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South of the Isles of Scilly recommended Marine Conservation Zone (rMCZ) Survey Report

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1 Background and Introduction

1.1 Survey Project Team

The survey at South of the Isles of Scilly (SISS¹) recommended Marine Conservation Zone (rMCZ) was carried out on board the Research Vessel Cefas Endeavour (Cruise code CEND0613) between the 21st and 23rd May 2013. The survey team for the duration of the fieldwork included marine scientists and surveyors from the Centre for Environment, Fisheries and Aquaculture Science (Cefas) and marine scientists from the Joint Nature Conservation Committee (JNCC).

JNCC-Marine Ecologist	JNCC-Marine Support Officer
Cefas-Marine Ecologist	Cefas-Marine Surveyor
Cefas - Fisheries Scientist	Cefas – Marine GIS Analyst
Cefas –Marine Scientist	Cefas –Marine Scientist
Cefas – Marine Sedimentologist	Cefas – Fisheries Scientist
Cefas –Marine Scientist	Cefas – Marine Scientist
Cefas – Marine Scientist	Cefas - Planktologist
Cefas-Planktologist	

1.2 Site Description

The South of the Isles of Scilly rMCZ has been recommended by the regional project due to the presence of two BroadScale Habitats (BSH); Subtidal coarse sediment and Subtidal sand, which were identified as having low confidence in both presence and extent. The site is located to the eastern edge of and is adjoined to the South of the Isles of Scilly traffic separation scheme (TSS) (Figure 1).

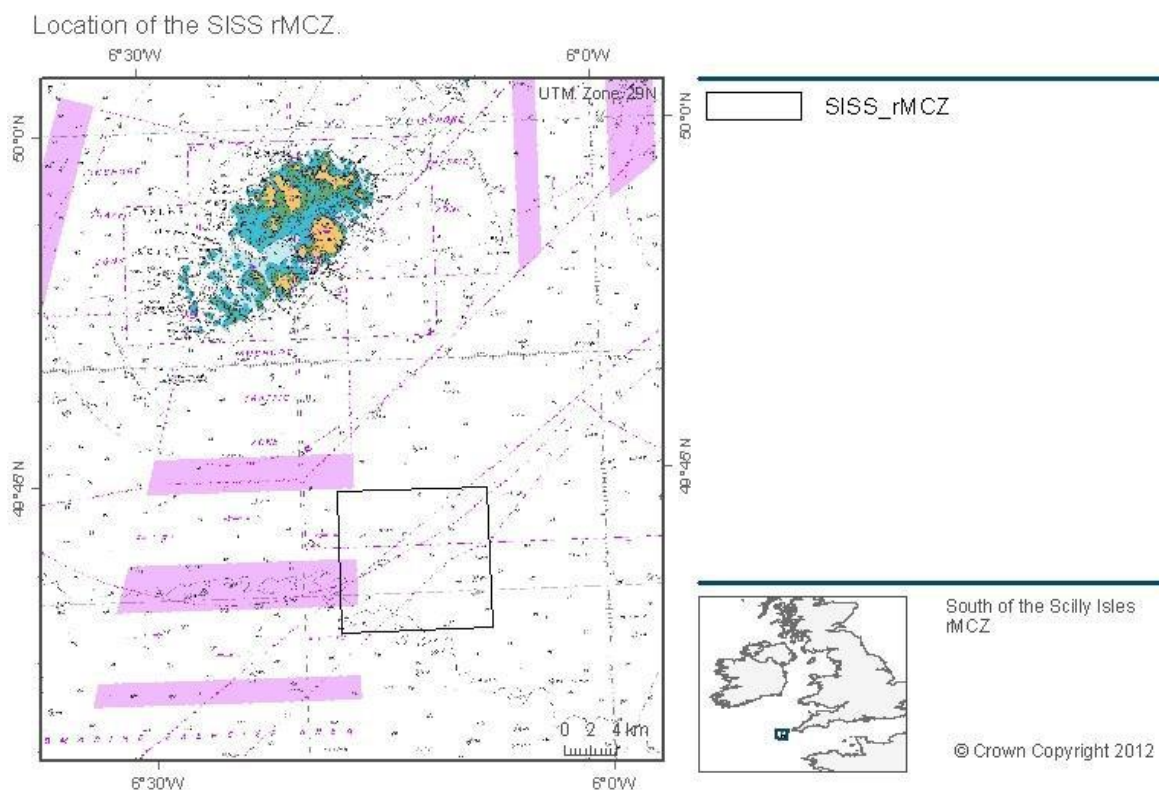


Figure 1. Location of the South of the Isles of Scilly rMCZ adjacent to the traffic separation scheme

¹ Cefas designated four letter code. Each Marine Protected Area was designated a four letter code to aid subsequent naming conventions and data management.

1.3 Existing data and information utilised to inform survey planning

The UKSeaMap 2010 predictive Habitat Map v8 was used to inform the placement of ground truthing sample stations within the rMCZ, ensuring appropriate spatial and feature coverage throughout the site (Figure 2). Adjustments were made to the sample site location where charted obstructions were identified to be present on the seabed.

2 Survey Design and Methods

2.1 Survey aims

The main aim of the survey at the SISS rMCZ was to achieve 100% acoustic coverage using the Multi-Beam Echo-Sounder (MBES) and complete a ground truthing survey using both sediment grabs and seabed imagery in order to verify the presence of those BSH encountered.

2.2 Survey plan

Survey run lines for the MBES acquisition were run in an East-West direction in accordance with the adjoining TSS. The planned ground truthing stations were placed to ensure adequate coverage of the predicted BSH (Figure 2). Approximately one third of the target stations were planned for survey using both the grab and camera sledge.

Planned survey grid within the SISS rMCZ.

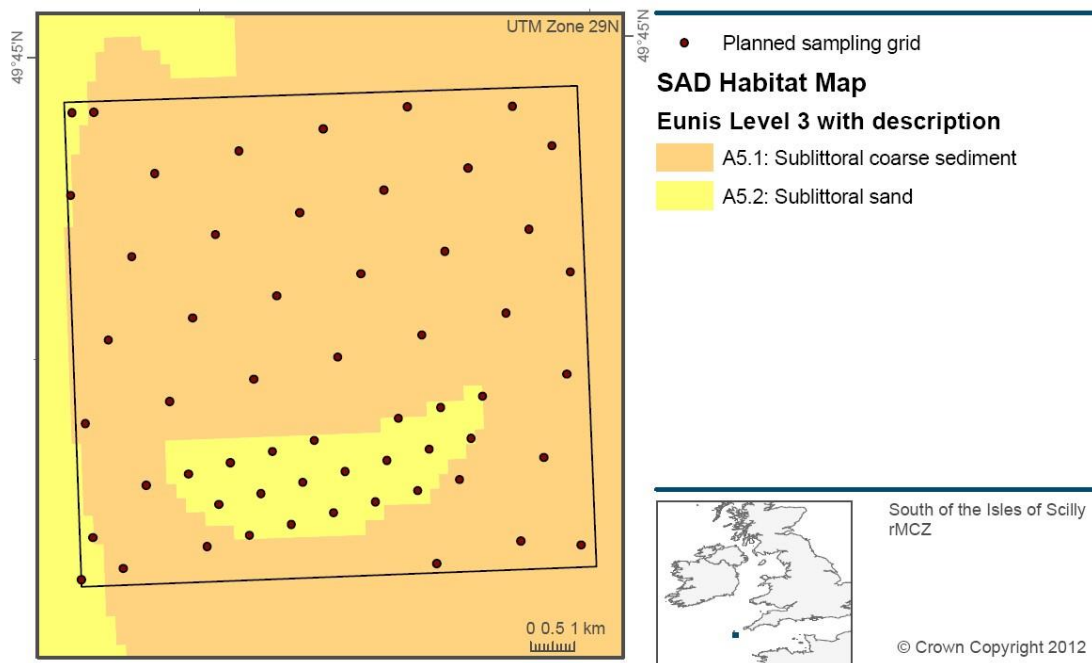


Figure 2. Planned ground truthing survey at South of the Isles of Scilly rMCZ.

2.3 Sample collection and processing methods

2.3.1 Sediment and biological samples

Each of the planned stations were sampled using a 0.1m² mini Hamon grab fitted with a video camera (collectively referred to as a HamCam) which enables collection of footage of the seabed prior to grab impact as well as a sediment sample used for particle size and faunal community analyses (Figure 3).

On recovery of the HamCam, all sediment was decanted into a suitable container and photographed before total sediment volume was measured and recorded. A representative sub-sample of sediment (approx. 0.5 litres) was placed in a labelled, watertight container and stored frozen ready for Particle Size Analysis (PSA). The remaining sediment was then sieved over a sieve table consisting of a 5mm screening mesh and a 1mm collection mesh to remove fauna and sediments less than 1mm with minimal damage to fragile organisms. Images of the sediment retained on both the 1 mm and 5 mm sieves were taken and the

retained fractions were combined prior to fixation in buffered 4% formalin solution.



Figure 3. 0.1m² mini Hamon grab with video camera.

2.3.2 Underwater video and photographic imaging techniques

Set-up and operation of the video and still image system followed the MESH 'Recommended Operating Guidelines (ROG) for underwater video and photographic imaging techniques'. Video was recorded simultaneously to a Sony GV-HD700 DV tape recorder and a computer hard drive. An onscreen overlay was used to provide station metadata, time and ship's central reference GPS position in the recorded video footage.

The camera sledge system comprised a video camera with capability to also capture still images (Figure 4). Illumination was provided by underwater lights and a flash unit. The camera was fitted with a four-spot laser-scaling device and a fan beamed laser to provide a reference scale and a measure of seabed topography in the video footage/still image. The camera sledge was controlled by a winch operator with sight of the video monitor and note made of the amount of tow cable deployed to allow a 'lay back' to be applied to estimate the distance of the sledge behind the vessel. Ultra-Short Baseline (USBL) positioning was also used to accurately log the position of the camera sledge on the seabed during each deployment.

Camera deployments lasted a minimum of 10 minutes and were run at 0.3-0.5 knots (~0.25 m s⁻¹) across the target station. Digital still images were captured at regular one-minute intervals and opportunistically if specific features of interest were encountered.

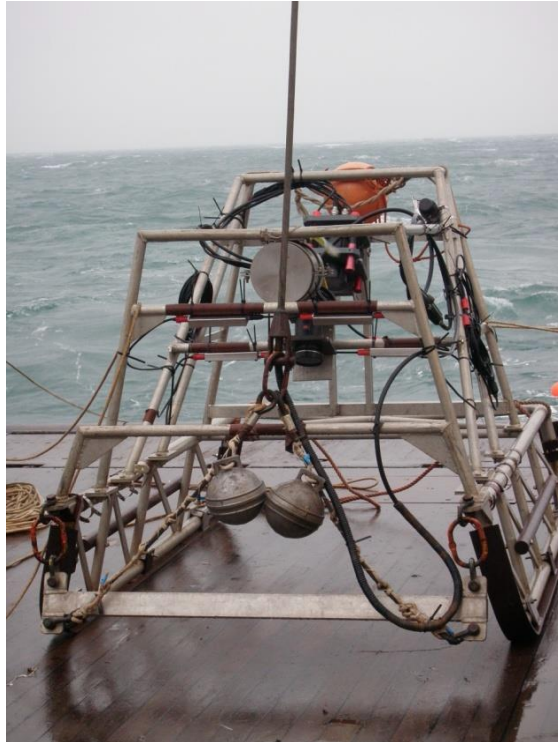


Figure 4. Camera sledge with video and stills imaging system plus USBL beacon

2.4 Geophysical data acquisition

Multi-Beam Echo-Sounder data were collected using a Kongsberg 'EM2040'. Bathymetry and backscatter data were returned to the laboratory for subsequent processing using Caris HIPS and QPS FMGT software packages.

3 Survey Narrative

3.1 *South of the Isles of Scilly*

The vessel transited to the SISS rMCZ on the 18th May 2013 to commence the MBES and subsequent ground truthing survey. A salinity profile was collected at 08:18 on the 19th May 2013; to the north east of the first survey line. The MBES survey (100% coverage) commenced at 08:43 on the 19th May 2013. Survey lines were orientated in line with the traffic separation scheme (TSS) which overlaps the western edge of the SISS rMCZ. The vessel adhered to the appropriate maritime restrictions and survey lines were run in a suitable order, achieving full coverage of the site. Approximately 24 hours after the first salinity profile was acquired a second 'conductivity, temperature, depth' probe was deployed, to the south west of the SISS rMCZ, at 07:03 on the 20th May 2013. The sound profile was applied to calibrate the multibeam data acquisition software before returning to complete the 100% coverage MBES survey. MBES data were not processed at the time of survey. Therefore, the display from the single-beam 'Olex' acoustic system plus footage from each HamCam deployment were used to gauge any changes in seabed sediment type and overall topography across the survey area.

The ground truthing survey commenced in the North East of the SISS rMCZ, at 13:54 on the 21st May 2013, with three HamCam attempts returning a 'no sample' at station SISS32. The ability to download the stills images from the camera sledge was lost temporarily, between 23:16 on the 21st May 2013 and 12:06 on the 22nd May 2013. The HamCam survey continued, progressing along the planned running order, with the view to using the initial assessment of the broad scale habitats observed (derived from the HamCam footage and sediment sample at each station) to ensure spatial and representative coverage of the site with the camera sledge. Furthermore, video transects were carried out at each station that could not be sampled with the HamCam. The ground truthing survey at SISS rMCZ was completed at 17:09 on the 23rd May 2013.

4 Preliminary Results

4.1 Grabs

54 successful HamCam deployments from a possible 57 target stations were carried out at the SISS rMCZ with no samples returned from stations SISS28, SISS31 & SISS32 due to the coarse nature of the sediments at these stations (Figure 5). These three stations were successfully surveyed using the camera sledge. Images from successful grabs are provided in Table 1. Three BSH were identified from an initial assessment of benthic sediment: A5.1 Coarse (44% of stations sampled); A5.4 Mixed (32% of stations sampled); and A5.2 Sand (24% of stations sampled), each being distributed throughout the rMCZ (Figure 6).






















4.2 Seabed Imagery

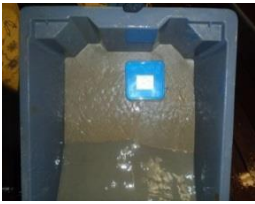

















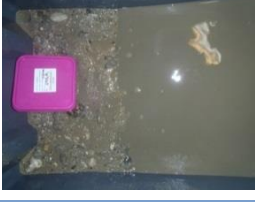





27 successful camera sledge deployments were carried out at SISS rMCZ (Figure 7).






















4.3 Acoustic survey

























Equipment used in the acquisition of MBES data was calibrated during the previous survey (CEND0513). 100% coverage of the SISS rMCZ was collected, however processing of these data was not completed during the survey. Preliminary assessment of MBES data is not applicable.

























Table 1. Grab sample images






















Station	PSA	5mm	1mm	BSH
SISS_CEND0613_ SISS32_ STN_276	No sample	No sample	No sample	No sample
SISS_CEND0613_ SISS53_STN_280 _A1				Sand
SISS_CEND0613_ SISS15_STN_281 _A1				Mixed
SISS_CEND0613_ SISS08_STN_282 _A1				Sand
SISS_CEND0613_ SISS35_STN_283 _A1				Mixed
SISS_CEND0613_ SISS33_STN_284 _A1				Mixed
SISS_CEND0613_ SISS02_STN_285 _A1				Coarse
SISS_CEND0613_ SISS06_STN_286 _A1				Mixed




















Station	PSA	5mm	1mm	BSH
SISS_CEND0613_SISS10_STN_287_A1				Sand
SISS_CEND0613_SISS21_STN_289_A1				Coarse
SISS_CEND0613_SISS27_STN_291_A1				Mixed
SISS_CEND0613_SISS29_STN_292_A1				Mixed
SISS_CEND0613_SISS23_STN_293_A1				Sand
SISS_CEND0613_SISS17_STN_294_A1				Mixed
SISS_CEND0613_SISS44_STN_295_A1				Mixed
SISS_CEND0613_SISS04_STN_296_A1				Coarse

Station	PSA	5mm	1mm	BSH
SISS_CEND0613_ SISS39_STN_297 _A1				Coarse
SISS_CEND0613_ SISS46_STN_298 _A1				Coarse
SISS_CEND0613_ SISS12_STN_299 _A1				Coarse
SISS_CEND0613_ SISS18_STN_300 _A2				Coarse
SISS_CEND0613_ SISS24_STN_301 _A2				Coarse
SISS_CEND0613_ SISS30_STN_302 _A1				Sand
SISS_CEND0613_ SISS31_STN_303	No sample	No sample	No sample	No sample
SISS_CEND0613_ SISS25_STN_304				Sand

Station	PSA	5mm	1mm	BSH
SISS_CEND0613_ SISS19_STN_305				Coarse
SISS_CEND0613_ SISS13_STN_306				Sand
SISS_CEND0613_ SISS50_STN_307				Mixed
SISS_CEND0613_ SISS48_STN_308				Sand
SISS_CEND0613_ SISS41_STN_309				Sand
SISS_CEND0613_ SISS34_STN_310				Sand
SISS_CEND0613_ SISS36_STN_311				Mixed
SISS_CEND0613_ SISS42_STN_312				Sand






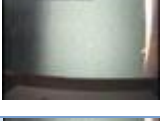

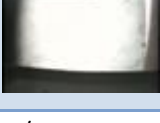

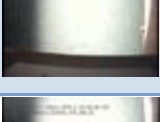




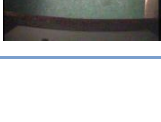
Station	PSA	5mm	1mm	BSH
SISS_CEND0613_ SISS37_STN_313				Coarse
SISS_CEND0613_ SISS43_STN_314				Mixed
SISS_CEND0613_ SISS38_STN_315				Coarse
SISS_CEND0613_ SISS45_STN_316				Coarse
SISS_CEND0613_ SISS51_STN_317				Mixed
SISS_CEND0613_ SISS14_STN_318				Mixed
SISS_CEND0613_ SISS20_STN_320				Coarse
SISS_CEND0613_ SISS26_STN_322				Coarse

Station	PSA	5mm	1mm	BSH
SISS_CEND0613_ SISS56_STN_323				Coarse
SISS_CEND0613_ SISS28_STN_324	No sample	No sample	No sample	No sample
SISS_CEND0613_ SISS22_STN_326				Sand
SISS_CEND0613_ SISS16_STN_327				Mixed
SISS_CEND0613_ SISS09_STN_329				Coarse
SISS_CEND0613_ SISS52_STN_330				Coarse
SISS_CEND0613_ SISS49_STN_332				Coarse
SISS_CEND0613_ SISS47_STN_333				Mixed

















Station	PSA	5mm	1mm	BSH
SISS_CEND0613_ SISS05_STN_334				Coarse
SISS_CEND0613_ SISS40_STN_336				Coarse
SISS_CEND0613_ SISS01_STN_337				Coarse
SISS_CEND0613_ SISS03_STN_339				Mixed
SISS_CEND0613_ SISS55_STN_340				Mixed
SISS_CEND0613_ SISS07_STN_342				Coarse
SISS_CEND0613_ SISS11_STN_343				Coarse
SISS_CEND0613_ SISS57_STN_344				Coarse

Station	PSA	5mm	1mm	BSH
SISS_CEND0613_ SISS54_STN_358				Sand



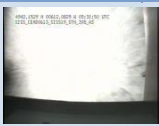












Table 2. HamCam screenshots

Station	_A1	_A2	_A3	Sample used	BSH
SISS_CEND0613_ SISS32_ STN_276				No sample	No sample
SISS_CEND0613_ SISS53_ STN_280		N/A	N/A	A1	Sand
SISS_CEND0613_ SISS15_STN_281		N/A	N/A	A1	Mixed
SISS_CEND0613_ SISS08_STN_282		N/A	N/A	A1	Sand
SISS_CEND0613_ SISS35_STN_283			N/A	A2	Mixed
SISS_CEND0613_ SISS33_STN_284		N/A	N/A	A1	Mixed
SISS_CEND0613_ SISS02_STN_285		N/A	N/A	A1	Coarse
SISS_CEND0613_ SISS06_STN_286		N/A	N/A	A1	Mixed
SISS_CEND0613_ SISS10_STN_287		N/A	N/A	A1	Sand
SISS_CEND0613_ SISS21_STN_289		N/A	N/A	A1	Coarse
SISS_CEND0613_ SISS27_STN_291		N/A	N/A	A1	Mixed
SISS_CEND0613_ SISS29_STN_292		N/A	N/A	A1	Mixed










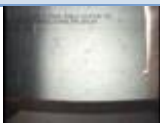




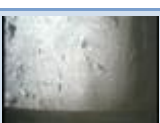
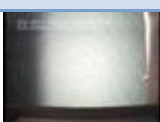


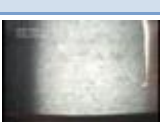
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Station	_A1	_A2	_A3	Sample used	BSH
SISS_CEND0613_ SISS23_STN_293.		N/A	N/A	A1	Sand
SISS_CEND0613_ SISS17_STN_294		N/A	N/A	A1	Mixed
SISS_CEND0613_ SISS44_STN_295		N/A	N/A	A1	Mixed
SISS_CEND0613_ SISS04_STN_296		N/A	N/A	A1	Coarse
SISS_CEND0613_ SISS39_STN_297		N/A	N/A	A1	Coarse
SISS_CEND0613_ SISS46_STN_298		N/A	N/A	A1	Coarse
SISS_CEND0613_ SISS12_STN_299		N/A	N/A	A1	Coarse
SISS_CEND0613_ SISS18_STN_300		N/A	N/A	A1	Coarse
SISS_CEND0613_ SISS24_STN_301			N/A	A2	Coarse
SISS_CEND0613_ SISS30_STN_302			N/A	A2	Sand
SISS_CEND0613_ SISS31_STN_303				No Sample	No sample
SISS_CEND0613_ SISS25_STN_304		N/A	N/A	A1	Sand










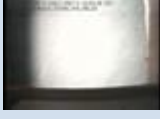

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Station	_A1	_A2	_A3	Sample used	BSH
SISS_CEND0613_ SISS19_STN_305				A3	Coarse
SISS_CEND0613_ SISS13_STN_306			N/A	A2	Sand
SISS_CEND0613_ SISS50_STN_307		N/A	N/A	A1	Mixed
SISS_CEND0613_ SISS48_STN_308		N/A	N/A	A1	Sand
SISS_CEND0613_ SISS41_STN_309		N/A	N/A	A1	Sand
SISS_CEND0613_ SISS34_STN_310		N/A	N/A	A1	Sand
SISS_CEND0613_ SISS36_STN_311		N/A	N/A	A1	Mixed
SISS_CEND0613_ SISS42_STN_312		N/A	N/A	A1	Sand
SISS_CEND0613_ SISS37_STN_313		N/A	N/A	A1	Coarse
SISS_CEND0613_ SISS43_STN_314		N/A	N/A	A1	Mixed
SISS_CEND0613_ SISS38_STN_315		N/A	N/A	A1	Coarse
SISS_CEND0613_ SISS45_STN_316		N/A	N/A	A1	Coarse

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Station	_A1	_A2	_A3	Sample used	BSH
SISS_CEND0613_ SISS51_STN_317		N/A	N/A	A1	Mixed
SISS_CEND0613_ SISS14_STN_318				A3	Mixed
SISS_CEND0613_ SISS20_STN_320				A3	Coarse
SISS_CEND0613_ SISS26_STN_322		N/A	N/A	A1	Coarse
SISS_CEND0613_ SISS56_STN_323		N/A	N/A	A1	Coarse
SISS_CEND0613_ SISS28_STN_324				No sample	No sample
SISS_CEND0613_ SISS22_STN_326		N/A	N/A	A1	Sand
SISS_CEND0613_ SISS16_STN_327		N/A	N/A	A1	Mixed
SISS_CEND0613_ SISS09_STN_329		N/A	N/A	A1	Coarse
SISS_CEND0613_ SISS52_STN_330			N/A	A2	Coarse
SISS_CEND0613_ SISS49_STN_332		N/A	N/A	A1	Coarse
SISS_CEND0613_ SISS47_STN_333		N/A	N/A	A1	Mixed

South of the Isles of Scilly recommended Marine Conservation Zone (rMCZ) Survey Report

Station	_A1	_A2	_A3	Sample used	BSH
SISS_CEND0613_ SISS05_STN_334		N/A	N/A	A1	Coarse
SISS_CEND0613_ SISS40_STN_336		N/A	N/A	A1	Coarse
SISS_CEND0613_ SISS01_STN_337		N/A	N/A	A1	Coarse
SISS_CEND0613_ SISS03_STN_339			N/A	A2	Mixed
SISS_CEND0613_ SISS55_STN_340		N/A	N/A	A1	Mixed
SISS_CEND0613_ SISS07_STN_342		N/A	N/A	A1	Coarse
SISS_CEND0613_ SISS11_STN_343		N/A	N/A	A1	Coarse
SISS_CEND0613_ SISS57_STN_344		N/A	N/A	A1	Coarse
SISS_CEND0613_ SISS54_STN_358			N/A	A2	Sand

Unsuccessful HamCam stations SISS rMCZ.

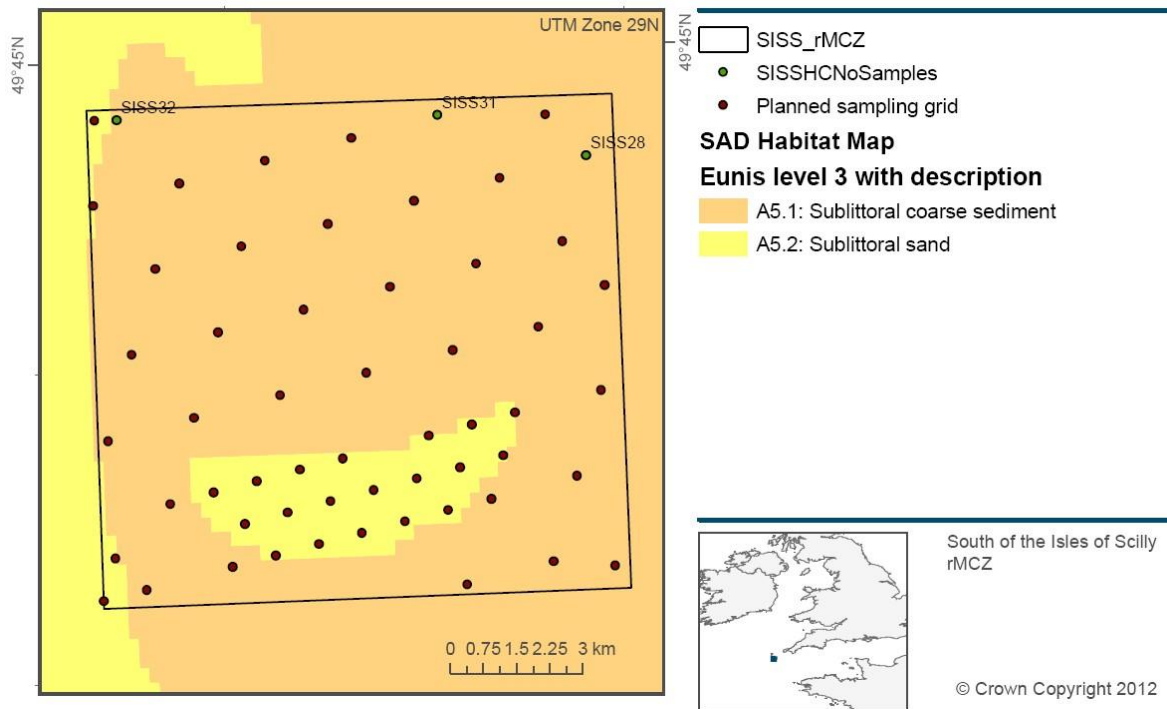


Figure 5. Location of mini Hamon grab attempts.

Preliminary BSH assesement of hamon grab sediments from the SISS rMCZ.

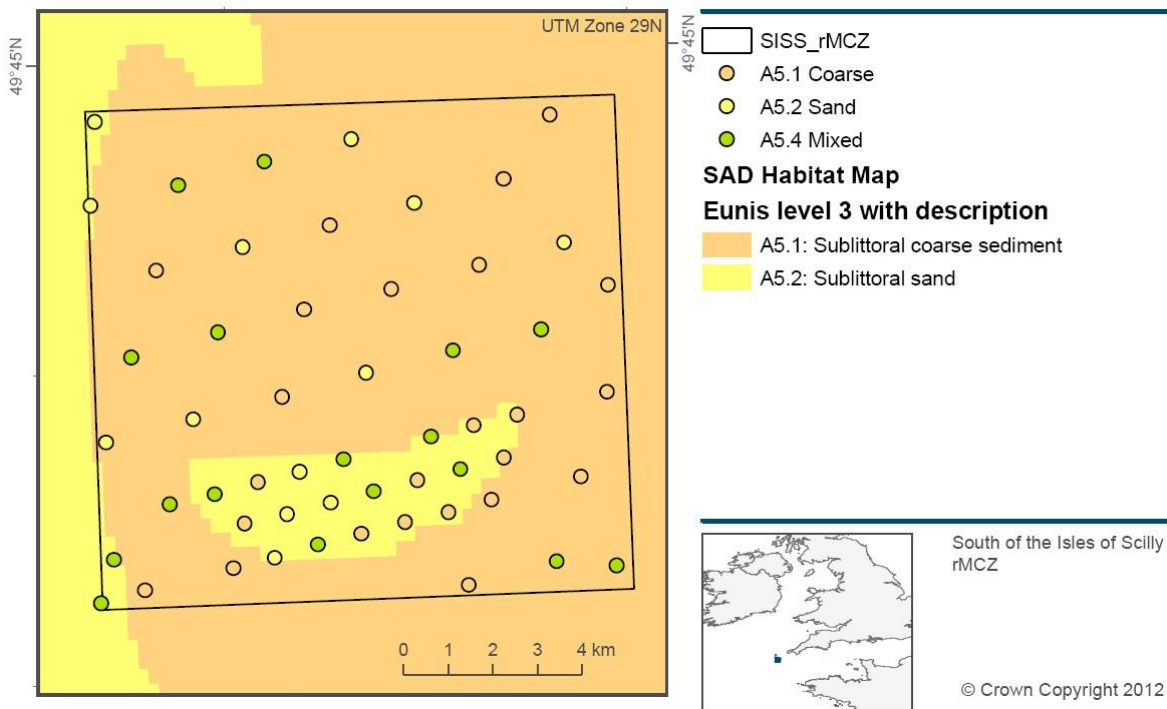



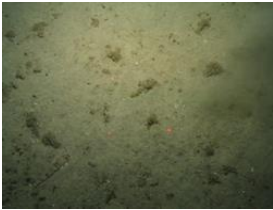
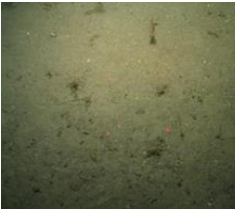





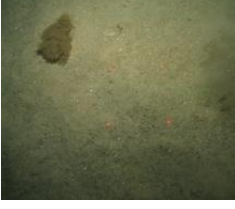







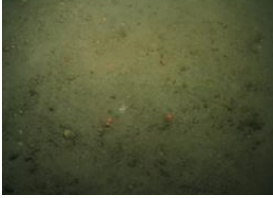


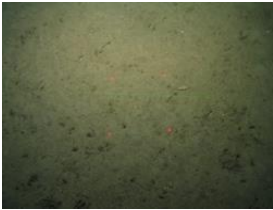



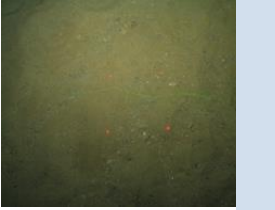
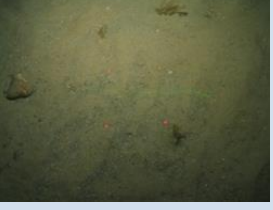




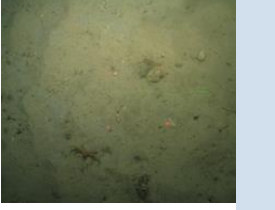







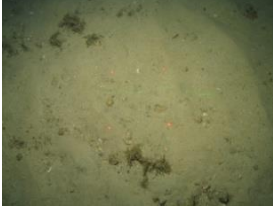





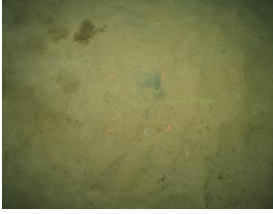



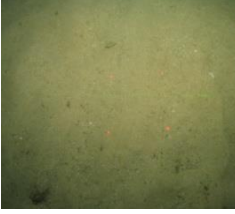









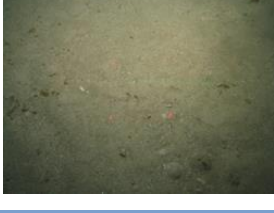






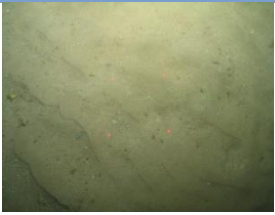
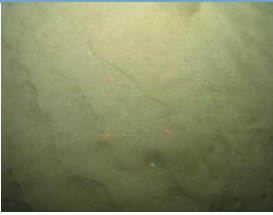
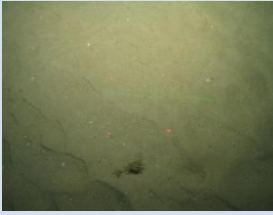
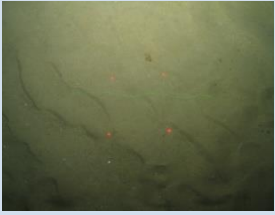
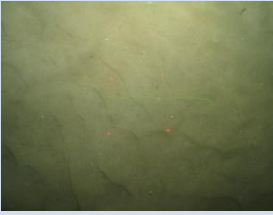















Figure 6. Preliminary sediment descriptions from Hamon grab samples.

Table 3. Representative images from camera sledge.

Station	Representative image 1	Representative image 2	Representative image 3	Image number
SISS_CEND0613_ SISS32_STN_277 _A1				2,9,17
SISS_CEND0613_ SISS32_STN_277 _A2				2,9,19
SISS_CEND0613_ SISS54_STN_278 _A1				3,15,19
SISS_CEND0613_ SISS53_STN_279 _A1				2,14,19
SISS_CEND0613_ SISS10_STN_288 _A1				2,10,15
SISS_CEND0613_ SISS21_STN_290 _A1				3,13,18
SISS_CEND0613_ SISS14_STN_319 _A1				5,8,9

Station	Representative image 1	Representative image 2	Representative image 3	Image number
SISS_CEND0613_ SISS20_STN_321 _A1				5,8,10
SISS_CEND0613_ SISS28_STN_325 _A1				3,7,8
SISS_CEND0613_ SISS16_STN_328 _A1				2,7,17
SISS_CEND0613_ SISS52_STN_331 _A1				2,10,16
SISS_CEND0613_ SISS05_STN_335 _A1				08,013,01 5
SISS_CEND0613_ SISS01_STN_338 _A1				3,9,15
SISS_CEND0613_ SISS55_STN_341 _A1				4,12,16

Station	Representative image 1	Representative image 2	Representative image 3	Image number
SISS_CEND0613_ SISS31_STN_345 _A1				4,11,17
SISS_CEND0613_ SISS51_STN_346 _A1				4,8,12
SISS_CEND0613_ SISS37_STN_347 _A1				2,8,13
SISS_CEND0613_ SISS13_STN_348 _A1				2,8,12
SISS_CEND0613_ SISS30_STN_349 _A1				4,8,14
SISS_CEND0613_ SISS18_STN_350 _A1				2,6,13
SISS_CEND0613_ SISS41_STN_351 _A1				5,8,11

Station	Representative image 1	Representative image 2	Representative image 3	Image number
SISS_CEND0613_ SISS34_STN_352 _A1				2,8,12
SISS_CEND0613_ SISS04_STN_353 _A1				3,8,11
SISS_CEND0613_ SISS44_STN_354 _A1				2,9,19
SISS_CEND0613_ SISS35_STN_355 _A1				2,9,17
SISS_CEND0613_ SISS08_STN_356 _A1				2,9,14
SISS_CEND0613_ SISS27_STN_357 _A1				3,7,15
SISS_CEND0613_ SISS23_STN_359 _A1				2,10,16

Initial BSH assessment of camera tows within the SISS rMCZ.

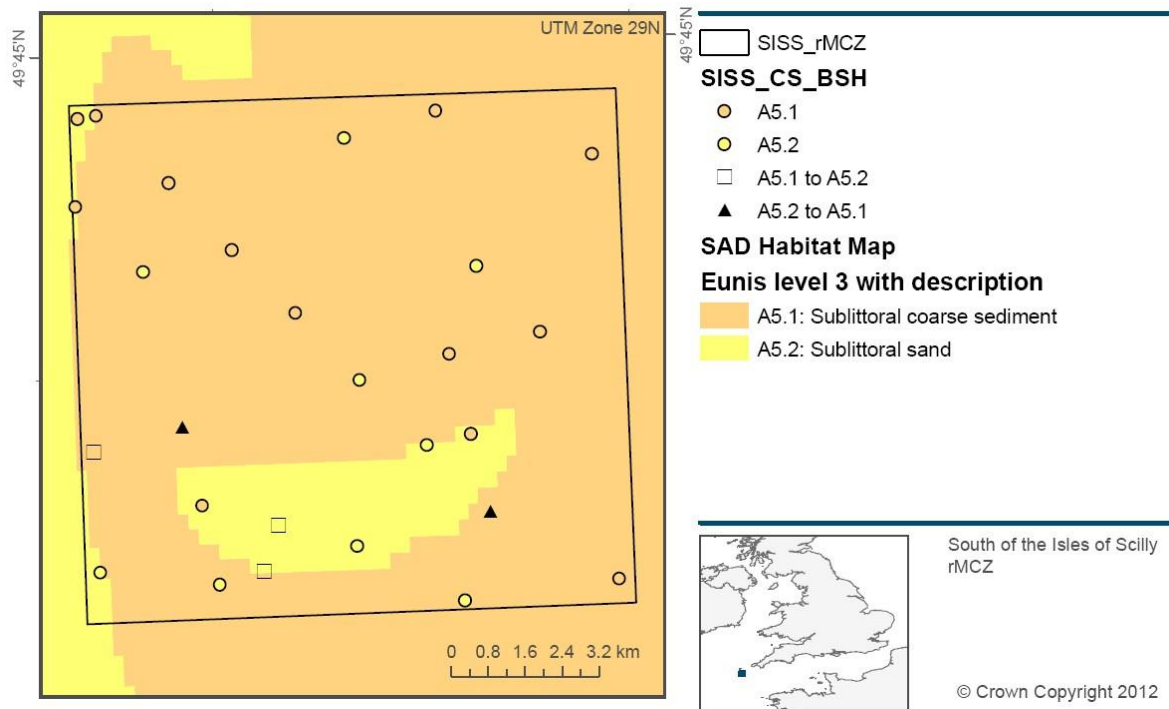


Figure 7. Preliminary sediment descriptions from video and stills data.

5 Annexes

5.1 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 Simrad: HiPAP 500 positioning sonar EK60, 38/120 kHz scientific sounder EA 600, 50/200 kHz scientific sounder Scanmar net mensuration system SH80 high frequency omni- directional sonar EM3002 swathe bathymetry sounder Hull mounted Scanmar fishing computer transducers
Boats	2 x 8m 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 Interling 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

Camera Sledge

Flash model: Kongsberg 11-242

Underwater lights – Cefas high power LED strip lights

Video and stills camera settings variable depending on underwater visibility and ambient light levels.

Positioning Software-Tower

Vessel offsets are defined from the pitch roll centre of the vessel – the Common Reference Point (CRP) used by the Tower CEMAP software to calculate offsets.

Multibeam Bathymetry

Model: Kongsberg EM2040

Frequency: 300 kHz; swathe width variable running in hi res equidistant mode

Latency correction not determined – 1pps synchronised time system utilised on vessel. Model: Simrad EM2040

Frequency: 200/300/400 kHz, swathe width variable dependent on water depth.

5.2 Metadata

Station metadata for the South-West Deep (West) rMCZ and the South of the Isles of Scilly rMCZ surveys on cruise CEND0613 are provided below. '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. 'Station Code' is used to identify the target sampling station. Gear code is: MB=Multibeam; HC=HamCam (0.1m²); HG= Hamon grab (0.1m²); CS=Camera sledge. Electronic outputs from the meta-database are available in the supporting documentation.

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Date	SOL Time	EOL Time	Station Code	Station Number	Gear Code	Attempt	Latitude DD	Longitude DD	Area Name	Position Reference Point	BSH
10/05/2013			S024	1	HG	A1	49.48835	-9.03528	S W Deeps West 2013	Side Gantry	Sand
10/05/2013			S023	2	HG	A1	49.46643	-9.00172	S W Deeps West 2013	Side Gantry	Sand
10/05/2013			GT37	3	HG	A1	49.46098	-9.04334	S W Deeps West 2013	Side Gantry	Sand
10/05/2013	12:41	12:51	GT37	4	CS	A1	49.46096	-9.04440	S W Deeps West 2013	Stern Gantry	Subtidal sand
10/05/2013			S022	5	HC	A1	49.44411	-8.96995	S W Deeps West 2013	Side Gantry	Sand
10/05/2013	14:22	14:33	S022	6	CS	A1	49.44403	-8.97135	S W Deeps West 2013	Stern Gantry	Subtidal sand
10/05/2013			S021	7	HC	A1	49.43361	-9.02108	S W Deeps West 2013	Side Gantry	Sand
10/05/2013			S025	8	HC	A2	49.42345	-8.93725	S W Deeps West 2013	Side Gantry	Sand
10/05/2013			S020	9	HC	A3	49.41209	-8.98855	S W Deeps West 2013	Side Gantry	Sand
10/05/2013			S012	10	HC	A1	49.40154	-9.04018	S W Deeps West 2013	Side Gantry	Sand
10/05/2013	19:10	19:22	S012	11	CS	A1	49.40129	-9.04055	S W Deeps West 2013	Stern Gantry	Subtidal sand
10/05/2013			S011	12	HC	A1	49.38049	-9.00529	S W Deeps West 2013	Side Gantry	Sand
10/05/2013			GT40	13	HC	A1	49.39750	-8.94628	S W Deeps West 2013	Side Gantry	Sand
10/05/2013	21:26	21:36	GT40	14	CS	A1	49.39737	-8.94624	S W Deeps West 2013	Stern Gantry	Subtidal sand
10/05/2013			S026	16	HC	A1	49.40157	-8.90406	S W Deeps West 2013	Side Gantry	Sand
10/05/2013			S027	17	HC	A1	49.38036	-8.87076	S W Deeps West 2013	Side Gantry	Sand
11/05/2013	00:31	00:41	S027	18	CS	A1	49.38043	-8.87008	S W Deeps West 2013	Stern Gantry	Subtidal sand
11/05/2013			C02	20	HC	A1	49.35976	-8.97228	S W Deeps West 2013	Side Gantry	Sand
11/05/2013	03:00	03:11	C02	21	CS	A1	49.35965	-8.97310	S W Deeps West 2013	Stern Gantry	Subtidal sand
11/05/2013			GT36	22	HC	A1	49.35384	-9.01469	S W Deeps West 2013	Side Gantry	Sand
11/05/2013			S098	23	HC	A1	49.29508	-9.14404	S W Deeps West 2013	Side Gantry	Sand
11/05/2013			S104	24	HC	A1	49.30552	-9.09212	S W Deeps West 2013	Side Gantry	Sand
11/05/2013	06:06	06:16	S104	25	CS	A1	49.30556	-9.09347	S W Deeps West 2013	Stern Gantry	Subtidal sand
11/05/2013			S108	26	HC	A1	49.31618	-9.04215	S W Deeps West 2013	Side Gantry	Sand
11/05/2013			S113	27	HC	A1	49.32706	-8.99171	S W Deeps West 2013	Side Gantry	Sand
11/05/2013	08:10	08:20	S113	28	CS	A1	49.32690	-8.99199	S W Deeps West 2013	Stern Gantry	Subtidal sand
11/05/2013			C01	29	HC	A1	49.33705	-8.94039	S W Deeps West 2013	Side Gantry	Sand
11/05/2013			S018	30	HC	A1	49.34840	-8.88993	S W Deeps West 2013	Side Gantry	Sand
11/05/2013	10:16	10:27	S018	31	CS	A1	49.34900	-8.89007	S W Deeps West 2013	Stern Gantry	Subtidal sand
11/05/2013			S028	32	HC	A3	49.35803	-8.84027	S W Deeps West 2013	Side Gantry	Sand
11/05/2013			GT41	33	HC	A1	49.33416	-8.84933	S W Deeps West 2013	Side Gantry	Sand
11/05/2013	12:46	12:57	GT41	34	CS	A1	49.33414	-8.85006	S W Deeps West 2013	Stern Gantry	Subtidal sand

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Date	SOL Time	EOL Time	Station Code	Station Number	Gear Code	Attempt	Latitude DD	Longitude DD	Area Name	Position Reference Point	BSH
11/05/2013			S118	35	HC	A1	49.31614	-8.90852	S W Deeps West 2013	Side Gantry	Sand
11/05/2013			S112	36	HC	A1	49.30481	-8.95964	S W Deeps West 2013	Side Gantry	Sand
11/05/2013	14:32	14:43	S112	37	CS	A1	49.30485	-8.96023	S W Deeps West 2013	Stern Gantry	Subtidal sand
11/05/2013			S107	38	HC	A1	49.29465	-9.01105	S W Deeps West 2013	Stern Gantry	Sand
11/05/2013			S103	39	HC	A1	49.28333	-9.06141	S W Deeps West 2013	Side Gantry	Sand
11/05/2013	17:11	17:22	S103	40	CS	A1	49.28337	-9.06157	S W Deeps West 2013	Stern Gantry	Subtidal sand
11/05/2013			S097	41	HC	A1	49.27222	-9.11182	S W Deeps West 2013	Side Gantry	Sand
11/05/2013			S092	42	HC	A3	49.26161	-9.16131	S W Deeps West 2013	Side Gantry	Sand
11/05/2013			S084	43	HC	A3	49.22926	-9.18221	S W Deeps West 2013	Side Gantry	Sand
11/05/2013	20:42	20:52	S084	44	CS	A1	49.22887	-9.18186	S W Deeps West 2013	Stern Gantry	Subtidal sand
11/05/2013			S091	45	HC	A1	49.23947	-9.13088	S W Deeps West 2013	Side Gantry	Sand
11/05/2013			S096	46	HC	A1	49.25133	-9.07975	S W Deeps West 2013	Side Gantry	Sand
11/05/2013	23:18	23:29	S096	47	CS	A1	49.25183	-9.08022	S W Deeps West 2013	Stern Gantry	Subtidal sand
12/05/2013			S102	48	HC	A1	49.27203	-9.04550	S W Deeps West 2013	Side Gantry	Sand
12/05/2013			S101	49	HC	A1	49.26203	-9.02908	S W Deeps West 2013	Side Gantry	Sand
12/05/2013			S106	50	HC	A1	49.27338	-8.97794	S W Deeps West 2013	Side Gantry	Sand
12/05/2013			GT38	52	HC	A1	49.26862	-8.95245	S W Deeps West 2013	Side Gantry	Sand
12/05/2013			GT39	53	HC	A1	49.29065	-8.91786	S W Deeps West 2013	Side Gantry	Sand
12/05/2013	03:40	03:50	GT39	54	CS	A1	49.29054	-8.91833	S W Deeps West 2013	Stern Gantry	Subtidal sand
12/05/2013			S117	55	HC	A1	49.29491	-8.87487	S W Deeps West 2013	Side Gantry	Sand
12/05/2013			S017	56	HC	A1	49.30535	-8.82482	S W Deeps West 2013	Side Gantry	Sand
12/05/2013			S013	57	HC	A1	49.28339	-8.79160	S W Deeps West 2013	Side Gantry	Sand
12/05/2013	06:01	06:12	S013	58	CS	A1	49.28325	-8.79158	S W Deeps West 2013	Stern Gantry	Subtidal sand
12/05/2013			S109	59	HC	A1	49.27100	-8.84060	S W Deeps West 2013	Side Gantry	Coarse
12/05/2013			S110	60	HC	A1	49.26258	-8.89406	S W Deeps West 2013	Side Gantry	Sand
12/05/2013			S105	61	HC	A1	49.25114	-8.94628	S W Deeps West 2013	Side Gantry	Sand
12/05/2013			S100	62	HC	A1	49.24106	-8.99537	S W Deeps West 2013	Side Gantry	Coarse
12/05/2013	09:33	09:44	S100	63	CS	A1	49.24119	-8.99525	S W Deeps West 2013	Stern Gantry	Subtidal mixed
12/05/2013			S095	64	HC	A1	49.22939	-9.04632	S W Deeps West 2013	Side Gantry	Sand
12/05/2013			S090	65	HC	A1	49.21901	-9.09761	S W Deeps West 2013	Side Gantry	Sand
12/05/2013			S080	66	HC	A1	49.20835	-9.14957	S W Deeps West 2013	Side Gantry	Sand
12/05/2013	12:18	12:29	S080	67	CS	A1	49.20831	-9.14917	S W Deeps West 2013	Stern Gantry	Subtidal sand

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Date	SOL Time	EOL Time	Station Code	Station Number	Gear Code	Attempt	Latitude DD	Longitude DD	Area Name	Position Reference Point	BSH
12/05/2013	13:26	13:36	S076	68	CS	A1	49.16253	-9.21794	S W Deeps West 2013	Stern Gantry	Subtidal mixed
12/05/2013			S076	69	HC	A1	49.16273	-9.21877	S W Deeps West 2013	Side Gantry	Sand
12/05/2013			S085	70	HC	A1	49.17602	-9.16555	S W Deeps West 2013	Side Gantry	Sand
12/05/2013			S079	71	HC	A1	49.18767	-9.11576	S W Deeps West 2013	Side Gantry	Sand
12/05/2013			S089	72	HC	A2	49.19883	-9.06374	S W Deeps West 2013	Side Gantry	Coarse
12/05/2013	15:57	16:08	S089	73	CS	A1	49.19872	-9.06423	S W Deeps West 2013	Stern Gantry	Subtidal sand
12/05/2013			S094	74	HC	A1	49.20881	-9.01289	S W Deeps West 2013	Side Gantry	Coarse
12/05/2013			S099	75	HC	A1	49.22014	-8.96162	S W Deeps West 2013	Side Gantry	Coarse
12/05/2013			S069	76	HC	A1	49.22838	-8.90971	S W Deeps West 2013	Side Gantry	Coarse
12/05/2013	18:13	18:25	S069	77	CS	A1	49.22859	-8.90942	S W Deeps West 2013	Stern Gantry	Subtidal sand
12/05/2013			S111	78	HC	A1	49.24070	-8.86038	S W Deeps West 2013	Side Gantry	Sand
12/05/2013			S114	79	HC	A1	49.25217	-8.81050	S W Deeps West 2013	Side Gantry	Sand
12/05/2013			S014	80	HC	A1	49.26253	-8.75841	S W Deeps West 2013	Side Gantry	Sand
12/05/2013			S015	81	HC	A1	49.24584	-8.74380	S W Deeps West 2013	Side Gantry	Coarse
12/05/2013	21:01	21:11	S015	82	CS	A1	49.24611	-8.74397	S W Deeps West 2013	Stern Gantry	Subtidal mixed
12/05/2013			S115	83	HC	A1	49.23019	-8.77685	S W Deeps West 2013	Side Gantry	Sand
12/05/2013			C31	84	HC	A1	49.21550	-8.83496	S W Deeps West 2013	Side Gantry	Sand
12/05/2013	22:47	22:57	C31	85	CS	A1	49.21561	-8.83587	S W Deeps West 2013	Stern Gantry	Subtidal sand
12/05/2013			S068	86	HC	A1	49.20875	-8.87916	S W Deeps West 2013	Side Gantry	Mixed
12/05/2013			S067	87	HC	A1	49.19833	-8.92984	S W Deeps West 2013	Side Gantry	Mixed
13/05/2013			S093	88	HC	A1	49.18680	-8.97494	S W Deeps West 2013	Side Gantry	Sand
13/05/2013	00:46	00:56	S093	89	CS	A1	49.18688	-8.97524	S W Deeps West 2013	Stern Gantry	Subtidal mixed
13/05/2013			S088	90	HC	A1	49.17625	-9.03133	S W Deeps West 2013	Side Gantry	Sand
13/05/2013			S078	91	HC	A1	49.16499	-9.08227	S W Deeps West 2013	Side Gantry	Sand
13/05/2013			S086	92	HC	A1	49.15424	-9.13273	S W Deeps West 2013	Side Gantry	Sand
13/05/2013	02:49	02:59	S086	93	CS	A1	49.15410	-9.13350	S W Deeps West 2013	Stern Gantry	Subtidal sand
13/05/2013			S075	94	HC	A1	49.14384	-9.18436	S W Deeps West 2013	Side Gantry	Sand
13/05/2013			S072	95	HC	A1	49.13286	-9.23414	S W Deeps West 2013	Side Gantry	Mixed
13/05/2013			S046	96	HC	A1	49.10116	-9.25322	S W Deeps West 2013	Side Gantry	Sand
13/05/2013	05:20	05:30	S046	97	CS	A1	49.10115	-9.25359	S W Deeps West 2013	Stern Gantry	Subtidal sand
13/05/2013			S071	98	HC	A1	49.11186	-9.20317	S W Deeps West 2013	Side Gantry	Sand
13/05/2013			S074	99	HC	A1	49.12071	-9.15331	S W Deeps West 2013	Side Gantry	Sand

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Date	SOL Time	EOL Time	Station Code	Station Number	Gear Code	Attempt	Latitude DD	Longitude DD	Area Name	Position Reference Point	BSH
13/05/2013			S087	100	HC	A1	49.13158	-9.10124	S W Deeps West 2013	Side Gantry	Sand
13/05/2013			S077	101	HC	A1	49.14220	-9.04757	S W Deeps West 2013	Side Gantry	Sand
13/05/2013	08:48	08:59	S077	102	CS	A1	49.14201	-9.04768	S W Deeps West 2013	Stern Gantry	Subtidal sand
13/05/2013			S062	103	HC	A1	49.15559	-8.99935	S W Deeps West 2013	Side Gantry	Coarse
13/05/2013			S064	104	HC	A1	49.16655	-8.94815	S W Deeps West 2013	Side Gantry	Coarse
13/05/2013			S066	105	HC	A1	49.17672	-8.89820	S W Deeps West 2013	Side Gantry	Sand
13/05/2013	11:42	11:55	S066	106	CS	A1	49.17674	-8.89860	S W Deeps West 2013	Stern Gantry	Subtidal sand
13/05/2013			C32	107	HC	A1	49.19526	-8.83420	S W Deeps West 2013	Side Gantry	Sand
13/05/2013			C33	108	HC	A1	49.19628	-8.79935	S W Deeps West 2013	Side Gantry	Sand
13/05/2013			S116	109	HC	A1	49.20792	-8.74514	S W Deeps West 2013	Side Gantry	Sand
13/05/2013			S016	110	HC	A2	49.20963	-8.67934	S W Deeps West 2013	Side Gantry	Coarse
13/05/2013	14:39	14:50	S016	111	CS	A1	49.20987	-8.68022	S W Deeps West 2013	Stern Gantry	Subtidal coarse
13/05/2013			S029	112	HC	A1	49.18497	-8.71156	S W Deeps West 2013	Side Gantry	Coarse
13/05/2013			C35	113	HC	A1	49.17282	-8.77066	S W Deeps West 2013	Side Gantry	Sand
13/05/2013			C34	114	HC	A1	49.17714	-8.79640	S W Deeps West 2013	Side Gantry	Sand
13/05/2013			S057	115	HC	A1	49.16585	-8.81668	S W Deeps West 2013	Side Gantry	Sand
13/05/2013			S065	116	HC	A1	49.15515	-8.86598	S W Deeps West 2013	Side Gantry	Coarse
13/05/2013			S063	117	HC	A1	49.14338	-8.91628	S W Deeps West 2013	Side Gantry	Sand
13/05/2013			S061	118	HC	A2	49.13364	-8.96663	S W Deeps West 2013	Side Gantry	Sand
13/05/2013			S059	119	HC	A1	49.12310	-9.01762	S W Deeps West 2013	Side Gantry	Sand
13/05/2013			S081	120	HC	A1	49.11178	-9.06840	S W Deeps West 2013	Side Gantry	Coarse
13/05/2013			S073	121	HC	A1	49.09826	-9.11790	S W Deeps West 2013	Side Gantry	Sand
13/05/2013	21:51	22:02	S073	122	CS	A1	49.09825	-9.11811	S W Deeps West 2013	Stern Gantry	Subtidal sand
13/05/2013			S070	123	HC	A1	49.08865	-9.17153	S W Deeps West 2013	Side Gantry	Sand
13/05/2013			S045	124	HC	A1	49.07848	-9.22096	S W Deeps West 2013	Side Gantry	Sand
13/05/2013			S043	125	HC	A2	49.06780	-9.27080	S W Deeps West 2013	Side Gantry	Sand
14/05/2013			S042	126	HC	A1	49.04652	-9.23987	S W Deeps West 2013	Side Gantry	Coarse
14/05/2013	00:46	00:56	S042	127	CS	A1	49.04666	-9.23948	S W Deeps West 2013	Stern Gantry	Subtidal sand
14/05/2013			S044	128	HC	A1	49.05550	-9.18488	S W Deeps West 2013	Side Gantry	Sand
14/05/2013			C17	129	HC	A3	49.07622	-9.12636	S W Deeps West 2013	Side Gantry	Sand
14/05/2013	02:53	03:04	C17	130	CS	A1	49.07608	-9.12742	S W Deeps West 2013	Stern Gantry	Subtidal sand
14/05/2013			CTD01	132	CTD	A1	49.10387	-9.11126	S W Deeps West 2013	Side Gantry	

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Date	SOL Time	EOL Time	Station Code	Station Number	Gear Code	Attempt	Latitude DD	Longitude DD	Area Name	Position Reference Point	BSH
14/05/2013	21:23	22:11	BoxA	133	MB2	21	49.30500	-8.90080	S W Deeps West 2013	GPS	
14/05/2013	19:00	19:47	BoxA	133	MB2	12	49.25090	-8.82310	S W Deeps West 2013	GPS	
14/05/2013	00:07	00:54	BoxA	133	MB2	30	49.25010	-8.81050	S W Deeps West 2013	GPS	
14/05/2013	16:51	17:32	BoxA	133	MB2	03	49.24790	-8.82890	S W Deeps West 2013	GPS	
14/05/2013	07:15	08:07	BoxA	133	MB2	57	49.26350	-8.80320	S W Deeps West 2013	GPS	
14/05/2013	02:49	03:38	BoxA	133	MB2	39	49.25900	-8.81100	S W Deeps West 2013	GPS	
14/05/2013	04:57	05:41	BoxA	133	MB2	48	49.26100	-8.80700	S W Deeps West 2013	GPS	
15/05/2013			CTD02	134	CTD	A1	49.28024	-9.10178	S W Deeps West 2013	Side Gantry	
15/05/2013	12:29	13:30	Box B	135	SS7	04	49.23383	-9.08300	S W Deeps West 2013	GPS	
15/05/2013	12:29	13:30	Box B	135	MB2	04	49.28000	-9.08300	S W Deeps West 2013	GPS	
15/05/2013			S007	136	HC	A1	48.85110	-9.38303	S W Deeps West 2013	Side Gantry	Sand
15/05/2013			S006	137	HC	A2	48.85259	-9.34752	S W Deeps West 2013	Side Gantry	Sand
15/05/2013			C10	138	HC	A2	48.87001	-9.35255	S W Deeps West 2013	Side Gantry	Sand
15/05/2013	19:37	19:48	C10	139	CS	A1	48.87017	-9.35259	S W Deeps West 2013	Stern Gantry	Subtidal sand
15/05/2013			C09	140	HC	A1	48.88058	-9.36843	S W Deeps West 2013	Side Gantry	Sand
15/05/2013			C08	141	HC	A2	48.89124	-9.38555	S W Deeps West 2013	Side Gantry	Sand
15/05/2013			S031	142	HC	A2	48.91251	-9.38420	S W Deeps West 2013	Side Gantry	Sand
15/05/2013			GT01	143	HC	A1	48.93564	-9.38832	S W Deeps West 2013	Side Gantry	Sand
15/05/2013			GT03	144	HC	A1	48.94445	-9.38480	S W Deeps West 2013	Side Gantry	Sand
15/05/2013			GT02	145	HC	A1	48.95067	-9.39424	S W Deeps West 2013	Side Gantry	Sand
15/05/2013			GT04	146	HC	A1	48.95935	-9.39043	S W Deeps West 2013	Side Gantry	Sand
15/05/2013			GT06	147	HC	A1	48.96806	-9.38703	S W Deeps West 2013	Side Gantry	Sand
15/05/2013			GT05	148	HC	A1	48.97426	-9.39666	S W Deeps West 2013	Side Gantry	Sand
16/05/2013	00:06	00:16	GT05	149	CS	A1	48.97465	-9.39721	S W Deeps West 2013	Stern Gantry	Subtidal sand
16/05/2013			GT07	150	HC	A2	48.98302	-9.39328	S W Deeps West 2013	Side Gantry	Sand
16/05/2013			GT08	151	HC	A1	48.99804	-9.39937	S W Deeps West 2013	Side Gantry	Sand
16/05/2013	01:28	01:38	GT08	152	CS	A1	48.99819	-9.39953	S W Deeps West 2013	Stern Gantry	Subtidal sand
16/05/2013			GT11	153	HC	A1	48.99162	-9.38969	S W Deeps West 2013	Side Gantry	Sand
16/05/2013			GT14	154	HC	A1	48.98561	-9.38009	S W Deeps West 2013	Side Gantry	Sand
16/05/2013			GT16	155	HC	A1	48.97921	-9.37023	S W Deeps West 2013	Side Gantry	Sand
16/05/2013			GT13	156	HC	A1	48.97058	-9.37406	S W Deeps West 2013	Side Gantry	Sand
16/05/2013			GT10	157	HC	A1	48.96190	-9.37785	S W Deeps West 2013	Side Gantry	Sand

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16/05/2013			GT09	158	HC	A1	48.94693	-9.37127	S W Deeps West 2013	Side Gantry	Sand
16/05/2013	04:30	04:40	GT09	159	CS	A1	48.94711	-9.37175	S W Deeps West 2013	Stern Gantry	Subtidal coarse
16/05/2013			GT12	160	HC	A1	48.95572	-9.36738	S W Deeps West 2013	Side Gantry	Sand
16/05/2013			GT15	161	HC	A1	48.96429	-9.36418	S W Deeps West 2013	Side Gantry	Sand
16/05/2013			GT18	162	HC	A1	48.97299	-9.36013	S W Deeps West 2013	Side Gantry	Sand
16/05/2013			GT19	163	HC	A1	48.98814	-9.36652	S W Deeps West 2013	Side Gantry	Sand
16/05/2013			GT17	164	HC	A1	48.99417	-9.37607	S W Deeps West 2013	Side Gantry	Sand
16/05/2013	07:22	07:33	GT17	165	CS	A1	48.99408	-9.37604	S W Deeps West 2013	Stern Gantry	Subtidal sand
16/05/2013			GT20	166	HC	A1	48.99054	-9.35300	S W Deeps West 2013	Side Gantry	Coarse
16/05/2013			GT22	167	HC	A1	48.99907	-9.34967	S W Deeps West 2013	Side Gantry	Sand
16/05/2013			GT23	168	HC	A1	48.99269	-9.33988	S W Deeps West 2013	Side Gantry	Sand
16/05/2013			GT21	169	HC	A1	48.98406	-9.34333	S W Deeps West 2013	Side Gantry	Sand
16/05/2013			S032	170	HC	A3	48.93448	-9.35010	S W Deeps West 2013	Side Gantry	Sand
16/05/2013			C07	171	HC	A1	48.91226	-9.35262	S W Deeps West 2013	Side Gantry	Sand
16/05/2013			S004	172	HC	A1	48.88432	-9.33066	S W Deeps West 2013	Side Gantry	Sand
16/05/2013			S003	173	HC	A1	48.86342	-9.29589	S W Deeps West 2013	Side Gantry	Coarse
16/05/2013			S002	174	HC	A1	48.83809	-9.25689	S W Deeps West 2013	Side Gantry	Sand
16/05/2013	13:36	13:49	S002	175	CS	A1	48.83810	-9.25804	S W Deeps West 2013	Stern Gantry	Subtidal coarse, subtidal sand
16/05/2013			S001	176	HC	A1	48.87259	-9.24315	S W Deeps West 2013	Side Gantry	Sand
16/05/2013			S005	177	HC	A1	48.89502	-9.28067	S W Deeps West 2013	Side Gantry	Sand
16/05/2013	15:09	15:20	S005	178	CS	A1	48.89539	-9.28176	S W Deeps West 2013	Stern Gantry	Subtidal sand
16/05/2013			S040	179	HC	A1	48.91661	-9.31289	S W Deeps West 2013	Side Gantry	Sand
16/05/2013			C06	180	HC	A1	48.93464	-9.31757	S W Deeps West 2013	Side Gantry	Sand
16/05/2013			C03	181	HC	A1	48.95633	-9.31529	S W Deeps West 2013	Side Gantry	Sand
16/05/2013			C04	182	HC	A1	48.97848	-9.28211	S W Deeps West 2013	Side Gantry	Sand
16/05/2013			C05	183	HC	A1	48.95648	-9.28405	S W Deeps West 2013	Side Gantry	Sand
16/05/2013	19:03	19:13	C05	184	CS	A2	48.95501	-9.28499	S W Deeps West 2013	Stern Gantry	Subtidal sand
16/05/2013	18:38	18:49	C05	184	CS	A1	0.00000	0.00000	S W Deeps West 2013	Stern Gantry	Subtidal sand
16/05/2013			S041	185	HC	A1	48.92604	-9.26492	S W Deeps West 2013	Side Gantry	Sand
16/05/2013			C12	186	HC	A1	48.93509	-9.24912	S W Deeps West 2013	Side Gantry	Sand
16/05/2013			C14	187	HC	A1	48.91346	-9.21817	S W Deeps West 2013	Side Gantry	Sand
16/05/2013			GT24	188	HC	A1	48.88274	-9.18955	S W Deeps West 2013	Side Gantry	Sand

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16/05/2013	21:44	21:54	GT24	189	CS	A1	48.88291	-9.18937	S W Deeps West 2013	Stern Gantry	Subtidal sand
16/05/2013			GT25	190	HC	A1	48.88765	-9.16270	S W Deeps West 2013	Side Gantry	Coarse
16/05/2013			GT26	191	HC	A1	48.90449	-9.15588	S W Deeps West 2013	Side Gantry	Sand
16/05/2013			C16	192	HC	A1	48.91277	-9.18316	S W Deeps West 2013	Side Gantry	Sand
16/05/2013			C13	193	HC	A1	48.93599	-9.21504	S W Deeps West 2013	Side Gantry	Sand
17/05/2013	00:05	00:15	C13	194	CS	A1	48.93629	-9.21522	S W Deeps West 2013	Stern Gantry	Subtidal sand
17/05/2013			C11	195	HC	A1	48.95627	-9.24999	S W Deeps West 2013	Side Gantry	Sand
17/05/2013			S034	196	HC	A1	48.99336	-9.22484	S W Deeps West 2013	Side Gantry	Sand
17/05/2013			S039	197	HC	A1	49.01386	-9.25711	S W Deeps West 2013	Side Gantry	Sand
17/05/2013	02:07	02:18	S039	198	CS	A1	49.01384	-9.25699	S W Deeps West 2013	Stern Gantry	Subtidal sand
17/05/2013			S036	199	HC	A1	49.02519	-9.20730	S W Deeps West 2013	Side Gantry	Sand
17/05/2013			S035	200	HC	A1	49.00337	-9.17391	S W Deeps West 2013	Side Gantry	Sand
17/05/2013			S033	201	HC	A1	48.97134	-9.19300	S W Deeps West 2013	Side Gantry	Sand
17/05/2013	04:16	04:27	S033	202	CS	A1	48.97132	-9.19328	S W Deeps West 2013	Stern Gantry	Subtidal sand
17/05/2013			C15	203	HC	A1	48.93590	-9.18426	S W Deeps West 2013	Side Gantry	Sand
17/05/2013			GT27	205	HC	A1	48.92222	-9.14866	S W Deeps West 2013	Side Gantry	Sand
17/05/2013			GT28	206	HC	A1	48.90928	-9.12884	S W Deeps West 2013	Side Gantry	Sand
17/05/2013	07:38	08:57	GT28	207	CS	A1	48.91070	-9.12894	S W Deeps West 2013	Stern Gantry	Subtidal sand
17/05/2013			GT30	208	HC	A1	48.92663	-9.12228	S W Deeps West 2013	Side Gantry	Sand
17/05/2013			GT32	209	HC	A1	48.93110	-9.09519	S W Deeps West 2013	Side Gantry	Sand
17/05/2013			GT34	210	HC	A1	48.94860	-9.08821	S W Deeps West 2013	Side Gantry	Sand
17/05/2013	09:41	09:53	GT34	211	CS	A1	48.94938	-9.08751	S W Deeps West 2013	Stern Gantry	Subtidal sand, subtidal coarse
17/05/2013			GT31	212	HC	A1	48.94383	-9.11472	S W Deeps West 2013	Side Gantry	Coarse
17/05/2013			GT29	213	HC	A1	48.93928	-9.14135	S W Deeps West 2013	Side Gantry	Sand
17/05/2013			S009	214	HC	A1	48.95069	-9.15979	S W Deeps West 2013	Side Gantry	Sand
17/05/2013			S008	215	HC	A1	48.98142	-9.14551	S W Deeps West 2013	Side Gantry	Sand
17/05/2013			GT33	216	HC	A1	48.96087	-9.10777	S W Deeps West 2013	Side Gantry	Sand
17/05/2013			GT35	217	HC	A1	48.96606	-9.08111	S W Deeps West 2013	Side Gantry	Coarse
17/05/2013			S047	218	HC	A1	48.96959	-9.05444	S W Deeps West 2013	Side Gantry	Sand
17/05/2013	14:23	14:34	S047	219	CS	A1	48.96949	-9.05461	S W Deeps West 2013	Stern Gantry	Subtidal sand
17/05/2013			S010	220	HC	A1	48.99221	-9.09206	S W Deeps West 2013	Side Gantry	Sand
17/05/2013			C23	221	HC	A1	49.01065	-9.09664	S W Deeps West 2013	Side Gantry	Sand

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17/05/2013			S037	222	HC	A1	49.01400	-9.12406	S W Deeps West 2013	Side Gantry	Sand
17/05/2013	16:53	17:06	S037	223	CS	A1	49.01471	-9.12396	S W Deeps West 2013	Stern Gantry	Subtidal coarse
17/05/2013			S038	224	HG	A2	49.03611	-9.15537	S W Deeps West 2013	Side Gantry	Sand
17/05/2013			C18	225	HG	A1	49.05436	-9.12657	S W Deeps West 2013	Side Gantry	Sand
17/05/2013	19:09	19:20	C18	226	CS	A1	49.05490	-9.12745	S W Deeps West 2013	Stern Gantry	Subtidal sand
17/05/2013			C19	227	HG	A1	49.07500	-9.09541	S W Deeps West 2013	Side Gantry	Sand
17/05/2013			C20	228	HG	A1	49.05272	-9.09530	S W Deeps West 2013	Side Gantry	Sand
17/05/2013			C21	229	HG	A1	49.03157	-9.09680	S W Deeps West 2013	Side Gantry	Sand
17/05/2013			S050	230	HG	A1	49.00286	-9.03835	S W Deeps West 2013	Side Gantry	Sand
17/05/2013	22:13	22:24	S050	231	CS	A1	49.00306	-9.03843	S W Deeps West 2013	Stern Gantry	Subtidal sand, subtidal coarse
17/05/2013			C24	232	HG	A1	49.03249	-9.06191	S W Deeps West 2013	Side Gantry	Sand
17/05/2013			C22	233	HG	A1	49.05611	-9.05927	S W Deeps West 2013	Side Gantry	Sand
17/05/2013	23:51	00:02	C22	234	CS	A1	49.05641	-9.05944	S W Deeps West 2013	Stern Gantry	Subtidal sand
18/05/2013			S082	235	HG	A1	49.08971	-9.03650	S W Deeps West 2013	Side Gantry	Sand
18/05/2013			C25	236	HG	A1	49.05455	-9.02782	S W Deeps West 2013	Side Gantry	Sand
18/05/2013			S048	237	HG	A1	49.03635	-9.02277	S W Deeps West 2013	Side Gantry	Sand
18/05/2013			S051	238	HG	A1	49.01144	-8.98755	S W Deeps West 2013	Side Gantry	Sand
18/05/2013			C27	239	HG	A1	49.03434	-8.99333	S W Deeps West 2013	Side Gantry	Sand
18/05/2013	02:56	03:07	C27	240	CS	A1	49.03471	-8.99293	S W Deeps West 2013	Stern Gantry	Subtidal sand, subtidal coarse
18/05/2013			C26	241	HG	A1	49.05435	-8.99339	S W Deeps West 2013	Side Gantry	Coarse
18/05/2013			S083	242	HG	A1	49.06897	-9.00440	S W Deeps West 2013	Side Gantry	Mixed
18/05/2013			S058	243	HG	A1	49.10164	-8.98529	S W Deeps West 2013	Side Gantry	Coarse
18/05/2013	05:06	05:17	S058	244	CS	A1	49.10202	-8.98514	S W Deeps West 2013	Stern Gantry	Subtidal mixed
18/05/2013			S049	245	HG	A1	49.07935	-8.95406	S W Deeps West 2013	Side Gantry	Sand
18/05/2013			C28	246	HG	A1	49.05640	-8.96075	S W Deeps West 2013	Side Gantry	Coarse
18/05/2013			C29	247	HG	A1	49.03485	-8.96476	S W Deeps West 2013	Side Gantry	Sand
18/05/2013			C30	248	HG	A1	49.03865	-8.93857	S W Deeps West 2013	Side Gantry	Sand
18/05/2013	08:23	08:34	C30	249	CS	A2	49.03910	-8.93964	S W Deeps West 2013	Stern Gantry	Subtidal coarse
18/05/2013			S052	250	HG	A1	49.05707	-8.91827	S W Deeps West 2013	Side Gantry	Sand
18/05/2013			S053	251	HG	A1	49.09142	-8.90424	S W Deeps West 2013	Side Gantry	Sand
18/05/2013	10:42	10:53	S053	252	CS	A1	49.09165	-8.90462	S W Deeps West 2013	Stern Gantry	Subtidal sand
18/05/2013			S060	253	HG	A1	49.11165	-8.93616	S W Deeps West 2013	Side Gantry	Sand

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18/05/2013			S054	254	HG	A1	49.12214	-8.88509	S W Deeps West 2013	Side Gantry	Sand
18/05/2013			S055	255	HG	A3	49.10122	-8.84988	S W Deeps West 2013	Side Gantry	Sand
18/05/2013			S056	256	HG	A1	49.13354	-8.83518	S W Deeps West 2013	Side Gantry	Sand
18/05/2013	13:50	14:01	S056	257	CS	A1	49.13383	-8.83539	S W Deeps West 2013	Stern Gantry	Subtidal sand
18/05/2013			S030	258	HG	A1	49.14057	-8.78591	S W Deeps West 2013	Side Gantry	Coarse
18/05/2013			C36	259	HG	A1	49.15475	-8.77751	S W Deeps West 2013	Side Gantry	Coarse
18/05/2013	15:15	15:27	C36	260	CS	A1	49.15493	-8.77760	S W Deeps West 2013	Stern Gantry	Subtidal coarse
18/05/2013			C38	261	HG	A1	49.14147	-8.75888	S W Deeps West 2013	Side Gantry	Sand
18/05/2013			C37	262	HG	A1	49.14147	-8.75888	S W Deeps West 2013	Side Gantry	Sand
18/05/2013	17:24	17:35	C37	263	CS	A1	49.15999	-8.75027	S W Deeps West 2013	Stern Gantry	Subtidal sand, subtidal coarse
18/05/2013			C39	264	HG	A1	49.15942	-8.72541	S W Deeps West 2013	Side Gantry	Sand
18/05/2013			AddGT04	265	HG	A1	49.25633	-8.82325	S W Deeps West 2013	Side Gantry	Sand
18/05/2013			AddGT01	266	HG	A1	49.26563	-8.81043	S W Deeps West 2013	Side Gantry	Sand
18/05/2013	19:54	20:05	AddGT01	267	CS	A1	49.26554	-8.81043	S W Deeps West 2013	Stern Gantry	Subtidal sand
18/05/2013	20:53	21:04	AddGT02	268	CS	A1	49.28571	-8.84295	S W Deeps West 2013	Stern Gantry	Subtidal sand
18/05/2013			AddGT02	269	HG	A1	49.28587	-8.84302	S W Deeps West 2013	Side Gantry	Sand
18/05/2013			AddGT03	270	HG	A1	49.29684	-8.89768	S W Deeps West 2013	Side Gantry	Sand
18/05/2013	22:18	22:29	AddGT03	271	CS	A1	49.29699	-8.89805	S W Deeps West 2013	Stern Gantry	Subtidal sand
19/05/2013			CTD01	272	CTD	A1	49.74352	-6.11468	S Isles of Scilly 2013	Side Gantry	
19/05/2013	16:16	17:25	SISSMB	273	MB2	16	49.73370	-6.12770	S Isles of Scilly 2013	GPS	
19/05/2013	08:43	09:51	SISSMB	273	MB2	3	49.73925	-6.29693	S Isles of Scilly 2013	GPS	
19/05/2013	21:33	22:38	SISSMB	273	MB2	203	49.64949	-6.29410	S Isles of Scilly 2013	GPS	
19/05/2013	10:53	11:58	SISSMB	273	MB2	221	49.64127	-6.12717	S Isles of Scilly 2013	GPS	
19/05/2013	14:27	15:33	SISSMB	273	MB2	215	49.64406	-6.29142	S Isles of Scilly 2013	GPS	
19/05/2013	12:42	13:47	SISSMB	273	MB2	9	49.73591	-6.13043	S Isles of Scilly 2013	GPS	
19/05/2013	19:42	20:50	SISSMB	273	MB2	22	49.73071	-6.29528	S Isles of Scilly 2013	GPS	
19/05/2013	23:16	00:25	SISSMB	273	MB2	28	49.72797	-6.29550	S Isles of Scilly 2013	GPS	
19/05/2013	05:39	06:39	SISSMB	273	MB2	88	49.70101	-6.29644	S Isles of Scilly 2013	GPS	
19/05/2013	02:23	03:42	SISSMB	273	MB2	34	49.72520	-6.12766	S Isles of Scilly 2013	GPS	
19/05/2013	00:55	01:59	SISSMB	273	MB2	197	49.65202	-6.29467	S Isles of Scilly 2013	GPS	
19/05/2013	04:15	05:13	SISSMB	273	MB2	191	49.65474	-6.12833	S Isles of Scilly 2013	GPS	
19/05/2013	18:04	19:01	SISSMB	273	MB2	209	49.64661	-6.29407	S Isles of Scilly 2013	GPS	

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Date	SOL Time	EOL Time	Station Code	Station Number	Gear Code	Attempt	Latitude DD	Longitude DD	Area Name	Position Reference Point	BSH
20/05/2013			CTD02	274	CTD	A1	49.65521	-6.32195	S Isles of Scilly 2013	Side Gantry	
20/05/2013	17:56	18:56	SISSMB	275	MB2	62	49.71255	-6.12912	S Isles of Scilly 2013	GPS	
20/05/2013	22:28	23:33	SISSMB	275	MB2	131	49.68167	-6.29432	S Isles of Scilly 2013	GPS	
20/05/2013	12:33	13:36	SISSMB	275	MB2	48	49.71896	-6.29554	S Isles of Scilly 2013	GPS	
20/05/2013	20:44	21:52	SISSMB	275	MB2	69	49.70974	-6.29551	S Isles of Scilly 2013	GPS	
20/05/2013	09:21	10:31	SISSMB	275	MB2	166	49.66598	-6.12730	S Isles of Scilly 2013	GPS	
20/05/2013	08:04	09:08	SISSMB	275	MB2	159	49.66919	-6.12720	S Isles of Scilly 2013	GPS	
20/05/2013	19:16	20:27	SISSMB	275	MB2	124	49.68482	-6.29383	S Isles of Scilly 2013	GPS	
20/05/2013	07:35	08:42	SISSMB	275	MB2	184	49.65780	-6.29631	S Isles of Scilly 2013	GPS	
20/05/2013	23:50	00:55	SISSMB	275	MB2	76	49.70662	-6.12825	S Isles of Scilly 2013	GPS	
20/05/2013	06:54	07:56	SISSMB	275	MB2	152	49.67218	-6.12775	S Isles of Scilly 2013	GPS	
20/05/2013	16:36	17:40	SISSMB	275	MB2	117	49.68786	-6.12793	S Isles of Scilly 2013	GPS	
20/05/2013	10:40	11:41	SISSMB	275	MB2	172	49.66309	-6.29518	S Isles of Scilly 2013	GPS	
20/05/2013	03:30	04:30	SISSMB	275	MB2	95	49.69765	-6.29434	S Isles of Scilly 2013	GPS	
20/05/2013	05:50	06:49	SISSMB	275	MB2	145	49.67537	-6.12651	S Isles of Scilly 2013	GPS	
20/05/2013	04:38	05:35	SISSMB	275	MB2	102	49.69472	-6.12810	S Isles of Scilly 2013	GPS	
20/05/2013	01:11	02:04	SISSMB	275	MB2	138	49.67867	-6.29487	S Isles of Scilly 2013	GPS	
20/05/2013	02:23	03:17	SISSMB	275	MB2	82	49.70379	-6.29493	S Isles of Scilly 2013	GPS	
20/05/2013	12:05	13:07	SISSMB	275	MB2	106	49.69297	-6.12866	S Isles of Scilly 2013	GPS	
20/05/2013	13:58	15:04	SISSMB	275	MB2	110	49.69115	-6.12675	S Isles of Scilly 2013	GPS	
20/05/2013	15:22	16:20	SISSMB	275	MB2	55	49.71388	-6.29638	S Isles of Scilly 2013	GPS	
20/05/2013	09:17	10:29	SISSMB	275	MB2	41	49.72282	-6.29430	S Isles of Scilly 2013	GPS	
20/05/2013	10:57	12:02	SISSMB	275	MB2	177	49.66100	-6.12759	S Isles of Scilly 2013	GPS	
21/05/2013	14:42	14:54	SISS32	277	CS	A2	49.73848	-6.28744	S Isles of Scilly 2013	Stern Gantry	Subtidal coarse
21/05/2013	15:28	15:42	SISS54	278	CS	A1	49.73818	-6.29203	S Isles of Scilly 2013	Stern Gantry	Subtidal coarse
21/05/2013	17:16	17:27	SISS53	279	CS	A1	49.72149	-6.29368	S Isles of Scilly 2013	Stern Gantry	Subtidal coarse
21/05/2013			SISS53	280	HC	A1	49.72147	-6.29357	S Isles of Scilly 2013	Side Gantry	Sand
21/05/2013			SISS15	281	HC	A1	49.69056	-6.28277	S Isles of Scilly 2013	Side Gantry	Mixed
21/05/2013			SISS08	282	HC	A1	49.67357	-6.29142	S Isles of Scilly 2013	Side Gantry	Sand
21/05/2013			SISS35	283	HC	A2	49.64988	-6.29033	S Isles of Scilly 2013	Side Gantry	Mixed
21/05/2013			SISS33	284	HC	A1	49.64130	-6.29472	S Isles of Scilly 2013	Side Gantry	Mixed
21/05/2013			SISS02	285	HC	A1	49.64351	-6.28112	S Isles of Scilly 2013	Side Gantry	Coarse

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Date	SOL Time	EOL Time	Station Code	Station Number	Gear Code	Attempt	Latitude DD	Longitude DD	Area Name	Position Reference Point	BSH
21/05/2013			SISS06	286	HC	A1	49.66069	-6.27249	S Isles of Scilly 2013	Side Gantry	Mixed
21/05/2013			SISS10	287	HC	A1	49.67760	-6.26414	S Isles of Scilly 2013	Stern Gantry	Sand
21/05/2013	21:17	21:27	SISS10	288	CS	A1	49.67805	-6.26473	S Isles of Scilly 2013	Stern Gantry	Subtidal sand, subtidal coarse
21/05/2013			SISS21	289	HC	A1	49.70784	-6.27396	S Isles of Scilly 2013	Stern Gantry	Coarse
21/05/2013	22:43	22:54	SISS21	290	CS	A1	49.70813	-6.27445	S Isles of Scilly 2013	Stern Gantry	Subtidal sand
21/05/2013			SISS27	291	HC	A1	49.72492	-6.26620	S Isles of Scilly 2013	Stern Gantry	Mixed
21/05/2013			SISS29	292	HC	A1	49.72900	-6.23916	S Isles of Scilly 2013	Side Gantry	Mixed
21/05/2013			SISS23	293	HC	A1	49.71197	-6.24682	S Isles of Scilly 2013	Side Gantry	Sand
22/05/2013			SISS17	294	HC	A1	49.69497	-6.25550	S Isles of Scilly 2013	Side Gantry	Mixed
22/05/2013			SISS44	295	HC	A1	49.66237	-6.25835	S Isles of Scilly 2013	Side Gantry	Mixed
22/05/2013			SISS04	296	HC	A1	49.64737	-6.25342	S Isles of Scilly 2013	Side Gantry	Coarse
22/05/2013			SISS39	297	HC	A1	49.65625	-6.24936	S Isles of Scilly 2013	Side Gantry	Coarse
22/05/2013			SISS46	298	HC	A1	49.66451	-6.24475	S Isles of Scilly 2013	Side Gantry	Coarse
22/05/2013			SISS12	299	HC	A1	49.68156	-6.23639	S Isles of Scilly 2013	Side Gantry	Coarse
22/05/2013			SISS18	300	HC	A1	49.69897	-6.22853	S Isles of Scilly 2013	Side Gantry	Coarse
22/05/2013			SISS24	301	HC	A2	49.71571	-6.21969	S Isles of Scilly 2013	Side Gantry	Coarse
22/05/2013			SISS30	302	HC	A2	49.73295	-6.21197	S Isles of Scilly 2013	Side Gantry	Sand
22/05/2013			SISS25	304	HC	A1	49.71957	-6.19325	S Isles of Scilly 2013	Side Gantry	Sand
22/05/2013			SISS19	305	HC	A3	49.70250	-6.20124	S Isles of Scilly 2013	Side Gantry	Coarse
22/05/2013			SISS13	306	HC	A2	49.68582	-6.21011	S Isles of Scilly 2013	Side Gantry	Sand
22/05/2013			SISS50	307	HC	A1	49.66844	-6.21809	S Isles of Scilly 2013	Side Gantry	Mixed
22/05/2013			SISS48	308	HC	A1	49.66629	-6.23182	S Isles of Scilly 2013	Side Gantry	Sand
22/05/2013			SISS41	309	HC	A1	49.65786	-6.23611	S Isles of Scilly 2013	Side Gantry	Sand
22/05/2013			SISS34	310	HC	A1	49.64910	-6.24041	S Isles of Scilly 2013	Side Gantry	Sand
22/05/2013			SISS36	311	HC	A1	49.65145	-6.22697	S Isles of Scilly 2013	Side Gantry	Mixed
22/05/2013			SISS42	312	HC	A1	49.65981	-6.22254	S Isles of Scilly 2013	Side Gantry	Sand
22/05/2013			SISS37	313	HC	A1	49.65332	-6.21340	S Isles of Scilly 2013	Side Gantry	Coarse
22/05/2013			SISS43	314	HC	A1	49.66176	-6.20911	S Isles of Scilly 2013	Side Gantry	Mixed
22/05/2013			SISS38	315	HC	A1	49.65540	-6.19974	S Isles of Scilly 2013	Side Gantry	Coarse
22/05/2013			SISS45	316	HC	A1	49.66379	-6.19542	S Isles of Scilly 2013	Side Gantry	Coarse
22/05/2013			SISS51	317	HC	A1	49.67243	-6.19081	S Isles of Scilly 2013	Side Gantry	Mixed
22/05/2013			SISS14	318	HC	A3	49.68957	-6.18278	S Isles of Scilly 2013	Side Gantry	Mixed

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Date	SOL Time	EOL Time	Station Code	Station Number	Gear Code	Attempt	Latitude DD	Longitude DD	Area Name	Position Reference Point	BSH
22/05/2013	12:25	12:37	SISS14	319	CS	A1	49.68968	-6.18280	S Isles of Scilly 2013	Stern Gantry	Subtidal coarse
22/05/2013			SISS20	320	HC	A3	49.70664	-6.17376	S Isles of Scilly 2013	Side Gantry	Coarse
22/05/2013	13:28	13:38	SISS20	321	CS	A1	49.70716	-6.17385	S Isles of Scilly 2013	Stern Gantry	Subtidal sand
22/05/2013			SISS26	322	HC	A1	49.72377	-6.16528	S Isles of Scilly 2013	Side Gantry	Coarse
22/05/2013			SISS56	323	HC	A1	49.73641	-6.15005	S Isles of Scilly 2013	Side Gantry	Coarse
22/05/2013	15:08	15:20	SISS28	325	CS	A1	49.72776	-6.13841	S Isles of Scilly 2013	Stern Gantry	Subtidal coarse
22/05/2013			SISS22	326	HC	A1	49.71046	-6.14721	S Isles of Scilly 2013	Side Gantry	Sand
22/05/2013			SISS16	327	HC	A1	49.69320	-6.15535	S Isles of Scilly 2013	Side Gantry	Mixed
22/05/2013	17:31	17:42	SISS16	328	CS	A1	49.69376	-6.15593	S Isles of Scilly 2013	Stern Gantry	Subtidal coarse
22/05/2013			SISS09	329	HC	A1	49.67616	-6.16375	S Isles of Scilly 2013	Side Gantry	Coarse
22/05/2013			SISS52	330	HC	A2	49.67432	-6.17729	S Isles of Scilly 2013	Side Gantry	Coarse
22/05/2013	18:55	19:05	SISS52	331	CS	A1	49.67482	-6.17790	S Isles of Scilly 2013	Stern Gantry	Subtidal coarse
22/05/2013			SISS49	332	HC	A1	49.66766	-6.16833	S Isles of Scilly 2013	Side Gantry	Coarse
22/05/2013			SISS47	333	HC	A1	49.66558	-6.18188	S Isles of Scilly 2013	Side Gantry	Mixed
22/05/2013			SISS05	334	HC	A1	49.65919	-6.17266	S Isles of Scilly 2013	Side Gantry	Coarse
22/05/2013	20:30	20:41	SISS05	335	CS	A1	49.65942	-6.17254	S Isles of Scilly 2013	Stern Gantry	Subtidal sand, subtidal coarse
22/05/2013			SISS40	336	HC	A1	49.65706	-6.18610	S Isles of Scilly 2013	Side Gantry	Coarse
22/05/2013			SISS01	337	HC	A1	49.64223	-6.18063	S Isles of Scilly 2013	Side Gantry	Coarse
22/05/2013	22:25	22:36	SISS01	338	CS	A1	49.64253	-6.18061	S Isles of Scilly 2013	Stern Gantry	Subtidal sand
22/05/2013			SISS03	339	HC	A2	49.64636	-6.15324	S Isles of Scilly 2013	Side Gantry	Mixed
22/05/2013			SISS55	340	HC	A1	49.64507	-6.13472	S Isles of Scilly 2013	Side Gantry	Mixed
22/05/2013	23:47	23:57	SISS55	341	CS	A1	49.64467	-6.13432	S Isles of Scilly 2013	Stern Gantry	Subtidal coarse
23/05/2013			SISS07	342	HC	A1	49.66320	-6.14478	S Isles of Scilly 2013	Side Gantry	Coarse
23/05/2013			SISS11	343	HC	A1	49.68007	-6.13561	S Isles of Scilly 2013	Side Gantry	Coarse
23/05/2013			SISS57	344	HC	A1	49.70159	-6.13404	S Isles of Scilly 2013	104	Coarse
23/05/2013	01:51	02:01	SISS31	345	CS	A1	49.73717	-6.18507	S Isles of Scilly 2013	Stern Gantry	Subtidal coarse
23/05/2013	02:54	03:04	SISS51	346	CS	A1	49.67274	-6.19138	S Isles of Scilly 2013	Stern Gantry	Subtidal sand
23/05/2013	03:43	03:53	SISS37	347	CS	A1	49.65350	-6.21298	S Isles of Scilly 2013	Stern Gantry	Subtidal sand
23/05/2013	04:31	04:41	SISS13	348	CS	A1	49.68574	-6.20998	S Isles of Scilly 2013	Stern Gantry	Subtidal sand
23/05/2013	05:28	05:40	SISS30	349	CS	A1	49.73315	-6.21205	S Isles of Scilly 2013	Stern Gantry	Subtidal sand
23/05/2013	07:07	07:18	SISS18	350	CS	A1	49.69968	-6.22837	S Isles of Scilly 2013	Stern Gantry	Subtidal coarse
23/05/2013	08:14	08:24	SISS41	351	CS	A1	49.65857	-6.23579	S Isles of Scilly 2013	Stern Gantry	Subtidal coarse, subtidal sand

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Date	SOL Time	EOL Time	Station Code	Station Number	Gear Code	Attempt	Latitude DD	Longitude DD	Area Name	Position Reference Point	BSH
23/05/2013	08:58	09:09	SISS34	352	CS	A1	49.64978	-6.24057	S Isles of Scilly 2013	Stern Gantry	Subtidal coarse, subtidal sand
23/05/2013	09:36	09:46	SISS04	353	CS	A1	49.64700	-6.25414	S Isles of Scilly 2013	Stern Gantry	Subtidal sand
23/05/2013	12:13	12:26	SISS44	354	CS	A1	49.66250	-6.25884	S Isles of Scilly 2013	Stern Gantry	Subtidal coarse
23/05/2013	13:12	13:23	SISS35	355	CS	A1	49.65019	-6.29014	S Isles of Scilly 2013	Stern Gantry	Subtidal sand
23/05/2013	13:55	14:08	SISS08	356	CS	A1	49.67328	-6.29061	S Isles of Scilly 2013	Stern Gantry	Subtidal coarse, subtidal sand
23/05/2013	15:10	15:21	SISS27	357	CS	A1	49.72489	-6.26551	S Isles of Scilly 2013	Stern Gantry	Subtidal coarse
23/05/2013			SISS54	358	HC	A2	49.73834	-6.29139	S Isles of Scilly 2013	Side Gantry	Sand
23/05/2013	16:56	17:09	SISS23	359	CS	A1	49.71203	-6.24731	S Isles of Scilly 2013	Stern Gantry	Subtidal coarse
24/05/2013			CTD03	360	CTD	A1	49.18533	-8.90259	S W Deeps West 2013	Side Gantry	
24/05/2013	16:05	16:49	BoxC	361	MB2	46	49.17370	-8.92824	S W Deeps West 2013	GPS	
24/05/2013	13:23	13:25	BoxC	361	MB2	39	49.17988	-8.93112	S W Deeps West 2013	GPS	
24/05/2013	14:12	15:01	BoxC	361	MB2	39	49.23802	-9.01460	S W Deeps West 2013	GPS	
24/05/2013	19:35	20:23	BoxC	361	MB2	60	49.22864	-9.02525	S W Deeps West 2013	GPS	
24/05/2013	21:52	22:06	BoxC	361	MB2	67	49.22615	-9.02870	S W Deeps West 2013	GPS	
24/05/2013	22:58	23:55	BoxC	361	MB2	74	49.22420	-9.03288	S W Deeps West 2013	GPS	
24/05/2013	00:51	01:46	BoxC	361	MB2	81	49.22238	-9.03527	S W Deeps West 2013	GPS	
24/05/2013	06:34	07:23	BoxC	361	MB2	11	49.18520	-8.91213	S W Deeps West 2013	GPS	
24/05/2013	12:25	13:14	BoxC	361	MB2	32	49.17881	-8.92235	S W Deeps West 2013	GPS	
24/05/2013	04:48	05:30	BoxC	361	MB2	4	49.24664	-8.99901	S W Deeps West 2013	GPS	
24/05/2013	17:47	18:31	BoxC	361	MB2	53	49.17170	-8.93189	S W Deeps West 2013	GPS	
24/05/2013	07:34	07:34	BoxC	361	MB2	18	49.18290	-8.91592	S W Deeps West 2013	GPS	
24/05/2013	08:37	09:27	BoxC	361	MB2	18	49.24187	-9.00559	S W Deeps West 2013	GPS	
24/05/2013	10:33	11:28	BoxC	361	MB2	25	49.23958	-9.00831	S W Deeps West 2013	GPS	
25/05/2013			AddGT06	362	HC	A1	49.17834	-8.93137	S W Deeps West 2013	Side Gantry	Sand
25/05/2013	03:19	03:29	AddGT06	363	CS	A1	49.17798	-8.93241	S W Deeps West 2013	Stern Gantry	Subtidal sand, subtidal coarse
25/05/2013			AddGT08	364	HC	A1	49.19626	-8.95195	S W Deeps West 2013	Side Gantry	Sand
25/05/2013	04:17	04:27	AddGT08	365	CS	A1	49.19635	-8.95322	S W Deeps West 2013	Stern Gantry	Subtidal sand
25/05/2013			AddGT05	366	HC	A1	49.21125	-8.97719	S W Deeps West 2013	Side Gantry	Sand
25/05/2013	05:20	05:31	AddGT05	367	CS	A1	49.21122	-8.97782	S W Deeps West 2013	Stern Gantry	Subtidal sand
25/05/2013			AddGT07	368	HC	A1	49.22131	-8.99548	S W Deeps West 2013	Side Gantry	Sand
25/05/2013	06:14	06:28	AddGT07	369	CS	A1	49.22181	-8.99604	S W Deeps West 2013	Stern Gantry	Subtidal coarse
25/05/2013			S019	370	HC	A1	49.36864	-8.92450	S W Deeps West 2013	Side Gantry	Sand

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Date	SOL Time	EOL Time	Station Code	Station Number	Gear Code	Attempt	Latitude DD	Longitude DD	Area Name	Position Reference Point	BSH
25/05/2013	08:21	08:33	S019	371	CS	A1	49.36867	-8.92459	S W Deeps West 2013	Stern Gantry	Subtidal sand
25/05/2013			CTD04	372	CTD	A1	49.10590	-9.02984	S W Deeps West 2013	Side Gantry	
25/05/2013	18:45	19:29	Box D	373	MB2	60	49.07980	-9.04605	S W Deeps West 2013	GPS	
25/05/2013	19:37	20:26	Box D	373	MB2	67	49.01970	-8.96186	S W Deeps West 2013	GPS	
25/05/2013	20:34	21:22	Box D	373	MB2	74	49.07550	-9.05345	S W Deeps West 2013	GPS	
25/05/2013	21:32	22:18	Box D	373	MB2	80	49.01559	-8.96820	S W Deeps West 2013	GPS	
25/05/2013	12:02	12:50	Box D	373	MB2	11	49.03808	-8.93544	S W Deeps West 2013	GPS	
25/05/2013	13:00	13:50	Box D	373	MB2	18	49.09326	-9.02555	S W Deeps West 2013	GPS	
25/05/2013	17:56	18:38	Box D	373	MB2	53	49.08410	-9.04620	S W Deeps West 2013	GPS	
25/05/2013	11:06	11:55	Box D	373	MB2	4	49.03950	-8.93043	S W Deeps West 2013	GPS	
25/05/2013	13:59	14:50	Box D	373	MB2	25	49.03316	-8.94105	S W Deeps West 2013	GPS	
25/05/2013	14:59	15:52	Box D	373	MB2	32	49.08925	-9.03284	S W Deeps West 2013	GPS	
25/05/2013	16:02	16:53	Box D	373	MB2	39	49.02884	-8.94803	S W Deeps West 2013	GPS	
25/05/2013	17:02	17:47	Box D	373	MB2	46	49.08447	-9.03918	S W Deeps West 2013	GPS	
25/05/2013			AddGT09	374	HC	A1	49.08215	-9.00803	S W Deeps West 2013	Side Gantry	Coarse
25/05/2013	23:29	23:39	AddGT09	375	CS	A1	49.08221	-9.00847	S W Deeps West 2013	Stern Gantry	Subtidal coarse
26/05/2013			AddGT10	376	HC	A1	49.07133	-9.04007	S W Deeps West 2013	Side Gantry	Sand
26/05/2013	00:31	00:42	AddGT10	377	CS	A1	49.07141	-9.04019	S W Deeps West 2013	Stern Gantry	Subtidal coarse
26/05/2013	01:58	02:29	S055	378	CS	A1	49.09549	-8.85666	S W Deeps West 2013	Stern Gantry	Subtidal Sand
26/05/2013	03:32	04:03	S052	379	CS	A1	49.05527	-8.91627	S W Deeps West 2013	Stern Gantry	Subtidal coarse
26/05/2013	07:20	07:31	GT15	380	CS	A1	48.96447	-9.36526	S W Deeps West 2013	Stern Gantry	Subtidal coarse
26/05/2013	08:06	08:18	GT13	381	CS	A1	48.97110	-9.37368	S W Deeps West 2013	Stern Gantry	Subtidal sand
26/05/2013	08:55	09:06	GT20	382	CS	A1	48.99057	-9.35319	S W Deeps West 2013	Stern Gantry	Subtidal sand

5.3 Daily Progress Reports

Electronic versions of daily progress reports are available in the supporting documentation.

DAILY LOG STATUS REPORT

Vessel: Cefas Endeavour	Project: Satellite Voice Bridge: 00 870 (or 00871) 763998027
Daily Progress Report No. 11	Location at 24:00:
Date: 18/05/2013	

To Company:	Person:	E-mail:
Cefas		
Cefas		
JNCC		
JNCC		

Safety

	Today	To Date
Accidents/Incidents	0	0
Near Misses	0	0
Safety Drills/Induction	0	3
Additional comments:		

Summary of operations 0000-2400

Time UTC (start)	Time UTC (end)	Type	Comments
00:00	00:39	Total Operation Sampling (TOSa)	Cam Sledge (C22)
00:39	02:57	Total Operation Sampling (TOSa)	Ham Grab (S082, C25, S048, S051, C27)
02:57	03:37	Total Operation Sampling (TOSa)	Cam Sledge (C27)
03:37	05:06	Total Operation Sampling (TOSa)	Ham Grab (C26, S083, S058)
05:06	05:53	Total Operation Sampling (TOSa)	Cam Sledge (S058)
05:53	07:56	Total Operation Sampling (TOSa)	Ham Grab (S049, C28, C29, C30)
07:56	09:04	Total Operation Sampling (TOSa)	Cam Sledge (C30)
09:04	10:42	Total Operation Sampling	Ham Grab (S052, S053)

**DAILY LOG
STATUS REPORT**

		(TOSa)	
10:42	11:49	Total Operation Sampling (TOSa)	Cam Sledge (S053)
11:49	13:50	Total Operation Sampling (TOSa)	Ham Grab (S060, S054, S055, S056)
13:50	14:33	Total Operation Sampling (TOSa)	Cam Sledge (S056)
14:33	15:15	Total Operation Sampling (TOSa)	Ham Grab (S030, C36)
15:15	16:43	Total Operation Sampling (TOSa)	Cam Sledge (C36)
16:43	17:24	Total Operation Sampling (TOSa)	Ham Grab (C38, C37)
17:24	18:01	Total Operation Sampling (TOSa)	Cam Sledge (C37)
18:01	19:54	Total Operation Sampling (TOSa)	Ham Grab (C39, Add Gt04, AddGt01)
19:54	21:18	Total Operation Sampling (TOSa)	Cam Sledge (Add GT01, Add GT02)
21:18	22:18	Total Operation Sampling (TOSa)	Ham Grab (Add GT02, AddGT03)
22:18	22:29	Total Operation Sampling (TOSa)	Cam Sledge (AddGT03)
22:29	24:00	Transit	Transit to South of the Isles of Scilly rMCZ

Weather

Weather/sea state conditions	0000-0600	0600-1200	1200-1800	1800-2400	Remarks
Wind	16	10	15	18	
Sea state	1	1	1	1	
Swell	2	2	2	2	

DAILY LOG STATUS REPORT

Vis	7	7	7	7	
Baro	1022	1024.5	1024	1024	

Overall Progress

Type	Today (hh:mm)	Accum (hh:mm)	Remarks
Mob/Demob	00:00	01:30	
Offshore Calibrations	00:00	00:00	
Total Operation Survey (TOSu)	22:29	41:48	
Total Operation Sampling (TOSa)	00:00	151:59	
Equipment/Downtime	00:00	00:00	
Ship/Plant Downtime	00:00	00:00	
Waiting On Weather	00:00	00:00	
Transit	01:31	50:13	
Standby Port	00:00	08:30	
Others	00:00	01:00	
Total:	24:00:00	255:00	

Overall Progress Geophysical Data Acquisition MBES/Sidescan

Segment/Area/Line	Today (Lkm)	Accum. (Lkm)	Current estimated total (Lkm)	Remarks
MBES		72		

Overall Progress Groundtruthing Samples

Action	Today (Lkm/samples)	Accum. (Lkm/samples)	Remarks
Hamon Grab	27	30	
Hamon Cam		173	
Cam Sledge	11	66	
SPI		15	

Weather forecast for the next 24 hours

Calm seas and light northerly winds.

Planned operation for the next 24 hours

Transit to the South of the Scilly Isles rMCZ to commence 100% coverage multibeam survey. The western edge of the rMCZ overlaps the traffic separation zone, which separates westbound and eastbound traffic. Survey lines have been planned to run East/West and the vessel will adhere to the traffic restrictions.

Agreed Changes to Scope/Survey operation priorities

Comments

CEFAS SIC [REDACTED]

DAILY LOG STATUS REPORT

Vessel: Cefas Endeavour	Project: Satellite Voice Bridge: 00 870 (or 00871) 763998027
Daily Progress Report No. 12	Location at 24:00:
Date: 19/05/2013	

To Company:	Person:	E-mail:
Cefas		
Cefas		
JNCC		
JNCC		

Safety

	Today	To Date
Accidents/Incidents	0	0
Near Misses	0	0
Safety Drills/Induction	0	3
Additional comments:		

Summary of operations 0000-2400

Time UTC (start)	Time UTC (end)	Type	Comments
00:00	08:18	Transit	Transit to South of the Isles of Scilly rMCZ
08:18	08:43	Total Operation Survey (TOSu)	CTD 01
08:43	24:00	Total Operation Survey (TOSu)	Multibeam lines (3, 221, 9, 15, 16, 209, 22, 203, 28)

Weather

Weather/sea state conditions	0000-0600	0600-1200	1200-1800	1800-2400	Remarks
Wind	13	12.5	12	Light Airs	
Sea state	1	0.5	<1	<1	
Swell	2	1.5	1	<1	
Vis	7	8	8	9	
Baro	1023	1024	1026	1028	

Overall Progress

Type	Today (hh:mm)	Accum (hh:mm)	Remarks
Mob/Demob	00:00	01:30	
Offshore Calibrations	00:00	00:00	
Total Operation	15:42	57:30	

**DAILY LOG
STATUS REPORT**

Survey (TOSu)			
Total Operation			
Sampling (TOSa)	00:00	151:59	
Equipment/Downtime	00:00	00:00	
Ship/Plant Downtime	00:00	00:00	
Waiting On Weather	00:00	00:00	
Transit	08:18	58:31	
Standby Port	00:00	08:30	
Others	00:00	01:00	
Total:	24:00:00	279:00	

Overall Progress Geophysical Data Acquisition MBES/Sidescan

Segment/Area/Line	Today (Lkm)	Accum. (Lkm)	Current estimated total (Lkm)	Remarks
MBES	9	81		

Overall Progress Groundtruthing Samples

Action	Today (Lkm/samples)	Accum. (Lkm/samples)	Remarks
Hamon Grab		30	
Hamon Cam		173	
Cam Sledge		66	
SPI		15	

Weather forecast for the next 24 hours

Calm seas and light northerly winds.

Planned operation for the next 24 hours

Continue Multibeam survey at South of the Isles of Scilly rMCZ.

Agreed Changes to Scope/Survey operation priorities

Comments

CEFAS SIC: [REDACTED]

DAILY LOG STATUS REPORT

Vessel: Cefas Endeavour	Project: Satellite Voice Bridge: 00 870 (or 00871) 763998027
Daily Progress Report No. 13	Location at 24:00: 40° 40.9'N 006° 16.6'W
Date: 20/05/2013	

To Company:	Person:	E-mail:
Cefas	Dave Limpenny	David.Limpenny@cefas.co.uk
Cefas	Sue Ware	Suzanne.Ware@cefas.co.uk
JNCC	Neil Golding	Neil.Golding@jncc.gov.uk
JNCC	Gareth Johnson	Gareth.Johnson@jncc.gov.uk

Safety

	Today	To Date
Accidents/Incidents	0	0
Near Misses	0	0
Safety Drills/Induction	0	3
Additional comments:		

Summary of operations 0000-2400

Time UTC (start)	Time UTC (end)	Type	Comments
00:00	07:03	Total Operation Survey (TOSu)	Multibeam lines (197, 34, 191, 88)
07:03	07:35	Total Operation Survey (TOSu)	CTD
07:35	24:00	Total Operation Survey (TOSu)	Multibeam lines (184, 41, 177, 48, 110, 55, 117, 62, 124, 69, 131,76)

Weather

Weather/sea state conditions	0000-0600	0600-1200	1200-1800	1800-2400	Remarks
Wind	14	14	14	13	
Sea state	<1	<1	<1	<1	
Swell	<1	<1	<1	<1	
Vis	8	8	7	7	
Baro	1028.5	1029	1028.5	1029	

Overall Progress

Type	Today (hh:mm)	Accum (hh:mm)	Remarks

DAILY LOG STATUS REPORT

Mob/Demob		01:30	
Offshore Calibrations		00:00	
Total Operation Survey (TOSu)	24:00	81:30	
Total Operation Sampling (TOSa)		175:59	
Equipment/Downtime		00:00	
Ship/Plant Downtime		00:00	
Waiting On Weather		00:00	
Transit		58:31	
Standby Port		08:30	
Others		01:00	
Total:		327:00	

Overall Progress Geophysical Data Acquisition MBES/Sidescan

Segment/Area/Line	Today (Lkm)	Accum. (Lkm)	Current estimated total (Lkm)	Remarks
MBES	190.4	287.4		

Overall Progress Groundtruthing Samples

Action	Today (Lkm/samples)	Accum. (Lkm/samples)	Remarks
Hamon Grab		30	
Hamon Cam		173	
Cam Sledge		66	
SPI		15	

Weather forecast for the next 24 hours

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Planned operation for the next 24 hours

Complete 100% MBES (address any gaps identified in the acquisition software track plot). Progress onto grabs and camera sledges.
--

Agreed Changes to Scope/Survey operation priorities

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Comments

<p>We consulted a GIS layer which showed the location of known wrecks in the area, none of the ground truthing stations are at risk of fouling.</p> <p>An initial look at the Olex system indicated that the survey area (South of the Isle of Scilly) is of uniform depth with a slight increase in depth towards the south of the site. Sandwaves running NE-SW throughout the site, with what appears to be coarser sediment to the north of the site, and sandier sediment towards the south. These are obviously preliminary findings and the processing on shore should produce a comprehensive map.</p>
--

CEFAS SIC: XXXXXXXXXX

DAILY LOG STATUS REPORT

Vessel: Cefas Endeavour	Project: Satellite Voice Bridge: 00 870 (or 00871) 763998027
Daily Progress Report No. 14 Date: 21/05/2013	Location at 24:00: 49°42.5'N, 006°16.6'W

To Company:	Person:	E-mail:
Cefas		
Cefas		
JNCC		
JNCC		

Safety

	Today	To Date
Accidents/Incidents	0	0
Near Misses	0	0
Safety Drills/Induction	0	3
Additional comments:		

Summary of operations 0000-2400

Time UTC (start)	Time UTC (end)	Type	Comments
00:00	13:07	Total Operation Survey (TOSu)	Multibeam lines (138, 82, 95, 102, 145, 152, 159, 166, 172, 106)
13:07	13:54	Transit	Transit to Ground truth station
13:54	14:26	Total Operation Sampling (TOSa)	Ham Cam (276)
14:26	17:41	Total Operation Sampling (TOSa)	Cam Sledge (277, 278, 279)
17:41	21:17	Total Operation Sampling (TOSa)	Ham Cam (280, 281, 282, 283, 284, 285, 286, 287)
21:17	21:58	Total Operation Sampling (TOSa)	Cam Sledge (288)
21:58	22:44	Total Operation Sampling (TOSa)	Ham Cam (289)
22:44	23:16	Total Operation Sampling (TOSa)	Cam Sledge (290)
23:16	24:00	Total Operation Sampling (TOSa)	Ham cam (291, 292, 293)

DAILY LOG STATUS REPORT

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Weather

Weather/sea state conditions	0000-0600	0600-1200	1200-1800	1800-2400	Remarks
Wind	14	12	18	14	
Sea state	<1	1	1	1	
Swell	<1	1	1.5	1	
Vis	7	5.5	7	7	
Baro	1029.5	1031	1032	1033.5	

Overall Progress

Type	Today (hh:mm)	Accum (hh:mm)	Remarks
Mob/Demob	00:00	01:30	
Offshore Calibrations	00:00	00:00	
Total Operation Survey (TOSu)	13:07	94:37	
Total Operation Sampling (TOSa)	10:06	186:05	
Equipment/Downtime	00:00	00:00	
Ship/Plant Downtime	00:00	00:00	
Waiting On Weather	00:00	00:00	
Transit	00:47	59:18	
Standby Port	00:00	08:30	
Others	00:00	01:00	
Total:	24:00:00	351:00	

Overall Progress Geophysical Data Acquisition MBES/Sidescan

Segment/Area/Line	Today (Lkm)	Accum. (Lkm)	Current estimated total (Lkm)	Remarks
MBES	119	406.4		

Overall Progress Groundtruthing Samples

Action	Today (Lkm/samples)	Accum. (Lkm/samples)	Remarks
Hamon Grab		30	
Hamon Cam	13	186	
Cam Sledge	5	71	
SPI		15	

Weather forecast for the next 24 hours

- A dry evening with some bright or sunny spells, particularly in the south. A clear and cool night will follow, most places will remain dry but a few isolated showers may develop in the north. Northerly winds strengthening overnight.

Planned operation for the next 24 hours

Continue ground truthing.

Agreed Changes to Scope/Survey operation priorities

DAILY LOG STATUS REPORT

Comments

We finished the multibeam lines and then started grabbing at the NW of the site due to the traffic separation zone. The first GT station returned a no sample with the Hamon Cam, we camera sledged and saw coarse sand with cobbles over harder substrate. There were some technical issues with retrieving stills from the camera sledge, so we progressed with Ham Cam only. This will mean that we can better place camera sledges based on initial HamCam footage to target sediment types, boundaries, and features of interest. We have had two no samples from the HamCam, all from stations towards the north of the site. The remote multi-user unit on the Tower navigation software failed for a few minutes – to no ill effect, apparently it wouldn't be a trip without this!

CEFAS SIC: XXXXXXXXXX

DAILY LOG STATUS REPORT

Vessel: Cefas Endeavour	Project: Satellite Voice Bridge: 00 870 (or 00871) 763998027
Daily Progress Report No. 15	Location at 24:00: 49°42.5'N, 006°16.16'W
Date: 22/05/2013	

To Company:	Person:	E-mail:
Cefas		
Cefas		
JNCC		
JNCC		

Safety

	Today	To Date
Accidents/Incidents	0	0
Near Misses	0	0
Safety Drills/Induction	0	3
Additional comments:		

Summary of operations 0000-2400

Time UTC (start)	Time UTC (end)	Type	Comments
00:00	12:25	Total Operation Sampling (TOSa)	Ham Cam (SISS17, SISS44, SISS04, SISS39, SISS46, SISS12, SISS18, SISS24, SISS30, SISS31, SISS25, SISS19, SISS13, SISS50, SISS48, SISS41, SISS34, SISS36, SISS42, SISS37, SISS43, SISS38, SISS45, SISS51, SISS14)
12:25	12:55	Total Operation Sampling (TOSa)	Cam Sledge (SISS 14)
12:55	13:28	Total Operation Sampling (TOSa)	Ham Cam (SISS20)
13:28	14:00	Total Operation Sampling (TOSa)	Cam Sledge (SISS20)
14:00	15:08	Total Operation Sampling (TOSa)	Ham Cam (SISS26, SISS56, SISS28)
15:08	16:38	Total Operation Sampling (TOSa)	Cam Sledge (SISS28)
16:38	17:31	Total Operation Sampling (TOSa)	Ham Cam (SISS22, SISS16)
17:31	18:07	Total Operation Sampling (TOSa)	Cam Sledge (SISS16)
18:07	18:55	Total Operation	Ham Cam (SISS09, SISS52)

DAILY LOG STATUS REPORT

		Sampling (TOSa)	
18:55	19:27	Total Operation Sampling (TOSa)	Cam Sledge (SISS52)
19:27	20:30	Total Operation Sampling (TOSa)	Ham Cam (SISS49, SISS47, SISS05)
20:30	21:07	Total Operation Sampling (TOSa)	Cam Sledge (SISS05)
21:07	22:25	Total Operation Sampling (TOSa)	Ham Cam (SISS40, SISS01)
22:25	23:01	Total Operation Sampling (TOSa)	Cam Sledge (SISS01)
23:01	23:47	Total Operation Sampling (TOSa)	Ham Cam (SISS03, SISS55)
23:47	00:00	Total Operation Sampling (TOSa)	Cam Sledge (SISS55)

Weather

Weather/sea state conditions	0000-0600	0600-1200	1200-1800	1800-2400	Remarks
Wind	15	22	19	16	
Sea state	1	1	1	1	
Swell	1	1.5	1.5	1.5	
Vis	7	7	7	7	
Baro	1032.5	1034	1035.5	1035	

Overall Progress

Type	Today (hh:mm)	Accum (hh:mm)	Remarks
Mob/Demob		01:30	
Offshore Calibrations		00:00	
Total Operation Survey (TOSu)		94:37	
Total Operation Sampling (TOSa)	24:00	210:05	
Equipment/Downtime		00:00	
Ship/Plant Downtime		00:00	
Waiting On Weather		00:00	
Transit		59:18	
Standby Port		08:30	

DAILY LOG STATUS REPORT

Others		01:00	
Total:		375:00	

Overall Progress Geophysical Data Acquisition MBES/Sidescan

Segment/Area/Line	Today (Lkm)	Accum. (Lkm)	Current estimated total (Lkm)	Remarks
MBES		406.4		

Overall Progress Groundtruthing Samples

Action	Today (Lkm/samples)	Accum. (Lkm/samples)	Remarks
Hamon Grab		30	
Hamon Cam	40	213	
Cam Sledge	8	74	
SPI		15	

Weather forecast for the next 24 hours

--

Planned operation for the next 24 hours

Continue groundtruthing aiming to complete all stations by 23/05/13.
--

Agreed Changes to Scope/Survey operation priorities

--

Comments

<p>Camera sledge operational as of 16:00 – survey progressing well We have had another no sample – again towards the north of the site, it will be interesting to see the processed backscatter in this area. The sediment in general is coarse sand/biogenic – with cobbles and the seabed community seems to be mostly mixed hydroids and bryozoans attached to the cobbles.</p>
--

CEFAS SIC: XXXXXXXXXX

DAILY LOG STATUS REPORT

Vessel: Cefas Endeavour	Project: Satellite Voice Bridge: 00 870 (or 00871) 763998027
Daily Progress Report No. 16	Location at 24:00: 49°38.8'N, 006°09.2'W
Date: 23/05/2013	

To Company:	Person:	E-mail:
Cefas		
Cefas		
JNCC		
JNCC		

Safety

	Today	To Date
Accidents/Incidents	0	0
Near Misses	0	0
Safety Drills/Induction	1	4
Additional comments:		

Summary of operations 0000-2400

Time UTC (start)	Time UTC (end)	Type	Comments
00:00	01:51	Total Operation Sampling (TOSa)	Ham Cam (SISS 07, SISS11, SISS57)
01:51	15:47	Total Operation Sampling (TOSa)	Cam Sledge (SISS31, SISS51, SISS37, SISS13, SISS30, SISS18, SISS41, SISS34, SISS04, SISS44, SISS35, SISS08, SISS27))
15:47	16:56	Total Operation Sampling (TOSa)	Ham Cam (SISS54)
16:56	17:09	Total Operation Sampling (TOSa)	Cam sledge (SISS23)
17:09	00:00	Transit	Transit to South West Deeps West.

Weather

Weather/sea state conditions	0000-0600	0600-1200	1200-1800	1800-2400	Remarks
Wind	17	22	20	16	
Sea state	1	1	1	1	
Swell	1	1.5	1.5	1.5	
Vis	7	7	7	7	
Baro	1032.5	1035	1035.5	1035	

Overall Progress

Type	Today (hh:mm)	Accum (hh:mm)	Remarks
Mob/Demob	00:00	01:30	
Offshore Calibrations	00:00	00:00	

**DAILY LOG
STATUS REPORT**

Total Operation Survey (TOSu)	00:00	94:37	
Total Operation Sampling (TOSa)	16:56	227:01	
Equipment/Downtime	00:00	00:00	
Ship/Plant Downtime	00:00	00:00	
Waiting On Weather	00:00	00:00	
Transit	00:00	59:18	
Standby Port	07:04	15:34	
Others	00:00	01:00	
Total:	24:00:00	399:00	

Overall Progress Geophysical Data Acquisition MBES/Sidescan

Segment/Area/Line	Today (Lkm)	Accum. (Lkm)	Current estimated total (Lkm)	Remarks
MBES		406.4		

Overall Progress Groundtruthing Samples

Action	Today (Lkm/samples)	Accum. (Lkm/samples)	Remarks
Hamon Grab		30	
Hamon Cam	4	217	
Cam Sledge	14	88	
SPI		15	

Weather forecast for the next 24 hours

Wind - Northwesterly 5 or 6. Sea State - Moderate or rough. Weather - Showers. Visibility - Good.
--

Planned operation for the next 24 hours

Transit to South West Deeps West.

Agreed Changes to Scope/Survey operation priorities

--

Comments

Completed a comprehensive ham cam and camera sledge covering of SISS by 19:00. In the process of mapping the initial assessment of the Broadscale Habitats – with the possibility of collecting more GT on the transit back to Lowestoft if required and if time allows.
--

CEFAS SIC: [REDACTED]

About us

Cefas is a multi-disciplinary scientific research and consultancy centre providing a comprehensive range of services in fisheries management, environmental monitoring and assessment, and aquaculture to a large number of clients worldwide.

We have more than 500 staff based in 2 laboratories, our own ocean-going research vessel, and over 100 years of fisheries experience.

We have a long and successful track record in delivering high-quality services to clients in a confidential and impartial manner.

(www.cefas.defra.gov.uk)

Cefas Technology Limited (CTL) is a wholly owned subsidiary of Cefas specialising in the application of Cefas technology to specific customer needs in a cost-effective and focussed manner.

CTL systems and services are developed by teams that are experienced in fisheries, environmental management and aquaculture, and in working closely with clients to ensure that their needs are fully met.

(www.cefastechnology.co.uk)

Customer focus

With our unique facilities and our breadth of expertise in environmental and fisheries management, we can rapidly put together a multi-disciplinary team of experienced specialists, fully supported by our comprehensive in-house resources.

Our existing customers are drawn from a broad spectrum with wide ranging interests. Clients include:

- international and UK government departments
- the European Commission
- the World Bank
- Food and Agriculture Organisation of the United Nations (FAO)
- oil, water, chemical, pharmaceutical, agro-chemical, aggregate and marine industries
- non-governmental and environmental organisations
- regulators and enforcement agencies
- local authorities and other public bodies

We also work successfully in partnership with other organisations, operate in international consortia and have several joint ventures commercialising our intellectual property

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