

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

MRV *Alba na Mara*

Survey 0115A

PROGRAMME

5 - 21 January 2015

Ports

Loading: Fraserburgh, 22 December 2014

Sailing: Fraserburgh, 5 January 2015

Half Landing: Oban, date TBC

Unloading: Fraserburgh, 21 January 2015

In setting the survey programme and specific objectives, 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 (Notice 34/03). In addition, the Scientist-in-Charge must formally review the risk assessments for the survey with staff on-board before work is commenced.

In the interest of efficient data management it is now mandatory to return the survey report, to I Gibb and the Survey Summary Report (old ROSCOP form) to M Geldart, within four weeks of a survey ending. In the case of the Survey 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

1 x 600m umbilical towing cable

1 x armoured cable

Video cameras and associated equipment (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: 17 Days, 20159

Objectives

- To obtain estimates of the *Nephrops* habitat distribution in South Minch sea lochs and inshore waters, 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.
- To trial towing the TV sledge with the armoured cable in shallow water

Procedure

This survey continues on from the work previously completed in the sea lochs of the South Minch in 2014 (0114A) where the extent of the muddy *Nephrops* habitat was mapped in areas where there is little or no BGS data available. The findings from earlier work in the North Minch were presented at WKNEPH 2013, and the outcomes from these South Minch surveys will be presented at WGNEPS 2015. 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 area (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.

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.

A Day Grab will be deployed at a suitable point along the track and on recovery the sediment sample will be frozen.

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 time available. Due to the high probability of creels present in the proposed survey areas the drop frame will be used in preference to the sledge.

Areas to be surveyed will be defined by VMS, observer and SCOTMAP data but will be south of Loch Sunnart, this being the most southerly point of survey 0114A, and to include Loch Linnhe. More specific details will be discussed with the ship's officers prior to sailing.

As well as the objective described above, in a separate exercise, a comparison study between the *Nephrops* burrow complexes observed with both the drop frame and sledge will be carried out. The sledge will be deployed five times on known *Nephrops* grounds, 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 appropriate, with *Nephrop* 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.

East coast contingency stations will be surveyed if weather conditions do not allow the vessel to transit to the proposed survey area.

Normal contacts will be maintained with the laboratory.

Submitted:

A. Weetman

26 November 2014

Approved:

I. Gibb

27 November 2014