

R1/12

Not to be cited without prior reference to the Marine Laboratory, Aberdeen

FRV *Scotia*

Cruise 1298S

## REPORT

10-27 July 1998

### Personnel

E J Simmonds	PSO (in charge)
M C Bailey	Aberdeen University Research Fellow
P J Copland	HSO
R Aukland	Aberdeen University Research Fellow
G I Henderson	SO
I Penny	ASO
J Breslin	DoM Ireland
K Cronin	JNCC
R Robertson	JNCC

**Fishing gear:** Midwater trawl PT160 X 3

### 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°30' to 62°N and 4°W to 2°E excluding Norwegian and Faroes waters.
2. To obtain samples of herring for biological analysis, including age, length, maturity and ichthyothonus infection rates.
3. To obtain thermosalinograph recordings throughout the survey, CTD profiles (and XBT profiles) and sea surface T&S for analysis of herring distribution, seabird distribution and the environment.
4. To obtain Methot net samples of plankton and micro nekton at night.
5. To obtain estimates of seabird density.

**Out-turn days per project:** MF01t

### Narrative

*Scotia* sailed from Aberdeen at 1100 hours on 10 July and following an unsuccessful attempt to calibrate in Aberdeen bay, made a passage to Scapa Flow for calibration of the acoustic survey system. The measurements were carried out on the towed body and new keel transducers and confirmed that the echosounder was performing to specification. *Scotia* left Scapa Flow and commenced the survey at 0645 hours on 11 July at 58°39'N 002°50'W. The survey was conducted between 0300 hours to 2300 hours BST using east-west transects

spaced at 15 Nm (Figure 1) progressing in a northerly direction to the east of Orkney and Shetland. Fishing was carried out opportunistically on observed fish traces (Table 1). The survey was interrupted at 60°05'N 001°04'W at 0930 hours on 16 July and *Scotia* called at Lerwick for fresh water, docking at 1000 hours.

*Scotia* sailed from Lerwick at 1400 hours on the same day and resumed the survey where it had been interrupted at 1445 hours. The survey was continued to 61°39'N (to the north and east of Shetland), using 15 Nm spaced transects. The survey was then continued southwards using east west transects at 15 Nm and 7.5 Nm spacing to the west of Shetland and Orkney. The survey was completed at 1215 hours on 26 July and *Scotia* proceeded to Scapa Flow for a final calibration of the new keel transducer. *Scotia* sailed for Aberdeen at 1730 hours and docked at 0600 hours on 27 July.

## Results

During the survey a total of 918 15-minute echo integrator runs were completed, along with 31 trawl hauls, 66 CDT stations and 42 XBT stations. All 31 trawl hauls gave samples of herring and 3,234 fish were examined in detail for biological parameters: length, otolith, sex, maturity, weight, weight without gonad and ichthyophonous infection. Sea surface salinity and temperature were logged during the whole cruise, RoxAnn seabed classification data was recorded from 11 to 26 July. A total of 30 Methot net hauls for plankton were carried out during 2300 to 0300 hours including two calibration tows. In all 55 water samples were taken for chlorophyll filtration analysis. All the echosounder output rolls were analysed for herring traces and all the data collected (with the exception of otolith readings) were entered into computer onboard.

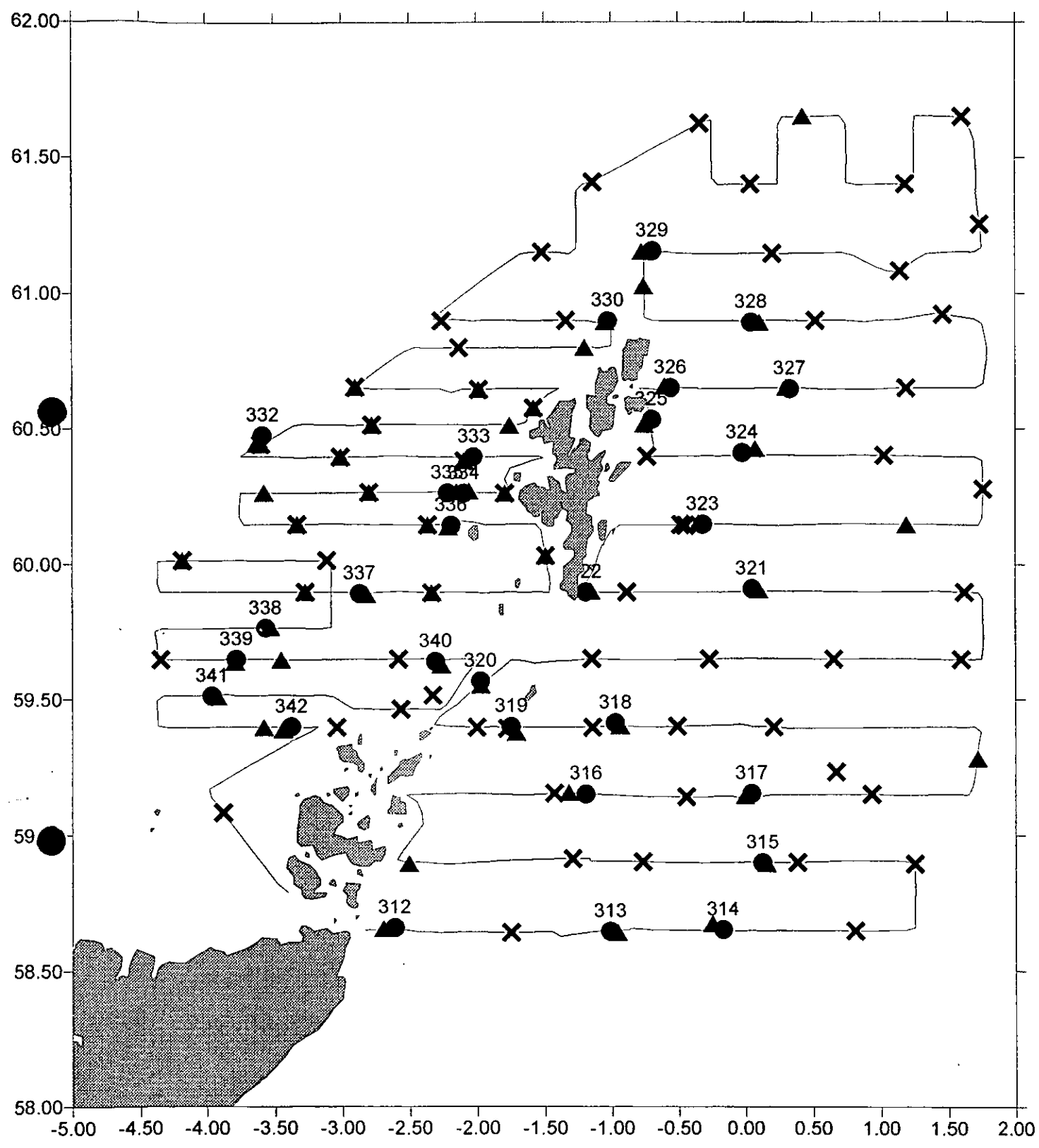
The analysis for the overall survey results to provide population estimates and numbers at age remain to be completed. However, the biological data showed that only 23 of the fish examined showed signs of ichthyophonous infection, this a slight increase over the two previous years but the prevalence is still negligible for North Sea herring. The herring distributions appear to be more southerly in extent and there is a considerable reduction in the amount of Norway pout on the area.

E J Simmonds  
20 August 1998

Seen in draft: J B Nichols (Captain)

Table 1

Haul No	Position		Depth	Species caught (numbers in each haul)													
	Latitude	Longitude		Her	Mack	Scad	N Pout	Bl	Whit	A silus	A sphyr	Had	Whit Saith	Lumpsucke:	Gurnard	Ling	
312	58 39.60 N	2 36.75 W	75	0	0	0	0	0	0	0	0	0	0	0	0	0	0
313	58 38.75 N	1 0.80 W	124	37425	0	0	0	0	0	0	0	150	75	0	0	0	0
314	58 39.20 N	0 10.23 W	132	6276	0	0	0	0	0	0	0	0	0	0	0	0	0
315	58 54.00 N	0 7.57 E	132	12133	0	0	630	0	0	0	0	93	0	0	0	0	0
316	59 9.25 N	1 11.55 W	115	11660	0	0	60	0	0	0	80	0	0	0	0	0	0
317	59 9.33 N	0 2.65 E	141	7920	0	0	0	0	0	0	0	0	0	0	0	0	0
318	59 24.93 N	0 58.37 W	125	250	0	0	178	0	0	0	16	61	25	0	0	0	1
319	59 24.16 N	1 44.83 W	80	0	0	0	0	0	0	0	0	0	0	0	0	0	0
320	59 34.18 N	1 58.48 W	95	2	1	0	0	0	0	0	0	0	0	0	0	0	0
321	59 54.75 N	0 2.97 E	142	3850	0	0	0	0	0	0	0	0	0	0	0	0	0
322	59 54.05 N	1 11.50 W	97	1	0	0	269	0	0	0	0	1	0	0	0	0	0
323	60 9.01 N	0 18.94 W	129	2447	0	0	12	0	0	0	3	0	0	0	0	0	0
324	60 24.87 N	0 1.34 W	132	20680	220	0	0	0	0	0	0	0	0	0	0	0	0
325	60 32.21 N	0 41.71 W	105	23155	55	0	2255	0	0	0	385	0	0	0	0	0	0
326	60 39.18 N	0 33.39 W	135	638	6	0	208	0	2	4	20	12	0	0	0	0	0
327	60 38.94 N	0 19.95 E	149	5775	0	0	0	0	0	0	0	0	0	0	0	0	0
328	60 53.69 N	0 2.67 E	160	4710	0	0	1770	0	0	0	30	16	0	0	0	0	0
329	61 9.42 N	0 41.55 W	156	740	0	0	88	0	0	0	0	0	7	2	0	0	0
330	60 54.00 N	1 1.50 W	105	1630	5	18	0	0	0	0	5	0	0	0	0	0	0
331	45 30.94 N	1 47.72 W	120	3485	0	30	20	0	0	0	20	20	20	0	0	0	0
332	60 28.67 N	3 35.08 W	0	0	0	1	0	562	0	0	0	0	0	0	0	0	0
333	60 23.98 N	2 1.26 W	118	2655	345	30	0	0	0	0	0	0	0	0	0	0	0
334	60 15.86 N	2 5.63 W	100	0	0	1	0	0	0	0	5	1	0	0	0	0	0
335	60 15.97 N	2 12.96 W	115	7300	0	0	0	0	0	0	0	0	0	0	0	0	0
336	60 8.80 N	2 11.34 W	97	1	45	0	10	0	0	0	0	0	17	0	0	0	2
337	59 53.67 N	2 52.12 W	80	5	0	1	31	0	0	0	0	0	0	0	0	0	0
338	59 46.06 N	3 33.91 W	114	11358	0	0	0	0	0	0	0	0	0	0	0	0	0
339	59 39.00 N	3 46.78 W	152	6467	0	0	0	0	0	0	0	0	0	0	0	0	0
340	59 38.56 N	2 18.52 W	84	123	72	2	30	0	0	0	1	1	0	0	0	0	0
341	59 30.95 N	3 57.51 W	145	7987	40	0	227	0	0	0	0	0	0	0	0	0	0
342	59 24.08 N	3 22.48 W	150	1671	0	0	8	0	0	0	0	24	4	0	0	0	2



FRV Scotia cruise track, trawl ● xbt X and ctd ▲ stations,