements were recorded. The SIMRAD acoustic scanner was tested to confirm correct orientation and performance with both motor systems.

Gear was off-loaded at Fraserburgh on Monday 18 March, staff and gear returning to Aberdeen later that day.

Water samples were taken at various sites during the cruise for phyto-plankton analysis.

Results

During the fishing tows, data were collected from four load cells and two CEDRIC pairs. Valid performance of CEDRIC was confirmed, and the data are to be analysed later.

Extensive performance measurements were successfully made on the Dual Methot and the IKMT depressors. Further analysis of the data is to be carried out. Programming faults in the Dual Methot data/control logger were identified and rectified.

The GPS spar buoy was deployed successfully, requiring a ballast weight of 250 kg for stability. A track was recorded using the Hydrotracker GPS system. The internal GPS logger failed due to loss of satellite coverage. Re-design of the aerial feeds and power supply are required.

The "oil-rig" sampler was shown to be simple to use but some modifications are required to prevent contamination of samples before deployment.

The DC motor system for the RCTV was confirmed as providing interference free video with the standard video SIT camera. Further engineering modifications are required to integrate the DC controllers into the RCTV system. The acoustic scanner produced stable and clear images, enabling net measurements to be made and is a useful piloting aid when using the RCTV around a net.

G G Urquhart/C D Hall
10 April 1996

Seen in draft: A Simpson (OIC *Clupea*)