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FRV "Goldseeker"

Cruise 4/86

Report

4-14 March 1986

Personnel

S T Forbes	SSO	(in charge)	8-9 March
P J Copland	SO	(in charge)	4-8, 10-14 March
F Armstrong	SO		4-14 March
T V Taylor	ASO		4-5, 9-12 March

Objectives

1 To investigate the towing characteristics of various towed bodies used for acoustic surveys.

2 To carry out further development work on the drop frame camera system.

Narrative and results

"Goldseeker" was loaded at Muirtown on the 4th and proceeded to Fort Augustus. Towing trials were conducted on a range of "shark" bodies at speeds ranging from 8.5 to 6 knots. Continuous measurements of heel and pitch, vessel speed, towing strain and body depth were made using chart recorders to give paper records of each tow. Alterations to towing points, fin angles and nose weights were made to find the most stable towing attitude. Suitable towing configurations were found for all the bodies tested and the results are shown in the tables below.

Survey (dual frequency) shark

Speed (knots)	Strain (tonnes)	Heel	Pitch	Depth (metres)
8.5	0.12	+4°	+3.5°	4.25
6.5	0.10	-1°	+5.5°	6.3

Max snatch load 0.125 Tonnes
Heel rate of change $<1°$/sec
Pitch rate of change $< 0.25°$/sec

Dual beam shark

Speed (knots)	Strain (tonnes)	Heel	Pitch	Depth (metres)
8.5	0.26	+6	+8°	7.7
6.5	0.22	-1	+7°	9.9

Max snatch load 0.3 tonnes
Heel/Pitch rate of change < 0.5°/sec

Split beam shark

Speed (knots)	Strain (tonnes)	Heel	Pitch	Depth (metres)
8.5	0.24	4.5°	3°	7.1
6.5	0.18	3°	4°	9.1

Max snatch load 0.33 tonnes
Heel and Pitch max rate of change < 0.5°/sec

Tests were also conducted on the dual frequency and dual beam sharks at a towing speed of 3 knots to evaluate their stability at trawling speeds.

	Strain (tonnes)	Heel	Pitch	Depth (metres)
Dual frequency	0.06	2.5°	12°	13.25
Dual beam	0.12	-1°	11.8°	17

Pitch angles are defined as +ve if shark nose down, -ve if nose up. Heel angles are +ve if clockwise looking from nose to tail and -ve if anti-clockwise.

"Goldseeker" proceeded to Inverness on the 9th and the remainder of the cruise was spent in the Moray Firth testing the drop frame camera system. After a successful trial on the 12th the frame was lost attempting a deeper drop on the 13th. Visual searching of the surface and creeping over the drop position with a grapnel did not recover it and the cruise was extended by a day to allow a prawn trawl to be used on the 14th. The frame was not recovered and the vessel was unloaded at Muirtown on the 15th and all personnel returned to Aberdeen.

The frame was recovered on the 17th by a seine trawler some 25 miles from the drop point. It was undamaged and has since been returned to the laboratory.

P J Copland

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See in draft: A Cowie