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CRUISE REPORT

F.R.S. "SCOTIA"

2nd-16th July, 1965.

Narrative

F.R.S. "Scotia" sailed from Aberdeen on the 2nd July and, on passage to the Firth of Clyde, worked certain plankton and hydrographic stations. Sampling of Norway lobster stocks and further plankton and hydrographic investigations were undertaken in conjunction with the trawling programme in the Firth of Clyde, Sound of Jura, South Minch, Inner Sound, North Minch, Noup Deep, Moray Firth and the Firth of Forth. The cruise concluded at Leith on the 16th July.

Method

Norway lobsters and white fish were sampled by a Nephrops trawl of about 70 mm mesh in the wings and bag. The cod-end mesh averaged 73 mm. The net was rigged with a minimum number of floats on the headrope and towing speed was reduced as far as possible (75 revs/min). A courlene whole cover was attached to the cod-end. A total of 82 half-hour trawl hauls was made.

Norway lobsters were sampled in each area for the occurrence of Stichocotyle nephropis.

Norway lobsters

Investigations were undertaken in all the main areas of Norway lobster distrubution quoted above. A total of about 13,000 Norway lobsters were measured and classified as to sex and condition. Note was also taken of the states of ovary development. The stock composition of male Norway lobsters by areas is shown in Table 1.

The percentage of total females within each ovary development stage by areas is shown in Table 2. These data suggest that off the West Coast the state of ovary development becomes more advanced as the latitude increases. Similarly, in the Moray Firth, females are somewhat more advanced than in the Firth of Forth.

The percentage of Norway lobsters infected by Stichocotyle nephropis for the various areas were: Firth of Clyde, 2; West of Scotland, 13; North Minch, 7; Noup, 0; Moray Firth, 1; Firth of Forth, 0.

White fish

The most common commercial white fish species taken in the Clyde were hake (1005), whiting (877), haddock (213), witch (31) and cod (13). On the west coast grounds the most common species were whiting (1683), haddock (946), hake (247), spur-dog (232), saithe (194), witch (191), megrim (39), cod (38) and lemon sole (31). Haddock (901) predominated on the Noup grounds followed by megrim (114), whiting (56), lemon sole (24), witch (19), cod (12) and hake (7). Whiting (595) also predominated in the Moray Firth followed by lemon sole (116), plaice (101), witch (54), haddock (50), cod (48) and hake (30). For the Firth of Forth the order was whiting (7236), cod (819), plaice (603), lemon sole (178), haddock (72) and witch (33).

Cod were examined for nematode parasites and other species were dealt with according to standing instructions.

Routine echo-sounding was undertaken throughout the cruise.

Hydrography

Temperature and salinity samples were taken from standard depths in all areas.

Plankton

In marked contrast to earlier cruises this year, crustaceous plankton was poorly represented in all the areas sampled. Ctenophores and medusae were dominant at all stations - particularly Pleurobrachia pileus, Cosmetira pilosella and Aurelia aurita. At C14c Staurophora mertensi was taken in fair numbers.

Of particular interest was the penetration, by Salpa fusiformis, into both North and South Minch. The stomachs of these salps were very full and contained many fragments of Ceratium spp. - C. Lineatum, C. furca, Charidium and Dinophysis spp. along with high numbers of diatoms - Rhizosolenia styliformis, R. alata, R. shrubsolei, Chaetoceros decipiens, Chaetoceros didymum, Cerataulina bergoni, Nitzchia seriata, Nitzchia closterium. Tintinnids and silicoflagellates were also present as were numbers of gastropod larvae and copepod nauplii.

The standard net samples from these positions were very much poorer than those from adjacent areas where no salps were recorded.

TABLE 1

The percentage size composition of male Norway lobsters in specified areas round Scotland, together with the number of individuals sampled and the mean carapace length in mm.

Area	No. in sample	15-19	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65-69	70-74	Mean
Firth of Clyde	798	1.4	4.9	17.3	23.5	27.8	17.7	6.0	1.0	0.4	-	-	-	34.8
West of Scotland	2184	1.8	14.9	26.6	20.8	16.2	12.1	5.3	1.8	0.4	-	-	-	31.7
North Minch	1077	-	2.5	16.8	25.7	23.5	14.0	8.7	6.1	2.4	0.1	-	0.1	36.7
Noup	747	-	0.5	16.2	29.6	35.2	12.1	4.2	1.5	0.5	-	-	-	35.1
Moray Firth	1079	0.4	1.7	17.0	31.2	25.9	17.0	5.7	1.1	-	-	-	-	35.0
Firth of Forth	1028	-	0.5	5.0	19.9	33.6	23.2	12.1	4.1	1.5	-	0.1	-	38.7

TABLE 2

The percentage of the total catch of female Norway lobsters in each stage of ovary development, 0 to V and berried, by areas.

Area		Firth of Clyde	Scottish West Coast	North Minch	Noup Deep	Moray Firth	Firth of Forth
No. in sample		599	1352	933	715	609	257
Maturity stages	0	5.1	2.2	0.7	-	1.5	-
	I	7.5	13.8	2.1	2.2	3.1	2.3
	II	3.8	7.5	3.0	0.4	3.8	3.9
	III	40.0	20.2	12.5	3.4	17.2	26.8
	IV	39.1	40.2	45.5	45.2	44.6	40.1
	V	3.3	15.6	35.6	48.1	29.0	24.1
	B	1.0	0.4	0.3	0.7	0.7	2.7