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

1985 RESEARCH VESSEL PROGRAMME

REPORT RV CLIONE : CRUISE 1

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

STAFF:

M Greerwalker
P Scholes
B H Holford
P R Witthames
R J Turner
L S Emerson

DURATION:

Left Lowestoft 2215h 4 January
Arrived Lowestoft 1200h 24 January

LOCALITY:

South Falls : Dover Strait

AIMS:

1. To study the migration of plaice to and from their spawning grounds in the Eastern channel in relation to the lunar cycle.

2. To sample the maturity stages of plaice for histological analysis.

3. To study the reproductive biology of fish species on an opportunistic basis.

NARRATIVE:

CLIONE left Lowestoft at 2215h 4 January and steamed overnight to the South Falls where midwater trawl hauls began the following day. There were three interruptions to the work. Firstly, January 11/12 was spent in Dover for radar repairs and the opportunity was taken to replenish the fresh water and secondly high winds prevented fishing on January 6 and 15.

Work was completed at 0530h 24 January and CLIONE returned to Lowestoft docking at 1200h the same day.

RESULTS:

1. Details of the plaice caught in relation to time, tide, sex and maturity stage are shown in the Table. A total of 39 midwater trawl hauls were made during the cruise along a line parallel to and west of the South Falls. Sixteen of these hauls (bracketed) form a time series of paired hauls on northerly and southerly tides at night. The six daylight hauls can also be paired with the corresponding northerly hauls at night.

Daylight was of too short a duration to encompass paired hauls. Statistical comparisons were carried out on the sirius microcomputer using the paired 't' test.

1. Paired night time hauls

Stage 1 and 6 male plaice were caught on both northerly and southerly tides. No significant ($P > 0.05$) differences in numbers showed between the two tides. Similarly immature female plaice occurred on both tides ($P > 0.05$) but significantly more ($P < 0.001$) female plaice stage 4 were caught on southerly tides. Those fish moving in a northerly direction on northerly tides may have eventually spawned in the Southern Bight, they were generally smaller (length 34cms S.D ± 5) than the southward moving channel spawners (length 39cms SD ± 7) and fecundity samples were taken from each to test for possible differences. Spent or stage 7 female plaice returning from the spawning grounds in the Channel were in significantly ($P < 0.001$) greater numbers on northerly tides. These fish were generally larger (length 41cms SD ± 6) than the stage 4 plaice. This cruise took place over the peak spawning time in the Channel when movements to and from the spawning grounds might be expected to be relatively low and a preliminary analysis showed no obvious relationship between fish movements and the lunar cycle (full moon January 7),

2. Two fecundity samples from plaice covering the length ranges found were preserved in Gilsons fluid. The first from stage 4 plaice caught on northerly tides and the second from stage 4 plaice caught on southerly tides. The relevant carcass' and livers were frozen and the otoliths taken.

3. A sample of 22 stage 3 sole and 14 stage 4 plaice ovaries were subsampled volumetrically. This subsample was embedded in resin for histometric analysis while the remainder of the ovary was preserved in Gilson fluid to compare two methods of estimating sole fecundity.

4. Atretic eggs from stage 7 plaice were preserved in formalin.

5. Quantitative estimates were made of fish commonly occurring in the hauls. Namely, spurdog, cod, sole, ray, whiting and sprat.

6. Approximately 40 bass were frozen for Dr M Pawson.

7. Live cod and lumpfish were returned to the laboratory.

8. Samples of both herring and sprat were frozen for Dr P O Johnson.

SEEN IN DRAFT: Capt G Sinclair P Mackay

INITIALLED: D J G

CIRCULATION:

Basic List+
M Greerwalker
P Scholes
B H Holford
P R Witthames
R J Turner
L S Emerson
Dr Pawson
Dr P O Johnson

DETAILS OF MIDWATER TRAWL HAULS ON NORTHERLY AND SOUTHERLY TIDES

HAUL NO	DATE	TIME TOW	OF GMT	TIDAL DIRECTION	PLAICE CAUGHT TOTAL NO	MALE	MATURITY STAGE	FEMALE	MATURITY STAGES 4	5	6	7	IMM	AGE OF FISH (DAYS)
1	5 Jan	1105	1405	N	25	15	6	10	4	1	0	5	0	14
2	5 Jan	1721	2021	S	18	3	6	15	11	0	0	0	4	14
3	5/6 Jan	2345	0245	N	41	19	6	22	16	0	0	2	4	15
4	7 Jan	1826	2126	S	53	20	19x6 1x4	33	25	0	0	1	7	16
5	8 Jan	0025	0325	N	43	25	24x6 1x1mm	18	8	0	0	1	9	17
6	8 Jan	1935	2235	S	28	9	5x1 4x6	19	14	1	0	0	4	17
7	9 Jan	0310	0610	N	23	6	2x6 4x1	17	8	0	0	0	9	18
8	9 Jan	1953	2253	S	35	7	6x6 1x1	28	19	0	0	0	8	18
9	10 Jan	0152	0452	N	43	13	11x6 2x1	30	8	0	0	7	15	19
10	10/11 Jan	2035	2335	S	27	2	2x1	25	18	0	0	0	7	19
11	11 Jan	0237	0537	N	30	10	3x1 7x6	20	6	0	1	5	8	20
12	12 Jan	2215	0115	S	21	5	1x1 4x6	16	9	0	0	1	6	21
13	12 Jan	0411	0711	N	25	7	7x6	18	4	0	0	7	7	21
14	13 Jan	1641	1941	N	13	4	3x1 1x6	9	3	0	0	2	4	22
15	13/14 Jan	2300	0200	S	15	5	2x1 3x6	10	5	0	0	0	5	22
16	14 Jan	1742	2042	N	12	6	5x6 1x1	6	1	0	0	4	1	23
17	15 Jan	1849	2149	N	18	6	2x1 4x6	12	1	1	0	5	5	24
18	16 Jan	0116	0416	S	20	9	1x1 8x6	11	6	0	0	1	4	25
19	16 Jan	1958	2258	N	30	9	2x1 7x6	21	8	0	0	7	6	25
20	17 Jan	0220	0520	S	16	4	1x1 3x6	12	12	0	0	0	0	26

HAUL NO	DATE	TIME TOW	OF GMT	TIDAL DIRECTION	PLAICE CAUGHT TOTAL NO	MALE	MATURITY STAGE	FEMALE	MATURITY STAGES 4	5	6	7	IMM	AGE OF MOON (DAYS)
21	17 Jan	0814	1114	N	60	21	4x1 17x6	39	9	0	0	15	15	26
22	18 Jan	2104	0004	N	28	10	2x1 8x6	18	8	0	0	1	9	27
23	18 Jan	0326	0626	S	28	4	4x6	24	20	0	0	0	4	27
24	18 Jan	0925	1225	N	40	6	2x1 4x6	34	3	1	0	16	14	27
25	18/19 Jan	2217	0117	N	37	8	3x1 5x6	29	0	0	0	15	14	28
26	19 Jan	0424	0724	S	42	13	4x1 9x6	29	9	1	0	0	19	28
27	19 Jan	1717	2017	S	29	10	2x1 9x6	19	9	0	0	0	10	28
28	19/20 Jan	2300	0200	N	23	6	6x6	17	3	0	0	5	9	29
29	20 Jan	1122	1422	N	30	7	3x1 4x6	23	7	0	0	8	8	29
30	20 Jan	1754	2054	S	31	7	2x1 5x6	24	14	0	0	0	10	29
31	20/21 Jan	2354	0254	N	23	4	4x6	19	5	0	0	8	6	00
32	21 Jan	1200	1500	N	18	5	1x1 4x6	13	0	0	0	10	3	00
33	21 Jan	1840	2140	S	23	8	1x1 7x6	15	9	0	1	0	5	00
34	22 Jan	0034	0334	N	45	4	1x1 3x6	41	3	0	1	31	6	01
35	22 Jan	1254	1554	N	9	0	-	9	0	0	0	9	0	01
36	22 Jan	1910	2210	S	46	14	9x6 5x1	32	18	0	0	2	12	01
37	23 Jan	0105	0405	N	38	3	1x1 2x6	35	4	0	0	24	7	02
38	23 Jan	1948	2248	S	65	24	8x1 16x6	41	17	3	1	0	20	02
39	24 Jan	0145	0445	N	26	1	1x1	25	1	0	0	21	3	03