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

MRV *Alba na Mara*

Survey 0119A

PROGRAMME

05 - 21 January 2019

Ports

Loading: Fraserburgh, 19 December 2018
Sailing: Fraserburgh, 5 January 2019
Half Landing: Ullapool 13 January 2019
Unloading: Fraserburgh, 21 January 2019

In setting the survey 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 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 cruise ending. In the case of the Survey Summary Report a nil return is required, if appropriate.

Gear

Large TV drop frame
TV sledge
Static camera frame
1 x 600m umbilical towing cable
1 x armoured cable
Video cameras and associated equipment (plus backup)
Stand-alone stills camera, recorder and power supply (for static camera frame)
Four lasers and 60cm bracket for the drop frame
Adjustable laser bracket
1 x BT201 prawn trawl (plus minimal spares)
Day grab, sieves and table
Prawn sorting table
Go Pro deep water housing

Estimated Days per Project: 17 Days, Project: 20159
Objectives

- To calibrate the acoustic seabed imaging system RoxAnn.
- To obtain video footage from *Nephrops* grounds using adjustable lasers mounted on the TV sledge in able to estimate *Nephrops* burrow entrance size.
- To compare two different methodologies to establish *Nephrops* burrow abundance (using the sledge and drop frame UWTV systems).
- To monitor burrow reconstruction following trawl activity.

- To trial the high definition camera.
- To observe burrowing fauna on *Nephrops* grounds using the static camera 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 record and collect any trawl caught marine litter.

Procedure

Weather permitting, and after all relevant vessel drills, the first day of the survey will be involved in calibrating the RoxAnn acoustic seabed mapping system. The vessel will steam north from Fraserburgh over various benthic substrates whilst the system is being monitored. At specific points along the route sediment samples will be collected using the Day grab. An acoustics engineer will be onboard to carry out the calibration work, and the vessel will return to Fraserburgh the same day to allow them to disembark.

Survey activity will be very dependent on the weather, and it may be required to alter the work plans during the survey.

After successfully completing the RoxAnn calibration the vessel will steam to Loch Torridon, where a static camera frame, (equipped with a time lapse camera, flash and power supply) will be lowered onto the seabed on *Nephrops* grounds. Depending on the weather and progress with the work schedule, this frame will remain in place until the day before the half landing, when the frame and camera will be recovered, the data downloaded and then returned to the seabed until the work on the west coast has been completed near the end of the survey.

Comparative trials between the drop frame and sledge UWTV system will be carried out during the remainder of the first half of the survey. This work will be undertaken at several sites in the Sound of Raasay and the Inner Sound (as time and weather permits) by deploying the sledge 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 and at 90^0 to the direction that the sledge travelled, with video of the sea bed being recorded at all times with both methods. This work will be a continuation of work completed on previous surveys. Precise details of the locations where the trials are to be carried out will be discussed with the ship's officers prior to and throughout the survey.

During the comparative trials, a high definition camera will be attached to the TV sledge to record footage in parallel to the standard analogue Konesberg camera used in UWTV surveys. A comparison of the two formats will be undertaken and examined for quality control purposes.

Following the recovery and redeployment of the static camera frame the vessel will then head to port for the half landing and change in Engineering staff.

During the second half of the survey, two sites will be surveyed using both the TV sledge and the trawl. Initially the operation will involve carrying out five standard sledge tows on known *Nephrops* grounds, 500m apart in a linear path at both of the trawl sites. Following the sledge work the trawl will deployed over the areas previously surveyed by the sledge. Each of the sites where the sledge was deployed will be revisited on a regular basis (where practicably possible) over the

remaining days of the survey and the sledge redeployed on the original positions. The cod end will remain open during the trawls in an effort to return as many burrowing animals to the grounds as possible.

Throughout the survey, two lasers on an adjustable bracket will be attached to the sledge. The distance between the lasers will be adjusted between deployments and provide a comparative scale to estimate burrow size.

Time and weather permitting, trawling may take place and all *Nephrops* caught during the trawls will be assessed for morphometric, weight, maturity and sex data. All landed litter will be recorded and returned to port.

All sediment samples obtained during the survey will be frozen.

General

No chemicals will be required on board for this survey.

TV work will take place during daylight hours.

Normal contact will be maintained with the laboratory.

Submitted:
A. Weetman
28 November 2018

Approved:
I. Gibb
13 December 2018.