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FRV *Scotia*

Cruise 0211S

## REPORT

26 January – 16 February 2011

### Personnel

C G Davis	(SIC)
P Copland	
K Summerbell	
R Watret	
O Goudie	
A Edridge	
F Burns	(Part 1)
E Armstrong	(Part 2)
C MacKenzie	(SFF – Part 1)
B Langlands	(SFF – Part 2)
R Schofield	(JNCC)
M Maher	(JNCC)

### Objectives

1. To participate in the coordinated International Bottom Trawl Survey in the North Sea.
2. To collect data on the distribution and abundance of seabirds and cetaceans using ESAS line transect techniques.
3. To provide training for SFF personnel.

**Out-turn days per project:** 22 days - RV1101

### Narrative

*Scotia* sailed from Aberdeen at 0815hrs on 26 January and after comprehensive safety drills and familiarisation protocols, commenced trawling on the station east of Aberdeen with the GOV trawl fitted with Groundgear “B”. The medium term forecast suggested that we were to encounter favourable conditions for the week ahead. As such, *Scotia* worked east and then north covering the offshore stations which required both ground-gear “A” and “B” to be deployed. With particularly poor weather forecast for Thursday 3 February, plans were made to work in the Moray Firth on that date, ensuring that no time was lost due to weather. MIK sampling was undertaken at a rate of 2 tows per statistical rectangle where trawling events took place. This pattern of operation continued up until 4 February when *Scotia* docked in Aberdeen for her scheduled half landing.

*Scotia* sailed again from Aberdeen at noon on 5 February and made passage to an area 45 miles NNE of Aberdeen (45E8), where MIK sampling was undertaken overnight. Trawling survey resumed to the east of the Fladen grounds (45F0) on the morning of Sunday 6 February. The survey progressed up the west of Orkney and Shetland Isles until the evening of 13 February when weather conditions became such that a decision was made

to seek shelter at the western approach to Blue Mull Sound. In the afternoon of 14 February it was agreed to make passage through Yell Sound and take shelter to the north of Whalsay, where Scotia remained overnight. On 15 February, Scotia made way to a trawl station to the east of Bressay. Scotia arrived on station at around 1130hrs but due to weather conditions the vessel dodged on site until 1500hrs, when the decision was made to make way for Aberdeen and terminate the survey.

Scotia docked alongside Aberdeen at 0600 hrs on Wednesday 16 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 NOAA bottom contact sensor was attached to the groundgear for each tow and the data downloaded for further analysis in the laboratory

A total of 50 valid hauls was achieved with all allocated stations being sampled other than those in statistical rectangles 48E9, 49E9, 50E9 and 51E9. These were not surveyed due to lack of time as a result of poor weather conditions. Chart 1 displays trawl locations.

Table 1 shows the (final) preliminary indices for all vessels participating in this international survey with a total of 381 hauls having been completed. 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)

	<b>Final 2010</b>	<b>Preliminary 2011</b>	<b>Mean (average 1980–2010)</b>
<b>Cod</b>	4.8	<b>1.4</b>	8
<b>Haddock</b>	685	<b>17</b>	603
<b>Whiting</b>	325	<b>185</b>	499
<b>Norway pout</b>	4657	<b>1282</b>	2945
<b>Herring</b>	1201	<b>3015</b>	1969
<b>Sprat</b>	2006	<b>1501</b>	1113
<b>Mackerel</b>	16.2	<b>92</b>	103

The survey indices for 1980 – 2010 for the above species are provided in Figure 1.

### Methot Net Sampling

A total of 99 Methot Net (MIK) hauls were carried out in order to obtain an estimate of the numbers of pre-metamorphosing herring larvae. The 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. Location of MIK stations and numbers caught are displayed in Chart 2.

## **Biological Sampling**

Additional biological data were collected from various species in support of EU Data Collection Regulation (EC) No 2008/949.

In addition to above the following biological sampling was also undertaken for the subsequent requests:

1. DNA samples for MBA elasmobranch biological sampling programme. Plymouth University (Dr A Griffiths)
2. Considerable quantity of fish (7 species) for seal feeding experiment. St Andrews University (Dr L Wilson)
3. Considerable quantity of fish specimens from a diverse selection of species for dissection experiments at Aberdeen University. For Aberdeen University (B Edwards)
4. Representative samples of all shelled mollusc species caught in each haul, for an established reference collection. (For D McKay).

## **Age Determination**

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

## **Hydrographic Sampling**

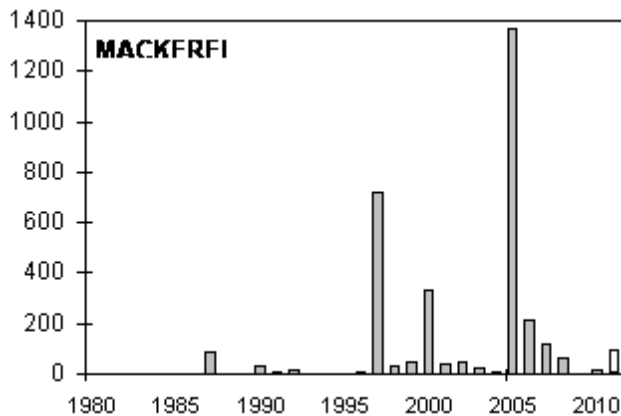
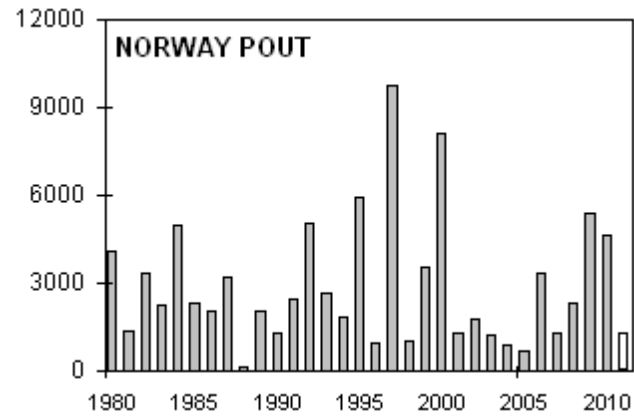
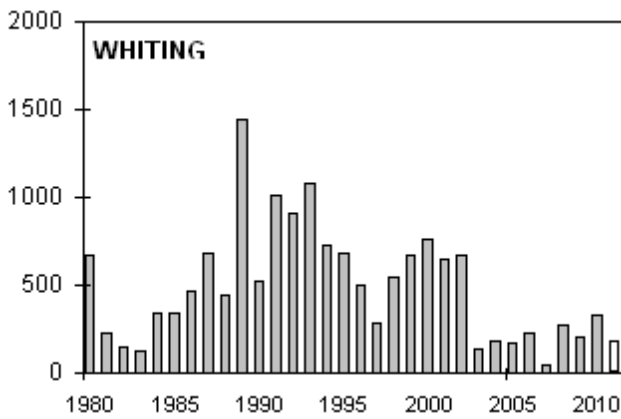
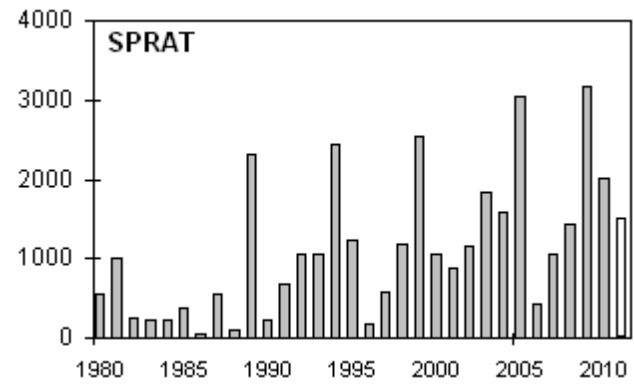
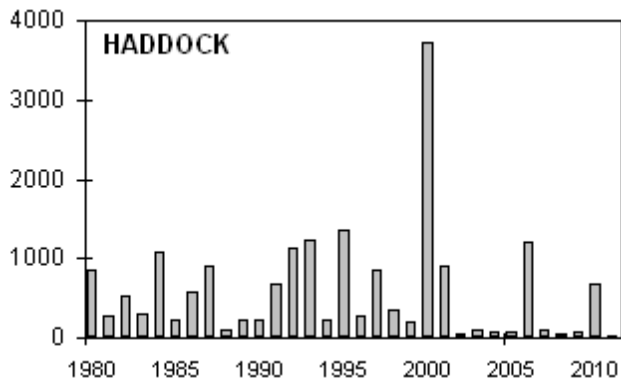
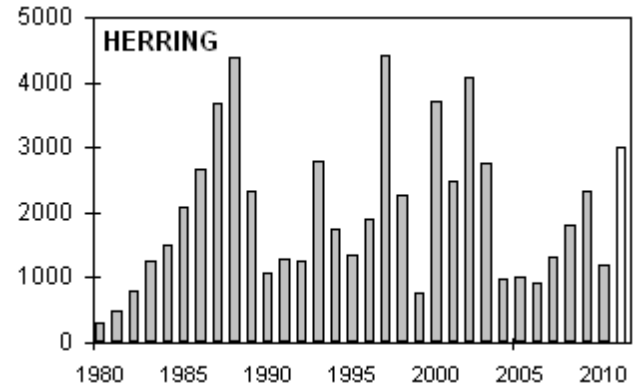
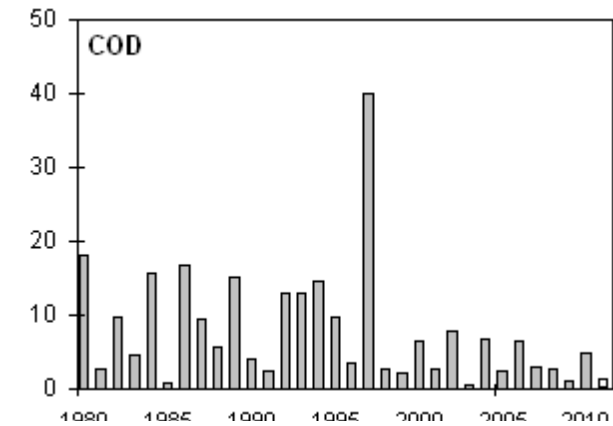
The ship's thermosalinograph was run continuously throughout the cruise. CTD was deployed at each station (with Reverser bottle attached) in order to obtain temperature data as well as water samples for analysis for salinity, nitrate, silicate and phosphate.

Submitted:  
*C G Davis*  
10 March 2011

Approved:  
*I Gibb*  
17 March 2011

Figure 1

**International Bottom Trawl Survey: 1-group indices as average N/hour fishing**  
1980-2010 Final indices, 2011 preliminary values based on: 381 hauls



**Chart Number 1: Fishing Tow Positions (invalid tows in red)**

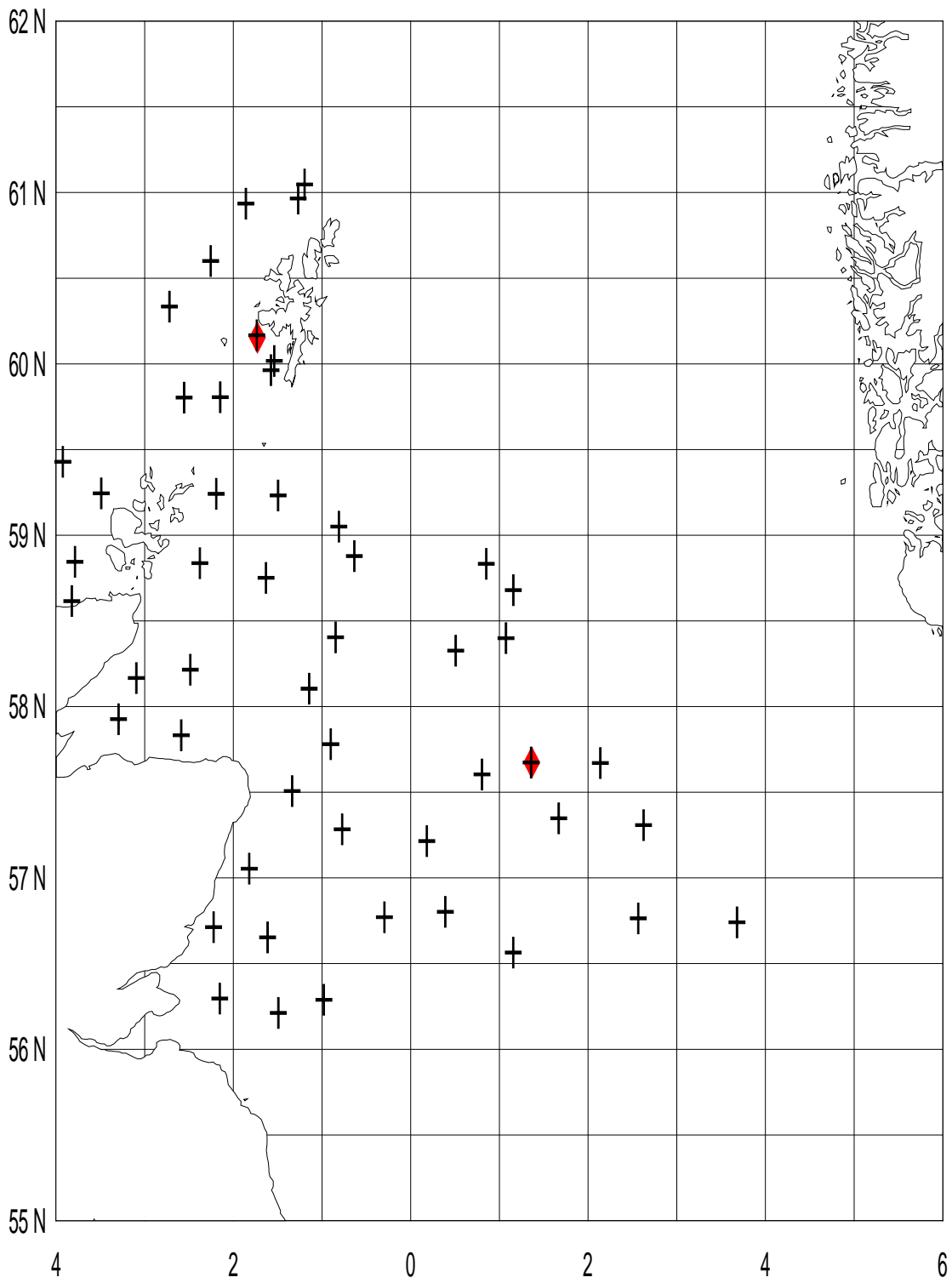


Chart Number 2: MIK Sampling locations and numbers caught.

Scotia Q1 IBTS 2011 actual numbers caught

