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

1987 RESEARCH VESSEL PROGRAMME

REPORT RV CLIONE: CRUISE 4

(Provisional: not to be quoted without prior reference to the author)

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P Scholes
R J Turner
L Emerson
R Harrop
H Sun (Fisheries Dept., Shandong College of Oceanography,
Qingdao)

DURATION: Left Lowestoft 1630h 10 March
Arrived Lowestoft 1100h 30 March
(All times are GMT)

LOCALITY: Falls Bank, Dover Strait

AIM:

To study the migration of plaice moving to and from their spawning grounds in the eastern Channel in relation to the lunar cycle.

NARRATIVE:

RV CLIONE left Lowestoft at 1630h 10 March and steamed south to the Dover Strait. Mid water trawling west of the Falls Bank began the following morning and continued until the mid-cruise break (1000h 20 March - 1600h 21 March) which was spent in Harwich. Trawling was resumed during the evening of 21 March in the working area but was interrupted on 26 March by hurricane force winds. CLIONE anchored in the Margate Road at 2000h the same day. Work resumed at 1900h 28 March and continued until 0313h 30 March. CLIONE docked at Lowestoft at 1100h 30 March.

RESULTS:

1. During the cruise a total of 58 mid water trawl hauls were made, these were divided into 29 pairs. Each of a pair were made during a northerly or southerly tide and there were 14 daytime pairs and 15 nighttime pairs. The catches of plaice by sex and maturity stage are shown in the attached table.

This cruise took place some two months after the peak spawning time in the eastern Channel and this is reflected in the maturity stages of the plaice caught. Whereas the immature stages of both sexes showed no obvious preference for tide, the spent fish (female stage 7, male stage 7 and possibly stage 6) showed a strong preference for northerly tides.

It was noted that the catches of plaice and sole declined in bad weather particularly during easterly winds. Similarly, few were caught when herring shoals were abundant. Because of these effects it was difficult to establish whether or not there was an increase in the number of spent plaice on northerly tides after the full moon (15 March).

2. Catches of sole in midwater were relatively high consisting of about one third immature fish, one third maturing females and one third maturing males. There were more fish caught on northerly tides than southerly tides and particularly on northerly tides at night. These results suggest a northerly movement through the Dover Strait. (J Riley)
3. On several days (22 to 25 March) large numbers of herring shoals were noted on the echosounder and catches of between 10 and 60 baskets were landed. Two samples of herring and a single sample of sprat were frozen for future analysis. (P O Johnson)
4. Mackerel ovaries were collected for sterological analysis. (P Witthames)
5. Serum was collected from male stage 6 plaice to determine steroid concentrations. It has been suggested that some male plaice currently identified as stage 6 are in fact spent. (A P Scott)
6. Red blood cells, kidneys and livers were collected from cod for the study of mitochondrial DNA. (A J Birley, University of Birmingham).
7. Several species were preserved in formalin for anatomical studies. (M Benjamin, University of Cardiff).

M Greer Walker
Scientist in Charge

SEEN IN DRAFT: Capt J R French (Master)
Mr P Mackay (Senior Fishing Mate)

INITIALLED: DJG

DISTRIBUTION:

Basic list +
Staff on cruise
J Riley
P O Johnson
A P Scott
P Witthames

Station No	WIND		NO OF SOLES
	Dir (deg)	Speed (knots)	
1	55.0	16.5	0
2	50.0	18.0	0
3	60.0	15.0	7
4	12.5	70.0	0
5	55.0	9.0	3
6	0.0	0.0	15
7	310.0	5.0	0
8	5.0	18.0	4
9	17.5	15.5	1
10	40.0	11.0	6
11	20.0	8.0	0
12	15.0	6.5	8
13	220.0	4.0	7
14	240.0	5.0	10
15	260.0	15.0	3
16	292.5	16.0	13
17	300.0	7.5	10
18	295.0	13.0	5
19	310.0	22.3	4
20	325.0	8.5	7
21	212.5	9.0	1
22	245	12	12
23	227.5	14.5	5
24	240	15.5	8
25	215	22.5	3
26	265	20	16
27	280	22.5	2
28	285	19.5	16
29	197.5	8.5	10
30	45	5	15
31	50	8	13
32	355	9	49
33	275	16	10
34	275	17.5	23
35	240	4	3
36	300	5	48
37	210	15	2
38	200	20	5
39	207.5	17.5	0
40	210	17	0
41	212.5	13.5	86
42	215	8	1
43	220	2.5	6
44	185	5	0
45	185	7.5	78
46	170	11	0
47	202.5	13.5	0
48	285	10	0
49	275	10.5	49
50	235	12.5	2
51	212.5	26	6

52	210	22.5	0
53	310	13	33
54	320	10	23
55	322.5	25	23
56	340	17.5	12
57	295	9	40
58	260	10	11

Station No	Female maturity stages					
	I	II	IV	V	VI	VII
1	0		0	0	0	0
2	0		0	0	0	0
3	4		0	0	0	17
4	3		0	0	0	1
5	7		0	0	0	0
6	16		0	0	0	17
7	0		0	0	0	1
8	0		0	0	0	1
9	4		0	0	0	2
10	1		0	0	0	5
11	0		0	0	0	0
12	2		0	0	1	4
13	6		0	0	0	0
14	8		0	0	0	7
15	3		0	0	0	2
16	6		0	1	0	18
17	2		0	0	0	2
18	4		0	0	0	10
19	6		0	0	0	2
20	3		0	0	0	11
21	10		0	0	0	0
22	7		0	0	0	9
23	5		0	0	0	0
24	8		0	0	0	11
25	6		0	0	0	2
26	4		0	0	1	2
27	3		0	0	1	1
28	6		0	0	0	10
29	3		0	0	1	0
30	2		0	0	0	3
31	6		0	0	0	2
32	8		0	0	0	12
33	4		0	0	0	3
34	8		0	0	0	19
35	4		0	0	0	0
36	6		0	0	0	5
37	0		0	0	0	0
38	1		0	0	0	2
39	0		0	0	0	0
40	0		0	0	0	0
41	9		0	0	0	12
42	3		0	0	0	1
43	0		0	0	0	2
44	0		0	0	0	0
45	7		0	0	0	12
46	2		0	0	0	0
47	1		0	0	0	1
48	0		0	0	0	0
49	5		0	0	0	5
50	2		0	0	0	0
51	0		0	0	0	0

53	0	0	0	0	0	0	0
54	3	0	0	0	0	0	2
55	6	0	0	0	0	0	2
56	1	0	0	0	0	0	4
57	7	0	0	0	0	0	4
58	3	0	0	0	0	0	0
	4	0	0	0	0	0	1

Station No.	Total no plaice	Total no males	Male maturity stages			Total no females
			I	VI	VII	
1	0	0	0	0	0	0
2	0	0	0	0	0	0
3	91	70	11	43	16	21
4	8	4	1	3	0	4
5	9	2	2	0	0	7
6	122	89	9	66	14	33
7	1	0	0	0	0	1
8	12	11	2	9	0	1
9	11	5	0	4	1	6
10	28	22	2	18	2	6
11	0	0	0	0	0	0
12	32	25	2	16	7	7
13	17	11	0	10	1	6
14	50	35	5	15	15	15
15	9	4	3	0	1	5
16	88	63	3	51	9	25
17	12	8	3	4	1	4
18	36	19	0	19	3	14
19	13	5	0	1	4	8
20	36	22	1	19	2	14
21	13	3	1	1	1	10
22	47	31	2	25	4	16
23	10	5	1	1	3	5
24	46	27	0	17	10	19
25	12	4	0	2	2	8
26	19	12	3	9	0	7
27	7	2	1	1	0	5
28	31	15	1	14	0	16
29	12	8	4	4	0	4
30	25	20	0	14	6	5
31	10	2	0	1	1	8
32	91	70	5	50	15	21
33	12	5	2	3	0	7
34	82	55	3	46	6	27
35	11	7	2	3	2	4
36	35	24	1	20	3	11
37	1	1	0	1	0	0
38	9	6	0	6	0	3
39	0	0	0	0	0	0
40	0	0	0	0	0	0
41	48	27	1	23	3	21
42	6	2	0	0	2	4
43	4	2	0	1	1	2
44	0	0	0	0	0	0
45	61	42	1	34	7	19
46	5	3	0	3	0	2
47	2	0	0	0	0	2
48	0	0	0	0	0	0
49	24	14	2	8	4	0
50	2	0	0	0	0	2
51	3	3	0	3	0	0

52	0	0	0	0	0	0	0
53	25	20	1	14	6	5	
54	26	18	2	13	3	8	
55	12	7	1	6	0	5	
56	30	19	8	11	0	11	
57	10	7	2	5	0	3	
58	17	12	2	2	8	5	

Haul No	Station No	Date	Time of Shot	tow Hauled	Tide	Day/Night
6	1	11-3-87	1045	1245	North	Day
7	2	"	1532	1730	South	Day
8	3	12-3-87	2230	30	North	Night
9	4	"	401	601	South	Night
11	5	"	1757	1957	South	Night
12	6	13-3-87	2312	113	North	Night
13	7	"	649	849	South	Day
14	8	"	1130	1331	North	Day
15	9	"	1814	2014	South	Night
16	10	14-3-87	2355	155	North	Night
17	11	"	618	818	South	Day
18	12	"	1158	1359	North	Day
19	13	"	1759	2059	South	Night
20	14	15-3-87	2343	243	North	Night
21	15	"	615	915	South	Day
22	16	"	1155	1456	North	Day
23	17	"	1815	2115	South	Night
24	18	16-3-87	19	319	North	Night
25	19	"	628	928	South	Day
26	20	"	1232	1532	North	Day
27	21	"	1849	2149	South	Night
28	22	17-3-87	52	354	North	Night
29	23	"	700	1000	South	Day
30	24	"	1300	1600	North	Day
31	25	"	1917	2217	South	Night
32	26	18-3-87	137	438	North	Night
33	27	"	831	1101	South	Day
34	28	"	1355	1625	North	Day
35	29	"	1955	2255	South	Night
36	30	19-3-87	153	453	North	Night
37	31	"	812	1112	South	Day
38	32	"	1448	1749	North	Day
39	33	"	2026	2326	South	Night
40	34	20-3-87	231	531	North	Night
47	35	22-3-87	2204	104	South	Night
48	36	"	252	552	North	Night
49	37	"	1048	1318	South	Day
50	38	"	1533	1803	North	Day
52	39	23-3-87	600	900	North	Day
53	40	"	1147	1447	South	Day
54	41	"	1824	2124	North	Night
55	42	24-3-87	36	336	South	Night
56	43	"	632	932	North	Day
57	44	"	1335	1638	South	Day
58	45	"	1932	2232	North	Night
59	46	25-3-87	236	536	South	Night
60	47	"	834	1135	North	Day
61	48	"	1502	1802	South	Day
62	49	26-3-87	2212	12	North	Night
63	50	"	322	522	South	Night
64	51	"	1057	1257	North	Day

72 52 " 1614 1814 South Day
73 53 28-3-87 1906 2107 South Night
74 54 29-3-87 10 210 North Night
75 55 " 601 901 South Day
76 56 " 1351 1521 North Day
77 57 " 1826 2126 South Night
78 58 30-3-87 11 311 North Night

