

R1/12

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FRV *Scotia*

Cruise 1604S

REPORT

11 November – 3 December 2004

Personnel

A Robb	(In Charge)
J Mills	
M Mathewson	
S Holmes	
A Tait	
S Greenstreet	
M Robertson	
H Fraser	
K Peach	Part 2
I Penny	Part 1
K Longo	Part 1
G Stowasser	Part 1
N Campbell	Part 1

Fishing Gear

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

Benthic Sampling

Van Veen grab
2 Metre Beam Trawl

Out-turn Project: 21 days RV0411, 2 days MFo7n

Objective

- 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.

Area

West of Scotland, NW Ireland, Irish Sea

Narrative

Scotia sailed from Aberdeen as scheduled at 1100 on 11 November and proceeded north and west to the study area. The ship arrived on station in rectangle 46E6 around 0200 but the weather conditions were not suitable for deploying the beam trawl and grabs. Despite

the continuing poor weather conditions, fishing operations commenced at 0715 but had to stop after three stations were completed. This was the pattern for the next five or six days with the weather having an effect on the rate of westerly progress. Throughout the trip, fishing operations generally occurred between 0630 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. On Friday 19 November the *Celtic Explorer* met up with *Scotia* in the area 39-41E0 to carry out a series of comparative fishing hauls. Around this time, contact was made with an onshore Irish fishermen's representative to determine the locations of any static gear, before fishing operations in inshore areas along the Irish coast was undertaken. Further comparative work was carried out with *Celtic Explorer* on 21 November around the Donegal Bay area before working eastwards down into the Irish Sea.

The ship docked in Dublin at 0830 on 25 November for the port call and to allow changes to the scientific staff. *Scotia* sailed at 0900 the following day and completed the remaining Irish Sea stations before heading for positions to the west of Islay. The survey then progressed northwards, up through the Minches and then along the North coast. Benthic sampling was completed in the early hours of 2 December whilst the last trawling station in rectangle 46E5 was completed around 1400 the same day. *Scotia* then proceeded to Aberdeen, docking at around 0630.

Results

Trawling

For the first seven days of the cruise the ship operated in very poor weather conditions and the length of the working day was curtailed on several occasions. Despite this, the work programme progressed successfully and by the end of the trip 80 hauls were completed with only one station in deeper waters being left unfished. Only one haul was 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 were also recorded. The trawling station positions are shown on the attached chart.

Table 1 gives the catch weights for the whole cruise and Table 2 gives the provisional indices for the main species caught during the survey in area VIa.

Catch levels varied considerably during the cruise ranging from a few hundred kilos up to eight tonnes depending on the main species being caught. The haddock index shows some improvement over the very poor level of 2003 but for cod there is no indication that recruitment could be improving. The Whiting and Norway pout indices show a decrease from 2003, the latter being the lowest recorded in the past five years. The main pelagic species both show a significant improvement from 2003 and there is a suggestion that the recruiting mackerel year class could be good. Catches of recruiting mackerel in area VIIb were also at a high level.

The GOV rig on *Celtic Explorer* differs from that used on *Scotia* for the VIa survey area. In order to gain an initial insight into any differences in catch composition, the Irish vessel shadowed *Scotia* over eight hauls. In terms of bulk there was very little difference between the two vessels, the results of differences in the catch and length compositions will be made available at a later date.

Benthic Sampling

A total of 28 stations were occupied during this cruise, of these 25 were successfully sampled. The positions are shown on the attached chart. Three were abandoned after repeated failure to collect valid grab samples, generally because of the sediment types encountered.

At each of the 25 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 weighed 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. Due to problems with the ship's Zendiq system the thermosalinograph was not run continuously for the entire cruise.

A Robb
13 December 2004

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

Table 1. Q4 West coast Survey 2004 Catch Weights (Kgs) of Main Species

Haul No	Rect	Herring	Sprat	Mackerel	Cod	Haddock	Whiting	N Pout
395	46E6	0.8				15.7	3.6	0.1
396	46E5	3.1			9.4	468.1	45.7	0.0
397	47E5	0.8	0.0		0.5	61.4	2.8	0.0
398	47E6	2.6	0.0	0.9		46.4	6.0	21.7
399	48E5	14.2			5.4	27.8	0.2	
400	48E4	530.4		133.3	1.8	19.2	4.4	11.6
401	47E4	74.1		0.9		162.3	5.2	0.1
402	47E4				0.8	47.4	3.2	
403	47E3	25.9		1.0	5.8	42.6	1.5	15.9
404	47E3					2.8		1.7
405	46E3	3.4		229.0		6.6	7.6	3.6
406	46E2	1503.1		869.1		83.9	7.1	
407	45E2	115.2		109.6		127.2	8.2	
408	Foul Haul							
409	45E1	13.8		3.2	14.3	43.6	22.5	38.1
410	45E0					9.6		0.2
411	45E0	981.6		1.2		37.0	16.0	234.3
412	44E0					11.6		
413	44E0	10.7		0.9		64.6	19.1	2.6
414	44E1	122.4				137.5	8.8	0.4
415	43E1	122.4				137.5	8.8	0.4
416	43E0	4.5		6.1		75.7	1.0	0.0
417	42E0	0.2		2.6		74.7		
418	42E1	34.0		1.7		126.6	2.8	2.8
419	42E1	3.9				4.6	10.5	0.5
420	41E1	2.1			1.7	25.6	10.0	3.1
421	41E0					38.8		0.3
422	40E0	1.1		0.4		204.3	0.2	
423	39E0	3.2		91.4		118.7	1.0	
424	39E0	3.3		0.7		36.4	0.3	0.1
425	36D9	0.1		788.7		35.9	6.9	0.2
426	36D8			2.2		55.2	1.5	0.1
427	37D9	254.5		4107.5		57.8	6.3	
428	38D9	1.4		1141.9		71.0	5.0	0.1
429	38E0	0.9		852.4		18.6	28.4	
430	37E0	14.7		720.9		72.7	22.9	
431	37E1	1.9	4.6	0.2		3.7	16.3	0.0
432	38E1	0.8	0.1				93.9	0.2
433	39E1	3.0		1587.7		14.8	13.9	
434	39E3	0.4	0.1	0.5		1.4	105.0	
435	39E4	0.8	163.7	0.7		1.9	56.4	1.3
436	39E5	1.2	3.6			7.6	47.0	0.4
437	38E5	0.5			1.9	19.4	505.2	0.3
438	38E6	10.7	11.0		1.6	0.8	68.8	
439	37E6	2.4	106.3	0.2	0.0	0.6	284.7	
440	37E5	0.4		3.7	1.0	2.6	4.2	

441	36E6	0.0	0.2			0.1	118.4	
442	36E5	0.1	0.1		6.8	20.8	21.9	1.5
443	37E4	4.9	0.1			0.3	40.2	3.5
444	36E5	0.4			2.9	42.3	78.0	49.9
445	36E4	0.0	0.6		6.4	2.9	19.2	0.3
446	36E4	1.8	0.6			0.2	278.1	0.2
447	37E5	0.2	1.2		2.1	2.9	5.3	2.8
448	38E4	0.1	0.6		9.4	3.2	1.1	0.5
449	40E3	0.2		0.3		19.5	103.7	
450	40E2					29.0	1.9	
451	40E2					5.5		
452	39E2				1.0	31.0	0.9	
453	40E1	6.5	0.1			28.3	38.0	0.0
454	41E2	0.1	0.0			25.1	1.6	
455	41E3	8.3	141.2	2.3		2.0	204.3	7.1
456	41E2		0.3			25.5	3.8	0.8
457	42E2	1.0	0.0			2.0	8.7	1.5
458	42E2	0.4	0.1			31.5	11.4	2.1
459	42E2	0.7	0.0			2.0	30.5	1.8
460	42E3	1.7				0.6	81.6	3.3
461	43E2	0.3	0.1		0.4	18.2	10.3	6.3
462	43E3	0.5	2.4				37.7	0.8
463	44E4	0.6	2.3			2.8	6.9	2.5
464	44E3	0.1	0.1			18.7	62.7	18.3
465	45E3	0.6	0.1		8.1	12.0	139.8	48.1
466	45E4	0.6	0.4		4.2	6.7	29.0	9.6
467	45E4	4.6	2.4			1.6	29.2	28.2
468	45E4	2.3	0.3			4.8	28.8	21.6
469	46E4	7.4	0.1	0.1		18.9	29.3	12.9
470	46E3	1.1	0.5			89.2	12.0	3.9
471	46E3	9.5		5.2		169.6	173.8	444.9
472	47E4	11.9		2270.9		3.2	5.7	0.4
473	48E4	21.3		4291.0	11.6	3.9	4.8	0.3
474	47E5				0.3	33.2		0.3

Table 2 West Coast Survey November – December 2004 Area Via Numbers at Age/10 hrs 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
	2003	1	2	11	3	1	0	0
	2004	0	5	4	0	0	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
	2003	293	2023	965	1470	639	28	17
	2004	542	574	1068	410	649	524	5
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
	2003	9932	3446	567	338	83	27	4
	2004	5923	1758	940	83	57	62	1
Saithe	2000	0	0	1	1	0	0	0
	2001	0	0	50	15	2	0	0
	2002	0	1	8	6	1	0	0
	2003	0	0	25	5	1	0	0
	2004	0	0	14	8	1	0	0
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
	2003	10549	7715	2291	108	92	0	0
	2004	5281	4021	1757	530	0	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
	2003	95	8861	5227	1124	1251	111	194
	2004	433	194	807	1717	1903	2806	264
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
	2003	1244	771	460	72	62	10	8
	2004	23476	2095	8543	1591	262	108	10

SCOTIA VESSEL

Programmes - Mr J A Morrison for approval. Reports - Mr J A Morrison for approval.

Issue two copies of Record of Haul and Station Numbers pro-forma with Scientist-in-Charge's copy of *Scotia* and *Clupea* programmes.

Two xerox copies of track chart for reports to be sent to Dr L Rickards.

PROGRAMMES ONLY

Lab staff

Mr J T M Hunter
Mr T Reid
Mr P J Copland
Mr J Dunn
Mr A Beaton
Mr G Howard
Security

Non-lab staff

Island Cmdr Faroes (Faroes only)
Flag Officer, Denmark (Danish part of N Sea only)
Coastguard
G Lees

PROGRAMMES AND REPORTS

Lab staff

Mr J A Morrison
Capt R Denholm
Mr R S T Ferro) Fish Man team
Mr C Hall) progs only
Dr R M Stagg
Dr C Moffat
Mr M R Heath

Mr A Macdonald

D Lichtman (+ additional copy of track chart
of reports only)
Mrs E Morrison
CO/OIC of Vessel (*Scotia*) (to be faxed)
Library (2)
File

Non-lab staff

Library, Danmarks Fisk (reports only)
Mr J Mortensen (Faroes only)
Mr A Souplet (Fishing Cruises only)
Dr S Ehrich (Entering German Waters) (reports only)

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Director – Havfor Inst, Norway
Dr S Ehrich
Monsieur le Chef du dépt, Nantes
Mr J C Brabant
Mrs van Duyvenvoorde
Dr J G Gordon
G Kane
R de Clerck

Mr B Stewart
Capt J Cannan (*Scotia* and *Clupea* only)
Controller Coastal Ops - A Stewart
Dr P Grieg-Smith
Mr H C Boyar
Dr R J A Atkinson
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Laboratory Personnel on Vessel

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Fishery Officers at

Fraserburgh
Shetland