Not to be cited without prior reference to Marine Scotland, Marine Laboratory, Aberdeen.

MRV *Alba na Mara*

Survey 0114A

PROGRAMME

6-23 January 2014

Ports

Loading: Fraserburgh, 18 December 2013
Sailing: Fraserburgh, 6 January 2014
Half Landing: TBC
Unloading: Fraserburgh, 23 January 2014

In setting the cruise programme and specific objectives, etc the Scientist-in-Charge needs to be aware of the restrictions on working hours and the need to build in adequate rest days and rest breaks as set out in Marine Scotland's Working Time Policy (Lab Notice 34/03).
In addition, the Scientist-in-Charge must formally review the risk assessments for the cruise with staff on-board before work is commenced.

In the interest of efficient data management it is now mandatory to return the Cruise Report, to I Gibb and the Cruise Summary Report (old ROSCOP form) to M Geldart, within four weeks of a cruise ending. In the case of the Cruise Summary Report a nil return is required, if appropriate.

Personnel

A Weetman	SIC
C Shand	
M Inglis	
N Collie	(Part 1)
J Hunter	(Part 2)

Gear

Large TV drop frame
TV sledge
2 x 600m umbilical towing cable (incl. 1 x armoured cable) and video cameras (plus backup)
Four lasers and bracket for the drop frame
1 x BT201 prawn trawl (plus minimal spares)
Day grab and table
Prawn sorting table

Estimated Days per Project: 18 Days 20159

Objectives

- To obtain estimates of the *Nephrops* habitat distribution in South Minch sea lochs, using sediment grabs and underwater cameras.

- To obtain estimates of the distribution and abundance of *Nephrops* within these lochs using underwater video cameras.

- To compare two different methodologies to establish *Nephrops* burrow abundance (sledge compared to drop frame).

- To use the video footage to record occurrence of other benthic fauna and evidence of commercial trawling activity.

- To collect trawl caught samples of *Nephrops* for comparison of reproductive condition and morphometrics.

Procedure

This survey continues on from the work previously completed in the sea lochs of the North Minch where the extent of the muddy *Nephrops* habitat was mapped in areas where there is little or no BGS data available. The findings from the North Minch survey were presented at WKNEPH 2013, and the outcomes from this South Minch survey will also be presented at an ICES Working Group once the project is completed. This information will assist in determining the influence of the extent of *Nephrops* habitat in the South Minch sea lochs on the *Nephrops* management advice for the overall South Minch (Functional Unit 12).

For each area within the survey (for example a loch, bay or sound), a position outwith the suspected *Nephrops* habitat boundary will be selected as the start point for a search path across the length or breadth of the area. Along this search path the drop frame will be deployed to provide a visual record of the seabed type as the ship drifts over the ground. A Day Grab will be deployed at a suitable point along the track and on recovery the sediment sample will be frozen.

The search path will continue in one direction until the presence or absence of muddy sediment becomes apparent. All significant observations will be recorded on DVD as well as manually. These observations will include the muddy sediment boundary, the point where *Nephrops* burrows begin to appear or disappear and any signs of fishing activity.

The distance between, and the duration of, each of these deployments will vary in each area surveyed depending on the environmental conditions, unforeseen obstructions (creels, fish farms, etc.), the size of the survey area and how quickly the boundary between *Nephrops* and non-*Nephrops* habitat is detected.

Once an area has been satisfactorily surveyed to establish the extent of the muddy habitat, depending on available time and the weather conditions, a selection of stations will also be surveyed for *Nephrops* abundance, whereby the drop frame will be deployed over known *Nephrops* grounds. The vessel will drift over the grounds whilst a 10 minute recording is made of the sea bed, during which time the number of *Nephrops* burrow complexes will be recorded. A sediment grab will be required following each of these operations. The number of TV stations to be completed will be determined by the extent of the muddy grounds and available time. Due to the high probability of creels present in the proposed survey areas the drop frame will be used in preference to the sledge.

Weather permitting, the areas in order of priority to be covered in this survey are Loch Hourn, Loch Nevis, Sound of Arisaig, Loch Sunnart and Sound of Sleat. Further areas will be defined by VMS and SCOTMAP data and discussed prior to sailing.

As well as the objective described above, in a separate exercise, a comparison study between the *Nephrops* burrow complexes observed between the drop frame and sledge will be carried out. The sledge will be deployed five times on known *Nephrops* ground, in parallel tracks 200m long and approximately 50m apart. The drop frame will then be deployed over the same ground a further three times, with video of the sea bed being recorded at all times with both methods.

This approach has previously been trialed however further repetitions are required for more robust analysis of the results. It is hoped that in future this drop frame approach will be able to provide quantitative *Nephrops* burrow abundance data in areas where the sledge cannot be deployed. Details of the experiment location will be discussed with the ship's officers prior to the survey commencing.

Trawling will take place when suitable, with length, sex and morphometric data being collected for DCF and MSS purposes.

General

TV work will take place during daylight hours. There will be a requirement for some trawling to take place in the evening. On days where trawling will take place, work patterns will be arranged so as not to exceed WTD recommendations.

The date and location of the half landing has yet to be confirmed. This will be arranged nearer the time based on how well the survey has progressed geographically, weather and suitable/available ports in the area.

Normal contacts will be maintained with the laboratory.

Submitted:
A. Weetman
05 December 2013

Approved:
I. Gibb
16 December 2013.