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CENTRE FOR ENVIRONMENT, FISHERIES & AQUACULTURE SCIENCE
LOWESTOFT LABORATORY, LOWESTOFT, SUFFOLK, ENGLAND

1998 RESEARCH VESSEL PROGRAMME

REPORT: RV CORYSTES: CRUISE 10/98

STAFF: C G Brown
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D Eaton
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P M Hudson
K Cooper

DURATION: Left Lowestoft 11.30 h 10 October.
Arrived Lowestoft 21.15 h 20 October.
All times are Greenwich Mean Time.

LOCALITY: North Sea (English NE Coast)

AIMS:

1. To conduct a TV survey of the English NE coast Nephrops grounds using a towed sledge and underwater TV camera to evaluate burrow density and estimate Nephrops biomass in the area 55° 35' -54° 45' N and 1° 30'-0° 40' W.

2. To backup the TV survey with a trawl survey to establish the size composition and sex ratio of the Nephrops catch.

3. To collect sediment samples by Day grab to establish the type of substrate most suitable for Nephrops.

4. To collect samples of mud dwelling benthos using a Hamon grab.

5. To make observations on mud burrows, to try to establish the occupying organisms and size distribution of Nephrops populations, by using a drop camera cage with video and stills camera attached.

NARRATIVE:

CORYSTES departed from Lowestoft on 10 October at 11.30 h and sailed to the southern part of the survey area where work commenced the following morning at 03.25 h. A total of 102 TV stations were completed and preliminary Nephrops burrow counts were made over a ten minute part of the tow which was recorded on video tape for further detailed analysis at the laboratory. Sediment samples were taken by Day grab at most TV stations.
A total of 30 trawl stations were completed to give a wide coverage of the area surveyed by TV. All Nephrops were measured and sexed to obtain a length distribution and sex ratio at each trawl station. Stomach contents of all cod caught

were analysed to establish presence of Nephrops and other burrowing crustaceans. Trials were made with the Hamon grab at two stations. Corystes docked at Lowestoft at 22.15 on 20 October.

RESULTS:

1. A total of 102 tows with the sledge-mounted TV camera were made over the full extent of the Nephrops fishing grounds and excellent results were obtained for the majority of these. Clear pictures were obtained of the substrate, Nephrops burrows, burrows of other animals and emergent Nephrops as well as trawl marks caused by both footrope and doors of trawlers operating on the grounds. Preliminary Nephrops burrow counts were made at each TV station. All burrow counts, usually of 10 minutes duration, were recorded for further laboratory analysis. Preliminary results (Figure 1) suggest that the highest densities of burrows are found in the areas where high catches of Nephrops are normally made.

2. A total of 30 trawl tows of half an hour duration with Boris 600 prawn trawls were made throughout the fishery area to establish the size composition and sex ratio of Nephrops on different parts of the ground, and to relate to the burrow counts of those grounds. All Nephrops caught were sexed, measured and weighed. Stomach contents of trawl caught cod were examined for the presence of Nephrops and associated crustaceans, 38% of all cod examined had been feeding on Nephrops and 3% on the similar mud burrowing crustacean Calocaris (Table 1). A sample of whiting was also measured.

3. Sediment samples taken by Day grab were frozen for future particle size analysis.

4. A total of 8 grab samples using a Hamon grab were made at two stations where there were high concentrations of Nephrops burrows, no crustaceans were obtained but assorted worms and bivalves were found.

5. No work was done with the drop camera because of adverse weather conditions when in the area of high Nephrops density.

CLIVE BROWN
(Scientist-in-Charge)
21 October 1998

INITIALLED: BAC
MGCR

DISTRIBUTION:
Basic list + C Brown, P Walker, D Eaton, P Hudson, J Elson, K Cooper.

Table 1 - Stomach contents of Cod

Aims

To determine the:

- proportion of cod taking Nephrops
- size of Nephrops taken
- occurrence of other burrowing organisms

			Other burrowers	
St no.	*No. Fish*	*Nephrops*	*Calocaris*	*Fish*
113	44	23	1	0
114	32	20	0	0
115	31	14	1	1
116	24	7	0	0
117	25	4	0	0
118	32	10	2	0
119	19	8	1	0
120	19	8	3	0
121	18	12	0	0
122	5	2	0	0
123	15	7	0	0
124	23	10	1	0
125	29	9	1	3
126	34	9	3	1
127	36	10	0	3
128	28	5	0	2
129	42	10	3	0
130	22	13	0	0
131	36	17	0	1
132	7	4	0	0
Total	**521**	**202**	**16**	**11**
	%	**38.77**	**3.07**	**2.11**