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North Norfolk Sandbanks and Saturn Reef SCI: CEND 22/13 & 23/13 Cruise Report

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1 Background and Introduction

1.1 Survey Project Team

The survey at the North Norfolk Sandbanks and Saturn Reef Site of Community Interest (NNS & SR SCI) was carried out between 4 and 25 November 2013 on the RV Cefas Endeavour (Survey CEND 22/13 and CEND 23/13). The survey was split in two parts: Part 1 (4–11 November 2013 – CEND 22/13) included a training element for JNCC staff, and the survey team therefore included a large number of JNCC staff (Table 1). The survey team for part 2 (12 – 25 November 2013 – CEND 23/13) was focussed on science objectives and included Cefas marine ecologists, habitat mappers and survey technicians along with three representatives from the Joint Nature Conservation Committee (JNCC) (Table 2). The survey team was split into a night shift (00:00 – 12:00) and day shift (12:00 – 24:00), providing a 24h survey capability throughout the survey.

Table 1. Survey team part 1 (4-11 November 2013) - Names removed to comply with GDPR

Name	Institute	Job role

1.2 Site Description

The North Norfolk Sandbanks and Saturn Reef SCI is situated in the southern North Sea, around 40 kilometres northeast of East Anglia (Figure 1). The North Norfolk Sandbanks are the most extensive example of the offshore linear ridge sandbank type in UK waters (Graham *et al* 2001). They are subject to a range of current strengths which are strongest on the banks closest to shore (Collins *et al* 1995). The outer banks are the best example of open sea, tidal sandbanks in a moderate current strength in UK waters. The banks support communities of invertebrates which are typical of sandy sediments in the southern North Sea such as polychaete worms, isopods, crabs and starfish. The sandbanks have a north-west to south-east orientation and are thought to be progressively, though very slowly, elongating in a north-easterly direction (perpendicular to their long axes) (Cooper *et al* 2008). The banks included are: Leman, Ower, Inner, Well, Broken, Swarte and four banks called, collectively, the Indefatigables (Figure 1). The crests of the banks are in water shallower than 20m below Chart Datum, and the flanks of the banks extend into waters up to 40m deep.

The Saturn *Sabellaria spinulosa* biogenic reef, first discovered in 2002, consists of thousands of fragile sand-tubes made by *Sabellaria spinulosa* (Ross worm) which are consolidated together creating a solid structure rising above the seabed (BMT Cordah, 2003). This structure qualifies as Annex I Reef according to European Commission interpretation (CEC 2007) (Table 3). Reefs formed by *Sabellaria spinulosa* allow the settlement of other species not found in adjacent habitats leading to a diverse community of epifaunal and infaunal species (MarLIN 2006a). In 2003, Saturn Reef covered an area approximately 750m by 500m just to the south of Swarte Bank (BMT Cordah 2003). The formation/presence of such a substantial reef of *Sabellaria spinulosa* in this area indicates favourable conditions for reef formation at that time.

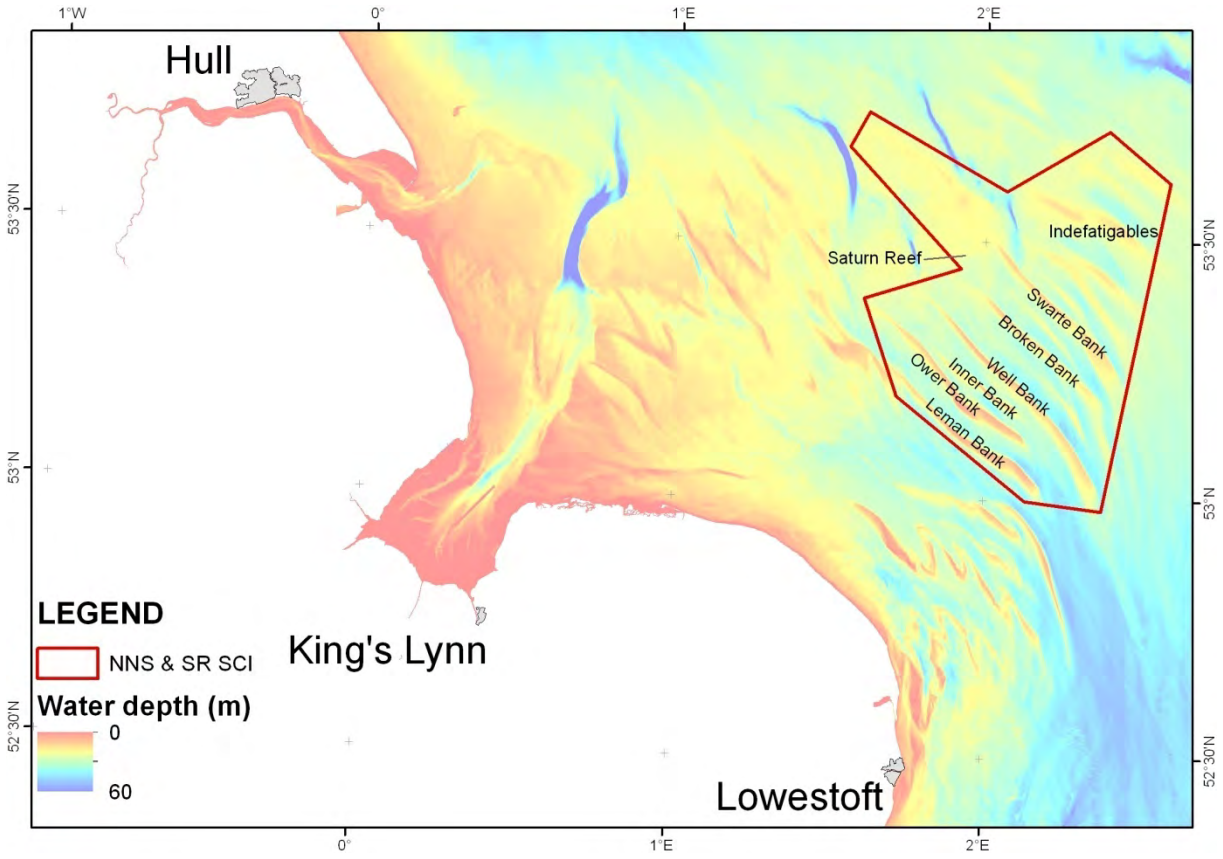


Figure 1. Location of the North Norfolk Sandbank complex & Saturn Reef SCI.

Table 3. Interest features under the EU Habitats Directive.

Feature code	Feature name
1110	Sandbanks which are slightly covered by sea water all the time
1170	Reefs

1.3 Existing data and information used to inform survey planning

1.3.1 Biogenic Reef

The *Sabellaria spinulosa* biogenic reef was surveyed by Subsea 7 Ltd under contract to ConocoPhillips in 2003. Formed by dense aggregations of *Sabellaria spinulosa*, it was located between Swarte and Broken banks on the edge of a small sandbank in the southern North Sea (BMT Cordah 2003). The density of Saturn *Sabellaria spinulosa* biogenic reef varied across the area. A core section of near continuous and high profile reef (10cm high) with very dense coverage (90% of the seabed) was identified, with some sections rising to up to 25cm above the seabed). Also observed were patchier reef areas with 10-50% coverage and even sparser reef patches with less than 10% coverage (BMT Cordah 2003). Overall, the extent of the reef was estimated to be approximately 750m x 500m, with approximately 50% (500m x 250m) consisting of the higher profile reef (BMT Cordah 2003). Reef patches were either broken by various shaped 'holes' or were elongated strips, raised above surrounding seabed. Surrounding sediment included both tube debris and non-tube sediment consisting of silty sand/stones (Figure 2).

Figure 2. A patch of *Sabellaria spinulosa* reef observed as part of previous surveys (BMT Cordah 2003)

Further surveys were undertaken by Cefas in July 2006 within the same area where *Sabellaria spinulosa* reef was found in 2003. Sidescan sonar, multibeam echosounder and video tow data were collected, but did not identify any reef features in the area.

1.3.2 Sandbank Characterisation

Planning of the sandbank characterisation sampling made use of historic bathymetry surveys in the area. The Defra Digital Elevation Model (DEM) combines all best available bathymetry data for the North Norfolk sandbanks and in this area is made up of single beam survey undertaken in the 1980-90s. The data show water depths vary between 2 and 60 metres below Chart Datum (Figure 3). The shallowest depths are reached on top of the sandbanks in the southwestern part of the site, whereas deepest areas are found in the narrow troughs in the northern part of the site.

The seabed sediment map from the British Geological Survey shows primarily sand, slight gravelly sand and gravelly sand in the area (Figure 3). Whereas the sands are mainly

associated with the sandbanks, the coarser sediments are mainly found in the deeper troughs between the sandbanks.

The distribution of UKSeaMap 2010 predictive modelled habitats for the NNSB SCI is also shown in Figure 3.

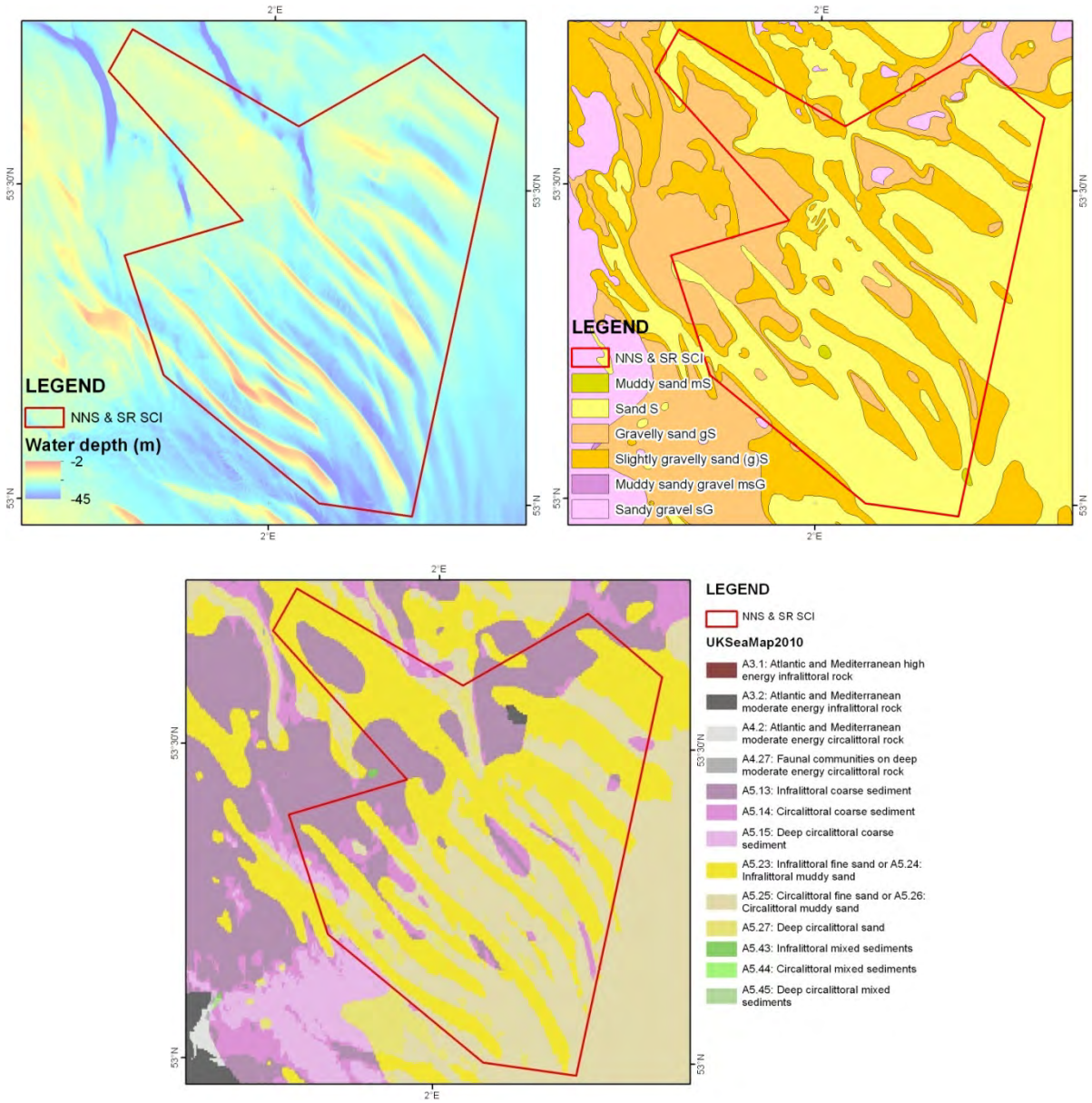


Figure 3. (Top left) Seabed bathymetry of the NNSB SCI (From Defra DEM model); (Top right) Seabed sediment distribution from British Geological Survey map; (Bottom) UKSeaMap 2010 modelled EUNIS habitat distribution.

2 Survey Design and Methods

2.1 Survey planning and design

The aim of surveys CEND 22/13 and CEND 23/13 was to gather additional seabed data to assist with the development of management advice. Objectives were prioritised as follows:

1. Survey areas of existing known *Sabellaria spinulosa* reef or areas where it has previously been found

2. Assess presence, and where possible, delineate the Annex I biogenic reef feature and characterise associated fauna; and

3. Survey areas of sandbank to characterise distribution of infauna communities in order to better understand their sensitivities to a range of pressures.

In addition, survey CEND22/13 had a parallel aim to train participating JNCC survey staff so that they are able to lead offshore surveys for JNCC in the future. Though this training will contribute to the participants eventually becoming JNCC lead scientists on certain surveys, it is not expected that this cruise alone will necessarily enable them to reach this level of competency.

The survey was designed around six areas of search (Figure 4) and a coarse sampling grid was provided by the JNCC. The areas of search were labelled A to E. Survey lines were created at 200m line spacing to achieve full seafloor coverage using a high resolution sidescan sonar system. Simultaneous multibeam data would be collected, recognising that full seafloor coverage would not be achieved.

2.1.1 Sabellaria spinulosa sampling methodology

Stations within each area of search carried the prefix of the area of search (e.g. A22 for a sample from area of search A). The coarse sampling grid had a spacing of 1.5 km between stations and stations were allocated a station code between 1 and 42 (e.g. D1 to D42) (Figure 4). Additional sampling or video transects that were selected during the survey, targeting specific areas, were allocated station code numbers over 50 (e.g. A51).

A combination of seabed sampling and video observations was undertaken. Due to the hard and coarse sediments expected, a 0.1m^2 Hamon Grab was employed for all seabed sampling. The video data were collected from a drop frame to avoid potential damage to *Sabellaria spinulosa* reef.

At stations located on the 1.5km grid, the drop camera was deployed to collect two minutes of video data and three stills images, or longer if *Sabellaria spinulosa* reef was observed (Figure 5). At each station, a seabed sample was collected for sediment and macrofauna analysis. After review of the sidescan sonar data, additional sampling stations were situated in areas where the acoustic signature suggested the potential occurrence of *Sabellaria spinulosa* reef. At these stations, a minimum 10 minute tow using the drop camera was undertaken, followed by a targeted Hamon Grab sample if *Sabellaria spinulosa* was observed (Figure 6). In total six areas of interest (survey boxes A-F) were surveyed using the techniques detailed above (Figure 7).

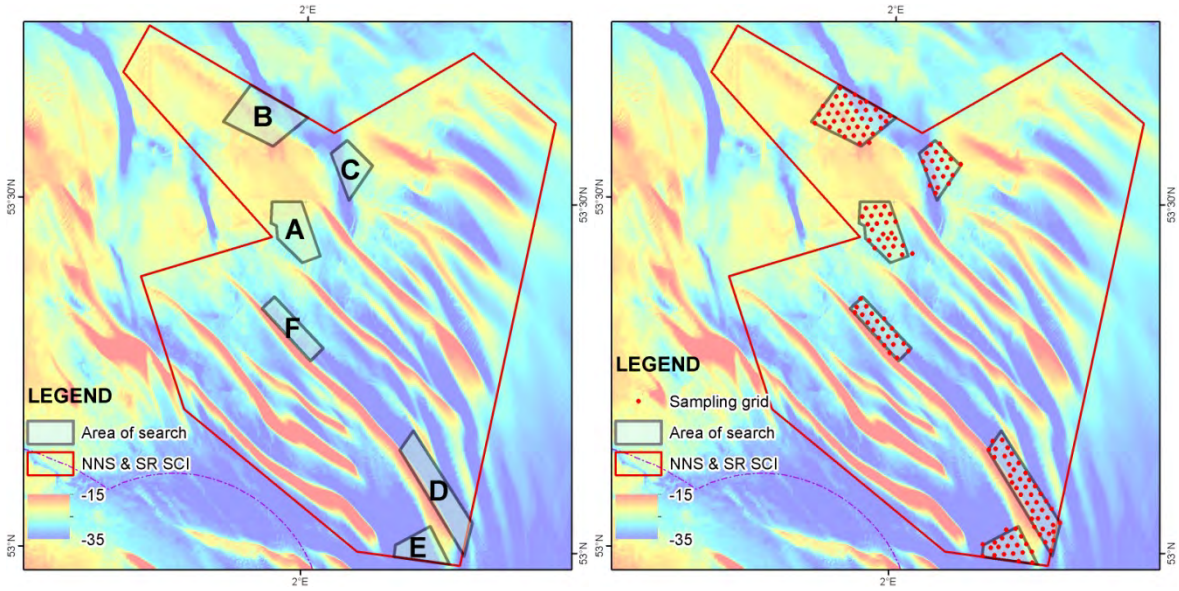


Figure 4. (Left) Areas of search within the NNSB SCI; (Right) Survey design for the primary sampling at the NNSB SCI.

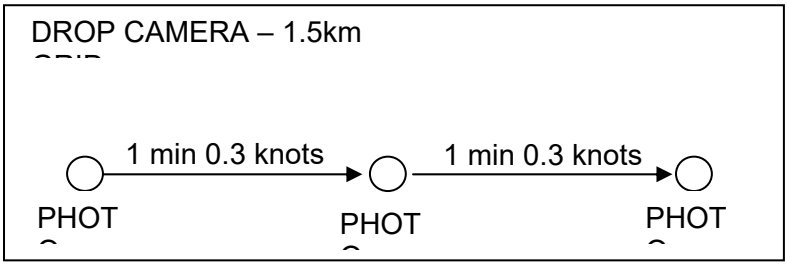


Figure 5. Schematic of video operations at station located on the 1.5km grid.

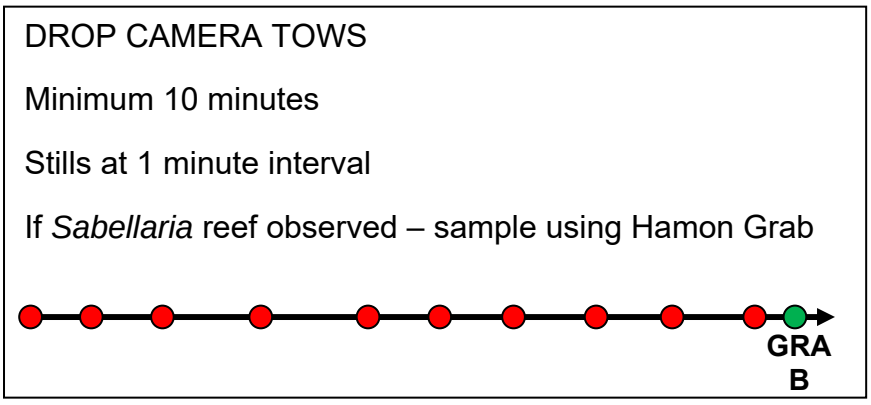


Figure 6. Schematic of video operations at targeted ground-truthing stations.

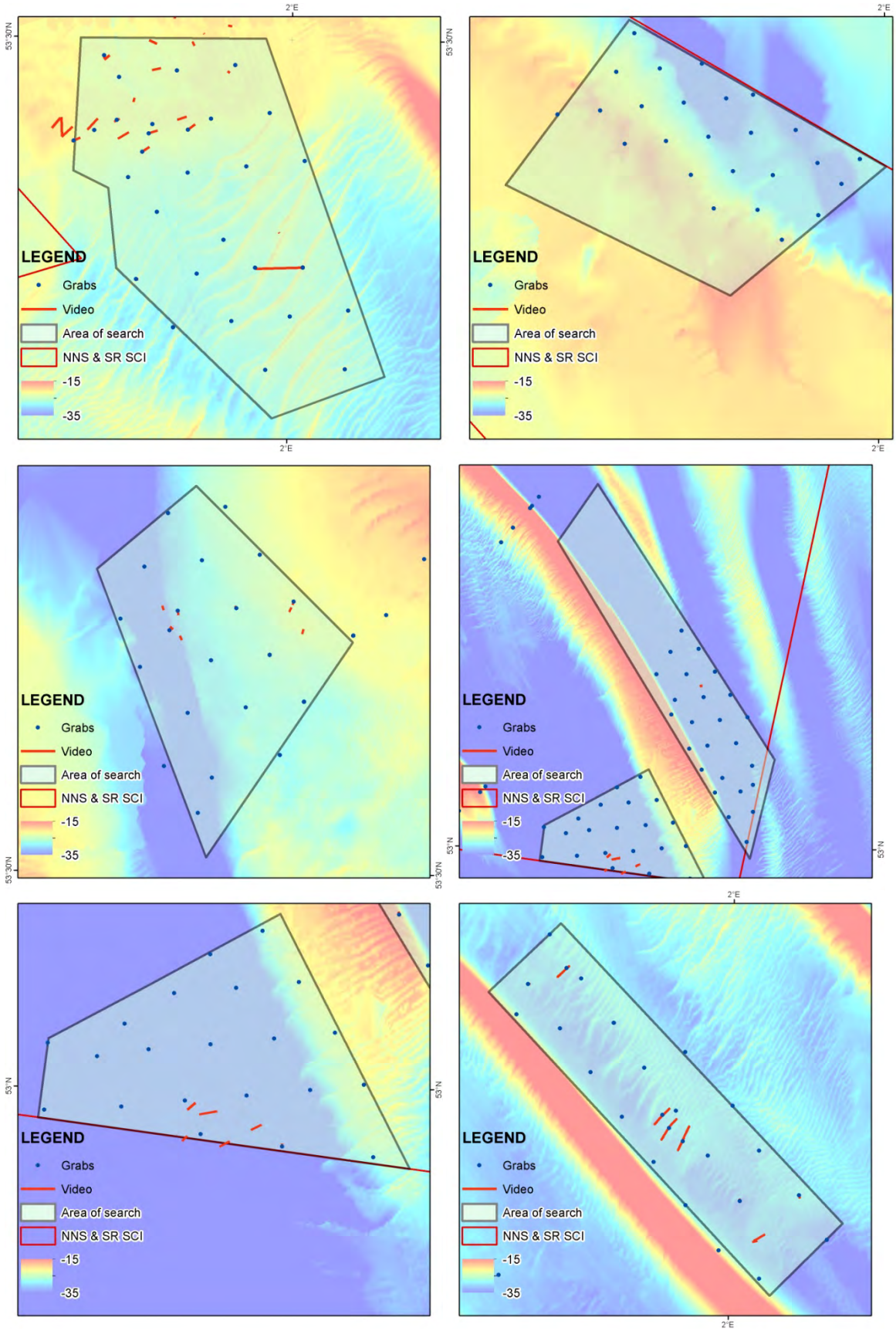


Figure 7. (Top left) Location of grab and video stations within area of search A; (Top right) Location of grab and video stations within area of search B; (Middle left) Location of grab and video stations within area of search C; (Middle right) Location of grab and video stations within area of search D; (Bottom left) Location of grab and video stations within area of search E; (Bottom right) Location of grab and video stations within area of search F.

2.1.2 Sandbank transects

Sandbanks suitable for survey on RV Cefas Endeavour (no banks in < 13m of water were considered) were identified using the Defra Digital Elevation Model bathymetry layer (Figure 8).

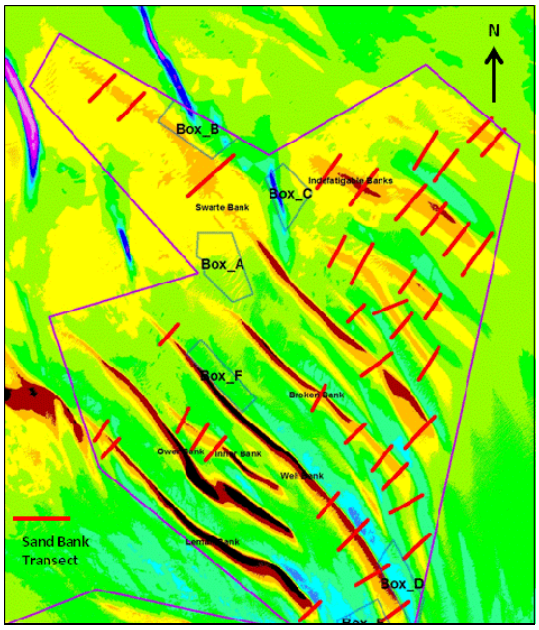


Figure 8. Map showing the location of proposed sandbank transects. Not all transects were surveyed due to time constraints.

To define the profile of the sandbank a transect of multibeam was acquired across the sandbank. Once this had been completed the profile of the sandbank was plotted using the profile tool in OLEX. Five grab samples were then positioned across the sandbank (Trough, Flank, Crest, Flank, and Trough) (Figure 9). Hamon grab samples from each of the stations across the sandbank were then collected for macrofauna (>1 mm) and Particle Size Analysis (PSA).

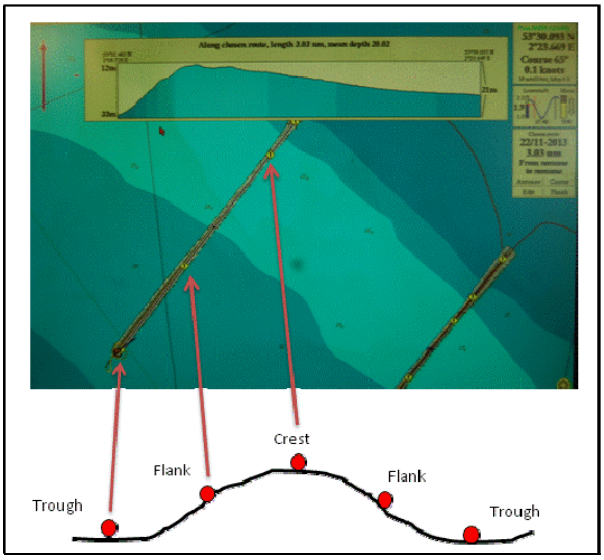


Figure 9. Diagram demonstrating the use of the seabed profiling tool in OLEX and how the Multibeam acoustic transect line was used to plot the profile of the sandbank and then position sample stations in troughs, on flanks and on the crest of the sandbank.

2.2 Survey Equipment and sample processing

2.2.1 Sidescan sonar

High resolution sidescan sonar data were acquired using an Edgetech FS4200 system. The sonar simultaneously acquires data at 300 and 600 kHz frequencies. The towed body was deployed from the stern of the vessel. Data were recorded using the Edgetech Discovery software in both proprietary JSF and universal XTF format. During survey operations cable out was recorded to allow layback calculations to be applied during post-processing of the data.

All post-processing of data was undertaken using the Triton Imaging ISIS software suite. Georeferenced TIFF images were created using DelphMap software and exported at 30cm resolution.

2.2.2 Multibeam bathymetry and backscatter

Multibeam bathymetry and backscatter data were acquired using the Kongsberg EM2040 system operated at 300 kHz and deployed on the drop keel of RV Cefas Endeavour, which was lowered to 1 m below the underside of the vessel. Variations of sound velocity with water depth were determined using a CTD (conductivity-temperature-depth) probe taken at 24 hour intervals and applied during multibeam data processing. Details of the multibeam equipment are provided in Annex I. Since no system changes had been made since the last 2 system calibrations in January and March 2013, previous calibration settings were adopted. No data quality issues were found, suggesting system recalibration was not required.

The raw multibeam bathymetry data were processed using CARIS HIPS and QPS Fledermaus. Tidal information was extracted from a high precision CNAV 3050 DGPS receiver. Tide height data were smoothed and extracted to reduce the bathymetry data to Chart Datum. Multibeam backscatter data were processed with the QPS Fledermaus Geocoder Toolbox (FMGT) software to produce floating point (FP) GeoTiff images.

2.2.3 Ground-truth sampling

Ground-truth sampling was achieved using grabs and underwater video cameras, as described below.

2.2.3.1 ***Grabs***

The grab system comprised a 0.1m^2 mini Hamon grab (Figure 10). Where sampling targeted specific features, the Hamon grab was equipped with a camera, the combined gear being known as a 'HamCam'. Samples were collected from within a 100m radius centred on the target location. On recovery, the grab was emptied into a large plastic bin and a representative sub-sample of sediment (approx. 0.5 litres) taken for PSA. The sample was stored in a labelled plastic container and frozen ready for transfer to a laboratory ashore. The remaining sample was photographed and the volume of sediment measured and recorded. Benthic fauna were collected by washing the sample with sea water over a 5mm and 1mm sieve. Material retained on the 5mm and 1mm sieves were photographed. The retained >1mm fraction was transferred to a labelled container and preserved in buffered 4% formaldehyde for later analysis ashore. A visual assessment was made of the sediment type sampled by the grab and noted on the field records, assigning the sample to a Folk class and its equivalent EUNIS and Broadscale Habitat (BSH) sediment classes. Where *Sabellaria spinulosa* reef fragments were recovered a full assessment of the fragments was undertaken, measuring height, width and depth, investigation of live worm presence and photographs taken.

Figure 10. Mini Hamon grab with video camera (HamCam).

2.2.3.2 ***Cameras***

Video observations were made with a drop camera system (Figure 11), including a video camera with capability to also capture still images. The camera (Kongsberg 14-208) was mounted in a rectangular drop-frame and deployed from the side gantry, amidships. Illumination was provided by four high intensity LED striplights and a dedicated flash unit. The camera was oriented to provide a forward oblique view of the seabed and was fitted with a four-spot (red) laser-scaling device, projecting the corners of a 17cm x 17cm square along the axis of the lens onto the seabed. During deployments the vessel executed a controlled drift at ~ 0.3 knots along the specified path. Set-up and operation followed the MESH 'Recommended Operating Guidelines (ROG) for underwater video and photographic imaging techniques[1]. Video was recorded simultaneously to a Sony GV-HD700 DV tape recorder and a computer hard drive. A video overlay was used to provide station metadata, time and position (of the GPS antenna) in the recorded video image. Stills images were captured at regular one minute intervals and with additional opportunistic images if specific features of interest were encountered. The height of the camera off the seabed was controlled by a winch operator who had sight of the video monitor.

During the survey, limited trials were also undertaken with a new camera system: SubC Imaging Chimaera. This camera has a far superior specification compared to the Kongsberg camera, but had not been deployed by Cefas before. The camera was deployed on the dropframe in a similar fashion to the Kongsberg camera.

[1] Coggan, R., Mitchell, A., White, J. and Golding, N. (2007) Recommended operating guidelines (ROG) for underwater video and photographic imaging techniques. MESH Project guideline document. Online: http://www.searchmesh.net/pdf/GMHM3_Video_ROG.pdf.

On selected tows, the drop frame was also equipped with GoPro cameras. A single camera was mounted in an outward looking position, to provide a wider context to the observations made by the main camera.

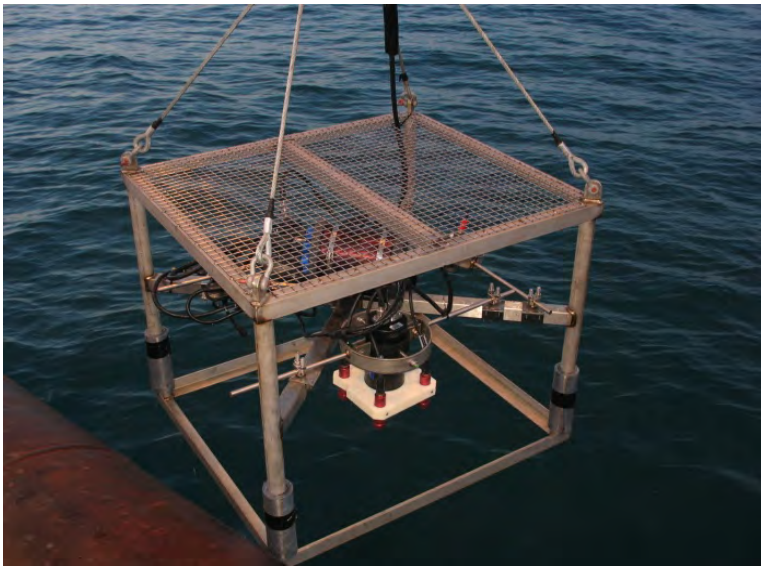


Figure 11. Drop camera frame showing camera and 4-spot laser scaling device.

Field notes were made during each camera deployment, noting station and sample metadata, real-time observations of substrate and taxa, and an initial assessment of the range of broadscale habitats (BSHs) seen. A summary pencil sketch depicting the main site characteristics was generally included.

2.2.4 Camera clock synchronisations

The internal clock of the camera used on the drop frame was synchronised with GPS time. This clock creates a timestamp in the EXIF data stored in the digital image. A calibration test was conducted using the camera to photograph a clock set to GPS time, and confirmed the camera clock was synchronised to GPS time.

2.2.5 GPS positions and corrections.

GPS fixes were recorded using the Tower Navigation system on RV Cefas Endeavour. The software records the geographic position of the sampling equipment depending on the deployment location and then applies an offsets to the logged positional data. Fixes for grab samples were taken at the instant the grab contacted the seabed. The grab was always deployed from the side gantry and the position recorded is taken to be the true position of the grab sample, as the grab typically drops directly down from the gantry. In extreme conditions an offset of up to ~10 metres may occur, but was not accounted for.

Fixes were made for each still image taken by the cameras. The drop camera was always deployed from the side gantry. The HiPAP underwater positioning system was activated during deployments, but often resulted in poor performance. This may have been caused by shallow water depth, dynamic positioning operation or other factors affecting the acoustic detection capability. Where the HiPAP system did provide accurate underwater positioning data, it proved that only minor variations were observed between HiPAP and side gantry positions. Side gantry positions were therefore selected as the source for all drop camera tows and stills positioning.

3 Survey Narrative

The RV *Cefas Endeavour* left Lowestoft at 20:00 on Monday 4 November 2013. On leaving port, the vessel set sail for the North Norfolk Sandbanks & Saturn Reef SCI survey site. At 21:30 on Monday 4 November 2013 an operations toolbox talk was held with scientific staff, officers and deck crew present. This was followed by equipment wet testing between 22:30 and 01:30. Some faults were identified and addressed. The vessel arrived at area of search A within the survey site at 7:30 on Tuesday 5 November 2013 when acoustic survey operations started. The drop keel was deployed to 1m and a sound velocity profile was collected. An emergency drill was held at 13:00 requiring all staff to get in an immersion suit and move to their life raft station. Acoustic survey operations continued until 18:50 on Wednesday 6 November 2013. Following some camera checks, drop camera and Hamon grab sampling started 19:35. Communication issues with the camera were experienced. Software changes and system reset did not resolve camera issues. Whilst camera operations were halted, Hamon grab sampling continued at four stations. Following rewiring of the camera distribution box, the camera system was operational again by 23:06 and no further issues were experienced. On Thursday 7 November video and sampling operations continued at the stations on the 1.5 km grid. Following processing and review of sidescan sonar data, additional survey stations were selected for longer video tows. Operations at these additional stations started 12:00. Stations in the north east of area A did not reveal any *Sabellaria spinulosa* reefs. At 14:30, at station A54, camera comparison trials were undertaken. The same tow was repeated with both SubC Imaging and Kongsberg cameras. Issues were experienced with the SubC Imaging flash system, resulting in poor quality stills images. Operations continued with the Kongsberg camera system. As stations in the north west of area A were visited, medium/high quality reef features were encountered at several stations. In order to assess whether the reef was occupied by live worms, targeted sampling using the Hamon grab was undertaken at selected sites. The samples recovered allowed estimates of reef height and revealed worms living within the tubes. Ground-truthing operations at area A were completed 04:00 on Friday 8 November 2013.

The vessel then transited to area C, where industry data previously identified *Sabellaria spinulosa* reef. Sidescan sonar and multibeam echosounder data acquisition started 05:00 on Friday 8 November 2013 and continued until 07:00 on Saturday 9 November 2013. As weather conditions had deteriorated, conditions were assessed whilst maintenance work was undertaken on the Tower logging system. Sampling and video work was resumed at 09:00 and continued throughout the day. Some problems were experienced with the drop camera system throughout the day, which resulted in 30 minutes of lost time. Some observations of patchy *Sabellaria spinulosa* reef were made. Ground-truthing work in area of search C was completed in the early hours of Sunday 10 November 2013. As no major reef observations were made in area C, it was decided not to undertake any additional work here. In the meantime an in-depth review of Area A data had identified a few new areas which would benefit from further investigation. Additional sidescan sonar lines were run, which were completed by 11:30. Along the additional sonar lines, further video tows were planned. All were successful in locating *Sabellaria spinulosa* reef features. Camera issues were experienced at the last video station, which resulted in some equipment downtime. During the day weather forecasts were reviewed and discussions had with the Lowestoft pilot to assess if planned docking at 16:00 on Monday 11 November would be possible. Conditions were not deemed favourable and it was agreed to delay docking by 12 hours until Tuesday 12 November 04:00. Survey plans were adapted to incorporate an additional 12 hours of work.

The vessel set sail for a new area of search, F, where *Sabellaria spinulosa* reef had been reported by industry surveys. Sidescan operation started 22:45 and continued until 16:30 on Monday 11 November 2013.

RV Cefas Endeavour docked in Lowestoft at 02:30 on Tuesday 12 November. JNCC trainee survey leads disembarked and were replaced by Cefas staff as planned. Cefas Endeavour sailed at 15:30, 12 November and transited to North Norfolk and Saturn Reef SCI, arriving at 04:30, 13 November. On arrival a Sound Velocity Cast (SVP) cast was carried out before continuing the Sidescan and Multibeam (SS/MB) survey at Box F. The SS/MB survey was completed 12:00, 13 November. On completion of the SS/MB survey of Box F work then began on the ground-truthing survey. During this time the SS data was processed and interpreted. Areas of possible *Sabellaria spinulosa* reef were delineated and additional ground truthing stations targeting these specific areas planned.

At 04:30, 14 November the weather and underwater visibility deteriorated sufficiently to prevent further Drop Camera deployments. RV Cefas Endeavour then transited north to begin the planned SS/MB survey at Box B. At 14:30, worsening weather condition prevented further acoustic data acquisition. Efforts were made to collect data in the direction of the prevailing weather conditions but the data was still deemed to be of insufficient quality.

Work restarted 06:15, 15 November on the SS/MB survey at Box B. At 16:15, 15 November the survey had to be halted due to a problem with a connector on the sidescan fish. While this connector was replaced work began on the planned ground truthing survey at Box B. Once the sidescan fish was repaired work continued on the SS/MB survey. The SS/MB survey was completed 15:00, 16 November.

On completion of the SS/MB survey work resumed on the ground-truthing survey, during which time the SS data was processed and interpreted [No potential areas on *Sabellaria spinulosa* reef were identified]. The ground-truthing survey was completed 22:30, 16 November.

RV Cefas Endeavour then transited back to Box F to survey the remaining ground truthing stations. The remaining stations were successfully surveyed 10:10, 17 November after which RV Cefas Endeavour transited south to begin the SS/MB survey at Box E. On arrival a SVP cast was carried prior to the start of the survey. The SS/MB survey was completed 14:09, 18 November after which RV Cefas Endeavour transited to the first ground-truthing station. Work continued on the ground-truthing survey until poor underwater visibility prevented the use of the Drop Camera. Cefas Endeavour then transited north to Box D to begin the planned SS/MB survey and to allow time for the underwater visibility to improve.

Due to further deterioration in sea state and data quality the SS/MB survey of Box B was halted 13:15, 19 November. Work then commenced on the planned ground-truthing survey at Box D however due to still worsening weather conditions all operations were stopped at 07:00, 20 November.

At 15:00, 20 November a trial SS/MB survey line was run to assess data quality, unfortunately the data quality was still poor. With weather conditions still preventing the deployment of the Hamon grab and Drop Camera, a decision was made to run some MB infill lines at Box E which resulted in 100% coverage of both SS and MB at Box E.

Due to there being no improvement in the weather it was then decided to transit north to begin work on the planned sandbank transects (Aim 2). On arrival 18:20, 21 November an SVP cast was carried out before beginning the planned MB and Hamon grab surveys of selected sandbanks. Work continued on the sandbank transects until the northern section of the sandbank survey plan had been completed at 00:30, 23 November. During this time the weather had improved sufficiently to return to Box D to continue the SS/MB survey 05:00, 23 November. On completion of the SS/MB several ground truthing stations were planned over areas identified as possible *Sabellaria spinulosa* reef from the acoustic record. Several attempts were made to survey these areas with the Drop Camera but poor underwater visibility prevented the acquisition of usable video and still images.

On completion of Box D SS/MB survey RVCefas Endeavour transited west back to Box E to survey the remaining Drop Camera stations which had been targeted at possible *Sabellaria spinulosa* reef signatures interpreted from the acoustic record. On completion of these stations RV Cefas Endeavour proceeded northwest to continue collecting data from sandbank transects located in the west of the site (Aim 2) 06:00, 24 November. RV Cefas Endeavour surveyed a further six sandbank transect before leaving the site at 2:00, 25 November.

4 Preliminary Results

4.1 Acoustic Maps

Sidescan sonar and multibeam echosounder data were collected in a number of predefined areas of search. The surveys were designed to achieve full seafloor coverage using sidescan sonar. As a result, only partial seafloor coverage was achieved with the multibeam echosounder.

Sidescan sonar and multibeam data were processed onboard following standard Cefas procedures (see method section). Detailed technical “Reports of Survey” are provided as deliverables for the multibeam bathymetry and backscatter datasets.

Area of search A showed a variation in water depths between 15 and 30m below Chart Datum (Figure 12). The southern part of the area was characterised by large sandwaves with general NNE-SSW orientation. To the north, a relatively flat area of seabed was found, which on the backscatter and sidescan sonar revealed coarser sediment. In the northwestern part of the area, sidescan sonar signatures often indicative of *Sabellaria spinulosa* reef could be seen and were investigated further using camera systems (Figure 11).

Area of search B was characterised by a water depth between 25 and 30m and two deeper trenches with NNW-SSE orientation deepening to 40m below Chart Datum (Figure 13). The shallows were characterised by high backscatter intensity suggesting coarse and hard substrates. Locally, patches with lower backscatter were observed, associated with sandwave features. The deeper trenches were also characterised by lower backscatter returns.

Area of search C was characterised by a deep trench with NNW-SSE orientation, reaching 55 m below Chart Datum (Figure 14). The remainder of the areas was generally featureless and flat, at a water depth between 25 and 30m below Chart Datum. Backscatter and sidescan sonar data revealed coarser sediment to the east of the trench. The trench itself and the area to the west revealed much softer, sandier sediments.

Area of search D was situated in-between sandbanks. In the deeper lying parts water depths reached around 50m below Chart Datum, whereas shallower depths of 25m were reached on the flanks of the sandbank (Figure 15). In the southern part of the area, sedimentary bedforms could be observed. The backscatter strength in these areas was lower compared to surrounding areas, similar to those on the flanks of the sandbank. We should mention that gap in middle of dataset was due to oil and as infrastructure safety zones which the vessel needed to avoid?

Area of search E was characterised by a water depth decreasing from west (50m) to east (20m) (Figure 16). The shallow edges of the sandbanks were also characterised by the presence of sedimentary bedforms. The backscatter associated with these features was lower compared to the deeper lying areas. In the central part of the block a few more isolated beforms were present, characterised by slightly higher backscatter returns around them.

Area of search F was characterised by water depths varying between 20 and 30m below Chart Datum (Figure 17). In the northwestern corner, water depths reached 50m. Large parts of the morphology of the area was characterised by sedimentary bedforms with slightly lower backscatter response. The deeper areas to the west and east showed slightly stronger backscatter return suggesting coarser or harder substrates.

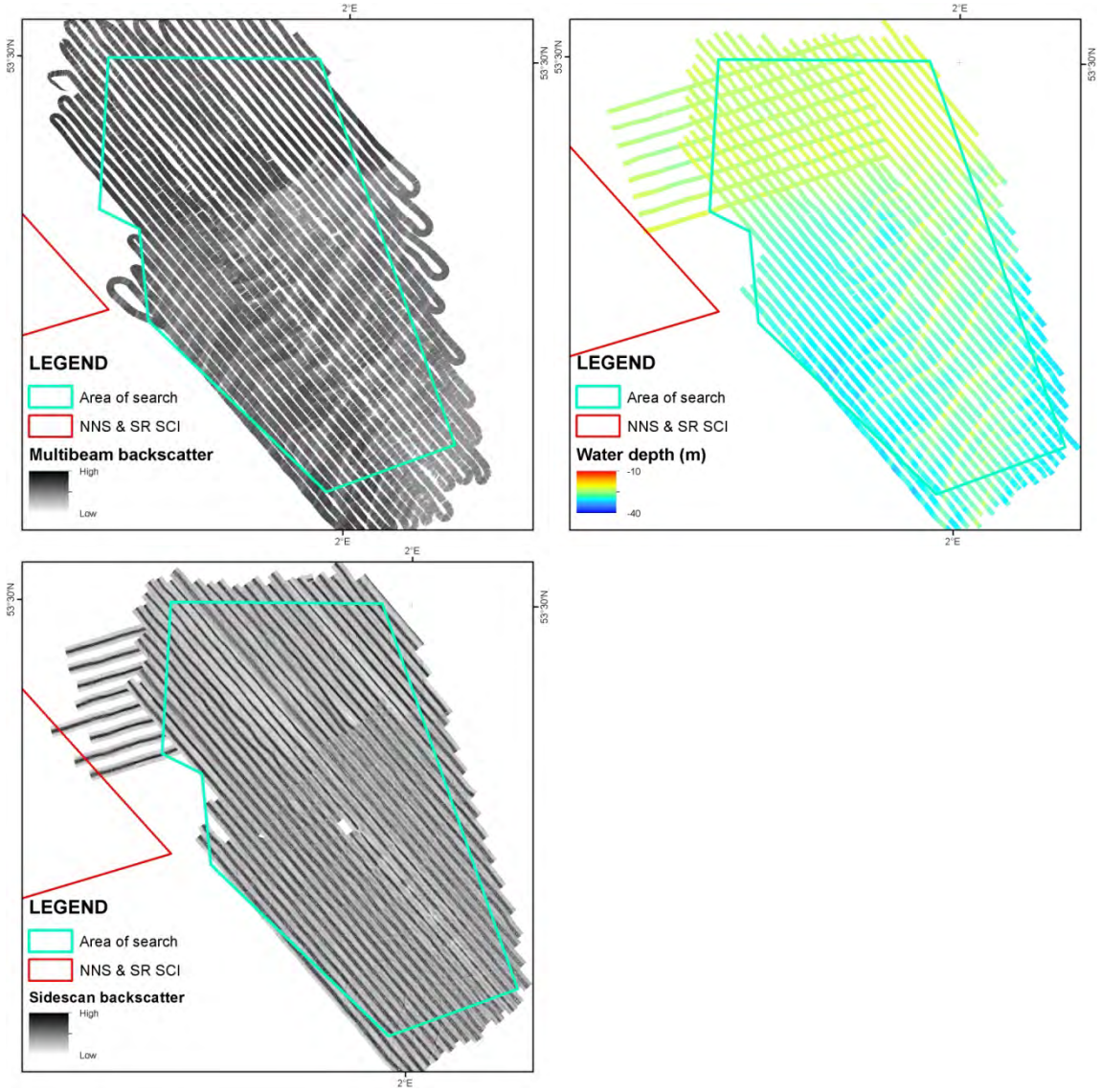


Figure 12. (Top left) Multibeam backscatter for area of search A; (Top right) Multibeam bathymetry for area of search A; (Bottom left) Sidescan sonar backscatter for area of search A.

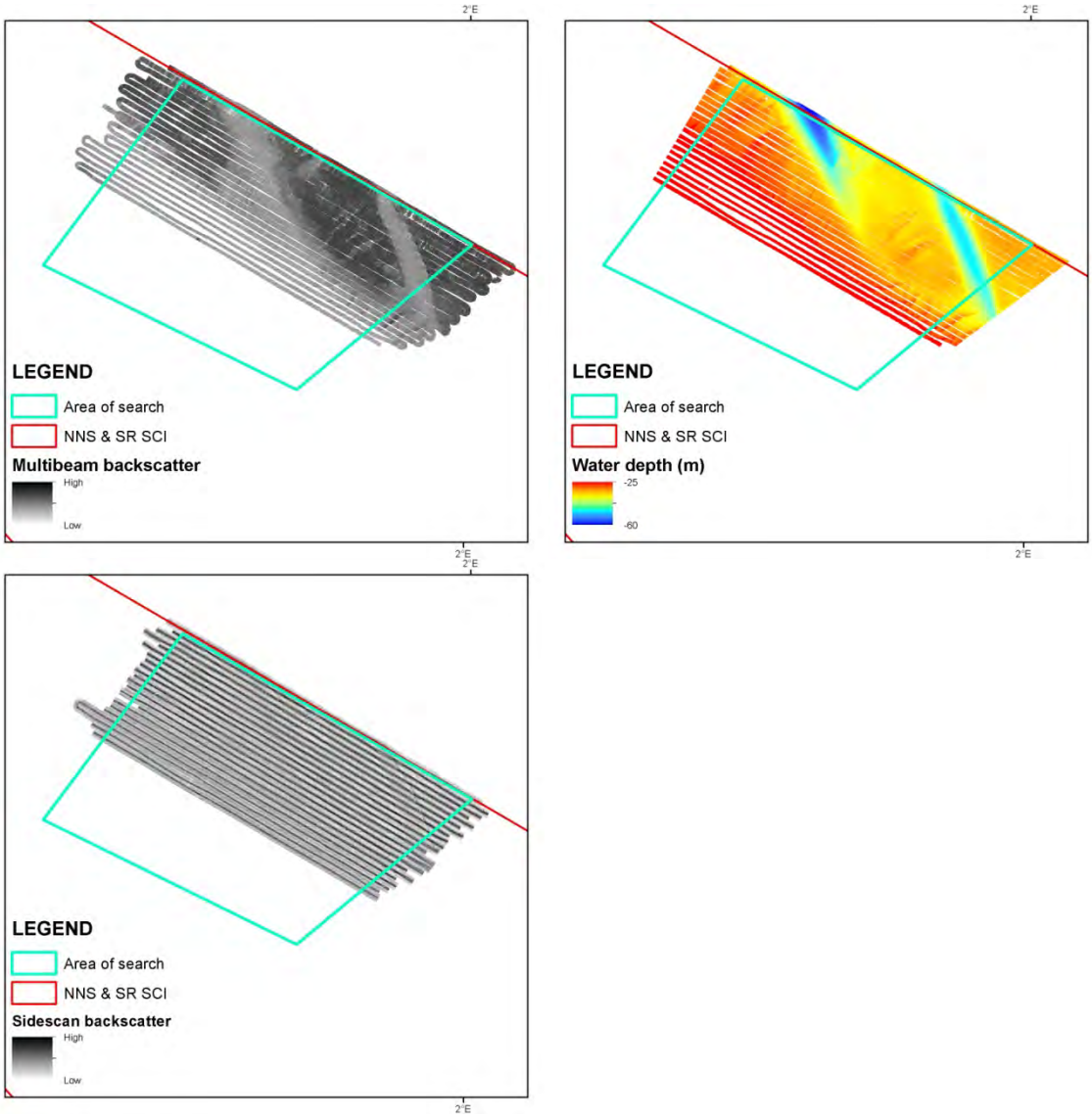


Figure 13. (Top left) Multibeam backscatter for area of search B; (Top right) Multibeam bathymetry for area of search B; (Bottom left) Sidescan sonar backscatter for area of search B.

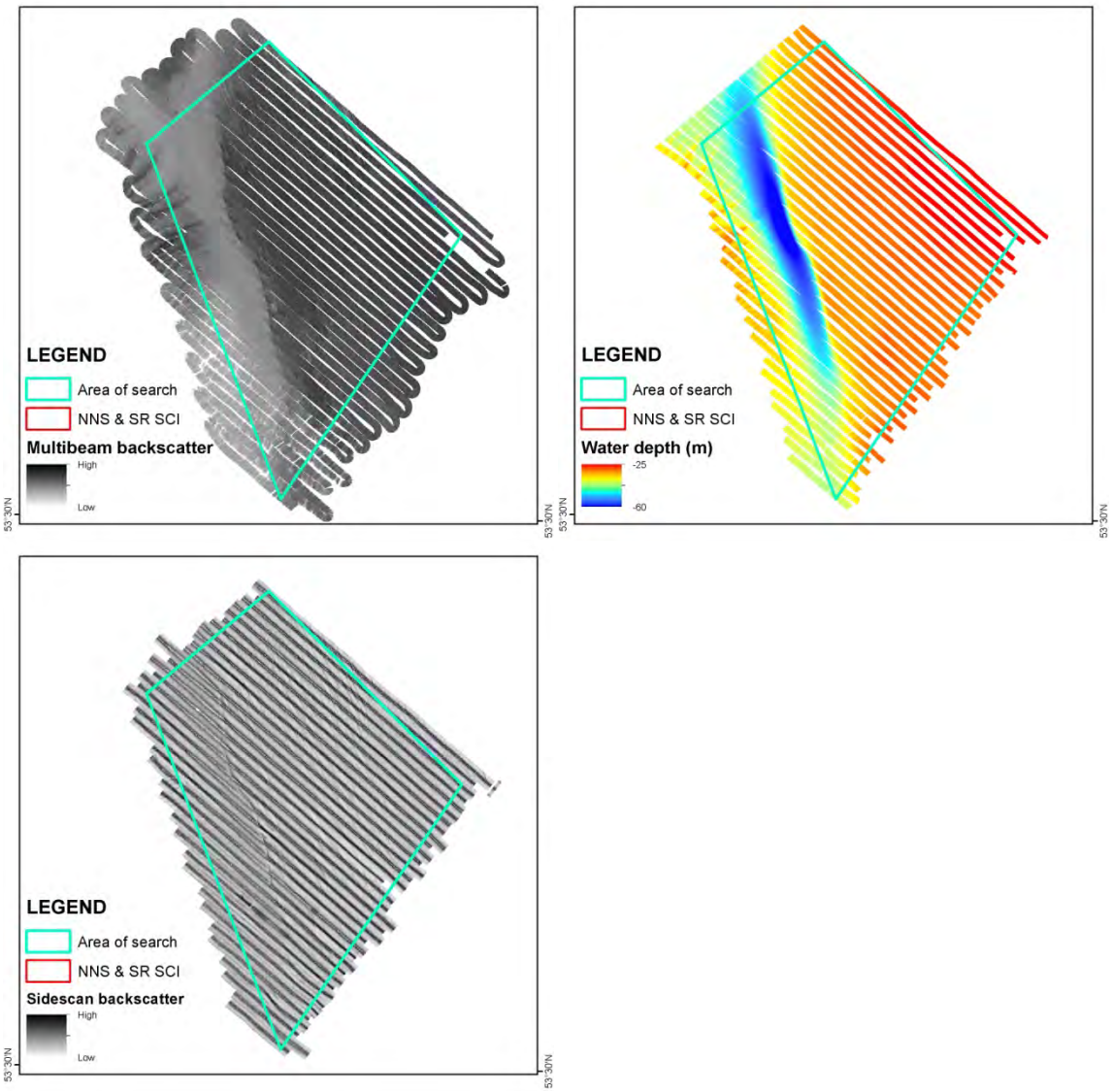


Figure 14. (Top left) Multibeam backscatter for area of search C; (Top right) Multibeam bathymetry for area of search C; (Bottom left) Sidescan sonar backscatter for area of search C.

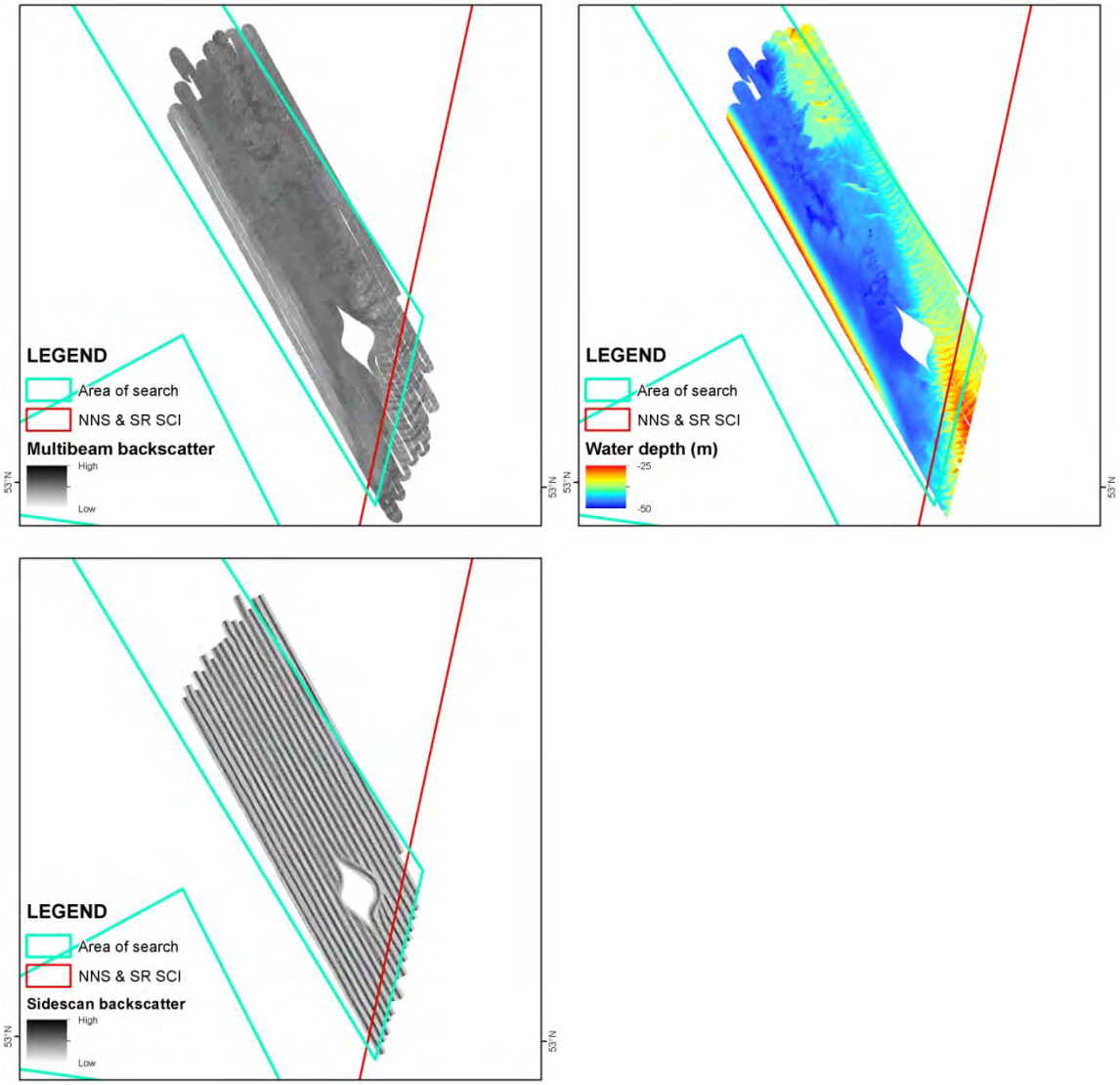


Figure 15. (Top left) Multibeam backscatter for area of search D; (Top right) Multibeam bathymetry for area of search D; (Bottom left) Sidescan sonar backscatter for area of search D. The gap in the data is due to a gas installation.

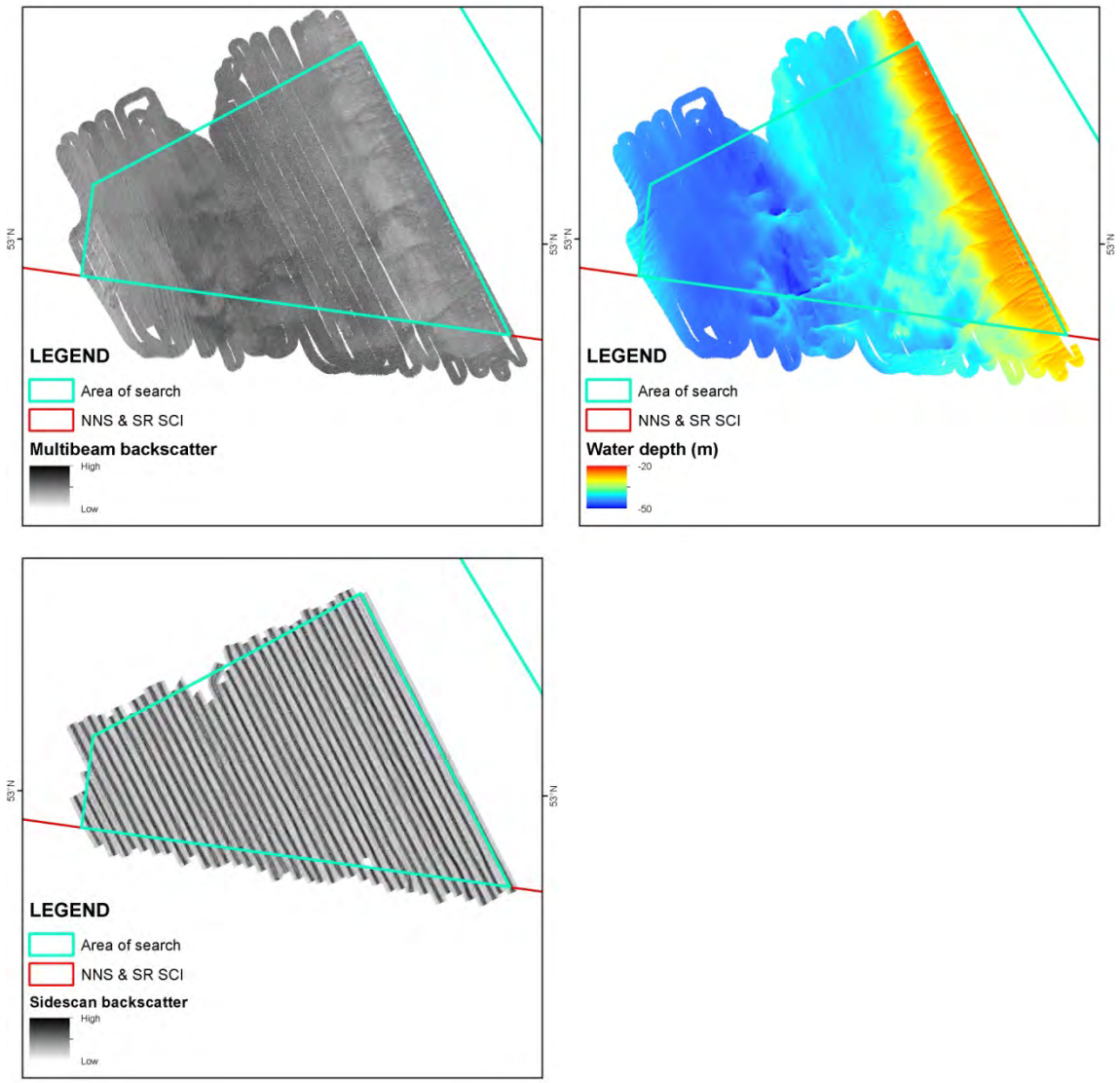


Figure 16. (Top left) Multibeam backscatter for area of search E; (Top right) Multibeam bathymetry for area of search E; (Bottom left) Sidescan sonar backscatter for area of search E.

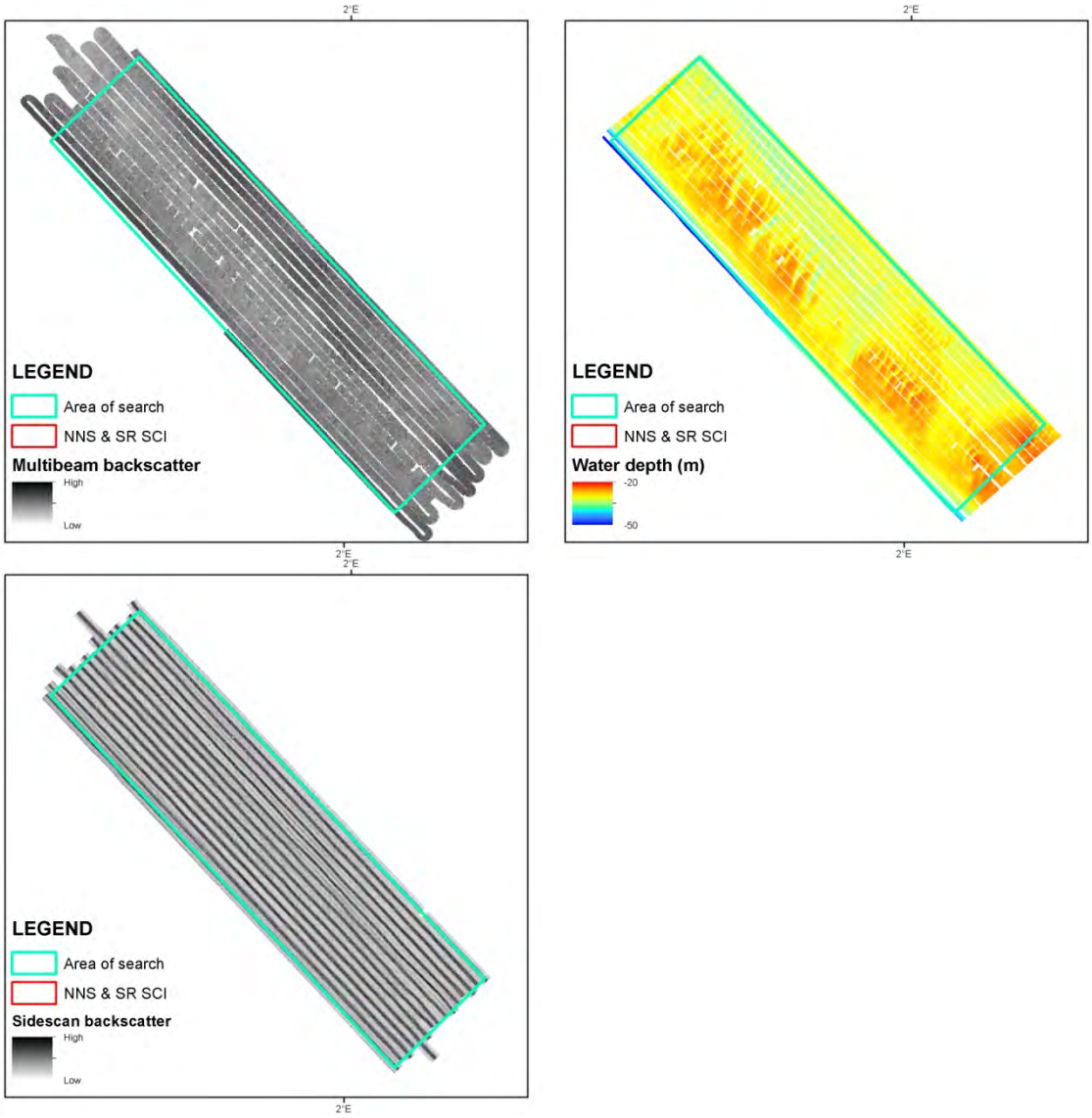


Figure 17. (Top left) Multibeam backscatter for area of search F; (Top right) Multibeam bathymetry for area of search F; (Bottom left) Sidescan sonar backscatter for area of search F.

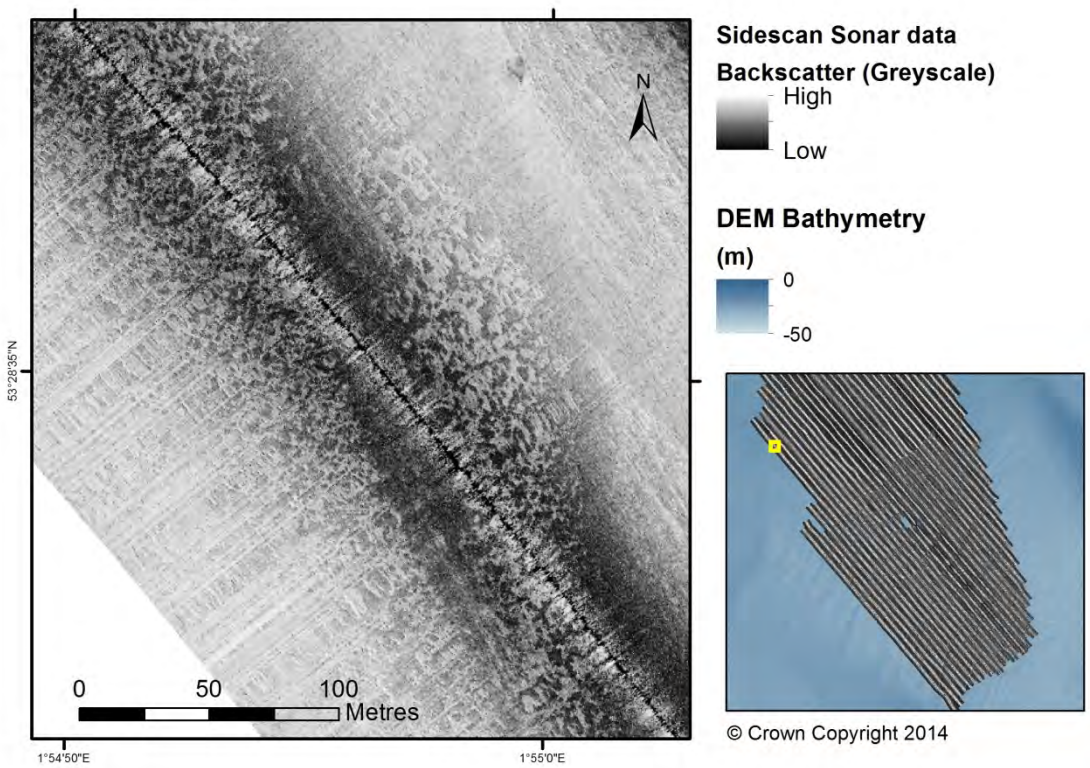


Figure 18. Characteristic potential *Sabellaria spinulosa* reef sidescan sonar signature identified in Box A.

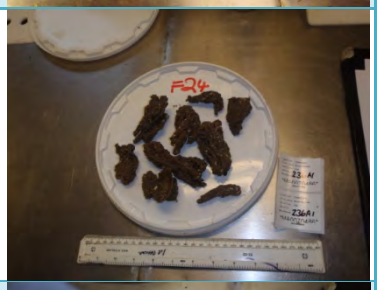
4.2 Grab samples (Sabellaria spinulosa reef survey)

Grab samples were collected at all planned survey grab stations (Figure 7). Images of each grab sample are presented in Tables 5-10 (Appendix VI).

Where *Sabellaria spinulosa* reef was collected using the Hamon grab additional images were taken of representative fragments of the reef (Table 4).

Table 4. Images of *Sabellaria spinulosa* reef taken from Hamon grab samples.

Station Code	Image of *Sabellaria spinulosa* reef fragments
NNSB_CEND2213_A57_STN_062_A4	
NNSB_CEND2213_A58_STN_067_A2	
NNSB_CEND2213_A59_STN_064_A2	
NNSB_CEND2213_A64_STN_059_A1	
NNSB_CEND2213_C19_STN_092_A2	
NNSB_CEND2213_F19_STN_161_A1	

Station Code	Image of *Sabellaria spinulosa* reef fragments
NNSB_CEND2213_ F22_STN_231_A2	
NNSB_CEND2213_ F24_STN_236_A1	
NNSB_CEND2213_ F23_STN_237_A3	
NNSB_CEND2213_ E06_STN_251_A1	
NNSB_CEND2213_ E07_STN_253_A1	
NNSB_CEND2213_ E08_STN_256_A1	

Station Code	Image of *Sabellaria spinulosa* reef fragments
NNSB_CEND2213_ E22_STN_254_A1	

4.3 Seabed Imagery (Sabellaria spinulosa reef survey)

A selection of three still images from each of the camera sledge deployments is presented in Tables 12-18 (Appendix VII), illustrating what was observed on the video tows.

4.4 Annex 1 interest feature (Sabellaria spinulosa reef)

Real-time assessment of the data collected during this survey suggested *Sabellaria spinulosa* reef was present in various locations within the North Norfolk Sandbanks and Saturn Reef SCI. At the actual location where Saturn Reef was reported in the past, only *Sabellaria spinulosa* tube rubble was observed. *Sabelleria spinulosa* reef (Figure 19) was however observed at several other locations within the SCI boundary. Figure 20 shows the distribution of those stations across the site based on preliminary reviews of the data collected during the survey.

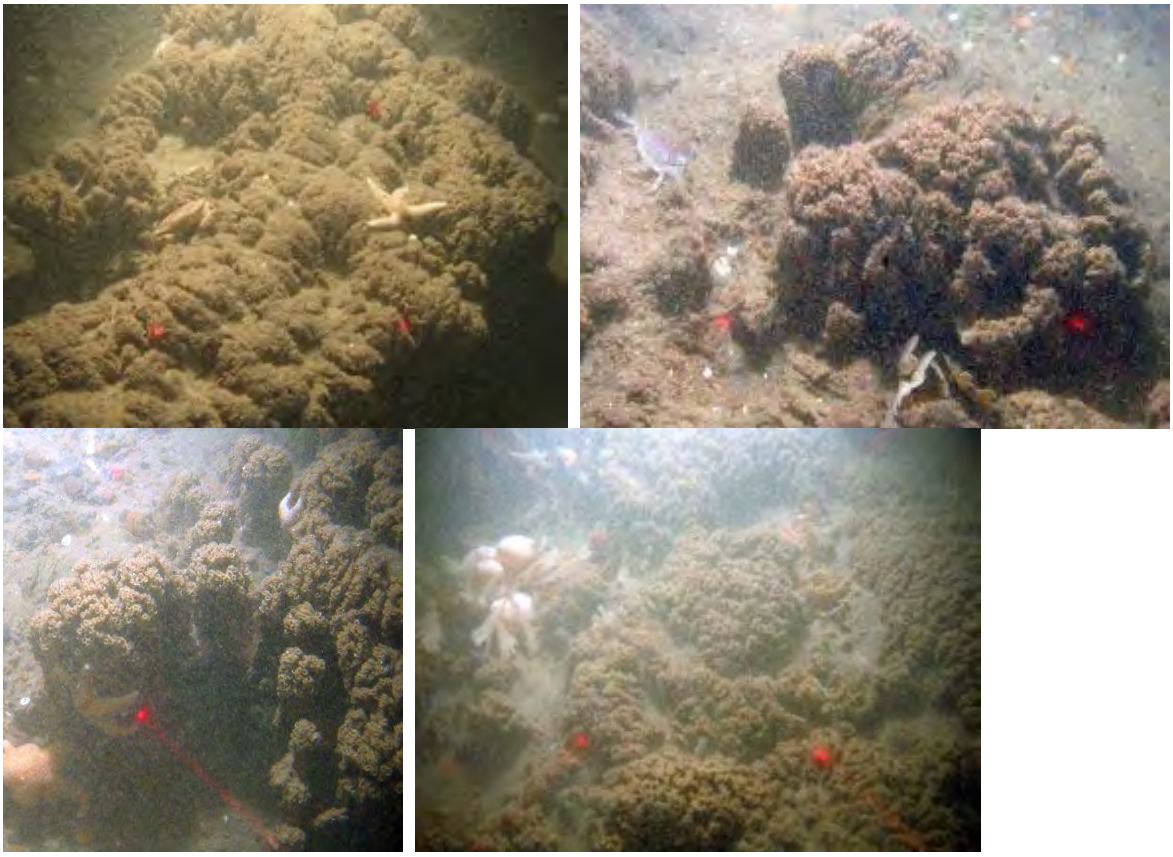


Figure 19. Underwater still Imagery of potential *Sabellaria spinulosa* reef features.

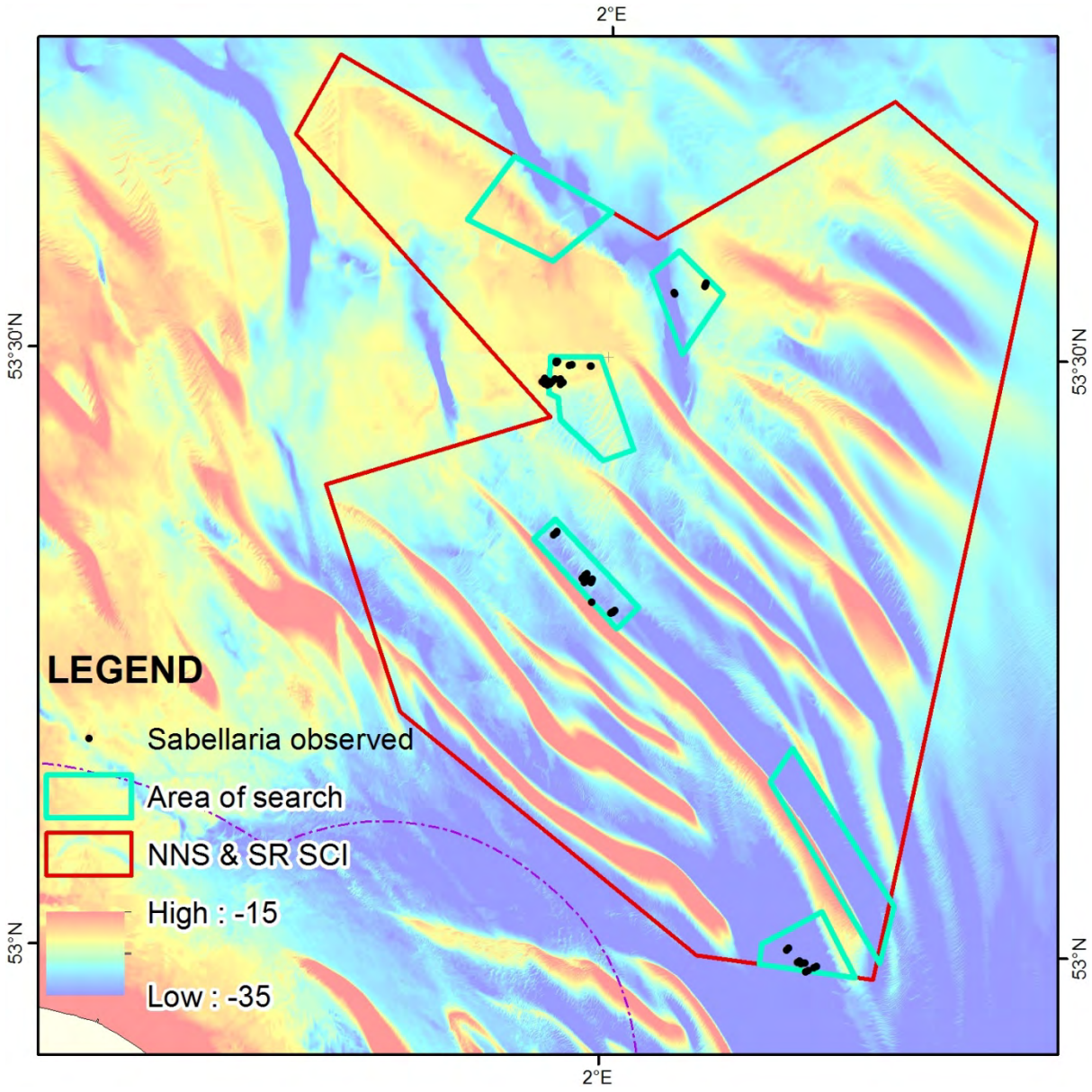


Figure 20. Potential *Sabellaria spinulosa* reef observed.

4.5 Grab samples (sandbank transect survey)

Grab samples were collected across the profile of several sandbanks (Figure 8). Images of each grab sample are presented in Appendix VII (Table 11). In general sediments were found to be more mixed in the troughs between the sandbanks when visually compared with samples acquired from the flanks and crests. At the time of writing this report the acoustic data collected during the sandbank survey had not been processed. This data will be included in the final report.

5 Evidence of anthropogenic impacts

During real time data acquisition, data were reviewed for evidence of anthropogenic disturbance. The North Norfolk Sandbanks and Saturn Reef SCI has a large number of gas platforms with its boundary. During the sidescan sonar surveys, pipelines were often observed in the records. These observations coincided with known locations of pipelines on the seabed. The processed sidescan sonar and backscatter mosaics also revealed trawl scars in several locations. These appeared mainly in the southern, sandier part of area of search A, and the northern, again sandier, part of area of search C (Figure 21). Pair-trawlers were observed fishing on the landward side of Well Bank West of Box F.

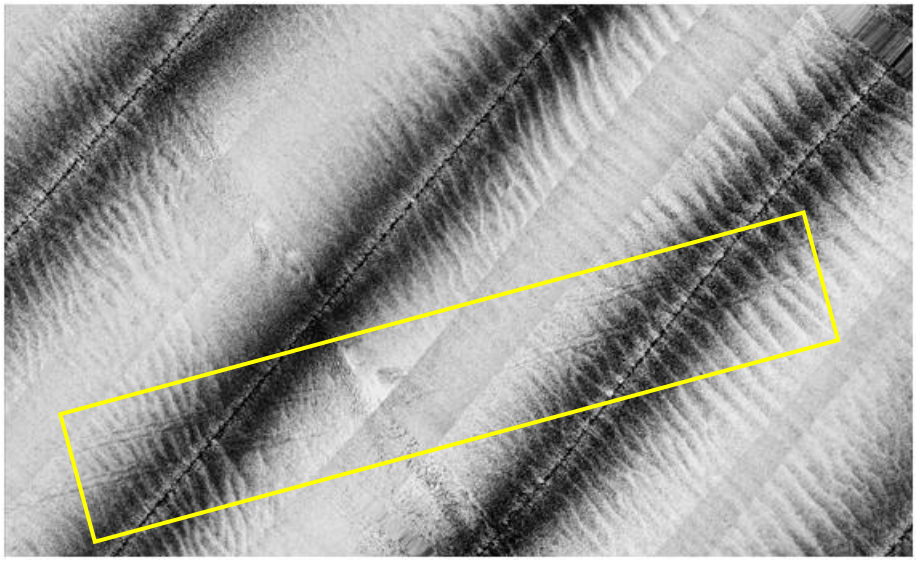


Figure 21. Detail of the sidescan sonar revealing trawls scars on the seabed.

6 Health and safety events

Health and safety inductions for staff who had not been onboard the vessel in the last six months took place on Monday 4 November 2013 at 16:00.

An emergency drill took place at 13:00 on Tuesday 5 November 2013 which required staff to report at the muster station and don an immersion suit. This was followed by a demonstration on launching life rafts. Further emergency drills took place on Tuesday 12 November which detailed fire fighting equipment held onboard and Sunday 17 November which demonstrated a man overboard scenario and finally on Sunday 24 November which demonstrated a fire in the galley scenario.

On the 10 November 2013 a health and safety incident occurred when a computer tower fell onto a scientist staff's foot. The incident was logged and appropriate action was taken to avoid reoccurrence.

Appendix I Vessel and equipment

1. RV Cefas Endeavour

Port of registry	Lowestoft
Length OA	73.00 m (excluding stern roller)
Length extreme	73.916 m
Breadth (MLD)	15.80 m
Depth (MLD)	8.20 m
Design draft	5.00 m
Deep draught	5.50 m
LBP	66.50 m
Gross tonnage	2983 tonnes
Net register tonnage	894 tonnes
Net lightship	2436 tonnes
Deadweight @ 5.00 m	784 tonnes
Deadweight @ 5.50 m	1244 tonnes
Displacement @ 5.00 m	3210 tonnes
Displacement @ 5.50 m	3680 tonnes
Builder	Ferguson Shipbuilders Limited, Port Glasgow
Commissioned	2003
Communications	In port BT Tel. Cellphone Voice/Fax/Data Radio TELEX Inmarsat C Fleet 77 (Inmarsat F) and VSAT (Eutelsat) internet access
Endurance	42 days
Complement	En-suite accommodation for 16 crew and 19 scientists with dedicated hospital facility
Propulsion System	AC/DC Diesel Electric 3 x diesel electric AC generators, individually raft mounted 2 x tandem electric DC motors Single screw
Power generation	3240 Kw
Power propulsion	2230 Kw
Thrusters	Bow thruster (flush mounted azimuthing) Stern thruster (tunnel)
Trial speed	14.4 knots
Bollard pull	29 tonnes
Call sign	VQHF3
Official number	906938
MMSI	235005270
Lloyds/IMO number	9251107
Side Gantry	7.5 tonne articulated side A-frame
Stern Gantry	25 tonne stern A-frame
Winches	3 x cranes 35 tM, heave compensated 2 x trawl winches, 2 x drum winches (1 double)

	Double barrel survey winch with motion compensation and slip rings Double barrel survey winch with slip rings Double barrel towing winch with slip rings Side-scan sonar winch with slip rings 3 x Gilson winches (one fitted to stern A-frame)
Transducers/Sea tube	Drop keel to deploy transducers outside the hull boundary layer in addition to hull mounted transducers. 1.2 m diameter sea tube/moon-pool
Acoustic equipment	Kongsberg HiPAP 500 positioning sonar EK60 38/120/200 kHz scientific sounder EA 600 50/200 kHz scientific sounder SH80 high frequency omni-directional sonar Kongsberg EM2040 multibeam echosounders Hull mounted Scanmar fishing computer transducers Scanmar net measuring system
Boats	2 x 8 m rigid work and rescue boats with suite of navigational equipment deployed on heave-compensated davits
Laboratories	8 networked laboratories designed for optimum flexibility of purpose 4 serviced deck locations for containerised laboratories
Special features	Dynamic positioning system Intering anti-roll system Local Area Network with scientific data management system Ship-wide general information system CCTV
Class	LRS 100A1+LMC UMS SCM CCS ICC IP ES(2) DP(CM) ICE class 2

2. Camera Sledge

Kongsberg Underwater Digital Stills Camera: model OE 14-208. Digital video and stills (5 Mega pixels).

Dedicated flash unit: model OE11-242.

Underwater lights – Cefas high power LED strip lights

Camera settings variable depending on underwater visibility and ambient light levels.

Four underwater spot lasers. One underwater fan laser.

3. Survey navigation package

All sampling events were logged using the Tower Hydrographics software package. The software automatically calculates actual sampling locations based on deployment location (side or stern gantry) using defined offsets from the actual GPS antenna locations.

4. Multibeam Acoustic systems

Model: Kongsberg EM2040 multibeam echosounder operated at 200 kHz. Calibrated by patch test on 5 January 2013 (see calibration report below).

Hardware online	**Type**	**Remarks**
Kongsberg EM2040	Multibeam echosounder	Head serial 220
Seapath 330 plus MRU-5	Motion and heading sensor: Primary Navigation: Secondary	Serial MRU-5 2043 Serial Seapath S/N10580
C-Nav 3050 GPS	Navigation: Primary	C-NAVC correction service (GPS + GLONASS)
Thales 3011 GPS	Navigation: Tertiary	Fugro Seastar differential corrections
TSS MAHRS	Motion and heading sensor: Secondary	SN 040644
SAIV SD204	CTD profiler	Serial 718
Reson SVP24	Blade SVP sensor	Mounted next to sonar heads
Druck PTX 1830	Vessel draft sensor	
Software	**Type**	**Remarks**
Kongsberg SIS V3.9.2	Multibeam acquisition	
Caris HIPS V8.1.2 SP2	Multibeam bathymetry data processing	
QPS Fledermaus v7.3.3b	Multibeam backscatter data processing	
C-Nav C-tides Offline - Beta	C-Nav GPS Tide processing	Beta version

Appendix II Calibration report

The calibration settings were used from CEND03_13. The calibration procedure was carried out between 18 – 28 March 2013.

A pitch confirmation test was performed over distinguished features on the way to Wight Barfleur Box1, the pitch value had altered by -0.16, this was changed in SIS.

A patch test took place in Bassurelle Sandbank Box A, on the 28th of March over a known wreck site after the blade height was changed by 2.4m.

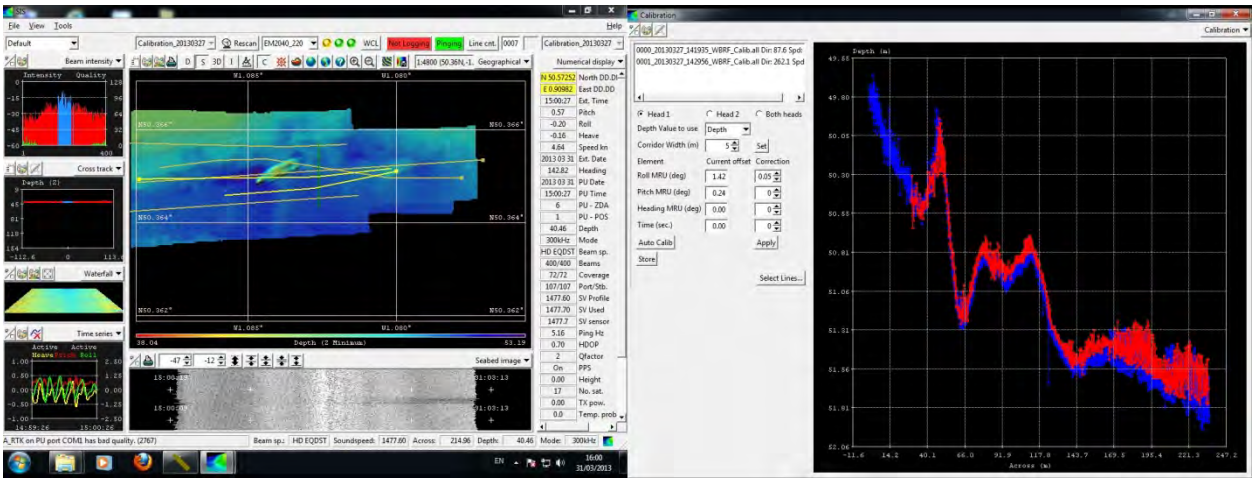
Four survey lines were run to calibrate for pitch, roll and yaw. Lines were not run for latency as 1PPS is being used.

The corrections for the angular offsets were applied in SIS under "Attitude 1".

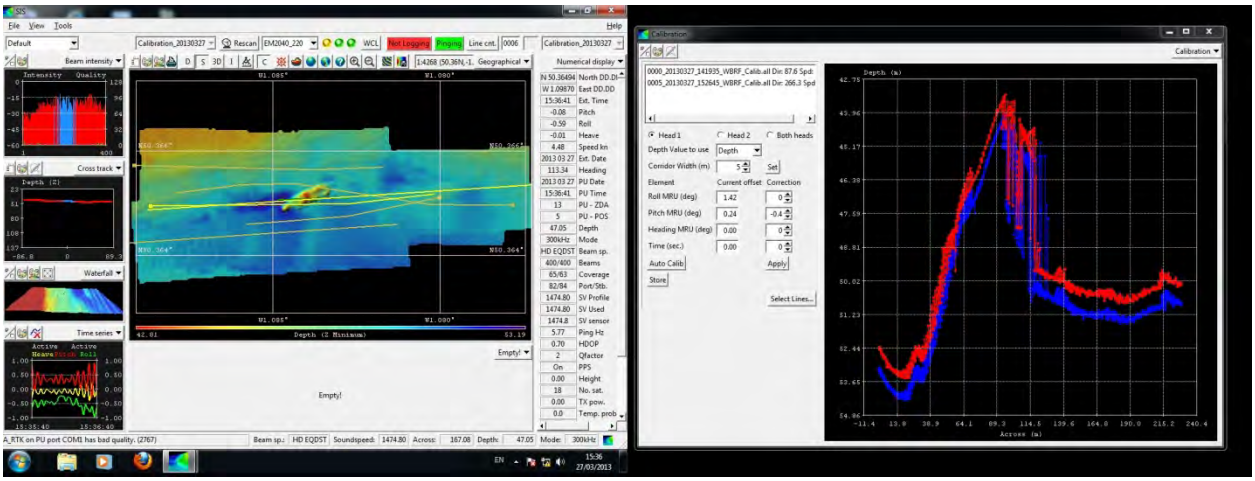
The lines were run over a reasonably flat area with a wreck, at a depth of around 50 meters.

The SIS Calibration Tool was used for processing.

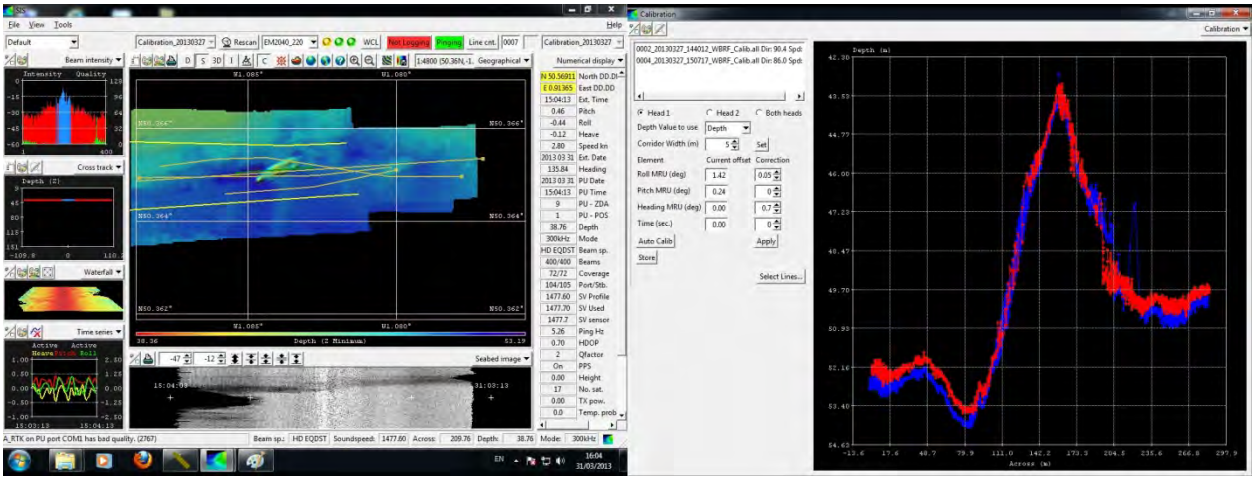
Roll Correction: 0.05



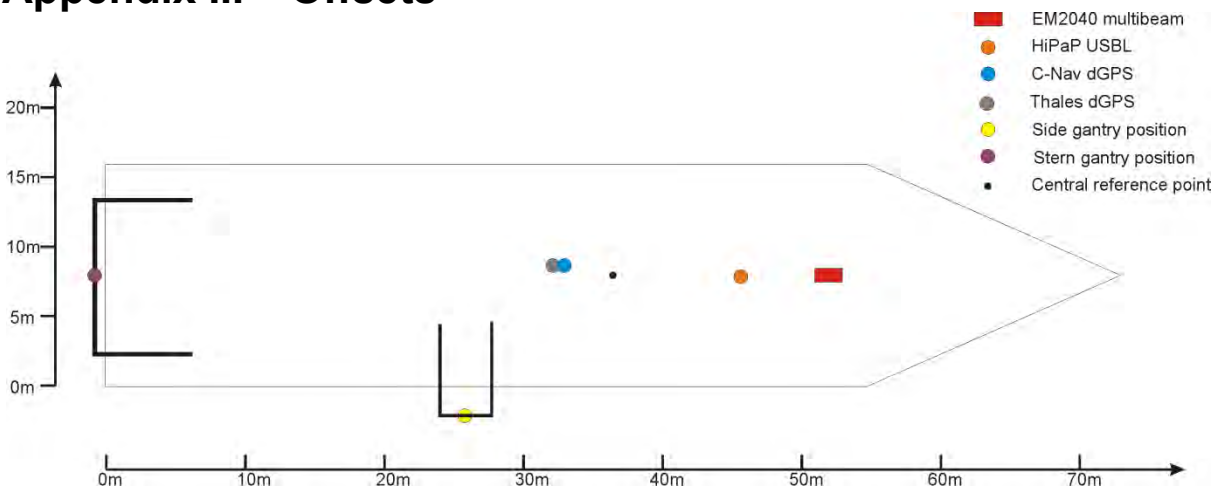
Pitch: -0.4



Yaw: 0.7



Appendix III Offsets



Type	X (m)	Y (m)	Z (m)
Central Reference Point	0	0	0
EM2040 multibeam	15.5	0	7.2
HiPAP transducer	9.2	-1	9.2
C-Nav dGPS	-3.5	-0.7	-21.7
Thales dGPS	-4.3	-0.8	-21.6
Side gantry	-10.7	10.1	n/a
Stern gantry	-36.6	0	n/a

Appendix IV Breakdown of survey operation time

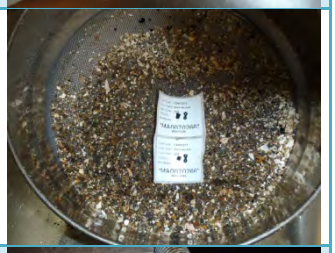
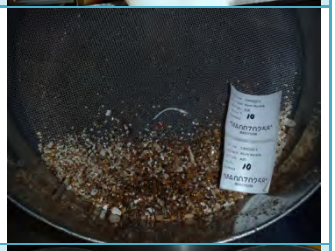
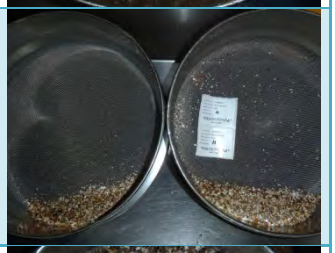
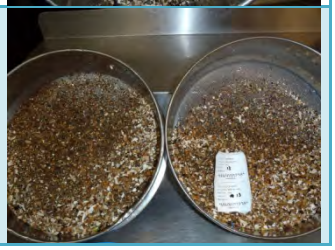
Type	Time (hh:mm)	Remarks
Mob/Demob	12:00	
Offshore Calibrations	5:30	Incl. gear trials, camera tests, daily CTD profilles
Total Operation Survey (TOSu)	75:36	
Total Operation Sampling (TOSa)	43:58	
Equipment/Downtime	1:57	
Ship/Plant Downtime		
Waiting On Weather	02:00	
Transit	22:39	Transit to and from site
Standby Port		
Others	00:50	Cefas equipment trials
Total:	**346:30**	

Appendix V Daily Progress Reports

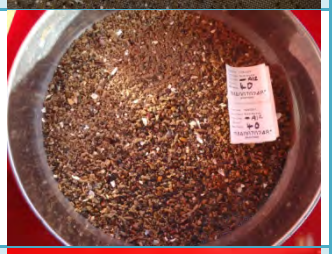
Original content was created pre-GDPR and has been removed as it contained personal information. No scientific or technical content has been removed.

Appendix VI Grab images

Table 5. Images of grab samples collected from area of search A. Complete grab samples, >5mm and >1mm residues.

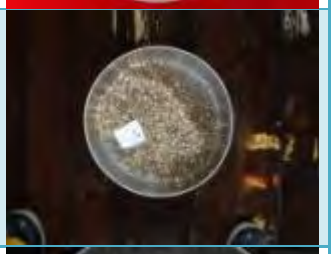
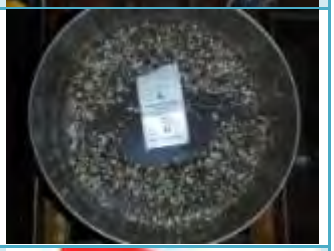
Station code	Full sample	>5 mm residue	>1 mm residue
NNSB_CEND2213_A02_STN_006			
NNSB_CEND2213_A24_STN_008_A1			
NNSB_CEND2213_A13_STN_009_A1			
NNSB_CEND2213_A20_STN_010_A1			
NNSB_CEND2213_A23_STN_011_A1			
NNSB_CEND2213_A17_STN_012_A1			
NNSB_CEND2213_A10_STN_013_A1			

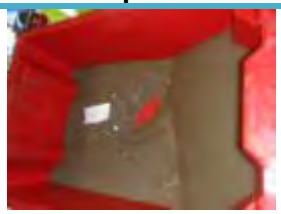
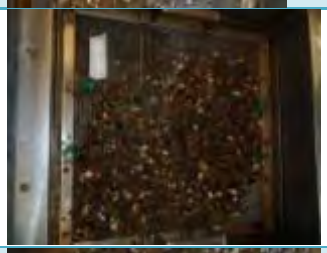
Station code	Full sample	>5 mm residue	>1 mm residue
NNSB_CEND2213_A07_STN_016_A1			
NNSB_CEND2213_A14_STN_017_A1			
NNSB_CEND2213_A21_STN_020_A1			
NNSB_CEND2213_A18_STN_021_A1			
NNSB_CEND2213_A11_STN_024_A1			
NNSB_CEND2213_A05_STN_025_A1			
NNSB_CEND2213_A03_STN_028_A1			

Station code	Full sample	>5 mm residue	>1 mm residue
NNSB_CEND2213_A08_STN_029_A1			
NNSB_CEND2213_A15_STN_032_A1			
NNSB_CEND2213_A22_STN_033_A1			Image unavailable
NNSB_CEND2213_A19_STN_036_A2			
NNSB_CEND2213_A16_STN_037_A1			
NNSB_CEND2213_A12_STN_040_A1			
NNSB_CEND2213_A06_STN_041_A1			

Station code	Full sample	>5 mm residue	>1 mm residue
NNSB_CEND2213_A01_STN_044_A1			
NNSB_CEND2213_A04_STN_045_A2			
NNSB_CEND2213_A09_STN_048_A2	Image unavailable	Image unavailable	Image unavailable
NNSB_CEND2213_A64_STN_059_A1			
NNSB_CEND2213_A57_STN_62_A4			
NNSB_CEND2213_A59_STN_64_A2			
NNSB_CEND2213_A58_STN_067_A2			Image unavailable

Table 6. Images of grab samples collected from area of search C. Complete grab sample, 5mm and 1mm residues.

Station code	Full sample	>5 mm residue	>1 mm residue
NNSB_CEND2213_C01_STN_080_A1			
NNSB_CEND2213_C02_STN_075_A1			
NNSB_CEND2213_C03_STN_079_A1			
NNSB_CEND2213_C04_STN_083_A1			
NNSB_CEND2213_C05_STN_070_A1			
NNSB_CEND2213_C06_STN_076_A1			
NNSB_CEND2213_C07_STN_096_A1			

Station code	Full sample	>5 mm residue	>1 mm residue
NNSB_CEND2213_C08_STN_084_A1			
NNSB_CEND2213_C09_STN_072_A1			
NNSB_CEND2213_C10_STN_102_A1			
NNSB_CEND2213_C11_STN_088_A1			
NNSB_CEND2213_C12_STN_113_A1			
NNSB_CEND2213_C13_STN_095_A1			
NNSB_CEND2213_C14_STN_087_A1			

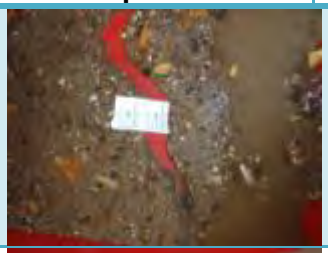
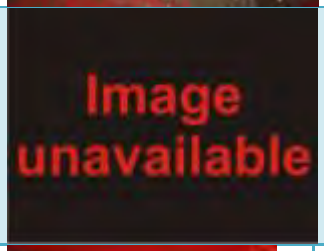
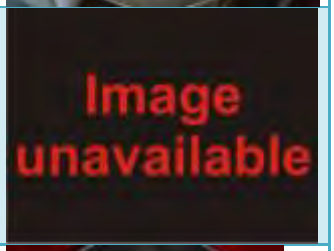
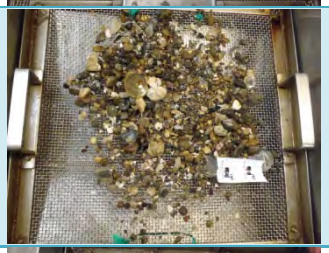
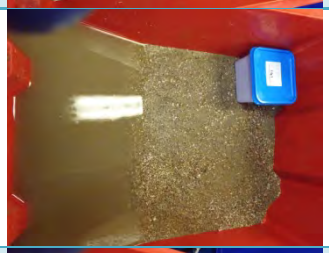
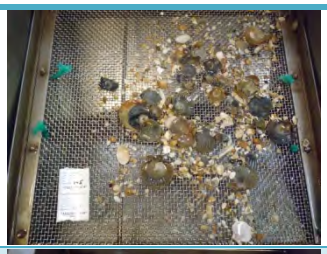
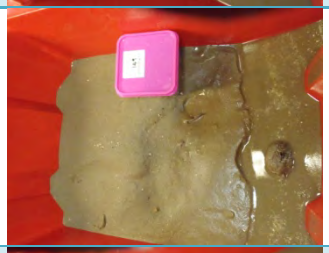
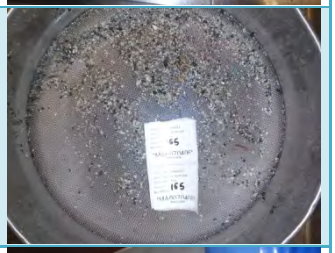
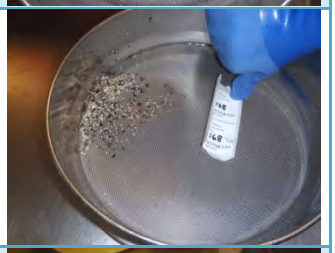
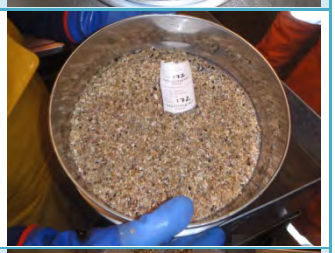
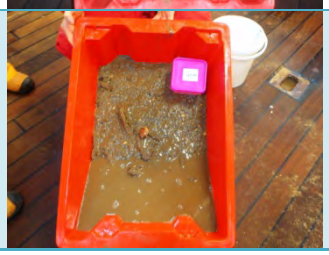
Station code	Full sample	>5 mm residue	>1 mm residue
NNSB_CEND2213_C15_STN_112_A1			
NNSB_CEND2213_C16_STN_103_A3			
NNSB_CEND2213_C17_STN_091_A1			
NNSB_CEND2213_C18_STN_109_A3			
NNSB_CEND2213_C19_STN_092_A2 No full sample: cobble and Sabellaria only			
NNSB_CEND2213_C51_STN_115_A1			

Table 7. Images of grab samples collected from area of search F. Complete grab samples, >5mm and >1mm residues.

Station code	Total sample	>5 mm sample fraction	>1 mm sample fraction
NNSB_CEND2213_F03_STN_132_A1			
NNSB_CEND2213_F05_STN_133_A1			
NNSB_CEND2213_F01_STN_136_A1		Image unavailable	
NNSB_CEND2213_F21_STN_137_A1			
NNSB_CEND2213_F02_STN_140_A1			
NNSB_CEND2213_F07_STN_141_A1			
NNSB_CEND2213_F04_STN_144_A1			Image unavailable

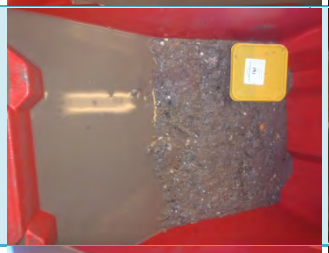
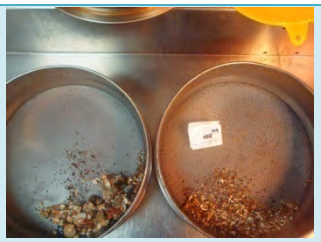
Station code	Total sample	>5 mm sample fraction	>1 mm sample fraction
NNSB_CEND2213_F09_STN_145_A1			
NNSB_CEND2213_F14_STN_148_A1			
NNSB_CEND2213_F16_STN_149_A1			
NNSB_CEND2213_F11_STN_152_A2			
NNSB_CEND2213_F08_STN_156_A1			
NNSB_CEND2213_F13_STN_157_A1			
NNSB_CEND2213_F18_STN_160_A1			

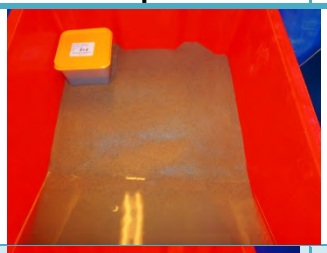
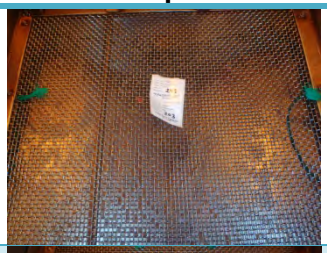
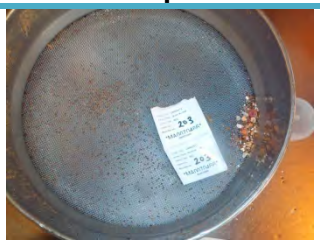
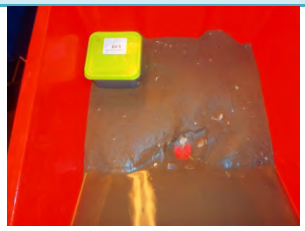
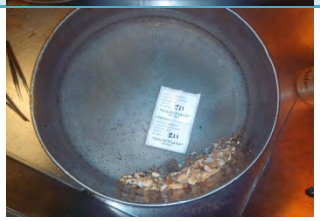
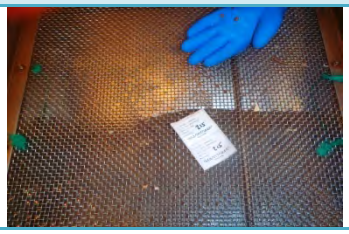
Station code	Total sample	>5 mm sample fraction	>1 mm sample fraction
NNSB_CEND2213_F19_STN_161_A1			
NNSB_CEND2213_F15_STN_164_A1			
NNSB_CEND2213_F10_STN_165_A1			
NNSB_CEND2213_F12_STN_168_A1			
NNSB_CEND2213_F17_STN_169_A1			
NNSB_CEND2213_F20_STN_172_A1			
NNSB_CEND2213_F22_STN_231_A2			

Station code	Total sample	>5 mm sample fraction	>1 mm sample fraction
NNSB_CEND2213_F24_STN_236_A1			
NNSB_CEND2213_F23_STN_237_A3			

Table 8. Images of grab samples collected from area of search B. Complete grab samples, >5mm and >1mm residues.

Station code	Total sample	>5 mm sample fraction	>1 mm sample fraction
NNSB_CEND2213_B18_STN_179_A1			
NNSB_CEND2213_B15_STN_182_A1			
NNSB_CEND2213_B25_STN_183_A1			
NNSB_CEND2213_B21_STN_184_A1			

Station code	Total sample	>5 mm sample fraction	>1 mm sample fraction
NNSB_CEND2213_B28_STN_187_A1			
NNSB_CEND2213_B34_STN_188_A1			
NNSB_CEND2213_B31_STN_191_A1			
NNSB_CEND2213_B36_STN_192_A1			
NNSB_CEND2213_B37_STN_195_A1			
NNSB_CEND2213_B39_STN_196_A1			
NNSB_CEND2213_B38_STN_199_A1			

Station code	Total sample	>5 mm sample fraction	>1 mm sample fraction
NNSB_CEND2213_B32_STN_203_A1			
NNSB_CEND2213_B35_STN_204_A1			
NNSB_CEND2213_B30_STN_207_A1			
NNSB_CEND2213_B33_STN_208_A1			
NNSB_CEND2213_B27_STN_211_A1			
NNSB_CEND2213_B23_STN_212_A1			
NNSB_CEND2213_B20_STN_215_A1			

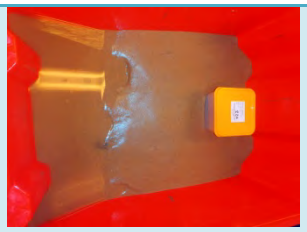
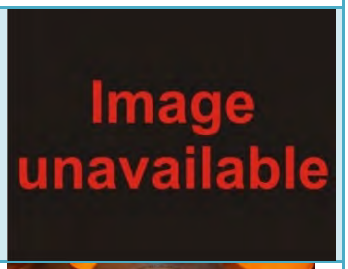
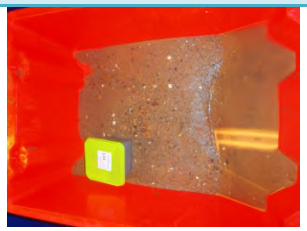
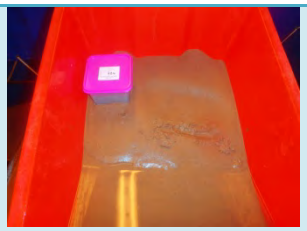
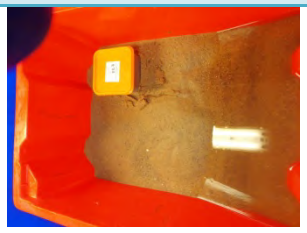
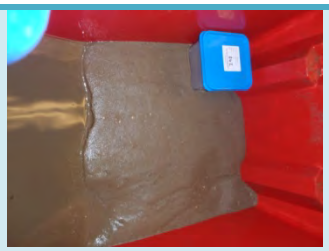
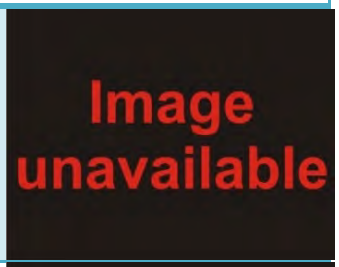
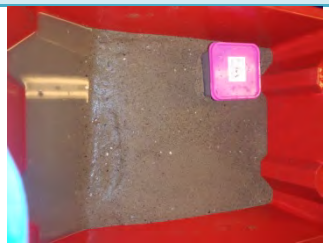
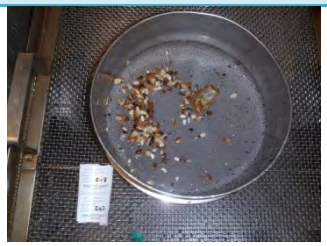
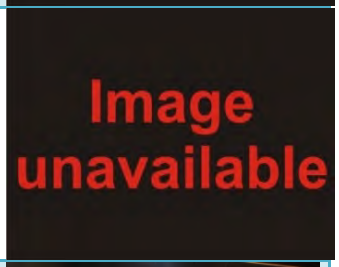
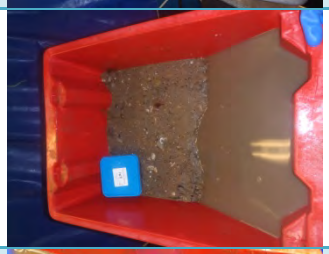
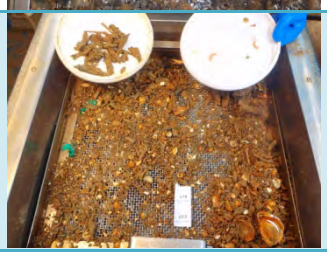
Station code	Total sample	>5 mm sample fraction	>1 mm sample fraction
NNSB_CEND2213_B24_STN_216_A1			
NNSB_CEND2213_B17_STN_219_A1			
NNSB_CEND2213_B10_STN_220_A1			
NNSB_CEND2213_B14_STN_223_A1			
NNSB_CEND2213_B08_STN_224_A1			
NNSB_CEND2213_B04_STN_227_A1			
NNSB_CEND2213_B11_STN_228_A1			

Table 9. Images of grab samples collected from area of search E. Complete grab samples, >5mm and >1mm residues

Station code	Total sample	>5 mm sample fraction	>1 mm sample fraction
NNSB_CEND2213_E02_STN_242_A1			
NNSB_CEND2213_E01_STN_243_A1			
NNSB_CEND2213_E03_STN_246_A1			
NNSB_CEND2213_E04_STN_247_A1			
NNSB_CEND2213_E05_STN_250_A1			
NNSB_CEND2213_E06_STN_251_A1			
NNSB_CEND2213_E07_STN_253_A1			

Station code	Total sample	>5 mm sample fraction	>1 mm sample fraction
NNSB_CEND2213_E22_STN_254_A1			
NNSB_CEND2213_E09_STN_255_A1			
NNSB_CEND2213_E08_STN_256_A1			
NNSB_CEND2213_E10_STN_257_A1			
NNSB_CEND2213_E12_STN_258_A1			
NNSB_CEND2213_E11_STN_259_A1			
NNSB_CEND2213_E13_STN_260_A1			

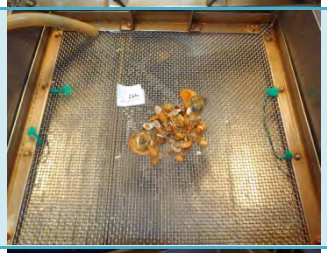
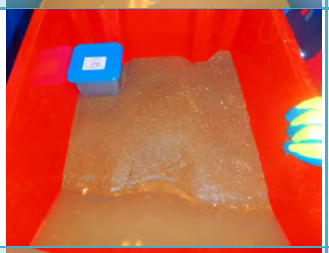
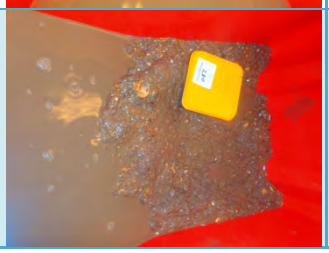
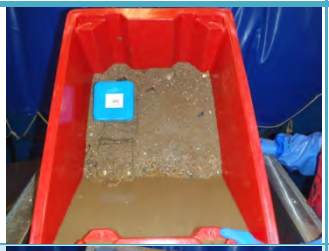
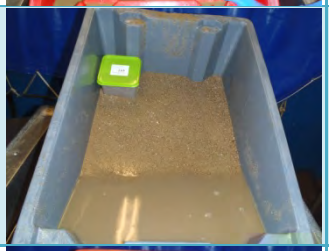
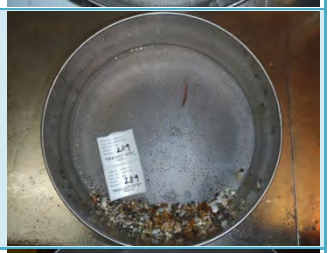
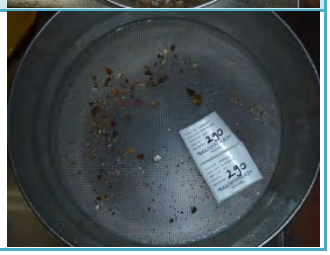
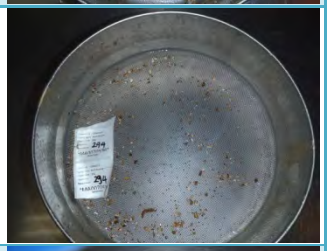
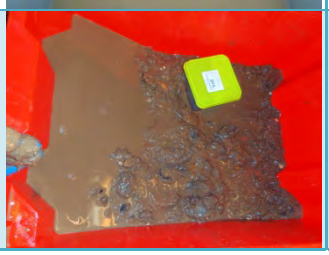
Station code	Total sample	>5 mm sample fraction	>1 mm sample fraction
NNSB_CEND2213_E16_STN_262_A1			
NNSB_CEND2213_E14_STN_263_A1			
NNSB_CEND2213_E15_STN_264_A1			
NNSB_CEND2213_E17_STN_265_A1			
NNSB_CEND2213_E20_STN_266_A1			
NNSB_CEND2213_E21_STN_267_A1			
NNSB_CEND2213_E18_STN_268_A1			

Table 10. Images of grab samples collected from area of search D. Complete grab samples, >5mm and >1mm residues.

Station code	Total sample	>5 mm sample fraction	>1 mm sample fraction
NNSB_CEND2213_D24_STN_274_A1			
NNSB_CEND2213_D22_STN_275_A1			
NNSB_CEND2213_D19_STN_276_A1			
NNSB_CEND2213_D23_STN_277_A1			
NNSB_CEND2213_D15_STN_278_A1			
NNSB_CEND2213_D20_STN_279_A1			
NNSB_CEND2213_D11_STN_280_A1			

Station code	Total sample	>5 mm sample fraction	>1 mm sample fraction
NNSB_CEND2213_D07_STN_282_A1			
NNSB_CEND2213_D12_STN_283_A1			
NNSB_CEND2213_D04_STN_284_A1			
NNSB_CEND2213_D08_STN_285_A1			
NNSB_CEND2213_D01_STN_286_A1			
NNSB_CEND2213_D03_STN_289_A1			
NNSB_CEND2213_D25_STN_290_A1			

Station code	Total sample	>5 mm sample fraction	>1 mm sample fraction
NNSB_CEND2213_D06_STN_293_A1			
NNSB_CEND2213_D02_STN_294_A1			
NNSB_CEND2213_D10_STN_297_A1			
NNSB_CEND2213_D05_STN_298_A1			
NNSB_CEND2213_D14_STN_300_A1			
NNSB_CEND2213_D09_STN_301_A1			
NNSB_CEND2213_D18_STN_302_A1			

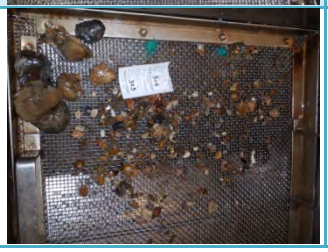
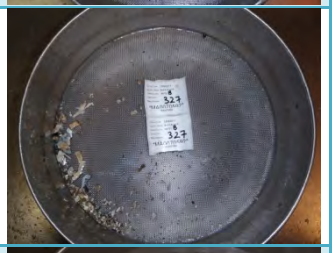
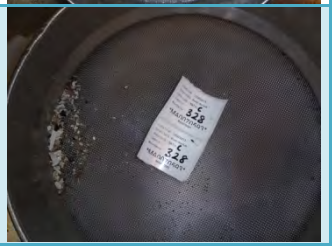
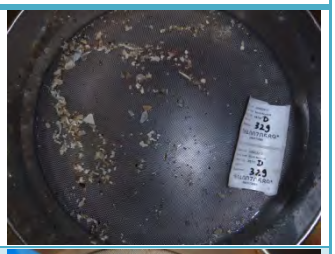
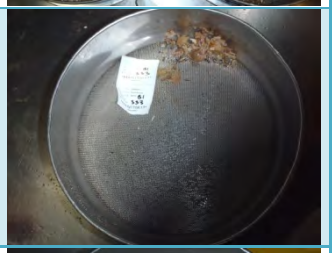
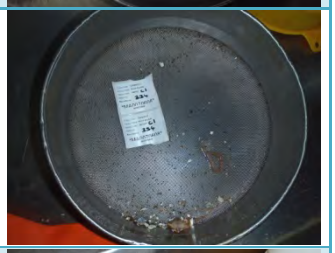
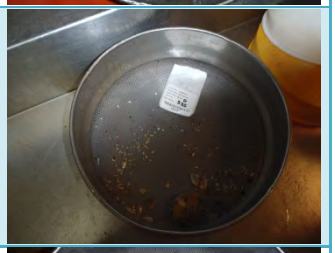
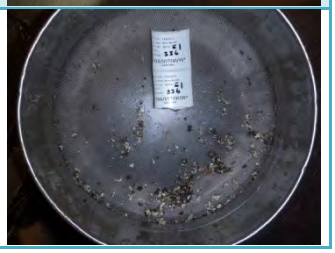
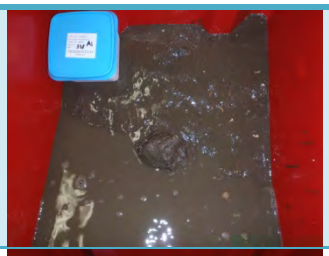
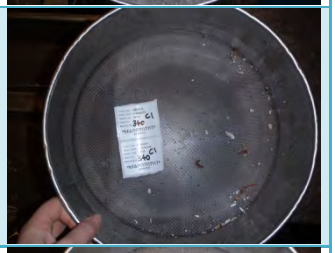
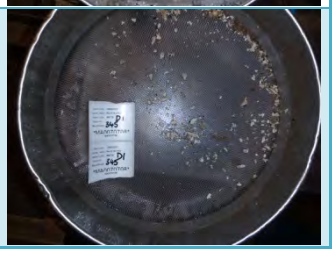
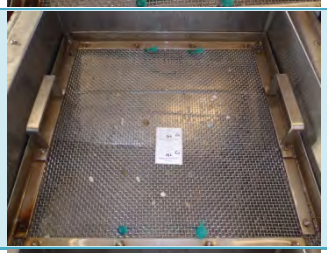
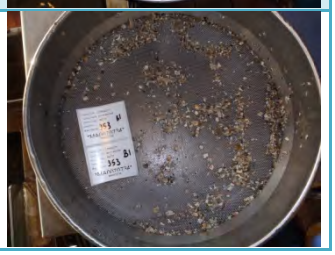
Station code	Total sample	>5 mm sample fraction	>1 mm sample fraction
NNSB_CEND2213_D13_STN_303_A1			
NNSB_CEND2213_D21_STN_304_A1			
NNSB_CEND2213_D17_STN_305_A1_			

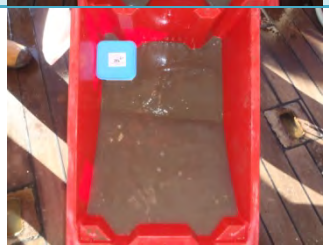
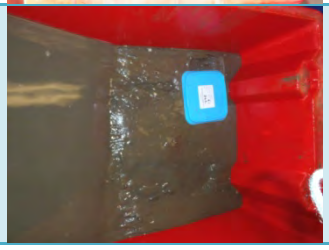
Table 11. Images of grab samples collected from the completed sandbank transects. Complete grab samples, >5mm and >1mm residues.

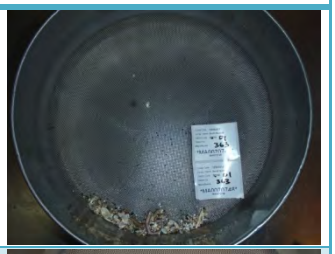
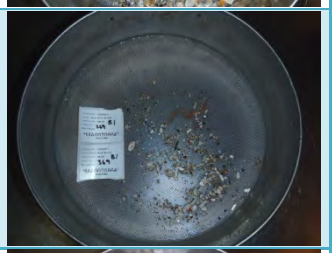
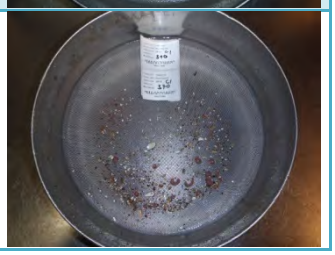
Station code	Total sample	>5 mm sample fraction	>1 mm sample fraction
NNSB_CEND2213_SBT01_STN_326_A2			
NNSB_CEND2213_SBT01_STN_327_B3			
NNSB_CEND2213_SBT01_STN_328_C2			

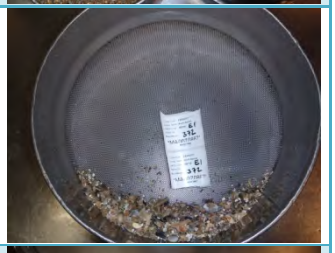
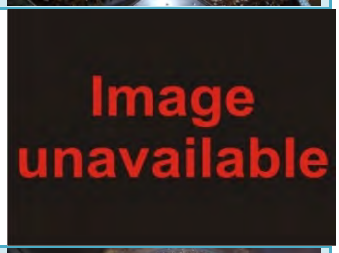
Station code	Total sample	>5 mm sample fraction	>1 mm sample fraction
NNSB_CEND2213_SBT01_STN_329_D1			
NNSB_CEND2213_SBT01_STN_330_E1			
NNSB_CEND2213_SBT02_STN_332_A1			
NNSB_CEND2213_SBT02_STN_333_B1			
NNSB_CEND2213_SBT02_STN_334_C1			
NNSB_CEND2213_SBT02_STN_335_D1			
NNSB_CEND2213_SBT02_STN_336_E1			

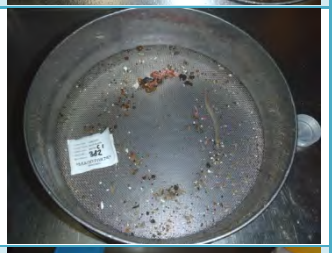
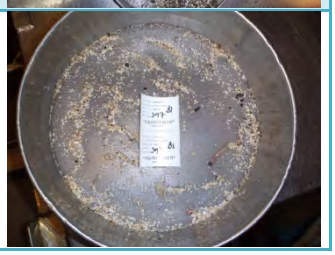
Station code	Total sample	>5 mm sample fraction	>1 mm sample fraction
NNSB_CEND2213_SBT35_STN_338_A1			
NNSB_CEND2213_SBT35_STN_339_B1			
NNSB_CEND2213_SBT35_STN_340_C1			
NNSB_CEND2213_SBT35_STN_341_D1			
NNSB_CEND2213_SBT35_STN_342_E1			
NNSB_CEND2213_SBT36_STN_344_E1			
NNSB_CEND2213_SBT36_STN_345_D1			

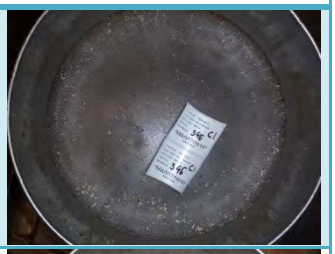
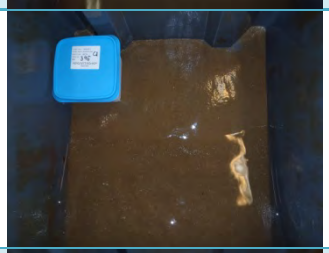
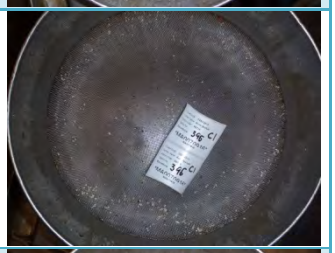
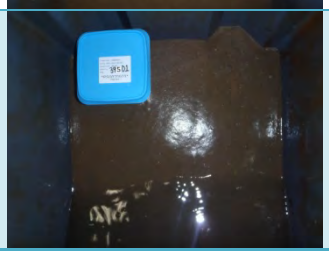
Station code	Total sample	>5 mm sample fraction	>1 mm sample fraction
NNSB_CEND2213_SBT36_STN_346_C1			
NNSB_CEND2213_SBT36_STN_347_B1			
NNSB_CEND2213_SBT36_STN_348_A1			
NNSB_CEND2213_SBT37_STN_350_E1			
NNSB_CEND2213_SBT37_STN_351_D1			
NNSB_CEND2213_SBT37_STN_352_C1			
NNSB_CEND2213_SBT37_STN_353_B1			

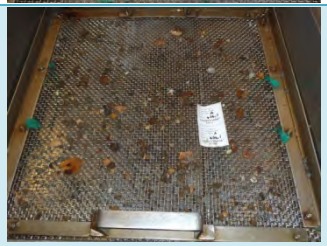
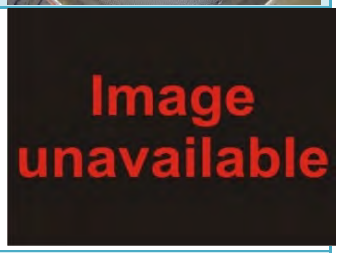
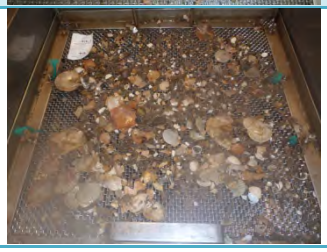
Station code	Total sample	>5 mm sample fraction	>1 mm sample fraction
NNSB_CEND2213_SBT37_STN_354_A1			
NNSB_CEND2213_SBT03_STN_356_E1			
NNSB_CEND2213_SBT03_STN_357_D1			
NNSB_CEND2213_SBT03_STN_358_C1			
NNSB_CEND2213_SBT03_STN_359_B1			
NNSB_CEND2213_SBT03_STN_360_A1			
NNSB_CEND2213_SBT04_STN_362_E1			

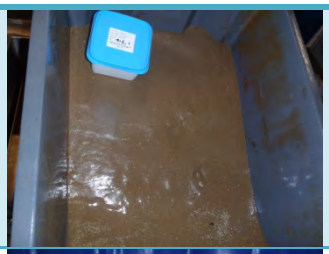
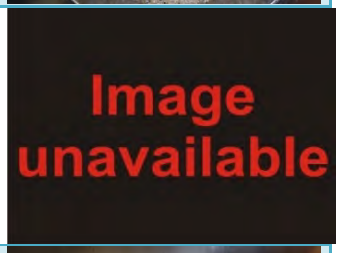
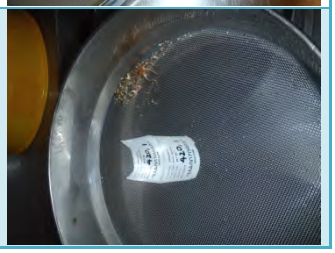
Station code	Total sample	>5 mm sample fraction	>1 mm sample fraction
NNSB_CEND2213_SBT04_STN_363_D1			
NNSB_CEND2213_SBT04_STN_364_C1			
NNSB_CEND2213_SBT04_STN_365_B1			
NNSB_CEND2213_SBT04_STN_366_A1			
NNSB_CEND2213_SBT05_STN_368_A1			
NNSB_CEND2213_SBT05_STN_369_B1			
NNSB_CEND2213_SBT05_STN_370_C1			

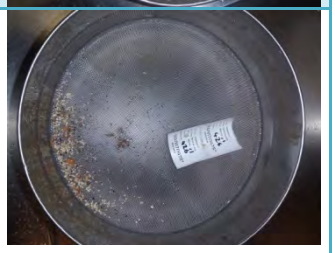
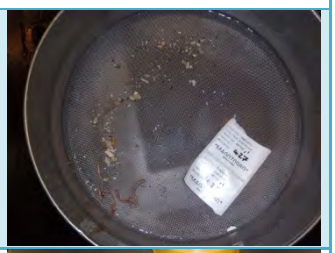
Station code	Total sample	>5 mm sample fraction	>1 mm sample fraction
NNSB_CEND2213_SBT05_STN_371_D1			
NNSB_CEND2213_SBT05_STN_372_E1			
NNSB_CEND2213_SBT07_STN_374_E3			
NNSB_CEND2213_SBT07_STN_375_D1			
NNSB_CEND2213_SBT07_STN_376_C1			
NNSB_CEND2213_SBT07_STN_377_B1			
NNSB_CEND2213_SBT07_STN_378_A1			

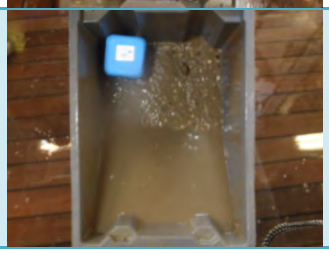
Station code	Total sample	>5 mm sample fraction	>1 mm sample fraction
NNSB_CEND2213_SBT06_STN_380_E1			
NNSB_CEND2213_SBT06_STN_381_D1			
NNSB_CEND2213_SBT06_STN_382_C1			
NNSB_CEND2213_SBT06_STN_383_B2			
NNSB_CEND2213_SBT06_STN_384_A1			
NNSB_CEND2213_STB26A_STN_398_1			
NNSB_CEND2213_STB26B_STN_397_1			

Station code	Total sample	>5 mm sample fraction	>1 mm sample fraction
NNSB_CEND2213_STB26C_STN_396_1			
NNSB_CEND2213_STB26D_STN_395_1			
NNSB_CEND2213_STB26E_STN_394_1			
NNSB_CEND2213_STB17A_STN_400_1			
NNSB_CEND2213_STB17B_STN_401_1			
NNSB_CEND2213_STB17C_STN_402_1			
NNSB_CEND2213_STB17D_STN_403_1			

Station code	Total sample	>5 mm sample fraction	>1 mm sample fraction
NNSB_CEND2213_STB17E_STN_404_1			
NNSB_CEND2213_SBT16A_STN_406_1_			
NNSB_CEND2213_SBT16B_STN_407_1			
NNSB_CEND2213_SBT16C_STN_408_1			
NNSB_CEND2213_SBT16D_STN_409_1			
NNSB_CEND2213_SBT16E_STN_420_1			
NNSB_CEND2213_SBT18A_STN_416_1			

Station code	Total sample	>5 mm sample fraction	>1 mm sample fraction
NNSB_CEND2213_SBT18B_STN_415_1			
NNSB_CEND2213_SBT18C_STN_414_1			
NNSB_CEND2213_SBT18D_STN_413_1			
NNSB_CEND2213_SBT18E_STN_412_1			
NNSB_CEND2213_SBT19A_STN_418_1			
NNSB_CEND2213_SBT19B_STN_419_1			
NNSB_CEND2213_SBT19C_STN_420_1			

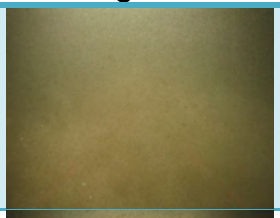
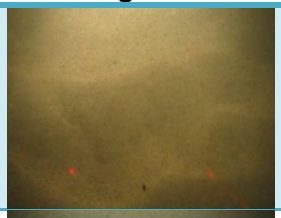
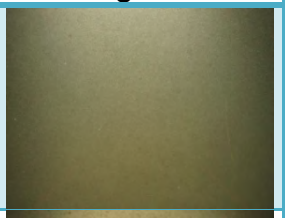
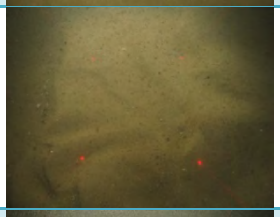
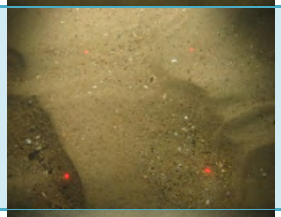
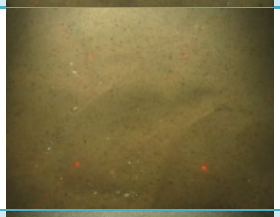
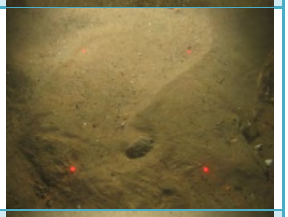
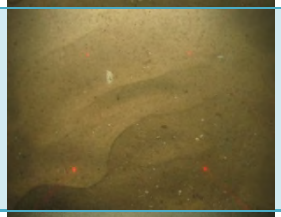
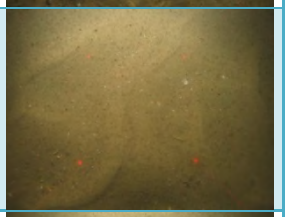
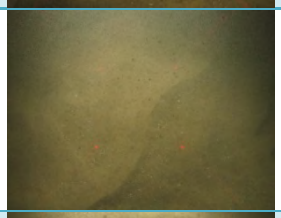
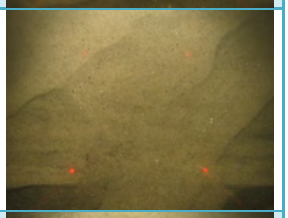
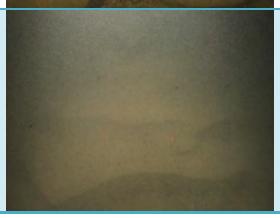
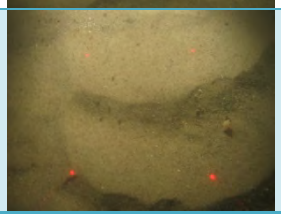
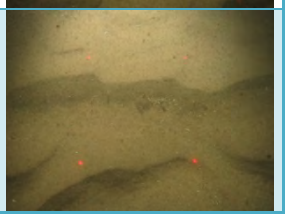
Station code	Total sample	>5 mm sample fraction	>1 mm sample fraction
NNSB_CEND2213_SBT19D_STN_421_1			
NNSB_CEND2213_SBT19E_STN_422_1			
NNSB_CEND2213_SBT33A_STN_424_1			
NNSB_CEND2213_SBT33B_STN_425_1			
NNSB_CEND2213_SBT33C_STN_426_1			
NNSB_CEND2213_SBT33D_STN_427_1			
NNSB_CEND2213_SBT33E_STN_428_1			

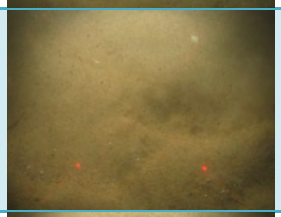
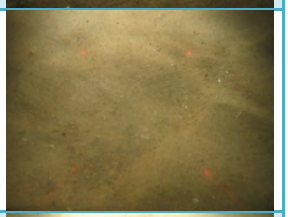
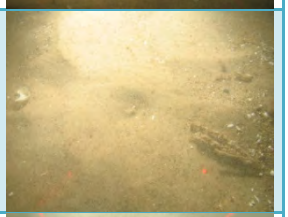
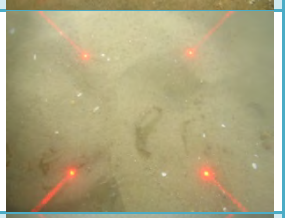
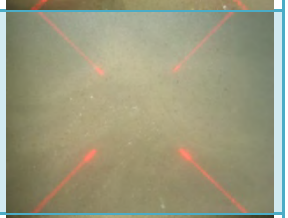
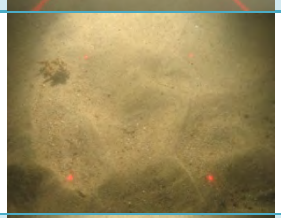
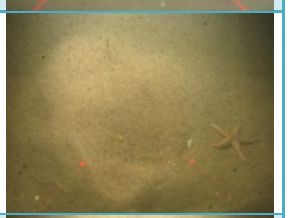
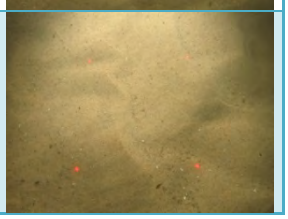
Station code	Total sample	>5 mm sample fraction	>1 mm sample fraction
NNSB_CEND2213_SBT24E_STN_430_1			
NNSB_CEND2213_SBT24D_STN_431_1			
NNSB_CEND2213_SBT24C_STN_432_1			
NNSB_CEND2213_SBT24B_STN_433_1			
NNSB_CEND2213_SBT24A_STN_434_2			

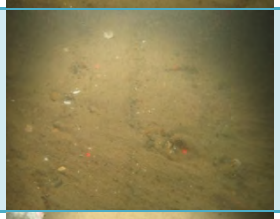
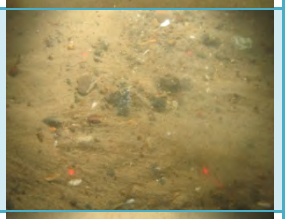
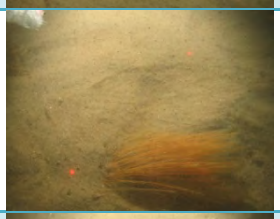
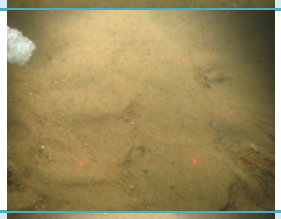
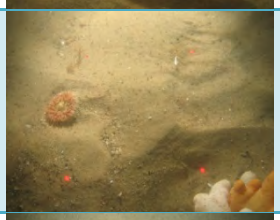
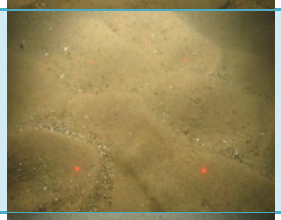
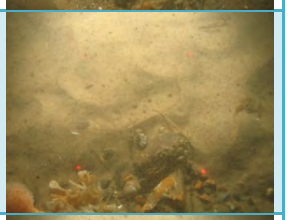
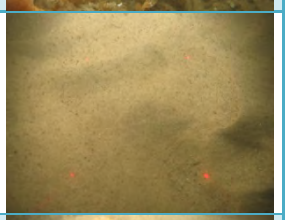
Appendix VII Sea bed imagery (*Sabellaria spinulosa* reef survey)

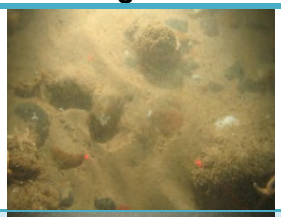
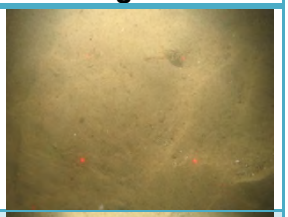
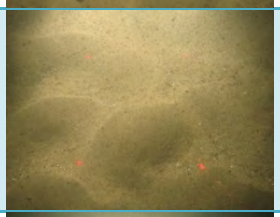
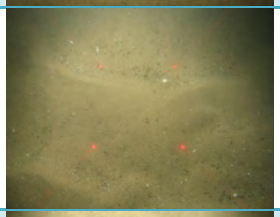
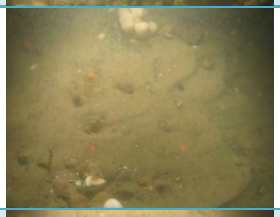
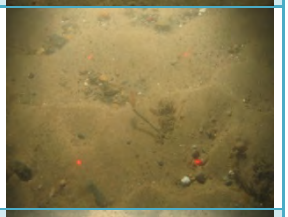
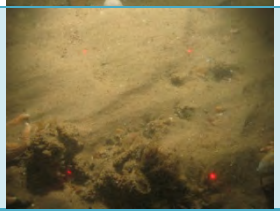
In the tables within this Appendix, an indication of whether Sabellaria spinulosa reef was observed at each video station has been provided in the table below. This has been derived from initial field observations and should not be taken as definitive.

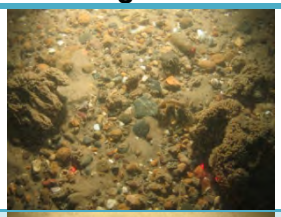
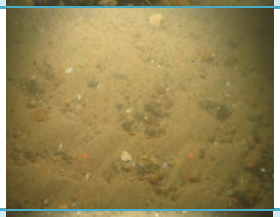
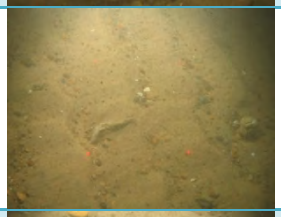
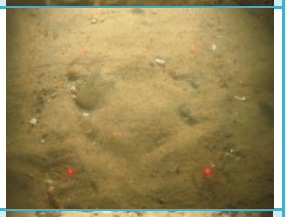
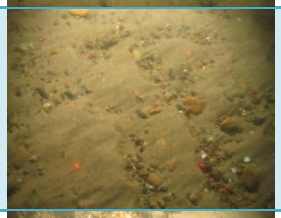
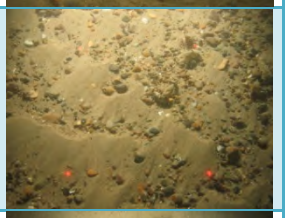
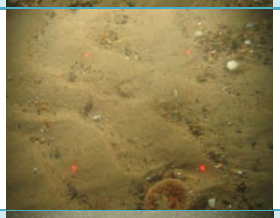
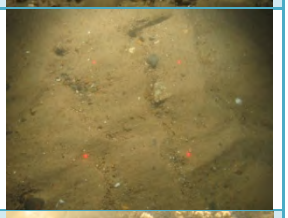
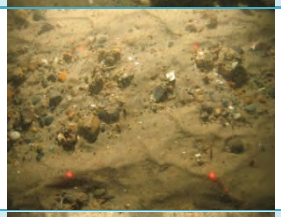
Table 12. Selection of seabed images from each camera deployment at NNSB area of search A.

Station Code	Still Image 1	Still Image 2	Still Image 3
NNSB_CEND2213_A02_STN_005 ***Sabellaria reef*** ×			
NNSB_CEND2213_A24_STN_007 ***Sabellaria reef*** ×			
NNSB_CEND2213_A10_STN_014 ***Sabellaria reef*** ×			
NNSB_CEND2213_A07_STN_015 ***Sabellaria reef*** ×			
NNSB_CEND2213_A14_STN_018 ***Sabellaria reef*** ×			
NNSB_CEND2213_A21_STN_019 ***Sabellaria reef*** ×			
NNSB_CEND2213_A18_STN_022 ***Sabellaria reef*** ×			

Station Code	Still Image 1	Still Image 2	Still Image 3
NNSB_CEND2213_A11_STN_023 ***Sabellaria reef*** ×			
NNSB_CEND2213_A05_STN_026 ***Sabellaria reef*** ×			
NNSB_CEND2213_A03_STN_027 ***Sabellaria reef*** ×			
NNSB_CEND2213_A08_STN_030 ***Sabellaria reef*** ×			
NNSB_CEND2213_A15_STN_031 ***Sabellaria reef*** ×			
NNSB_CEND2213_A22_STN_034 ***Sabellaria reef*** ×			
NNSB_CEND2213_A19_STN_035 ***Sabellaria reef*** ×			
NNSB_CEND2213_A16_STN_038 ***Sabellaria reef*** ×			

Station Code	Still Image 1	Still Image 2	Still Image 3
NNSB_CEND2213_A12_STN_039 ***Sabellaria reef*** ×			
NNSB_CEND2213_A06_STN_042 ***Sabellaria reef*** ×			
NNSB_CEND2213_A01_STN_043 ***Sabellaria reef*** ×			
NNSB_CEND2213_A04_STN_046 ***Sabellaria reef*** ×			
NNSB_CEND2213_A09_STN_047 ***Sabellaria reef*** ×			
NNSB_CEND2213_A53_STN_049 ***Sabellaria reef*** √			
NNSB_CEND2213_A51_STN_050 ***Sabellaria reef*** ×			
NNSB_CEND2213_A50_STN_051 ***Sabellaria reef*** ×			

Station Code	Still Image 1	Still Image 2	Still Image 3
NNSB_CEND2213_A54_STN_052 ***Sabellaria reef*** ×			
NNSB_CEND2213_A52_STN_054 ***Sabellaria reef*** ×			
NNSB_CEND2213_A61_STN_055 ***Sabellaria reef*** ×			
NNSB_CEND2213_A60_STN_056 ***Sabellaria reef*** √			
NNSB_CEND2213_A63_STN_057 ***Sabellaria reef*** √			
NNSB_CEND2213_A64_STN_058 ***Sabellaria reef*** √			
NNSB_CEND2213_A62_STN_060 ***Sabellaria reef*** ×			
NNSB_CEND2213_A57_STN_061 ***Sabellaria reef*** √			

Station Code	Still Image 1	Still Image 2	Still Image 3
NNSB_CEND2213_A59_STN_063 ***Sabellaria reef*** √			
NNSB_CEND2213_A58_STN_065 ***Sabellaria reef*** √			
NNSB_CEND2213_A56_STN_066 ***Sabellaria reef*** ×			
NNSB_CEND2213_A65_STN_118 ***Sabellaria reef*** ×			
NNSB_CEND2213_A66_STN_120 ***Sabellaria reef*** ×			
NNSB_CEND2213_A71_STN_122 ***Sabellaria reef*** √			
NNSB_CEND2213_A70_STN_123 ***Sabellaria reef*** √			
NNSB_CEND2213_A67_STN_124 ***Sabellaria reef*** √			

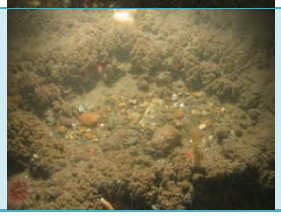
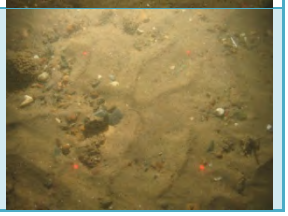
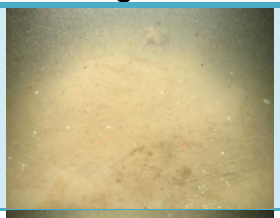
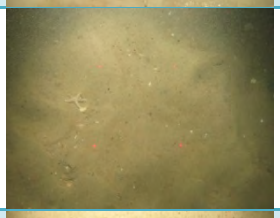
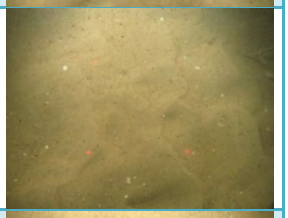
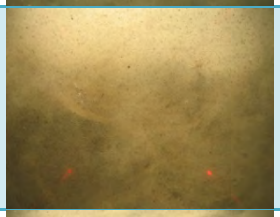
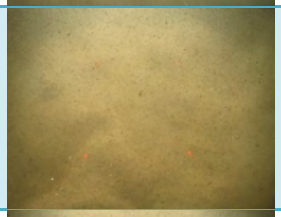
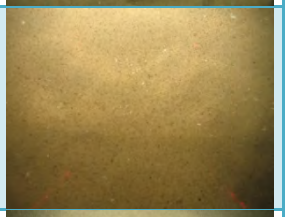
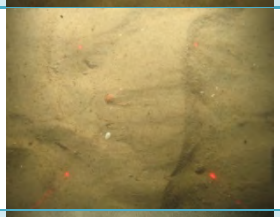
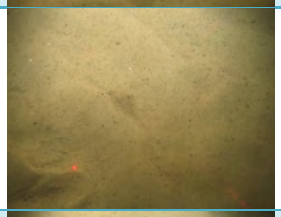
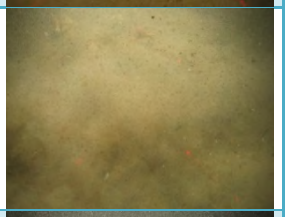
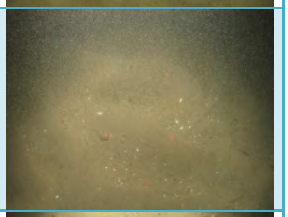
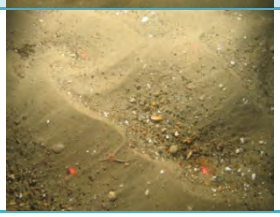
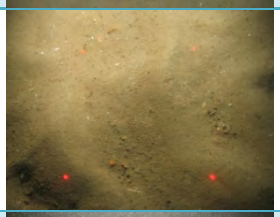
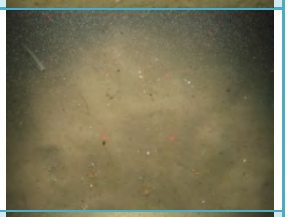
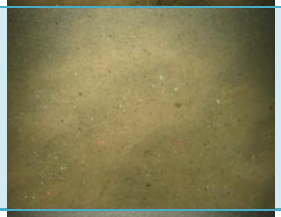
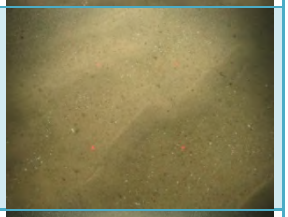
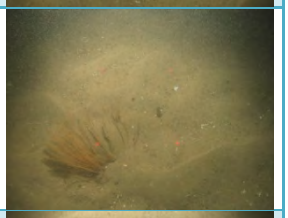
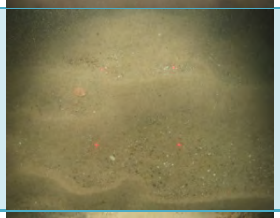
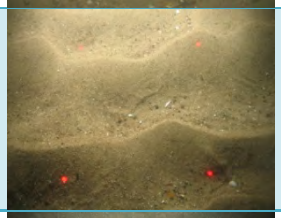
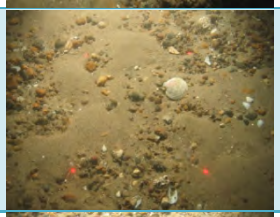
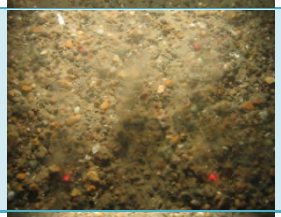
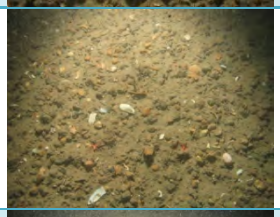
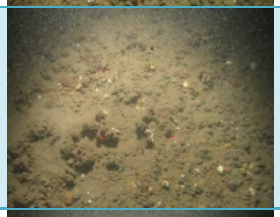
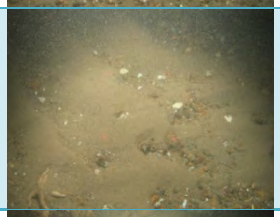
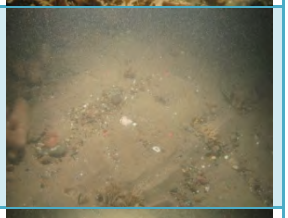
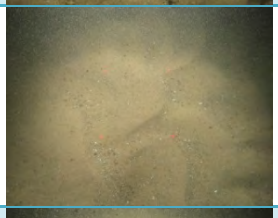
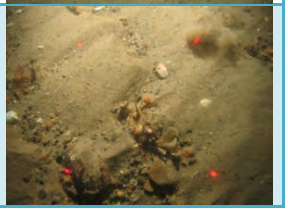
Station Code	Still Image 1	Still Image 2	Still Image 3
NNSB_CEND2213_A69_STN_125 ***Sabellaria reef*** √			
NNSB_CEND2213_A68_STN_126 ***Sabellaria reef*** √			

Table 13. Selection of seabed images from each camera deployment at NNSB area of search C.

Station Code	Still Image 1	Still Image 2	Still Image 3
NNSB_CEND2213_C05_STN_070 ***Sabellaria reef*** ×			
NNSB_CEND2213_C09_STN_073 ***Sabellaria reef*** ×			
NNSB_CEND2213_C02_STN_074 ***Sabellaria reef*** ×			
NNSB_CEND2213_C06_STN_077 ***Sabellaria reef*** ×			
NNSB_CEND2213_C03_STN_078 ***Sabellaria reef*** ×			
NNSB_CEND2213_C01_STN_081 ***Sabellaria reef*** ×			

Station Code	Still Image 1	Still Image 2	Still Image 3
NNSB_CEND2213_C04_STN_082 ***Sabellaria reef*** ×			
NNSB_CEND2213_C08_STN_085 ***Sabellaria reef*** ×			
NNSB_CEND2213_C14_STN_086 ***Sabellaria reef*** ×			
NNSB_CEND2213_C11_STN_089 ***Sabellaria reef*** ×			
NNSB_CEND2213_C17_STN_090 ***Sabellaria reef*** ×			
NNSB_CEND2213_C19_STN_093 ***Sabellaria reef*** √			
NNSB_CEND2213_C13_STN_094 ***Sabellaria reef*** ×			
NNSB_CEND2213_C07_STN_097 ***Sabellaria reef*** ×			

Station Code	Still Image 1	Still Image 2	Still Image 3
NNSB_CEND2213_C50_STN_098 ***Sabellaria reef*** ×			
NNSB_CEND2213_C54_STN_99 ***Sabellaria reef*** ×			
NNSB_CEND2213_C51_STN_100 ***Sabellaria reef*** √			
NNSB_CEND2213_C10_STN_101 ***Sabellaria reef*** ×			
NNSB_CEND2213_C16_STN_104 ***Sabellaria reef*** ×			
NNSB_CEND2213_C52_STN_105 ***Sabellaria reef*** √			
NNSB_CEND2213_C53_STN_106 ***Sabellaria reef*** ×			
NNSB_CEND2213_C20_STN_107 ***Sabellaria reef*** ×			
NNSB_CEND2213_C18_STN_110 ***Sabellaria reef*** ×			

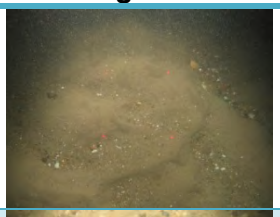
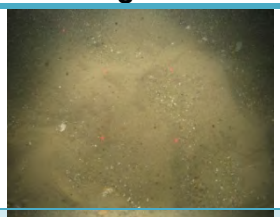
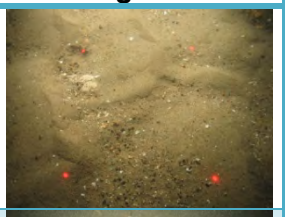
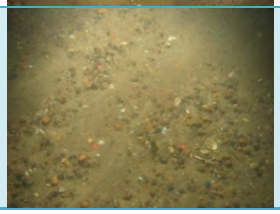
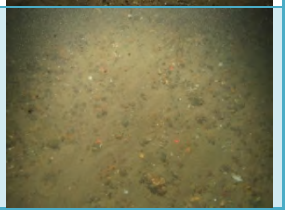
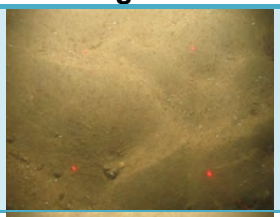
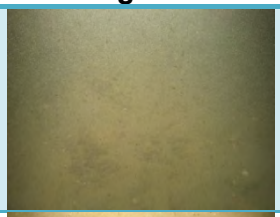
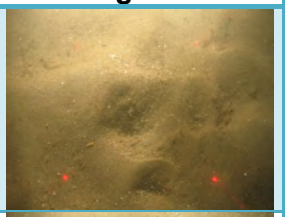
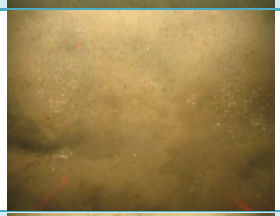
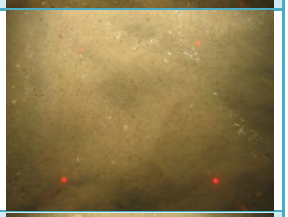
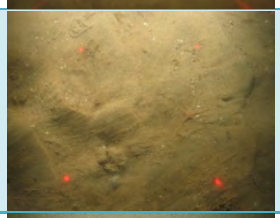
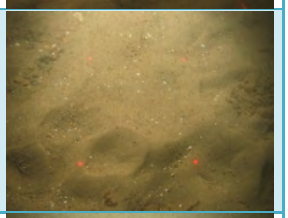
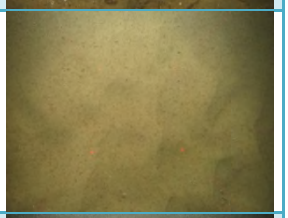
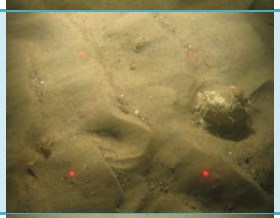
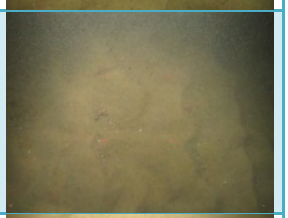
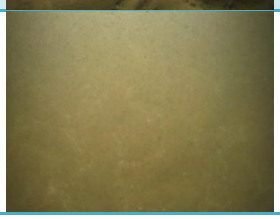
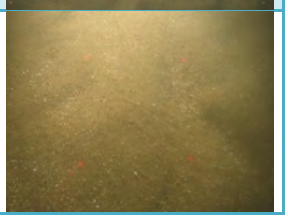
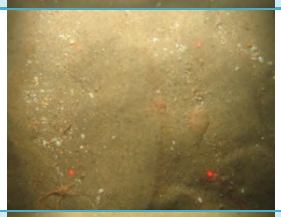
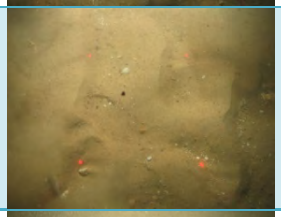
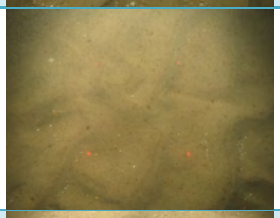
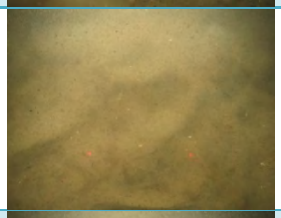
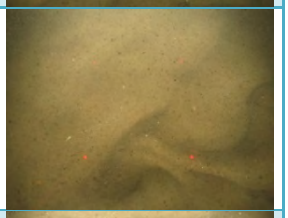
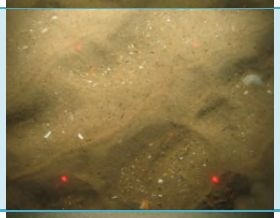
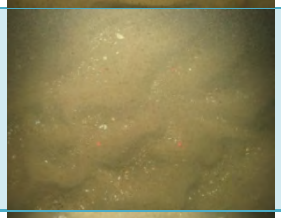
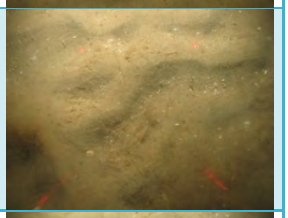
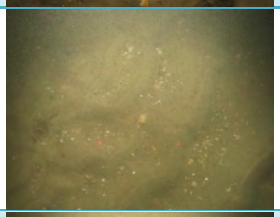
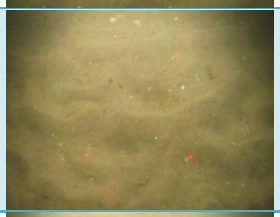
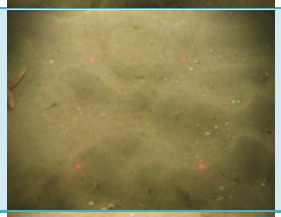
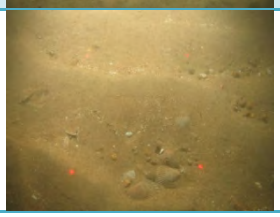
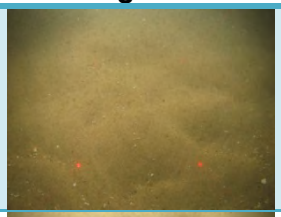
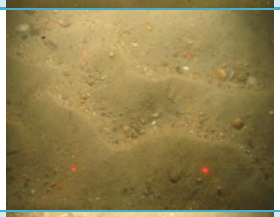
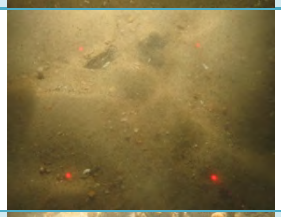
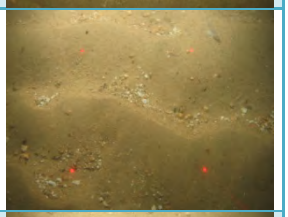
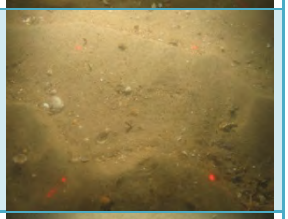
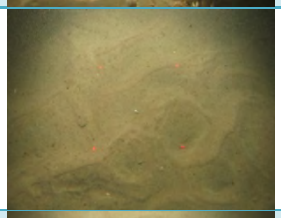
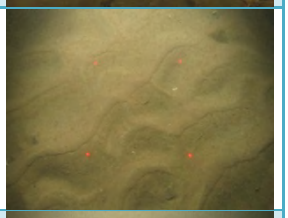
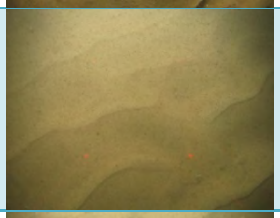
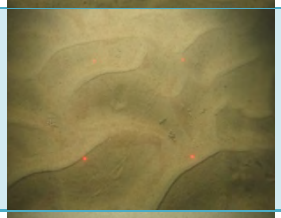
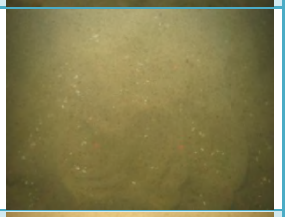
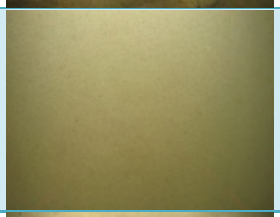
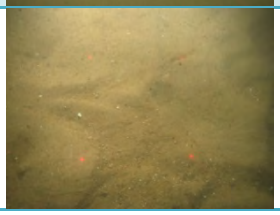
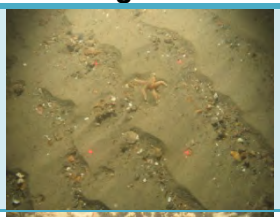
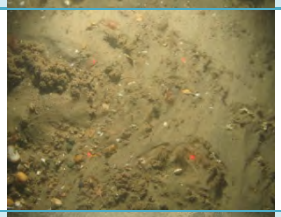
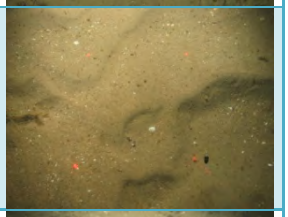
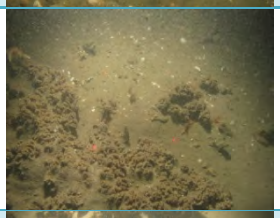
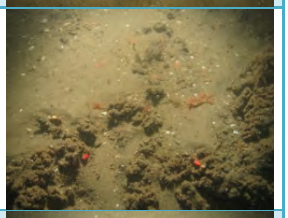
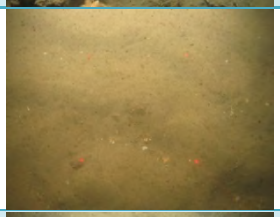
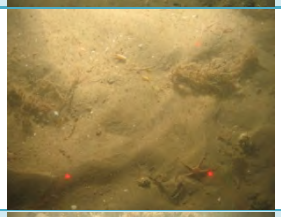
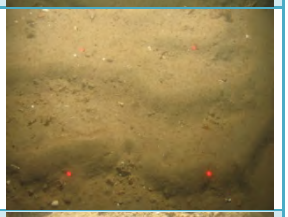
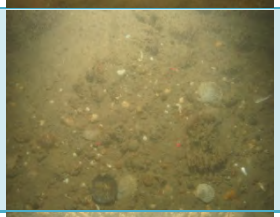
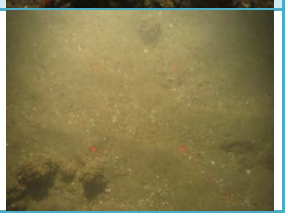
Station Code	Still Image 1	Still Image 2	Still Image 3
NNSB_CEND2213_C15_STN_111 ***Sabellaria reef*** ×			
NNSB_CEND2213_C12_STN_114 ***Sabellaria reef*** ×			

Table 14. Selection of seabed images from each camera deployment at NNSB area of search F.

Station Code	Still Image 1	Still Image 2	Still Image 3
NNSB_CEND2213_F03_STN_131 ***Sabellaria reef*** ×			
NNSB_CEND2213_F05_STN_133 ***Sabellaria reef*** ×			
NNSB_CEND2213_F01_STN_135 ***Sabellaria reef*** ×			
NNSB_CEND2213_F21_STN_138 ***Sabellaria reef*** ×			
NNSB_CEND2213_F02_STN_139 ***Sabellaria reef*** ×			
NNSB_CEND2213_F07_STN_142 ***Sabellaria reef*** ×			

Station Code	Still Image 1	Still Image 2	Still Image 3
NNSB_CEND2213_F04_STN_143 ***Sabellaria reef*** ×			
NNSB_CEND2213_F09_STN_146 ***Sabellaria reef*** ×			
NNSB_CEND2213_F14_STN_147 ***Sabellaria reef*** ×			
NNSB_CEND2213_F16_STN_150 ***Sabellaria reef*** ×			
NNSB_CEND2213_F11_STN_151 ***Sabellaria reef*** ×			
NNSB_CEND2213_F06_STN_154 ***Sabellaria reef*** ×			
NNSB_CEND2213_F08_STN_155 ***Sabellaria reef*** ×			
NNSB_CEND2213_F13_STN_158 ***Sabellaria reef*** ×			

Station Code	Still Image 1	Still Image 2	Still Image 3
NNSB_CEND2213_F18_STN_159 ***Sabellaria reef*** ×			
NNSB_CEND2213_F19_STN_162 ***Sabellaria reef*** ×			
NNSB_CEND2213_F15_STN_163 ***Sabellaria reef*** √			
NNSB_CEND2213_F10_STN_166 ***Sabellaria reef*** ×			
NNSB_CEND2213_F12_STN_167 ***Sabellaria reef*** ×			
NNSB_CEND2213_F17_STN_170 ***Sabellaria reef*** ×			
NNSB_CEND2213_F20_STN_171 ***Sabellaria reef*** ×			
NNSB_CEND2213_F26_STN_173 ***Sabellaria reef*** √			

Station Code	Still Image 1	Still Image 2	Still Image 3
NNSB_CEND2213_F22_STN_230_A1 *Sabellaria reef* √			
NNSB_CEND2213_F22_STN_230_B1 *Sabellaria reef* √			
NNSB_CEND2213_F23_STN_232_A1 *Sabellaria reef* √			
NNSB_CEND2213_F23_STN_232_B1 *Sabellaria reef* √			
NNSB_CEND2213_F23_STN_232_C1 *Sabellaria reef* √			
NNSB_CEND2213_F24_STN_233_A1 *Sabellaria reef* ×			
NNSB_CEND2213_F24_STN_233_B1 *Sabellaria reef* √			
NNSB_CEND2213_F24_STN_233_C1 *Sabellaria reef* √			

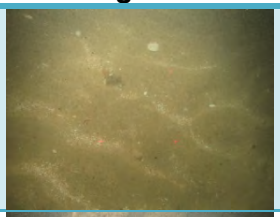
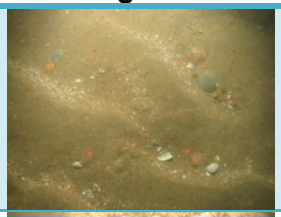
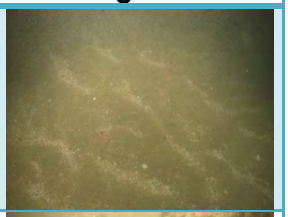
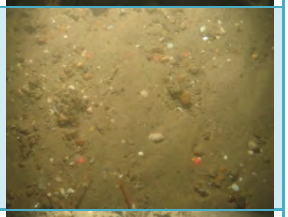
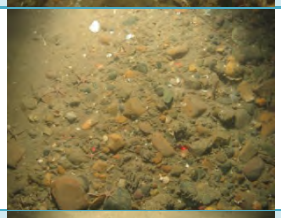
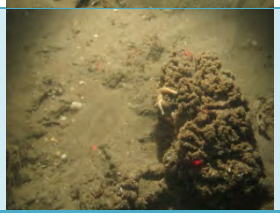
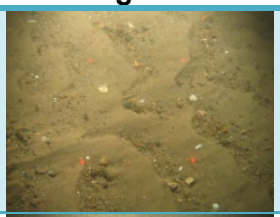
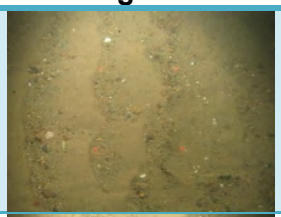
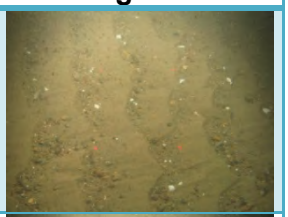
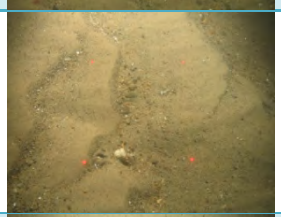
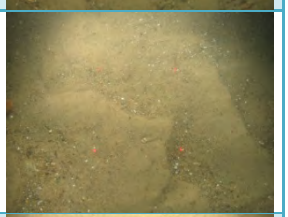
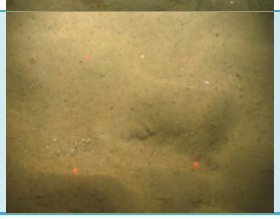
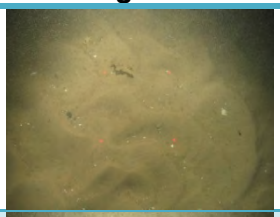
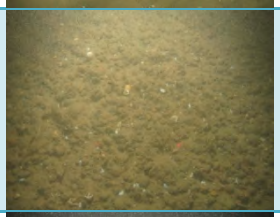
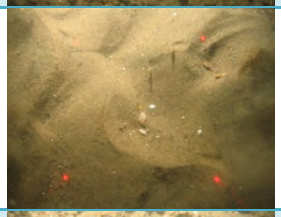
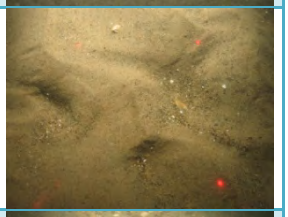
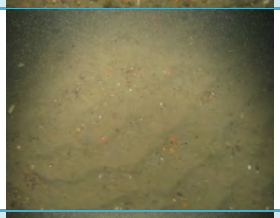
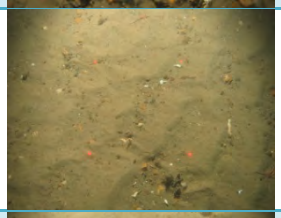
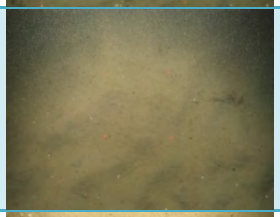
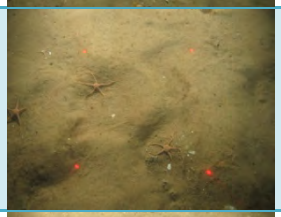
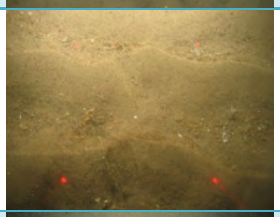
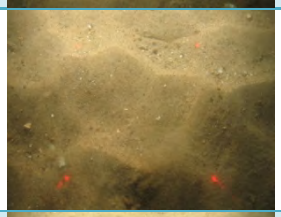
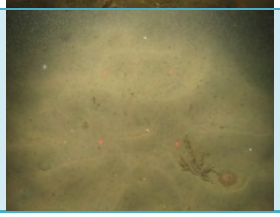
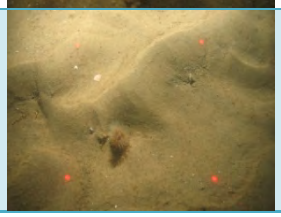
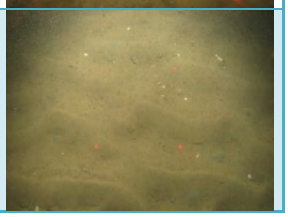
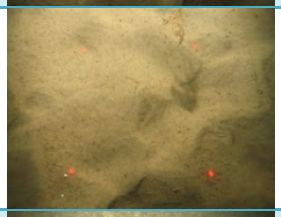
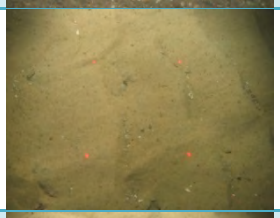
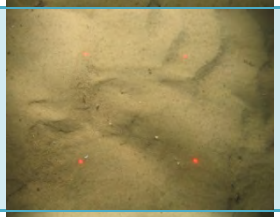
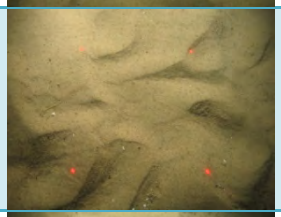
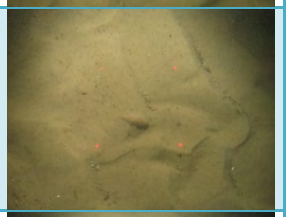
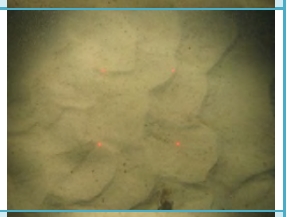
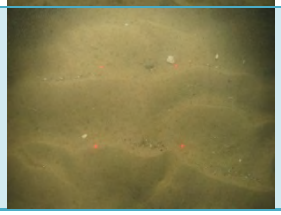
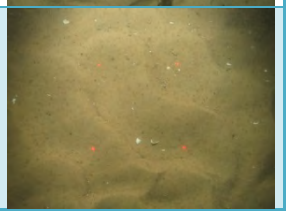
Station Code	Still Image 1	Still Image 2	Still Image 3
NNSB_CEND2213_F25_STN_234_A1 ***Sabellaria reef*** ×			
NNSB_CEND2213_F25_STN_234_B1 ***Sabellaria reef*** √			
NNSB_CEND2213_F25_STN_234_C1 ***Sabellaria reef*** √			
NNSB_CEND2213_F26_STN_238_A1 ***Sabellaria reef*** √			
NNSB_CEND2213_F26_STN_238_B1 ***Sabellaria reef*** √			

Table 15. Selection of seabed images from each camera deployment at NNSB area of search B.

Station Code	Still Image 1	Still Image 2	Still Image 3
NNSB_CEND2213_B15_STN_178 ***Sabellaria reef*** ×			
NNSB_CEND2213_B18_STN_180 ***Sabellaria reef*** ×			
NNSB_CEND2213_B25_STN_181 ***Sabellaria reef*** ×			

Station Code	Still Image 1	Still Image 2	Still Image 3
NNSB_CEND2213_B21_STN_185 ***Sabellaria reef*** ×			
NNSB_CEND2213_B28_STN_186 ***Sabellaria reef*** ×			
NNSB_CEND2213_B34_STN_189 ***Sabellaria reef*** ×			
NNSB_CEND2213_B31_STN_190 ***Sabellaria reef*** ×			
NNSB_CEND2213_B36_STN_193 ***Sabellaria reef*** ×			
NNSB_CEND2213_B37_STN_194 ***Sabellaria reef*** ×			
NNSB_CEND2213_B39_STN_197 ***Sabellaria reef*** ×			
NNSB_CEND2213_B38_STN_198 ***Sabellaria reef*** ×			

Station Code	Still Image 1	Still Image 2	Still Image 3
NNSB_CEND2213_B35_STN_205 ***Sabellaria reef*** ×			
NNSB_CEND2213_B32_STN_202 ***Sabellaria reef*** ×			
NNSB_CEND2213_B30_STN_206 ***Sabellaria reef*** ×			
NNSB_CEND2213_B33_STN_209 ***Sabellaria reef*** ×			
NNSB_CEND2213_B27_STN_210 ***Sabellaria reef*** ×			
NNSB_CEND2213_B23_STN_213 ***Sabellaria reef*** ×			
NNSB_CEND2213_B20_STN_214 ***Sabellaria reef*** ×			
NNSB_CEND2213_B24_STN_217 ***Sabellaria reef*** ×			

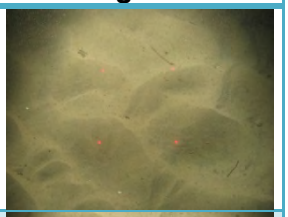
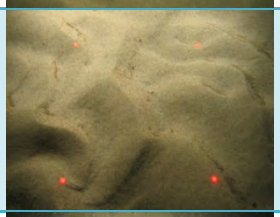
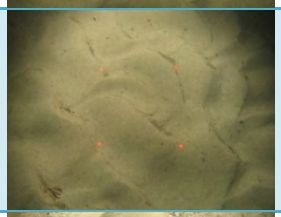
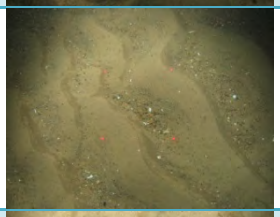
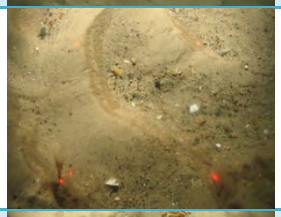
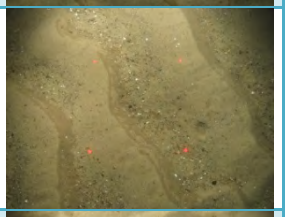
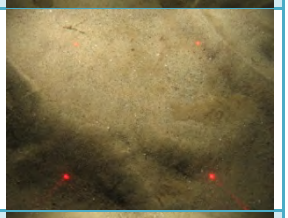
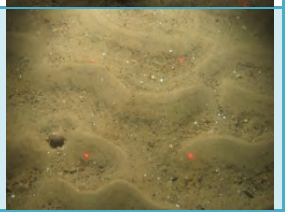
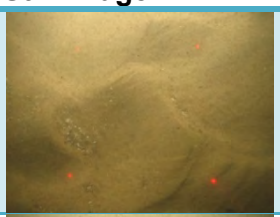
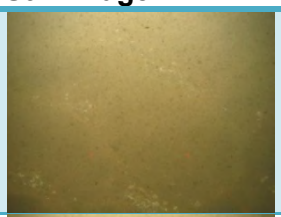
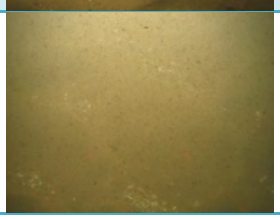
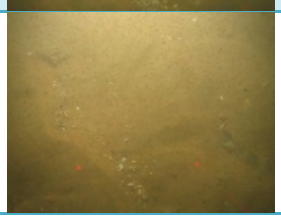
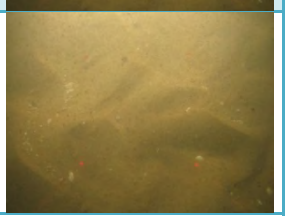
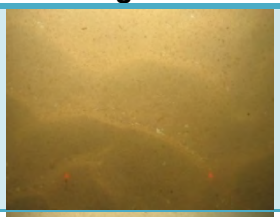
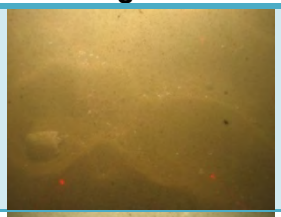
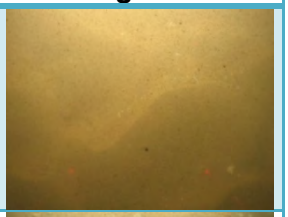
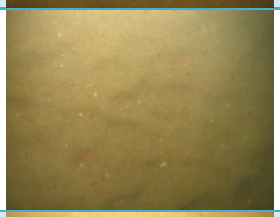
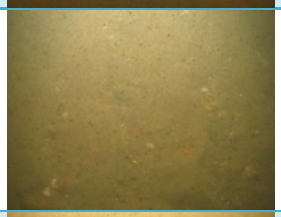
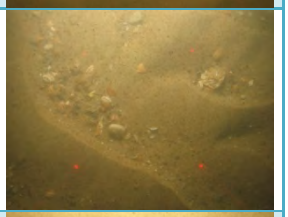
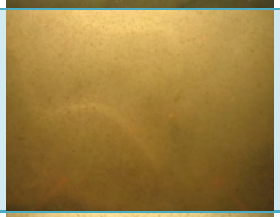
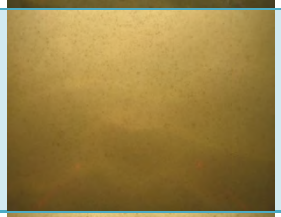
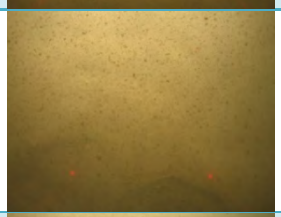
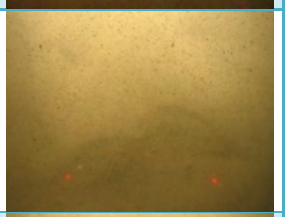
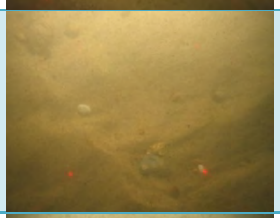
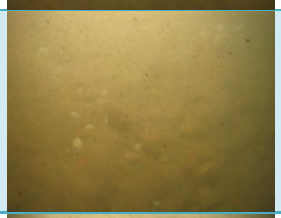
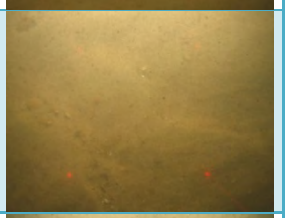
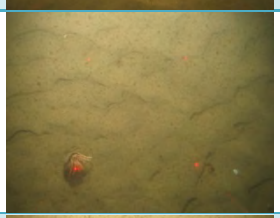
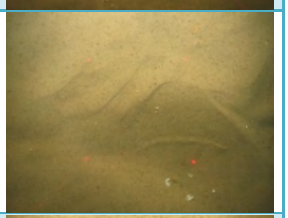
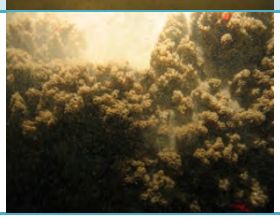
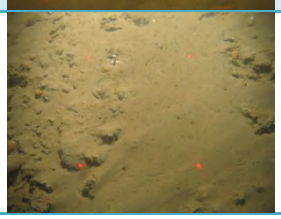
Station Code	Still Image 1	Still Image 2	Still Image 3
NNSB_CEND2213_B17_STN_218 ***Sabellaria reef*** ×			
NNSB_CEND2213_B10_STN_221 ***Sabellaria reef*** ×			
NNSB_CEND2213_B14_STN_222 ***Sabellaria reef*** ×			
NNSB_CEND2213_B08_STN_225 ***Sabellaria reef*** ×			
NNSB_CEND2213_B04_STN_226 ***Sabellaria reef*** ×			
NNSB_CEND2213_B11_STN_229 ***Sabellaria reef*** ×			

Table 16. Selection of seabed images from each camera deployment at NNSB area of search E.

Station Code	Still Image 1	Still Image 2	Still Image 3
NNSB_CEND2213_E02_STN_241 ***Sabellaria reef*** ×			
NNSB_CEND2213_E01_STN_244 ***Sabellaria reef*** ×			

Station Code	Still Image 1	Still Image 2	Still Image 3
NNSB_CEND2213_E03_STN_245 ***Sabellaria reef*** ×			
NNSB_CEND2213_E04_STN_248 ***Sabellaria reef*** ×			
NNSB_CEND2213_E05_STN_249 ***Sabellaria reef*** ×			
NNSB_CEND2213_E06_STN_252 ***Sabellaria reef*** ×			
NNSB_CEND2213_E13_STN_261 ***Sabellaria reef*** ×			
NNSB_CEND2213_E18_STN_269 ***Sabellaria reef*** ×			
NNSB_CEND2213_E21_STN_270 ***Sabellaria reef*** ×			
NNSB_CEND2213_E28_STN_322 ***Sabellaria reef*** √			

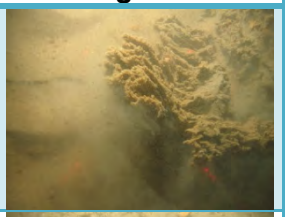
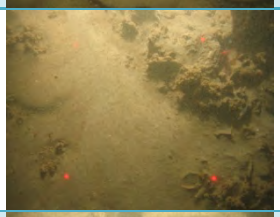
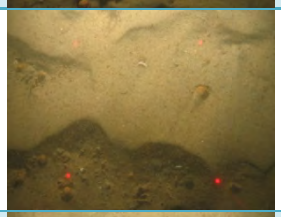
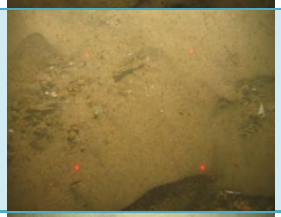
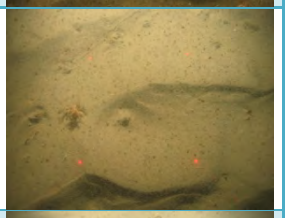
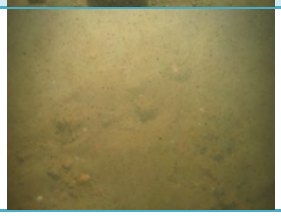
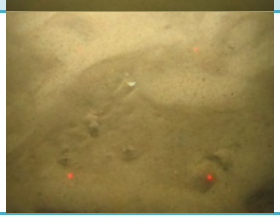
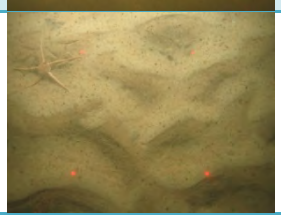
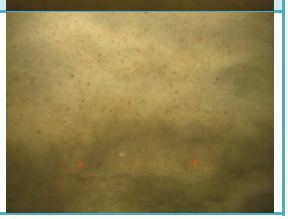
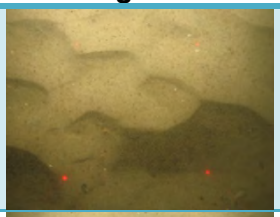
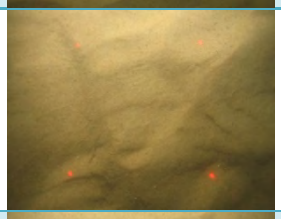
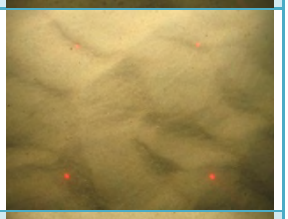
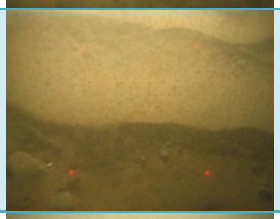
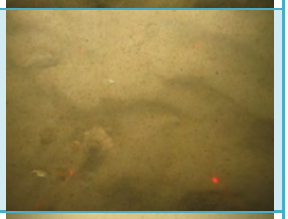
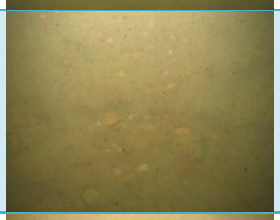
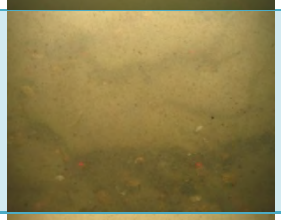
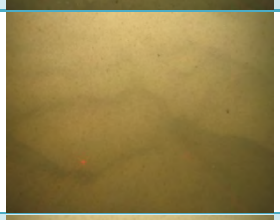
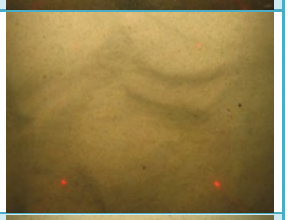
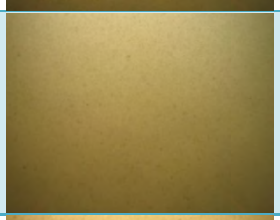
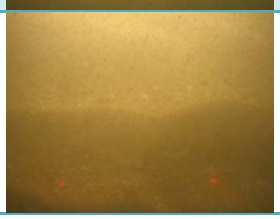
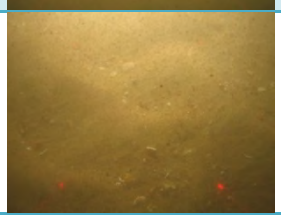
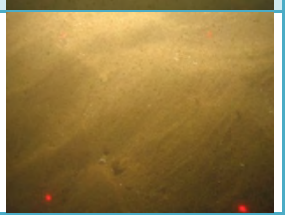
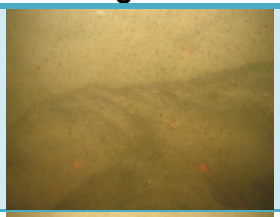
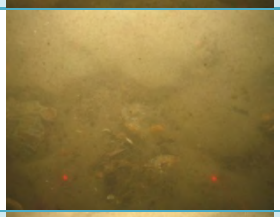
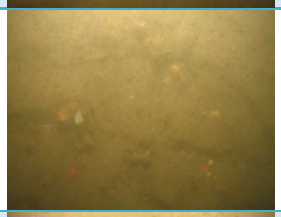
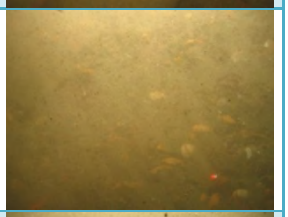
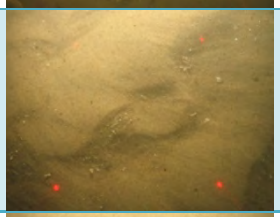
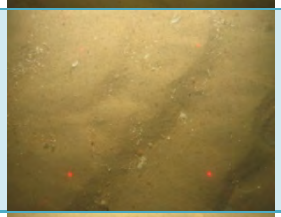
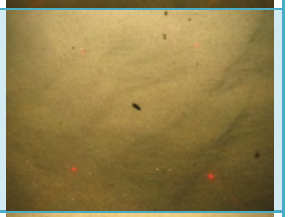
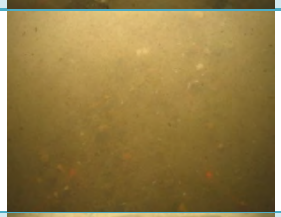
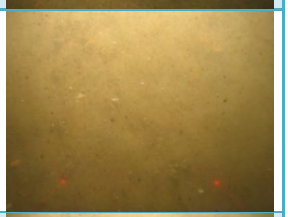
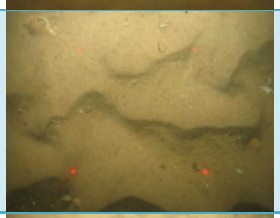
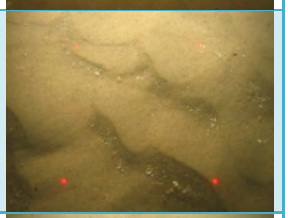
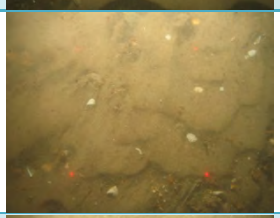
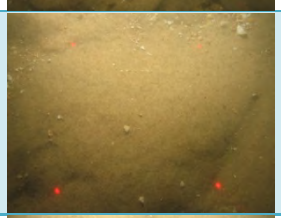
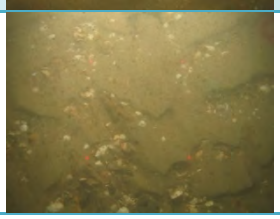
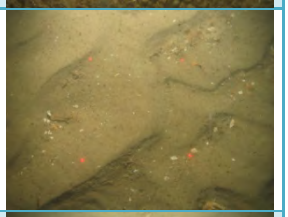
Station Code	Still Image 1	Still Image 2	Still Image 3
NNSB_CEND2213_E25_STN_388 *Sabellaria reef* √			
NNSB_CEND2213_E23_STN_389_A1 *Sabellaria reef* √			
NNSB_CEND2213_E23_STN_389_B1 *Sabellaria reef* √			
NNSB_CEND2213_E26_STN_390 *Sabellaria reef* √			
NNSB_CEND2213_E24_STN_391 *Sabellaria reef* √			
NNSB_CEND2213_E27_STN_392 *Sabellaria reef* ×			

Table 17. Selection of seabed images from each camera deployment at NNSB area of search D.

Station Code	Still Image 1	Still Image 2	Still Image 3
NNSB_CEND2213_D24_STN_273 *Sabellaria reef* ×			
NNSB_CEND2213_D01_STN_287 *Sabellaria reef* ×			

Station Code	Still Image 1	Still Image 2	Still Image 3
NNSB_CEND2213_D03_STN_288 ***Sabellaria reef*** ×			
NNSB_CEND2213_D25_STN_291 ***Sabellaria reef*** ×			
NNSB_CEND2213_D06_STN_292 ***Sabellaria reef*** ×			
NNSB_CEND2213_D02_STN_295 ***Sabellaria reef*** ×			
NNSB_CEND2213_D10_STN_296 ***Sabellaria reef*** ×			
NNSB_CEND2213_D05_STN_299 ***Sabellaria reef*** ×			
NNSB_CEND2213_D17_STN_306 ***Sabellaria reef*** ×			
NNSB_CEND2213_D24_STN_307 ***Sabellaria reef*** ×			

Station Code	Still Image 1	Still Image 2	Still Image 3
NNSB_CEND2213_D22_STN_308 ***Sabellaria reef*** ×			
NNSB_CEND2213_D19_STN_309 ***Sabellaria reef*** ×			
NNSB_CEND2213_D23_STN_310 ***Sabellaria reef*** ×			
NNSB_CEND2213_D15_STN_311 ***Sabellaria reef*** ×			
NNSB_CEND2213_D20_STN_312 ***Sabellaria reef*** ×			
NNSB_CEND2213_D11_STN_313 ***Sabellaria reef*** ×			
NNSB_CEND2213_D16_STN_314 ***Sabellaria reef*** ×			
NNSB_CEND2213_D07_STN_315 ***Sabellaria reef*** ×			

Station Code	Still Image 1	Still Image 2	Still Image 3
NNSB_CEND2213_D12_STN_316 ***Sabellaria reef*** ×			
NNSB_CEND2213_D04_STN_317 ***Sabellaria reef*** ×			
NNSB_CEND2213_D08_STN_318 ***Sabellaria reef*** ×			

Appendix VIII Survey metadata

Station metadata for the North Norfolk Sandbanks and Saturn Reef is provided below. While all stations were sampled on surveys CEND22/13 and CEND23/13, the cruise code CEND 22/13 has been used throughout. Station Code is used to identify the location of the sampling station. Station Number is a sequential event number for the cruise, so changes each time a new gear is used or a new location is sampled. All positions in decimal degrees, Lat/Long WGS84.
MB2 = Kongsberg EM2040 Multibeam, SS7 = Edgetech sidescan sonar (300/600 kHz), HG = 0.1m^2 Hamon grab, HC = Hamon grab with camera, DC = Camera drop frame, SOL = Start Of Line, EOL = End Of Line.

GRAB SAMPLE POSITIONS

Box A: Hamon grab and HamCam stations

Cruise	Date	StnNo	StnCode	Gear	Attempt	Lat	Long	Sediment type
CEND2213	06/11/2013	6	A02	HG	A1	53.44483	1.94145	SAND
CEND2213	06/11/2013	8	A24	HG	A1	53.43393	1.95594	SAND
CEND2213	06/11/2013	9	A13	HG	A1	53.42449	1.99148	SAND
CEND2213	06/11/2013	10	A20	HG	A1	53.42488	2.02202	SAND
CEND2213	06/11/2013	11	A23	HG	A1	53.43830	2.02299	SAND
CEND2213	06/11/2013	12	A17	HG	A1	53.43679	2.00070	SAND
CEND2213	06/11/2013	13	A10	HG	A1	53.43555	1.97827	COARSE
CEND2213	06/11/2013	16	A07	HG	A1	53.44627	1.96466	COARSE
CEND2213	07/11/2013	17	A14	HG	A1	53.44781	1.98708	COARSE
CEND2213	07/11/2013	20	A21	HG	A1	53.44798	2.00535	SAND
CEND2213	07/11/2013	21	A18	HG	A1	53.44802	2.00534	SAND
CEND2213	07/11/2013	24	A11	HG	A1	53.45412	1.97485	MUD
CEND2213	07/11/2013	25	A05	HG	A1	53.46029	1.94907	SAND
CEND2213	07/11/2013	28	A03	HG	A1	53.46814	1.93789	COARSE
CEND2213	07/11/2013	29	A08	HG	A1	53.46941	1.96064	COARSE SAND
CEND2213	07/11/2013	32	A15	HG	A1	53.47099	1.98319	COARSE
CEND2213	07/11/2013	33	A22	HG	A1	53.47239	2.00551	SAND
CEND2213	07/11/2013	36	A19	HG	A2	53.48331	1.99186	COARSE
CEND2213	07/11/2013	37	A16	HG	A1	53.49419	1.97841	SAND
CEND2213	07/11/2013	40	A12	HG	A1	53.48182	1.96935	COARSE
CEND2213	07/11/2013	41	A06	HG	A1	53.48036	1.94687	COARSE
CEND2213	07/11/2013	44	A01	HG	A1	53.47884	1.92455	COARSE
CEND2213	07/11/2013	45	A04	HG	A2	53.49107	1.93383	COARSE
CEND2213	07/11/2013	48	A09	HG	A2	53.49272	1.95598	SAND

Cruise	Date	StnNo	StnCode	Gear	Attempt	Lat	Long	Sediment type
CEND2213	07/11/2013	59	A64	HC	A1	53.49596	1.92797	MIXED
CEND2213	07/11/2013	62	A57	HC	A4	53.48120	1.93321	MUD. BIOGENIC REEF
CEND2213	08/11/2013	64	A59	HC	A2	53.47637	1.91677	COARSE. BIOGENIC REEF
CEND2213	08/11/2013	67	A58	HC	A2	53.47404	1.94316	COARSE. BIOGENIC REEF
CEND2213	10/11/2013	119	A65	HG	A1	53.47919	1.96057	COARSE
CEND2213	10/11/2013	121	A66	HG	A1	53.47825	1.94554	COARSE

Box B: Hamon grab stations

Cruise	Date	StnNo	StnCode	Gear	Attempt	Lat	Long	Sediment type
CEND2213	15/11/2013	179	B18	HG	A1	53.65168	1.88023	GRAVELLY MUDDY SAND WITH SLIGHT SHELL
CEND2213	15/11/2013	182	B15	HG	A1	53.66284	1.86628	MUDDY GRAVELLY SAND
CEND2213	15/11/2013	183	B25	HG	A1	53.65347	1.90270	SANDY MUD
CEND2213	15/11/2013	184	B21	HG	A1	53.64091	1.89339	SANDY WITH SHELLS
CEND2213	15/11/2013	187	B28	HG	A1	53.64254	1.91613	CLAY MIXED
CEND2213	15/11/2013	188	B34	HG	A1	53.64383	1.93041	SAND WITH SHELL
CEND2213	15/11/2013	191	B31	HG	A1	53.63168	1.92964	MUDDY SAND
CEND2213	15/11/2013	192	B36	HG	A1	53.63274	1.95351	MUDDY SAND
CEND2213	15/11/2013	195	B37	HG	A1	53.62232	1.96550	MUDDY SAND
CEND2213	15/11/2013	196	B39	HG	A1	53.62384	1.98805	MUDDY GRAVELLY SAND
CEND2213	15/11/2013	199	B38	HG	A1	53.61576	1.97852	SAND WITH PEBBLES AND SHELLS
CEND2213	16/11/2013	203	B32	HG	A1	53.59771	1.94697	SAND
CEND2213	16/11/2013	204	B35	HG	A1	53.60568	1.96626	SLIGHTLY MUDDY SAND
CEND2213	16/11/2013	207	B30	HG	A1	53.60714	1.93380	SAND
CEND2213	16/11/2013	208	B33	HG	A1	53.61826	1.94158	SAND AND MUD
CEND2213	16/11/2013	211	B27	HG	A1	53.61935	1.92030	SAND
CEND2213	16/11/2013	212	B23	HG	A1	53.60737	1.91031	SAND
CEND2213	16/11/2013	215	B20	HG	A1	53.61792	1.89785	SAND
CEND2213	16/11/2013	216	B24	HG	A1	53.63018	1.90690	SAND
CEND2213	16/11/2013	219	B17	HG	A1	53.62864	1.88423	CLEAN SAND
CEND2213	16/11/2013	220	B10	HG	A1	53.62754	1.86221	SAND
CEND2213	16/11/2013	223	B14	HG	A1	53.63955	1.87085	SLIGHTLY GRAVELLY SAND

Cruise	Date	StnNo	StnCode	Gear	Attempt	Lat	Long	Sediment type
CEND2213	16/11/2013	224	B08	HG	A1	53.63801	1.84867	SAND
CEND2213	16/11/2013	227	B04	HG	A1	53.63649	1.82584	COARSE SAND
CEND2213	16/11/2013	228	B11	HG	A1	53.65043	1.85701	GRAVELLY SAND

Box C: Hamon grab stations

Cruise	Date	StnNo	StnCode	Gear	Attempt	Lat	Long	Sediment type
CEND2213	09/11/2013	71	C05	HG	A1	53.51387	2.10005	SLIGHTLY SHELLY SAND
CEND2213	09/11/2013	72	C09	HG	A1	53.52210	2.10532	SLIGHTLY SHELLY MUDDY SAND
CEND2213	09/11/2013	75	C02	HG	A1	53.52467	2.08664	MUDDY SAND
CEND2213	09/11/2013	76	C06	HG	A1	53.53704	2.09560	SAND AND MUD
CEND2213	09/11/2013	79	C03	HG	A1	53.54763	2.07676	MUDDY SAND
CEND2213	09/11/2013	80	C01	HG	A1	53.55877	2.06885	SANDY GRAVEL
CEND2213	09/11/2013	83	C04	HG	A1	53.57092	2.07796	SANDY MUD
CEND2213	09/11/2013	84	C08	HG	A1	53.58338	2.08695	NO SAMPLE
CEND2213	09/11/2013	84	C08	HG	A2	53.58343	2.08691	MUDDY COARSE SAND
CEND2213	09/11/2013	87	C14	HG	A1	53.58505	2.10932	COARSE SAND WITH PEBBLE
CEND2213	09/11/2013	88	C11	HG	A1	53.57255	2.10037	SANDY GRAVEL
CEND2213	09/11/2013	91	C17	HG	A1	53.57400	2.12299	SLIGHTLY GRAVELLY SAND
CEND2213	09/11/2013	92	C19	HG	A2	53.56324	2.13638	NO SAMPLE
CEND2213	09/11/2013	92	C19	HG	A1	53.56324	2.13638	COBBLES
CEND2213	09/11/2013	95	C13	HG	A1	53.56153	2.11401	GRAVELLY MUDDY SAND
CEND2213	09/11/2013	96	C07	HG	A1	53.56079	2.09121	GRAVELLY MUDDY SAND
CEND2213	09/11/2013	102	C10	HG	A1	53.54935	2.10443	MUDDY SANDY GRAVEL
CEND2213	09/11/2013	103	C16	HG	A2	53.55079	2.12727	NO SAMPLE
CEND2213	09/11/2013	103	C16	HG	A1	53.55075	2.12732	NO SAMPLE
CEND2213	09/11/2013	103	C16	HG	A3	53.55080	2.12730	MUDDY SANDY GRAVEL WITH SHELL
CEND2213	10/11/2013	108	C20	HG	A1	53.55548	2.15982	NO SAMPLE
CEND2213	10/11/2013	108	C20	HG	A2	53.55547	2.15978	NO SAMPLE
CEND2213	10/11/2013	108	C20	HG	A3	53.55545	2.15985	NO SAMPLE
CEND2213	10/11/2013	108	C20	HG	A4	53.55545	2.15984	NO SAMPLE
CEND2213	10/11/2013	109	C18	HG	A2	53.53997	2.14091	NO SAMPLE

Cruise	Date	StnNo	StnCode	Gear	Attempt	Lat	Long	Sediment type
CEND2213	10/11/2013	109	C18	HG	A3	53.53994	2.14084	MUDDY SANDY GRAVEL
CEND2213	10/11/2013	109	C18	HG	A1	53.53999	2.14089	NO SAMPLE
CEND2213	10/11/2013	112	C15	HG	A1	53.52751	2.13178	GRAVELLY SAND WITH SABELLARIA SPINULOSA PRESENT
CEND2213	10/11/2013	113	C12	HG	A1	53.53848	2.11817	GRAVELLY, MUDDY SAND
CEND2213	10/11/2013	115	C51	HG	A1	53.55619	2.08810	SLIGHTLY GRAVELLY SANDY MUD

Box D: Hamon grab and HamCam stations

Cruise	Date	StnNo	StnCode	Gear	Attempt	Lat	Long	Sediment type
CEND2213	19/11/2013	274	D24	HG	A1	53.03063	2.39021	SAND
CEND2213	19/11/2013	275	D22	HG	A1	53.03968	2.38946	SAND
CEND2213	19/11/2013	276	D19	HG	A1	53.05055	2.37664	SAND
CEND2213	19/11/2013	277	D23	HG	A1	53.06296	2.38548	SAND
CEND2213	19/11/2013	278	D15	HG	A1	53.06158	2.36343	SAND
CEND2213	19/11/2013	279	D20	HG	A1	53.07359	2.37176	SAND
CEND2213	19/11/2013	280	D11	HG	A1	53.07247	2.35042	SAND
CEND2213	19/11/2013	281	D16	HG	A1	53.08467	2.35923	SAND
CEND2213	19/11/2013	282	D07	HG	A1	53.08331	2.33658	SAND
CEND2213	19/11/2013	283	D12	HG	A1	53.09565	2.34606	SAND
CEND2213	19/11/2013	284	D04	HG	A1	53.09404	2.32357	SAND
CEND2213	19/11/2013	285	D08	HG	A1	53.10431	2.33221	SAND
CEND2213	19/11/2013	286	D01	HG	A1	53.08319	2.31270	MUD
CEND2213	19/11/2013	289	D03	HG	A1	53.07096	2.32765	SAND
CEND2213	19/11/2013	290	D25	HG	A1	53.06395	2.32484	SAND
CEND2213	19/11/2013	293	D06	HG	A1	53.06033	2.34126	SAND
CEND2213	19/11/2013	294	D02	HG	A1	53.04772	2.33935	SAND
CEND2213	19/11/2013	297	D10	HG	A1	53.04916	2.35378	SAND
CEND2213	19/11/2013	298	D05	HG	A1	53.03773	2.34943	SAND
CEND2213	19/11/2013	300	D14	HG	A3	53.03373	2.36577	SAND
CEND2213	19/11/2013	301	D09	HG	A1	53.02679	2.36000	SAND
CEND2213	19/11/2013	302	D18	HG	A1	53.02736	2.38043	MUD
CEND2213	19/11/2013	303	D13	HC	A1	53.01501	2.37129	SAND

Cruise	Date	StnNo	StnCode	Gear	Attempt	Lat	Long	Sediment type
CEND2213	20/11/2013	304	D21	HG	A1	53.01761	2.39037	COARSE
CEND2213	20/11/2013	305	D17	HG	A1	53.00317	2.38557	MIXED

Box E: Hamon grab stations

Cruise	Date	StnNo	StnCode	Gear	Attempt	Lat	Long	Sediment type
CEND2213	18/11/2013	242	E02	HG	A1	52.99492	2.22331	SAND
CEND2213	18/11/2013	243	E01	HG	A1	53.00938	2.22436	SAND
CEND2213	18/11/2013	246	E03	HG	A1	53.00656	2.24199	SAND
CEND2213	18/11/2013	247	E04	HG	A1	52.99574	2.25083	SAND
CEND2213	18/11/2013	250	E05	HG	A1	53.01363	2.25167	SAND
CEND2213	18/11/2013	251	E06	HG	A1	53.00815	2.26038	COARSE
CEND2213	18/11/2013	253	E07	HG	A1	52.99722	2.27349	MUD
CEND2213	18/11/2013	254	E22	HG	A1	52.99001	2.27930	MUD
CEND2213	18/11/2013	255	E09	HG	A1	53.00936	2.28244	SAND
CEND2213	18/11/2013	256	E08	HG	A1	53.02034	2.26930	MUD
CEND2213	18/11/2013	257	E10	HG	A1	53.02879	2.28204	SAND
CEND2213	18/11/2013	258	E12	HG	A1	53.02160	2.29140	MUD
CEND2213	18/11/2013	259	E11	HG	A1	52.99839	2.29560	SAND
CEND2213	18/11/2013	260	E13	HG	A1	52.98753	2.30840	SAND
CEND2213	18/11/2013	262	E16	HG	A1	52.99975	2.31821	SAND
CEND2213	18/11/2013	263	E14	HG	A1	53.01076	2.30517	SAND
CEND2213	18/11/2013	264	E15	HG	A1	53.03392	2.30070	SAND
CEND2213	18/11/2013	265	E17	HG	A1	53.02294	2.31384	SAND
CEND2213	18/11/2013	266	E20	HG	A1	53.01211	2.32694	SAND
CEND2213	18/11/2013	267	E21	HG	A1	53.00096	2.33738	SAND
CEND2213	18/11/2013	268	E18	HG	A1	52.98540	2.34097	SAND

Box F: Hamon grab and HamCam stations

Cruise	Date	StnNo	StnCode	Gear	Attempt	Lat	Long	Sediment type
CEND2213	13/11/2013	132	F03	HG	A1	53.36134	1.92410	GRAVELLY SAND
CEND2213	13/11/2013	133	F05	HG	A1	53.35056	1.93743	SHELLY SAND
CEND2213	13/11/2013	136	F01	HG	A1	53.34901	1.91551	SHELLY SAND
CEND2213	13/11/2013	137	F21	HG	A1	53.34146	1.91088	MEDIUM SAND

CEND2213	13/11/2013	140	F02	HG	A1	53.33814	1.92888	SAND
CEND2213	13/11/2013	141	F07	HG	A1	53.33968	1.95112	NO SAMPLE
CEND2213	13/11/2013	141	F07	HG	A2	53.33971	1.95113	COARSE SHELLY SAND
CEND2213	13/11/2013	144	F04	HG	A1	53.32741	1.94178	SHELLY SAND
CEND2213	13/11/2013	145	F09	HG	A1	53.32871	1.96398	SHELLY SAND
CEND2213	13/11/2013	148	F14	HG	A1	53.33274	1.98082	SHELLY MUDDY SAND
CEND2213	13/11/2013	149	F16	HG	A1	53.31966	2.00072	SLIGHTLY SHELLY MUDDY SAND
CEND2213	13/11/2013	152	F11	HG	A1	53.31818	1.97734	SLIGHTLY SHELLY SAND
CEND2213	13/11/2013	153	F06	HG	A1	53.31652	1.95502	SAND AND MUDDY SAND WITH BROKEN SHELL
CEND2213	13/11/2013	156	F08	HG	A1	53.30549	1.96839	SHELLY SAND
CEND2213	13/11/2013	157	F13	HG	A1	53.30721	1.99080	SHELLY MUDDY SAND
CEND2213	13/11/2013	160	F18	HG	A1	53.30863	2.01185	SAND WITH SMALL BROKEN SHELL
CEND2213	13/11/2013	161	F19	HG	A1	53.29776	2.02861	SANDY SHELL WITH BROKEN SHELL AND SABELLARIA
CEND2213	14/11/2013	164	F15	HG	A1	53.29613	2.00420	SANDY MUD WITH SHELL FRAGMENTS
CEND2213	14/11/2012	165	F10	HG	A1	53.29488	1.98188	MUDDY SAND
CEND2213	14/11/2013	168	F12	HG	A1	53.28386	1.99568	SAND WITH SMALL SHELLS AND DEBRIS
CEND2213	14/11/2013	169	F17	HG	A1	53.27695	2.01257	SAND
CEND2213	14/11/2013	172	F20	HG	A1	53.28677	2.04031	SLIGHTLY SHELLY SAND
CEND2213	17/11/2013	231	F22	HC	A1	53.35306	1.93132	NO SAMPLE
CEND2213	17/11/2013	231	F22	HC	A2	53.35304	1.93129	SANDY MUD WITH SABELLARIA CLUMPS
CEND2213	17/11/2013	235	F25	HC	A2	53.31070	1.98028	NO SAMPLE
CEND2213	17/11/2013	235	F25	HC	A1	53.31070	1.98030	NO SAMPLE
CEND2213	17/11/2013	236	F24	HC	A1	53.31391	1.97456	GRAVELLY SANDY MUD
CEND2213	17/11/2013	237	F23	HC	A1	53.31712	1.97180	NO SAMPLE
CEND2213	17/11/2013	237	F23	HC	A1	53.31712	1.97180	NO SAMPLE
CEND2213	17/11/2013	237	F23	HC	A3	53.31713	1.97180	GRAVELLY MUDDY SAND

Sandbank Transect (SBT) Hamon grab and HamCam stations

Cruise	Date	StnNo	StnCode	Gear	Attempt	Lat	Long	Sediment type
CEND2213	21/11/2013	326	SBT01A	HC	A2	53.63725	2.57065	SAND
CEND2213	21/11/2013	327	SBT01B	HC	A3	53.62838	2.55849	SAND
CEND2213	21/11/2013	328	SBT01C	HC	A2	53.61705	2.54261	SAND
CEND2213	21/11/2013	329	SBT01D	HG	A1	53.60927	2.53149	SAND
CEND2213	21/11/2013	330	SBT01E	HG	A1	53.60003	2.51871	SAND
CEND2213	21/11/2013	332	SBT02A	HG	A1	53.64671	2.53588	SAND
CEND2213	21/11/2013	333	SBT02B	HG	A1	53.64080	2.52594	SAND
CEND2213	21/11/2013	334	SBT02C	HG	A1	53.63350	2.51441	SAND
CEND2213	21/11/2013	335	SBT02D	HG	A1	53.62410	2.49927	SAND
CEND2213	22/11/2013	336	SBT02E	HG	A1	53.61877	2.49028	SAND
CEND2213	22/11/2013	338	SBT35A	HG	A1	53.59261	2.38459	SAND
CEND2213	22/11/2013	339	SBT35B	HG	A1	53.61366	2.40606	SAND
CEND2213	22/11/2013	340	SBT35C	HG	A1	53.61945	2.41166	SAND
CEND2213	22/11/2013	341	SBT35D	HG	A1	53.62436	2.41614	SAND
CEND2213	22/11/2013	342	SBT35E	HG	A1	53.63112	2.42326	SAND
CEND2213	22/11/2013	344	SBT36E	HG	A1	53.57410	2.42463	SAND
CEND2213	22/11/2013	345	SBT36D	HG	A1	53.58575	2.43917	SAND
CEND2213	22/11/2013	346	SBT36C	HG	A1	53.59731	2.45328	SAND
CEND2213	22/11/2013	347	SBT36B	HG	A1	53.60395	2.46170	SAND
CEND2213	22/11/2013	348	SBT36A	HG	A1	53.60858	2.46714	SAND
CEND2213	22/11/2013	350	SBT37E	HG	A1	53.45144	2.48158	COARSE
CEND2213	22/11/2013	351	SBT37D	HG	A1	53.47144	2.50527	COARSE
CEND2213	22/11/2013	352	SBT37C	HG	A1	53.48127	2.51664	SAND
CEND2213	22/11/2013	353	SBT37B	HG	A1	53.49002	2.52700	SAND
CEND2213	22/11/2013	354	SBT37A	HG	A1	53.50307	2.54218	COARSE
CEND2213	22/11/2013	356	SBT03E	HG	A1	53.47675	2.44409	SAND
CEND2213	22/11/2013	357	SBT03D	HG	A1	53.49731	2.47004	SAND
CEND2213	22/11/2013	358	SBT03C	HG	A1	53.50644	2.48165	SAND
CEND2213	22/11/2013	359	SBT03B	HG	A1	53.51014	2.48649	SAND
CEND2213	22/11/2013	360	SBT03A	HG	A1	53.51603	2.49382	SAND
CEND2213	22/11/2013	362	SBT04E	HG	A1	53.50145	2.39451	SAND
CEND2213	22/11/2013	363	SBT04D	HG	A1	53.51475	2.41178	SAND
CEND2213	22/11/2013	364	SBT04C	HG	A1	53.53200	2.43447	SAND

Cruise	Date	StnNo	StnCode	Gear	Attempt	Lat	Long	Sediment type
CEND2213	22/11/2013	365	SBT04B	HG	A1	53.53731	2.44083	SAND
CEND2213	22/11/2013	366	SBT04A	HG	A1	53.54045	2.44504	SAND
CEND2213	22/11/2013	368	SBT05A	HG	A1	53.52065	2.33947	SAND
CEND2213	22/11/2013	369	SBT05B	HG	A1	53.53214	2.35663	SAND
CEND2213	22/11/2013	370	SBT05C	HG	A1	53.54725	2.37829	SAND
CEND2213	22/11/2013	371	SBT05D	HG	A1	53.55684	2.39281	COARSE
CEND2213	22/11/2013	372	SBT05E	HG	A1	53.56273	2.40126	SAND
CEND2213	22/11/2013	374	SBT07E	HG	A3	53.53920	2.24265	COARSE
CEND2213	22/11/2013	375	SBT07D	HG	A1	53.55150	2.25839	SAND
CEND2213	22/11/2013	376	SBT07C	HG	A1	53.55968	2.26816	COARSE
CEND2213	22/11/2013	377	SBT07B	HG	A1	53.56672	2.27701	COARSE
CEND2213	22/11/2013	378	SBT07A	HG	A1	53.58186	2.29560	COARSE
CEND2213	22/11/2013	380	SBT06E	HG	A1	53.56035	2.17256	SAND
CEND2213	22/11/2013	381	SBT06D	HG	A1	53.57340	2.18708	SAND
CEND2213	22/11/2013	382	SBT06C	HG	A1	53.58208	2.19698	SAND
CEND2213	23/11/2013	383	SBT06B	HG	A2	53.59023	2.20606	COARSE
CEND2213	23/11/2013	384	SBT06A	HG	A1	53.60255	2.22085	COARSE
CEND2213	24/11/2013	394	SBT26E	HG	A1	53.01118	2.14692	SAND
CEND2213	24/11/2013	395	SBT26D	HG	A1	53.01672	2.15657	SAND
CEND2213	24/11/2013	396	SBT26C	HG	A1	53.02587	2.17341	SAND
CEND2213	24/11/2013	397	SBT26B	HG	A1	53.02850	2.17754	SAND
CEND2213	24/11/2013	398	SBT26A	HG	A1	53.03179	2.18364	COARSE
CEND2213	24/11/2013	400	SBT17A	HG	A1	53.23656	1.75873	SAND
CEND2213	24/11/2013	401	SBT17B	HG	A1	53.23234	1.75257	SAND
CEND2213	24/11/2013	402	SBT17C	HG	A1	53.23118	1.75079	SAND
CEND2213	24/11/2013	403	SBT17D	HG	A1	53.22768	1.74578	SAND
CEND2213	24/11/2013	404	SBT17E	HG	A1	53.22179	1.73722	COARSE
CEND2213	24/11/2013	406	SBT16A	HG	A1	53.25970	1.73605	MUD
CEND2213	24/11/2013	407	SBT16B	HG	A1	53.25148	1.72633	SAND
CEND2213	24/11/2013	408	SBT16C	HG	A1	53.24778	1.72216	SAND
CEND2213	24/11/2013	409	SBT16D	HG	A1	53.23777	1.71121	SAND
CEND2213	24/11/2013	410	SBT16E	HG	A1	53.23468	1.70733	SAND
CEND2213	24/11/2013	412	SBT18E	HG	A1	53.24728	1.88101	SAND
CEND2213	24/11/2013	413	SBT18D	HG	A1	53.25662	1.88877	SAND

Cruise	Date	StnNo	StnCode	Gear	Attempt	Lat	Long	Sediment type
CEND2213	24/11/2013	414	SBT18C	HG	A1	53.26199	1.89312	SAND
CEND2213	24/11/2013	415	SBT18B	HG	A1	53.26365	1.89498	SAND
CEND2213	24/11/2013	416	SBT18A	HG	A1	53.27699	1.90508	COARSE
CEND2213	24/11/2013	418	SBT19A	HG	A1	53.22492	1.91281	SAND
CEND2213	24/11/2013	419	SBT19B	HG	A1	53.23468	1.92273	SAND
CEND2213	24/11/2013	420	SBT19C	HG	A1	53.24436	1.93197	SAND
CEND2213	24/11/2013	421	SBT19D	HG	A1	53.24927	1.93679	SAND
CEND2213	24/11/2013	422	SBT19E	HG	A1	53.25599	1.94375	SAND
CEND2213	24/11/2013	424	SBT33A	HG	A1	53.21259	1.94391	SAND
CEND2213	24/11/2013	425	SBT33B	HG	A1	53.22314	1.95843	SAND
CEND2213	24/11/2013	426	SBT33C	HG	A1	53.23215	1.97113	SAND
CEND2213	24/11/2013	427	SBT33D	HG	A1	53.23497	1.97508	SAND
CEND2213	24/11/2013	428	SBT33E	HG	A1	53.24185	1.98446	SAND
CEND2213	25/11/2013	430	SBT24E	HG	A1	53.14563	2.18768	SAND
CEND2213	25/11/2013	431	SBT24D	HG	A1	53.15278	2.19699	SAND
CEND2213	25/11/2013	432	SBT24C	HG	A1	53.16227	2.21056	SAND
CEND2213	25/11/2013	434	SBT24B	HG	A1	53.16331	2.21207	SAND
CEND2213	25/11/2013	435	SBT24A	HG	A2	53.16777	2.21757	COARSE

VIDEO TOWS

Box A: video tows

Cruise	Date	StnNo	StnCode	Gear	Attempt	Stills	SoL Lat	SoL Long	EoL Lat	EoI Long
CEND2213	06/11/2013	5	A02	DC	A1	3	53.44477	1.94238	53.44481	1.94203
CEND2213	06/11/2013	7	A24	DC	A1	3	53.43384	1.95622	53.43391	1.95598
CEND2213	06/11/2013	14	A10	DC	A1	6	53.43536	1.97818	53.43564	1.97821
CEND2213	06/11/2013	15	A07	DC	A1	3	53.44630	1.96469	53.44640	1.96449
CEND2213	07/11/2013	18	A14	DC	A1	4	53.44753	1.98722	53.44760	1.98721
CEND2213	07/11/2013	19	A21	DC	A1	4	53.44760	1.98721	53.44798	2.00535
CEND2213	07/11/2013	22	A18	DC	A1	3	53.45581	1.99605	53.45597	1.99587
CEND2213	07/11/2013	23	A11	DC	A1	3	53.45436	1.97489	53.45418	1.97495
CEND2213	07/11/2013	26	A05	DC	A1	3	53.46013	1.94902	53.45994	1.94904
CEND2213	07/11/2013	27	A03	DC	A1	9	53.46815	1.93767	53.46804	1.93833
CEND2213	07/11/2013	30	A08	DC	A1	5	53.46938	1.96081	53.46953	1.96063
CEND2213	07/11/2013	31	A15	DC	A1	5	53.47078	1.98360	53.47095	1.98332
CEND2213	07/11/2013	34	A22	DC	A1	4	53.47239	2.00565	53.47243	2.00539
CEND2213	07/11/2013	35	A19	DC	A1	3	53.48330	1.99217	53.48333	1.99182
CEND2213	07/11/2013	38	A16	DC	A1	7	53.49431	1.97811	53.49413	1.97858
CEND2213	07/11/2013	39	A12	DC	A1	10	53.48171	1.96963	53.48207	1.96886
CEND2213	07/11/2013	42	A06	DC	A1	5	53.48017	1.94720	53.48027	1.94693
CEND2213	07/11/2013	43	A01	DC	A1	7	53.47861	1.92501	53.47875	1.92466
CEND2213	07/11/2013	46	A04	DC	A1	3	53.49110	1.93373	53.49115	1.93356
CEND2213	07/11/2013	47	A09	DC	A1	5	53.49270	1.95661	53.49271	1.95608
CEND2213	07/11/2013	49	A53	DC	A1	15	53.49271	1.97537	53.49230	1.97626
CEND2213	07/11/2013	50	A51	DC	A1	20	53.50319	1.97534	53.50299	1.97685
CEND2213	07/11/2013	51	A50	DC	A1	25	53.50130	1.96606	53.50115	1.96627
CEND2213	07/11/2013	52	A54	DC	A1	24	53.49844	1.96255	53.49936	1.96169
CEND2213	07/11/2013	54	A52	DC	A1	31	53.50463	1.95482	53.50559	1.95474
CEND2213	07/11/2013	55	A61	DC	A1	42	53.49953	1.94513	53.49875	1.94813
CEND2213	07/11/2013	56	A60	DC	A1	61	53.49321	1.94982	53.49273	1.94637
CEND2213	07/11/2013	57	A63	DC	A1	44	53.49600	1.93001	53.49496	1.92798
CEND2213	07/11/2013	58	A64	DC	A1	23	53.49603	1.92798	53.49519	1.92796
CEND2213	07/11/2013	60	A62	DC	A1	14	53.48630	1.93980	53.48535	1.93942

Cruise	Date	StnNo	StnCode	Gear	Attempt	Stills	SoL Lat	SoL Long	EoL Lat	Eol Long
CEND2213	07/11/2013	61	A57	DC	A1	56	53.48146	1.93413	53.48077	1.93210
CEND2213	07/11/2013	63	A59	DC	A1	47	53.47701	1.91920	53.47608	1.91592
CEND2213	08/11/2013	65	A58	DC	A1	33	53.47392	1.94290	53.47513	1.94576
CEND2213	08/11/2013	66	A56	DC	A1	31	53.48215	1.95996	53.48141	1.95627
CEND2213	10/11/2013	118	A65	DC	A1	39	53.48044	1.96319	53.47924	1.96068
CEND2213	10/11/2013	120	A66	DC	A1	33	53.47890	1.94880	53.47831	1.94560
CEND2213	10/11/2013	122	A71	DC	A1	56	53.47841	1.93782	53.47692	1.93363
CEND2213	10/11/2013	123	A70	DC	A1	116	53.48148	1.92581	53.47885	1.92192
CEND2213	10/11/2013	124	A67	DC	A1	69	53.47955	1.91620	53.47713	1.91207
CEND2213	10/11/2013	125	A69	DC	A1	79	53.47724	1.91214	53.48159	1.91187
CEND2213	10/11/2013	126	A68	DC	A1	67	53.48150	1.91144	53.47914	1.90827

Box B: video tows

Cruise	Date	StnNo	StnCode	Gear	Attempt	Stills	SoL Lat	SoL Long	EoL Lat	EoL Long
CEND2213	15/11/2013	178	B15	DC	A1	3	53.66269	1.86658	53.66280	1.86631
CEND2213	15/11/2013	180	B18	DC	A1	3	53.65173	1.88013	53.65185	1.87988
CEND2213	15/11/2013	181	B25	DC	A1	4	53.65331	1.90247	53.65344	1.90268
CEND2213	15/11/2013	185	B21	DC	A1	3	53.64088	1.89357	53.64105	1.89343
CEND2213	15/11/2013	186	B28	DC	A1	3	53.64273	1.91623	53.64261	1.91616
CEND2213	15/11/2013	189	B34	DC	A1	4	53.64382	1.93029	53.64382	1.93000
CEND2213	15/11/2013	190	B31	DC	A1	3	53.63155	1.92991	53.63165	1.92970
CEND2213	15/11/2013	193	B36	DC	A1	3	53.63295	1.95363	53.63280	1.95356
CEND2213	15/11/2013	194	B37	DC	A1	4	53.62255	1.96568	53.62237	1.96553
CEND2213	15/11/2013	197	B39	DC	A1	3	53.62386	1.98804	53.62368	1.98800
CEND2213	15/11/2013	198	B38	DC	A1	3	53.61600	1.97853	53.61583	1.97854
CEND2213	16/11/2013	202	B32	DC	A1	3	53.59769	1.94734	53.59772	1.94704
CEND2213	16/11/2013	205	B35	DC	A1	3	53.60571	1.96596	53.60571	1.96567
CEND2213	16/11/2013	206	B30	DC	A1	3	53.60709	1.93411	53.60713	1.93378
CEND2213	16/11/2013	209	B33	DC	A1	3	53.61824	1.94127	53.61831	1.94096
CEND2213	16/11/2013	210	B27	DC	A1	3	53.61929	1.92064	53.61934	1.92035
CEND2213	16/11/2013	214	B20	DC	A1	4	53.61777	1.89816	53.61790	1.89788
CEND2213	16/11/2013	217	B24	DC	A1	3	53.62995	1.90705	53.63011	1.90689

Cruise	Date	StnNo	StnCode	Gear	Attempt	Stills	SoL Lat	SoL Long	EoL Lat	EoL Long
CEND2213	16/11/2013	218	B17	DC	A1	3	53.62849	1.88400	53.62863	1.88421
CEND2213	16/11/2013	221	B10	DC	A1	3	53.62744	1.86212	53.62728	1.86203
CEND2213	16/11/2013	222	B14	DC	A1	3	53.63960	1.87121	53.63955	1.87092
CEND2213	16/11/2013	225	B08	DC	A1	3	53.63802	1.84855	53.63802	1.84826
CEND2213	16/11/2013	226	B04	DC	A1	3	53.63660	1.82550	53.63651	1.82576
CEND2213	16/11/2013	229	B11	DC	A1	3	53.65039	1.85715	53.65035	1.85743

Box C: video tows

Cruise	Date	StnNo	StnCode	Gear	Attempt	Stills	SoL Lat	SoL Long	EoL Lat	EoL Long
CEND2213	09/11/2013	70	C05	DC	A1	4	53.51389	2.10032	53.51389	2.10015
CEND2213	09/11/2013	73	C09	DC	A1	4	53.52213	2.10546	53.52208	2.10508
CEND2213	09/11/2013	74	C02	DC	A1	4	53.52468	2.08700	53.52468	2.08660
CEND2213	09/11/2013	77	C06	DC	A1	4	53.53701	2.09586	53.53705	2.09540
CEND2213	09/11/2013	78	C03	DC	A1	3	53.54762	2.07731	53.54767	2.07704
CEND2213	09/11/2013	81	C01	DC	A1	3	53.55872	2.06887	53.55863	2.06914
CEND2213	09/11/2013	82	C04	DC	A1	8	53.57123	2.07801	53.57098	2.07792
CEND2213	09/11/2013	85	C08	DC	A1	7	53.58349	2.08684	53.58371	2.08665
CEND2213	09/11/2013	86	C14	DC	A1	4	53.58485	2.10964	53.58504	2.10935
CEND2213	09/11/2013	89	C11	DC	A1	5	53.57264	2.10054	53.57248	2.10032
CEND2213	09/11/2013	90	C17	DC	A1	3	53.57412	2.12309	53.57394	2.12292
CEND2213	09/11/2013	93	C19	DC	A1	28	53.56330	2.13636	53.56244	2.13583
CEND2213	09/11/2013	94	C13	DC	A1	19	53.56205	2.11343	53.56126	2.11423
CEND2213	09/11/2013	97	C07	DC	A1	25	53.56075	2.09120	53.55975	2.09135
CEND2213	09/11/2013	98	C50	DC	A1	15	53.56188	2.08502	53.56086	2.08565
CEND2213	09/11/2013	99	C54	DC	A1	14	53.55702	2.08818	53.55638	2.08932
CEND2213	09/11/2013	100	C51	DC	A1	20	53.55492	2.09208	53.55393	2.09281
CEND2213	09/11/2013	101	C10	DC	A1	3	53.54935	2.10481	53.54934	2.10455
CEND2213	09/11/2013	104	C16	DC	A1	3	53.55101	2.12718	53.55088	2.12716
CEND2213	09/11/2013	105	C52	DC	A1	27	53.56184	2.13540	53.56076	2.13462
CEND2213	10/11/2013	106	C53	DC	A1	16	53.55683	2.14030	53.55570	2.13981
CEND2213	10/11/2013	107	C20	DC	A1	4	53.55579	2.15994	53.55555	2.15988

CEND2213	10/11/2013	110	C18	DC	A1	3	53.53990	2.14062	53.53980	2.14080
CEND2213	10/11/2013	111	C15	DC	A1	3	53.52761	2.13148	53.52753	2.13165
CEND2213	10/11/2013	114	C12	DC	A1	3	53.53847	2.11809	53.53846	2.11779

Box D: video tows

Cruise	Date	StnNo	StnCode	Gear	Attempt	Stills	SoL Lat	SoL Long	EoL Lat	EoL Long
CEND2213	19/11/2013	273	D24	DC	A1	4	53.03052	2.39027	53.03054	2.39026
CEND2213	19/11/2013	287	D01	DC	A1	12	53.08317	2.31269	53.08355	2.31262
CEND2213	19/11/2013	288	D03	DC	A1	6	53.07090	2.32773	53.07100	2.32758
CEND2213	19/11/2013	291	D25	DC	A1	9	53.06412	2.32469	53.06435	2.32439
CEND2213	19/11/2013	292	D06	DC	A1	7	53.06001	2.34101	53.06026	2.34077
CEND2213	19/11/2013	295	D02	DC	A1	6	53.04799	2.33931	53.04811	2.33933
CEND2213	19/11/2013	296	D10	DC	A1	10	53.04907	2.35384	53.04917	2.35378
CEND2213	19/11/2013	299	D05	DC	A1	15	53.03787	2.34934	53.03836	2.34920
CEND2213	20/11/2013	306	D17	DC	A1	4	53.00326	2.38553	53.00340	2.38535
CEND2213	20/11/2013	307	D24	DC	A1	5	53.03009	2.39060	53.03030	2.39041
CEND2213	20/11/2013	308	D22	DC	A1	7	53.04009	2.38971	53.03991	2.38951
CEND2213	20/11/2013	309	D19	DC	A1	7	53.05085	2.37672	53.05070	2.37647
CEND2213	20/11/2013	310	D23	DC	A1	4	53.06297	2.38485	53.06313	2.38502
CEND2213	20/11/2013	311	D15	DC	A1	10	53.06165	2.36294	53.06134	2.36286
CEND2213	20/11/2013	312	D20	DC	A1	5	53.07405	2.37204	53.07382	2.37191
CEND2213	20/11/2013	313	D11	DC	A1	11	53.07257	2.34996	53.07220	2.34981
CEND2213	20/11/2013	314	D16	DC	A1	5	53.08474	2.35907	53.08454	2.35890
CEND2213	20/11/2013	315	D07	DC	A1	4	53.08352	2.33675	53.08337	2.33660
CEND2213	20/11/2013	316	D12	DC	A1	13	53.09581	2.34575	53.09528	2.34469
CEND2213	20/11/2013	317	D04	DC	A1	5	53.09424	2.32376	53.09406	2.32346
CEND2213	20/11/2013	318	D08	DC	A1	4	53.10461	2.33223	53.10443	2.33209
CEND2213	23/11/2013	387	D24	DC	A1	9	53.07783	2.34924	53.07771	2.34703

Box E: video tows

Cruise	Date	StnNo	StnCode	Gear	Attempt	Stills	SoL Lat	SoL Long	EoL Lat	EoL Long
CEND2213	18/11/2013	241	E02	DC	A1	3	52.99472	2.22340	52.99488	2.22334
CEND2213	18/11/2013	244	E01	DC	A1	3	53.00950	2.22432	53.00966	2.22428

CEND2213	18/11/2013	245	E03	DC	A1	7	53.00648	2.24200	53.00676	2.24189
CEND2213	18/11/2013	248	E04	DC	A1	7	52.99581	2.25094	52.99559	2.25099
CEND2213	18/11/2013	249	E05	DC	A1	5	53.01382	2.25166	53.01365	2.25166
CEND2213	18/11/2013	252	E06	DC	A1	4	53.00810	2.26026	53.00800	2.26004
CEND2213	18/11/2013	261	E13	DC	A1	11	52.98770	2.30832	52.98817	2.30830
CEND2213	18/11/2013	269	E18	DC	A1	4	52.98546	2.34077	52.98552	2.34050
CEND2213	18/11/2013	270	E21	DC	A1	4	53.00097	2.33748	53.00105	2.33738
CEND2213	18/11/2013	270	E21	DC	A1	4	53.00106	2.33737	53.00111	2.33730
CEND2213	24/11/2013	388	E25	DC	A1	44	52.99216	2.30095	52.99097	2.29715
CEND2213	24/11/2013	389	E23	DC	A1	17	52.99494	2.28504	52.99478	2.28349
CEND2213	24/11/2013	389	E23	DC	B1	24	52.99458	2.28173	52.99430	2.27904
CEND2213	24/11/2013	390	E26	DC	A1	40	52.99675	2.27729	52.99518	2.27440
CEND2213	24/11/2013	391	E24	DC	A1	41	52.98729	2.28597	52.98853	2.28957
CEND2213	24/11/2013	392	E27	DC	A1	24	52.98954	2.27448	52.98847	2.27262
CEND2213	24/11/2013	322	E28	DC	A1	46	53.007460	2.262241	53.005480	2.258886

Box F: video tows

Cruise	Date	StnNo	StnCode	Gear	Attempt	Stills	SoL Lat	SoL Long	EoL Lat	EoL Long
CEND2213	13/11/2013	131	F03	DC	A1	3	53.36162	1.92377	53.36145	1.92393
CEND2213	13/11/2013	134	F05	DC	A1	4	53.35048	1.93758	53.35031	1.93774
CEND2213	13/11/2013	135	F01	DC	A1	15	53.34904	1.91509	53.34892	1.91638
CEND2213	13/11/2013	138	F21	DC	A1	3	53.34142	1.91097	53.34141	1.91123
CEND2213	13/11/2013	139	F02	DC	A1	3	53.33823	1.92846	53.33819	1.92877
CEND2213	13/11/2013	142	F07	DC	A1	3	53.33973	1.95083	53.33976	1.95063
CEND2213	13/11/2013	143	F04	DC	A1	3	53.32734	1.94212	53.32738	1.94182
CEND2213	13/11/2013	146	F09	DC	A1	3	53.32880	1.96409	53.32895	1.96413
CEND2213	13/11/2013	147	F14	DC	A1	3	53.33278	1.98122	53.33273	1.98095
CEND2213	13/11/2013	150	F16	DC	A1	4	53.31981	2.00001	53.31965	1.99985
CEND2213	13/11/2013	151	F11	DC	A1	3	53.31843	1.97741	53.31824	1.97740
CEND2213	13/11/2013	154	F06	DC	A1	4	53.31666	1.95522	53.31650	1.95500
CEND2213	13/11/2013	155	F08	DC	A1	4	53.30578	1.96841	53.30559	1.96841
CEND2213	13/11/2013	158	F13	DC	A1	3	53.30721	1.99084	53.30703	1.99083
CEND2213	13/11/2013	159	F18	DC	A1	4	53.30885	2.01184	53.30866	2.01183
CEND2213	13/11/2013	162	F19	DC	A1	13	53.29781	2.02860	53.29691	2.02880

Cruise	Date	StnNo	StnCode	Gear	Attempt	Stills	SoL Lat	SoL Long	EoL Lat	EoL Long
CEND2213	13/11/2013	163	F15	DC	A1	17	53.29670	2.00397	53.29586	2.00432
CEND2213	14/11/2013	166	F10	DC	A1	3	53.29480	1.98190	53.29473	1.98221
CEND2213	14/11/2013	167	F12	DC	A1	3	53.28398	1.99532	53.28390	1.99553
CEND2213	14/11/2013	170	F17	DC	A1	4	53.27693	2.01257	53.27689	2.01286
CEND2213	14/11/2013	171	F20	DC	A1	6	53.28686	2.04016	53.28662	2.04051
CEND2213	14/11/2013	173	F26	DC	A1	23	53.28599	2.00940	53.28629	2.01152
CEND2213	17/11/2013	230	F22	DC	A1	18	53.35350	1.93214	53.35277	1.93090
CEND2213	17/11/2013	230	F22	DC	B1	14	53.35156	1.92876	53.35087	1.92754
CEND2213	17/11/2013	232	F23	DC	A1	15	53.31888	1.97483	53.31816	1.97365
CEND2213	17/11/2013	232	F23	DC	B1	18	53.31724	1.97217	53.31659	1.97111
CEND2213	17/11/2013	232	F23	DC	C1	14	53.31544	1.96949	53.31482	1.96854
CEND2213	17/11/2013	233	F24	DC	A1	14	53.31102	1.97142	53.31169	1.97221
CEND2213	17/11/2013	233	F24	DC	B1	16	53.31466	1.97517	53.31419	1.97453
CEND2213	17/11/2013	233	F24	DC	C1	18	53.31538	1.97650	53.31611	1.97742
CEND2213	17/11/2013	234	F25	DC	A1	11	53.31432	1.98272	53.31356	1.98211
CEND2213	17/11/2013	234	F25	DC	B1	23	53.31264	1.98156	53.31157	1.98070
CEND2213	17/11/2013	234	F25	DC	C1	16	53.30923	1.97900	53.30849	1.97837
CEND2213	17/11/2013	238	F26	DC	A1	16	53.28797	2.01474	53.28746	2.01334
CEND2213	17/11/2013	238	F26	DC	B1	16	53.28679	2.01147	53.28626	2.01003

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