# R1/3

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MFV Norlantean

Cruise 0909H

# REPORT

29 April – 9 May 2009

## Ports

Loading: Ullapool, 28 April Unloading: Ullapool, 9 May

### Personnel

F Burns SIC K Summerbell M Gault

## Out -turn Days per Project: 10 days to MF01TA

Fishing Gear: Anglerfish Trawl BT 195

#### Objectives

- 1. To undertake a nationally co-ordinated demersal trawling survey of anglerfish on the western continental shelf/slope using the BT195 monktrawl.
- 2. To obtain a temperature profile at each trawling station.
- 3. To obtain biological data for both megrim (*L. whiffiagonis*) and four spot megrim (*L. boscii*). In addition all cod were measured and Norway lobster (*N. norvegicus*) numbers and weights were also recorded on selected hauls.

### Narrative

*Norlantean* starting mobilising for the charter during the mid afternoon of 28 April. This commenced with the spooling on of the extra trawl wire onto the drums which was needed for the deepwater stations. An extra four hundred fathoms was added to each drum, bringing the total wire up to eleven hundred fathoms on each side. The survey net (BT195) and associated gear arrived later that afternoon and the vessel was fully rigged by mid evening in readiness for the following day. Scientific equipment was similarly loaded onboard and systems were once again set up by early evening. *Norlantean* departed Ullapool at 1100 on 29 April and proceeded across the Minch accompanied by light easterly winds to the first station 15nm W of the Butt of Lewis. *Norlantean* arrived at around 1800 and proceeded to shoot the gear at a depth of around 90m. The tow was successful and although no anglerfish were found, the net, all scanmar sensors and the bottom contact sensor performed well throughout the tow. *Norlantean* continued on with the survey plan, completing the shallow stations west of the Hebrides, all the time heading south. The wind freshened during 1 and 2 May peaking at around force 7 for a time before moderating later

on during 2 May. This slowed progress but we were able to maintain a reasonable pace and by midday on 2 May Norlantean reached the south eastern boundary of the survey area at 56'N having already completed 12 stations. With the wind easing Norlantean headed west along the southern boundary towards the shelf edge and deeper water. The vessel continued to perform well as the survey progressed north up along the shelf edge and shelf slope with moderate to strong westerly winds again present though not impeding progress significantly. A storm which arrived late on during 6 May curtailed fishing operations for approximately 18 hours where storm force 10 was recorded for a time, however by mid afternoon on 8 May conditions had improved sufficiently to allow fishing to continue and that evening stations 34 and 35, 50nm NW of the Butt of Lewis were completed successfully. During this time the MFV Caspian in the Northern area had intimated that she was unlikely to complete the two stations(N8 & N9) in the deep stratum SW of the Wyville Thomson Ridge due in part to the weather and the limited time remaining. Given our present position and relative proximity to these stations the decision was taken to steam north overnight to complete these two stations while in return Caspian would complete Norlanteans last three stations NW of the Butt of Lewis (W36 - W38). Norlantean arrived ready to shoot at station N8 at breakfast time on 8 May with only light easterly winds. Both stations were completed successfully without incident and at 1400 on 8 May Norlantean finally headed for Ullapool having hauled up a good lift of blue ling and black scabbards. (See figure 1 for map of cruise track as well as actual stations fished) Norlantean steamed into Loch Broom in the early hours of Saturday 9 May and was alongside by 0900. All the fishing gear, extra wire and the scientific equipment were unloaded off the vessel by late morning on 9 May with the fishing gear being collected by Jacksons at midday.

### Results

Of the 38 core stations allocated to the western area, 35 were fished successfully albeit station 7 came fast 20 minutes into the haul and so was recorded as a short tow. Stations 36 – 38 were completed by *Caspian* in exchange for *Norlantean* completing stations N8 and N9 in the Northern area. This brought the total number of stations sampled for the survey to 37. All the stations were completed well within 5nm of the sample position. In contrast to the previous year the winds were much stronger overall and although the vessel achieved the objectives of the survey, there was no possibility of completing additional hauls which had been achieved in 2008.

A total of 192 anglerfish were caught from the 37 valid hauls undertaken in depths ranging from 50m to 990m (See Figures 2 and 3 for plots of anglerfish catch rates). Each was sampled for length, sex, maturity stage as well as whole and gutted weight. In addition the illicia and sagittal otolith were retained for ageing. Of these, 175 were Lophius piscatorius and 17 were Lophius budegassa (see figure 4 for proportionality of catch by species for each haul). The total live weight of anglerfish caught during the survey was 406kg. Length frequency data as well as live weight and gutted weight was also collected for all megrim and four spot megrim encountered during the survey. In addition to this 218 of these were also sampled for sex, maturity and also had their sagittal otoliths removed for ageing back in the lab. In total 603 megrim were recorded for a total weight of 184.4kg with a total of 18 four spot megrim measured for a total weight of 2.2kg. (See Figures 5 and 6 for plots of megrim catch rates). Length frequency data were also collected for all 69 cod recorded and carapace length measurements were recorded for all 35 Nephrops norvegicus encountered during the survey (See figures 7 and 8 respectively). Morphometric measurements were also collected from 9 large Nephrops norvegicus found at some of the deeper stations typically between 300 - 500m depth. All marketable fish caught during the survey were processed and consigned to Peterhead fish market for sale on Monday 11 May. In total around 105 boxes of mixed fish were landed with blue ling, haddock, ling, angler and hake being the most abundant species. Proceeds from the sale of the catch will be used by Marine Scotland to offset the charter cost.

Where possible in accordance with the survey protocols all tows undertaken were of approximately one hour duration, however as previously mentioned station 7 came fast and were hauled early due to concerns over the safety of the fishing gear. Throughout the survey there was only minimal damage to the fishing gear, mostly wear and tear that occurred as a result of the floats bursting through the wings while winding onto the drum. In addition to this there was damage to the wing sections during hauls 9 and 24 although the tears were small and not perceived as significantly affecting the efficiency of the net. As in previous years the survey design was depth stratified with sample positions distributed randomly within each stratum. The depth strata are unchanged from the previous 3 years i.e. 0 - 200m, 200 - 500m and 500 - 1000m. *Norlantean* successfully completed 28 hauls in the 0 - 200m stratum, 3 hauls in the 200 - 500m stratum and 6 hauls in the 500 - 1000m stratum.

Scanmar sensors were placed on the net (wings and headline) as well as on the doors to monitor net geometry and performance. The readings for each sensor as well as navigational information from the GPS were collected at 10 second intervals and saved to a haul file on a laptop PC via hyperterminal. In addition to this a bottom contact sensor was deployed on the groundgear to monitor ground contact. Unfortunately the potentiometer froze midway through the fifth haul and so was not used for the remainder of the survey. A data storage tag (DST) was also attached to the headline and left for the duration of the trip to provide a temperature profile at depth for every haul. The scanmar sensors performed very well throughout the trip and even on the deep stations provided almost a complete record of all the gear parameters.

## Conclusions

Despite the challenging weather conditions the survey proceeded well right up until the very end with all core stations being sampled successfully. As with 2008 the largest catches of anglerfish were encountered in the two deeper strata on the continental slope (200 – 1000m) with fewer smaller anglers being observed in the shallower waters of the continental shelf (0 - 200m). The overall numbers of anglerfish observed in the western area were much lower in 2009 compared to previous years. There were 192 anglerfish recorded for 37 hauls in 2009 compared to 483 fish in 2008 for 45 hauls. This translates into an average of 5 fish /11kg per station in 2009. This is significantly less than the 2008 average which was 11fish/ 23kg per station. The size distribution followed the same pattern as 2008 with the larger anglers being found deeper whilst the smaller specimens were found in the shallower tows. Mearim numbers were very similar to previous years and with the exception of the very deep stations megrim were found throughout the survey area albeit the largest catches were encountered on or around the shelf break (200m). Four spot megrim were restricted almost exclusively to the 200 - 500m stratum. There were 639 megrim recoded in 2009 for 37 tows, compared with 741 in 2008 for 45 tows. This equates to an almost identical catch average for both years of 16 fish/ 4.9kg per station in 2008 and 17 fish / 5kg per station.

These figures provide only a crude preliminary insight as to the relative abundance of each species and only once all the data has been collated and density calculations performed for all areas sampled will the definitive abundance estimate be available.

A big thank you must go to the skipper Angus Cumming as well as to the whole crew of the Norlantean, whose help, advice and patience were invaluable in ensuring the success of the survey.

*F Burns* 27 May 2009



**Figure1:** Norlantean 0909H - cruise track and trawl positions. The shapefile highlighting the different depth strata is also shown (0 - 200m, 200 - 500m and 500 - 1000m).



Figure 2: Haul catch rates / hr for anglerfish - Norlantean 0909H.



Figure 3: Angler live weight / hr - Norlantean 0909H.



Figure 4: Anglerfish catches / species type - Norlantean 0909H







Figure 6: Haul catch rates / hr - four spot megrim - Norlantean 0909H



Figure 7: Haul catch rates / hr – cod – Norlantean 0909H



Figure 8: Haul catch rates / hr - Norway lobster - Norlantean 0909H