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

1979 RESEARCH VESSEL PROGRAMME

REPORT: RV CIROLANA: CRUISE 5/79

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

STAFF:

S J Lockwood	J P Bridger
J H Nichols	A Child
Mrs W A Dawson	Miss L Emerson
J R Corbin (Poole)	N Walters (University of Hull)

DURATION:

Left Grimsby 1545 h, 9 May

Arrived Grimsby 0800 h, 29 May

LOCALITY:

North Sea, west of Scotland, west of Ireland, Celtic Sea, Bay of Biscay and the English Channel

AIMS:

1. Trawling in all areas around the British Isles for mackerel for studies on stock separation.
2. To make "in situ" target strength measurements.
3. To test the 20" TTN towed at 5 knots but shot and hauled at twice the normal speed.
4. To collect 50 l seawater samples at selected station positions around the British Isles.
5. To collect tissue samples from small gadoids for immunogenetic examination.
6. To collect hearts from assorted fish species for histological examination.
7. To carry out egg development studies on any fish not previously studied.
8. To carry out physiological observations on any non-littoral decapod crustaceans taken in trawl hauls.

NARRATIVE:

CIROLANA sailed from Grimsby at 1545 h GMT and proceeded to the north east Dogger Bank where trawling began at 0520 h, 10 May. During the next four days trawl stations were worked on the Little Fisher Bank, along the Norwegian Rinne, and on the Bergen Bank but no mackerel were caught until the Viking Bank was reached on 14 May. CIROLANA sailed from the Viking Bank 15 May to the edge of the continental shelf west of Shetland and began working south along the edge until 19 May when gale force winds west of Ireland prevented work for 24 hours. On 21 May CIROLANA continued to work south across the Celtic Sea and into the Bay of Biscay, trawling

every day and carrying out TTN calibration trials during the afternoon and evening of 22 May. At 0800 h, 25 May CIROLANA turned north and steamed to Falmouth Bay where Mr Bridger disembarked at 1645 h, 26 May. TTN trials where then completed south west of the Lizard before a final day was spent trawling in Lyme Bay. The trawling programme was completed at 1600 h, 27 May when CIROLANA set course for Grimsby where she docked at 0800 h, 29 May.

RESULTS:

1. Mackerel were sparsely distributed throughout the cruise and no discrete shoals were positively identified as mackerel. North of the Celtic Sea and on the Viking Bank all the mackerel were taken with a Granton trawl at 150-220 m depth. In the southern Celtic Sea and in the Bay of Biscay few mackerel were taken in trawl hauls, but they were taken at 40-80 m depth on handlines. Few mackerel were taken in the Engel 1600 trawl.

Mackerel were collected from a total of 8 areas. In each area 2 ml of blood were taken from each of 100 fish for immunogenetic examination and the otoliths and morphometric measurements were taken from these and an additional 50-80 fish. Stomach contents were also identified.

In the southern Celtic Sea and in the Bay of Biscay the dominant species in the trawl hauls was the scad. Samples of these catches were measured and 15 fish/cm over the length range caught were frozen for examination in the laboratory. In Lyme Bay the dominant species were sprat, poor cod and blue whiting.

2. Aim 2 was deleted from the programme at short notice before sailing.

3. The unencased and encased 20" TTN fitted with the new conical nose cones were tested at normal and higher than normal winch speeds. A tow at normal winch speed established that the new nose cones do not affect sampler stability, nor do they present any particular handling problems.

When the towing warp was veered at twice the normal speed the sampler, fitted with a standard phosphor bronze Scripps depressor, dived at twice the normal rate. When the sampler was fitted with a Braincon Type 317 V-fin depressor the rate of dive was the same as with the Scripps depressor but the sampler was noticeably less stable during the early and late stages of shooting and hauling. This V-fin also demonstrated an ability to invert and get trapped in this position beneath the sampler.

From these observations it is clear that a Scripps depressor will take the sampler down at the rate required for the 1980 mackerel egg survey, but it may be necessary to tow at 6 knots when shooting and 4 knots when hauling to equilibrate the speed of the sampler through the water. We shall also require a longer towing cable to reach the required sampling depth of 200 m.

4. Two 50 l water samples were collected north of Shetland to supplement those collected on CIROLANA Cruise 4/79.

5. Samples of I-II group gadoids were collected in the northern North Sea for immunogenetic examination.

6. 270 hearts, body lengths and weights were collected from 24 species of fish for histological examination. Adult lumpsuckers were also frozen whole for more extensive histological studies.

7. A few running sprats were caught but they only produced sufficient eggs for rearing at one temperature. At 7°C they hatched in 84-100 hours.

Ling eggs were reared successfully to hatch over the range 6-12°C.

Mackerel eggs were again reared to hatching and confirmed the previous observations that Western stock mackerel eggs cannot be reared to hatching at temperatures above 17.5°C.

8. Heart and scaphognethite beat frequencies (an index of metabolic status) of 11 species of crustacea were recorded over 48 hour periods with a ten channel impedence pneumograph multicounter. Haemolymph samples were taken from each specimen used and these will be examined at a later date by atomic absorption spectrometry as part of a study relating magnesium concentration to the animals activity. Sluggish species have higher magnesium concentrations than active species.

The 11 species examined were:

Natantia	Pandalus borealis
Reptantia	
Brachyura	Cancer pagurus
	Atelecyclus rotundatus
	Macropipus tuberculatus
	Polybius henslowii
	Geryon tridens
Anomura	Pagrus pubescens
	Pagrus predeauxii
	Munida bamffica
	Lithodes maia
Macrura	Nephrops norvegicus

A further three species of crab, Maia squinado, Corystes cassivelaunus and Geryon affinis were caught in Lyme Bay and kept for work in the laboratory at a later date.

9. Ad hoc requests

a. Norway pout and blue whiting catches were sampled for length and maturity distributions in the North Sea and all areas worked west of Britain. Otoliths and stomachs were also collected from 10 fish/cm in each area, a total of 211 Norway pout and 613 blue whiting.

b. Specimens from 52 species of fish were collected for the Fishery Officers fish identification course.

c. Samples of mackerel and scad were frozen for deep water fish trap bait on CIROLANA Cruise 6/79.

Loss of gear

One complete belly was lost from the GOV trawl when working the SW edge of the Norwegian Rinne.

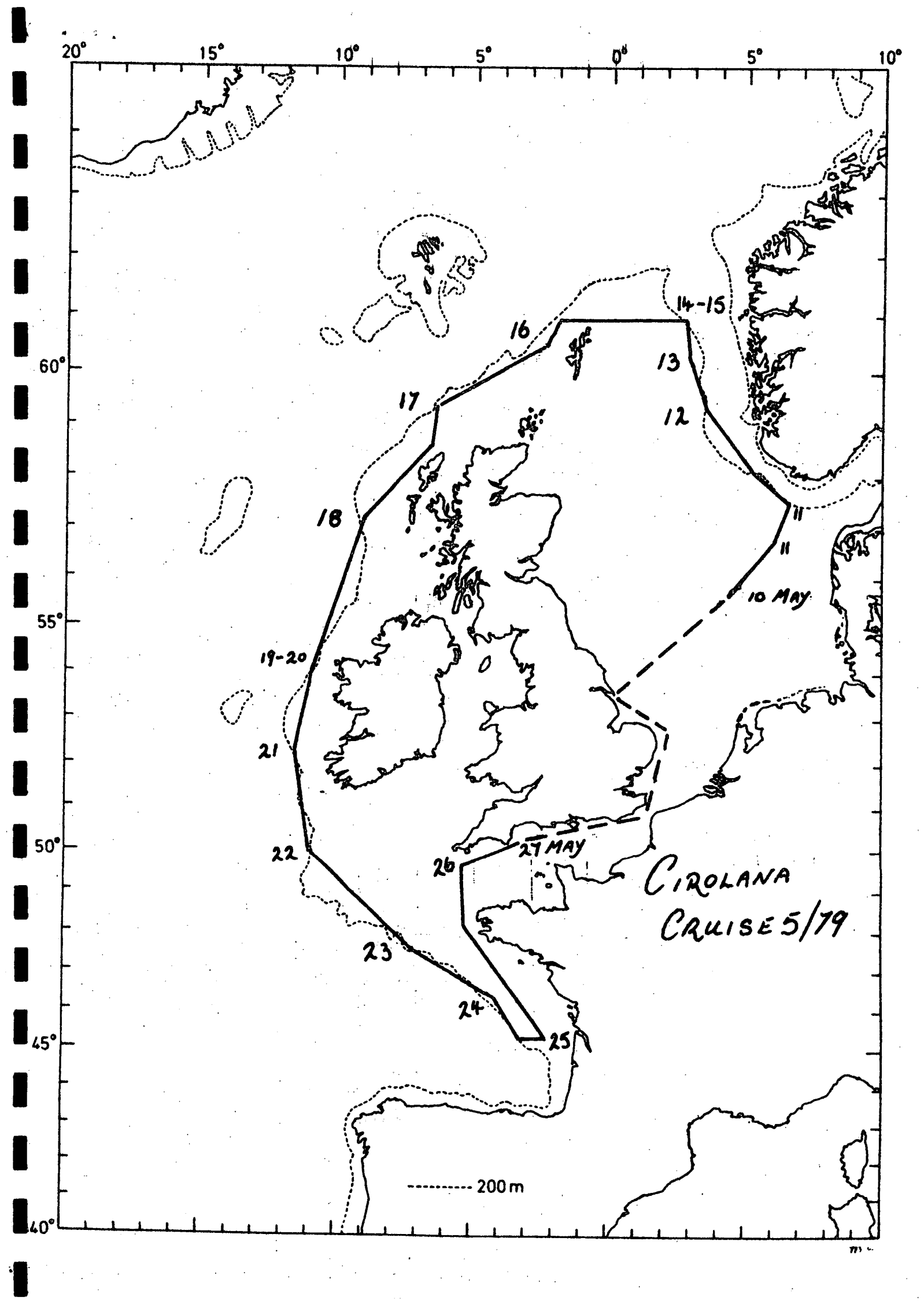
Stephen J Lockwood
4 June 1979

SEEN IN DRAFT: THF
WJS

INITIALLED: AJL

DISTRIBUTION:

S J Lockwood (20)	J P Bridger
J H Nichols	A Child
Mrs W A Dawson	Miss L Emerson
J R Corbin (Poole)	N Walters (University of Hull) (5)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