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FRV "SCOTIA"
CRUISE 4/88 4SR88

Report

13 April-3 May 1988

Personnel

P Hopkins	HSO (16 April-3 May) (in charge)
R B Mitchell	SSO (21 April-3 May)
J Dunn	HSO (21 April-3 May)
J R Hutcheon	SO (in charge 13-16 April)
F Armstrong	SO
Miss J Brannan	ASO
F Cruickshank	PTO
D Agnew	(DANI) (16 April-3 May)

Objectives

1. To carry out an acoustic survey of herring in the North Sea.

2. To collect biological data on North Sea mackerel.

3. To record the incidence of fish eggs and larvae in herring and mackerel stomachs.

4. To test and develop the OCEAN multidepth sampler system.

5. To test a towed body to house a dual beam transducer.

6. To collect water samples for radio-caesium monitoring.

Narrative

After a delay of one day due to a burned out ventilation motor, "Scotia" left Aberdeen on 14 April and sailed to the Firth of Forth to calibrate the echosounder equipment. A water sample for radio-caesium monitoring was taken off Arbroath en route. Calibration was completed overnight and "Scotia" sailed to Esbjerg with the integration equipment running, arriving there at 2000 hr on 16 April where P Hopkins and D Agnew joined the vessel.

"Scotia" left Esbjerg at 2030 hr on 16 April. Integration was carried out each day (0500-2300 hr) and fishing carried out to identify echotraces. During the nights the towed body for the dual beam transducer was deployed and tested. From Esbjerg, "Scotia" worked northwards reaching Bergen Bank before the half landing in Stavanger on 21 April, where J Dunn and R Mitchell joined the vessel.

"Scotia" left Stavanger at 1000 hr on 22 April and integration and fishing were resumed. A second calibration of the echosounder equipment was carried out overnight at Fetlar on 25 April.

The OCEAN sampler systems were deployed during the nights. On 27 April at 0233 hr the sampler struck part of the propeller or kort nozzle and was lost. During the remainder of the day, ten trawl hauls were carried out in the area in an attempt to recover the sampler, but only a fragment of one of the four internal nets was retrieved. Integration and fishing were resumed on 28 April. The nights were used for continued hardware and software development of the second OCEAN sampler system.

A final calibration of the echosounder was carried out at Hope Wick on 1 May. Radio-caesium samples were collected at Fair Isle and Aberdeen before docking in Aberdeen at 0700 hr on 3 May.

Surface temperatures and salinities were logged throughout the cruise apart from interruptions caused by a fault in the MNS 2000 navigator.

Results

The cruise track is shown on the attached chart, together with the positions of the trawl hauls. A total of 16 hauls were made, excluding those made in an attempt to retrieve the OCEAN sampler. All the hauls were successful in catching herring.

The largest concentrations of adult herring were seen over the Viking and Bergen Banks. Concentrations were also observed south of the Buchan field and south of the Montrose field. Juvenile herring (11-20 cm) were abundant south west of Little Fisher Bank. A total of 789 otoliths were taken and 300 fish were weighed to establish a weight-length relationship. 845 stomachs were removed and the contents examined aboard ship. A total of 51 eggs were found in the contents and were sparsely distributed amongst individuals. Predation on fish larvae was more localised, larvae being especially abundant in the stomachs of herring taken near the Buchan field. An attempt to study diel feeding patterns by fishing overnight on the concentrations of fish over Viking Bank was hampered by problems with the gear on that particular occasion.

Mackerel were caught in only two hauls and in very small numbers. The handlines were unsuccessful in obtaining any samples of fish. A total of five ovaries were removed and preserved in formalin for fecundity studies.

P J Hopkins

1 June 1988

Seen in draft: N E McInnes

Scotia 4/88 14/4-3/5/88 Cruise track and trawl haul positions