

In Confidence: Not to be quoted without prior reference to the Laboratory

R1/4

FRV 'Explorer'

Cruise 11/82

Report

11ER32

11 Nov - 1 Dec 1982

**Objective:** To carry out a trawling and echointegrator survey for O-group sprats off the east coast of Scotland and northeast coast of England.

**Narrative:** 'Explorer' sailed from Leith at 1500 on 11 November and proceeded to anchor to carry out a calibration of the echointegrator. Because of the strong winds and heavy swell no reliable calibration was obtained. 'Explorer' weighed anchor at 0700 on 12 November and headed for station 24 to begin the trawling survey. Having completed a further two trawl stations 'Explorer' went to anchor to carry out another calibration. Having completed the calibration 'Explorer' proceeded to station 29 to continue the trawl survey off the NE of England. The trawl and echointegrator survey continued until 1700 on 16 November when deteriorating weather conditions caused 'Explorer' to seek shelter in Alnwick Bay. The survey recommenced at 0730 on 17 November and continued until 1200 on 18 November when bad weather forced 'Explorer' to shelter in Lunan Bay. 'Explorer' left Lunan Bay at 0730 on 19 November but it soon became obvious that the weather had not improved enough to allow the survey to continue and the ship returned to anchor. 'Explorer' weighed anchor at 0630 on 20 November and continued the survey off the east coast of Scotland. Bad weather again halted operations at 1300 on 21 November. It being close to the time for the half landing 'Explorer' proceeded to Aberdeen where she docked early on the morning of 22 November.

'Explorer' sailed from Aberdeen at 1100 on 23 November and headed for stations in the Moray Firth. 'Explorer' anchored in the Cromarty Firth late in the evening of 24 November to carry out an echointegrator calibration. Having completed the calibration 'Explorer' left the Cromarty Firth at 0700 on 25 November to continue the survey. The survey continued uninterrupted until 28 November when all the stations had been completed. The opportunity was taken on 29 November to carry out some hauls off Montrose to see if there were any differences in the catch composition between hauls made during daylight and dark. A further echointegrator calibration was carried out in St Andrews Bay before 'Explorer' returned to Aberdeen on 30 November.

### Results

**Trawling:** A total of 55 valid and one foul hauls were made during the survey. These consisted of 46 carried out at the programmed positions, 5 additional hauls to identify traces and 4 hauls to study daylight and dark variations in catches. The hauls at programmed stations were all carried out in a stepped fashion and gave catches of sprat varying from 0-26264 per hour tow. On the basis of the programmed hauls O-group sprats were most abundant in the Inner Moray Firth and off Buckie with other concentrations being in Aberdeen Bay, off Montrose, and off the Tees. Virtually no sprats were caught at distances greater than 30 miles from the coast. The additional hauls to identify traces confirmed the presence of O-group sprats in

considerable quantities of Bickie and indicated that they were even more abundant in Aberdeen Bay than had been shown by the programmed hauls. In Aberdeen Bay the sprats appeared to be very close inshore. They also indicated the presence of a body of older sprats (2-4 years old) off the Tyne.

The trawl hauls also indicated the presence of large numbers of 0-group herring. Catches at the programmed stations varied from 0-4267 with the largest catches being in the Inner Moray Firth. Indeed an additional haul off Nairn was almost entirely composed of 0-group herring. Very few of the hauls made during the cruise contained less than 10% by weight of herring.

Isaac Kidd Trawls: A total of 28 Isaac Kidd hauls were made during the cruise. This number was lower than planned as Isaac Kidd hauls were not carried out in poor weather conditions because

1. there was a considerable amount of damage being done to the plankton wire
2. the cabled netsonde system was not working on the first half of the cruise and it was decided to use the available cableless system on the midwater trawl.

No very small "metamorphosing" sprats were found in any of the hauls. There were however considerable numbers of large herring larvae especially off the northeast of England.

Echointegration: No dense concentrations of fish traces were located during the cruise. Instead there appeared to be a relatively high level of acoustic biomass throughout the area surveyed. Trawling in most of the area gave very small catches of large plankters and small fish such as gobies and it was concluded that the partitioning of the acoustic biomass into sprat and other species was not possible with the information available.

David W McKay  
20 May 1983

W Findlay  
Commanding Officer