CEND 04/12 Cruise Report

RV Cefas Endeavour Cruise CEND 04/12

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Duration

2nd March-13th March 2012

Locality

North Sea

Aims

To collect additional data at a number of recommended Marine Conservation Zones (rMCZ) within the Net Gain regional project to increase confidence in the evidence for the presence and extent of the Broadscale Habitats (BSH) and Habitat Features of Conservation Importance (FOCI) included in the proposals for designation. This will include the acquisition of multibeam bathymetry and backscatter data, grab sampling for sediment Particle Size Analysis (PSA) and infaunal analysis and video and still imagery techniques.

Survey Narrative

RV Cefas Endeavour mobilised from Lowestoft and began transit to the first rMCZ survey area on 02/03/12. Survey work commenced at the Compass Rose rMCZ on 03/03/12 at 06:00. A CTD was deployed to obtain the sound velocity profile (SVP) for calibration of the multibeam. A multibeam acoustic survey then commenced on the western side of the rMCZ and continued until 19:00 03/03/12. Hamon grab sampling began in the north-west of the site within the predicted sublittoral sand BSH. Several positions in the north of the site had to be adjusted due to the presence of an exposed pipeline which had a 1 km exclusion zone around it. Several stations (CR_R_18, 20 and 21) in the predicted moderate energy

circalittoral rock BSH (A4.2) were sampled and revealed the sediments to consist of muddy sand (BSH classification: Sand, A5.2).

Multibeam bathymetry and backscatter data were collected during transits between stations. Images of the seabed observed during the deployment of the HamCam guided the positioning of camera deployments. If the area was homogenous then camera deployments were carried out every third station to ensure an adequate density and spatial coverage of video footage (and still images) across the rMCZ. A small area of subtidal sands and gravels BSH described in the SAD habitat map in the south of the site was targeted using the HamCam. Sampling at theses stations revealed the sediments to also be muddy sand with an increased broken shell fraction. Sediments across the site were consistently found to be rippled sand with shell fragments. Some cobbles colonised by *Alcyonium digitatum* were observed at several sites classified as sand. Survey at the Compass Rose rMCZ was completed at 00:00 on the 6th March 2012.

The vessel then transited to Barmades Bank where existing (interpreted) acoustic data indicated areas of exposed circalittoral rock were present. Survey work at Barmades Bank commenced at 02:12 on the 7th March 2012 and continued until 18:00 on the same day, during which 16 drop camera stations were completed. The vessel then transited to Rock Unique rMCZ.

Survey work commenced at the Rock Unique rMCZ on 07/03/12 at 21:00. Grab sampling began in the south-east of the site within the area predicted to be sublittoral coarse sediment. Images of the seabed observed during the deployment of the HamCam guided the positioning of subsequent camera sledge deployments. If the area was homogenous then camera deployments were carried out every third station to ensure an adequate density and spatial coverage of video and still images across the rMCZ. If the sea bed was of a heterogeneous nature or different to the predicted habitat type, additional camera sledge deployments were carried out.

Samples were not collected at four of the planned survey stations (RU_S_1, RU_S_10, RU_C_7 and RU_C_20) due to the coarse nature of the substrates present. It is interesting to note that this occurred in both predicted sand and coarse sediment BSH types. Boulders and cobbles were also observed during camera sledge deployments within in both of the predicted broadscale habitats. Although the sample collected at RU_S_1 was deemed too small to accept it did contain the species FOCI *Arctica Islandica* (Ocean Quahog) (not listed as a species FOCI as part of the recommendations for the Rock Unique rMCZ).

Sediments across the north and south of the site were found to be broadly consistent with the predicted EUNIS sediment types, however a large section of the predicted subtidal sand BSH was found (during preliminary assessments) to be subtidal mixed sediments. The

survey of Rock Unique rMCZ was completed 17:00 09/03/12 after which the vessel transited to the next survey site, Farnes East rMCZ.

Survey work commenced at the Farnes East rMCZ on 09/03/12 at 23:00. Hamon grab sampling began in the north-east of the site within the predicted sublittoral sand BSH. Sampling of the stations then continued, gradually moving south through the site. Images of the seabed observed during the deployment of the HamCam guided the positioning of subsequent camera sledge deployments. If the area was homogenous then camera deployments were carried out every third station to ensure an adequate density and spatial coverage of video and still images across the rMCZ. If the sea bed was of a heterogeneous nature or different to the predicted habitat type, additional camera sledge deployments were carried out.

Samples were successfully collected from all the sampling stations except FE_R_36 and FE_C_29. The bivalve *Arctica islandica* (a species FOCI not listed in the recommendations for designation at this site) was found to be present at station FE_R_22 in the centre of the site. The survey of Farnes East rMCZ ended at 09:30 on the 13th March 2012 when the buff from the camera sledge became caught on the ship's propeller. The vessel transited to Hull where the fouled propeller could be repaired.

Locations of the rMCZs surveyed during CEND 04/12 are shown below in Figure 1.

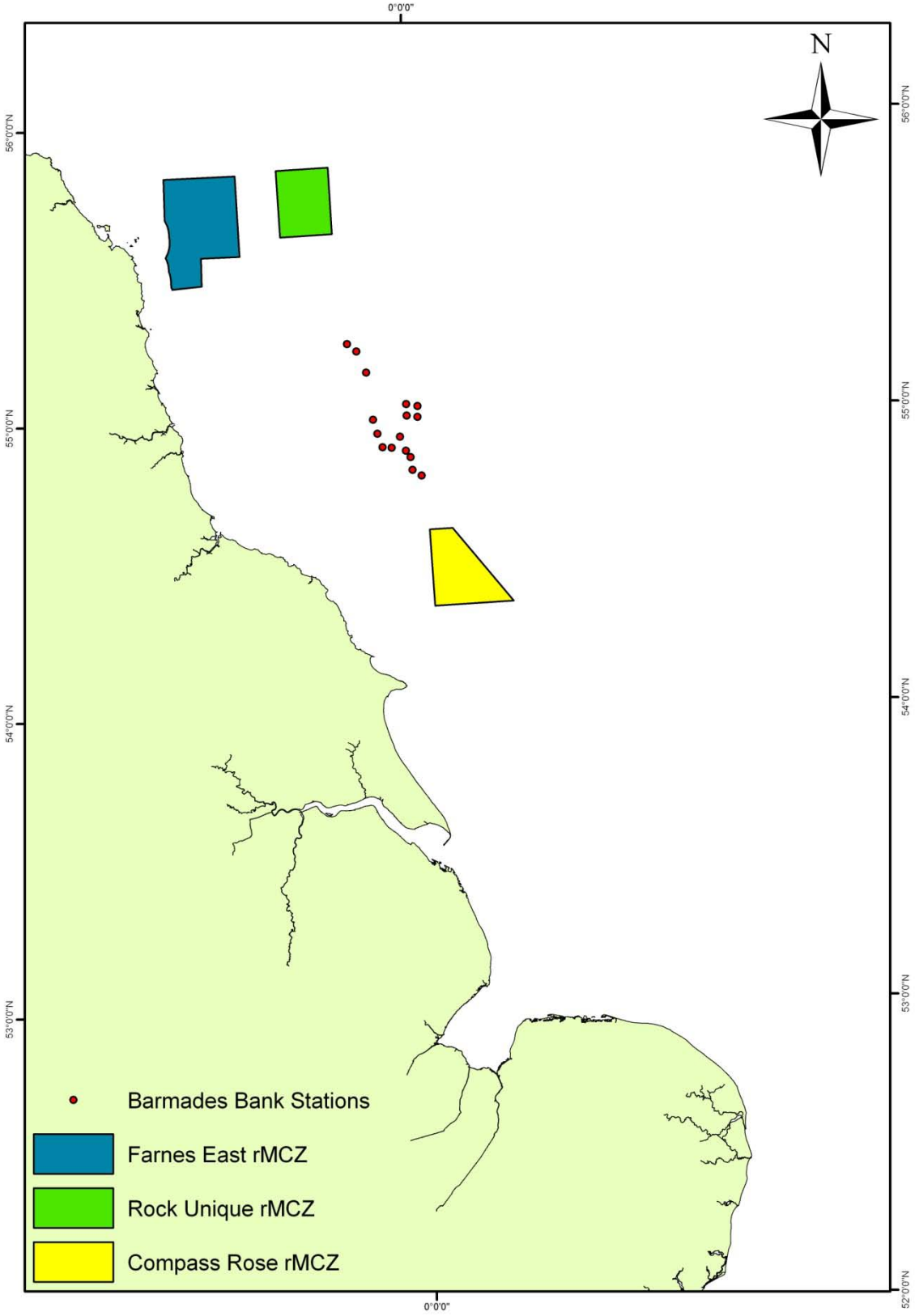

Figure 1. Location of the rMCZs surveyed during CEND 04/12.