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MRV *Alba na Mara*

Survey 1512A

## **PROGRAMME**

5-19 September 2012

### **Ports**

**Loading:** Fraserburgh, 1 September 2012

**Sailing:** Fraserburgh, 5 September 2012

**Unloading:** Oban, 19 September 2012

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

**Estimated days by project:** 15 days, SU02NS (20159)

### **Gear**

50 mm prawn trawl BT 201.

2 x Day grabs and 1 x sieving table

Towed TV sledge, 600m umbilical towing cable and cameras (plus backup)

TV drop frame (large version)

### **Objectives**

- Conduct comparative surveys to compare *Nephrops* burrow density estimates obtained using the sledge with estimates obtained using the drop frame.
- To obtain estimates of the distribution and abundance of *Nephrops* burrows in the sea lochs of the North Minch functional unit using underwater cameras.
- To obtain information on the extent of *Nephrops* habitat in North Minch sea lochs, using sediment grabs and underwater cameras.

- TV footage to record the occurrence of other benthic fauna and evidence of commercial trawling activity.
- To undertake a swathe survey for lost RDCP in Loch Linnhe

#### **Time permitting (or in the event of unfavourable weather)**

- To collect trawl caught samples of *Nephrops* for comparison of reproductive condition and morphometrics in each of the different survey areas.
- To collect samples of *Nephrops* stomachs for evidence of the presence of the parasite *Stichocotyle nephropis*.

#### **Procedure**

##### **1. Comparative work:**

Following on from work carried out in January 2012 (cruise 0112A) the sledge will be deployed in very close, parallel tracks approximately 200m in length (10 minutes towing time) on known *Nephrops* grounds. Video footage and all observed data will be recorded as usual. Following this, the drop frame will be drifted across the same area at 90° to the sledge tracks. This operation will be repeated on three occasions during the cruise in areas of varying *Nephrops* burrow densities (as estimated from previous surveys) either in the Moray Firth or on the west coast, depending on the weather conditions at the time.

The burrow density estimates obtained using the different set ups will be compared.

##### **2. TV Observations:**

TV *Nephrops* abundance work will be carried out in areas previously surveyed in Loch Inchard, Loch Laxford, Loch Glen Dhu, Loch Glen Coull, Cairn a Bhain, Eddrachillis Bay, Gruinard Bay, Loch Broom, Little Loch Broom, Loch Ewe, Loch Gairloch, Loch Torridon, Loch Shieldaig, Upper Loch Torridon. Weather conditions and the presence of creels will determine whether the drop frame or sledge will be used.

At each station a video camera mounted on the sledge (or drop frame), will be towed (or drifted) across the seabed for approximately 10 minutes at approximately one knot. *Nephrops* burrows abundance, other benthic fauna and signs of anthropogenic activity will be recorded on to DVD. Distance travelled by the sledge, the depth at which the sledge is at and camera height from the seabed will be monitored and recorded using a range finder mounted on the sledge, or from ship's GPS data if using the drop frame.

##### **3. Drop Frame:**

The drop frame will be used where conditions are not suitable for using the TV sledge, recording similar data as to that of the TV sledge. The drop frame will be fitted with lasers set at a fixed distance apart, which provides a clear and constant boundary within which the observers can count the *Nephrops* burrows. The distance between the lasers will be calibrated prior to deployment.

The precise location of stations within the survey areas will be determined on arrival at the sites, and be determined by the presence or absence of creels and other possible obstacles that may be present in the area.

4. ***Nephrops* habitat distribution:**

Continuing the work carried out in 2010 (0110A) and 2011 (0112A), further exploratory TV deployments are required within the survey areas to improve information on the distribution of mud habitat suitable for *Nephrops* at the edges of the lochs and bays to be surveyed. In areas where this is required, the drop frame will be lowered off the stern of the vessel and drifted across the border of putative mud sediment, as defined by BGS. The length of the drop frame deployment will depend on the rate at which changes in bottom habitat are observed, but will be no longer than 30 minutes. The direction of travel will be dictated by the prevailing weather and tidal conditions present at the time. The point at which *Nephrops* burrows are seen to be present or not is logged, as is the position where the boundary is clearly visible between muddy sediment and non-*Nephrops* habitat.

Only areas where access was not previously possible (due to fish farms, creels, etc) will be re-visited. The precise location of these sites cannot be provided prior to the cruise due to the nature of the work and the possible obstacles that may still be present in the area. This work has a lower priority than Objectives 1 and 2, and will only be undertaken on a time permitting basis.

5. **Trawling (if time permits):**

Fishing trawls of approximately 60 minutes duration will be made at sites previously towed within the North Minch. A range of biological data will be collected on *Nephrops* and other shellfish contained in the catch. Up to 1000 *Nephrops* stomachs will be collected and preserved in ethanol and returned to Marine Scotland Science for analysis after the survey. All COSHH paperwork will be available prior to sailing.

Trawling will only be carried out if the location is correct and the conditions are such that TV work cannot be undertaken yet it is safe to trawl.

This work has a lower priority than Objectives 1 and 2, and will only be undertaken on a time permitting basis.

6. **Swathe:**

On the last day of the survey the vessel will complete Swathe transects over a designated area in Loch Linnhe to locate an RDCP which has been trawled off its moored position. Once located, a dive team will be used to subsequently recover the unit.

**General**

TV work will normally take place during daylight hours.

If any trawling takes place during this survey, it will be carried out in the evening. On days when this occurs, work patterns will be arranged so not to exceed WTD recommendations.

It is proposed that the comparative TV work will commence in the Moray Firth, followed by abundance and seabed mapping on the west coast. It is planned to carry out the swathe work on the last working day prior to arrival in Oban for unloading.

Normal contacts will be maintained with the laboratory.

Submitted:  
A Weetman  
29 August 2012

Approved:  
I Gibb  
31 August 2012