Indexed. ✓ 86

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FRV "CLUPEA"
Cruise 13/84

Report
12 October - 1 November 1984

Objectives: Part 1

1 To investigate the distribution of hydrocarbons in Sullom Voe.
2 To dredge for queen scallops (Chlamys opercutaris) for hydrocarbon analysis and taste panel assessment.
3 To deploy and recover caged queen scallops off Calback Ness for hydrocarbon analysis and taste panel assessment.
4 Collection of water for radio-caesium analysis.

Part II

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 species 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 examine by means of cameras mounted on a towed sledge the Nephrops populations in these areas.
5 To obtain mud samples for particle size; shear stress, organic carbon and faunal analysis.

Narrative

"Clupea" left Buckie at 1300 hrs on 12 October and made passage for Shetland collecting water samples for radio-caesium analysis en route at Buckie and Fair Isle. An unsuccessful attempt was made to dredge for queen scallops in Aith Voe and due to adverse weather "Clupea" anchored overnight on 13 October. Having obtained queen scallops from Shetland Seafood Company, "Clupea" sailed for Sullom Voe where the queens were deployed in cages off Calback Ness by midday 14 October. Sampling of sediments within Sullom Voe and collection of queen scallops was completed by midday 16 October. The cages were recovered during the morning of 17 October and "Clupea" then made passage for Ullapool where she docked at 1300 on 18 October and transfer of staff and scientific equipment took place.

"Clupea's" departure from Ullapool was delayed through bad weather until 0745 on 19 October when the vessel left for the first half-landing at Stornoway. During this time the TV camera sledge was made ready and calibration of the camera height lasers was carried out. On 20 October trawling and TV work commenced on Nephrops grounds in the vicinity of Stornoway. On 24 October grab samples of mud were collected along the line of each trawl station. The vessels departure for the Moray Firth was delayed through bad weather and the second half-landing was taken in Stornoway on 25 October. On 26 October "Clupea" made passage to the Moray Firth arriving at 07.30 am 27 October. Trawling and TV work was carried out at 6 locations within

the Moray Firth. Mud samples were collected from each location on 30 October. On the following day 2 short trawl hauls were taken for live Nephrops before the cruise ended at Buckie at 16.00. The live Nephrops were collected by Laboratory van and returned to the aquarium. On 1 November equipment was off-loaded and the scientific staff returned to Aberdeen by mini bus.

Results

Part I

One set of caged queen scallops was not recovered as it had been carried by the tide away from the deployment area. Otherwise all samples were successfully taken and returned to the laboratory in Aberdeen where analyses will be carried out and results made available on their completion.

Part II

All trawling was conducted using the 20 fathom small mesh trawl (BT 118A). Catch rates of Nephrops averaged 45.6 kg/hour in the North Minch and 26.5 kg/hour in the Moray Firth. Length and sex composition of the combined catches in each area are given in Table 1.

Large catches of juvenile fish were taken in each haul. Whiting was the most abundant species in the Moray Firth and pout were most numerous in the North Minch. A summary of the by-catch composition is given in Table 2.

Samples of pleopods from Nephrops in each haul were microscopically examined for evidence of moulting. In all areas there were more males than females in pre-moult stages at this time. Live Nephrops in early pre-moult condition were transported to the Laboratory aquarium for further growth studies.

The sledge with TV and photographic cameras was towed in each trawling area. Thirteen hours of video recording and 520 colour photographs were taken of the sea bed for later analysis. The laser system worked very well. These were arranged and calibrated to measure the depth the sledge runners were sinking into the mud so that the camera fields of view could be estimated.

Two samples of mud were collected along the line of each trawl tow for particle size, organic carbon and faunal analysis.

C J Chapman
A D McIntosh

7 January 1985

seen in draft: James A Calder

Table 1 Size and sea composition of Nephrops in small mesh trawls (7 hours fishing in each area).

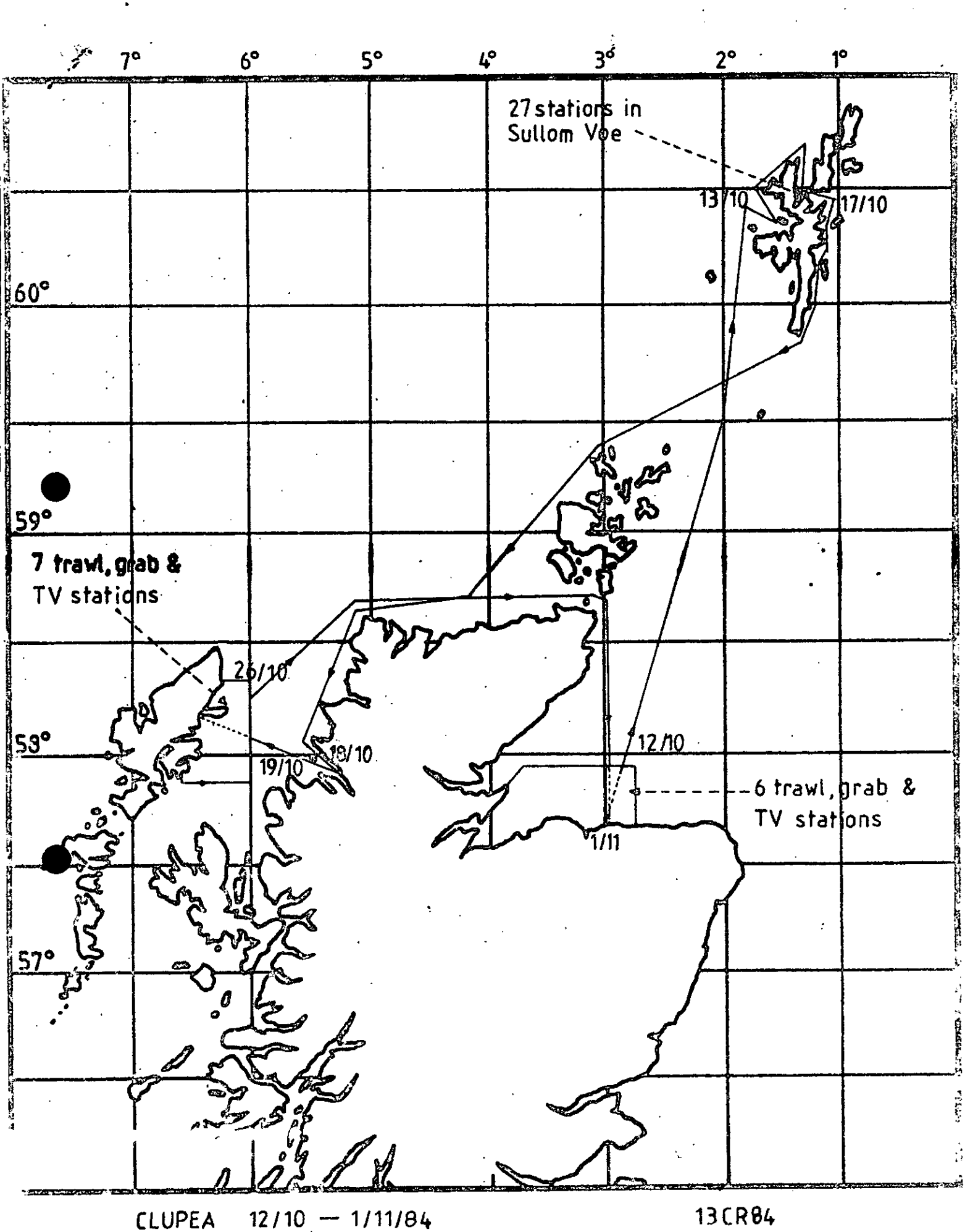
Area	Sex	Carapace length (5mm bands)											
		5-9	10-14	15-19	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59	⩾60	Total
N MINCH	♂	2	4	499	2409	4338	3416	1414	504	109	8	-	-	12702
	♀	2	20	615	2661	3630	634	156	57	1	-	-	-	7774
MORAY F	♂	-	40	490	2864	2509	1054	348	90	33	5	1	3	7448
	♀	-	28	647	3135	2031	175	116	50	1	6	2	-	6191

Table 2 Total numbers and weight of main fish species in small mesh trawl (6 hours fishing in each area).

	North Minch		Moray Firth	
Species	No	Weight (kg)	No	Weight (kg)
Pout	126,288	1,414	648	-
Whiting	31,194	1,827	217,393	3,439
Haddock	18,060	837	10,273	717
Long Rough Dab	11,944	179	4,779	101
Sprat	210	-	4,400	45
4-Bearded Rockling	2,599	98	89	-
Poor Cod	9,319	102	670	-
Lemon Sole	788	28	156	-
Herring	398	20	335	-
Witch	446	32	-	-
Common Dab	-	-	692	-
Gurnard	-	-	156	-
Dragonet	77	-	335	-
Plaice	26	-	89	-

Also present in small numbers: Greater Fork-Beard, Hake, Fries Goby, Spurdog, Lesser-Spotted Dogfish, Armed Bullhead, Blue Whiting, Argentine, Sandeel, Horse Mackerel

Cod, Dover Sole



CLUPEA 12/10 — 1/11/84

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