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MRV *Alba na Mara*

Survey 0122A

PROGRAMME

6-22 January 2022

Ports

Loading: Fraserburgh, 21 December 2021

Sailing: Fraserburgh, 06 January 2022

Half Landing: NA

Unloading: Fraserburgh, 22 January 2022

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 Summary Report (old ROSCOP form) to M Geldart, within four weeks of a survey ending. In the case of the Summary Report a nil return is required, if appropriate.

Gear

1 x UWTV Sledge

1 x UWTV drop frame (large version)

1 x static time lapse camera frames/landers, plus floats and ropes

1 x stand-alone time lapse stills camera, recorder and power supply (for static camera frame)

1 x 600m umbilical towing cable

1 x armoured cable

Video cameras and associated equipment (plus backup) for sledge and drop frame

1 x Calibration grid

2 x Day grabs and table

Hand deployed mini-drop frame with self-contained camera (Data Group's Go Pro), lighting and power supply

Go Pro (Engineering Group) and lights for mini-drop frame

Multiple lasers and adjustable mounting brackets for the drop frame and sledge

1 x BT201 prawn trawl (plus minimal spares)

2 x Day grabs and table

Prawn sorting table

Estimated Days per Project: 17 Days, 20154

Objectives

1. To observe fauna using the static lander and time lapse camera.
2. To monitor burrow reconstruction following trawl activity.
3. To obtain video footage from *Nephrops* grounds using adjustable lasers mounted on the TV sledge and drop frame to estimate *Nephrops* burrow complex size.

4. To compare two different methodologies to establish *Nephrops* burrow abundance (using the sledge and drop frame UWTV systems).
5. To use the video footage to record occurrence of other benthic fauna and evidence of commercial trawling activity.
6. To obtain video footage from *Nephrops* grounds using a crane deployed, mini drop frame to measure *Nephrops* burrow diameter, and where possible, associated complex size.
7. To collect trawl caught samples of *Nephrops* for comparison of reproductive condition and morphometrics.
8. To record and collect any trawl caught marine litter.

Procedure

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

On leaving port the vessel will head west to Loch Torridon where the lander, fitted with the time lapse camera, will be deployed (Objective 1). Depending on the weather and progress with the work schedule, these frames will remain in place for the duration of the survey.

Following the deployment of the time lapse camera, the next task will be to carry out burrow recovery trials at two sites (Objectives 2, 5). Ideally this work will be carried out in the Sound of Raasay or Inner Sound; however, this will depend on the availability of a sufficiently large enough area, minimal commercial activity, and being free from creels and other potentially high risk objects – a visual inspection of the area will be required before any work is undertaken. Initially the operation will involve carrying out five standard sledge tows on known *Nephrops* grounds, 500 m apart in a linear path at both of the trawl sites. Following the sledge work the trawl will be deployed over the areas previously surveyed by the sledge. Each of the sites where the sledge was deployed will be revisited on a daily basis where practicably possible. The cod end will remain open during the trawls in an effort to return as many live animals (i.e. *Nephrops* and other mega fauna species) to the grounds as possible to maximize the potential for burrows to be re-excavated. This work is an extension to earlier, similar trials.

During the initial, pre-trawling sledge deployments, several lasers will be attached to the sledge to assess the size of *Nephrops* burrow complexes that are observed (Objective 3).

Once the burrow recovery work routine has been established and the trial trawls completed, sledge/drop frame comparison work will be undertaken in the near vicinity (Objectives 4, 5). This continues work carried out on previous surveys, whereby the sledge will be deployed five times on known *Nephrops* grounds, in parallel tracks 200 m long and approximately 50 m apart. The drop frame will then be deployed over the same ground a further three times and at 90° to the direction that the sledge travelled, with video of the sea bed being recorded at all times with both methods. Precise details of the locations where the trials are to be carried out will be discussed nearer the time with the ship's officers and be dependent on weather, commercial activity and habitat suitability.

During this work the lasers will be mounted on the sledge to estimate *Nephrops* burrow complex size. To provide an alternative, HD aspect to this work a Go Pro camera will be attached to the sledge to record footage perpendicular to the sea bed (Objective 3).

Depending on weather conditions, a self-contained camera system mounted inside a small metal, pyramidal mini-drop frame containing a Go Pro camera and two torches will be lowered to the sea bed by the crane. As the vessel drifts across the high density *Nephrops* habitat, the frame will

make contact with the sea bed and obtain video footage of the grounds. This will be carried out for approximately one hour at a time (the length of the battery life) and repeated when possible and appropriate (Objective 6).

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 (Objective 7). All litter in the catch will be recorded and returned to port (Objective 8)

Due to the impact of COVID19 there will be no half landing during the survey.

General

No chemicals will be required on board for this survey.

Normal contact will be maintained with the laboratory.

Submitted:
A Weetman
30 November 2021

Approved:
I Gibb
19 December 2021