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FRV *Scotia*

Cruise 1702S

REPORT

12 November – 4 December 2002

Personnel

A Robb	(In charge)
E Hatfield	
A W Newton	(Part 1)
K A Coull	(Part 2)
M Mathewson	
J McWilliam	
T Blasdale	
T Greig	
S P R Greenstreet	
M R Robertson	
H M Fraser	

Fishing Gear

GOV Trawl (BT137) with belly lines and 20 mm cod end, Ground gears C/A.

Benthic Sampling

Unsel Box Corer/Day grab
2 Metre Beam Trawl

Out-turn Days Per Project: 23 days, MFO1tb

Objective

To participate in the ICES coordinated Western Division Bottom Trawl Survey
To obtain temperature and salinity data at each trawling position
To carry out benthic sampling at selected trawling stations
To gather and store acoustic data from the EK500 echo sounder and the EM950 multi beam echo sounder

Area

West of Scotland, NW Ireland, Irish Sea

Narrative

Scotia sailed from Aberdeen as scheduled at 1100 hours on 12 November and proceeded north and west to the study area. *En* route, the opportunity was taken to carry out the calibration of the acoustic equipment in the Moray Firth with survey work commencing early the next morning to the west of Orkney in rectangle 46E6. Fishing operations generally occurred between

0700 hours and 2100 hours, thereafter wherever possible the opportunity was taken carry out the benthic sampling operations. Progress westwards was short lived, as poor weather conditions on the morning of 15 November stopped all operations until later the same afternoon. The sea conditions improved and work continued westwards and then south toward the Irish coast. On 19 November work stopped for a few hours to allow *Scotia* to respond to an emergency relating to a fire onboard a fishing vessel. Although the weather conditions once again deteriorated to gale force *Scotia* was able to continue fishing along the North coast of Ireland and into the Irish sea eventually docking in Dublin on the late evening of 22 November for the half landing. Changes to the scientific staff and to the ship's personnel were made during the port call and *Scotia* sailed again on 24 November with fishing recommencing the same evening. The remainder of the survey was subsequently completed in reasonable weather with only slight interruption. The last trawling station was completed at 2100 hours on 2 December and the final benthic station at 0830 hours on 3 December. *Scotia* then proceeded to Aberdeen docking at 0100 hours on 4 December.

Results

Trawling

Despite the less than ideal conditions the survey was successfully completed and the opportunity taken to fish at a number of additional stations of varying depth strata. In total, 84 trawl hauls of 30 minutes duration were completed with only two classified as not valid The scanmar system was used to monitor headline height, wing and door spread.Table 1 gives the catch weights for each of the major species and Table 2 gives the provisional indices for the main species caught during the survey. Whiting, Norway pout and mackerel show an increase in abudance over the previous year. For mackerel the increase appears significant, however the indices will be subject to revision once the dataset is complete.

Benthic Sampling

During the cruise a total of 27 stations were sampled by two metre beam trawl and by 0.25 m^2 box corer (2 deployments per station). Positions are given on the attached charts. All the animals collected in each two minute beam trawl were examined and the majority identified to species on board the ship. The remaining fauna were preserved in formal saline and returned to the laboratory for further examination.

Sediments collected by the box corer were sieved through a 250 μm mesh, preserved in formal saline and also returned to the laboratory for further analysis. Cores were also collected from each box core sample to provide material for meiofaunal and sediment particle size analysis.

Hydrography

The CTD was deployed at each trawling position and the thermosalinograph run continuosly throughout the cruise.

Acoustic Data

The simrad EM950 Multibeam Swathe Bathymetry system was operated during each haul.

A P Robb
23 April 2003

Seen in draft: L Featherstone, OIC *Scotia*

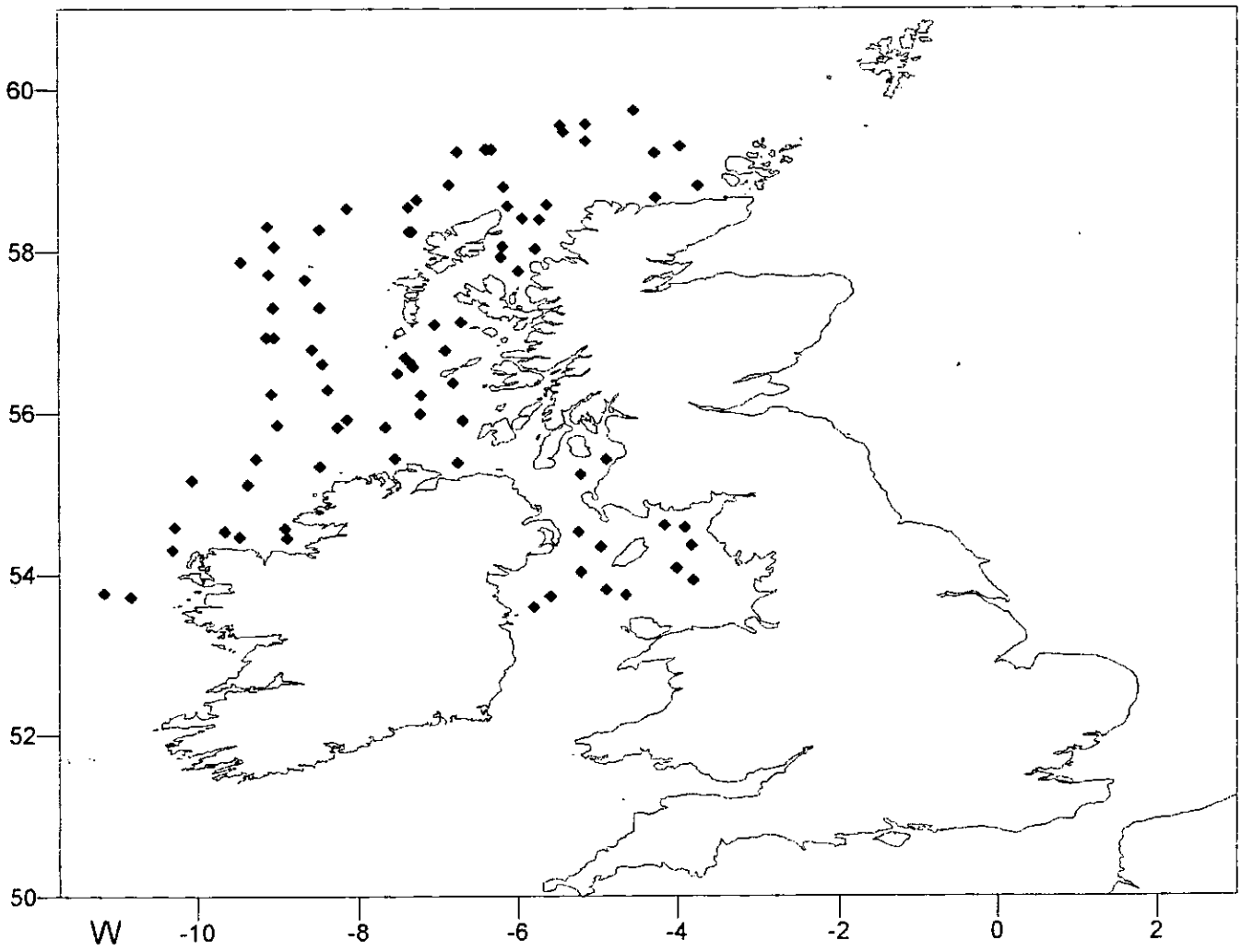
Table 1. Catches (kgs) Scotia November - December 2002

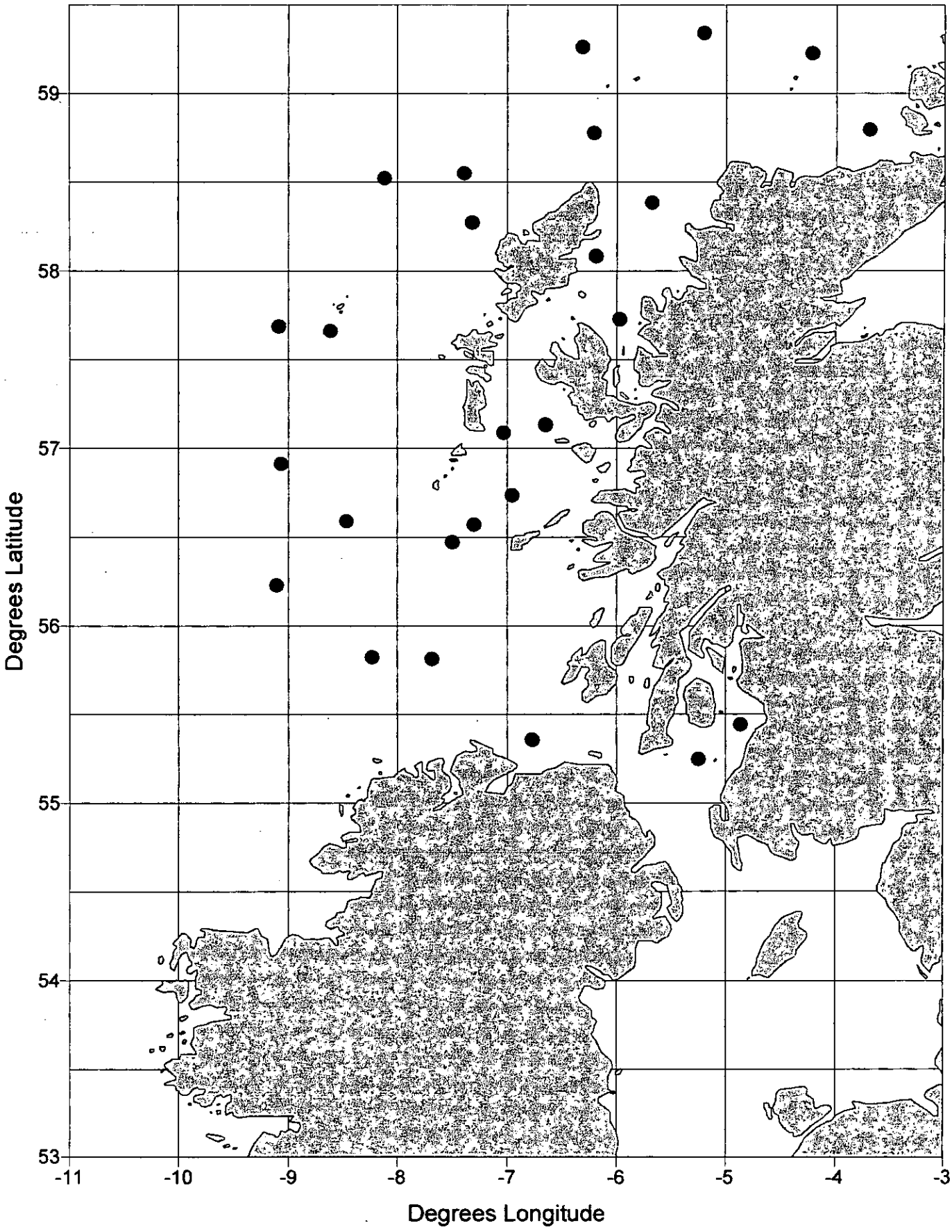
Haul No.	Rect	Depth (m)	Cod	Haddock	Whiting	Pout	Herring	Sprat	Mackerel
520	46E6	90	0.0	83.0	8.5	7.5	0.6	0.1	4.5
521	46E5	90	1.7	938.8	99.2	0.0	28.7	9.7	3.1
522	47E5	90	0.0	243.6	4.7	0.0	0.9	0.0	1.2
523	47E6	125	0.0	90.3	18.3	20.3	2.8	0.0	0.1
524	48E5	100	2.8	120.1	7.3	2.3	2.0	0.0	0.1
525	47E4	125	0.0	113.2	4.0	0.2	6.1	0.0	9.7
526	48E4	130	0.0	14.2	4.7	2.9	0.9	0.0	0.3
527	48E4	105	0.0	145.2	9.6	1.9	25.1	0.0	0.3
528	47E4	105	0.0	177.8	1.8	0.2	1.5	0.0	0.0
529	47E3	138	30.8	59.0	5.0	0.1	78.5	0.0	198.5
530	46E2	125	5.3	140.6	1.9	0.1	2.0	0.0	2.1
531	45E2	95	2.2	78.4	17.0	0.1	0.6	0.0	1.3
532	46E1	235	11.8	26.7	2.2	0.8	0.0	0.0	0.0
533	45E1	169	6.9	220.5	32.2	30.9	5.3	0.0	0.0
534	45E0	360	0.0	0.3	0.0	0.0	0.0	0.0	0.0
535	45E0	194	10.2	196.5	105.8	99.7	9.5	0.0	0.0
536	44E0	290	0.0	0.0	0.0	0.0	0.0	0.0	0.0
537	44E0	150	0.0	92.1	41.3	20.3	2.5	0.0	0.4
538	44E1	160	0.0	77.7	12.4	8.3	1.0	0.0	2.4
539	43E1	159	0.0	219.7	26.8	28.9	22.5	0.0	9.7
540	43E0	147	0.0	319.3	2.0	100.3	3.6	0.0	42.0
541	42E0	145	0.6	176.5	0.4	0.1	0.0	0.0	0.0
542	42E0	500				Foul Haul			
543	41E0	166	3.2	77.0	0.8	2.1	4.6	0.0	0.0
544	40E0	144	0.0	85.9	1.4	3.8	7.5	0.0	0.7
545	39E0	145	4.2	123.5	0.0	4.2	0.0	0.0	2.0
546	39E0	150	0.0	790.0	59.0	0.4	0.9	0.0	20.1
547	39D9	450	0.0	0.0	0.0	0.0	0.0	0.0	0.0
548	38D9	156	0.0	123.5	36.4	0.8	5.4	0.0	4.6
549	36D8	196	0.0	62.2	12.7	7.5	0.2	0.0	0.1
550	37D9	121	0.0	134.5	51.0	2.0	10.4	0.0	4.6
551	38D9	121	0.8	77.4	10.3	10.4	4.1	0.0	182.1
552	38E0	105	0.0	121.3	35.5	1.6	8.0	0.1	38.3
553	37E0	90	1.0	450.6	282.8	37.2	0.8	0.1	1.2
554	37E1	67	0.0	16.7	23.0	22.1	4.9	37.4	0.0
555	38E1	88	0.0	0.0	40.1	17.2	0.2	0.5	0.0
556	39E1	97	0.0	71.9	57.1	0.3	1.9	0.0	10.8
557	39E2	61	8.4	62.6	7.9	0.0	0.0	0.0	0.0
558	39E4	50	0.0	7.3	98.2	1.0	0.8	1.2	0.0
559	39E5	71	0.1	16.6	142.0	0.9	3.4	0.5	0.0
560	38E4	135	6.4	0.2	16.8	3.2	0.3	7.6	0.0
561	37E5	106	21.3	0.0	38.1	8.2	0.3	20.8	0.0
562	37E4	84	0.0	1.5	101.4	1.3	0.2	0.2	0.0
563	36E4	100	4.5	4.8	37.8	1.6	0.0	1.7	0.0
564	36E4	65	0.0	0.1	75.4	2.2	0.4	7.1	0.0
565	36E5	86				Foul Haul			
566	36E5	68	5.3	12.7	11.9	3.2	0.0	0.2	0.0
567	36E6	41	0.0	2.2	9.4	0.0	0.2	3.7	0.0
568	37E5	43	4.7	9.5	18.0	0.0	0.0	1.9	0.0
569	37E6	45	1.2	0.0	864.1	0.1	0.4	46.1	0.0
570	38E6	35	5.2	0.4	1424.0	0.0	0.2	6.9	0.0
571	38E5	54	1.5	21.4	240.7	0.3	1.4	2.2	0.0
572	39E3	82	7.1	0.8	53.0	1.8	2.2	3.1	0.0
573	40E3	84	0.0	26.5	138.0	0.2	1.8	0.2	0.0
574	41E2	97	0.0	86.2	70.9	7.4	2.1	0.1	0.0
575	40E2	112	0.0	49.1	4.2	0.1	1.2	0.1	401.8
576	40E2	118	0.0	12.2	2.7	0.0	0.5	0.0	63.4
577	40E1	148	0.0	2.4	5.1	25.7	0.0	0.0	4019.1
578	40E1	172	0.0	4.6	4.2	1601.1	0.1	0.0	0.6
579	41E1	140	0.0	39.5	15.4	4.3	1.0	0.0	0.0
580	42E1	162	0.0	5.4	4.3	77.0	0.8	0.0	7.5
581	42E1	115	0.0	126.0	47.2	13.9	1.1	0.0	0.0
582	41E2	144	0.0	55.0	42.5	7.8	1.0	0.2	0.2
583	41E3	76	0.0	8.0	130.1	2.4	10.9	1.4	0.0
584	42E2	145	0.0	29.6	92.9	35.6	1.0	0.3	0.0
585	42E3	148	0.0	1.2	9.2	3.5	2.9	0.1	0.4
586	42E2	165	2.4	1.4	28.8	22.8	0.6	0.1	0.2
587	42E2	190	6.1	4.4	30.7	22.3	0.8	0.0	0.7
588	43E2	145	0.9	108.2	30.5	133.3	0.2	0.1	0.0
589	43E3	130	6.6	15.6	12.3	8.7	0.8	0.1	0.4
590	44E4	150	6.6	25.4	101.7	33.6	0.1	8.4	0.0
591	44E3	90	0.1	36.4	408.0	67.6	4.8	0.1	0.0
592	45E4	124	2.2	57.6	147.2	188.6	0.7	4.7	0.0
593	45E3	100	1.5	35.4	132.1	19.8	0.1	0.9	0.0
594	45E4	112	0.5	69.0	92.4	92.2	2.3	6.4	0.0
595	45E4	111	0.0	133.8	214.6	80.5	2.5	4.1	0.0
596	46E4	128	0.0	14.6	55.2	20.9	0.1	0.4	0.0
597	46E3	104	0.7	147.2	225.3	284.6	0.5	0.0	0.3
598	46E3	120	0.0	105.8	20.7	8.1	0.6	0.0	0.7
599	45E2	99	0.0	77.4	19.2	0.0	0.8	0.0	4.9
600	46E2	95	1.2	166.3	1.3	0.0	10.7	0.0	1.0
601	46E2	150	0.0	153.8	112.8	162.3	0.3	0.0	0.3
602	47E3	165	5.6	33.2	10.8	30.3	0.0	0.0	0.0
603	47E3	160	5.0	59.3	6.1	3.3	0.0	0.0	0.0

Table 2. West Coast Survey November - December 2002 Numbers at Age per 10hrs Fishing

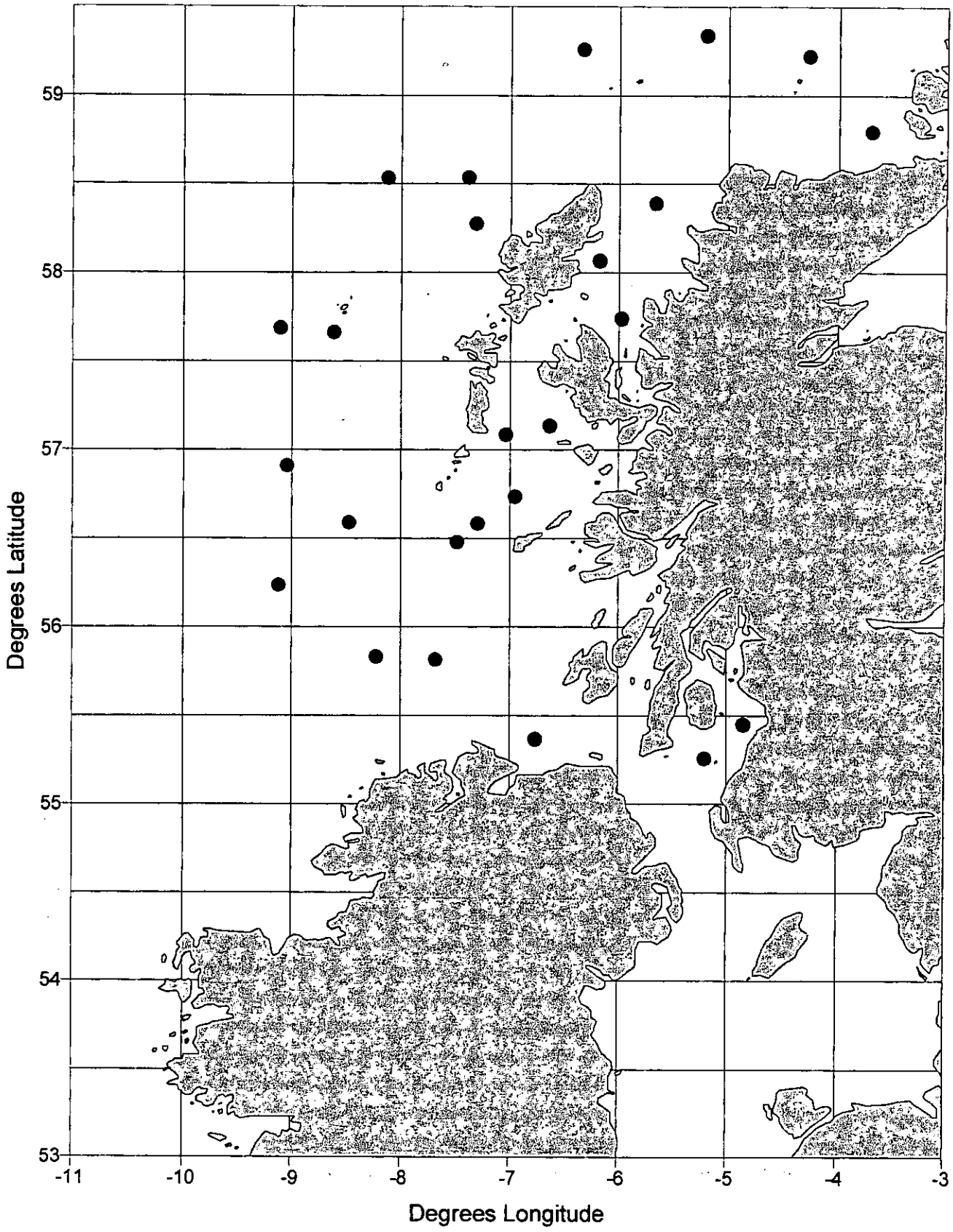
	Year/Age	0	1	2	3	4	5	6
Cod	2000	0	16	3	0	0	0	0
	2001	1	2	9	1	1	0	0
	2002	1	10	3	7	1	0	0
Haddock	2000	2959	4231	147	191	59	25	5
	2001	3083	2219	3563	48	138	22	12
	2002	2943	1709	1770	2841	34	50	24
Whiting	2000	4434	4055	789	160	9	7	1
	2001	9615	1957	1420	155	40	12	2
	2002	14658	1591	621	479	30	9	5
Saithe	2000	0	0	1	1	0	0	0
	2001	0	0	50	15	2	0	0
	2002	0	1	8	6	1		
Norway Pout	2000	25311	5984	2166	302	23	0	0
	2001	34355	2498	1977	112	0	0	0
	2002	59207	5842	493	355	8	0	0
Herring	2000	153	208	242	112	333	169	15
	2001	223	121	3335	1452	588	1186	722
	2002	144	94	124	230	18	31	72
Mackerel	2000	102	98	118	47	9	1	1
	2001	720	15	58	32	17	1	1
	2002	12045	270	91	154	42	5	8

Scotia Nov - Dec 2002 Trawl Positions





Two Metre Beam Trawl Haul Positions
November / December 2002



Box Core Sampling Positions
November / December 2002