

R1/6

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FRV *Clupea*

Cruise 3/90 Part 3

3pt3CR90

REPORT

26 March - 6 April 1990

Personnel

J A Morrison	SSO (in charge)
J C Gamble	PSO (26-30 March)
C W Shand	HSO
G I Sangster	HSO (26-30 March)
F Burns	ASO
I Napier	PhD student (26-30 March)

Objectives

1. To carry out egg surveys on Ballantrae Bank using a "Day" grab, ROV "Sea-pup" and divers to map the extent of egg deposition and to obtain quantitative samples for analysis.
2. To use the trawl to sample herring present on the Bank to obtain data on the age structure of the spawning stock.
3. To deploy a time-lapse camera on the bottom in an area in which herring were likely to spawn.

Narrative

Scientific staff joined *Clupea* at Ardrossan on the afternoon of 26 March and spent the remainder of the day setting up gear onboard. The following day, south-westerly gales prevented operation at Ballantrae or South Arran but trials with a sidescan sonar and some grab sampling was carried out in the Skelmorlie Bank area, with *Clupea* making for Campbeltown for the night. Work at Ballantrae started on the morning of 28 March, with the sidescan sonar being used to check the location of gravel ridges observed with the ROV "Sea-pup" in 1989. Diving and grab sampling were also started and a time-lapse camera was deployed. Operations were continued at Ballantrae on 29 and 30 March and were switched to Brown Head, Arran, on 31 March as heavy concentrations of "ripe" herring had been observed in this area on a tagging cruise a fortnight earlier. Grab sampling and camera work in this area revealed gravel and maerl ridges rather similar to those at Ballantrae. On 3 April, trials of a commercial ROV were carried out in Lamlash Bay as the weather was unsuitable for operation elsewhere. Faults developed with the machine, however, and the trials were discontinued. Subsequently *Clupea* continued to Brown Head where grab sampling established the presence of a small patch of eggs. The 4th of April was spent working at Ballantrae where the time-lapse camera was serviced and the remainder of the time was spent grab sampling. *Clupea* spent the night of 4 April at Campbeltown and the following day carried out a grab survey at Brown Head prior to proceeding to Greenock where the cruise terminated.

Results

1.a) Grab and TV surveys

Three hundred and forty-two grab stations were completed on this cruise. At Ballantrae, the substrate information derived from the grab survey coupled with underwater video film suggested that there had been a considerable change in the location and configuration of the ridged gravel areas since the previous year. There was, however, no evidence of egg deposition in this area. At Brown Head off South Arran, a small area of egg deposition was noted on 3 April. On the last operational day of the cruise (5 April), newly-fertilised eggs were taken in grab samples in an area off South Arran where dense bottom traces of fish were observed on the echosounder. Unfortunately, on this occasion the camera systems could not be deployed because of the severity of the weather, and further investigation of this area could not be undertaken before the end of the cruise.

1.b) Diving surveys

Dives were made in the vicinity of the current meter on 28, 29 and 30 March. No spawn was found, so diving work concentrated on the deployment of an array of egg collectors, aligning the time-lapse camera, collecting sediment samples, photographic work and measuring ripple profiles and oxygen uptake by the sediment. This work was carried out in preparation for spawning which was thought to be imminent.

2. Trawling

Two trawl hauls were carried out on 29 March at the edge of Ballantrae Bank in which less than a basket of herring was taken per haul. The herring in these catches were made up of a mixture of maturity stages 5 and 8 with a very few fish in maturity stage 6. Those fish in maturity stage 8 appeared to be well recovered and were likely to have been autumn spawners.

3. Camera deployment

The time-lapse camera was successfully deployed at a position within the 1989 area of spawn deposition on 28 March, taken up, serviced and redeployed on 4 April, and left *in situ* to be taken up at the start of the next Ballantrae cruise in mid-April.

J A Morrison
28 August 1990

Seen in draft: W Smith

