

CRUISE REPORT

F.R.V. "MARA"

30th August, 1962-20th September 1962.

Objectives

To obtain data on the relative efficiencies of a cotton Nephrops trawl with 3" mesh in the wings, 2 $\frac{1}{2}$ " mesh in the bosom and bag, a cotton Nephrops trawl with 3" mesh in the wings, bosom and bag, and a courlene Nephrops trawl with 3" mesh in the wings, bosom and bag.

In conjunction with the above work to investigate the stock composition of Norway lobsters and obtain data on ovary maturities.

Narrative

"Mara" left Aberdeen on Thursday, 30th August for the nephrops grounds off Buckie, the delayed start being due to trouble with the main engine clutch. Bad weather at various times cut the remaining schedule still further. However nine days of good fishing were achieved. On 19th September, after three days of strong north-easterly wind, "Mara" went out but the catch fell to insignificant numbers; in two hauls "Mara" had only 47 nephrops. This big drop in the catch was also experienced by the local commercial boats. In view of these circumstances plankton work was undertaken. Next day on the third haul the gear came fast. The net (cotton, modified) was badly torn, the forward door had one of the triangles torn from its fixing and one of the after bollards was pulled slightly askew. It was decided then to finish the trip and return to Aberdeen where "Mara" docked that night. On 3rd September a large school of whales was sighted; they were breaking water as far as one could see.

Results

All trawl hauls were made in an area where commercial boats were working nephrops trawls. All trawls were rigged with exactly the same numbers of headline floats and groundrope weights. In the first series of hauls the weather was calm but overcast; on 6th September, a bright sunny day, the catch fell by half. Weather during the second series of hauls was much more broken. All hauls were done in good daylight to obviate interference by dusk or dawn factors. A comparison of the catches, number of Norway lobsters, by various trawls are shown in Tables I and II. A statistical analysis of the cod-end escapes will be done by the statistics section.

Table I

A comparison of the catches, by number, of Norway lobsters in each of ten hauls and overall by a cotton prawn trawl about 55 mm cod-end mesh, A, (i.e. approximately the old standard prawn trawl) and with a cotton prawn trawl with cod-end of about 70 mm, B, (i.e. approximately new regulation prawn trawl.)

			A	B
Day 1	haul	1	4,722	1,196
	"	2	3,990	3,745
Day 2	"	3	3,146	926
	"	4	3,501	1,404
Day 3	"	5	1,041	583
	"	6	1,140	1,323
Day 4	"	7	1,832	783
	"	8	2,144	763
Day 5	"	9	399	432
	"	10	509	174
Total			22,424	11,329

Table II

A comparison of the catches, by number, of Norway lobsters, in each of four hauls and overall by a modified cotton prawn trawl, cod-end 63.3mm., C, with a modified courlène prawn trawl, cod-end 58.9mm., D.

Day 1	haul 1	C	D
" 2	" 2	220	751
" 3	" 3	1,274	633
" 4	" 4	398	338
		208	697
	Total	2,100	2,419

The stock composition of the nephrops in the area is shown in Table III. The sexes were similar in number and in size. The main bulk of the catch was composed of small and medium nephrops, i.e. those between 20 and 40 m/m carapace length. In all 56,659 nephrops were caught, 28,645 males and 28,014 females.

Table III

% age of the catch at each m/m carapace length males, females and overall.

Carapace length in m/m	Males	Females	Overall
12	+	+	+
13	-	0.1	+
14	0.1	0.1	0.1
15	0.3	0.4	0.3
16	0.5	0.7	0.6
17	0.5	0.4	0.5
18	0.3	0.7	0.5
19	1.4	1.9	1.6
20	2.7	3.6	3.1
21	3.8	3.3	3.5
22	3.2	4.1	3.6
23	3.5	5.0	4.2
24	5.5	6.1	5.8
25	7.2	7.3	7.2
26	9.1	7.8	8.4
27	10.2	9.8	10.0
28	9.0	8.8	8.9
29	7.3	6.9	7.1
30	6.6	6.9	6.8
31	5.2	4.8	5.0
32	3.8	4.7	4.2
33	3.3	4.2	3.8
34	2.1	3.6	2.9
35	1.9	2.8	2.3
36	1.6	2.2	1.9
37	1.7	1.5	1.6
38	1.4	0.9	1.2
39	1.3	0.5	0.8
40	1.2	0.4	0.8
41	0.7	0.1	0.4
42	0.9	0.1	0.5
43	0.8	+	0.4
44	0.6	-	0.3
45	0.5	-	0.2
46	0.3	+	0.1
47	0.3	+	0.2
48	0.1	-	+
49	0.1	-	+
50	0.2	-	0.1
> 50	0.1	-	+
Number in sample	28,645	28,014	56,659

1626 female nephrops were examined to determine their maturity conditions. The results are shown in Table IV:-

Table IV

Maturity Stage	0	1	2	3	4	5	Berried	Total
No.	235	251	261	192	91	263	333	1,626
%	14	15	16	12	6	16	20	99

6775 females were examined when sexing the animals. Of these 1380 were berried, equal to 20%.

The following species of fish had the stomach contents examined for nephrops.

Species	No. examined	% with Nephrops		No. examined	% with Nephrops
L. Sole	3	-	Catfish	1	100
Plaice	15	-	Gurnard	6	-
C. Dab	6	-	Hake	52	-
L. R. Dab	35	9	Ling	2	-
Witch	36	14	Angler	2	-
Cod	14	29	Caranx	2	-
Haddock	36	-	Scyllium	2	-
Whiting	6	-	S. acanthias	1	-
4 Bearded rockling	5	20	R. batis	3	-

The plankton hauls were good, containing large numbers of decapod larvae, Themisto gracilipes and Calanus sp. were common copepods; one haul had large numbers of Spiratella retroversa. Among young fish, herring, sand-eels and gobies were the commonest species present.

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10th January, 1963.