

R1/12

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FRV *Scotia*

Cruise 0409S

## **REPORT**

Dates: 9-29 March 2009

**Half-landing:** Ullapool, 20 -21 March

### **Personnel**

F Burns	(SIC)
R Kynoch	
P Copland	
M Gault	
L Ritchie	
C Davis	Part 1
L Allan	Part 1
R Watret	Part 2
P Clark	Part 2
D 'O Sullivan	(Visitor)
D Cronin	(Visitor)
A Batty	(Visitor)

**Out-turn days:** 20 RV0902

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

### **Objectives**

1. Demersal trawling survey of the grounds off the north and west coast of Scotland.
2. Collect abundance data on pre – metamorphosed herring larvae using the 2 meter circular framed methot net.
3. To obtain temperature and salinity data from the surface and seabed at each trawling station.
4. Identify, quantify and record all benthic species caught.
5. Collect additional biological data in connection with the EU Data Directive 1639/2001 and 1581/2004.

### **Narrative**

*Scotia* sailed from Aberdeen at 1030hrs on 9 March. A familiarisation haul was completed successfully on a clear tow east of Peterhead at the Buchan Deeps with the fishing gear and scanmar sensors performing well.

With favourable weather conditions *Scotia* then made passage north and arrived at the first methot station west of Orkney at 3am on 10 March. This was completed successfully but yielded no herring larvae. In addition 2 calibration tows were completed in order to test the efficiency of the flow-meter. Fishing operations commenced on station 5 at 0630 the same day also west of Orkney.

During the next 4 days despite periods of rough weather *Scotia* proceeded west and north successfully completing the fishing and methot stations in the northern most part of the survey area albeit with 2 consecutive foul hauls (stations 35 and 311) where the belly was torn out. Improved weather conditions allowed *Scotia* to successfully complete the fishing stations west of the Hebrides although significant damage was sustained to the gear on two occasions and another haul was declared foul due to the sheer weight of mackerel caught in the net. On this occasion it was estimated that over 20 tons of mackerel were present in the net. Such was the weight of the catch that *Scotia* was unable to pull the bag up the trawl ramp and in the end had to slip the catch. During this survey as with previous years, close scrutiny is applied to the depth sounders in order to monitor the presence of mackerel shoals entering the net although the dispersed nature of the marks coupled with the low target strength of the species made this very challenging indeed. On several occasions the haul duration was reduced due to concerns about mackerel in the net and despite this a catch of several tonnes was not unusual. For the 2010 survey the Marine Laboratory is sourcing a Scanmar Trawleye sensor which provides a display similar to a netsond, thus allowing the vessel to monitor with a greater degree of accuracy mackerel, and in fact any other species entering the net 'en masse'. The favourable weather conditions continued and good progress was made both regarding the fishing but also with the methot sampling with the majority of survey rectangles in this area being sampled twice. On the morning of 19 March *Scotia* completed station 313 located 25nm west of Donegal and from here proceeded north completing another 2 fishing stations before steaming to the Minch in readiness for the half landing in Ullapool on the afternoon of 20 March. *Scotia* successfully completed one methot sample and 4 fishing stations in the Minch before docking in Ullapool at 1600hrs.

Having taken delivery of a new set of trawl doors to trial as well as a live fish tank *Scotia* set sail at 1600 on 21 March and headed south through the Minch completing 4 methot samples enroute to fishing stations in the South Minch. Five fishing stations were completed on 22 March before a poor forecast forced the vessel to head south to the Clyde where shelter could be sought whilst also being able to fish. 65mph winds on the morning of 23 March meant a delayed start to the day although fishing resumed again by late morning on the east side of Arran and then south at the two stations west of Ayr and east of Ailsa Craig. Two methot samples were completed in the Clyde before conditions improved sufficiently for *Scotia* to be able to head back west towards Rathlin Island and the Northern Irish coast.

*Scotia* took advantage of a lee in the weather on 24 March to complete the 4 stations along the Donegal coast, however conditions deteriorated once more and *Scotia* spent the night steaming to shelter west of Tiree. Station 38 located SE of the Tiree was completed early on 25 March and with conditions easing temporarily the decision was made to head south to mop up the 4 stations around the Stanton Banks area. Consequently the last two stations in this area (314 and 29) were carried out as night tows however it was acknowledged that given the forecast as well as the limited time available that there was no other option. These stations were fished successfully and with storm force winds imminent *Scotia* headed north to take shelter initially behind Tiree and then the sound of Mull as the storm swung round to the SW. With the forecast remaining very poor and the storm force winds continuing *Scotia* crept up to Loch Slapin on the south side of Skye on the afternoon of 26 March until the storm abated. With a westerly gale still blowing *Scotia* headed west at 0600 on 27 March towards station 72 located east of Uist. Utilising a temporary lull this station was completed by around midday. With the limited time available coupled with imminent arrival of another force 10 northerly storm it was conceded that the survey would have to cease as any

remaining time would need to be spent getting back to Aberdeen in time for the morning of 29 March. *Scotia* endured another rough night before finally exiting the Minch by mid morning on 28 and was off Aberdeen by 0500hrs on 29 March. A mistake by the harbour meant that *Scotia* did not arrive alongside until after midday on 29 March. All fishing and scientific gear was unloaded on 29 March in readiness for the vessel refit on 31 March.

## Results

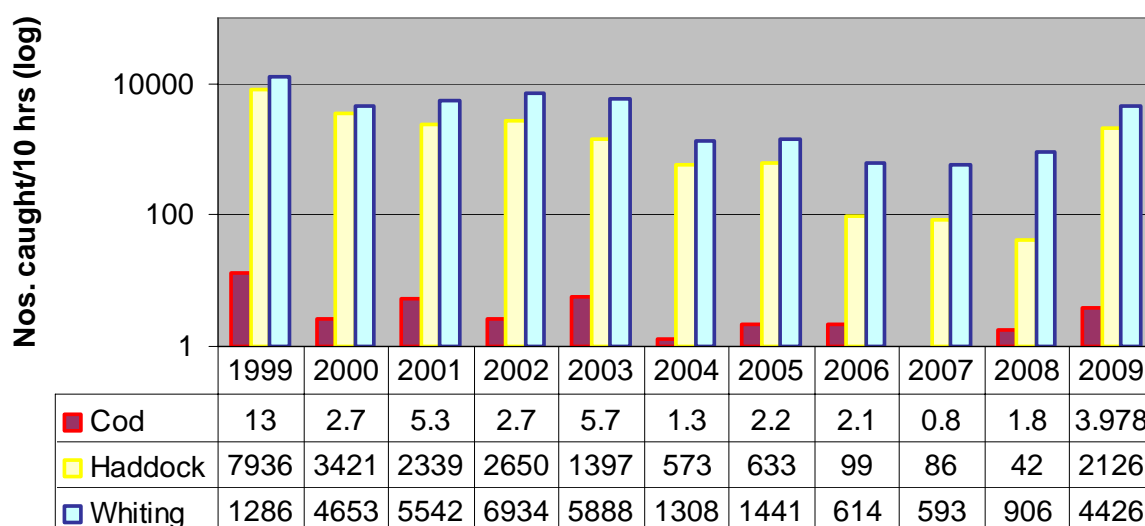
### 1. Trawling

The GOV was used throughout the cruise with groundgear “C” (525mm bobbins in the bosom section). 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 and the data downloaded for further analysis in the laboratory.

Despite atrocious weather, especially in the second half of the cruise *Scotia* still managed to complete the survey. A total of 55 valid hauls were achieved with all but two of the core time series hauls being attempted. There were four foul hauls. Fishing was generally carried out during the daylight period commencing each day at first light. Four of the stations were classified as night hauls. All otoliths collected from both pelagic and demersal species were aged at sea. All haul summary data, length frequency, benthic and pelagic age data were punched at sea and backed up on memory stick. . (See figure 2 for station positions)

The provisional 1-group indices using a length rather than age based delimiter for cod, haddock and whiting are shown in figures 1.

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



The index continues to display the downward trend of recent surveys for haddock producing the second lowest value since 1981. Cod and whiting both show a slight increase on the 2008 values however all three species are still well below the 10 year average. Even more than in 2008, pelagic species dominated the catch with 68 tonnes of mackerel (including the 20 tonnes of slipped fish from station 21) and 16 tonnes of herring being caught during the survey. This is a significant increase on 2008 where the total catch weight for the survey was 25 tonnes and 4 tonnes respectively. See figures 3 and 4 for haul catch weights for both mackerel and herring.

## **2. Methot Net Sampling**

Weather disrupted sampling quite significantly especially during the second half of the survey. However, despite this a total of 58 valid Methot Net hauls were carried out using the circular frame in order to obtain an estimate of the numbers of pre-metamorphosing herring larvae. Sampling was undertaken out-with daylight hours and after cessation of fishing activities. The survey area in the north was exceptionally well covered with most statistical rectangles being sampled twice; however the southern area and especially the rectangles covering the South Minch and Stanton Banks were poorly sampled. This was due entirely to the exceptionally poor weather experienced during the last week of the survey. In addition four calibration tows were also undertaken to check the performance of the flow-meter. Figure 5 displays the methot sample positions along with the numbers of herring larvae caught/deployment. In keeping with the 2008 results the majority of the herring larvae encountered were in the inshore areas in the south of the survey area notably around the South Minch, Clyde and Rathlin Island.

## **3. Hydrography**

The thermosalinograph was run continuously throughout the survey. This automatically records sea surface temperature and salinity throughout the cruise. In addition to this 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.

## **4. Benthic Organisms**

All benthic organisms encountered during the trawl survey were recorded and quantified. Where possible identification was to species level although often this was not possible and identification was only possible to the genus/family. All problem specimens were retained for further investigation back at the Marine Laboratory.

## **5. Biological Sampling**

Additional biological data were collected from species listed in the 2008 report of the IBTS in support of EU Data Collection Regulation (EC) No 1639/2001 and No 1581/2004. Information on length, total weight, gutted weight, sex and maturity was collected for 16 species. A summary of numbers collected by species is displayed below in Table 1.

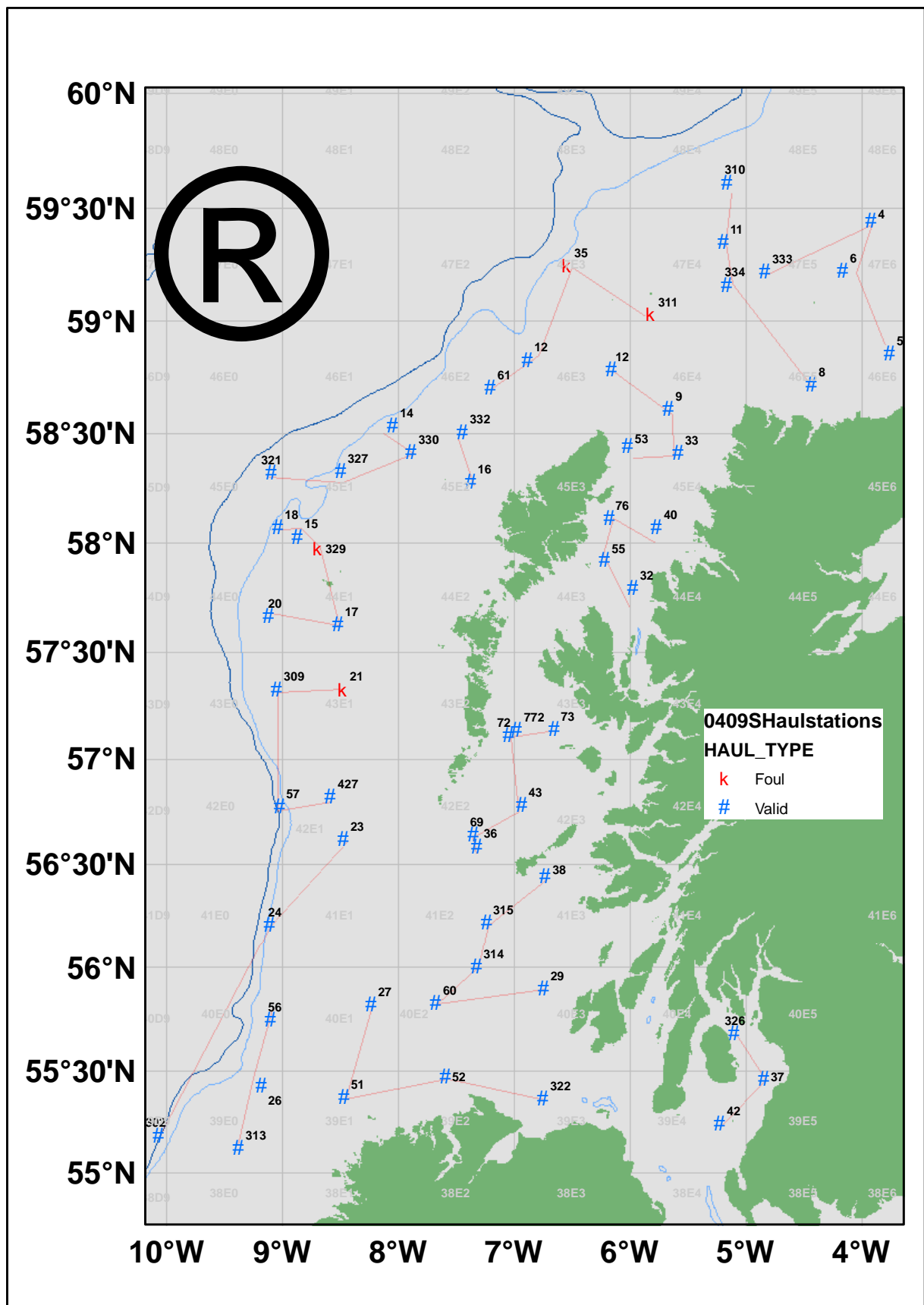
**TABLE 1**

<b>Species</b>	<b>Nos. collected</b>	<b>Species</b>	<b>Nos. collected</b>
Cod	<b>20</b>	Skate	<b>22</b>
Haddock	<b>831</b>	Brill	<b>1</b>
Whiting	<b>536</b>	Cuckoo Ray	<b>34</b>
Saithe	<b>10</b>	Thornback Ray	<b>27</b>
Hake	<b>517</b>	Ling	<b>3</b>
Megrim	<b>105</b>	Spotted Ray	<b>118</b>
Angler	<b>10</b>	Smoothhound	<b>3</b>
Black Bellied Angler	<b>3</b>	Starry Smoothhound	<b>3</b>

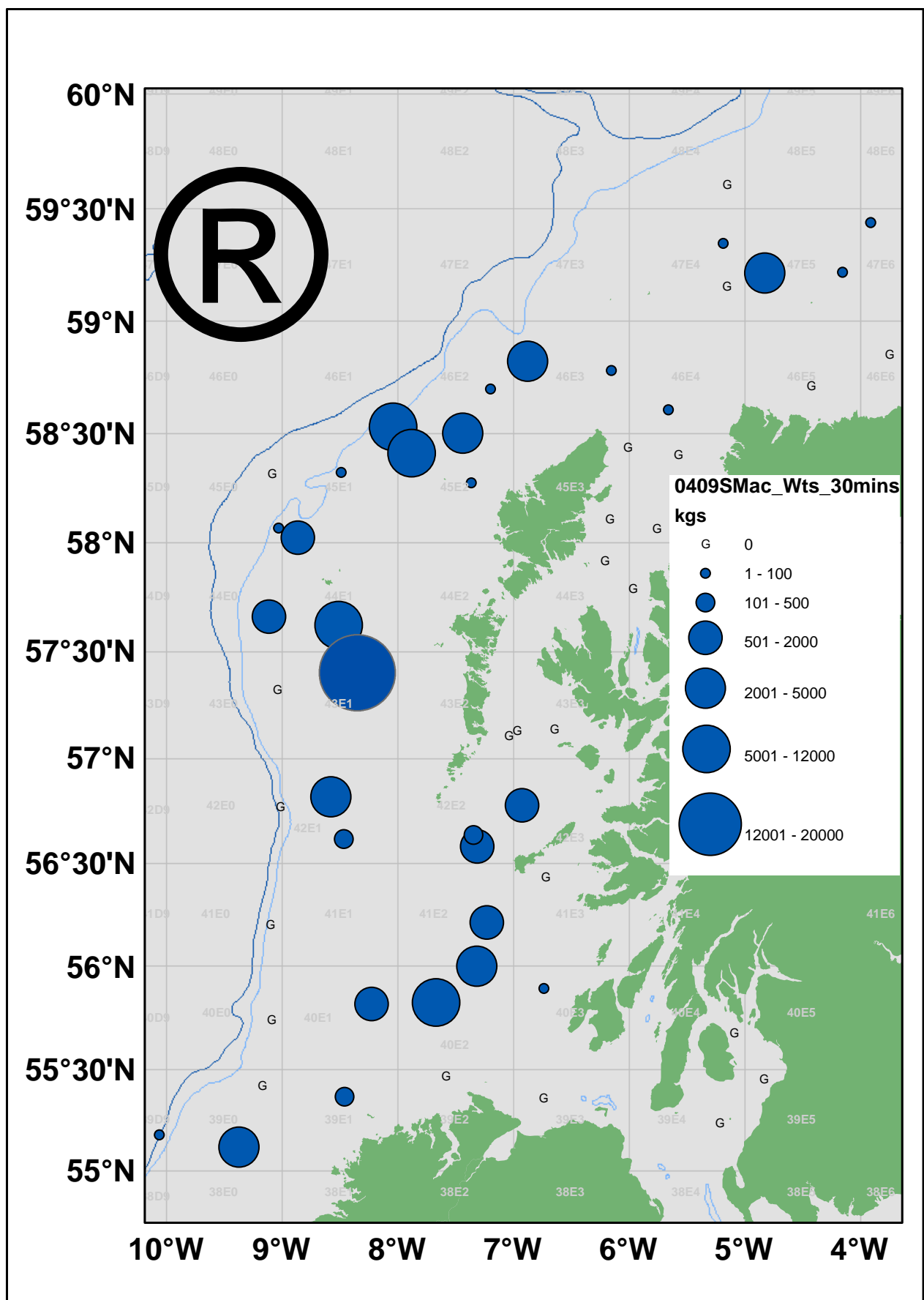
Submitted:  
I Gibb  
9 June 2009

Approved:  
F Burns  
4 June 2009

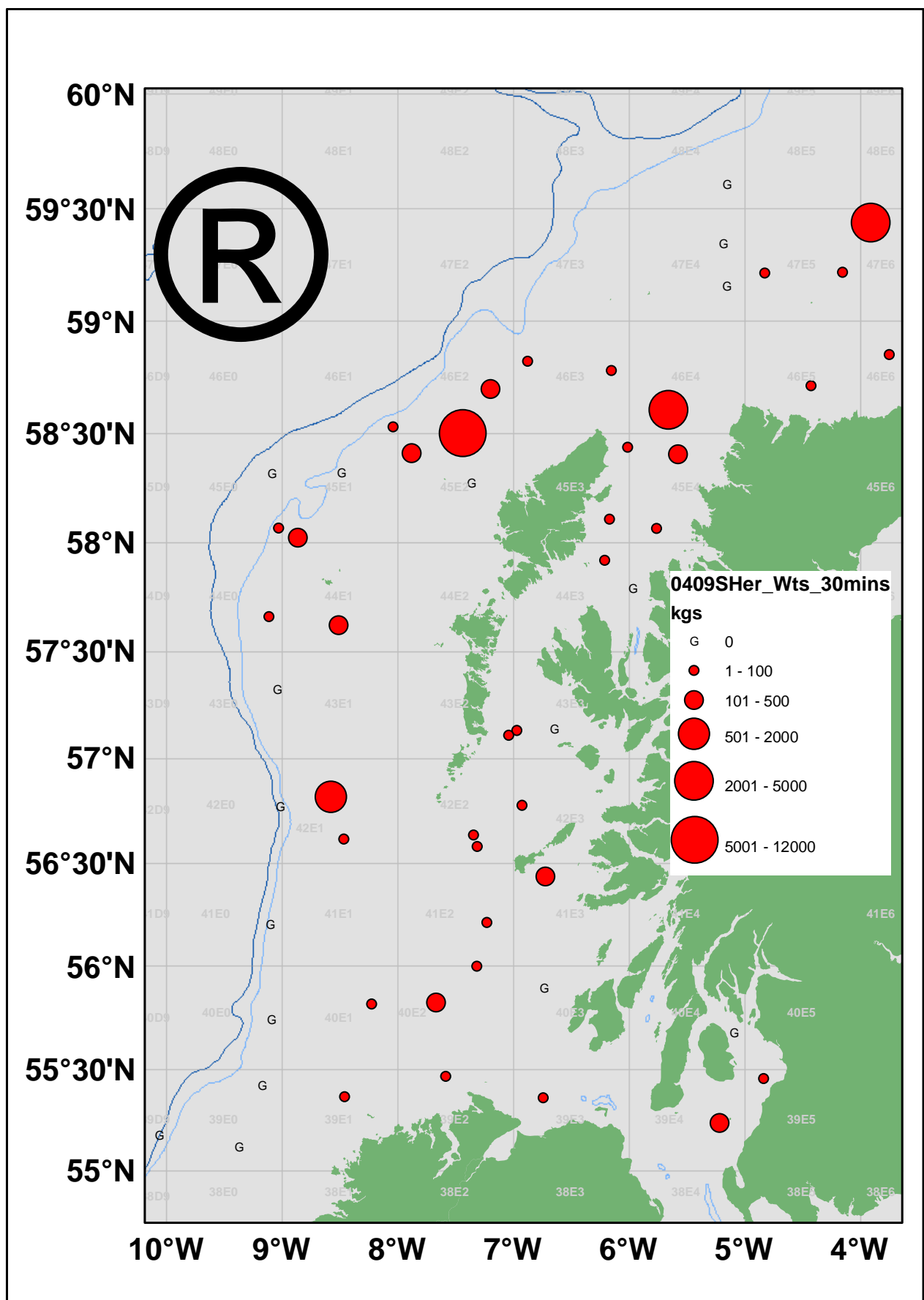
**Figure 2:** 0409S Trawl Station Positions.



**Figure 3: 0409S - Weight of mackerel caught. (Kgs/30mins)**



**Figure 4:** 0409S - Weight of herring caught. (Kgs/30mins)



**Figure 5:** 0409S Methot positions and numbers of herring larvae in sample.

