

Not to be cited without reference to the Marine Laboratory, Aberdeen

FRV *Scotia*

Cruise 0911S

REPORT

29 July – 19 August 2011

Half-landing: Aberdeen, 8 August

Personnel

F Burns (In charge)
L Ritchie
D Bova
M Robertson
J Hunter
M Gault (Part 1)
L Morley (Part 1)
E Barreto (Part 1)
O Goudie (Part 2)
P Copland (Part 2)
L Cunningham (Part 2) (MS Policy division)
M Maher (Visitor - JNCC Seabird & Cetacean observer)
R Schofield (Visitor - JNCC Seabird & Cetacean observer)
G Johnson (Visitor – JNCC)

Out-turn days: 21 days RV1112

Fishing Gear: GOV Trawl (BT 137) fitted with groundgears A + B.

Objectives

1. To complete an internationally coordinated demersal trawling survey in the North Sea in ICES area IV.
2. To obtain temperature and salinity data from the surface and seabed at each trawling station.
3. Collect additional biological data in connection with the EU Data Collection Framework (DCF).
4. Opportunistic Benthic sampling in UK waters in collaboration with JNCC utilising both the drop frame for observational work and the Day Grab for sediment verification. Random stratified demersal trawling survey of the grounds off the north and west coast of Scotland. ICES subarea VIa.

Narrative

Scotia sailed from Aberdeen at 0930hrs on the 29th July. The first haul that also doubled as a familiarisation haul was completed successfully on a clear tow 6 nm east of Girdleness with the fishing gear and scanmar and bottom contact sensors performing well. *Scotia* then headed east and then north completing an additional 2 stations before handing over the vessel to complete operational trials of the benthic sampling equipment in rectangle 44E9 which were also successful.

On the morning off the 30th August 5 stations were completed in relatively calm conditions, commencing at 0500 at 44E9 and finishing in the Norwegian sector at 44F2. Over the next 3 days *Scotia* progressed north again with settled weather completing all the stations located in the northeast of the survey area until on the evening of the 2nd August *Scotia* arrived off the east side of Shetland in rectangle 49E9. Back in UK waters once more, *Scotia* was able to undertake limited benthic work in this square enroute to the next fishing station at 51E9. During the next 5 days *Scotia* proceeded to complete the remaining stations in the survey area north of 57°30N, first the stations west of Shetland and Orkney and then the Moray Firth before finally heading back into Aberdeen on the morning of the 8th August for the mid cruise break. Opportunistic benthic sampling was conducted during 4 of the last 5 nights prior to the half landing.

Scotia sailed at 10am on the 9th August and headed south completing 2 stations at 42E7 and 42E8. Once again calm weather allowed good progress to be made, with first the easterly stations right up to the Danish coast being completed followed by the stations located in and around the Dogger bank and then those off the Yorkshire and Northumbrian coast. Benthic work was undertaken on two nights at locations in and around the Dogger Bank. A request to collect additional biological samples from within the area affected by the Gannet pipeline oil spill was received on the 16th August requiring *Scotia* to respond upon completion of the fishing survey. Subsequent to the last 3 fishing stations and 2 benthic camera deployments being completed in and around the Firth of Forth *Scotia* headed north towards the Gannet oilfield and the contamination area surrounding the spill site. Arriving at the Gannet field at 0130 on the morning of the 18th August *Scotia* proceeded with sample collection within the 4 delineated areas surrounding the spill site (see figure 2). Samples of sediment, water and fish were collected, and preserved using strict sampling protocols employed when sampling for hydrocarbon contamination. Analysis of the samples was undertaken back in the laboratory. In total 12 sediment and water samples were collected and 6 trawls were completed in order to collect the necessary quantity of fish of each species required. Operations were completed by 1450 on the 18th August and *Scotia* then made passage to Aberdeen and was alongside by 2100 with unloading of equipment taking place on the morning of the 19th August.

Results

Trawling

The GOV was used throughout the cruise with groundgear 'A' being used on all stations at latitudes south of 57°30N and groundgear 'B' on all stations north of 57°30N. In all 39 stations were completed using groundgear 'A' rig and 45 stations with groundgear 'B'. The Scanmar system was used 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 to monitor ground contact as well as to validate touchdown and liftoff of the groundgear. The data was downloaded for further analysis in the laboratory.

A total of 84 valid hauls were achieved and there were no foul hauls. Fishing was carried out during the daylight period commencing each day at first light. Otoliths from all pelagic species were aged at sea with the demersal species being aged back at the institute. All haul summary data, length frequency and pelagic age data were also punched at sea. (See figure 1 for station positions)

The provisional indices for cod, haddock and whiting for groups 0+ and 1+ are shown in figures 1 and 2 respectively.

Fig.1 ICES Area 4 Q3 SCO IBTS, Numbers caught per 10 hours fishing Age 0+

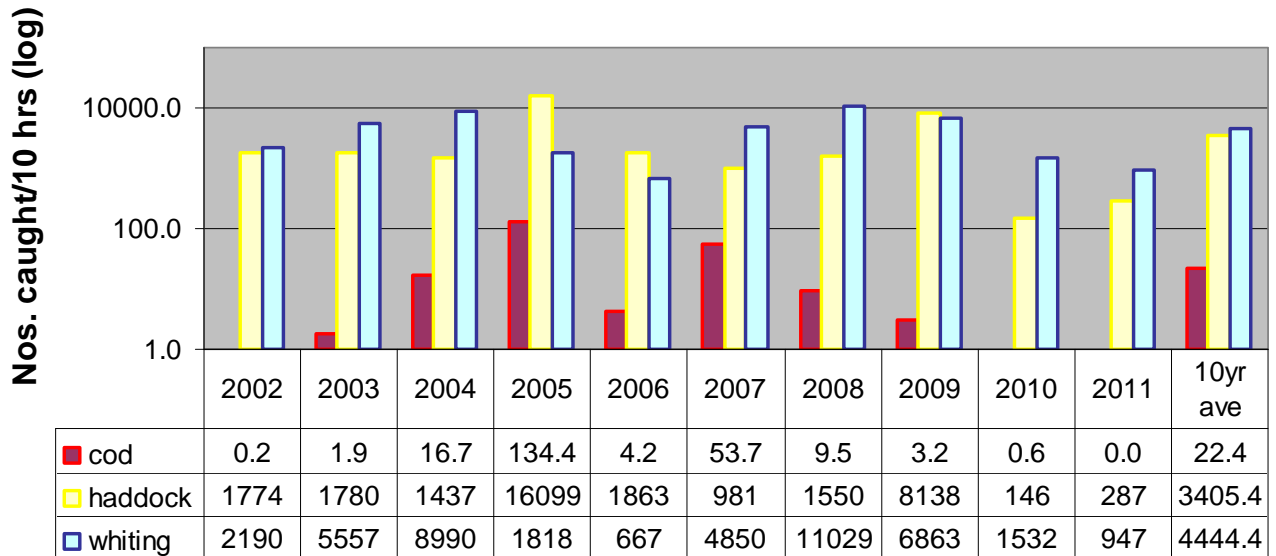
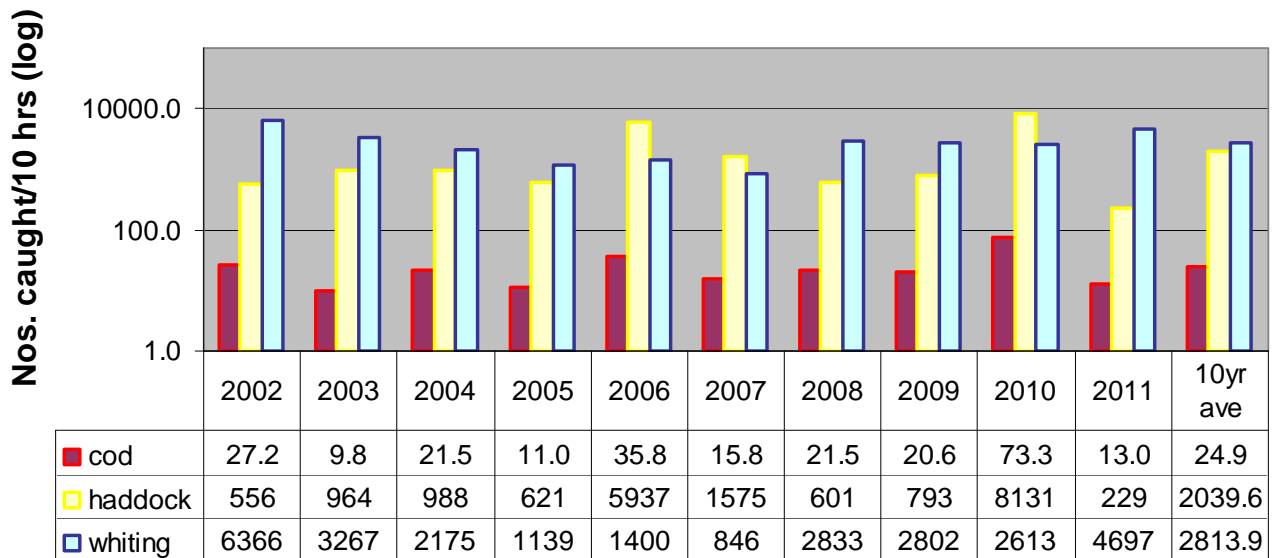


Fig.2 ICES Area 4 Q3 SCO IBTS, Numbers caught per 10 hours fishing Age 1+



0+ haddock displayed a small increase compared with the 2010 estimates however this is still well below the 10 year average. No 0+ cod were encountered during the survey and numbers of 0+ whiting were also significantly down on last years estimate and indeed the 10 year average. For the 1+ group the picture is rather different and while both cod and haddock results were both down on the 2010 results and the 10 year average, the whiting result was the best result that has been seen since 2002 and therefore also significantly above the 10 year average. 83 species with a total catchweight of 44.2 tonnes were recorded during the survey with the most interesting specimen encountered being a greater weever (*Trachinus draco*) which was caught in square 41F6. Catchweights for the major species are as follows, 6.2T(tonnes) haddock, 3.4T whiting, 16.4T herring, 2.4T mackerel, 2.0T sprat, 2.2T Norway Pout, 4.1T cod and 0.8T saithe.

Hydrography

The CTD (*seabird19+*) was deployed at each trawling station in order to obtain a temperature and salinity profile. The thermosalinograph was running throughout the entire survey and provided surface temperature and salinity data.

Biological Sampling

Additional biological data were collected from species in support of EU Data Collection Framework (DCF). Information on length, total weight, gutted weight, sex and maturity was collected for 13 species. A summary of numbers collected by species is displayed below in Table 2.

Table 2.

Number of biological samples (maturity and age material, *maturity only):	
Species	Age
<i>Gadus morhua</i>	532
<i>Melanogrammus aeglefinus</i>	1329
<i>Merlangius merlangius</i>	1288
<i>Pollachius virens</i>	491
<i>Clupea harengus</i>	798
<i>Scomber scombrus</i>	362
<i>Trisopterus esmarkii</i>	309
<i>Sprattus sprattus</i>	307
<i>Dipturus intermedia</i>	3*
<i>Amblyraja radiata</i>	97*
<i>Raja naevus</i>	46*
<i>Raja brachyura</i>	9*
<i>Raja montagui</i>	95*

Benthic Work

Opportunistic benthic work in partnership with JNCC was carried out on 15 nights during the survey with the drop frame being deployed successfully on 37 occasions in areas within the UK EEZ. In addition to the video footage and photographs obtained from the drop frame the Day Grab was also deployed successfully a total of 40 times, with sediment and infauna being collected for analysis back at the laboratory. See figure 1 for drop frame deployment locations.

Finlay Burns 4th October 2011

Figure 1. 0911S survey map. Grey rectangle represents the area of the Gannet oil spill (see figure 2).

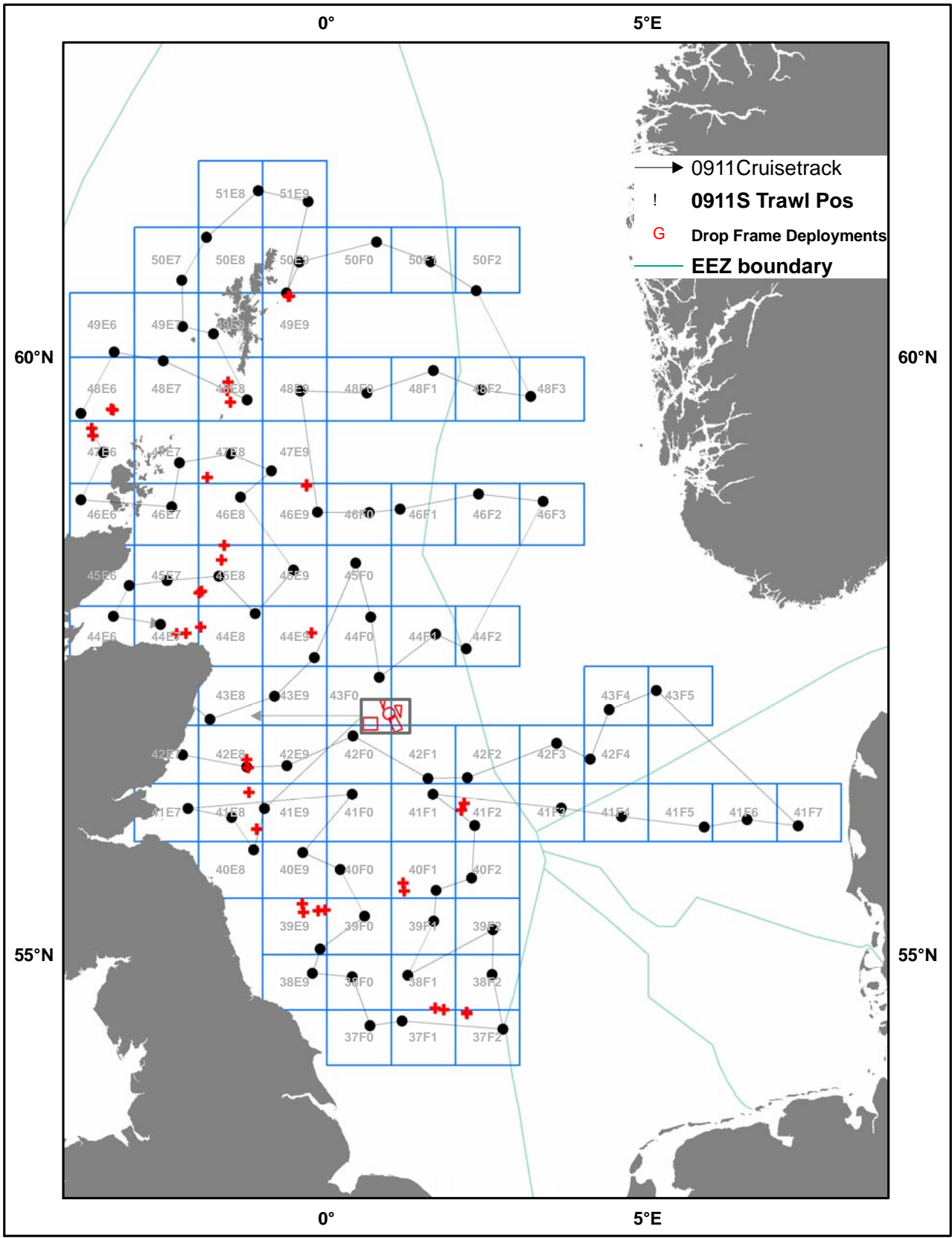


Figure 2. Area of the Gannet oil spill and subsequent sampling zones within.

