R1/12

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FRV *Scotia*

Cruise 0406S

REPORT

11-31 March 2006

Personnel

K J Peach
R Kynoch
J Mills
O Goudie
C Millar
M Campbell Part 1
M Gault Part 2
L Allan Msc Part 2
H Philp Msc Part 2
T Diniz Msc Part 2

Out-turn Days: 21 RV0602

Fishing Gear: GOV Trawl (BT 137) fitted with ground gear C

Objectives

1. Demersal trawling survey of the grounds off the north and west coasts of Scotland and Irish Sea.

2. To obtain temperature and salinity data from the surface and seabed at each trawling station.

3. Trial and evaluate the NOAA Bottom Contact Sensor.

4. Collect additional biological data in connection with the EU Data Directive 1639/2001.

5. Collection of various ad hoc preserved tissue samples, live and frozen fish.

6. Digital photographic images of maturity stages of the key commercial species.

7. Identify, quantify and record all Benthic species caught.

Narrative

Scotia sailed from Aberdeen at 0900 on Saturday 11 March, and proceeded to make passage to the first trawling station at position 58.42°N 04.26°W. Fishing commenced at 0930 on 12 March in strong to gale force southerly winds, with 3 hauls completed for the day, *Scotia* proceeded overnight into the Minch. With a settled weather outlook *Scotia* completed the Minch stations and then worked west and south, trawling continued for the next 8 days with 39 hauls being completed prior to the mid trip break. *Scotia* docked in

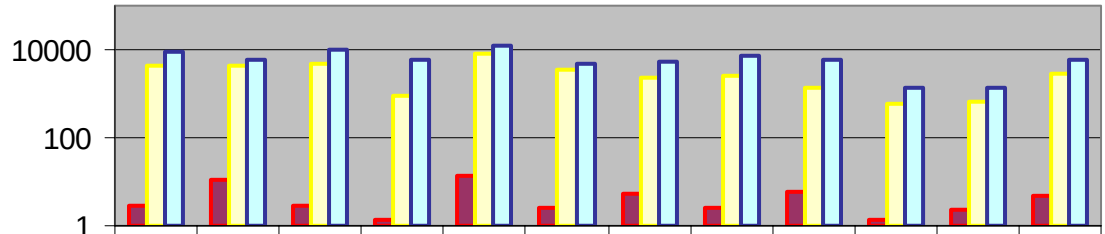
Dublin at 0730 on 21 March for the half landing and to facilitate personnel changes. On sailing from Dublin at 1030 on 22 March, *Scotia* completed the remaining Irish Sea stations and made passage to the Clyde. Trawling continued in the Clyde, Tiree, Skerryvore, Stanton Banks, Summer Isles, Butt of Lewis and West Orkney regions until 1330 on 30 March. With the survey completed *Scotia* made way for Aberdeen and docked at 0700 on the morning of 31 March.

Results

1. All standard survey stations were completed, with 6 additional stations spread throughout the survey area totalling 77 hauls, of which 9 were foul due to trawl damage. Fishing commenced at 0630 each day with all hauls being completed during the daylight period. The herring, mackerel and sprat otoliths collected were aged at sea, demersal otoliths were mounted at sea and returned to the laboratory for age determination. All haul summary data, length frequency, benthic and pelagic age data were punched at sea and stored on computer disk.

   The indices for age-1 cod, haddock and whiting for ICES Area 6A and for the Irish Sea are shown in Figures 1 and 2 respectively.

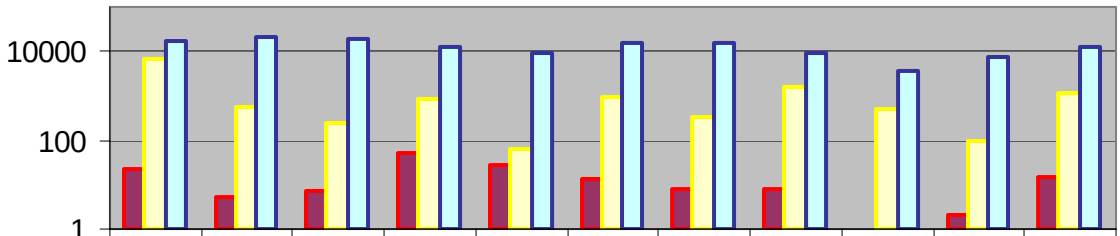
Fig.1 ICES Area 6A Numbers caught per 10 hours fishing Age 1



	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	10yr ave
Cod	2.8	11.1	2.8	1.4	13	2.7	5.3	2.7	5.7	1.3	2.2	4.8
Haddock	4401	4262	5034	941	7936	3421	2339	2650	1397	573	633	2919
Whiting	9384	5663	9851	6125	12862	4653	5542	6934	5888	1308	1441	6027

Cod numbers are up on last year but still well below the 10 year average, with 16 fish being caught in 55 trawls of 30 minutes. Haddock and whiting returned slightly higher values than in 2005, both species are still well short of the 10year average.

Fig.2 Irish Sea Numbers caught per 10 hours fishing Age 1



	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	10yr ave
Cod	22	5	7	51	28	13	8	8	1	2	14.4
Haddock	6581	564	246	819	62	944	318	1591	514	97	1174
Whiting	16322	22145	19815	13019	9419	15605	14798	9199	3783	7137	13124

A total of 10 mature and 1 immature cod were caught in the 13 Irish Sea hauls, the cod index whilst double the 2005 value, still remains well below the 10 year average. Haddock catches showed a dramatic decrease on last year, the second lowest value in the time series. Whiting catches have almost doubled since 2005 but still remain well below the 10 year average. The increase in the whiting index is heavily influenced by 2 hauls to the east of the Isle of Man (37E6 & 37E5).

Mackerel was once again the most abundant species, with large catches being made all along the western edge of the survey area. A total of 41 tonnes of mackerel was caught in 50 hauls the overwhelming majority of which (90%) were 1 year old fish. The 9 foul hauls were a symptom of these large catches of pelagic fish bursting through the small mesh internal cod end liner. For future west coast surveys a more robust liner will be fitted, and a scanmar catch sensor deployed to give an early indication of catch size.

2. The Thermosalinograph was run continuously throughout the survey, a CTD was deployed at every trawling station with surface and seabed water samples collected. Individual CTD casts for each trawling station were stored electronically, all data was processed at sea.

3. The NOAA Bottom Contact Sensor was deployed at every trawling station. The Sensor is a single-axis inclinometer, which records the angle between itself and the seabed as it is towed along. The sensor is attached to a 200mm steel bar positioned in the centre of the bosum bobbin section, whilst on the deck the sensor gives a reading of 35°. The recording increment of the sensor was set at 1-second intervals, 74 valid data sets were collected.

4. Additional biological information on length, total weight, gutted weight, sex and maturity collected in connection with the EU Data Directive 1639/2001 extended programme see table 1.

Table 1

Species	Number Collected	Species	Numbers Collected
Cod	27	Horse Mackerel	177
Haddock	1048	Ling	11
Whiting	782	Witch	17
Saithe	30	Tope	1
Norway Pout	226	Black Angler	10
Megrim	75	Cuckoo Ray	44
Angler	37	Thornback Ray	40
Hake	363	Skate	68

5. Summary of samples live, frozen and preserved

5.1 Cod Haddock Whiting: 350 pairs of otoliths FRS
5.2 Squid: 10 per species per haul FRS
5.3 Red Mullet: 3 fin clips for genetic analysis FRS
5.4 Mixed Species : 4 x 10 kg boxes for Macduff aquarium fish food
5.5 Dogfish, Grey Gurnard: 200 specimens frozen Aberdeen University
5.6 Mixed Species 1 x 15 kg box seal diet analysis St Andrews University

6. Recommendation from PGCCDBS to standardise maturity stages in the key commercial species encountered on RV surveys, approximately 120 digital images taken for cod, haddock, whiting, pout and herring.

7. All benthic species caught were identified and quantified, several species were frozen and returned to Aberdeen for formal identification.

Kevin Peach
21 April 2006

Seen in draft: Captain Angus Macleod, OIC *Scotia*

2006 Trawl Positions