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FRV Scotia

Cruise 1101S

REPORT

3-23 July 2001

Half landing: Lerwick, 13 July 2001

Personnel

E J Simmonds

(In charge)

P Fernandes

A P Robb

F Armstrong

M Mathewson

M Harding

(2 nd half)

A Lebourg

(1 st half) Visitor

Objectives

1. To participate in an ICES – coordinated acoustic and mid-water trawling survey in the north western North Sea and North of Scotland between 58° to 62°N 4°30' W to 2°E excluding Norwegian and Faroes waters.

2. To obtain samples of herring for biological analysis, including age, length, weight, sex,

maturity and ichthyophonus infection.

To obtain thermosalinograph recordings of surface temperature and salinity throughout the survey area. CTD (and XBT) profiles of temperature and salinity at depth for analysis with herring distributions.

4. To obtain simultaneous coverage with FRV Michael Sars of ICES rectangles

46E9,47E9,49E9 and 50E9.

Out-turn Costs per Project: 21 days: MF01t

Narrative

Scotia sailed at 1300 GMT on 3 July 2001 and made passage to Scapa Flow anchoring at 2300 GMT to calibrate the acoustic instruments on all scientific sounders. At 0900 FRV Scotia left Scapa Flow and commenced survey at 1100 GMT at 58°39' N 2°45' W. Communication with FRV Michael Sars was established and the period for the joint survey selected as 5-7 July 2001. The survey was carried out on east west transects on a 15 nautical mile spacing progressing northwards between 2E, the Scottish mainland, and the Orkney and Shetland Islands from 0200 to 2200 GMT (Fig. 1). Additional short transects were added into the survey in areas of expected higher herring abundance and in the area of joint survey with FRV Michael Sars. FRV Scotia ceased the survey at 2200 GMT (60°34'N 1°45'E) and docked in Lerwick at 0730 GMT on 13 July for a mid cruise break. Scotia sailed again at 0800 GMT on 14 July and recommenced the survey at 60°39'N 0°45'W at 1045 GMT. FRV Scotia continued the survey

north to 61°32'N and then progressed southwards to the west of Shetland and Orkney and finished the survey at 0745 GMT on 22 July (58°42'N 3°27'W). FRV *Scotia* then proceeded to Scapa flow to carry out a second calibration of the acoustic instruments. FRV *Scotia* departed Scapa Flow following successful calibration of acoustic instruments at 1700 GMT and sailed to Aberdeen docking at 0530 GMT on 23 July 2001.

Main Activities

Throughout the acoustic survey acoustic data was collected using a Simrad EK500 echosounder operating at 38, 120, 200 and 18 kHz, with raw data collected using EchoView software. The data were scrutinised in board and the allocation to species carried out within EchoView.

Fishing with a PT160 midwater trawl was carried out on observed fish traces on an opportunistic basis. The locations of the trawl hauls are shown in Figure 1 and catch data summarised in Table 1. Forty-nine trawls hauls were taken, of which 40 contained more than 100 herring. In addition to 15,292 herring that were measured (an average of 382 per haul) a total of 4,531 herring were sampled for gonad, stomach and total weight, sex, maturity, otolith and macroscopic evidence of ichthyophonus infection. The thermosalinograph was run throughout the cruise and a total of 17 CTD stations were carried out, (one per day at 2200 GMT each night) (Fig. 2). A total of 45 XBT stations were carried out during the survey to provide information on temperature profiles between CTD stations, these were located at trawl stations.

Results

All the survey objectives were met. The common survey area with FRV *Michael Sars* was completely covered. The cruise was completed successfully, with no time lost due to weather. The total mileage surveyed was approximately 2,585 nautical mile (Fig. 1) with a total of 1,034 acoustic log intervals recorded. Two successful calibrations were carried out, which gave consistent results with 1999 with a difference of less than 0.2 dB for the 38 kHz system. Calibrations on 200 and 120 kHz were carried out and agreed to a similar precision. Calibration of the 18 kHz hydrographic sounder was performed for the first time and an initial value determined.

Extensive continuous medium density concentrations of herring were found North of 58°30'N to 59°00'N between 1°W and 1°E. High concentrations of herring were found east of Shetland on both sides and to the north of Poby Bank. Very substantial shoals were seen west of Muckle Flugga and off Ramna Stacks. Extensive medium density layers of herring were found north west of Orkney. A full stock estimate and survey report will be prepared shortly. Ichthyophonus infection within North Sea herring remains at a very low level, but is higher than last year at 6 of the 4,531 herring examined.

E J Simmonds 20 August 2001

Seen in draft: R Walton, Master, FRV Scotia

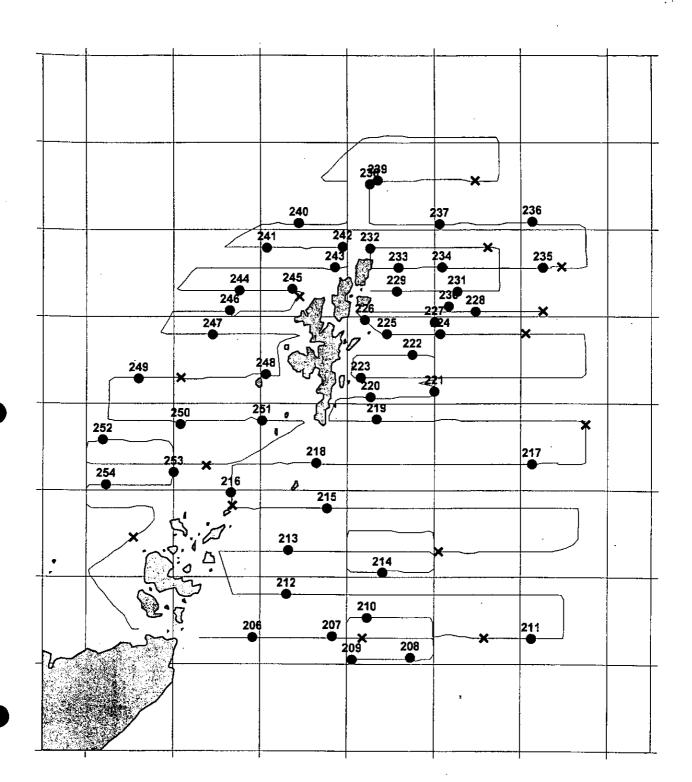


Figure 1. Cruise track FRV SCOTIA for 3-23 July 2001 trawl stations (•), CTD stations (X)

Table	1 summary of	treasule	hanle FI	N See	tio 1-2	4 Inb. 1000	0							
Haul No	Position 01	Herring	Mackerel	Sprat	NPout		7 laddock	Whiting	Argentine	L sole	G gumard	T minutus	Saithe	Comments
206	58 39N 002 06W	11060		280			140		70	35				- Commonto
207	58 39N 001 13W	1432			14		18							·.
208	58 32N 000 11W	2048			4		20	16						
209	58 32N 000 56W	373					3	2			1			
210	58 46N 000 50W	4280						10					2	
211	58 38N 001 01W	288	· ·											
212	58 54N 001 39W	1075	21	7			21				21			•
213	59 09N 001 43W	6373	40	107			26	67						
214	59 01N 000 03W	994			2									
215	59 24N 001 10W	284			3100		468	70	5	1	7		3	1 Cod 1 C. Dab
216	59 28N 002 20W		3		8									O group N. Pout
217	59 39N 001 10W	200			4060	1	59	42	12		2		1	1Cod
219	59 39N 001 18W	617	19		206		60	16	. 4	1	1	1	14	11 pearlside 1 Hake
220	59 54N 000 44W	4040												,
221	60 01N 000 47W	674												
222	60 05N 000 00W	20				•								
223	60 17N 000 12W	805												
224	60 09N 000 54W	7455											•	·
225	60 24N 000 7W	1305												
227	60 25N 000 34W	3208										•		
228	60 29N 000 47W	1096									ě			
229	60 31N 000 00W	975												
230	60 32N 000 27W	45	40											
231	60 38N 000 28W	6213	238											
232	60 38N 000 06W	1944												
234	60 38N 000 12W	4305	38		60			15						·
235	60 53N 000 53W	6420											24	
236	60 46N 000 27W	2742												
237	60 47N 000 01W	. 974	6	•										
238	60 46N 001 14W	108	,											1 Hake
239	61 02N 001 10W	3	1		1									
240	61 02N 000 5W	2	201								2			O Group N. Pout
241	61 17N 000 44W													1 lumpsucker
242	61 16N 000 43W	534	24 ¹											•
243	61 02N 001 29W	5000												
244	60 53N 002 00W	3114					6							
245	60 54N 001 07W	9			63			2						
246	60 47N 001 07W	110	3				Ź							1 Scad
247	60 39N 002 17W	1102			45	333		6						•
248	60 39N 000 00W		1				,							
						_								

249	60 32N 002 19W	243	2			1	1 lumpsucker	
250	60 23N 002 32W	2970						•
251	60 10N 001 54W	2600						
252	60 08N 003 27W	568	2			•		•
253	59 53N 002 58W			17	•		O Group N. Pout	
253 254	59 53N 002 58W 59 54N 002 01W	10060	20	17			O Group N. Pout	
		10060	20	17			O Group N. Pout	
		10060	20	17			O Group N. Pout	

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