

IN CONFIDENCE: Not to be quoted without reference to the Laboratory.

CRUISE REPORT

FRS "EXPLORER"

June 17 - July 9 1975

OBJECTIVES

1. To participate in the international North Sea O-group gadoid survey.
2. To take part in an international comparative fishing exercise.
3. To collect data on the food of O-group gadoids.
4. To make routine observations of the environment.

NARRATIVE

Sailing was delayed by engine trouble, and "Explorer" did not leave Aberdeen until 0030 hours on June 23. It was soon apparent that further work would have to be done on the engines, and the ship proceeded to an anchorage in Inganess Bay, where she remained for the night. Repairs were completed by 0830 hours on June 24 and "Explorer" made four rectangles E19 (the venue of the international comparative fishing experiment) occupying two trawling stations en route. Between 0830 hours on June 25, and 1000 hours on June 26 eight half hours hauls were made, part of a programme intended to investigate the stratification of O-group gadoids in midwater. The weather deteriorated rapidly and at 1800 hours a decision was made to terminate the international experiment and "Clione", "Tridens", "Johan Hjort" and "Dana" left the area. "Explorer" and "Corella" remained on station in the hope that the weather would improve sufficiently for comparative fishing hauls to be made by these two vessels. By the morning of June 27 conditions had improved and both "Corella" and "Explorer" made four one-hour hauls. "Corella" then steamed south and "Explorer" continued the trawling survey, working stations to the east of the Shetlands on June 27/28, and to the west of the Shetlands on June 29/30. Further work had to be done on the engines, so "Explorer" went to anchor at 1430 hours on June 30. At 0830 hours on July 1 the ship put in to Lerwick, where water was taken and a crewmember picked up. The Chief Engineer and a seaman left the ship for medical reasons. "Explorer" left Lerwick at 0930 hours on July 2 and began work near the Orkneys. The JONSIS line was completed between 2330 hours on July 2 and 1500 hours on July 3. Work then continued uninterrupted, and a further 23 trawling stations were completed before the ship docked at Aberdeen at 1800 hours on July 8.

RESULTS

Objective 1

Forty statistical rectangles were sampled in the course of the survey. Catch rates of cod, haddock, saithe and whiting were lower than in 1974 but, for cod, haddock and whiting they were above the mean values recorded in the period 1969 - 1973.

The centres of distribution of cod, haddock, saithe and Norway pout were to the east of the Shetlands. There were two centres of concentration of whiting, one to the east of the Shetland Islands and another in the Moray Firth and off the Scottish east coast. Very few gadoids were taken to the west of the Shetlands. Unfortunately there was not time to survey the area to the west of the Orkneys.

Objective 2

Although "Explorer" was too late to participate in the comparative fishing experiment proper, as stated in the narrative, four hauls were made in company with the "Corella". Eight hauls were made as a contribution to a second experiment designed to determine whether young gadoids are stratified in the water column and the extent to which they make diel vertical migrations. The experimental method was to tow the trawl for half an hour at a designated depth and, after each tow, to shoot the net to the depth that had just been fished and to haul it again immediately. The object of this was to ascertain how much of the catch taken from a particular stratum was actually caught while the net was passing through the surface layers during the shooting and hauling operations. A feature of the results of this experiment was that on several occasions the "up and down" haul caught more young gadoids than were taken in the half-hour tows at a constant depth. The data have yet to be analysed statistically but they give the impression that in this region (rectangle E19) at the end of June, most of the young gadoids are still living in the upper water layers.

Objective 3

As there is so much material from earlier surveys still awaiting analysis, no samples of young gadoids were kept for the examination of their stomach contents.

Objective 4

The JONASIS line was completed successfully for the hydrography section.

Nine Gulf III hauls were made for Dr Bailey, to supplement the sprat egg and larval survey that was being carried out by the "Mara".

Quantitative and qualitative data were obtained on the medusae caught with the trawl. The Scyphomedusae Cyanea lamarchi and C. capillata were more abundant in the south of the survey and less abundant in the north compared with 1974. Aurelia aurita was abundant in the Moray Firth and off the Aberdeenshire coast and at times the large numbers of this species in the catch made it difficult to sort the fish.

ADDITIONAL INFORMATION

Samples of young gadoids were collected for Dr Wardle and Dr Mackie (T.R.S.). A small number of sprat ovaries were preserved for fecundity estimations and for histological studies. Forty-nine whiting, caught with handlines, were tagged (26 off Scalloway and 23 in the Moray Firth, near Helmsdale). Fourteen sightings of small cetaceans were made during the cruise, including a white-sided dolphin that was found dead, floating on the surface, at 56°50'N 00°32'W. A small number of live fish were brought back for the aquarium.

J R G HISLOP
21 July 1975

Seen in draft by D Rattray