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MRV *Lady Nicola*

Survey 1117H

PROGRAMME

15 – 21 October 2017

Loading: Mallaig, 15 October 2017
Boarding: Mallaig, 16 October 2017
Unloading: Mallaig, 20 October 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

J Clarke	MSS (SIC)
J Mair	MSS

Project: 5 days, SP02R0

Sampling Gear & Equipment

Fish traps (2 fleets of 2 traps; 1 fleet with 3 traps)

2 Baited Remote Underwater Video Camera (SBRUV) frames

4 LED light assemblies in GPH housing

4 Gitup Git 2 HD cameras and Benthic 2 / GPH-1750M housing

Overview

Survey 1117H aims to provide fine-scale data on the habitat associations of cod, haddock and whiting at a key period in their life history, (i.e. following the transition from pelagic to demersal habitat) and adds to the fish trap and fixed-position baited underwater video data obtained earlier in the year. Survey footage and trap-caught fish will further inform 0-group distribution models and provide samples for otolith-based growth and survivorship analysis.

Objectives

1. To deploy fish traps over various habitat types within and around the Small Isles MPA.

2. To synchronously deploy baited remote underwater video camera frames fitted with twin cameras calibrated for post-survey photogrammetric analysis.

Operations

Scientists will board the vessel on the morning of 16 October. Weather permitting *Lady Nicola* will depart immediately, heading for the Small Isles MPA. The vessel will operate on a day basis between the hours of 06:00 and 18:00 UTC.

Fish Trap Survey

Potential fish trap station locations are shown in Figure 1 with coordinates, depth and substrate type given in Table 1.

Fish traps will be deployed at the start of each working day, in fleets of 3, 2 and 2 traps, to be picked up again following a minimum soak time of 6 hours. The deployment location (GPS latitude and longitude), soak time, and bait type and quantity will be recorded. Captured fish will be released from the trap and measurements of total length (to 1 cm) and weight (to 0.01 g) will be recorded. Otoliths from gadoid species (cod, haddock, and whiting) will be extracted to establish age. Gill tissue will be resected from a subsample of the catch and stored in ethanol for genetic analysis.

Time will be set aside during each day to collect fresh bait. Stations will be surveyed depending on the prevailing weather conditions i.e. if wind strengths or wave heights are adverse, a precautionary approach will be adopted and those with adequate shelter from the weather will be selected.

SBRUV Survey

Both underwater video camera frames will be deployed at distances sufficient to avoid any interaction with the fleet ground gear (recommended minimum 500 m between deployments). Two cameras oriented ±6° perpendicular to the frame base will synchronously record high definition video for a nominal period of 1.5 hours. Footage will be downloaded to external media at the end of each working day. Species type, relative species densities (MaxN) and substrate type (assessed visually) will be classified post-survey.

Unloading will occur in Mallaig harbour on the evening of 20 October.

Normal contact will be maintained with the Laboratory.

Submitted:
J. Clarke
13 October 2017

Approved:
I. Gibb
13 October 2017

Figure 1: Positions of potential fish trap and SBRUV frame deployments. Open circles indicate previous survey deployment locations.

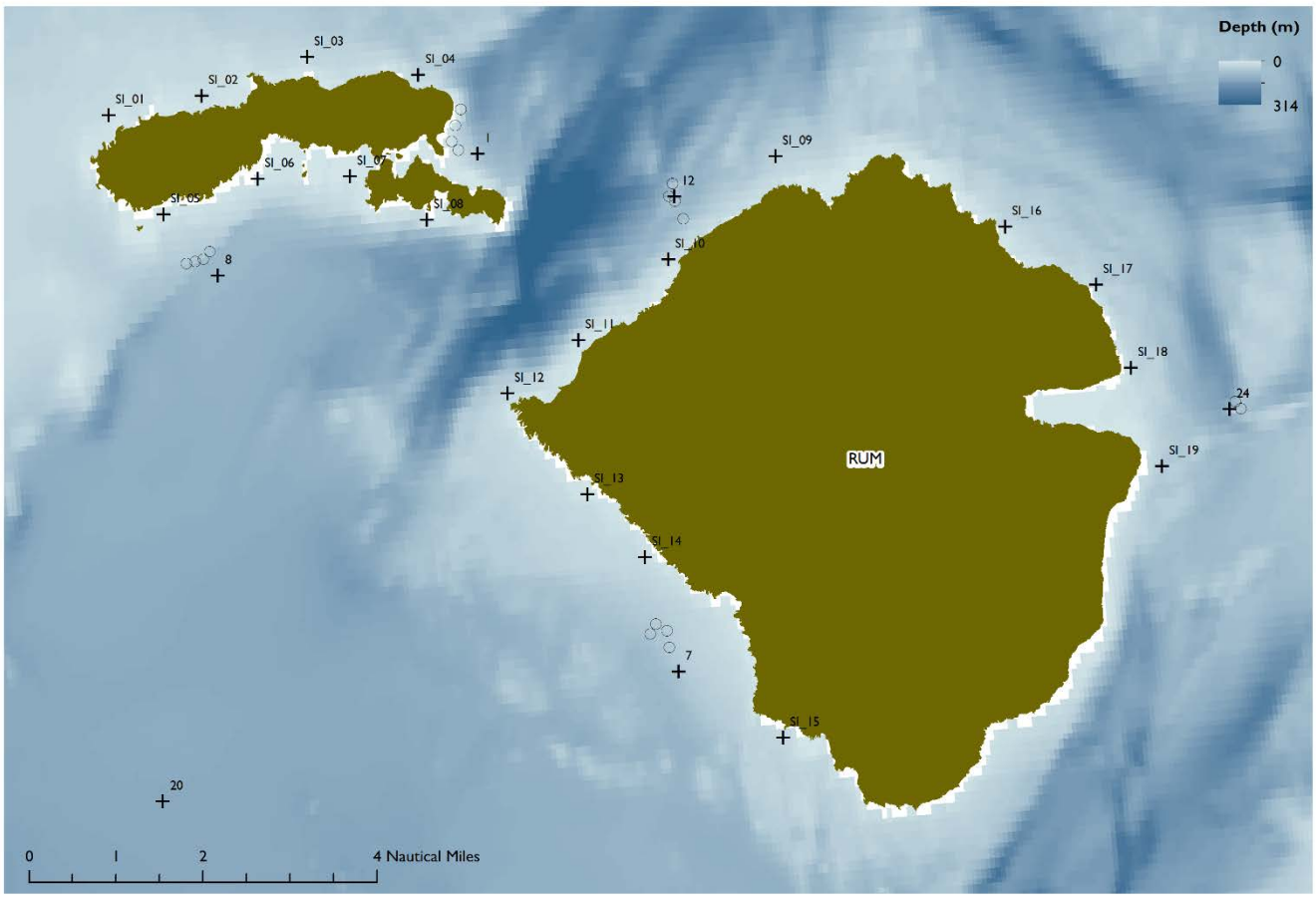

Table 1: Latitude, longitude & habitat variables of potential survey stations.

Station	Substrate	Longitude	Latitude (dd)	Longitude	Latitude	Depth (m)
1	Rock & Other Hard Substrata	-6.47643	57.05647	006° 28.58596' W	057° 33.87997' N	48.4
12	Mixed	-6.4066	57.05017	006° 24.39607' W	057° 30.10482' N	62.8
20	Sandy Mud - Muddy Sand	-6.5747	56.92952	006° 34.48182' W	056° 55.77110' N	88.7
24	Sand	-6.20849	57.01463	006° 12.50945' W	057° 08.77659' N	50.8
7	Coarse/Mixed Sediments	-6.39688	56.95936	006° 23.81250' W	056° 57.56159' N	49.2
8	Mud	-6.56517	57.0306	006° 33.91008' W	057° 18.35910' N	69.7
SI_01	Rock/Biogenic Reef	-6.60639	57.0602	006° 36.38324' W	057° 36.11881' N	16.1
SI_02	Rock/Biogenic Reef	-6.57409	57.06484	006° 34.44535' W	057° 38.90486' N	13

Station	Substrate	Longitude	Latitude (dd)	Longitude	Latitude	Depth (m)
SI_03	Rock/Biogenic Reef	-6.53778	57.07331	006° 32.26683' W	057° 43.98393' N	24.4
SI_04	Rock/Biogenic Reef	-6.49853	57.07099	006° 29.91172' W	057° 42.59426' N	22.5
SI_05		-6.58524	57.04178	006° 35.11412' W	057° 25.06538' N	9.9
SI_06		-6.55298	57.04953	006° 33.17855' W	057° 29.72089' N	5.2
SI_07		-6.52064	57.05089	006° 31.23856' W	057° 30.53686' N	2.9
SI_08		-6.49293	57.04335	006° 29.57559' W	057° 26.00770' N	13.1
SI_09	Coarse/Mixed Sediments	-6.37188	57.05886	006° 22.31260' W	057° 35.31412' N	31.1
SI_10	Rock/Biogenic Reef	-6.40763	57.03812	006° 24.45761' W	057° 22.86995' N	20.9
SI_11	Rock/Biogenic Reef	-6.43775	57.02183	006° 26.26522' W	057° 13.09882' N	16.7
SI_12	Rock/Biogenic Reef	-6.46154	57.01092	006° 27.69257' W	057° 06.55039' N	32.4
SI_13		-6.43177	56.99241	006° 25.90618' W	056° 59.54469' N	6
SI_14	Rock/Biogenic Reef	-6.41057	56.98095	006° 24.63396' W	056° 58.85701' N	15.9
SI_15		-6.35911	56.94771	006° 21.54636' W	056° 56.86235' N	19.5
SI_16	Sand	-6.29011	57.04751	006° 17.40676' W	057° 28.50321' N	12.1
SI_17	Sand	-6.2573	57.03721	006° 15.43800' W	057° 22.32887' N	24.8
SI_18	Sand	-6.24367	57.02166	006° 14.62042' W	057° 12.99781' N	22.6
SI_19	Sand	-6.23116	57.00311	006° 13.86964' W	057° 18.64878' N	43.2