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MRV *Alba na Mara*

Survey 1515A

PROGRAMME

3-22 October 2015

Loading: Mallaig, 01 October 2015

Boarding: Mallaig, 03 October, 2015.

Unloading: Mallaig, 22 October, 2015

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

Personnel

P Boulcott SIC

J Clarke

C Greathead

J Hunter

Project: 20 days, SP004

Gear

Pyramid frame + calibration mesh

Large camera drop frame

Large bongos + flow meters + plankton kit

Day grab table

HD TV system + Lights

Armoured cable + spare + axle stands

Stereo TV System

Background

1515A will survey the waters around the Small Isles Marine Protected Area (MPA). It is the primary objective to survey monitoring sites previously surveyed in 2012, 2013 and 2014 that support Scotland's Priority Marine Features (PMFs). 1515A will extend survey activities to possible control areas outside the MPA. Work from these surveys will be used to determine the

effect of MPAs established in Scottish waters. A secondary objective will be to survey additional control sites in the area surrounding the Small Isles that provide suitable substrate for the tall sea pen, *Funiculina quadrangularis*. Data from both work streams will contribute to a potential impact (BACI) study once protective measures within the MPA are introduced. Potential surveys boxes are shown in Figure 1. Plankton tows within the Sound of Canna will also be conducted, targeting the larvae of the fan mussel, *Atrina fragilis* (Figure 2).

Objectives

1. To survey known populations of priority marine feature (PMF) species within and outside the Small Isles MPA.
2. To conduct further assessments of *Funiculina quadrangularis* abundance within the Small Isles MPA and areas outside.
3. To assess the extent and density of *Atrina fragilis* aggregations within the Sound of Canna.
4. To conduct larval tows using the large dual bongo net within the Sound of Canna and nearby waters.
5. To survey areas outside the Sound of Canna that may provide suitable habitat for further *Atrina fragilis* aggregations.
6. If time/weather allows, to conduct exploratory surveys in areas outside the SMI MPA that may provide suitable controls for hard substrate PMF aggregations (i.e. *Leptometra celtica*, *Parazoanthus anguicomis* and *Swiftia pallida*).

Embarkation

Scientists will join the vessel on 3 October. Weather permitting *Alba na Mara* will depart from Mallaig and head for the Small Isles.

Benthic survey

UW TV surveys of the seabed at various sites inside and outside the Small Isles MPA will be carried out during 1515A. The survey will utilise the HD drop camera system (using the large drop frame and, later, the pyramid frame) deployed from the aft of the vessel. Species type, species densities and substrate type (assessed visually) will be classified for each video transect post-survey. RoxAnn sediment data will also be collected at each site.

Larval dispersal

1515A will sample plankton from the water around Canna (Figure 2). This programme of work will target the larvae of the fan mussel, *Atrina fragilis*, and follows on from plankton surveys conducted in June 2012 (survey 1012A), September 2013 (1213A) and September 2014 (1714A). Sampling will be conducted using the large (1 m diameter) dual bongo net. Dual samples will be stored separately in isopropanol and ethanol.

Operations

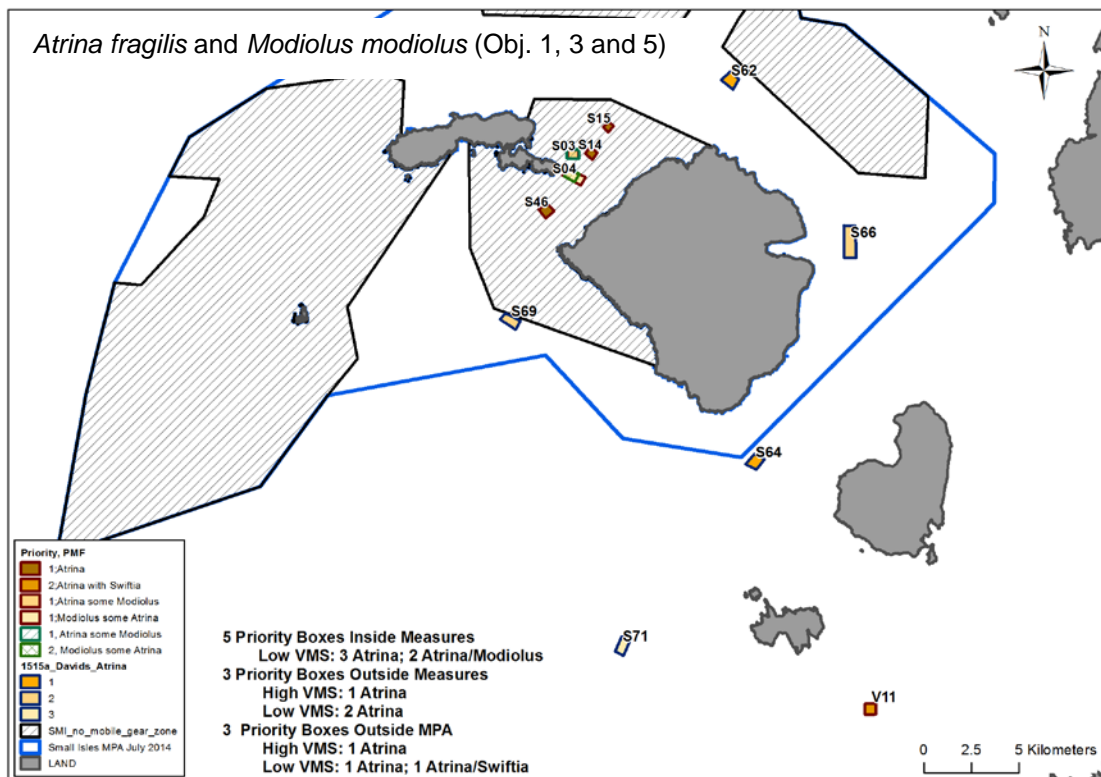
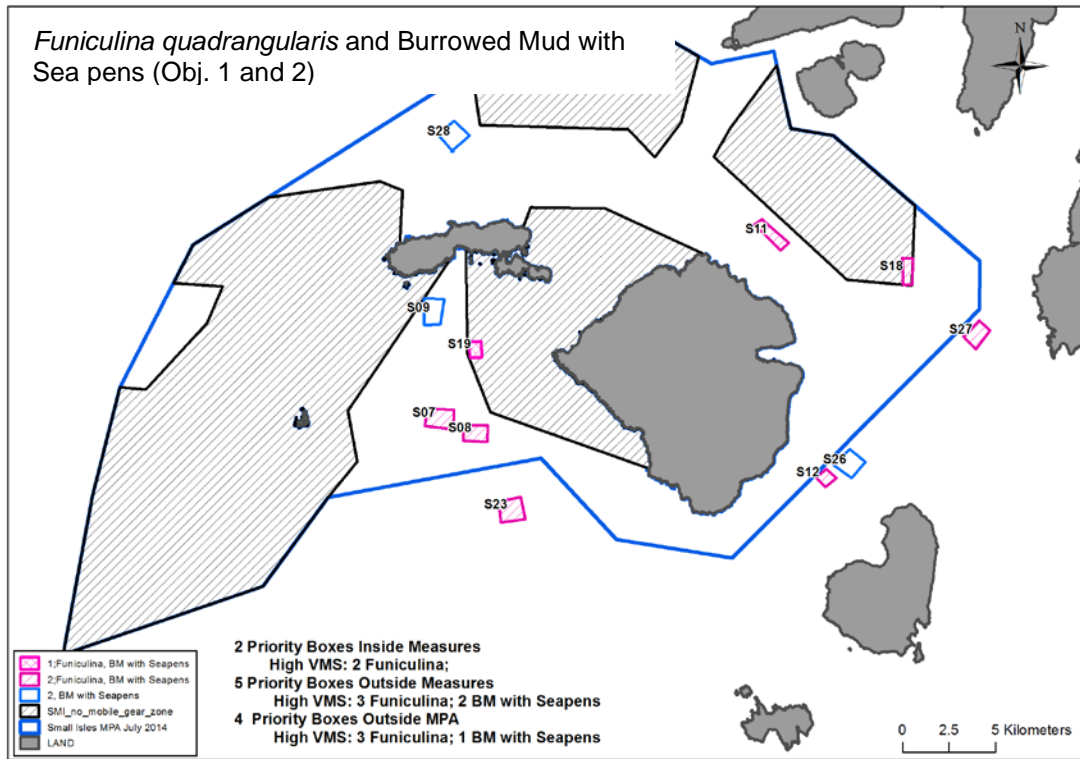
Survey operations will take place on the vessel between the hours of 07:00 and 19:00 (all times UTC). A half-landing will be undertaken at Mallaig on the 12 October (date provisional). All scientific work will cease on the evening of 21 October. Scientific equipment will be offloaded at the earliest opportunity on Thursday 22 October and scientific staff will leave the vessel.

Normal contact will be maintained with the Laboratory.

Submitted:
P Boulcott
14 Aug 2015

Approved:
I Gibb
24 September 2015

Figure 1: The Small Isles MPA with proposed survey boxes marked (For objectives 1,2,3,5,6).



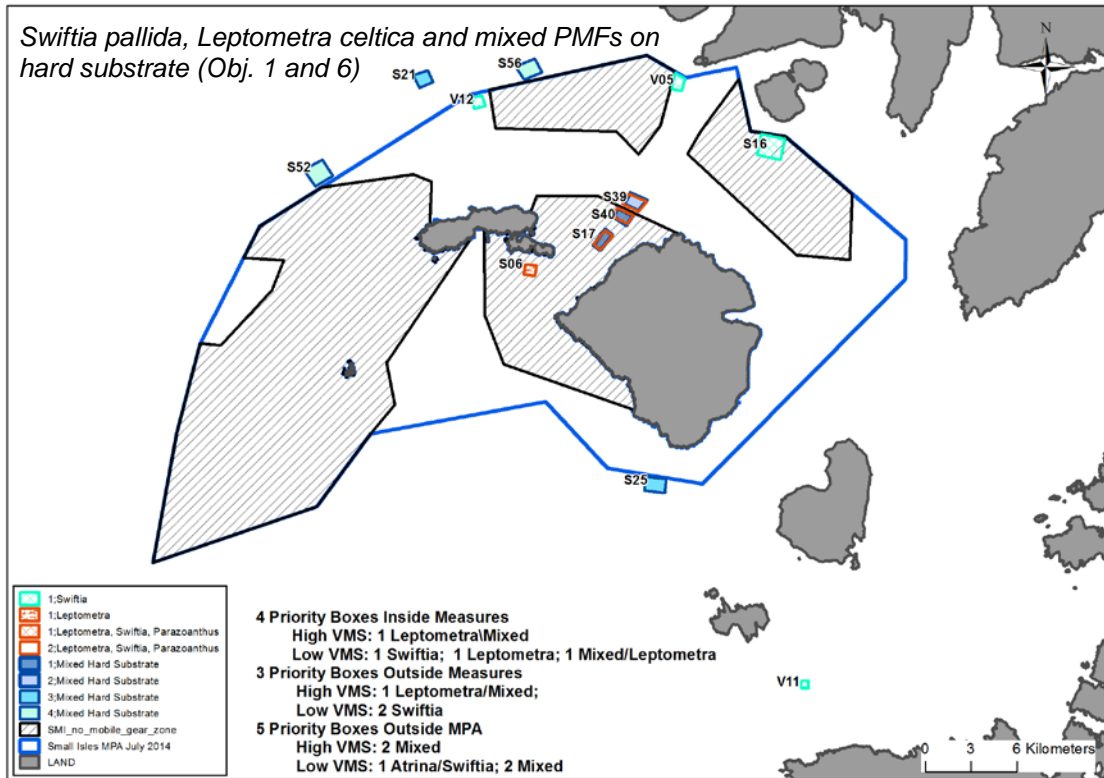


Figure 2: Potential plankton tows for *Atrina fragilis* larvae (Objective 4).

