

R1/12

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FRV *SCOTIA*

Cruise 1091S Part 2

REPORT

22 October - 1 November 1991

Personnel

W R Turrell SSO (in charge)  
R Payne HSO  
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R D Adams SO  
P Gillibrand SO

Objectives

1. Recover six current meter moorings in the northern North Sea to the east of Shetland and one current meter mooring on the NW shelf to the west of Orkney.
2. Conduct hydrographic survey north and west of Orkney, and east of Shetland.
3. Conduct ADCP surveys east of Shetland.
4. To complete hydrographic survey lines across the Faroe-Shetland Channel if these were not completed during *Scotia* 9/91 due to operating constraints.

Narrative

The vessel mounted ADCP was installed onboard *Scotia* during Monday 21 October, the day prior to the commencement of the cruise, in Aberdeen and then tested.

On sailing from Aberdeen during the morning of Tuesday 22 October, *Scotia* proceeded directly to mooring "C" west of Orkney. This was subsequently recovered by 1000 the following day. A CTD station was completed alongside the mooring position, and *Scotia* proceeded to the first survey line east of Shetland (ES1). Three stations were worked along this line, after which a 25 hour ADCP survey commenced along 60°30'N. This survey ended at 0400 Friday 25 October and the east Shetland CTD survey recommenced. The two most northerly sections were completed by 2230, after which the four southerly stations along the Nolso-Flugga standard section were performed. These were completed by 0430 on Saturday 26 October. *Scotia* then proceeded to the start of the third east of Shetland survey line, which was completed by 2230 that day.

*Scotia* sailed overnight to the outermost mooring east of Shetland (ES6) which was recovered by 0900 on Sunday 27 October. Two further moorings were recovered that day; ES5 by 1300 and ES4 by 1500. The remaining three moorings were recovered during the following day, Monday 28 October. *Scotia* then proceeded to the start of the JONSSIS standard section. This was completed by 1000 on Tuesday 29 October.

*Scotia* then sailed directly to the Cromarty Firth, where a temporary mooring previously laid by a charter vessel was recovered and a limited CTD survey performed. This was completed by 1300 on Wednesday 30 October. During the remaining time an inshore survey of the Moray Firth was executed, employing a towed undulating CTD system. *Scotia* entered Aberdeen during the morning of Friday 1 November 1991.

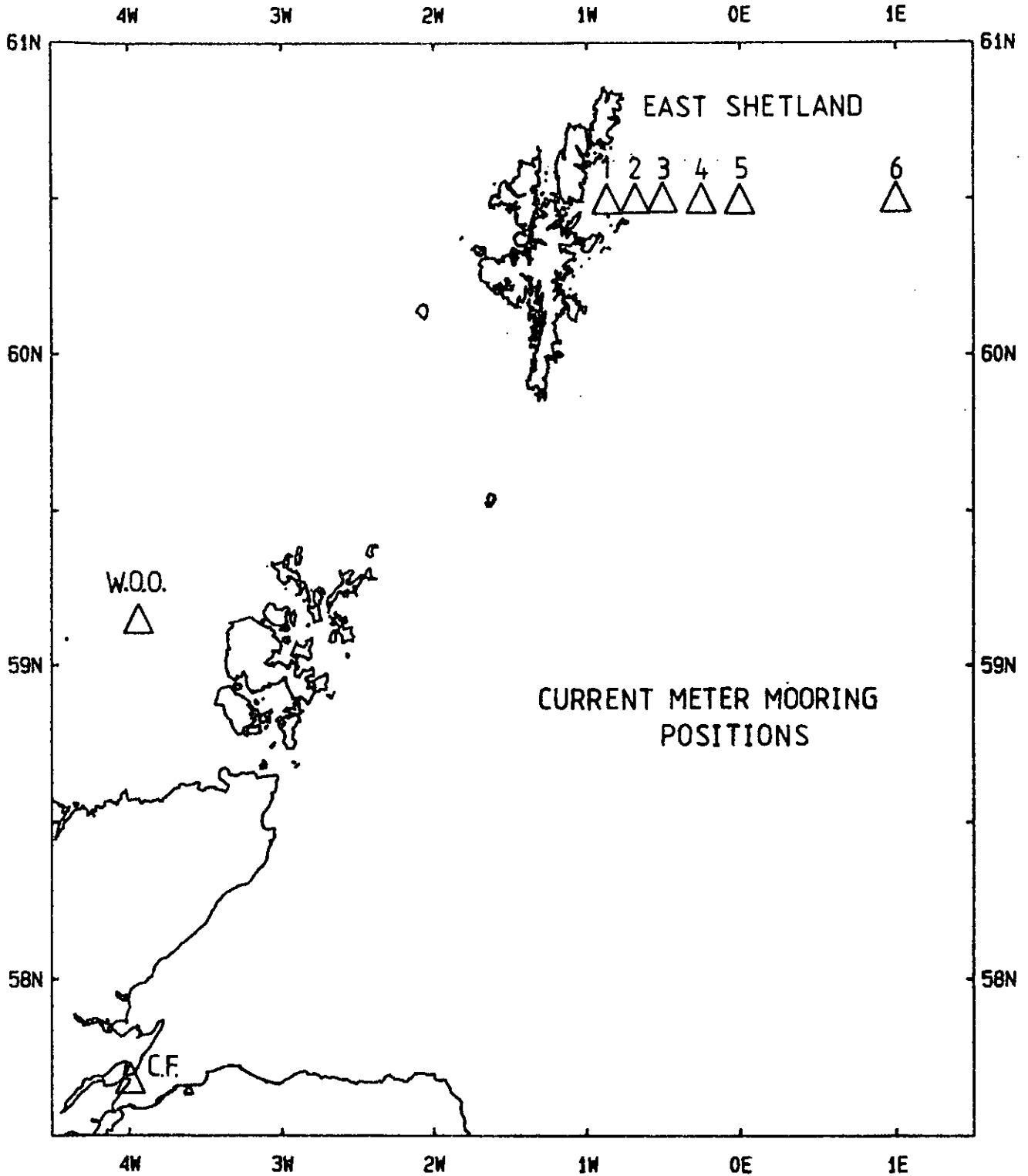
### Results

All six east of Shetland moorings were successfully recovered. The reduced length of deployment appeared successful in reducing losses to fishing activity, which is extremely heavy in this area. Data recovery was >80%, and records obtained from the new RCM seven current meters were analysed on board. The records obtained from the furthest inshore mooring position revealed a northerly directed counter current, inshore from a weak southerly flowing current at the outer moorings. This result was partly confirmed by the 25 hour ADCP survey which revealed weak southerly flow.

The CTD surveys revealed that the northern North Sea was predominantly well-mixed, and that autumnal mixing had already occurred. Residual stratification was apparent in the inshore areas of the Moray Firth. Results from the Cromarty Firth survey and current meter mooring have been employed in support of a dump licence application assessment.

W R Turrell  
18 June 1992

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