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

1994 RESEARCH VESSEL PROGRAMME

REPORT: R V CORYSTES: CRUISE 1 (a)

STAFF

A P Scott (SIC)
P R Witthames
R J Turner
A R Lawler
E V M Vermeirssen (EEC PhD student)
R Moses Inbaraj (EEC post-doc)

DURATION

Left Lowestoft 1500h 5 January
Arrived Lowestoft 1200h 17 January
All times are Greenwich Mean Time

LOCALITY

Southern North Sea

AIMS

1. Collection of blood and urine samples from male plaice caught on and off the main spawning areas in the North Sea - to see whether the endocrine status of the males is affected by the presence of ripe spawning females.

2. Collection of blood urine bile and gonads from ripe spawning females (to support the one year project on maturation-inducing steroids being carried out by Dr Moses Inbaraj).

3. Collection of plaice pituitaries.

4. Collection of live female plaice for tagging studies and of live male plaice for endocrinology experiments.

NARRATIVE

Over the course of the cruise, fishing was carried out, using a 4 metre beam trawl (with hauls lasting between 15 and 60 minutes), in 9 different areas of the North Sea (see Track and Table). When possible, morning (AM: 0800-1400) and evening (PM: 1400-2200) trawls were carried out in each area.

Time was lost due to bad weather on Jan 13th (all day) and Jan 14th (AM) and to having to return the chief steward to Lowestoft on Jan 15th (PM).

RESULTS

In all hauls (except on the last day, when several hauls were devoted to the collection of live fish for return to the laboratory):

1. all male and female plaice were counted and measured;

2. an assessment was made of the stage of maturity of the females (Stage IV - yolky eggs only; Va - some hydrated eggs; Vb - lots of hydrated eggs; VI - hydrated eggs loose in gonadal cavity; VII -spent);

3. pituitary glands were removed and frozen in liquid nitrogen;

4. samples of blood plasma, urine and bile were taken from female plaice (n=90) with gonads in stages IV, Va, Vb or VI; fish with empty urinary or gall bladders were rejected; a small sample of ovary from each fish was placed in an egg clearing solution for 30 minutes and then stored in 70% ethanol.

In AM and PM hauls in all fishing areas except Markham's Hole, where weather conditions did not permit us to fish during the AM period:

5. samples of blood plasma and urine were taken from male plaice (n=320); in most cases, it was possible to collect at least 20 plaice during the AM period and then another 20 during the PM period; in the Smiths Knoll/Winterton Twenties area, however, only 3 males were caught during the AM hauls and in the Tea Kettle area, only 22 males were caught during the whole day;

6. testes were removed from the males and stored frozen so that they could be weighed back at the laboratory.

In the Mud Hole and Botney Gut areas:

7. samples of sperm and testes of 80 male plaice were collected and frozen for subsequent weighing back at the laboratory.

CONCLUSION

There were large differences in the amount of spawning activity (as indicated by the numbers of spawning females [stages Va, Vb and VI] caught per hour) in the different fishing areas (see Table). These differences will eventually be correlated with the levels of sex steroids in the plasma and urine samples of the male plaice. Measurements of the sex steroids will take 2-3 months.

The samples of plasma, urine and bile from female plaice will be also eventually be analysed by HPLC and RIA for the presence of metabolites of the oocyte

maturation-inducing steroid, 17,20β-P. The sample of ovary from each female will be used to make an accurate assessment of oocyte maturity.

75 live female plaice, 75 live male plaice and ca. 1500 frozen pituitary glands were returned to the laboratory.

All aims were achieved successfully.

A. P. Scott
(Scientist-in-charge)
11 February 1994

SEEN IN DRAFT
M. Willcock (Master)
J. Harper (Fishing Skipper)

INITIALLED
J. G. Shepherd

DISTRIBUTION

Basic list +
A P Scott
P R Witthames
R J Turner
A R Lawler
E Vermeirssen
R Moses Inbaraj

Summary of plaice catches and sampling: CORYSTES 1A-94 SIC Dr A.P. Scott

		AM			PM			Male plasma (P) & urine (U) samples:		Male sperm samples (SP):	
			spawning	fem/male		spawning	fem/male				
date	area	fish/h	fem. / h	ratio	fish/h	fem. / h	ratio	AM	PM		
06-Jan	silver pits	57.3	**5.3**	0.3	31.5	**2.5**	0.2	1-20	21-40		
07-Jan	brown ridges	44.2	**0.3**	0.1	134.6	**2.0**	0.2	41-60	60-80		
08-Jan	winterton twenties	6.6	**0.0**	0.9	34.3	**1.3**	0.4	81-83	84-120		
09-Jan	south falls	15.6	**0.7**	0.4	58.3	**2.3**	0.3	121-140	141-160		
10-Jan	tea kettle	10.3	**0.0**	0.6	9.0	**0.0**	0.6	161-170	171-182		
11-Jan	ouster bank	33.9	**0.0**	0.4	37.7	**0.5**	0.3	201-220	221-240		
12-Jan	mud hole	66.2	**0.4**	0.3	47.1	**0.0**	0.3	241-260	261-280	1-20	
13-Jan	NO FISHING										
14-Jan	markhams hole				24.8	**2.8**	0.4				
15-Jan	botney gut	110.9	**15.5**	0.3				281-300		41-60	21-40
16-Jan	botney gut				89.3	**7.7**	0.3		301-320		61-80
17-Jan											

corystes 94/1a

SHOWING :
CRUISE TRACK
STATION NUMBER
COASTLINE

ARENS