

MINISTRY OF AGRICULTURE, FISHERIES AND FOOD
 FISHERIES LABORATORY, LOWESTOFT, SUFFOLK ENGLAND

1984 RESEARCH VESSEL PROGRAMME

REPORT: RV CLIONE: CRUISE 4

(PROVISIONAL: Not to be quoted without prior reference to the author)

STAFF

Part a) M Greer Walker
 B Rackham
 L Emerson
 M C Fulcher
 L S Mariduena (Ecuador)
 R Santer (U.C. Cardiff)

Part b) J H Nichols
 J D Riley
 M C Fulcher
 A R Lawler
 R Flatt

DURATION

Part a) Left Lowestoft 0900 h 16 March.
 Arrived Lowestoft 0930 h 29 March.

Part b) Left Lowestoft 2000 h 29 March.
 Arrived Lowestoft 0930 h 3 April.

AIMS

Part a) To sample Pelagic species particularly sprat using a midwater trawl. Histological collections to be made with particular reference to the ovary.

Part b) To survey the southern North Sea south of Lat $53^{\circ}53'N$ for sole egg
 1. abundance using the MAFF 53cm plankton sampler.
 2. To estimate haul to haul variance within a sample rectangle, in a sole egg patch.

NARRATIVE

Part a) CLIONE left Lowestoft at 0900 h 16 March and steamed southwards. Following a short acoustic survey between the Inner Gabbard and South Falls banks, trawling began to the west of the latter bank at 1700 h and 6 hauls were completed by 0430 h 18 March. CLIONE then steamed through the Dover Straits and two further hauls were completed in Shorham Bay (Selsey Bill to Beachy Head) by 2358 h 19 March. Sampling continued further westward with two hauls in Lyme Bay on the same day. During the night of 19/20 March CLIONE steamed to the west of the Scilly Isles and hauls were made over both the Jones and North West banks finishing at 2108 h 20 March. However, this area proved to be barren and CLIONE returned to the coast and began fishing in Mounts Bay at 1141 h 21 March. The ship docked at Plymouth at 1600 h 22 March to take on fresh supplies of liquid

nitrogen and was detained by bad weather until 0700 h 24 March. Fishing continued in the shelter of Lyme Bay and at 1930 h CLIONE steamed for the Hurd Deep where near bottom water samples were taken between 0100 h and 0600 h 25 March. Thereafter CLIONE returned to the South Falls area and trawling resumed at 0901 h 26 March and continued until 1830 h 28 March. Passage was made overnight to Lowestoft and the ship docked at 0830 h.

After changing staff and loading equipment, RV CLIONE sailed from Lowestoft at 1900 h 29 March. The 53 cm plankton sampler was calibrated en route to the first survey station at the southern end of the grid, Latitude $51^{\circ}52.5'N$ Longitude $1^{\circ}37.5'E$. The sole egg survey began at 2235 h 29 March and proceeded uninterrupted until 0700 h 31 March when the towing cable was trapped in the towing block and had to be released and repaired. Repairs were completed by 1500 y 31 March and the survey restarted. There was a further interruption, this time for bad weather between 1900 h 1 April and 0600 h 2 April. Forty five survey stations had been completed by 2000 h 2 April when the plankton sampler was lost overboard. At the time of the accident the sampler was in the initial stages of deployment, having been hauled off the deck up towards the towing block at the end of the boom. Instead of reversing to lower the sampler into the water the winch continued to haul, parting both the towing cable and the safety brace, on impact with the block. The spare towing eye and resin repair kit had already been used, therefore the cruise was terminated and course was set for Lowestoft. RV CLIONE docked in Lowestoft at 0930 h 3 April.

RESULTS

Part a) Sprat

Ovaries were collected from each trawl station and preserved in both formalin for histological analysis and Gilsons fluid for both counting and sizing the eggs. In addition the carcass and guts were frozen for future analysis. A total of 500 specimens were collected. In two areas, namely, Mounts Bay and the South Falls bank collections were made over a 24 h period to investigate possible diurnal rhythms in ovulation.

Several dissected stretch preparations were fixed for future study of the blood supply and innervation to the gonad and cloaca by Dr R Santer.

A sample of approximately 150 fish were deep frozen at each station for Dr P O Johnson.

Several specimens of each maturity stage were frozen in liquid nitrogen for sectioning on the cryostat.

Mackerel

Only immature specimens were caught particularly in Mounts Bay and 55 ovaries were preserved in formalin by Mr L Mariduena. Ovary stretch preparations were fixed.

Pilchard

Reasonable catches were made in Lyme Bay and a sample of 20 mature ovaries were preserved in formalin and the carcass and guts frozen. Ovary stretch preparations were fixed.

Herring

Small numbers were caught in all areas and several immature ovaries were preserved in formalin. Ovary stretch preparations were fixed.

Bass

10 specimens were caught in Lyme Bay and a single specimen in the South Falls area. Data was collected from these fish and they were frozen for further examination by Dr M Pawson.

Other Activities

The hearts from 11 species were frozen in liquid nitrogen for further enzyme and fluorescence histochemical analyses and isolated and in vivo hearts from two species, whiting and herring, were photographed in detail.

A collection of small fish was made and preserved in formalin for Dr M Benjamin (U.C.Cardiff).

Stretch preparations of red muscle fibres from several pelagic species were fixed in formalin.

Near bottom water samples from five stations in the Hurd deep were collected for analysis (Dr Harden Jones).

Plaice migration

During midwater trawling on the western side of the South Falls bank it was noted that relatively large numbers of spent/recovering plaice were caught. Migrating fish move through this area between their spawning grounds in the western channel and feeding grounds in the North Sea. Six 1¹/₂ h hauls were made during the period 16-18 March (full moon 17 March). 3 tows on northerly tides yielded 107 plaice of which 69% were relatively large recovering males; only 3 immature plaice were caught on the intervening southerly tides. During the second visit to the area (26-28 March) 9 2 h hauls were made 5 on northerly tides and 4 on southerly tides. On this occasion the numbers had dropped dramatically and were 8 (all spent males) and 4 (5 immature females + 1 female stage VI) respectively.

RESULTS

Part b.

Aim 1. Forty five of the fifty six stations on the planned survey grid were completed. The unsampled stations were at the northernmost end of the grid along latitude $53^{\circ}22.5'N$, and off the north Norfolk coast.

Preliminary examination of the samples on board revealed the presence of a few sole eggs on one station only at latitude $52^{\circ}37.5'N$ longitude $3^{\circ}15'E$. Bottom temperatures over the survey area were generally lower than those expected for late March particularly on the western side. It can be concluded that within the area surveyed the sole spawning has only just begun.

Aim 2. Sole eggs ~~was~~ not found in sufficient densities to attempt this exercise.

M Greer Walker
J Nichols
10 April 1984

SEEN IN DRAFT:

Master - G Sinclair
Fishing Skipper - R C Newrick

INITIALLED: DJG

DISTRIBUTION:

Basic List
M Greer Walker
B Rackham
L Emerson
M C Fulcher
L S Mariduena
R Santer
J H Nichols
J D Riley
A R Lawler
R Flatt
Dr Benjamin (U.C. Cardiff)