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MRV *Alba na Mara*

Survey 0717A

PROGRAMME

28 April-18 May 2017

Boarding: Ullapool, 28 April 2017

Loading: Ullapool, 26 April 2017

Half landing: Mallaig, 02 – 03 May (TBC)

Unloading: Fraserburgh, 18 May 2017

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 | | Dates |
|--------------|-----------|-------------------|
| P Boulcott | MSS (SIC) | 28 April – 18 May |
| J Clarke | MSS | 28 April – 02 May |
| F Kent * | SNH | 28 April – 02 May |
| N Collie | MSS | 02 May – 18 May |
| L Kamphausen | SNH | 02 May – 18 May |
| J Dargie | SNH | 02 May – 18 May |

* Attendance dependent on drop camera frame availability

Project: 21 days, SP020Q (20113)

Sampling Gear and Equipment

- 1 x Seacam HD video camera (Ashted hire by SNH)
- 1 x Digital Stills camera - Kongsberg OE14-408 (Seatronics hire by SNH)
- 1 x Table drop frame (Seatronics hire by SNH)
- 4 x LED lights and cables (MSS to supply)
- 2 x Line lasers + cables (MSS to supply)
- 1 x Armoured TV umbilical cable (MSS to supply) + spare
- 2 X Day Grab and grab table, 1mm sieves
- 2 empty cages for the storage of formalin samples
- 1 x c-tecnics portable camera system (conditional on completion)
- 1 x baited camera system (conditional on completion)
- 1 x fleet of fish traps (conditional)

Overview

Survey 0717A serves work carried out by Scottish Natural Heritage and Marine Scotland Science investigating the distribution and quality of benthic biotopes in inshore waters around Scotland. The resultant data are required to underpin the management of the new suite of Marine Protected Areas (MPA) and to meet commitments prescribed by the Scottish MPA Monitoring Strategy. The 0717A survey aims in particular to establish the current status of benthic habitats within the Sound of Barra Special Area of Conservation (SAC).

Objectives

1. To establish the current status of benthic habitat protected features within the Sound of Barra SAC, or contingency sites, using quantitative drop-camera sampling and grab methods.
2. To collect seabed samples using the day grab for sediment size classification and for infaunal analysis. Collected infaunal samples will be stored in 4% formalin.
3. To trial the EMFF mini drop video camera system and investigate features in the Wester Ross MPA (e.g. flame shell bed in Loch Broom and northern feather star aggregations on the sills at Loch Broom and Little Loch Broom). The camera will also investigate possible maerl habitats at the south-western edge of the MPA and outside the boundary. Grab sampling may also be undertaken here.
4. To trial baited camera systems used in the assessment of fish abundance, size and distribution within the Wester Ross MPA. This work will only go ahead if the system completes final production prior to loading.

Embarkation

Scientists will join the vessel on 28 April at Ullapool. Weather permitting, *Alba na Mara* will survey areas within the Wester Ross MPA before departing for a scheduled change of scientific crew in Mallaig on 02 May then, after a half landing, head for survey areas at the Sound of Barra.

Equipment Trials (Wester Ross)

The main focus of this series of equipment trials will be to test the EMFF mini drop frame camera system. This is a newly developed, deck-based system that has been designed to work off small vessels. The system comprises a small suitcase control module, hand wound TV umbilical and small drop frame fitted with cameras and lasers. The drop frame is deployed via a winch cable, with the umbilical being clipped to the cable by hand at intervals. Its operation will require close coordination between the winch operator (ships' crew) and the console controller to ensure that the drop frame maintains the correct position in the water column. Once suitable working practices have been established, the system will be used to survey the features listed in Objective 3. It should be noted that this work will not go ahead if the camera unit is not fully optional at the time of loading.

0717A may also test baited camera systems used to assess fish abundance and size. These wire framed units will be lowered to the seabed and left attached to a mooring over a four hour deployment.

Survey time may also be set aside to trial fish trap work developed during 1016A if neither benthic camera system is available. Fish trap work will be conducted within the Small Isles MPA.

Benthic Survey

Wester Ross

The proposed benthic survey in Wester Ross will target several areas (Figure 1-3) using the EMFF mini drop video system. Stations targeting maerl beds will be shallow: from 15 m to 35 m max. Grabs may be taken to confirm flame shell presence, or opportunistically on muddy areas in the MPA. The benthic survey data gap located in Area 12 (Figure 4) may serve as a contingency area during transit from Wester Ross to Mallaig.

The Sound of Barra

The main objective of 0717A is to conduct a benthic survey of the seabed at various sites within the Sound of Barra. This survey will utilise the *Alba*'s standard drop-camera system and umbilical winch deployed from the aft of the vessel. The camera system will be fitted with two line lasers to allow species densities to be estimated. The ten Boxes indicated in Figure 5 will be sampled by approximately four to six video tows across each box and eight to ten grabs. The camera frame will be landed at regular intervals to allow still photographs to be taken along each video transect. Shorter five minute video tows will be collected from stations across the Sound of Barra SAC to fill remaining gaps in the seabed biotope map. Species type, density and substrate type (assessed visually) will be classified for each video transect post-survey. Grab samples will be collected using a standard day grab and will be processed on deck using a 1mm sieve prior to their storage in formalin.

Contingency sites

Alternative survey sites in the event of poor weather at Barra Sound have been planned around the Sound of Mull and Wester Ross. Additional areas where 'gap filling' work could usefully improve the existing knowledge-base have also been identified to the east of Skye (which may also serve as contingency en route from Wester Ross).

Operations

Daily scientific operations will occur between 07:00 and 19:00 hours (all times UTC). Provision for the vessel to top up on freshwater will be taken opportunistically. However, *Alba na Mara* may be required to dock overnight at a suitable locality for this purpose. Scientific operations will cease on the afternoon of 16 May to allow sufficient time for the vessel to travel to Fraserburgh. Unloading will occur in Fraserburgh harbour on the morning of the 18 May.

Normal contact will be maintained with the Laboratory.

Submitted:

P Boulcott

11 April 2017

Approved:

I Gibb

21 April 2017

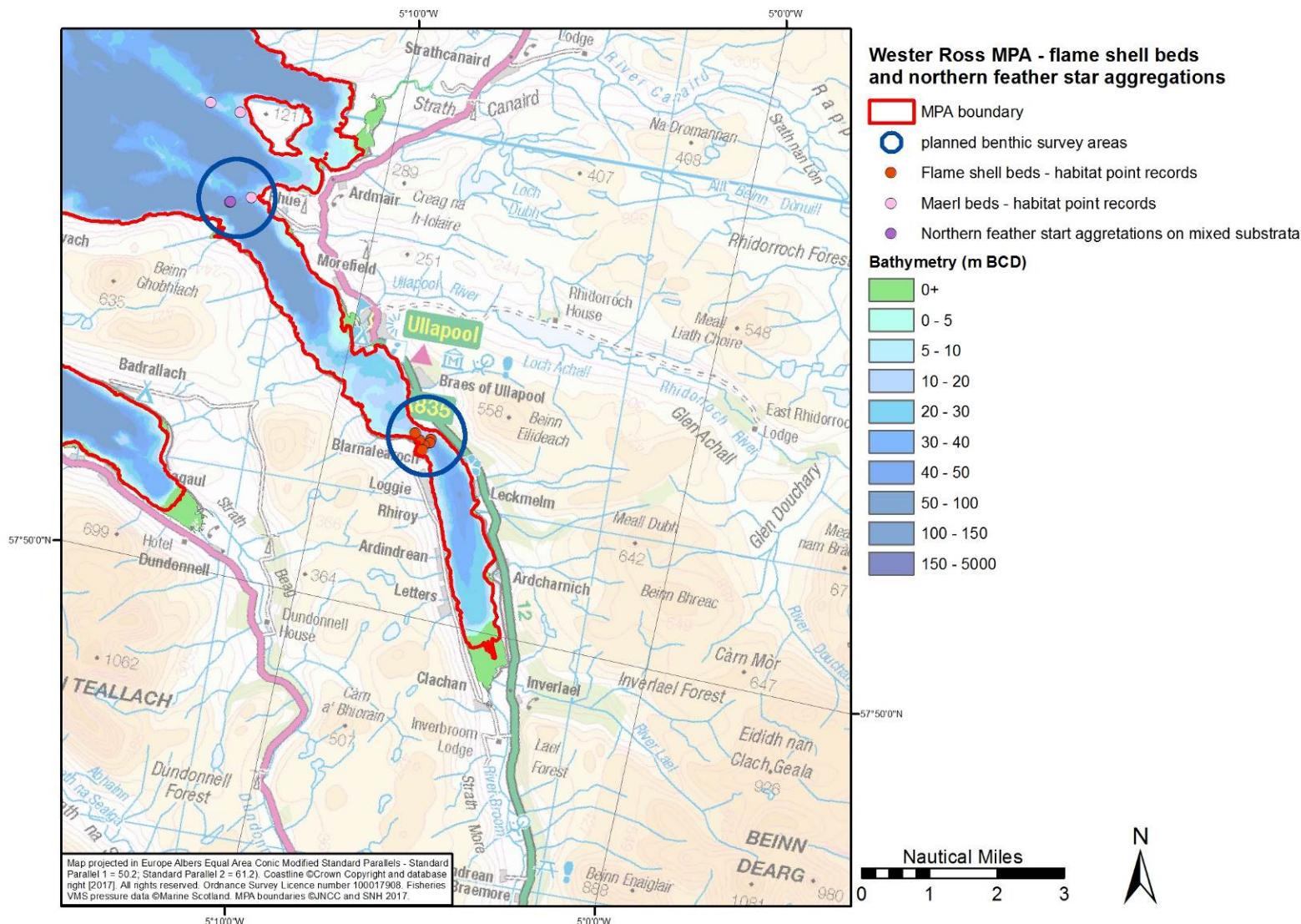


Figure 1. Sampling area within the Wester Ross NC MPA – flame shell bed and northern feather-star aggregation in Loch Broom

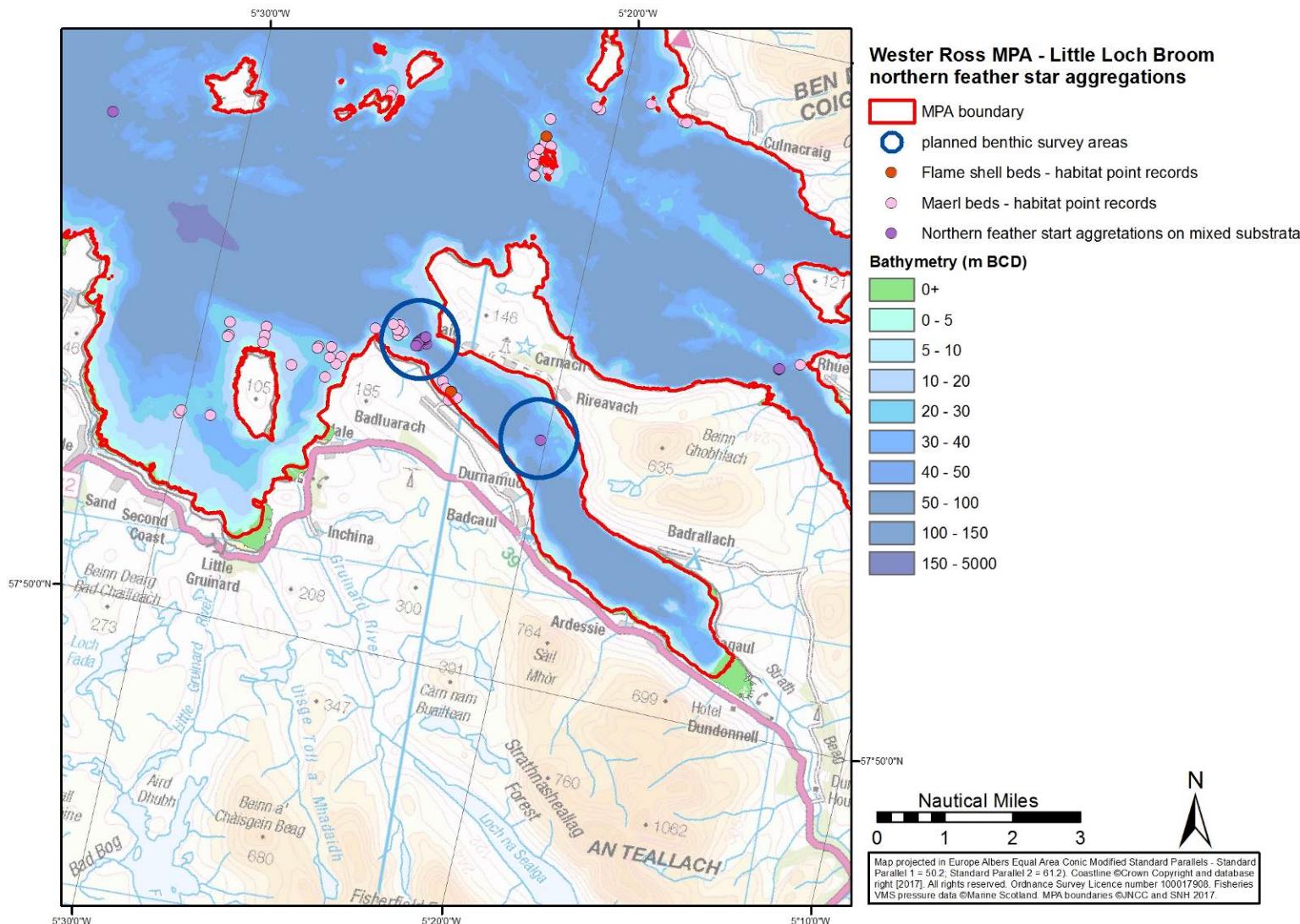


Figure 2. Sampling areas on both sills in Little Loch Broom, investigating northern feather star aggregations.

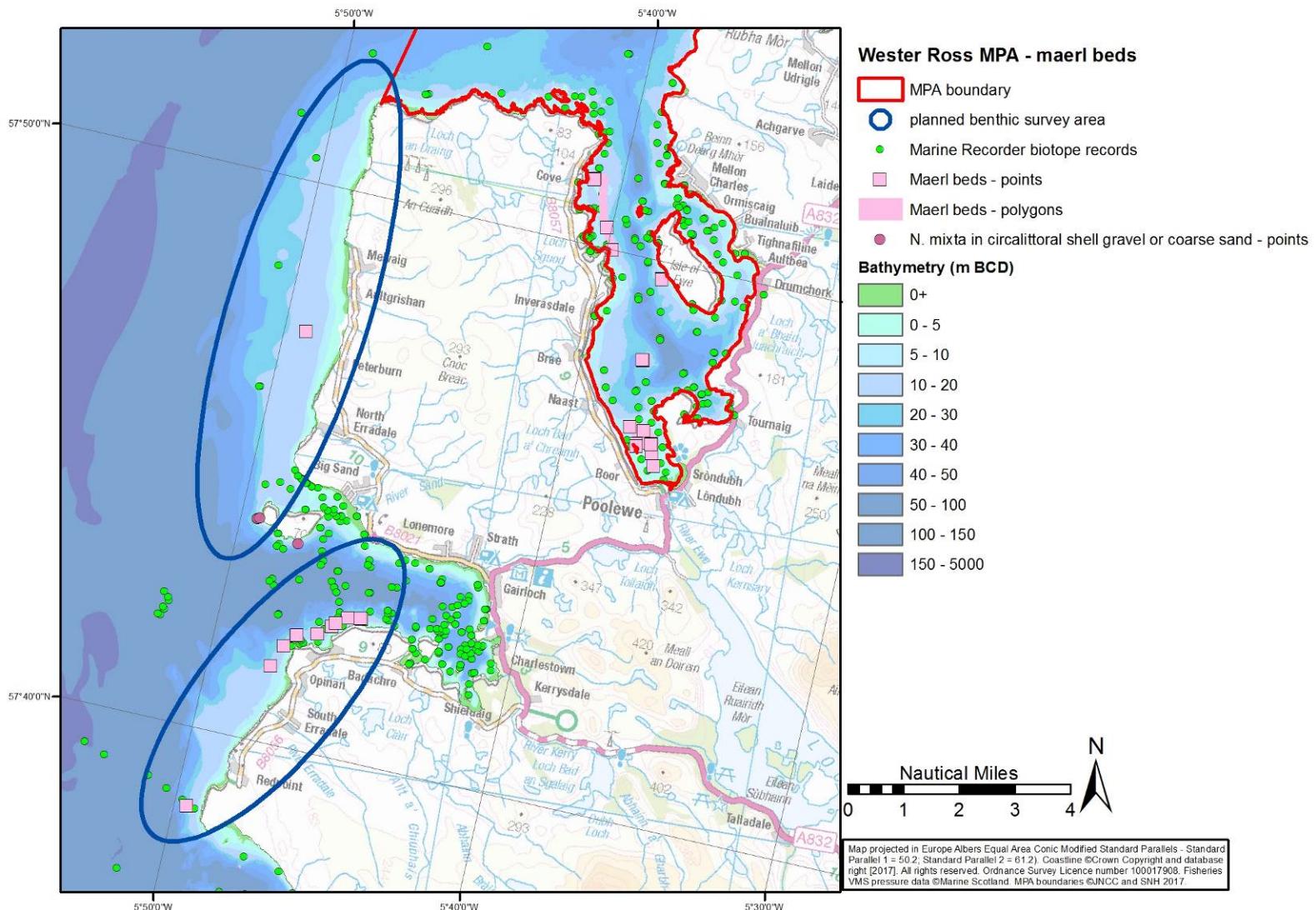


Figure 3. Sampling area south-west of Wester Ross NC MPA – maerl bed validation

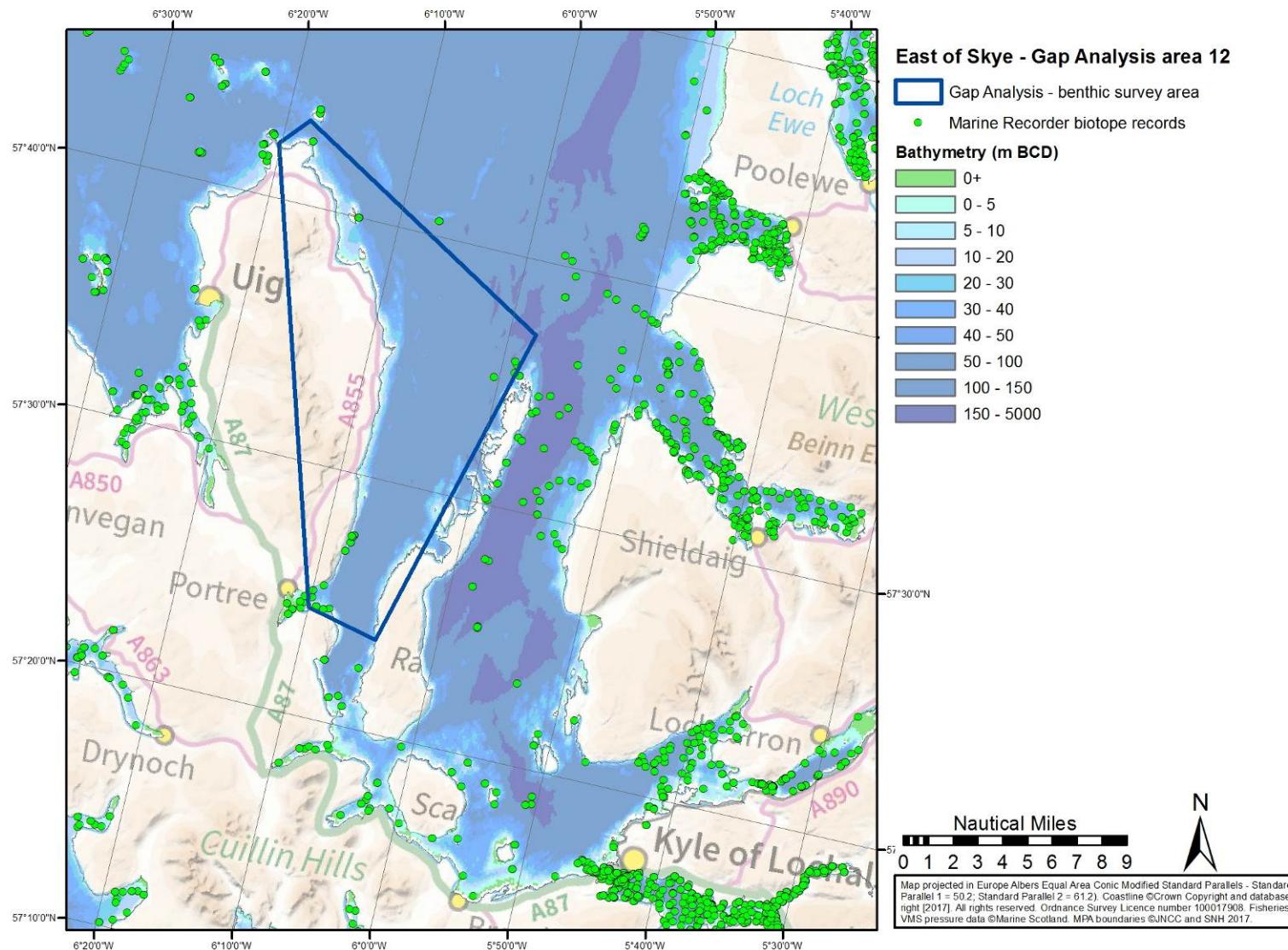


Figure 4. Benthic sampling 'gap' Area 12 to the east of Skye

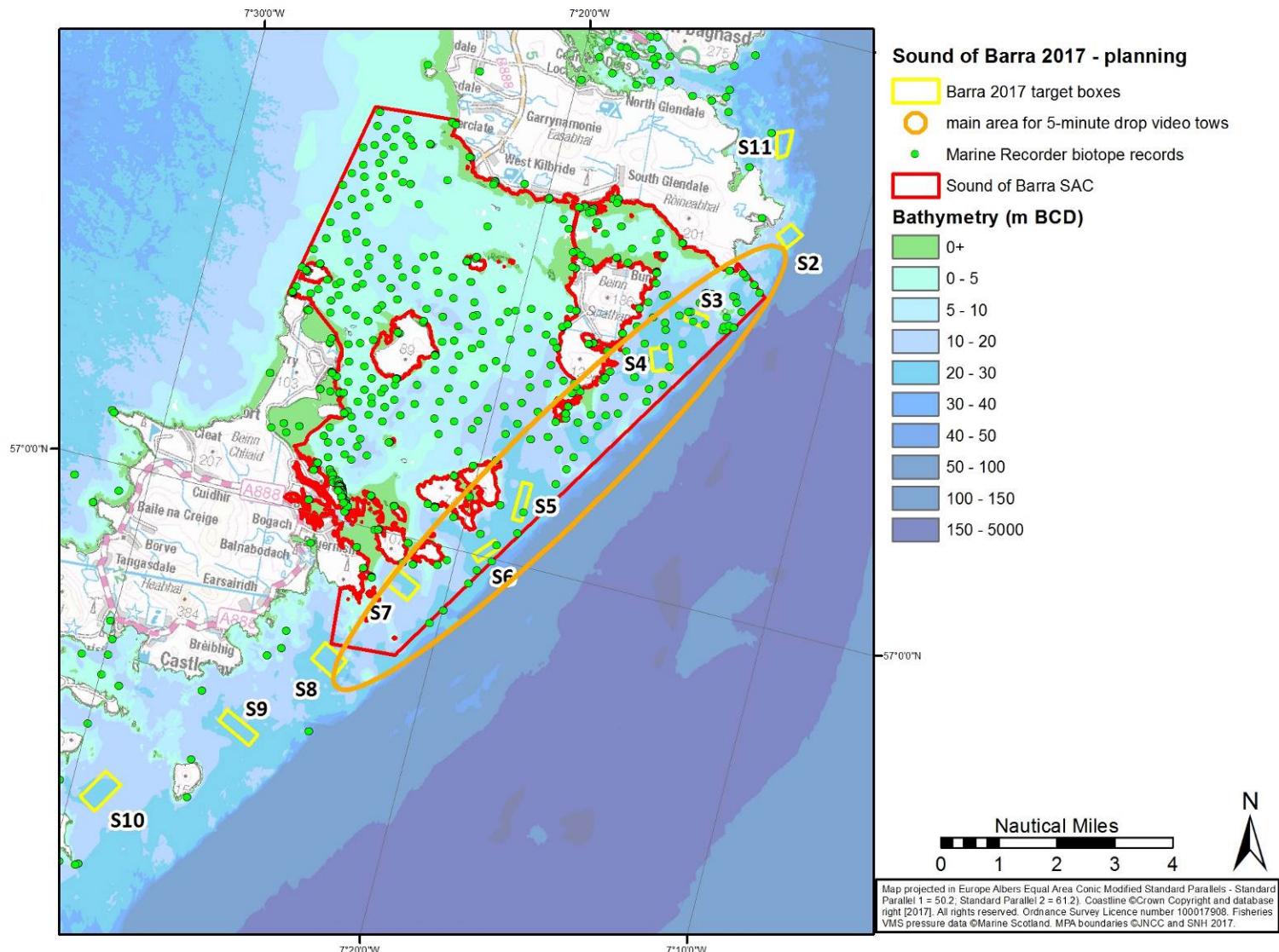


Figure 5. Sound of Barra SAC sampling boxes and gap-filling area for shorter video tows