

R1/12

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FRV *SCOTIA*

Cruise 0193S

REPORT

1-24 February 1993

Personnel

A W Newton	SSO
D J Basford	HSO (1-9 February)
G I Henderson	SO
F Armstrong	SO
D S Beveridge	SO
J T M Hunter	PTO (1-9 February)
N S Collie	PTO
K J Peach	ASO
P L Clark	ASO
M C Donald (Miss)	ASO
L C Hastie	Visitor
C Keeling	Visitor
K Ensor	Visitor
C Barton	Visitor

Objectives

1. To take part in the ICES International Bottom Trawl Survey in the North Sea.
2. To carry out environmental monitoring in relation to the *Braer* incident.

Narrative

Scotia sailed from Leith at 1830 on Monday 1 February and proceeded to Aberdeen to pick up additional scientific equipment. On leaving Aberdeen *Scotia* steamed to waters around Fair Isle to begin environmental work in connection with the *Braer* oil incident. On Wednesday 3 February *Scotia* was forced to dock in Lerwick in order to undertake repairs to a trawl winch. Sailing the same day, more environmental work was carried out to the east of Shetland but *Scotia* had to return to Lerwick the following day to land an injured engineer. *Scotia* immediately sailed again and commenced an extensive fishing and environmental survey around Shetland and Fair Isle. *Scotia* docked at Lerwick at 0900 on Tuesday 9 February to land two scientists and a number of scientific samples; the vessel sailed at 1230 on the same day to commence the International Bottom Trawl survey. Taking advantage of fine weather a large number of stations were completed in the east of the area allocated to Scotland. There was a 24 hour break in Stavanger on Friday 12 February. On Tuesday 15 February *Scotia* was ordered to abandon stations in the central North Sea and proceed to the Fladen Grounds in order to carry out further environmental work. The latter involved a grid survey for sediment samples and lasted

42 hours after which *Scotia* proceeded to Peterhead to unload samples. On leaving Peterhead *Scotia* again resumed IBT survey work in the Moray Firth and off the east coast of Scotland but trawling was curtailed by storm force winds. *Scotia* finally docked in Aberdeen at 1700 on Wednesday 24 February.

Results

A total of 52 one hour hauls were made using the GOV trawl. During the first part of the survey the ground gear consisted of the standard set of 152 mm rubber discs but the discs were replaced with 305 mm bobbins for the stations in the northern part of the North Sea. Short (47 m) sweeps were used for all tows. Each haul was monitored for headline height, wingend and door spread and the speed of the net through the water. In addition, turbidity, light levels and bioluminescence were measured at the fishing depth for every haul.

Table 1 shows the preliminary indices for the principal species sampled during the survey. The index is based on the numbers of fish per hour caught below a length selected as a probable upper delimiter of 1+ fish. These indices are liable to some revision after the ages of the various species are confirmed. Early indications are that herring and whiting have experienced fairly stable recruitment for four and three years respectively whilst both cod and haddock have produced another good year class after a succession of poor recruitment prior to 1992.

Thirty-nine hauls were made with the Methot Isaacs-Kidd midwater trawl.

Top and bottom temperatures, salinities, phosphates, nitrates and silicates were taken at all trawling stations.

During the course of the cruise a considerable amount of time was spent on environmental monitoring in relation to the *Braer* incident. Work was concentrated around the southern end of the Shetlands (especially inside the FEPA Exclusion Zone), SE of Fair Isle and on the Fladen grounds. The top 3-5 m of water were sampled continuously by a towed fluorometer to monitor oil levels. These data were augmented by discrete water samples taken at various depths. In addition a large number of sediment and fish samples were taken from a variety of geographical locations for subsequent analysis in the Laboratory.

A W Newton
17 May 1993

Seen in draft: P Ramsay

TABLE 1

Indices of 1+ fish from recent International Bottom Trawl surveys

Year	Herring	Cod	Haddock	Whiting	Norway pout	Mackerel
1993*	2267	15.8	1147	972	3078	0.8
1992	2099	13.0	1115	916	5121	16.0
1991	2433	2.4	679	1014	2497	6.9
1990	2146	3.4	219	509	1320	35.0
1989	3468	13.1	210	1465	2079	1.1

*Provisional, based on length distributions only

Track Chart of 'Scotia' 01-24 February 1993 0193S

