

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

1984 RESEARCH VESSEL PROGRAMME

REPORT: CLIONE: CRUISE 6

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

STAFF

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DURATION

Left Lowestoft 1331 h 8 May
Arrived Lowestoft 0621 h 25 May
All times Greenwich Mean Time

LOCALITY

Southern North Sea and English Channel.

AIMS

1. To locate and investigate spawning bass by trawling and egg and larval surveys.
2. To obtain viable bass eggs and incubate them at a range of temperatures.
3. To tag adult bass on the spawning grounds.
4. To survey the North Sea south of 52°N and the English Channel east of 0° for sole egg abundance, using the MAFF 53 cm plankton sampler.

NARRATIVE

CLIONE left Lowestoft at 1331 h on May 8 and steamed directly to station 1 off Brighton (see Figure 1). Total water column samples were taken with a 76 cm MAFF/Guildline 82 plankton sampler (TTN) at stations 1-4, 8-13 and 17-23 during the mornings of 9, 10 and 11 May, and whilst these samples were sorted for bass eggs in the evenings an 800 Engels mid-water trawl was fished at stations 5-7, 14-16 and 24-25 respectively. The plankton samples indicated that the highest density of bass eggs was to the S and SE of the Isle of Wight and on 12 May TTN samples were taken at stations 26-34 in order to locate the spawning focus more accurately. The pelagic trawl was used after dark that evening (station 35) and again the next night (stations 45 and 46), after plankton samples had been taken from depth strata of 0-10m, 10-20m, 20m to within 3m of the bottom and from the whole water column (stations 36-39), from the neuston (stations 40 and 41) and to the W and SW of the spawning centre (stations 42-44). Two hundred sea surface drifters were released at station 46, together with 5 tagged bass, before CLIONE steamed for Plymouth at 0000 h on 14 May.

CLIONE docked at 1245 h on 14 May and one crew member was put ashore and water and stores were taken on. The scientific staff visited IMER and the MAFF district office to collect some plankton sampling equipment and ascertain the

progress of bass spawning to the W of Start Point. It appeared that spawning had not started and when CLIONE sailed at 1008 h on 15 May she headed back to the Isle of Wight. At 1700 h, however, her main engine failed 32 miles SW of Weymouth and the Pfleuger was used to enter Portland Harbour at 0200 h on 16 May, where CLIONE remained until 1044 h on 19 May. During this time the plankton samples were re-sorted and several unsuccessful attempts were made to catch bass with rod and line and gill nets. Reports suggested that very few had so far arrived in the area.

After testing the engine at sea CLIONE resumed work to the S of St Catherine's Head where 6 TTN stations (47-53) were sampled in a grid around the spawning centre located one week previously. No bass were taken in two trawl hauls made in the dark early on 20 May and when the plankton samples were sorted only a few bass eggs were found. TTN stations 55 to 61 were sampled during the day to confirm these observations and to investigate an area in which bass were thought more likely to be spawning. Station 58 yielded a high number of eggs, and the morning of 21 May was spent sampling the neuston, upper and lower water column and obtaining live bass eggs from near the surface. A further 200 surface drifters were released before CLIONE steamed for Beachy Head to start the ICES sole egg survey.

The survey commenced at station 67 (see Figure 2) at 1604 h on 21 May and continued until 1000 h on 22 May when deteriorating weather conditions made sampling impossible. Work was resumed at 0236 h on 23 May, though there was a 3 hour delay for overhaul of the Guildline at 1600 h. The final station was completed at 0043 h on 25 May (station 104) and CLIONE steamed for Lowestoft, docking at 0621 h 25 May.

RESULTS

1. The distribution of bass eggs shown in Figure 3 indicates that bass were spawning to the S and E of the Isle of Wight during the period 9-14 May, with a spawning centre approximately 8 miles S of St Catherine's Point. Although some eggs were still being produced in that position 5 days later, the highest density was then located to the NE, 2-3 miles E of Culver Cliff. At this time water temperatures were uniform throughout the water column and isotherms were parallel to the coast, with the warmest water at 11.1°C measured in the central Solent. In general bass eggs were not found in water of less than 9.5°C nor in salinities under 34.6‰. Mid-water trawls at night in the spawning area did catch several running ripe male bass, but only one, spent, female was taken.
2. Fifteen live bass eggs taken in the 1 m conical net were incubated at ambient (air) temperature, and larvae were preserved at 24, 48 and 70 h after hatching for positive identification.
3. Five adult bass were tagged and released near St Catherine's Point.
4. All 38 stations of the proposed sole egg survey grid were completed. Samples from the first 16 stations were examined on board ship, and the numbers of sole eggs noted. The density of eggs only once exceeded one per cubic meter at a station $50^{\circ}51.3'N$ $00^{\circ}41.8'E$, where there were approximately 20 eggs per m^3 . Surface temperatures ranged from 9.19°C in the mid-Eastern Channel to 11.36°C at the approaches to Zeebrugge. Bottom temperatures were not significantly different from the surface values. Dense phytoplankton was encountered at all but 3 stations and caused heavy clogging of the $270\ \mu$ mesh net.
5. Live fish: 5 spotted dogfish, 2 bream, 1 plaice, 1 bass, 2 lumpsuckers and 1 cuttlefish, were returned to the Lowestoft laboratory, and specimens of Mustelus mustelus, M. asterios and Pollachius pollachius were deep-frozen for York University.

M G Pawson
6 June 1984

SEEN IN DRAFT: Captain French - Master
R C Newrick - Fishing Skipper

INITIALLED: DJG

DISTRIBUTION:

Basic List
M G Pawson
B M Thompson
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Figure 1. CLIONE 6a/84, STATION POSITIONS

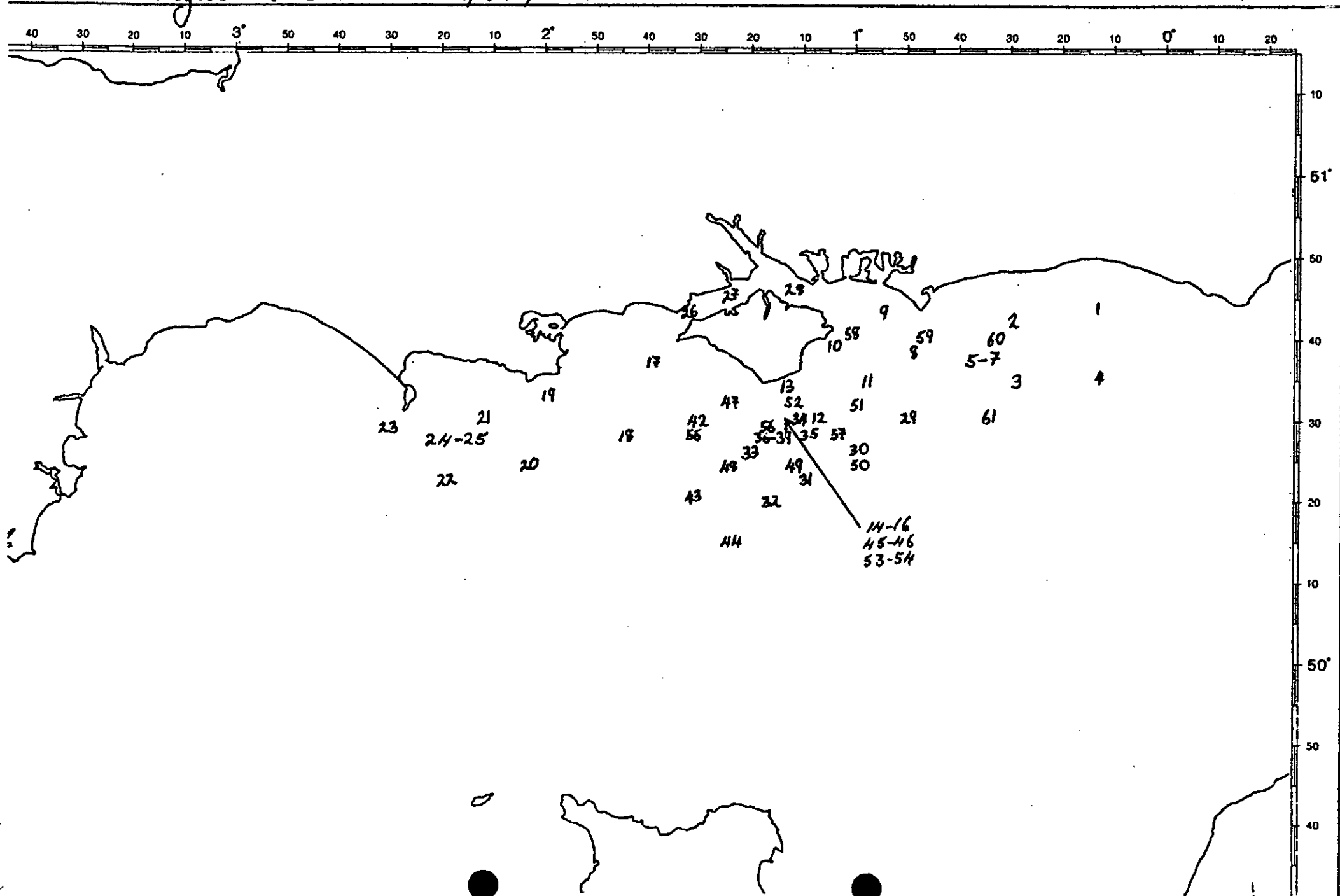


Figure 2. CLIONE 63/84, TRACK OF
SOLE EGG SURVEY

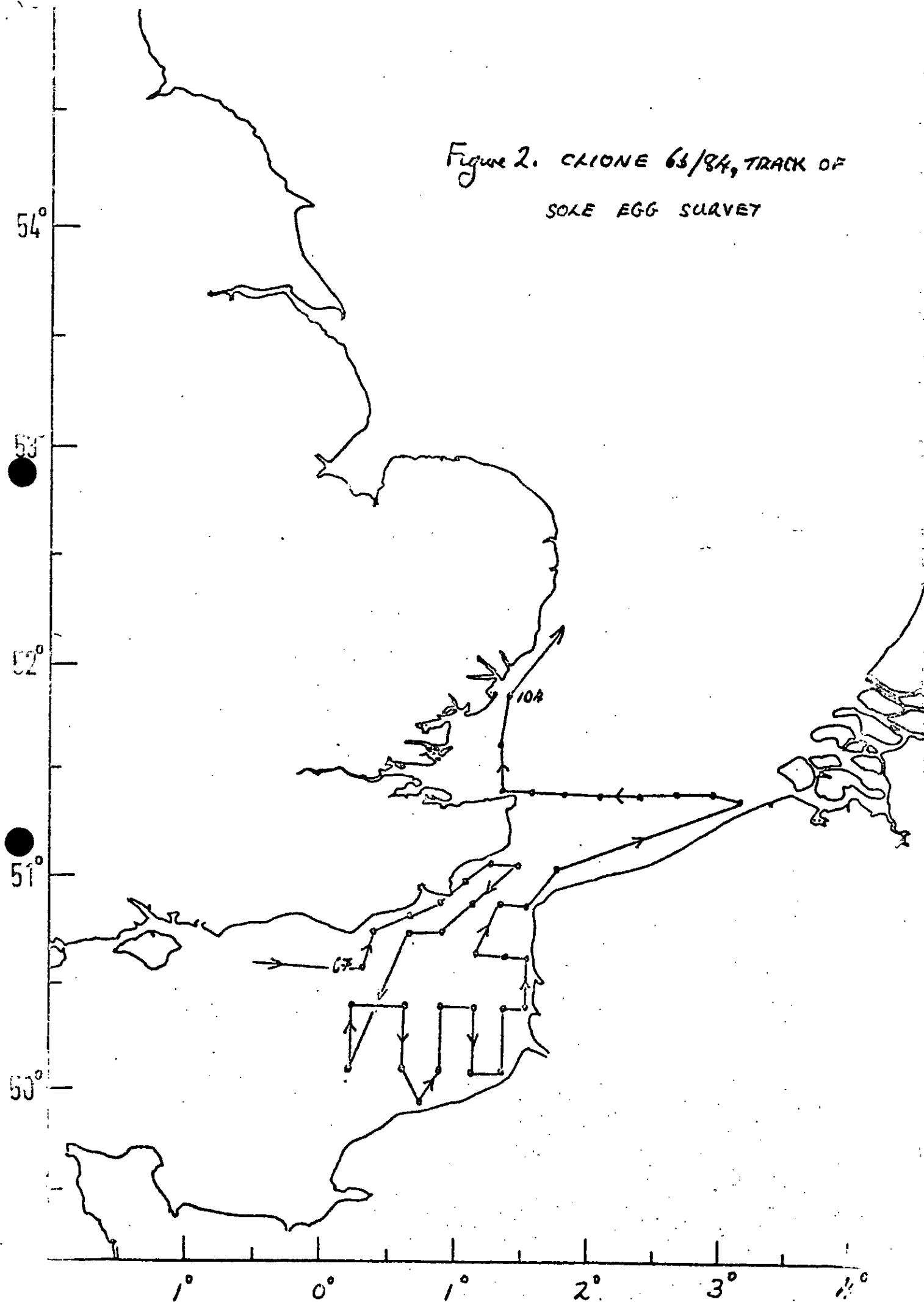


Figure 3. CAIONE 6a/84, BASS EGG DENSITY (N°/m^2 sea surface), 9-14 MAY

