

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

1976 RESEARCH VESSEL PROGRAMME

REPORT: RV CLIONE : Cruise 2

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

STAFF

G P Arnold
I L Davies
B H Holford
P Walker
P Bryan (Gy)

DURATION

Left Lowestoft 0930 h 31 January
Arrived Lowestoft 2400 h 6 February
All times are Greenwich Mean Time

LOCALITY

Southern North Sea

AIMS

1. To continue studies on plaice migration by fishing for spent fish in midwater and comparing the catch rates on northerly and southerly tides.
2. To collect live mature soles for W.F.A.

NARRATIVE

CLIONE sailed from Lowestoft at 0930 h 31 January after being delayed for 48 h by severe easterly gales. She dodged out to Smith's Knoll and continued to dodge until 1200 h 1 February, by which time the weather had moderated. Work started at 1400 h and the first 3 h tow on a northerly tide on longitude $2^{\circ} 15'E$ yielded 15 plaice, of which 9 were spent females. The transducer cable winch gave some problems on the next haul and after a split in the cable was repaired only a short tow of $1\frac{3}{4}$ h was possible. The cable winch was repaired and fishing resumed at 0840 h on 2 February. Thereafter fishing continued uninterrupted until 5 February with paired 3 h tows made on consecutive northerly and southerly tides on longitudes $2^{\circ} 5'$, $2^{\circ} 10'$, $2^{\circ} 15'$ and $2^{\circ} 20'E$. Work was stopped by deteriorating weather at 1330 5 February and CLIONE dodged until 1000 h 6 February. Fishing was resumed at 1040 h and two more hauls were made immediately south of Smith's Knoll before CLIONE returned to Lowestoft docking at 2400 h 6 February.

RESULTS

1. Catch rates

16 complete 3 h tows, and one 1.75 h tow on a southerly tide, were made during the cruise. 100 plaice were caught in midwater, 19 on southerly tides and 81 on northerly tides giving catch rates of 0.7/h and 3.4/h respectively.

2. Maturity stages

Only 12 of these fish were males; 5 were running fish, 1 was in maturity stage V and 5 were immature. Of the 88 females, 26 were immature, 7 were still ripening in maturity stage V and 55 were spent fish in stage VII.

3. Plaice catch and direction of tide

On all pairs of hauls except the last, when 6 plaice were caught on the southerly tide and only 2 on the northerly, more plaice were caught on the northerly tide and the largest catch was 22 fish. The results show a dramatic reversal in catch rates between northerly and southerly tides, when compared with the results of the previous cruises made in the autumn of 1974 and 1975. The results of all cruises to date, which are summarized below, support the hypothesis that plaice in the Southern Bight migrate by selective tidal transport, travelling south on southerly tides to their spawning grounds in the autumn and returning north on northerly tides to their feeding grounds in the winter months.

	<u>Tide</u>			
	<u>Northerly (N)</u>	<u>Southerly (S)</u>		
	h	catch	h	catch
CORELLA 16/74 - 18/75	148	65	154	254
catch/h	0.44		1.65	
catch rate	N:S		1 : 3.7	
	<u>Northerly (N)</u>		<u>Southerly (S)</u>	
	h	catch	h	catch
CLIONE 2/76	24	81	25.75	19
catch/h	3.37		0.74	
catch rate	N:S		4.6 : 1	

4. Live soles

8 live female soles were put in the deck tanks with a copious supply of running water but most were bruised by the net and none survived the rough weather of the last two days.

5. Fish food

Frozen sprats were brought back to the laboratory for fish food

SEEN IN DRAFT	JRF		G P Arnold
	GFL		16 February 1976
INITIALED	AJL		
DISTRIBUTION	Basic List	B H Holford	F R Harden Jones
	G P Arnold	P Walker	M Greer Walker
	I L Davies	P Bryan (Gy)	