

R1/6

IN CONFIDENCE: Not to be quoted without prior reference to Laboratory

FRV Clupea

Cruise 7/84

REPORT

19-28 June 1984

7CR84 FGH/LI

Objectives:-

- 1 To determine catch rates, size composition and maturity of Nephrops in small and standard mesh trawls, in the Moray Firth and North Minch.
- 2 To determine catch rates and composition of fish by-catches in these areas.
- 3 To study growth of Nephrops in different parts of the Moray Firth and North Minch.
- 4 To obtain mud samples for particle size, shear stress, organic carbon and faunal analysis.

Narrative:-

The scientific staff joined 'Clupea' at Buckie on 19 June and the vessel sailed later that day. Between 19 and 22 July a series of otter-trawl hauls were made at 3 stations in the Moray Firth. Two hauls were made at each station, one with 22 mm and the other with a 70 mm mesh Nephrops trawl. Trawling was carried out at night, 'Clupea' returned to Buckie each day, and samples were examined microscopically while in harbour. Two hauls were also made with a 9 m beam trawl covered with 10 mm mesh net.

At the finish of the trawl programme, grab samples of bottom sediment were taken for analysis. Two samples were taken along the line of each trawl haul.

'Clupea' left Buckie at 1740 on 22 July and steared for the North Minch. She arrived there on 24 July, being delayed 24 hours by weather conditions in the Pentland Firth.

In the North Minch a trawl programme, similar to that in the Moray Firth, was carried out at 4 stations. Sediment samples were taken from only 2 stations, weather conditions prevented the grab operating effectively at the other 2.

Water samples for radio-caesium analysis were collected from Buckie, Pentland Firth and Cape Wrath. The cruise ended at Stornoway on 28 June.

Results:-

Moray Firth: Nephrops catches ranged from 24 to 75 kg/hr with the 22 mm mesh trawl, and from 6 to 37 kg/hr with the 70 mm mesh net. The size ranges and sex ratios of the Nephrops catch are shown in Table 1. The mean weight of the white fish catch was 176 kg/hr with the 22 mm net and 117 kg/hr with the 70 mm net. Haddock, in the size range 16-32 cm were the principle species caught, accounting for 68% by weight of the fish catch. Lemon sole, long rough and common dabs together accounted for 29% by weight.

No Nephrops were caught in hauls using the beam trawl. The log fish, Myxine glutinosa was taken by both the beam trawl, and the 22 mm net.

North Minch: Catches of Nephrops in this area ranged from 43 to 69 kg/hr with the 22 mm net, and from 27 to 33 kg/hr with the 70 mm net. Details of the Nephrops catch are summarized in Table II.

The mean weight per haul of white fish taken with the 22 mm mesh net was 201 kg/hr, and with the 70 mm net 32 kg/hr.

Norway pout was the predominant species caught, followed by haddock in the size range 17-32 cm, and dogfish. Herring, size range 14-26 cm, were present in most hauls.

Samples of bottom sediment, obtained in both areas worked, were sent to a commercial firm for particle size and organic carbon analysis. Further sediment samples were preserved for faunal analysis.

F G Howard
20 August 1984

Seen in draft:

W Smith

TABLE I

Nephrops: Length frequency composition - Moray Firth

CARAPACE

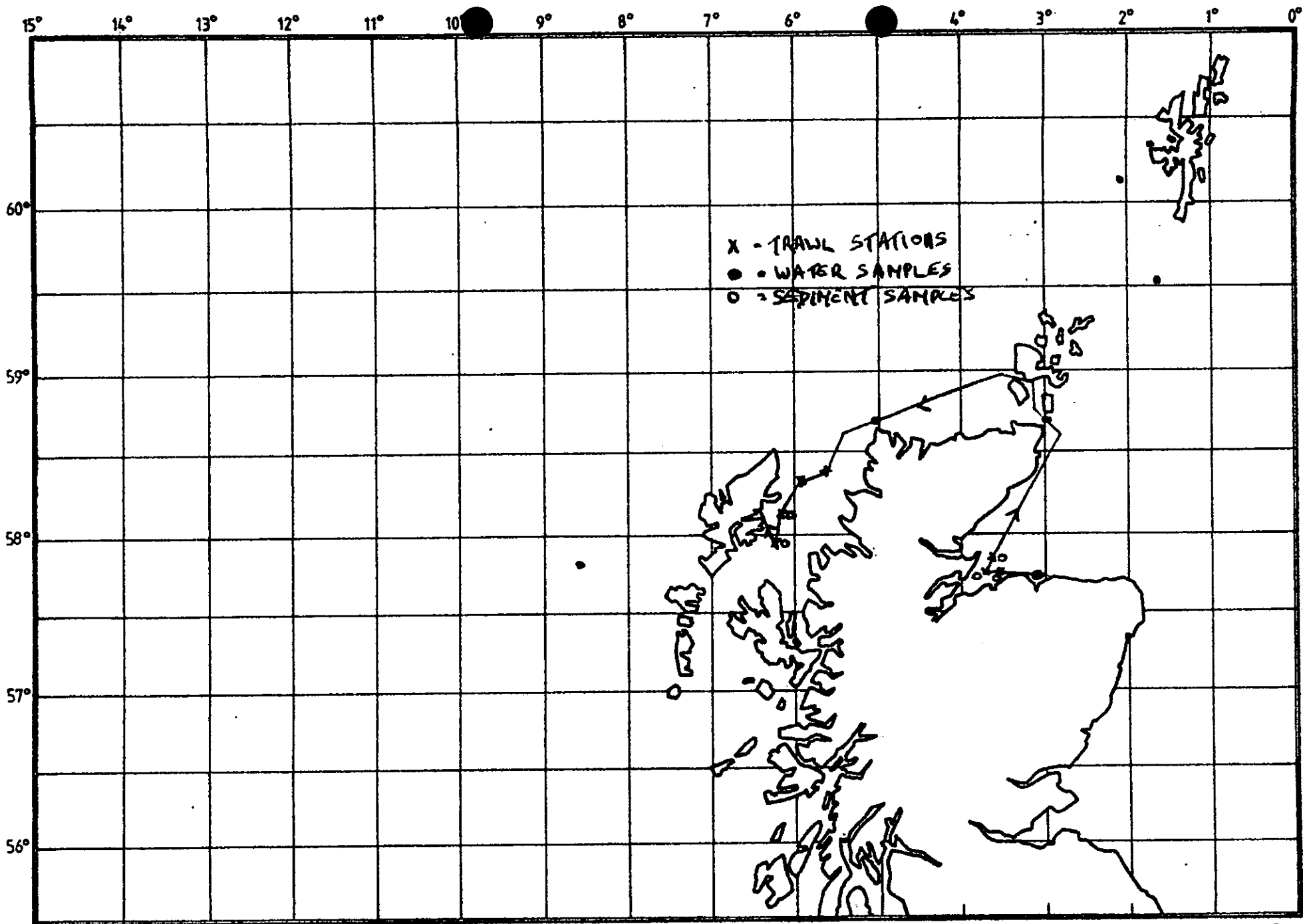
Length (mm)	10-4	15-9	20-4	25-9	30-4	35-9	40-4	45-9	50-4	Total
22 mm net										
MALES		9	48	281	402	135	24	6		905
FEMALES	3	8	30	206	261	156	72	8		744
BERRIED				1			1			
%	0.2	1.0	4.7	29.5	40.2	17.6	5.8	0.8		
70 mm net										
MALES			14	201	468	176	67	18	7	951
FEMALES			4	105	250	181	62	13	2	617
BERRIED					1		1			
%			1.1	19.5	45.8	22.8	8.2	2.0	0.6	

TABLE II

Nephrops: Length frequency compositions - North Minch

CARAPACE

Length (mm)	10-4	15-9	20-4	25-9	30-4	35-9	40-4	45-9	50-4	55-9	Total
22 mm net											
MALES			15	158	286	156	66	9			690
FEMALES		2	45	374	586	291	83	5			1386
BERRIED				1							
%		0.1	2.9	25.6	42.0	21.5	7.2	0.7			
70 mm net											
MALES				21	108	92	80	25	5	1	332
FEMALES			3	62	227	246	89	9	1		637
%			0.3	8.6	34.6	34.9	17.4	3.5	0.6	0.1	



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