

In Confidence not to be quoted without reference to the Laboratory
 FRV EXPLORER
 Cruise 13/80
 28 Nov - 18 Dec 1980
 REPORT

13ER80

Objectives

- 1 To survey the stocks of spurdogs to the north-west of Scotland
- 2 To search for mature female spurdogs in varying depth zones and to identify whelping grounds
- 3 To tag spurdogs
- 4 To determine which zones of the water column are frequented by spurdogs
- 5 To collect data on the feeding and maturity/fecundity of spurdogs

Narrative

Work throughout the cruise was severely curtailed by adverse weather conditions and fishing was largely restricted to inshore sheltered waters.

The start of the cruise was delayed by one day due to a shortage of crew, EXPLORER eventually departing Aberdeen at 1100 hrs on 29.11. Fishing commenced on 30.11 at Strathy and continued to the east of Orkney before gale force winds forced EXPLORER to seek shelter in Inganess Bay. On the afternoon of 2.12 it was decided to make a passage to the South Minch where work continued intermittently until 4.12. On 5.12 fishing operations were called off due to weather. After one haul and EXPLORER proceeded to Ullapool where new trawl messenger wires were collected. On 6.12 again due to weather only one haul was made in the lee of Longa Island. The east and west sides of the North Minch were fished on 7.12 and 8.12 and, taking advantage of moderating weather, EXPLORER steamed north to investigate the deep water area north of 60° on the night of 8-9.12. Due to a strong swell and a return to gale force winds it was not feasible to shoot the trawl and EXPLORER was forced to seek shelter in the lee of Copinsay. The area off Copinsay was worked on 10.12 but much time was lost due to the net becoming entangled in the forward trawl door causing considerable gear damage. EXPLORER put into Kirkwall on 11.12.12 for a half-landing.

The North Coast area was worked on 13.12 but strong westerly gales halted operations and EXPLORER was forced to seek shelter in the lee of the Hebrides. The area off Cellar Head and Shiant Islands were worked on 14-15.12, whilst on 16.12 grounds off the Noup were fished but gales again restricted operations. Two hauls were made on 17.12 in the lee of Caithness after which time EXPLORER headed south to Aberdeen where she docked at 0130 hrs on 18.12. Throughout the cruise advantage was taken of the periods outwith the agreed daily fishing periods to steam, when possible, to the various fishing areas.

Mr Naha sailed on the first part of the cruise during which time the power supply system to EXPLORER's computer was comprehensively monitored. Mr Naha left the vessel at Kirkwall on 11.12.

Results

1 Distribution of Spurdogs

Of the 20 scheduled routine trawl stations it was possible to work only 17, but an additional 18 hauls were made at or near these routine stations. Fishing throughout was poor and catches of spurdogs were low. On a statistical rectangular basis the following results were obtained:-

Stat	Number of	Catch Rate	%	%	Mean Length	
Rect	Hauls	per Hour	Males	Females	Males	Females
41E3	1	1	-	-	-	-
42E3	2	139	99.3	0.7	74.4	-
43E3	3	139	99.3	0.7	74.5	-
44E3	3	16	97.9	2.1	73.3	-
45E3	4	6	100.0	-	73.4	-
45E4	9	95	65.4	34.6	56.9	50.6
45E7	2	0	-	-	-	-
46E5	3	37	99.1	0.9	75.8	-
46E6	1	5	100.0	-	74.0	-
46E7	2	0	-	-	-	-
47E6	3	124	99.7	0.3	75.5	-
47E7	2	41	52.4	47.6	61.1	63.1

The results for 45E4* are biased due to one large haul of 655 mostly juvenile spurdogs - 389 males, (mean length = 52.1), 266 females (mean length = 50.7) taken south of Rhu Stoer. The proportion and mean length of male spurdogs from all areas fished showed little variations except for the above haul and in the area to the north east of the Orkneys where a greater number of larger females were present.

2 Mature females and whelping grounds

Only 12 females measuring in excess of 70 cms were caught during the survey, 11 off Copinsay and 1 off the Noup. As stated in the narrative gale force winds prevented any investigations of offshore areas of deeper water.

No large concentrations of recently born juvenile spurdogs, identified by the presence of an internal yolk sac were found. A total of only 8 were taken - 1 off Canna, 6 between Tuimpan and Cellar Head and 1 off Whiten Head.

The distribution of mature female spurdogs during the winter period and areas where whelping occurs remain unresolved.

3 Fish tagged

A total of 1020 spurdogs were measured, sexed and double tagged with Swiftattachment nylon flag and Peterson disc tags attached through the bases of the 1st and 2nd dorsal fins respectively.

In addition 100 Scyphorhinus caniculus were tagged with a single Swiftattachment nylon flag tag attached through the base of the 1st dorsal fin.

4 Distribution of Spurdogs in the water column

It was intended to identify the movements of spurdogs within the water column using vertically set long-lines, but weather conditions, however, prevented any such work being undertaken.

5 Feeding and fecundity/maturity

Of 826 stomachs examined 376 (46%) were found to be empty, 336 (41%) to contain a clear water-like liquid, 47 (6%) an unidentified white mush whilst the remaining 67 (8%) contained fish or cephalopod species. Empty stomachs and those containing 'water' and 'white mush' were present throughout the survey area whereas stomachs containing fish species were found predominantly off Copinsay and to a lesser extent off Canna.

6 Additional sampling

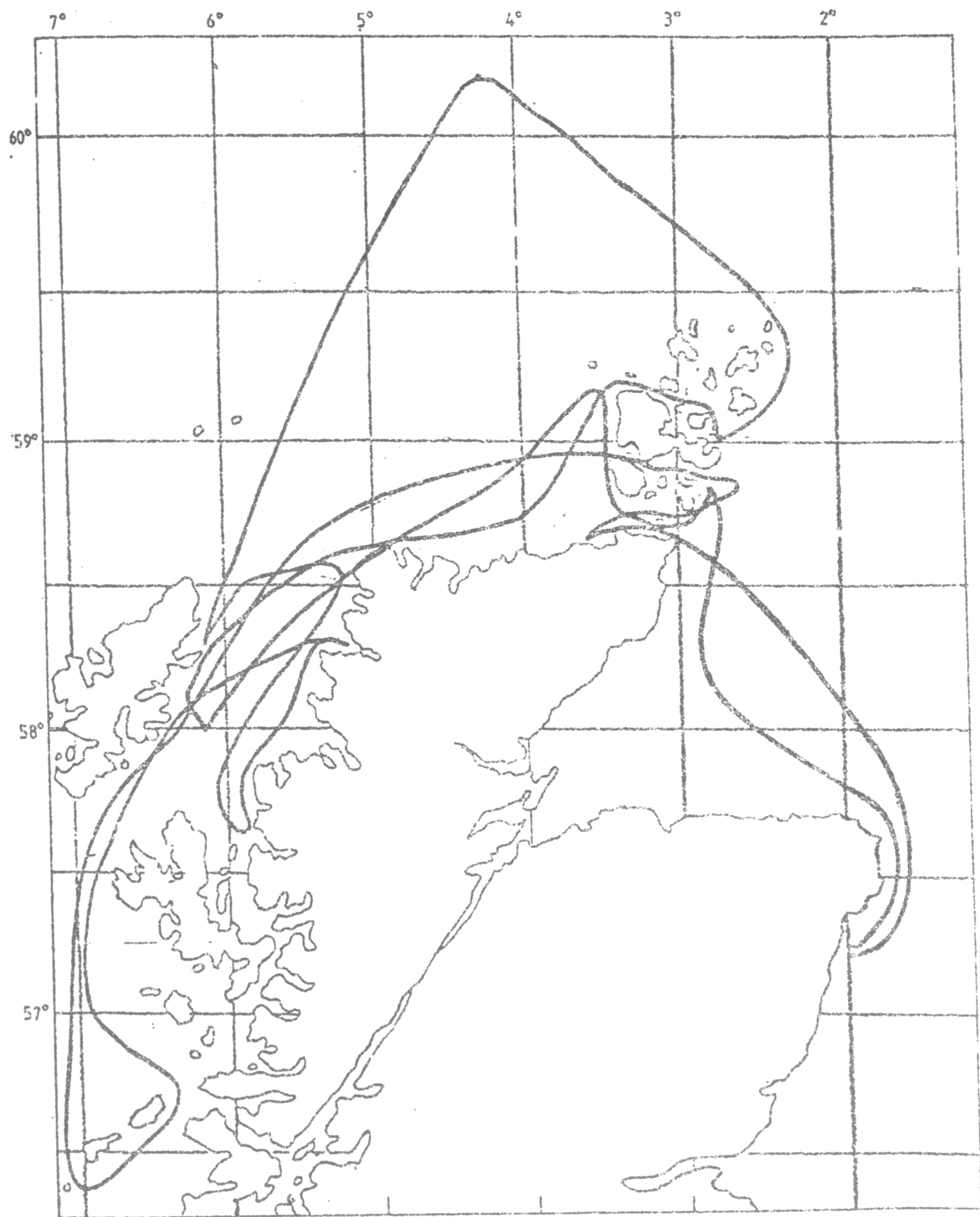
From one haul off Tolsta which contained a large number of herring a sample of pyloric caeca was collected and preserved for examination at the laboratory for parasite infestations.

Samples of cod, haddock, whiting, saithe, plaice, scad, anglers and skate were frozen and returned to the laboratory for mercury analysis.

During the cruise contact was maintained with commercial vessels and catch rates for spurdogs obtained by both EXPLORER and these vessels were found to be similar throughout the survey area. Catches, on the whole, were less than in previous years.

J Gauld
17 February 1981

Seen in Draft:- T H Henderson



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