R1/12

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FRV *Scotia*

Cruise 0208S

REPORT

1-23 February 2008

Personnel

K A Coull	
C G Davis	
M Mathewson	
R Watret	
J Mair	(Part I)
K Summerbell	(Part II)
R Catarino	
L Ritchie	
L McPherson	(Visitor)
K Preedy	(Visitor)
C Cronin	(Visitor)
H Palevsky	(Visitor – Part II)

Objectives

1. To take part in the International Bottom Trawl Survey in the North Sea.

Out-turn days per project: 24 days – RV0802

Narrative

Scotia sailed from Aberdeen at 1000 on 1 February and commenced trawling on the station east of Aberdeen with the GOV trawl fitted with groundgear "B". A further trawl was carried at the station east of Montrose during the hours of daylight. Methot net sampling for herring larvae was then carried out during the hours of darkness, covering 6 hauls in 3 statistical rectangles off the east coast of Scotland. The following day, 3 hauls, using groungear "A" were carried out in the area east of the Forth and Tay estuaries. With poor weather during the evening restricting Methot Net sampling to 2 hauls, *Scotia* proceeded northwards through the night in order to carry out trawling in the more sheltered waters of the Moray Firth. A slight improvement in weather conditions on the morning of 4 February allowed effort to be directed at stations off the north east coast of Scotland. The vessel then worked eastwards in moderate weather conditions and moved in to Norwegian waters on the afternoon of 5 February to cover the stations in the south eastern part of the allocated survey area. Over the next three days these stations were completed and *Scotia* returned to UK waters on the afternoon of 8 February. In good weather conditions *Scotia* completed stations in the Turbot Bank, Montrose Bank and Fladen area before heading to the west of Shetland on 13 February. Taking advantage of the good weather, seven stations were completed on the exposed north western part of the survey area before calling into Lerwick for the mid-cruise break on the morning of 15 February.

Scotia sailed on the morning of 16 February and resumed work in the area south east of Shetland. Two further days were spent completing stations east of Orkney before *Scotia* moved to the west of Orkney through the night of 18 February. With only 2 of the allocated stations remaining, the opportunity was taken to carry out 2 trawl tows in each rectangle to provide support for the international coverage required. A further 3 stations, west of Shetland were completed on 20 February providing additional trawl tows and MIK tows for the international coverage. With poor weather forecast, *Scotia* proceeded south in order to pick up additional MIK tows in an area off the east coast of Scotland. Only four MIK tows were completed before severe weather conditions resulted in cancellation of any further work with the vessel then heading for Aberdeen.

Scotia returned to port on the afternoon of 22 February with unloading of the heavy trawl gear, scientific gear and samples being unloaded on the morning of 23 February.

Results

Trawling

The GOV was used throughout the cruise with groundgear "A" (152mm rubber disks) being used in the southern part of the survey area and groundgear "B" (305mm bobbins) being used in the northern part. The Scanmar system was used throughout the cruise to monitor headline height, wing spread, door spread and distance covered during each tow. A bottom contact sensor was attached to the groundgear for each tow and the data downloaded for further analysis in the laboratory

A total of 57 valid hauls was achieved with all allocated stations being sampled as well as two further stations west of the Orkney Islands (44E6 & 44E7) and five additional tows to help meet the total international coverage.

Table 1 shows the preliminary indices for all vessels participating in this international survey with a total of 379 hauls having been completed to date. The indices are based on the numbers of fish caught per hour below a pre-defined length selected as a probable delimiter of 1+ fish.

Table1: Preliminary indices for Quarter 1 International Bottom Trawl Survey (All countries)

	Final 2007	**Preminary 2008**	**Mean (average 1980–2007)**
Cod	3.1	**2.6**	9
Haddock	109	**50**	638
Whiting	42	**334**	524
Norway pout	1286	**2019**	2817
Herring	1336	**1868**	1989
Sprat	935	**2608**	992
Mackerel	127	**82**	111

The international survey indices for 1980-2008 for the above species are provided in Figure 1. At this stage it appears that the numbers of one-year old cod, haddock, whiting, Norway pout and herring are below the long term survey average with sprat and mackerel being above the average. The indices (number per 10 hours fishing) for the Scottish Quarter 1 survey for the period 2000-2008 for cod, haddock and whiting are shown in Tables 2, 3 and 4 respectively. Although the numbers of cod and haddock were generally relatively low, the number of 3+ (2005 year class) encountered, for both species, was highest for several years. Numbers of whiting encountered were generally low across the year classes.

Table 2: Scottish quarter 1 IBTS - Number of cod per 10 hours fishing

Year	1+	2+	3+	4+	5+	6+	7+	8+	9+	10+
2000	66.3	20.5	7.6	9.1	1.3	0.8	0.6	0.4	0.0	0.0
2001	2.4	62.7	7.7	2.5	2.5	0.8	0.0	0.0	0.0	0.0
2002	41.1	34.1	50.4	2.7	0.0	0.4	0.0	0.0	0.0	0.0
2003	4.1	27.4	4.4	10.7	1.6	0.4	0.0	0.4	0.0	0.0
2004	28.5	8.1	9.5	0.8	2.6	0.4	0.0	0.0	0.0	0.0
2005	7.5	15.0	7.0	3.7	0.4	2.9	0.4	0.0	0.0	0.0
2006	58.4	7.7	7.0	2.3	0.9	0.4	0.0	0.0	0.8	0.0
2007	13.2	80.5	5.4	5.6	0.0	0.0	0.0	0.0	0.0	0.0
2008	5.6	14.7	34.4	2.7	2.1	0.0	0.0	0.0	0.0	0.0

Table 3: Scottish quarter 1 IBTS - Number of haddock per 10 hours fishing

Year	1+	2+	3+	4+	5+	6+	7+	8+	9+	10+
2000	31071	1203	663	288	87	144	18	2	0	0
2001	7632	25907	307	79	44	21	7	+	1	0
2002	372	3900	12971	146	99	22	5	3	0	0
2003	1285	591	3165	8465	23	8	2	2	1	1
2004	777	625	108	1553	3357	2	7	+	1	0
2005	1448	971	344	74	570	838	6	2	0	+
2006	17271	486	300	79	47	172	306	3	0	0
2007	1703	27557	701	335	65	36	169	148	0	0
2008	566	1701	3989	89	15	6	6	20	17	0

Table 4: Scottish quarter 1 IBTS - Number of whiting per 10 hours fishing

Year	1+	2+	3+	4+	5+	6+	7+	8+	9+	10+
2000	20332	8007	1868	220	230	74	24	1	0	0
2001	6274	5614	2014	232	46	34	19	1	0	0
2002	2141	4510	3619	589	97	9	7	13	2	0
2003	2568	1554	1831	1132	237	10	2	1	3	0
2004	3949	1262	1300	947	470	88	36	+	2	0
2005	1588	884	259	246	195	115	27	3	0	0
2006	4020	612	291	90	157	96	46	1	0	0
2007	568	3827	1460	335	77	117	42	65	12	0
2008	700	385	749	274	87	26	39	34	9	0

Methot Net Sampling

A total of 117 Methot Net hauls were carried out in order to obtain an estimate of the numbers of pre-metamorphosing herring larvae. The newly acquired circular frame was used to complete 2 hauls in each statistical rectangle of the survey area and the deployment and recovery speeds were adapted in accordance with advice from the Herring Assessment WG.

Biological Sampling

Additional biological data were collected from species listed in the 2006 report of the IBTS in support of EU Data Collection Regulation (EC) No 1639/2001 and No 1581/2004.

Age determination

Otoliths from cod, haddock, whiting, saithe and Norway pout were aged at sea.

Hydrographic Sampling

The ship's thermosalinigraph was run continuously throughout the cruise. Reverser bottles were deployed at the surface and bottom at each station in order to obtain temperature data as well as water samples for analysis for salinity, nitrate, silicate and phosphate.

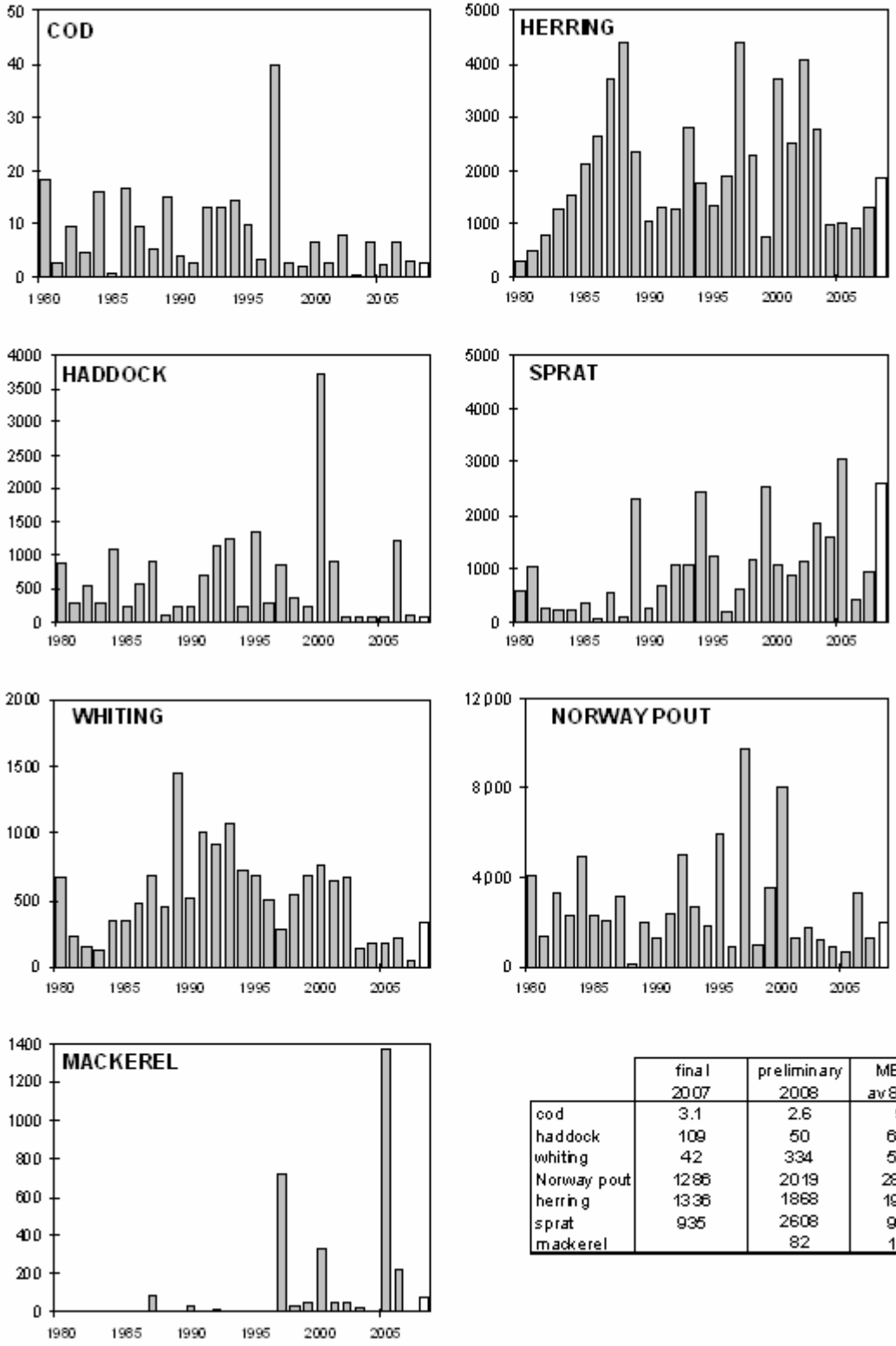
K A Coull
19 March 2008

Seen in Draft: Captain Frank Rogers, OIC, *Scotia*

Figure 1

International Bottom Trawl Survey: 1-group indices as average N/hour fishing 29/02/2008

1980-2007 Final indices, 2008 preliminary values based on: 379 hauls



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IBTS - Quarter 1 Survey 1 -23 February 2008