

R1/12

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FRV *Scotia*

Cruise 1703S

REPORT

12 November – 4 December 2003

Personnel

A Robb (In Charge)
J Mills
M Mathewson
H Dobby
T Blasdale
F Burns (Part 1)
K Coull (Part 2)
M Robertson
H Fraser
D Lichtman

Fishing Gear

GOV Trawl (BT137) with belly lines and 20 mm cod-end, Ground gear, C and A

Benthic Sampling

Van Veen grab
2 Metre Beam Trawl

Out-turn days per project: MF01To – 20 days, C735 – 3 days

Objectives

- To participate in the ICES co-ordinated 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 echosounder.

Area

West of Scotland, NW Ireland, Irish Sea

Narrative

Scotia sailed from Aberdeen as scheduled at 1130 on 12 November and proceeded north and west to the study area. The ship arrived on station in rectangle 46E6 around 0100 and the beam trawl and grabs were deployed, followed by the fishing operations at 0715. At this first station, a trawl door and a set of ground gear were lost when the trawl gear snagged on the bottom. Consequently, most of this first day was spent rigging the new trawl and

carrying out repairs to the broken trawl warps. Throughout the rest of the trip, fishing operations generally occurred between 0715 and 2100 with benthic sampling taking place during the night period. To ensure that the trawl gear was kept as standard as possible, maintenance took place whilst steaming between stations, with a thorough overhaul being carried out at the end of each day's operations.

Work progressed westwards without interruption until the evening of 17 November, when the ship had to steam overnight to Oban to land a crew member for family reasons and also to pick up his replacement. Fishing recommenced the next day at 1630 and continued southwards into the Irish Sea. The ship docked in Dublin at 0900 on 22 November for the port call and to allow changes to the scientific staff. *Scotia* sailed at 0900 the following day and completed the Irish sea stations before heading for positions to the west of Ireland. The survey then progressed northwards, up through the Minches and then along the North coast. The last trawling station in rectangle 46E6 was a repeat of the very first station and was completed without any problems at 1100 on 3 December, with the benthic work being finished by 1300. *Scotia* then proceeded to Aberdeen docking at around midnight.

Results

Trawling

Weather conditions were relatively favourable throughout the entire period allowing the survey to be completed successfully. Time also allowed the opportunity to fish at a few additional stations of varying depth strata. In total 83 trawl hauls of 30 minutes duration were carried out with only three being classified as not valid. The scanmar metering system was used to monitor headline height, wing and door spread during each haul. Bottom tide direction and speed was also recorded. Station positions are shown on the attached chart.

Table 1 gives the catch weights and Table 2 gives the provisional indices for the main species caught during the survey. Catches of the main juvenile (0 group) demersal species all showed a decrease from 2002. For haddock, the indication is that the incoming year class is one of the poorest in recent years and for cod there is no significant difference in the catches from previous years. The main pelagic species also showed a decrease in abundance from 2002 but all of these figures will be subject to revision once the complete dataset is available.

Benthic Sampling

A total of 33 stations were occupied during this cruise, of these 21 were successfully sampled. The positions are shown on the attached chart, one station was deemed invalid while 11 were abandoned after repeated failure to collect valid grab samples, generally because of the sediment types encountered.

At each of the 21 stations sampled a 2-metre beam trawl was towed for 5 minutes along the seabed. The epibenthic samples thus obtained were then passed through 2.0 and 5.0 mm mesh sieves. The animals retained on the 5 mm mesh were sorted, identified, measured and weighed as far as possible onboard the vessel. The 2 mm fraction and any organisms from the 5 mm fraction that could not be identified or which were too small to weigh onboard were preserved in 4% formalin and returned to the laboratory for processing.

Samples of the benthic infauna were collected by means of a 0.1 m² vanVeen grab that was deployed five times at every station. Each sample collected was passed through a series of mesh sizes (4.0, 2.0, 1.0 0.5 and 0.25 mm) and the resulting fractions preserved in 4% formalin and returned to the laboratory for processing. Further sediment samples, to be used for sediment particle size and meiofaunal analysis were collected from each station by

means of 25 mm internal diameter core tube, these were preserved onboard the vessel and also returned to the laboratory.

Hydrography

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

Acoustics

Data from the EK500 was logged on a continuous basis throughout the survey area.

A Robb
19 March 2004

Seen in Draft: Captain P Ramsay, OIC *Scotia*

Table 1 Scotia West Coast Survey Q4 2003 Catches (kgs)

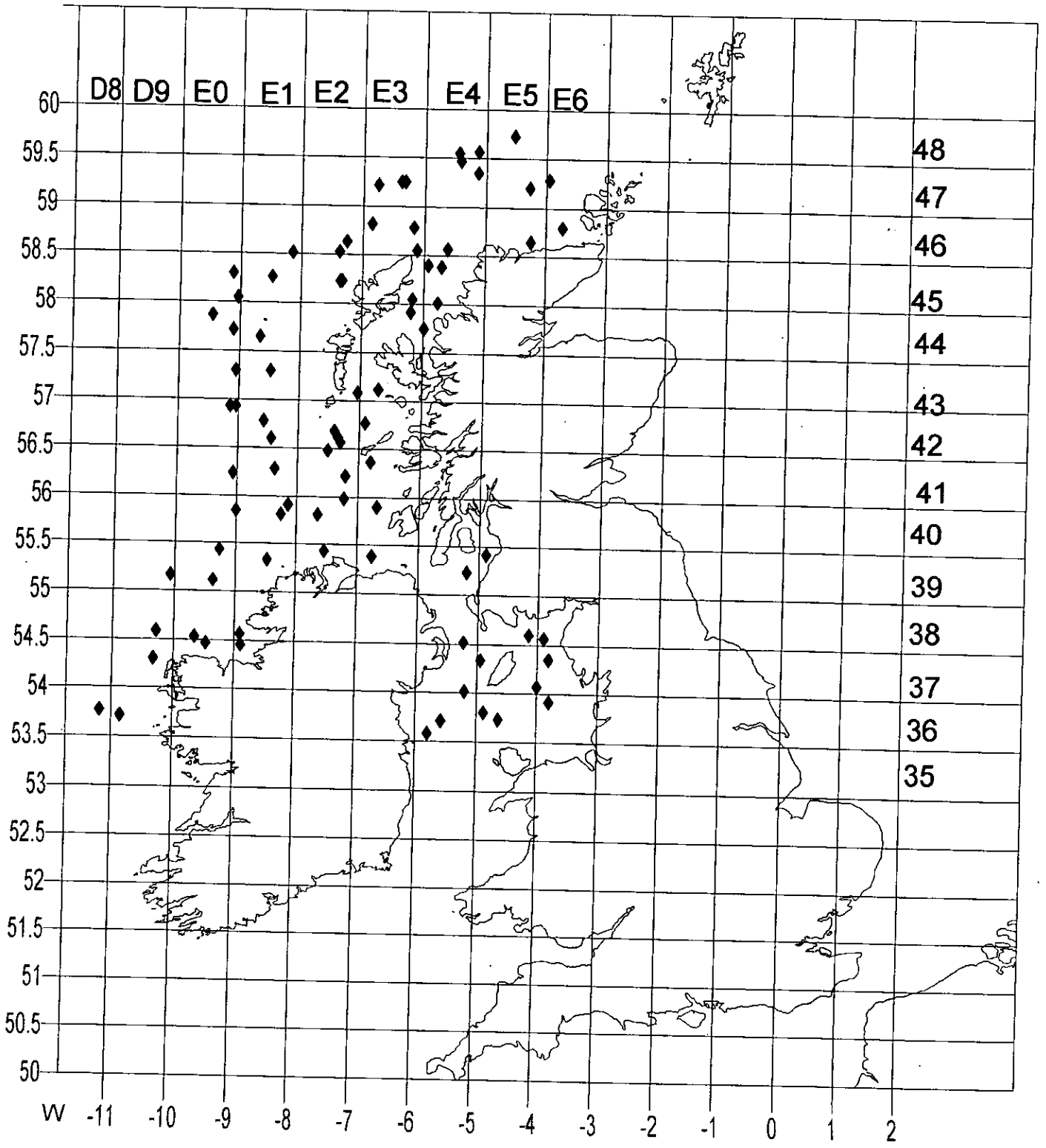
Haul No	Rect	Depth	Herring	Sprat	Mackerel	Cod	Haddock	Whiting	NPout
*558	46E6	102							
559	47E6	124	0.4		0.4	1.3	48.3	10.0	
560	47E5	93	3.3		0.3	1.1	60.7	0.8	
561	46E5	97	0.8			1.6	880.6	20.2	0.0
562	46E4	128	1.0	0.1			109.9	94.1	41.2
563	46E3	100	0.5				132.6	8.8	
564	46E3	118	6.0	0.1	0.3	1.7	70.9	33.1	1.0
*565	46E3	152							
566	46E3	154	15.3		6.1		2.6	33.6	744.6
567	45E2	97	0.9		432.9		235.3	50.6	
568	46E2	94	791.9		51.6	4.1	138.4	4.6	
569	46E1	215				5.9	10.4	0.3	35.9
570	45E1	170	6.8		7.8	14.4	145.7	23.5	71.1
571	45E0	355					5.8		
572	45E0	200	7.0			2.5	31.9	74.4	202.1
573	44E0	305				7.2	11.9		0.2
574	44E0	154	27.8		2.7	1.8	116.5	31.1	2.5
575	44E1	163	277.1		32.0		23.1	21.8	22.6
576	43E1	150	262.9		8.6	1.3	141.3	14.6	0.2
577	43E0	140	177.5		5.3	1.7	113.9	3.2	0.5
578	42E0	144				2.8	128.9	0.8	0.0
579	41E0	158				10.7	81.9	0.8	2.2
580	40E3	56	0.4		3.4		85.5	141.4	
581	40E2	115			3.0		48.9	98.6	
582	39E2	58	2.7			0.6	10.8	0.5	
583	39E3	75	0.4			3.4	3.2	36.9	
584	39E4	50		0.4			25.2	52.0	0.9
585	39E5	70		1.4			7.8	84.9	0.5
586	38E5	60	0.1	1.3	0.9	1.4	24.3	47.4	
587	38E6	35	5.5	30.1		3.1	0.0	105.5	
588	37E6	40	0.8		0.7		2.0	534.0	
589	37E5	37		0.7			6.1	13.5	
590	36E6	38		0.3	0.1		0.2	0.4	
591	36E5	64	0.0			4.2	26.8	45.2	50.0
592	36E5	68	0.0			8.8	19.0	37.1	23.4
593	37E4	80	0.9	0.7			0.3	50.4	3.3
594	36E4	100	0.6	4.9		6.8		37.6	0.4
595	36E4	74	5.0	0.7			1.5	122.9	0.8
596	37E5	110	1.0	2.1	0.4	5.8		4.0	3.6
597	38E4	140	0.2	0.8		11.6	2.3	6.4	12.2
598	39E1	92	2.0		0.2		73.7	8.3	
599	38E1	92	30.2	1.2	0.5			78.2	3.8
600	37E0	90	1.6		2.3		189.3	128.6	0.7
601	38E0	101	1.0	0.4	8.0		121.0	110.5	1.4
602	36D9	150	1.2		12.7		121.8	34.2	9.2
603	36D8	195			12.2		115.2	42.1	7.7
604	37D9	120	9.2		24.3		231.3	18.2	
605	38D9	117			533.6		107.1	23.0	
606	39D9	450							
607	39E0	160	1.2		0.3	2.3	89.5	1.2	
608	39E0	120			0.9	1.7	100.0	3.2	
609	40E0	126	0.5		1.9	4.9	81.5	27.1	
610	40E2	120	0.4		0.9		19.1	4.7	
611	40E1	150	3790.5	8.5	0.4		5.7	9.2	67.7
612	41E1	150	5.8			2.0	65.8	23.0	16.4
613	42E1	175	3.6		0.2	5.8	2.3	3.0	8.2
614	42E1	116	2.3		0.3		73.8	3.5	0.4
615	42E2	170	0.8	0.0	0.0		0.3	10.0	5.3
616	41E2	150	1.9		0.2	1.6	15.7	1.8	9.2
617	41E2	98		0.2	2.0		9.6	5.4	0.0
618	41E3	80	0.2	0.5	0.3		7.5	176.9	8.7
619	42E2	155	1.7				27.4	9.1	2.9
620	42E2	190	0.8	0.3			0.3	13.1	3.4
621	42E3	145	0.1	0.0			0.2	708.0	23.1
622	43E2	145	0.3	0.0		8.8	7.8	149.2	18.1
623	43E3	140	0.6	0.1		0.6	2.5	215.3	9.8
624	44E4	160	0.7	1.6		9.0	6.7	131.3	61.5
625	44E3	90	0.6	0.3	0.3	1.2	6.4	186.7	27.1
626	45E3	108	0.5	0.6	0.3		7.9	195.8	28.7
627	45E4	135	5.0	5.1		6.5	8.3	70.0	37.5
628	45E4	110	4.7	7.1			1.9	148.8	63.5
629	45E4	110	1.4	1.5			20.3	27.4	17.3
630	46E4	115	0.3			15.2	210.4	38.2	33.0
631	47E4	80	0.1				233.8	23.2	
632	47E3	170			0.9		12.9	0.7	10.4
633	47E3	150	0.3		92.0	4.8	61.1	5.0	0.1
634	47E4	104	7.9		0.1	2.0	86.7	1.1	0.0
635	48E4	130	104.1		25.6		8.9	3.7	
636	47E4	120	0.4				0.3		
637	48E4	120	0.7		2.9		44.6	1.7	0.1
*638	48E5	127							
639	46E5	55				1.4	41.8		
640	46E6	104	7.3	31.6			118.4	2.6	12.1

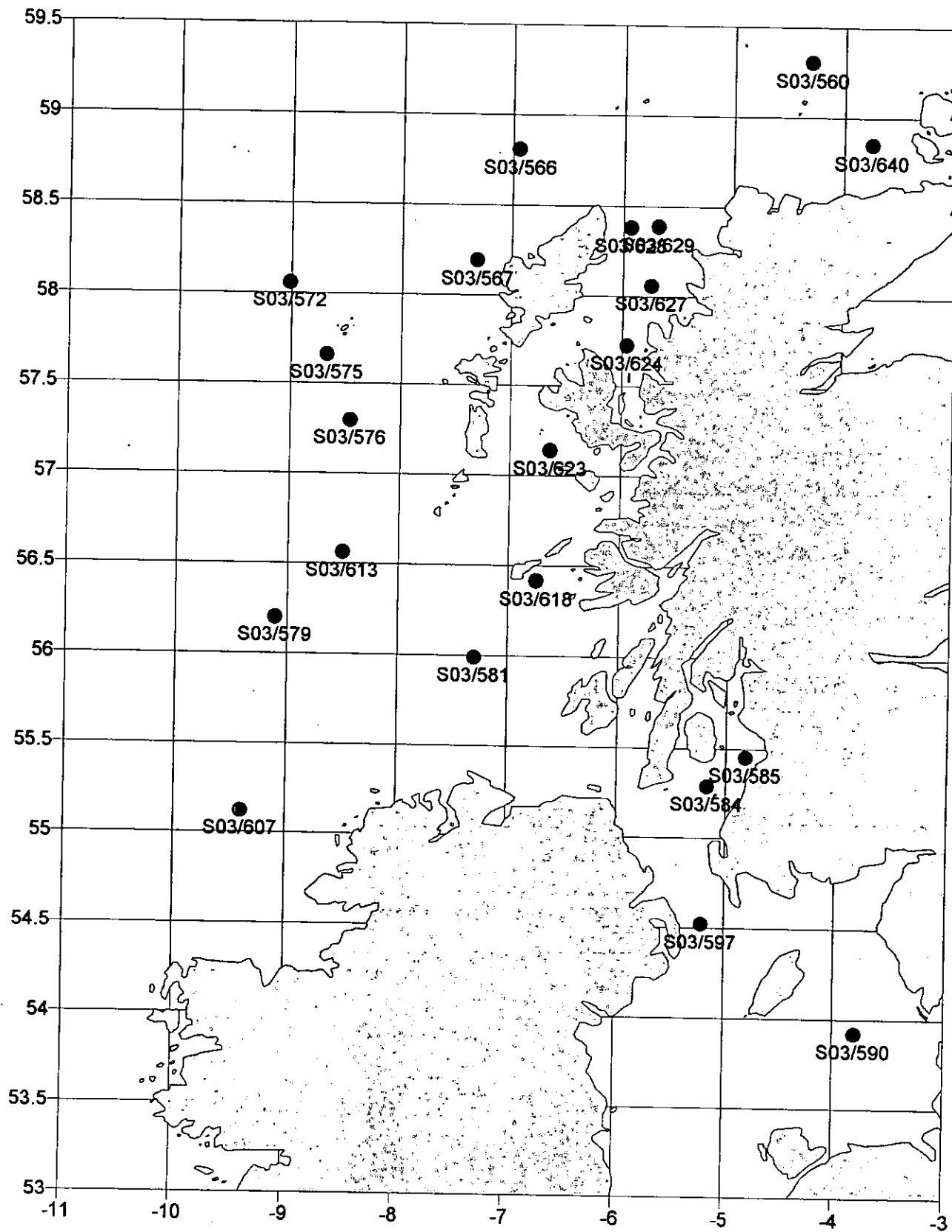
* Not Valid

Table 2. Scotia West Coast Survey Q4 2003 Numbers at Age per 10hrs Fishing

	Year/Age	0	1	2	3	4	5	6
Cod	1997	1	11	2	1	1	1	0
	1998	+	15	9	1	0	0	0
	1999	2	4	6	9	1	0	0
	2000	0	16	3	0	0	0	0
	2001	1	2	9	1	1	0	0
	2002	1	10	3	7	1	0	0
	2003	1	2	11	3	1	0	0
Haddock	1997	3713	1359	282	151	25	26	14
	1998	399	1640	486	148	137	17	33
	1999	4670	366	574	267	92	68	11
	2000	2959	4231	147	191	59	25	5
	2001	3083	2219	3563	48	138	22	12
	2002	2943	1709	1770	2841	34	50	24
	2003	293	2023	965	1470	639	28	17
Whiting	1997	8001	2869	951	323	160	46	12
	1998	1852	2713	1124	149	100	20	1
	1999	8203	2338	582	141	33	24	1
	2000	4434	4055	789	160	9	7	1
	2001	9615	1957	1420	155	40	12	2
	2002	14658	1591	621	479	30	9	5
	2003	9932	3446	567	338	83	27	4
Saithe	1997	0	0	1	3	1	1	0
	1998	0	1	2	2	1	0	0
	1999	0	0	32	7	0	0	0
	2000	0	0	1	1	0	0	0
	2001	0	0	50	15	2	0	0
	2002	0	1	8	6	1		
	2003	0		25	5	1		0
Norway Pout	1997	23730	9594	1131	808	0	0	0
	1998	51210	7874	4226	13	14	0	0
	1999	20784	2295	304	140	0	0	0
	2000	25311	5984	2166	302	23	0	0
	2001	34355	2498	1977	112	0	0	0
	2002	59207	5842	493	355	8	0	0
	2003	10549	7715	2291	108	92	0	0
Herring	1997	57	82	382	644	467	473	20
	1998	86	59	351	522	533	625	26
	1999	37	247	99	493	277	285	35
	2000	153	208	242	112	333	169	15
	2001	223	121	3335	1452	588	1186	722
	2002	144	94	124	230	18	31	72
	2003	95	8861	5227	1124	1251	111	194
Mackerel	1997	873	102	16	4	4	1	1
	1998	4904	54	11	3	0	1	0
	1999	549	3631	451	101	3	35	1
	2000	102	98	118	47	9	1	1
	2001	720	15	58	32	17	1	1
	2002	12045	270	91	154	42	5	8
	2003	1244	771	460	72	62	10	8

Scotia West Coast Survey Q4 2003 Trawl Positions





**vanVeen Grab and Beam Trawl Sampling Stations
November / December 2003**