

Final Report (Project Code): C5433

Western Channel rMCZ 2012 Survey Report

**Authors: Sue Ware, Paul Whomersley, Marc Whybrow and
Simon Pearson**

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Head office

Centre for Environment, Fisheries & Aquaculture Science
Pakefield Road, Lowestoft, Suffolk NR33 0HT, UK
Tel +44 (0) 1502 56 2244 Fax +44 (0) 1502 51 3865
www.cefas.defra.gov.uk

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1 Background and Introduction

1.1 Survey Project Team

The Western Channel rMCZ survey was carried out during 20th-22nd February 2012 and 24th-27th February 2012 on the RV *CEFAS Endeavour* cruise CEND 03/12. The survey team for the duration of the fieldwork included Cefas marine ecologists, marine surveyors and sedimentologists along with MPA and marine assessment specialists from the JNCC (see below).

Cefas-Marine Ecologist	Cefas-Marine Surveyor
Cefas Sedimentologist	Cefas-Marine Surveyor
Cefas-Sedimentologist	Cefas-Marine Surveyor
Cefas-Marine Ecologist	JNCC-Marine Assessment Scientist
Cefas-Fisheries Surveys Manager	JNCC-MPA Specialist
Cefas-Fisheries Scientist	JNCC-Survey Lead
Cefas-Plankton Ecologist)	Fisheries Liaison Officer

1.2 Site Description

The Western Channel rMCZ is located approximately 60 km south of the Lizard Peninsula, Cornwall (Figure 1).

(For a detailed site description see Finding Sanctuary Final Report and Recommendations for Marine Conservation Zones 2011)

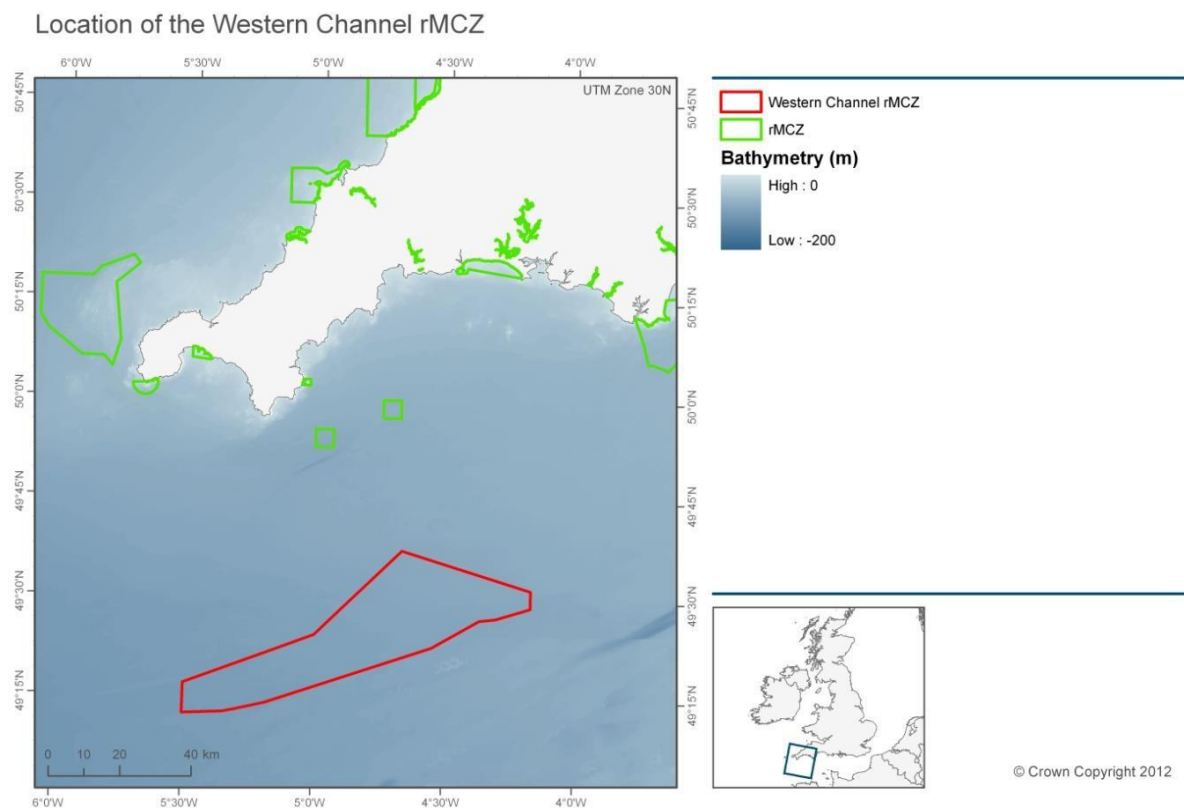


Figure 1. Location of Western Channel rMCZ [Bathymetry is from the Defra Digital Elevation Model (Astrium 2011)].

1.3 Geological and Biological Context

A number of Broad Scale Habitat (BSH) features and Features of Conservation Interest (FOCI) have been proposed by the regional project for designation within the rMCZ (Table 1).

Table 1. Features proposed for designation within Western Channel rMCZ.

Feature Type	Feature Name
Broad Scale Habitat (BSH)	A4.2 Moderate energy circalittoral rock
	A5.1 Subtidal coarse sediment
	A5.3 Subtidal mixed sediments
Features of Conservation Interest (FOCI)	
Habitats	Subtidal sands and gravels*

**Subtidal sands and gravels are considered to be adequately protected by its component habitat features subtidal sand and/or subtidal coarse sediment and is no longer included within MCZ designations.*

1.4 Existing data and information utilised to inform survey planning

A number of existing data sets and information sources were identified and utilised to inform the planning of the 2012 survey in the Western Channel rMCZ, as illustrated in Figure 2, Figure 3 and Figure 4.

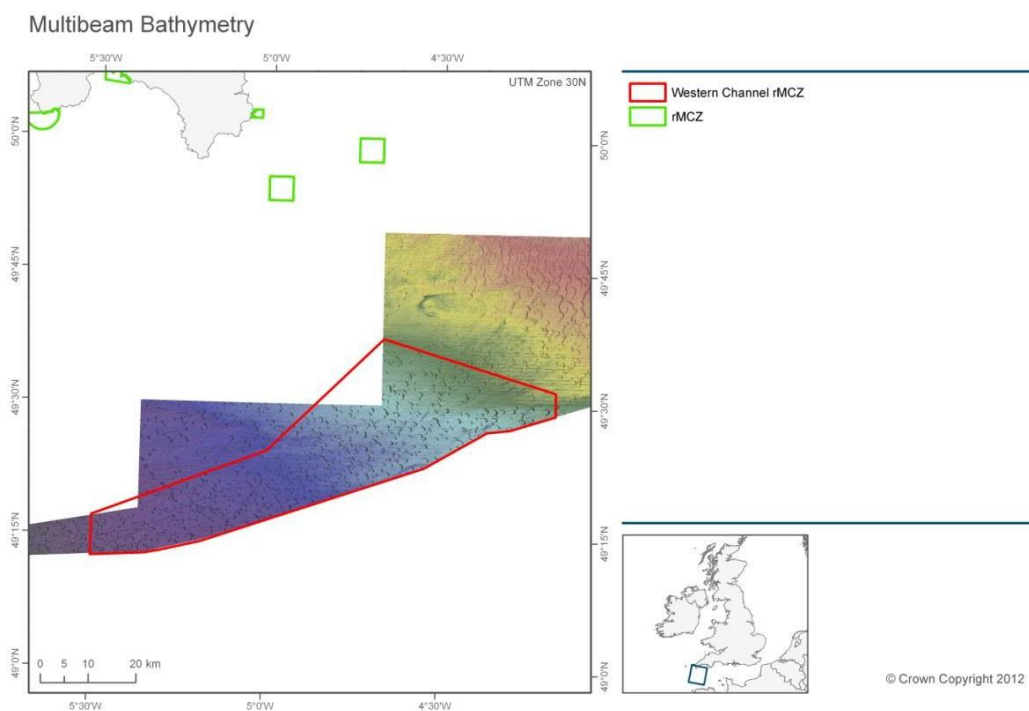


Figure 2. Existing multibeam bathymetry data utilised to inform survey design at the Western Channel rMCZ (overlain on predictive habitat map).

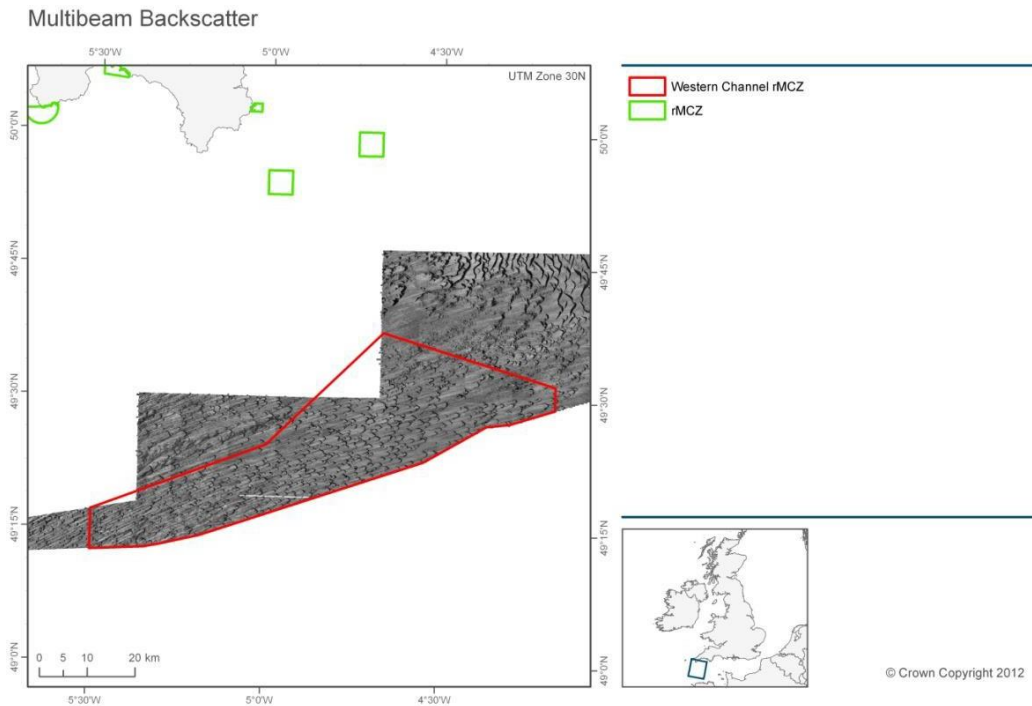


Figure 3. Existing multibeam bathymetry data utilised to inform survey design at the Western Channel rMCZ (overlain on predictive habitat map).

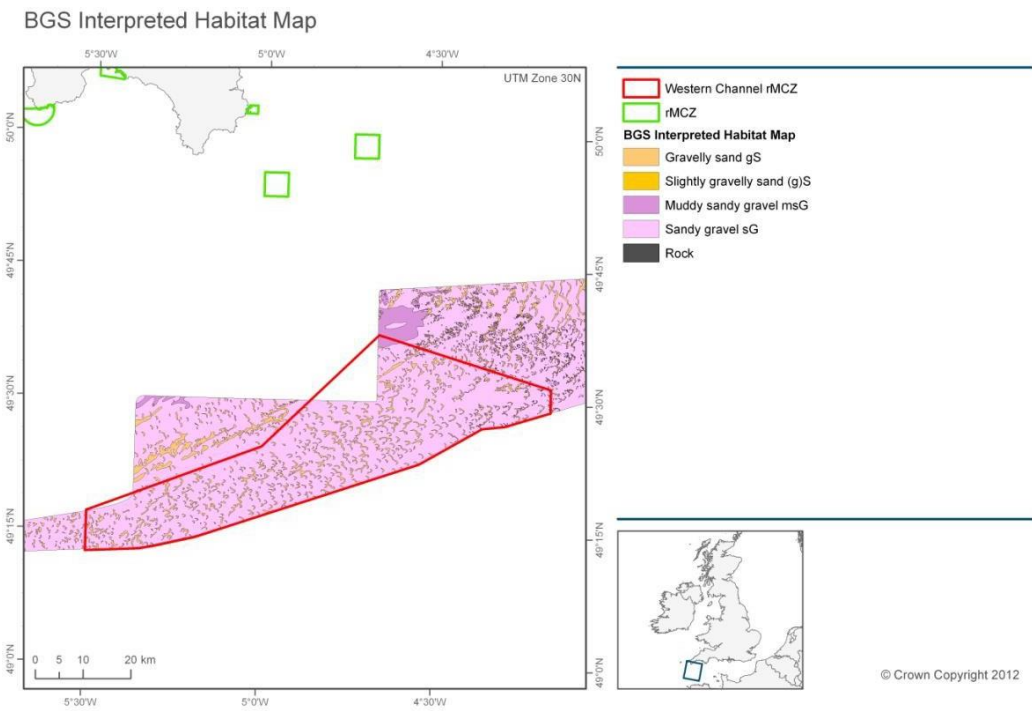


Figure 4. BGS interpreted sediment map utilised for survey design at the Western Channel rMCZ.

2 Survey Design and Methods

2.1 Survey planning and design

2.1.1 Ground truth Sampling

Existing multibeam bathymetry and backscatter data, collected in 2005 by the UKHO, and the British geological Survey (BGS) interpreted habitat map were utilised to inform placement of groundtruthing stations (Figure 2, Figure 3 and Figure 4). Stations were positioned using a triangular lattice grid (6km spacing) to ensure adequate coverage of the broad scale habitats. Additional groundtruthing stations were positioned to target the sand wave features identified using the existing acoustic data. Fifteen sand waves were targeted for camera sledge tows perpendicular to the apex of the wave, with a single grab sample targeted on the wave crest.

2.1.2 Acoustic data Infill survey

Additional multibeam bathymetry and backscatter data were collected to infill the data gap in the north-east area of the rMCZ.

2.1.3 Transit survey

Multibeam bathymetry and backscatter data were also collected opportunistically during transits between the ground-truthing stations. These data will be utilised to explore the stability and morphology of the seabed features over time (seven years had elapsed between the UKHO acoustic data collection and that obtained during the current survey).

2.2 Ground truth Sample collection and processing methods

2.2.1 Broad Scale Habitats (BSH)

Sedimentary habitats were groundtruthed by grab and underwater camera. The grab system comprised a 0.1 m² mini Hamon grab fitted with a video camera (Figure 5), the combined gear being known as a HamCam. This allowed an image of the undisturbed seabed surface to be obtained for each grab sample. On recovery, the grab was emptied into a large plastic bin and a representative sub-sample of sediment (approx. 0.5 litres) taken for Particle Size Analysis (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 1mm sieve. The retained >1mm fraction was transferred to a labelled container and preserved in 4% buffered formaldehyde for later analysis ashore.



Figure 5. Mini Hamon grab with video camera (Ham Cam).

The camera sledge system comprised a video camera with capability to also capture still images (Figure 6). Illumination was provided by two Cefas high intensity LED striplights and a flash unit. The camera was fitted with a four-spot laser-scaling device to provide a reference scale in the video image. Set-up and operation 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 recorded and a computer hard drive. A video overlay was used to provide station metadata, time and GPS position (of the vessel) in the recorded video image.

Camera tows lasted a minimum of 10 minutes, with the sledge being towed at ~ 0.5 knots ($\sim 0.25 \text{ ms}^{-1}$) across a 50 m 'bullring' centered on the sampling station. Stills images were captured at regular one-minute intervals and opportunistically if specific features of interest were encountered. The 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.

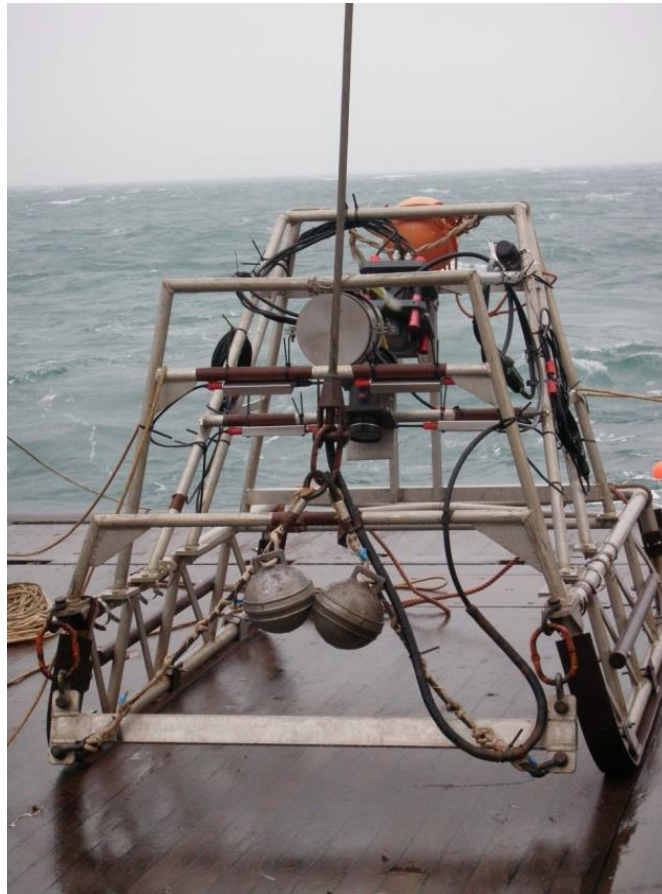


Figure 6. Camera sledge with video and still imaging system.

3 Survey Narrative

3.1 Part A

Survey commenced at the Western Channel rMCZ at 23:45 on the 20th February 2012. Thirty-two stations were sampled with the HamCam and 16 with the camera sledge before the increasing sea state caused survey at this site to be halted at 12:50 on 22nd February 2012.

3.2 Part B

Survey at the Western Channel rMCZ recommenced on the 24th February 2012, when the weather had improved. Survey continued until 03:00 on 27th February 2012 during which time a further 35 stations were sampled with the Hamon grab and 24 with the camera. Further multibeam-infill survey was also completed.

4 Preliminary Results

4.1 Acoustic Maps

4.1.1 Multibeam infill survey

Multibeam data were collected to infill the gap in the northeast area of the rMCZ. At present the images are not available.

4.1.2 Multibeam data collected during transits

The acoustic data collected opportunistically during transit were processed for multibeam bathymetry and backscatter and overlaid on the existing acoustic data. These will allow movement of geomorphological features of interest between 2005 and 2012 to be assessed (Figure 7).

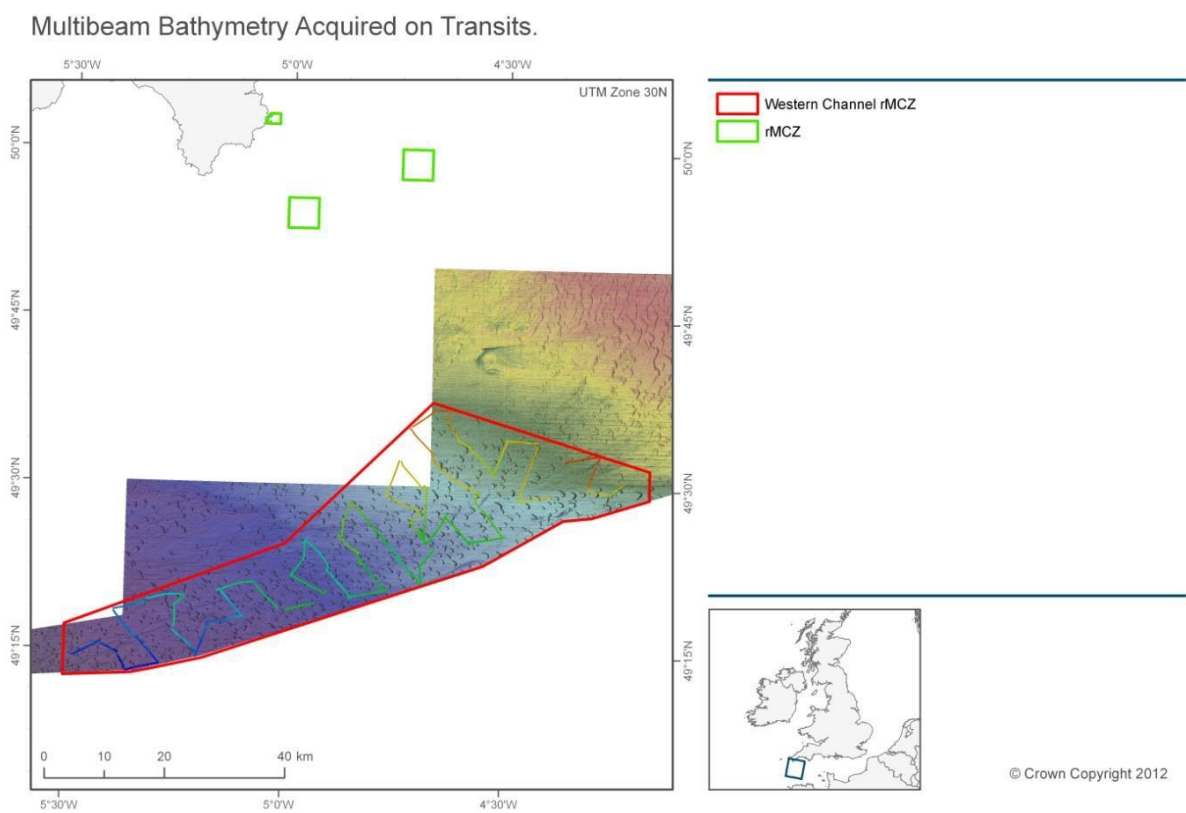
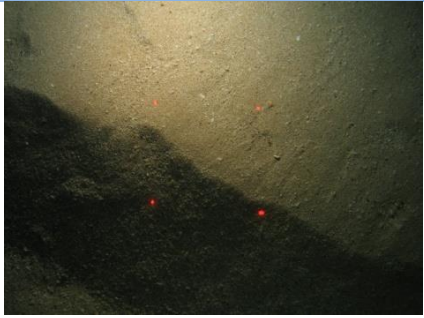

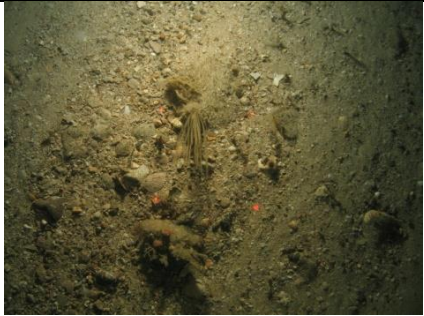
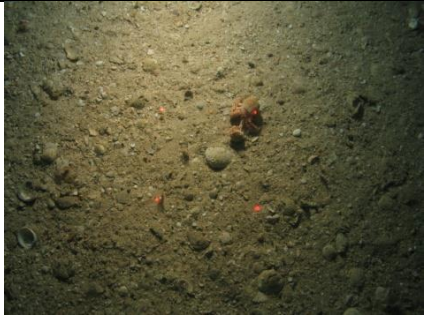



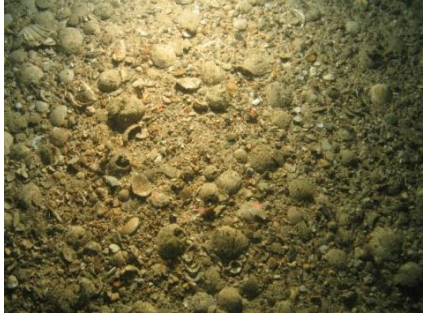

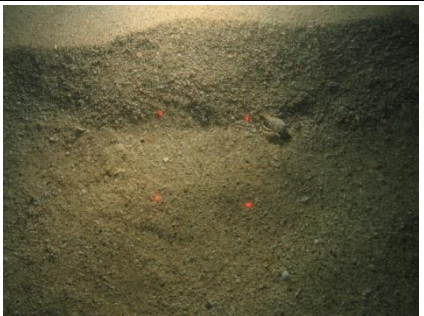



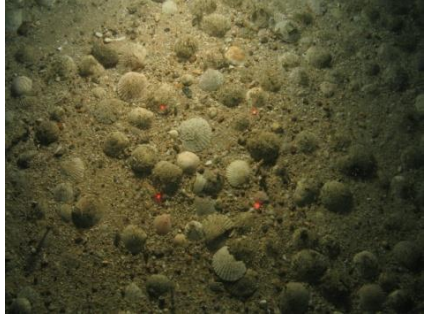



Figure 7. Multibeam transit lines overlaid on existing acoustic data.

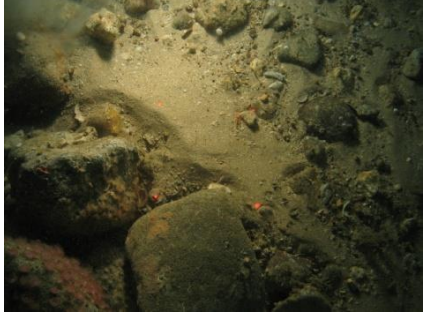




4.2 Seabed Imagery




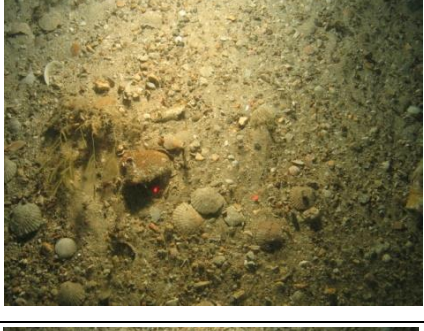

Table 2. Preliminary summary of surface sediments and epifaunal species derived from video and still imagery.


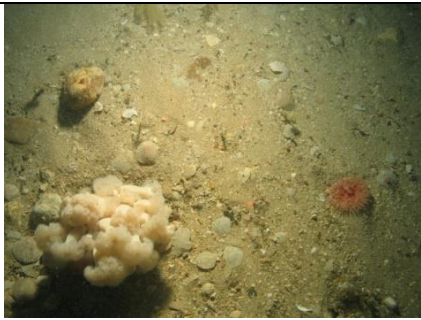



Stn Code	BSH Habitat/Faunal Summary	Still Image
WC1	Rippled sand <i>Pagurus prideauxi</i>	
WC2	Rippled sand	
WC3	Gravelly sand <i>Nemertesia antennina</i> , <i>Alcyonium digitatum</i>	
WC6	Slightly gravelly sand <i>Urticina felina</i> , <i>Pagurus prideauxi</i> , <i>Ophiura ophiura</i> , <i>Trisopterus</i> sp.	
WC7	Gravelly sand <i>Pagurus prideauxi</i> , <i>Trisopterus</i> sp., <i>Nemertesia</i> sp.	


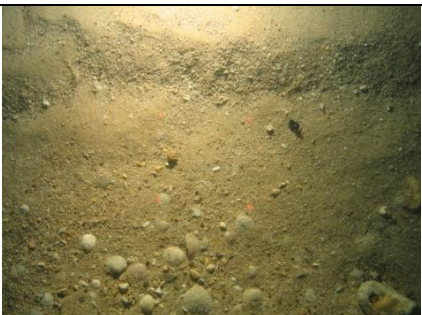


Stn Code	BSH Habitat/Faunal Summary	Still Image
WC8	Rippled sand with occasional cobble <i>Nemertesia antennina</i> , <i>Caryophyllia smithii</i> , <i>Macropodia</i> sp.	
WC9	Gravelly rippled sand <i>Luidia sarsi</i> , <i>Ophiura ophiura</i> , <i>Nemertesia</i> sp.	
WC10	Rippled gravelly sand <i>Nemertesia ramosa</i> , <i>Sabella</i> sp.	
WC13	Biogenic sand	
WC14	Rippled sand	

Stn Code	BSH Habitat/Faunal Summary	Still Image
WC15	Shelly gravelly sand <i>Nemertesia</i> sp., <i>Caryophyllia smithii</i>	
WC18	Shelly Gravelly sand <i>Ophiura ophiura</i> , <i>Urticina felina</i> , <i>Caryophyllia smithii</i>	
WC21	Rippled sand with cobbles <i>Marthasterias glacialis</i> , <i>Cellaria</i> sp., <i>Cerianthus lloydii</i> , <i>Trisopterus</i> sp.	
WC26	Gravelly sand with cobble and small boulders <i>Nemertesia ramosa</i> , <i>Caryophyllia smithii</i> , <i>Trisopterus</i> sp., <i>Aspitrigla cuculus</i> , <i>Echinus esculentus</i> , <i>Metridium senile</i> , <i>Urticina felina</i> , <i>Pecten maximus</i>	
WC27	Slightly gravelly rippled sand <i>Anseropoda placenta</i> , <i>Limanda limanda</i>	

Stn Code	BSH Habitat/Faunal Summary	Still Image
<p>WC30</p>	<p>Rippled sand with cobble</p> <p><i>Anseropoda placenta</i>, <i>Echinus esculentus</i>, <i>Munida rugosa</i>, <i>Crossaster papposus</i>, <i>Marthasterias glacialis</i>, <i>Corynactis viridis</i>, <i>Caryophyllia smithii</i></p>	
<p>WC31</p>	<p>Slightly gravelly sand with occasional cobble</p> <p><i>Pagurus prideauxi</i>, <i>Caryophyllia smithii</i>, <i>Metridium senile</i></p>	
<p>WC38</p>	<p>Shelly sandy gravel with cobbles</p> <p><i>Alcyonium digitatum</i>, <i>Metridium senile</i>, <i>Pecten maximus</i>, <i>Caryophyllia smithii</i>, <i>Echinus esculentus</i></p>	
<p>WC39</p>	<p>Shelly sandy gravel</p> <p><i>Alcyonium digitatum</i>, <i>Porania pulvillus</i>, <i>Ophiura albida</i></p>	
<p>WC41</p>	<p>Gravelly sand with cobble</p> <p><i>Alcyonium digitatum</i>, <i>Pagurus prideauxi</i>, <i>Ophiocomina nigra</i></p>	

Stn Code	BSH Habitat/Faunal Summary	Still Image
WC42	Gravelly sand with cobble and boulders <i>Nemertesia sp.</i> , <i>Corynactis viridis</i> , <i>Metridium senile</i> , <i>Hydrallmania falcata</i> , <i>Echinus esculentus</i>	
WC43	Sandy gravel with cobble and boulders <i>Nemertesia ramosa</i> , <i>Pagurus prideauxi</i> , <i>Caryophyllia smithii</i>	
WC44	Shelly sandy gravel <i>Pagurus prideauxi</i>	
WC46	Sandy gravel with cobble <i>Callionymus sp.</i> , <i>Pagurus prideauxi</i> , <i>Nemertesia ramosa</i> , <i>Aequipecten opercularis</i>	
WC48	Sandy gravel with cobble and boulders <i>Pagurus prideauxi</i> , <i>Nemertesia sp.</i>	

Stn Code	BSH Habitat/Faunal Summary	Still Image
WC49	<p>Shelly gravelly sand with cobble</p> <p><i>Caryophyllia smithii</i>, <i>Antedon bifida</i>, <i>Urticina felina</i>, <i>Pagurus prideauxi</i>, <i>Nemertesia ramosa</i></p>	
WC51	<p>Shelly gravelly sand with cobble</p> <p><i>Nemertesia ramosa</i>, <i>Metridium senile</i>, <i>Urticina felina</i></p>	
WC52	<p>Sandy gravel with cobble</p> <p><i>Scyliorhinus canicula</i>, <i>Metridium senile</i>, <i>Nemertesia sp.</i>, <i>Marthasterias glacialis</i>, <i>Caryophyllia smithii</i></p>	
WC53	<p>Gravelly rippled sand</p> <p><i>Pentapora foliacea</i>, <i>Galathea sp.</i>, <i>Marthasterias glacialis</i></p>	
WC56	<p>Sandy gravel</p> <p><i>Pagurus prideauxi</i>, <i>Nemertesia ramosa</i></p>	

Stn Code	BSH Habitat/Faunal Summary	Still Image
WC58	Rippled gravelly sand with cobble and boulder <i>Corynactis viridis</i> , <i>Nemertesia antennina</i> , <i>Nemertesia ramosa</i> , <i>Asterias rubens</i>	
WC61	Slightly gravelly rippled sand	
WC64	Gravelly sand with cobbles <i>Nemertesia</i> sp., <i>Pagurus prideauxi</i> , <i>Cerianthus lloydii</i>	
WC66	Gravelly sand with cobble and boulder <i>Corynactis viridis</i> , <i>Nemertesia</i> sp., <i>Luidia sarsi</i>	

4.3 Grab samples and sediment types

Preliminary observations of the spatial distribution of sediment types (EUNIS Level 3) for each grab sample are presented in Figure 8. It should be emphasized that this assignment of EUNIS classification is purely subjective and could change as a result of subsequent laboratory analysis and interpretation.

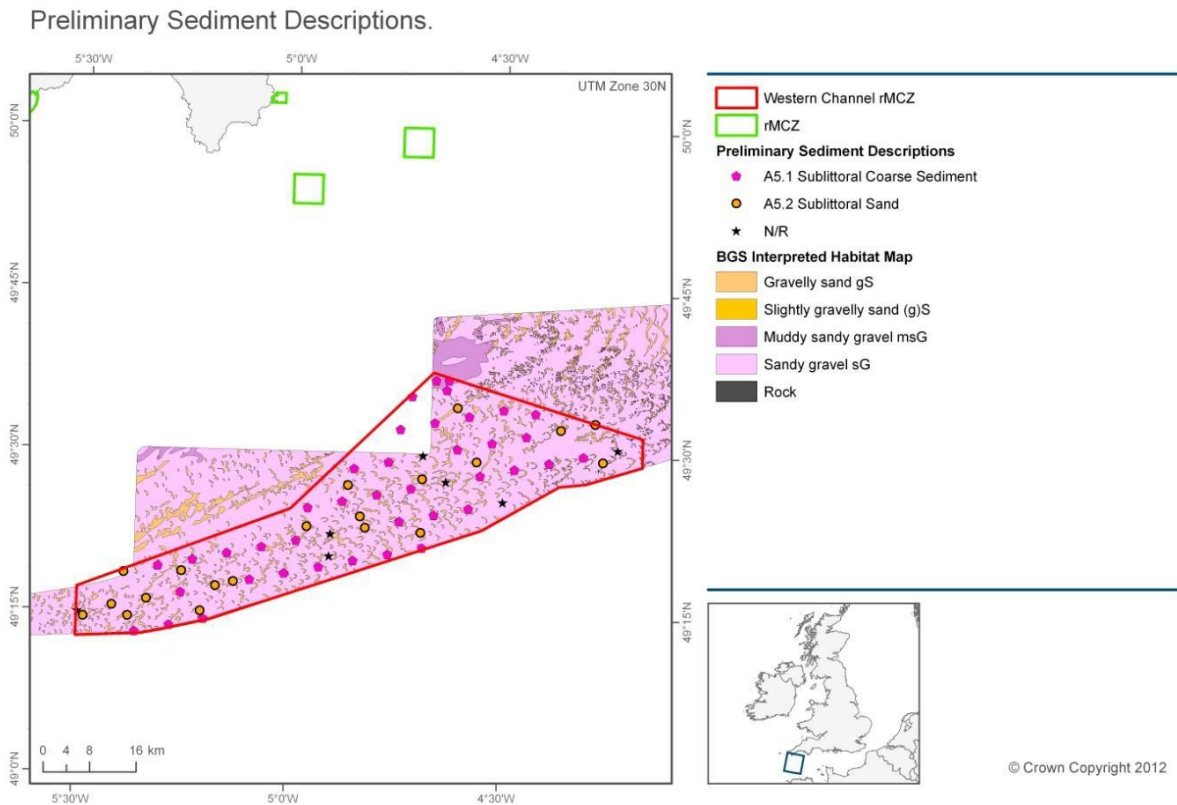


Figure 8. Preliminary observations of sediment type derived from grab samples overlaid on BGS interpreted habitat map.

4.4 Features of Conservation Interest (FOCI): Records in the rMCZ from historic surveys and the current survey (CEND3/12)

No records of FOCI species were identified from historic surveys or during the current survey (CEND3/12). However, species FOCI may be identified from samples collected at this site following sample processing.

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

5.2 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.

5.3 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.

5.4 Multibeam Bathymetry

Model: Kongsberg EM3002D

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

Latency correction not determined – 1pps synchronised time system utilised on vessel.

5.5 Metadata

Station metadata for the Western Channel rMCZ survey on CEND 03/12 are provided below. (NB. Stn No is a sequential event number for the cruise, so changes each time a new gear is used or a new location sampled. Stn Code is used to identify the sampling location). HC=HamCam, CS=Camera Sledge, MB=Multibeam, CTD=Conductivity, Temperature, Depth Micrologger.

Cruise	Date	Stn No	Station Code	Gear name	Latitude	Longitude
CEND 03/12	20/02/2012	657	WC_19	HC	49.24727	-5.49720
CEND 03/12	21/02/2012	658	WC_6	HC	49.24034	-5.48344
CEND 03/12	21/02/2012	659	WC_L6	CS	49.24163	-5.48228
CEND 03/12	21/02/2012	659	WC_L6	CS	49.2407	-5.4826
CEND 03/12	21/02/2012	660	CTD_WC	CTD	49.23905	-5.48209
CEND 03/12	21/02/2012	661	W6_W20_Transit	MB	49.26091	-5.41550
CEND 03/12	21/02/2012	661	W6_W20_Transit	MB	49.23957	-5.47988
CEND 03/12	21/02/2012	662	WC_20	HC	49.25861	-5.41606
CEND 03/12	21/02/2012	663	W20_WC7_Transit	MB	49.24453	-5.37576
CEND 03/12	21/02/2012	663	W20_WC7_Transit	MB	49.25787	-5.41628
CEND 03/12	21/02/2012	664	WC_7	HC	49.24228	-5.37811
CEND 03/12	21/02/2012	665	WC_L7	CS	49.24315	-5.37753
CEND 03/12	21/02/2012	665	WC_L7	CS	49.24171	-5.37859
CEND 03/12	21/02/2012	666	W7_W16_Transit	MB	49.22053	-5.36024
CEND 03/12	21/02/2012	666	W7_W16_Transit	MB	49.23924	-5.37427
CEND 03/12	21/02/2012	667	WC_16	HC	49.21859	-5.36088
CEND 03/12	21/02/2012	668	WC16_WC17_Transit	MB	49.23067	-5.28045
CEND 03/12	21/02/2012	668	WC16_WC17_Transit	MB	49.21827	-5.35899
CEND 03/12	21/02/2012	669	WC_17	HC	49.22987	-5.28021
CEND 03/12	21/02/2012	670	WC17_WC21_Transit	MB	49.26900	-5.33500
CEND 03/12	21/02/2012	670	WC17_WC21_Transit	MB	49.22985	-5.28098
CEND 03/12	21/02/2012	671	WC_21	HC	49.26998	-5.33508
CEND 03/12	21/02/2012	672	WC_21	CS	49.27004	-5.33498
CEND 03/12	21/02/2012	672	WC_21	CS	49.26866	-5.33709
CEND 03/12	21/02/2012	673	WC21_WC25_Transit	MB	49.30811	-5.38967

CEND 03/12	21/02/2012	673	WC21_WC25_Transit	MB	49.26802	-5.33880
CEND 03/12	21/02/2012	674	WC_25	HC	49.31023	-5.39024
CEND 03/12	21/02/2012	675	WC25_WC27_Transit	MB	49.32016	-5.31519
CEND 03/12	21/02/2012	675	WC25_WC27_Transit	MB	49.30956	-5.39027
CEND 03/12	21/02/2012	676	WC_27	HC	49.32091	-5.30941
CEND 03/12	21/02/2012	677	WC 27	CS	49.32173	-5.30991
CEND 03/12	21/02/2012	677	WC 27	CS	49.32321	-5.31060
CEND 03/12	21/02/2012	678	WC27_WC29_Transit	MB	49.33100	-5.22800
CEND 03/12	21/02/2012	678	WC27_WC29_Transit	MB	49.32495	-5.31213
CEND 03/12	21/02/2012	679	WC_29	HC	49.33191	-5.22815
CEND 03/12	21/02/2012	680	WC29_WC8Transit	MB	49.31645	-5.25121
CEND 03/12	21/02/2012	680	WC29_WC8Transit	MB	49.33201	-5.22822
Cruise	Date	Stn No	Station Code	Gear name	Latitude	Longitude
CEND 03/12	21/02/2012	681	WC_8	HC	49.31353	-5.25435
CEND 03/12	21/02/2012	682	WC_08	CS	49.31427	-5.25362
CEND 03/12	21/02/2012	682	WC_08	CS	49.31561	-5.25294
CEND 03/12	21/02/2012	683	WC8-WC22Transit	MB	49.28370	-5.25244
CEND 03/12	21/02/2012	683	WC8-WC22Transit	MB	49.32000	-5.24970
CEND 03/12	21/02/2012	684	WC_22	HC	49.28138	-5.25410
CEND 03/12	21/02/2012	685	WC22_WC9_Transit	MB	49.25000	-5.20700
CEND 03/12	21/02/2012	685	WC22_WC9_Transit	MB	49.28000	-5.29400
CEND 03/12	21/02/2012	686	WC_9	HC	49.25288	-5.20750
CEND 03/12	21/02/2012	687	WC_9	CS	49.25424	-5.20638
CEND 03/12	21/02/2012	687	WC_9	CS	49.25209	-5.20758
CEND 03/12	21/02/2012	688	WC9_WC18_Transit	MB	49.24100	-5.19900
CEND 03/12	21/02/2012	688	WC9_WC18_Transit	MB	49.25300	-5.20600
CEND 03/12	21/02/2012	689	WC_18	HC	49.24112	-5.19962
CEND 03/12	21/02/2012	690	WC_18	CS	49.24207	-5.19795
CEND 03/12	21/02/2012	690	WC_18	CS	49.24050	-5.19928
CEND 03/12	21/02/2012	691	wc18_wc23_Transit	MB	49.29000	-5.17000

CEND 03/12	21/02/2012	691	wc18_wc23_Transit	MB	49.24900	-5.19400
CEND 03/12	21/02/2012	692	WC_23	HC	49.29218	-5.17299
CEND 03/12	21/02/2012	693	WC23_WC10	MB	49.30200	-5.12900
CEND 03/12	21/02/2012	693	WC23_WC10	MB	49.29100	-5.17500
CEND 03/12	21/02/2012	694	WC_10	CS	49.30073	-5.13013
CEND 03/12	21/02/2012	694	WC_10	CS	49.29893	-5.13112
CEND 03/12	21/02/2012	695	WC_10	HC	49.29936	-5.13084
CEND 03/12	21/02/2012	696	WC10_WC24	MB	49.30300	-5.09100
CEND 03/12	21/02/2012	696	WC10_WC24	MB	49.29800	-5.13100
CEND 03/12	21/02/2012	697	WC_24	HC	49.30310	-5.09216
CEND 03/12	21/02/2012	698	WC24_WC31	MB	49.34200	-5.14500
CEND 03/12	21/02/2012	698	WC24_WC31	MB	49.30300	-5.09400
CEND 03/12	21/02/2012	699	WC_31	HC	49.34339	-5.14679
CEND 03/12	21/02/2012	700	WC_31	CS	49.34295	-5.14745
CEND 03/12	21/02/2012	700	WC_31	CS	49.34207	-5.14937
CEND 03/12	21/02/2012	701	WC31_WC33	MB	49.35500	-5.06800
CEND 03/12	21/02/2012	701	WC31_WC33	MB	49.34200	-5.15100
CEND 03/12	21/02/2012	702	WC_33	HC	49.35416	-5.06622
CEND 03/12	21/02/2012	703	WC33-WC26	MB	49.31500	-5.01270
CEND 03/12	21/02/2012	703	WC33-WC26	MB	49.35400	-5.06600
CEND 03/12	21/02/2012	704	WC_26	HC	49.31403	-5.01110
CEND 03/12	21/02/2012	705	WC_26	CS	49.31408	-5.01044
CEND 03/12	21/02/2012	705	WC_26	CS	49.31408	-5.00780
CEND 03/12	21/02/2012	706	WC26_WC28	MB	49.32500	-4.93000
CEND 03/12	21/02/2012	706	WC26_WC28	MB	49.31500	-4.99700
CEND 03/12	21/02/2012	707	WC_28	HC	49.32499	-4.92994
Cruise	Date	Strn No	Station Code	Gear name	Latitude	Longitude
CEND 03/12	21/02/2012	708	WC_4	HC	49.34188	-4.90610
CEND 03/12	22/02/2012	709	WC_L4	CS	49.34183	-4.90600
CEND 03/12	22/02/2012	709	WC_L4	CS	49.34280	-4.90428

CEND 03/12	22/02/2012	710	WC4_WC35	MB	49.36600	-4.98400
CEND 03/12	22/02/2012	710	WC4_WC35	MB	49.34400	-4.90200
CEND 03/12	22/02/2012	711	WC_35	HC	49.36521	-4.98475
CEND 03/12	22/02/2012	712	WC35_WC3	MB	49.38900	-4.96000
CEND 03/12	22/02/2012	712	WC35_WC3	MB	49.36500	-4.98400
CEND 03/12	22/02/2012	713	WC_3	HC	49.38711	-4.96046
CEND 03/12	22/02/2012	714	WC-3	CS	49.38892	-4.95901
CEND 03/12	22/02/2012	714	WC-3	CS	49.38729	-4.96048
CEND 03/12	22/02/2012	715	WC3_WC40	MB	49.41700	-4.95500
CEND 03/12	22/02/2012	715	WC3_WC40	MB	49.38800	-4.95900
CEND 03/12	22/02/2012	716	WC_40	HC	49.41628	-4.95838
CEND 03/12	22/02/2012	716	WC_40	HC	49.41624	-4.95851
CEND 03/12	22/02/2012	716	WC_40	HC	49.41630	-4.95829
CEND 03/12	22/02/2012	717	WC_40	CS	49.41618	-4.95810
CEND 03/12	22/02/2012	717	WC_40	CS	49.41528	-4.95970
CEND 03/12	22/02/2012	718	WC40_WC36	MB	49.37800	-4.90100
CEND 03/12	22/02/2012	718	WC40_WC36	MB	49.41500	-4.96100
CEND 03/12	22/02/2012	719	WC40_WC36	MB	49.37500	-4.90700
CEND 03/12	22/02/2012	719	WC40_WC36	MB	49.37800	-4.90100
CEND 03/12	22/02/2012	720	WC_36	HC	49.37605	-4.90325
CEND 03/12	22/02/2012	720	WC_36	HC	49.37604	-4.90352
CEND 03/12	22/02/2012	721	WC36_WC30	MB	49.33600	-4.84500
CEND 03/12	22/02/2012	721	WC36_WC30	MB	49.37500	-4.90200
CEND 03/12	22/02/2012	722	WC_30	HC	49.33600	-4.84880
CEND 03/12	22/02/2012	723	WC_30	CS	49.33598	-4.84857
CEND 03/12	22/02/2012	723	WC_30	CS	49.33517	-4.84993
CEND 03/12	22/02/2012	724	WC03_WC32	MB	49.34700	-4.76800
CEND 03/12	22/02/2012	724	WC03_WC32	MB	49.33500	-4.85100
CEND 03/12	22/02/2012	725	WC_32	HC	49.34681	-4.76778
CEND 03/12	22/02/2012	726	WC32_WC37	MB	49.39000	-4.82600

CEND 03/12	22/02/2012	726	WC32_WC37	MB	49.34600	-4.76900
CEND 03/12	22/02/2012	727	WC_37	HC	49.38692	-4.82258
CEND 03/12	22/02/2012	727	WC_37	HC	49.38663	-4.82272
CEND 03/12	22/02/2012	728	WC37_WC5	MB	49.40800	-4.83800
CEND 03/12	22/02/2012	728	WC37_WC5	MB	49.38600	-4.82300
CEND 03/12	22/02/2012	729	WC_5	HC	49.40377	-4.83530
CEND 03/12	22/02/2012	730	WC_5	CS	49.40355	-4.83447
CEND 03/12	22/02/2012	730	WC_5	CS	49.40278	-4.83238
CEND 03/12	22/02/2012	731	WC5_WC42	MB	49.43100	-4.88000
CEND 03/12	22/02/2012	731	WC5_WC42	MB	49.40200	-4.83100
Cruise	Date	Stn No	Station Code	Gear name	Latitude	Longitude
CEND 03/12	22/02/2012	732	WC_42	HC	49.42733	-4.87688
CEND 03/12	22/02/2012	733	WC_42	CS	49.42717	-4.87640
CEND 03/12	22/02/2012	733	WC_42	CS	49.42638	-4.87405
CEND 03/12	22/02/2012	734	WC42_WC1	MB	49.45200	-4.86400
CEND 03/12	22/02/2012	734	WC42_WC1	MB	49.42600	-4.87000
CEND 03/12	22/02/2012	735	WC_01	HC	49.45222	-4.86445
CEND 03/12	24/02/2012	784	WC1	CTD	49.45200	-4.86484
CEND 03/12	23/02/2012	785	WC1	CS	49.45220	-4.86465
CEND 03/12	23/02/2012	785	WC1	CS	49.45297	-4.86405
CEND 03/12	24/02/2012	786	WC1_WC48	MB	49.47811	-4.85101
CEND 03/12	24/02/2012	786	WC1_WC48	MB	49.45410	-4.86296
CEND 03/12	24/02/2012	787	WC_48	HC	49.47828	-4.85055
CEND 03/12	23/02/2012	788	WC48	CS	49.47813	-4.85031
CEND 03/12	23/02/2012	788	WC48	CS	49.47726	-4.84962
CEND 03/12	24/02/2012	789	WC48_WC44	MB	49.43373	-4.79284
CEND 03/12	24/02/2012	789	WC48_WC44	MB	49.47660	-4.89460
CEND 03/12	24/02/2012	790	WC44	CS	49.43799	-4.79582
CEND 03/12	24/02/2012	790	WC44	CS	49.43771	-4.79704
CEND 03/12	24/02/2012	791	WC_44	HC	49.43803	-4.79552

CEND 03/12	24/02/2012	793	WC38	HC	49.39774	-4.74041
CEND 03/12	24/02/2012	793	WC38	HC	49.39786	-4.74033
CEND 03/12	24/02/2012	793	WC38	HC	49.39790	-4.74020
CEND 03/12	24/02/2012	794	WC38_WC34	MB	49.35630	-4.68248
CEND 03/12	24/02/2012	794	WC38_WC34	MB	49.39722	-4.74401
CEND 03/12	24/02/2012	795	WC38	CS	49.39780	-4.74072
CEND 03/12	24/02/2012	795	WC38	CS	49.39758	-4.74203
CEND 03/12	24/02/2012	796	WC34	HC	49.35756	-4.68581
CEND 03/12	24/02/2012	797	WC34_WC2	MB	49.38313	-4.68806
CEND 03/12	24/02/2012	797	WC34_WC2	MB	49.35750	-4.68644
CEND 03/12	24/02/2012	798	WC2	HC	49.38096	-4.68989
CEND 03/12	24/02/2012	799	WC2	CS	49.38121	-4.68988
CEND 03/12	24/02/2012	799	WC2	CS	49.38210	-4.68991
CEND 03/12	24/02/2012	800	WC2_WC39	MB	49.41097	-4.65663
CEND 03/12	24/02/2012	800	WC2_WC39	MB	49.38308	-4.68940
CEND 03/12	24/02/2012	801	WC39	CS	49.40873	-4.65951
CEND 03/12	24/02/2012	801	WC39	CS	49.40959	-4.65950
CEND 03/12	24/02/2012	802	WC39	HC	49.40884	-4.65941
CEND 03/12	24/02/2012	803	WC39_WC45	MB	49.45094	-4.71839
CEND 03/12	24/02/2012	803	WC39_WC45	MB	49.42429	-4.68025
CEND 03/12	24/02/2012	804	WC45	HC	49.44851	-4.71450
CEND 03/12	24/02/2012	805	WC45_WC14	MB	49.46545	-4.68773
CEND 03/12	24/02/2012	805	WC45_WC14	MB	49.44914	-4.71376
CEND 03/12	24/02/2012	806	WC14	HC	49.46355	-4.68895
Cruise	Date	Stn No	Station Code	Gear name	Latitude	Longitude
CEND 03/12	24/02/2012	807	WC_14	CS	49.46381	-4.68910
CEND 03/12	24/02/2012	807	WC_14	CS	49.46447	-4.68836
CEND 03/12	24/02/2012	808	WC14_WC50	MB	49.49100	-4.77100
CEND 03/12	24/02/2012	808	WC14_WC50	MB	49.46635	-4.69147
CEND 03/12	24/02/2012	809	WC50	HC	49.48900	-4.76941

CEND 03/12	24/02/2012	810	WC50_WC58	MB	49.54100	-4.74200
CEND 03/12	24/02/2012	810	WC50_WC58	MB	49.49100	-4.76800
CEND 03/12	24/02/2012	811	WC58	HC	49.54014	-4.74252
CEND 03/12	24/02/2012	812	WC58	CS	49.54023	-4.74177
CEND 03/12	24/02/2012	812	WC58	CS	49.54050	-4.73952
CEND 03/12	24/02/2012	813	WC58_WC52	MB	49.49900	-4.68700
CEND 03/12	24/02/2012	813	WC58_WC52	MB	49.54100	-4.73900
CEND 03/12	24/02/2012	814	WC52	CS	49.49946	-4.68853
CEND 03/12	24/02/2012	814	WC52	CS	49.50067	-4.68698
CEND 03/12	24/02/2012	815	WC52	MB	49.46300	-4.63100
CEND 03/12	24/02/2012	815	WC52	MB	49.50200	-4.68500
CEND 03/12	24/02/2012	816	WC46	CS	49.45961	-4.63349
CEND 03/12	24/02/2012	816	WC46	CS	49.45938	-4.63469
CEND 03/12	24/02/2012	817	WC46_WC41	MB	49.41800	-4.57600
CEND 03/12	24/02/2012	817	WC46_WC41	MB	49.45900	-4.63600
CEND 03/12	24/02/2012	818	WC41	HC	49.41917	-4.57784
CEND 03/12	24/02/2012	819	WC41_WC43	MB	49.43000	-4.49500
CEND 03/12	24/02/2012	819	WC41_WC43	MB	49.41900	-4.57900
CEND 03/12	24/02/2012	820	WC43	HC	49.42990	-4.49675
CEND 03/12	24/02/2012	821	WC43	CS	49.42989	-4.49726
CEND 03/12	24/02/2012	821	WC43	CS	49.42988	-4.49853
CEND 03/12	24/02/2012	822	WC43_WC47	MB	49.47000	-4.55100
CEND 03/12	24/02/2012	822	WC43_WC47	MB	49.42900	-4.50000
CEND 03/12	24/02/2012	823	WC47	HC	49.47041	-4.55148
CEND 03/12	24/02/2012	824	MB WC47_13	MB	49.49133	-4.56100
CEND 03/12	24/02/2012	824	MB_WC47_13	MB	49.47200	-4.55500
CEND 03/12	24/02/2012	825	WC13	HC	49.49136	-4.56094
CEND 03/12	24/02/2012	826	WC13	CS	49.49174	-4.56076
CEND 03/12	24/02/2012	826	WC13	CS	49.49298	-4.56027
CEND 03/12	24/02/2012	827	MB_WC13_54	MB	49.51000	-4.60600

CEND 03/12	24/02/2012	827	MB_WC13_54	MB	49.49500	-4.56000
CEND 03/12	24/02/2012	828	WC54	HC	49.51042	-4.60660
CEND 03/12	24/02/2012	829	MB_WC54_61	MB	49.55100	-4.66200
CEND 03/12	24/02/2012	829	MB_WC54_61	MB	49.51000	-4.60700
CEND 03/12	24/02/2012	830	WC61	HC	49.55099	-4.66119
CEND 03/12	24/02/2012	830	WC61	HC	49.55085	-4.66140
CEND 03/12	24/02/2012	831	WC61	CS	49.55079	-4.66160
CEND 03/12	24/02/2012	831	WC61	CS	49.55124	-4.66050
Cruise	Date	Stn No	Station Code	Gear name	Latitude	Longitude
CEND 03/12	25/02/2012	832	WC61_WC64	MB	49.59000	-4.72000
CEND 03/12	25/02/2012	832	WC61_WC64	MB	49.55200	-4.66100
CEND 03/12	25/02/2012	833	WC64	CS	49.59113	-4.71605
CEND 03/12	25/02/2012	833	WC64	CS	49.59129	-4.71409
CEND 03/12	25/02/2012	834	WC64	HC	49.59107	-4.71598
CEND 03/12	25/02/2012	834	WC64	HC	49.59108	-4.71591
CEND 03/12	25/02/2012	835	WC64_WC67	MB	49.61500	-4.66200
CEND 03/12	25/02/2012	835	WC64_WC67	MB	49.59100	-4.71500
CEND 03/12	25/02/2012	836	WC_67	HC	49.61589	-4.65986
CEND 03/12	25/02/2012	837	WC67_WC66	MB	49.61600	-4.63100
CEND 03/12	25/02/2012	837	WC67_WC66	MB	49.61600	-4.65300
CEND 03/12	25/02/2012	838	WC_66	HC	49.61631	-4.62938
CEND 03/12	25/02/2012	838	WC_66	HC	49.61631	-4.62930
CEND 03/12	25/02/2012	839	WC66	CS	49.61640	-4.62919
CEND 03/12	25/02/2012	839	WC66	CS	49.61644	-4.62782
CEND 03/12	25/02/2012	840	WC66_WC65	MB	49.60200	-4.63600
CEND 03/12	25/02/2012	840	WC66_WC65	MB	49.61600	-4.62600
CEND 03/12	25/02/2012	841	WC_65	HC	49.60177	-4.63440
CEND 03/12	25/02/2012	841	WC_65	HC	49.60175	-4.63435
CEND 03/12	25/02/2012	841	WC_65	HC	49.60173	-4.63430
CEND 03/12	25/02/2012	842	WC65_WC11	MB	49.57400	-4.60700

CEND 03/12	25/02/2012	842	WC65_WC11	MB	49.60100	-4.46200
CEND 03/12	25/02/2012	843	WC_11	HC	49.57448	-4.60799
CEND 03/12	25/02/2012	844	WC_L11	CS	49.57580	-4.60721
CEND 03/12	25/02/2012	844	WC_L11	CS	49.57499	-4.60780
CEND 03/12	25/02/2012	845	WC11_WC62	MB	49.56100	-4.57900
CEND 03/12	25/02/2012	845	WC11_WC62	MB	49.57400	-4.60800
CEND 03/12	25/02/2012	846	WC62	HC	49.56162	-4.57942
CEND 03/12	25/02/2012	847	WC62_WC56	MB	49.52200	-4.52500
CEND 03/12	25/02/2012	847	WC62_WC56	MB	49.56100	-4.57900
CEND 03/12	25/02/2012	848	WC56	HC	49.52127	-4.52460
CEND 03/12	25/02/2012	849	WC56	CS	49.52115	-4.52473
CEND 03/12	25/02/2012	849	WC56	CS	49.52103	-4.52603
CEND 03/12	25/02/2012	850	WC56_WC63	MB	49.57200	-4.49600
CEND 03/12	25/02/2012	850	WC56_WC63	MB	49.52100	-4.52600
CEND 03/12	25/02/2012	851	WC63	HC	49.57217	-4.49788
CEND 03/12	25/02/2012	851	WC63	HC	49.57218	-4.49795
CEND 03/12	25/02/2012	852	WC63_WC15	MB	49.57110	-4.42400
CEND 03/12	25/02/2012	852	WC63_WC15	MB	49.57300	-4.49960
CEND 03/12	25/02/2012	853	WC15	CS	49.56879	-4.42114
CEND 03/12	25/02/2012	853	WC15	CS	49.56742	-4.42286
CEND 03/12	25/02/2012	854	WC15	HC	49.56742	-4.42247
CEND 03/12	25/02/2012	855	WC15_WC57	MB	49.53286	-4.44219
Cruise	Date	Str No	Station Code	Gear name	Latitude	Longitude
CEND 03/12	25/02/2012	855	WC15_WC57	MB	49.56694	-4.42300
CEND 03/12	25/02/2012	856	WC57	HC	49.53180	-4.44364
CEND 03/12	25/02/2012	856	WC57	HC	49.53176	-4.44368
CEND 03/12	25/02/2012	857	WC57_WC49	MB	49.48236	-4.47026
CEND 03/12	25/02/2012	857	WC57_WC49	MB	49.53169	-4.44359
CEND 03/12	25/02/2012	858	WC49	HC	49.48085	-4.47071
CEND 03/12	25/02/2012	859	WC49	CS	49.48085	-4.47045

CEND 03/12	25/02/2012	859	WC49	CS	49.48153	-4.46964
CEND 03/12	25/02/2012	860	WC49_WC51	MB	49.12500	-4.38942
CEND 03/12	25/02/2012	860	WC49_WC51	MB	49.48322	-4.46813
CEND 03/12	25/02/2012	861	WC51	CS	49.49116	-4.38990
CEND 03/12	25/02/2012	861	WC51	CS	49.49136	-4.38832
CEND 03/12	25/02/2012	862	WC51	HC	49.49120	-4.38876
CEND 03/12	25/02/2012	862	WC51	HC	49.49122	-4.38862
CEND 03/12	25/02/2012	863	WC51_WC59	MB	49.59100	-4.33630
CEND 03/12	25/02/2012	863	WC51_WC59	MB	49.49200	-4.38900
CEND 03/12	25/02/2012	864	WC59	HC	49.54221	-4.36184
CEND 03/12	25/02/2012	865	WC59_WC60	MB	49.55230	-4.28200
CEND 03/12	25/02/2012	865	WC59_WC60	MB	49.54200	-4.36200
CEND 03/12	25/02/2012	866	WC60	HC	49.55251	-4.28014
CEND 03/12	25/02/2012	866	WC60	HC	49.55248	-4.28013
CEND 03/12	25/02/2012	866	WC60	HC	49.55255	-4.28005
CEND 03/12	25/02/2012	866	WC60	HC	49.55252	-4.28001
CEND 03/12	25/02/2012	867	WC60_WC53	MB	49.50200	-4.30600
CEND 03/12	25/02/2012	867	WC60_WC53	MB	49.55300	-4.27900
CEND 03/12	25/02/2012	868	WC53	CS	49.50188	-4.30739
CEND 03/12	25/02/2012	868	WC53	CS	49.50163	-4.30524
CEND 03/12	25/02/2012	869	WC53	HC	49.50173	-4.30698
CEND 03/12	25/02/2012	870	WC53_WC12	MB	49.49400	-4.25990
CEND 03/12	25/02/2012	870	WC53_WC12	MB	49.50200	-4.30600
CEND 03/12	25/02/2012	871	WC12	HC	49.49390	-4.26088
CEND 03/12	25/02/2012	872	WC12	CS	49.49506	-4.25990
CEND 03/12	25/02/2012	872	WC12	CS	49.49374	-4.26068
CEND 03/12	25/02/2012	873	WC12_WC55	MB	49.51200	-4.22600
CEND 03/12	25/02/2012	873	WC12_WC55	MB	49.49300	-4.26100
CEND 03/12	25/02/2012	874	WC55	HC	49.51208	-4.22561
CEND 03/12	25/02/2012	874	WC55	HC	49.51217	-4.22564

CEND 03/12	25/02/2012	874	WC55	HC	49.51225	-4.22564
CEND 03/12	25/02/2012	876	MBINFILL	MB	49.51300	-4.65300
CEND 03/12	25/02/2012	876	MBINFILL	MB	49.49800	-4.68200
CEND 03/12	25/02/2012	876	MBINFILL	MB	49.51600	-4.65900
CEND 03/12	25/02/2012	876	MBINFILL	MB	49.49600	-4.69700
CEND 03/12	25/02/2012	876	MBINFILL	MB	49.52300	-4.65900
Cruise	Date	Strn No	Station Code	Gear name	Latitude	Longitude
CEND 03/12	25/02/2012	876	MBINFILL	MB	49.49500	-4.70900
CEND 03/12	25/02/2012	876	MBINFILL	MB	49.53300	-4.65600
CEND 03/12	25/02/2012	876	MBINFILL	MB	49.49800	-4.71800
CEND 03/12	25/02/2012	876	MBINFILL	MB	49.49800	-4.71800
CEND 03/12	25/02/2012	876	MBINFILL	MB	49.54003	-4.55800
CEND 03/12	25/02/2012	876	MBINFILL	MB	49.50044	-4.72575
CEND 03/12	25/02/2012	876	MBINFILL	MB	49.54329	-4.66385
CEND 03/12	25/02/2012	876	MBINFILL	MB	49.50108	-4.73649
CEND 03/12	25/02/2012	876	MBINFILL	MB	49.55056	-4.66425
CEND 03/12	25/02/2012	876	MBINFILL	MB	49.50141	-4.74774
CEND 03/12	25/02/2012	876	MBINFILL	MB	49.55857	-4.66228
CEND 03/12	25/02/2012	876	MBINFILL	MB	49.50138	-4.75983
CEND 03/12	25/02/2012	876	MBINFILL	MB	49.56578	-4.66406
CEND 03/12	25/02/2012	876	MBINFILL	MB	49.50093	-4.77236
CEND 03/12	25/02/2012	876	MBINFILL	MB	49.57363	-4.66334
CEND 03/12	25/02/2012	876	MBINFILL	MB	49.50121	-4.78366
CEND 03/12	25/02/2012	876	MBINFILL	MB	49.58102	-4.66341
CEND 03/12	25/02/2012	876	MBINFILL	MB	49.49800	-4.80200
CEND 03/12	25/02/2012	876	MBINFILL	MB	49.59230	-4.65800
CEND 03/12	25/02/2012	876	MBINFILL	MB	49.49700	-4.81400
CEND 03/12	25/02/2012	876	MBINFILL	MB	49.59900	-4.68900
CEND 03/12	25/02/2012	876	MBINFILL	MB	49.49800	-4.82500
CEND 03/12	25/02/2012	876	MBINFILL	MB	49.60700	-4.65800

CEND 03/12	25/02/2012	876	MBINFILL	MB	49.49800	-4.83600
CEND 03/12	25/02/2012	876	MBINFILL	MB	49.61400	-4.65900
CEND 03/12	25/02/2012	876	MBINFILL	MB	49.49800	-4.84700
CEND 03/12	25/02/2012	876	MBINFILL	MB	49.62300	-4.65800
CEND 03/12	25/02/2012	876	MBINFILL	MB	49.50130	-4.85469
CEND 03/12	25/02/2012	876	MBINFILL	MB	49.62500	-4.66400
CEND 03/12	25/02/2012	876	MBINFILL	MB	49.50000	-4.67100
CEND 03/12	25/02/2012	876	MBINFILL	MB	49.51200	-4.66100
CEND 03/12	25/02/2012	876	MBINFILL	MB	49.49990	-4.68500
CEND 03/12	25/02/2012	876	MBINFILL	MB	49.51800	-4.66200
CEND 03/12	25/02/2012	876	MBINFILL	MB	49.49900	-4.69600
CEND 03/12	25/02/2012	876	MBINFILL	MB	49.52800	-4.65900
CEND 03/12	25/02/2012	876	MBINFILL	MB	49.49900	-4.70900
CEND 03/12	25/02/2012	876	MBINFILL	MB	49.53300	-4.66300
CEND 03/12	25/02/2012	876	MBINFILL	MB	49.53300	-4.66300
CEND 03/12	25/02/2012	876	MBINFILL	MB	49.50000	-4.71900
CEND 03/12	25/02/2012	876	MBINFILL	MB	49.53770	-4.66694
CEND 03/12	25/02/2012	876	MBINFILL	MB	49.50160	-4.72943
CEND 03/12	25/02/2012	876	MBINFILL	MB	49.54625	-4.66589
CEND 03/12	25/02/2012	876	MBINFILL	MB	49.50241	-4.74001
Cruise	Date	Strn No	Station Code	Gear name	Latitude	Longitude
CEND 03/12	25/02/2012	876	MBINFILL	MB	49.55370	-4.66552
CEND 03/12	25/02/2012	876	MBINFILL	MB	49.50143	-4.75357
CEND 03/12	25/02/2012	876	MBINFILL	MB	49.56137	-4.66523
CEND 03/12	25/02/2012	876	MBINFILL	MB	49.50219	-4.76440
CEND 03/12	25/02/2012	876	MBINFILL	MB	49.56855	-4.66552
CEND 03/12	25/02/2012	876	MBINFILL	MB	49.50235	-4.77594
CEND 03/12	25/02/2012	876	MBINFILL	MB	49.57702	-4.66391
CEND 03/12	25/02/2012	876	MBINFILL	MB	49.50104	-4.78964
CEND 03/12	25/02/2012	876	MBINFILL	MB	49.58400	-4.66500

CEND 03/12	25/02/2012	876	MBINFILL	MB	49.50000	-4.80200
CEND 03/12	25/02/2012	876	MBINFILL	MB	49.59300	-4.66300
CEND 03/12	25/02/2012	876	MBINFILL	MB	49.49900	-4.81700
CEND 03/12	25/02/2012	876	MBINFILL	MB	49.60000	-4.66400
CEND 03/12	25/02/2012	876	MBINFILL	MB	49.49900	-4.82800
CEND 03/12	25/02/2012	876	MBINFILL	MB	49.61100	-4.65800
CEND 03/12	25/02/2012	876	MBINFILL	MB	49.49900	-4.84000
CEND 03/12	25/02/2012	876	MBINFILL	MB	49.61600	-4.66200
CEND 03/12	25/02/2012	876	MBINFILL	MB	49.49900	-4.85100
CEND 03/12	25/02/2012	876	MBINFILL	MB	49.62300	-4.66300
CEND 03/12	25/02/2012	876	MBINFILL	MB	49.50196	-4.85912

5.6 Daily Progress Reports

**DAILY LOG
STATUS REPORT**
Name of Area Survey
Rv Cefas Endeavour – JNCC – DPR No. 19 – Monday 20th February 2012

Vessel: RV Cefas Endeavour GSM : 07799 773456	Project: MCZ Site Verification CEND 3/12 Satellite Voice Bridge: 00 870 (or 00871) 763998027
Daily Progress Report No. 19 Date: 20 th Feb. 2012	Location at 24:00: 49° 14.8' N 05° 28.8W

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

Safety

	Today	To Date
Accidents/Incidents	0	0
Near Misses	0	1
Safety Drills/Induction	0	3
Additional comments:		

Summary of operations 0000-2400

Time UTC (start)	Time UTC (end)	Type	Comments
00:00	00:47	ToSa	Continuation from previous day. Location South of Celtic Deep
00:47	01:00	ToSa	Drop Camera SCD Mx1
01:00	02:12	ToSa	Hamon Grab SCD Mx1
02:12	02:46	ToSa	Hamon Grab Mx5
02:46	03:13	ToSa	Drop Camera Mx3
03:13	03:43	ToSa	Hamon Grab Mx3
03:43	04:07	ToSa	Hamon Grab Mx4
04:07	04:38	ToSa	Hamon Grab Mx6
04:38	05:12	ToSa	Drop Camera Mx7
05:12	05:30	ToSa	Hamon Grab Mx7
05:30	05:59	ToSa	Hamon Grab Mx9
05:59	06:23	ToSa	Drop Camera Mx12
06:23	06:46	ToSa	Hamon Grab Mx12
06:46	06:56	ToSa	Hamon Grab Mx10 x
06:56	07:04	ToSa	Hamon Grab Mx10 x
07:04	07:28	ToSa	Hamon Grab Mx10
07:28	08:13	ToSa	Hamon Grab Mx8 x
08:13	08:49	ToSa	Hamon Grab Mx8
08:49	09:31	ToSa	Drop Camera Mx11
09:31	09:59	ToSa	Drop Camera Mx11 (repeat)
09:59	10:06	ToSa	Hamon Grab Mx11 x
10:06	11:00	ToSa	Hamon Grab Mx11 x
11:00	11:28	ToSa	Drop Camera Mx14
11:28	11:45	ToSa	Hamon Grab Mx14
11:45	12:02	Offshore Calibrations	CTD
12:02	12:42	ToSu	Multibeam on transit to Mx7
12:42	12:56	ToSa	Drop Camera Mx7

DAILY LOG STATUS REPORT

12:56	13:29	ToSu	Multibeam on transit to Mx2
13:29	14:00	ToSa	Drop Camera Mx2
14:00	23:30		Transit to Western Channel
23:30	24:00	ToSa	Attempted Grabbing at WC19 Western Channel

Weather

Weather/sea state conditions	0000-0600	0600-1200	1200-1800	1800-2400	Remarks
Wind	SW5	SW6	SW7	SW5	
Sea state	Slight	Slight	Moderate	Moderate	
Swell	Moderate	Slight	Moderate	Moderate	
Vis	Good	Good	Good	Good	
Baro	1042	1041	1041	1041	

Overall Progress

Type	Today (hh:mm)	Accum (hh:mm)	Remarks
Mob/Demob		35:37	
Offshore Calibrations	00:17	06:19	
Total Operation Survey (TOSu)	01:13	158:34	
Total Operation Sampling (TOSa)	13:00	164:09	
Equipment/Downtime		09:45	
Ship/Plant Downtime		02:11	
Waiting On Weather		11:33	
Transit	09:30	66:22	
Standby Port		00:00	
Others		01:30	
Total:	24:00	456:00	

Overall Progress Geophysical Data Acquisition MBES/Sidescan

Segment/Area/Line	Today (Lkm)	Accum. (Lkm)	Current estimated total (Lkm)	Remarks
Acoustic: Multibeam				
Multibeam EM3000D / EM2040	8.7	1339		

Overall Progress Groundtruthing Samples

Action	Today (Lkm/samples)	Accum. (Lkm/samples)	Remarks
Hamon grab (0.1m ²)	16	286	
Camera sledge	0	60	
Drop camera	9	53	

Weather forecast for the next 24 hours

Southwest 4 or 5, increasing 6 or 7 at times. Moderate or Rough. Mainly fair. Moderate or good.

DAILY LOG STATUS REPORT

Planned operation for the next 24 hours (00:00 to 24:00 on 21th February 2012)

Ground truthing (Hamon Grab and camera sledge) in Western Channel rMCZ

Agreed Changes to Scope/Survey operation priorities

CEFAS/JNCC Comments

CEFAS SIC... [REDACTED]

JNCC Rep: [REDACTED]

**DAILY LOG
STATUS REPORT
Name of Area Survey
Rv Cefas Endeavour – JNCC – DPR No. 20 Tuesday 21st February 2012**

Vessel: RV Cefas Endeavour GSM : 07799 773456	Project: MCZ Site Verification CEND 3/12 Satellite Voice Bridge: 00 870 (or 00871) 763998027
Daily Progress Report No. 20 Date: 21 st Feb. 2012	Location at 24:00: 49° 20.5' N 04° 54.3'W

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

Safety

	Today	To Date
Accidents/Incidents	0	0
Near Misses	0	1
Safety Drills/Induction	0	3
Additional comments:		

Summary of operations 0000-2400

Time UTC (start)	Time UTC (end)	Type	Comments
00:00	00:26	ToSa	W Channel 658 WC_6 0.1m2 Hamon Grab + Camera
00:26	01:31	Calibration	W Channel 660 CTD WC CTD Micrologger
01:31	01:52	ToSu	Multibeam W6 - W20
01:52	02:30	ToSa	W Channel 662 WC_20 0.1m2 Hamon Grab + Camera
02:30	02:34	ToSu	Multibeam WC20-WC7
02:34	03:05	ToSa	W Channel 664 WC_7 0.1m2 Hamon Grab + Camera
03:05	03:25	ToSa	WC7 Camera Sledge
03:25	03:51	ToSu	Multibeam WC7-WC16
03:51	04:10	ToSa	W Channel 667 WC_01 0.1m2 Hamon Grab + Camera >5MM MESH IMAGE TAKEN
04:10	04:17	ToSu	Multibeam WC16-WC17
04:17	05:03	ToSa	W Channel 669 WC_17 0.1m2 Hamon Grab + Camera BRACHIOSTOMA LANCEOLATUM
05:03	05:08	ToSu	Multibeam WC17-WC21
05:08	06:00	ToSa	W Channel 671 WC_21 0.1m2 Hamon Grab + Camera Biggest sample volume of the 3 attempts
06:00	06:38	ToSa	WC21 Camera Sledge
06:38	06:57	ToSu	Multibeam WC21-WC25
06:57	07:30	ToSa	W Channel 674 WC_25 0.1m2 Hamon Grab + Camera Small sample - kept until second attempt completed.
07:30	07:44	ToSu	Multibeam WC25-WC27
07:44	08:20	ToSa	W Channel 676 WC_27 0.1m2 Hamon Grab + Camera
08:20	08:58	ToSa	WC27 Camera Sledge
08:58	09:20	ToSu	Multibeam WC27-WC29
09:20	10:05	ToSa	W Channel 679 WC_29 0.1m2 Hamon Grab + Camera Spartangus sea urchin and Spisula in sample
10:05	10:10	ToSu	Multibeam WC29-WC8
10:10	10:56	ToSa	W Channel 681 WC_8 0.1m2 Hamon Grab + Camera Hamcam showed cobble in video

DAILY LOG STATUS REPORT

10:56	11:18	ToSa	WC8 Camera Sledge
11:18	11:41	ToSu	Multibeam WC8-WC22
11:41	12:34	ToSa	W Channel 684 WC_22 0.1m2 Hamon Grab + Camera Small sample but attempts 2 and 3 were worse.
12:34	12:52	ToSu	Multibeam WC22-WC9
12:52	13:22	ToSa	W Channel 686 WC_9 0.1m2 Hamon Grab + Camera whole heart urchin
13:22	13:42	ToSa	WC9 Camera Sledge
13:42	14:07	ToSu	Multibeam WC9-WC18
14:07	15:04	ToSa	WC18 Camera Sledge
15:04	15:30	ToSu	Multibeam WC18-WC23
15:30	16:03	ToSa	W Channel 692 WC_23 0.1m2 Hamon Grab + Camera Low volume. Was best of three attempts
16:03	16:25	ToSu	Multibeam WC23-WC10
16:25	17:03	ToSa	WC10 Camera Sledge
17:03	18:05	ToSa	W Channel 695 WC_10 0.1m2 Hamon Grab + Camera
18:05	18:13	ToSu	Multibeam WC10-WC24
18:13	18:37	ToSa	W Channel 697 WC_24 0.1m2 Hamon Grab + Camera
18:37	18:45	ToSu	Multibeam WC24-WC31
18:45	19:33	ToSa	W Channel 699 WC_31 0.1m2 Hamon Grab + Camera Stone partly in jaws of grab, but sample larger than previous one, so maintained.
19:33	19:52	ToSa	WC31 Camera Sledge
19:52	20:07	ToSu	Multibeam WC31-WC33
20:07	20:59	ToSa	WC33 0.1m2 Hamon Grab + Camera
20:59	21:05	ToSu	Multibeam WC33-WC26
21:05	22:03	ToSa	W Channel 704 WC_26 0.1m2 Hamon Grab + Camera
22:03	22:23	ToSa	W26 Camera Sledge
22:23	22:49	ToSu	Multibeam WC26-WC28
22:49	23:23	ToSa	W Channel 707 WC_28 0.1m2 Hamon Grab + Camera
23:23	00:00	ToSa	W Channel 658 WC_6 0.1m2 Hamon Grab + Camera

Weather

Weather/sea state conditions	0000-0600	0600-1200	1200-1800	1800-2400	Remarks
Wind	SW6	SW6	SW6	SW6	
Sea state	Moderate	Moderate	Moderate	Moderate	
Swell	Moderate	Moderate	Moderate	Moderate	
Vis	Good	Good	Good	Good	
Baro	1044	1042	1041	1041	

Overall Progress

Type	Today (hh:mm)	Accum (hh:mm)	Remarks
Mob/Demob		35:37	
Offshore Calibrations	00:21	06:40	
Total Operation Survey (TOSu)	12:41	171:15	
Total Operation Sampling (TOSa)	10:58	175:07	
Equipment/Downtime		09:45	
Ship/Plant Downtime		02:11	
Waiting On Weather		11:33	
Transit		66:22	

DAILY LOG STATUS REPORT

Standby Port		00:00	
Others		01:30	
Total:	24:00	480:00	

Overall Progress Geophysical Data Acquisition MBES/Sidescan

Segment/Area/Line	Today (Lkm)	Accum. (Lkm)	Current estimated total (Lkm)	Remarks
Acoustic: Multibeam				
Multibeam EM3000D / EM2040	85.2	1470.8		

Overall Progress Groundtruthing Samples

Action	Today (Lkm/samples)	Accum. (Lkm/samples)	Remarks
Hamon grab (0.1m ²)	20	306	
Camera sledge	8	68	
Drop camera	0	53	

Weather forecast for the next 24 hours

SW 5 to 6, occasionally 7 later, Slight or Moderate, becoming moderate or rough, Mainly fair, Mainly Good

Planned operation for the next 24 hours (00:00 to 24:00 on 22th February 2012)

Further grabbing and camera sledge work in Western Channel, plus multibeam between sites.

Agreed Changes to Scope/Survey operation priorities

CEFAS/JNCC Comments

CEFAS SIC... [REDACTED] JNCC Rep: [REDACTED]

**DAILY LOG
STATUS REPORT
Name of Area Survey
Rv Cefas Endeavour – JNCC – DPR No. 21 – Wednesday 22nd February
2012**

Vessel: RV Cefas Endeavour GSM : 07799 773456	Project: MCZ Site Verification CEND 3/12 Satellite Voice Bridge: 00 870 (or 00871) 763998027
Daily Progress Report No. 21 Date: 22nd Feb. 2012	Location at 24:00: 50° 00.1' N 004° 43'W

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

Safety

	Today	To Date
Accidents/Incidents	0	0
Near Misses	0	1
Safety Drills/Induction	0	3
Additional comments:		

Summary of operations 0000-2400

Time UTC (start)	Time UTC (end)	Type	Comments
00:00	00:10	ToSa	From previous day
00:10	00:52	ToSa	Hamon Grab + camera WC4x (3 attempts, no sample, ground too hard/stony)
00:52	01:24	ToSa	Camera Sledge WC4
01:24	02:04	ToSu	Multibeam WC4-WC35
02:04	02:09	ToSa	Hamon Grab + camera WC35
02:09	02:39	ToSu	Multibeam WC35-WC3
02:39	03:13	ToSa	Hamon Grab + camera WC3
03:13	03:23	ToSa	Camera Sledge WC3
03:23	03:54	ToSu	Multibeam TO WC40
03:54	04:32	ToSa	Hamon Grab + camera WC40 (3 attempts)
04:32	04:58	ToSa	Camera Sledge WC40
04:58	05:30	ToSu	Multibeam TO WC40-WC36
05:30	05:46	ToSu	Multibeam WC36
05:46	06:04	ToSa	Hamon Grab + camera WC36x
06:04	06:10	ToSa	Hamon Grab + camera WC36x
06:10	06:51	ToSu	Multibeam
06:51	07:37	ToSa	Hamon Grab + camera WC30 (3 a goes to get sample)
07:37	08:05	ToSu	Multibeam WC30-WC32
08:05	08:26	ToSa	Hamon Grab + camera WC32
08:26	09:15	ToSu	Multibeam WC32-WC37
09:15	09:26	ToSa	Hamon Grab + camera WC37
09:26	10:04	ToSu	Multibeam WC37-WC5
10:04	10:25	ToSa	Hamon Grab + camera WC5
10:25	10:46	ToSa	Camera Sledge WC5
10:46	11:25	ToSu	Multibeam WC5-WC42
11:25	11:42	ToSa	Hamon Grab + camera WC42

DAILY LOG STATUS REPORT

11:42	12:06	ToSa	Camera Sledge WC42
12:06	12:50	ToSu	Multibeam WC42-WC1
12:50	13:30	ToSa	Hamon Grab + camera WC1
13:30	15:00	Weather	Waiting on weather
15:00	19:01	Transit	Transit to SE Falmouth to avoid weather
19:01	20:50	ToSa	Drop Camera F28
20:50	21:29	ToSa	Drop Camera F23
21:29	22:09	ToSa	Drop Camera F20
22:09	22:43	ToSa	Drop Camera F16
22:43	23:21	ToSa	Drop Camera F18
23:21	23:53	ToSa	Drop Camera F22
23:53	24:00	ToSa	Drop Camera F26

Weather

Weather/sea state conditions	0000-0600	0600-1200	1200-1800	1800-2400	Remarks
Wind	SW7	SW7	SW7	W5	
Sea state	Moderate	Rough	Rough	Moderate	
Swell	Moderate	Moderate	Moderate	Moderate	
Vis	Good	Good	Moderate	Moderate Fog	
Baro	1038	1038	1035	1035	

Overall Progress

Type	Today (hh:mm)	Accum (hh:mm)	Remarks
Mob/Demob		35:37	
Offshore Calibrations		06:40	
Total Operation Survey (TOSu)	06:28	177:43	
Total Operation Sampling (TOSa)	12:01	187:08	
Equipment/Downtime		09:45	
Ship/Plant Downtime		02:11	
Waiting On Weather	01:30	13:03	
Transit	04:01	70:23	
Standby Port		00:00	
Others		01:30	
Total:	24:00	504:00	

Overall Progress Geophysical Data Acquisition MBES/Sidescan

Segment/Area/Line	Today (Lkm)	Accum. (Lkm)	Current estimated total (Lkm)	Remarks
Acoustic: Multibeam				
Multibeam EM3000D / EM2040	46.6	1470.8		

Overall Progress Groundtruthing Samples

Action	Today (Lkm/samples)	Accum. (Lkm/samples)	Remarks
Hamon grab (0.1m ²)	11	317	
Camera sledge	5	73	

DAILY LOG STATUS REPORT

Drop camera	7	60	
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Weather forecast for the next 24 hours

West or southwest 5 or 6. Moderate or Rough. Rain at first, fog patches. Moderate or good, occasionally very poor.

Planned operation for the next 24 hours (00:00 to 24:00 on 23rd February 2012)

Drop camera followed by selected grabs at S E Falmouth rMCZ

Agreed Changes to Scope/Survey operation priorities

Worked stopped at Western Channel at 1330 due to weather. As conditions were not likely to improve quickly decision made 1500 to move north to SE Falmouth in hope of better conditions there. Arrived SE Falmouth 1830 where conditions were suitable for an immediate return to work with drop camera. Will return to Western Channel later in week when conditions are expected to have improved.

CEFAS/JNCC Comments

CEFAS SIC.. [REDACTED] JNCC Rep: ... [REDACTED]

**DAILY LOG
STATUS REPORT
Name of Area Survey
Rv Cefas Endeavour – JNCC – DPR No. 24 – Saturday 25th February 2012**

Vessel: RV Cefas Endeavour GSM : 07799 773456	Project: MCZ Site Verification CEND 3/12 Satellite Voice Bridge: 00 870 (or 00871) 763998027
Daily Progress Report No. 24 Date: 25 th Feb. 2012	Location at 24:00: 49° 30.3' N 004° 42.3' W

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

Safety

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

Summary of operations 0000-2400

Time UTC (start)	Time UTC (end)	Type	Comments
00:00	00:15	ToSa	Continuation of sampling at Western Channel rMCZ
00:15	01:01	ToSu	Multibeam WC61-WC64
01:01	01:33	ToSa	CAMERA SLEDGE WC64
01:33	01:45	ToSa	Hamon Grab + camera WC64
01:45	02:14	ToSu	MULTIBEAM W64-W67
02:14	02:18	ToSa	HAMON GRAB + CAMERA WC67
02:18	02:35	ToSu	MULTIBEAM WC67-WC66
02:35	03:03	ToSa	HAMON GRAB + CAMERA WC66 (2 attempts)
03:03	03:19	ToSa	CAMERA SLEDGE WC66
03:19	03:51	ToSu	MULTIBEAM WC66-WC65
03:51	03:56	ToSa	HAMON GRAB + CAMERA WC65 (3 attempts)
03:56	04:40	ToSu	MULTIBEAM WC65-WC11
04:40	05:25	ToSa	HAMON GRAB + CAMERA WC11
05:25	05:42	ToSa	CAMERA SLEDGE WC_L11
05:42	06:05	ToSu	MULTIBEAM WC11-WC62
06:05	06:10	ToSa	HAMON GRAB + CAMERA WC62
06:10	06:45	ToSu	MULTIBEAM WC62-WC56
06:45	07:05	ToSa	HAMON GRAB + CAMERA WC56
07:05	07:23	ToSa	CAMERA SLEDGE WC56
07:23	08:02	ToSu	MULTIBEAM WC56-WC63
08:02	08:15	ToSa	HAMON GRAB + CAMERA W63 (2 attempts)
08:15	09:04	ToSu	MULTIBEAM WC63-WC15
09:04	09:40	ToSa	CAMERA SLEDGE WC15
09:40	09:44	ToSa	HAMON GRAB + CAMERA WC15

DAILY LOG STATUS REPORT

09:44	10:05	ToSu	MULTIBEAM WC15-WC57
10:05	10:18	ToSa	HAMON GRAB + CAMERA WC57 (2 attempts)
10:18	10:51	ToSu	MULTIBEAM WC57-WC49
10:51	11:13	ToSa	HAMON GRAB + CAMERA WC49
11:13	11:34	ToSa	CAMERA SLEDGE WC49
11:34	12:04	ToSu	MULTIBEAM WC49-WC51
12:04	13:10	ToSa	CAMERA SLEDGE WC51
13:10	13:28	ToSa	HAMON GRAB + CAMERA WC51 (3 attempts)
13:28	13:59	ToSu	MULTIBEAM WC51-WC59
13:59	14:03	ToSa	HAMON GRAB + CAMERA WC59
14:03	14:38	ToSu	MULTIBEAM WC59-WC60
14:38	15:02	ToSa	HAMON GRAB + CAMERA WC60 (4 attempts)
15:02	15:45	ToSu	MULTIBEAM WC60-WC53
15:45	16:12	ToSa	CAMERA SLEDGE WC53
16:12	16:17	ToSa	HAMON GRAB + CAMERA WC53
16:17	16:37	ToSu	MULTIBEAM WC53-WC12
16:37	17:06	ToSa	HAMON GRAB + CAMERA WC12
17:06	17:22	ToSa	CAMERA SLEDGE WC12
17:22	17:58	ToSu	MULTIBEAM WC12-WC55
17:58	18:15	ToSa	<i>No sample HAMON GRAB + CAMERA WC55 (3 attempts)</i>
18:15	20:45	Transit	TRANSIT TO MULTIBEAM INFILL SITE (triangular area missing acoustic data)
20:45	21:14	Calibration	CTD Sound velocity profile for multibeam calibration
21:14	21:26	ToSu	Multibeam WCMB-19800
21:26	21:42	ToSu	Multibeam WCMB-19500
21:42	21:56	ToSu	Multibeam WCMB-19200
21:56	22:15	ToSu	Multibeam WCMB-18900
22:15	22:49	ToSu	Multibeam WCMB-18600
22:49	23:16	ToSu	Multibeam WCMB-18300
23:16	23:42	ToSu	Multibeam WCMB-18000
23:42	24:00	ToSu	Multibeam WCMB-17700

Weather

Weather/sea state conditions	0000-0600	0600-1200	1200-1800	1800-2400	Remarks
Wind	NW3	NW 3	N4	N4	
Sea state	Slight	Slight	Slight	Slight	
Swell	Slight	Slight	Slight	Slight	
Vis	Good	Good	Good	Good	
Baro	1040	1040.1	1039	1039.5	

DAILY LOG STATUS REPORT

Overall Progress

Type	Today (hh:mm)	Accum (hh:mm)	Remarks
Mob/Demob		35:37	
Offshore Calibrations	00:29	07:35	
Total Operation Survey (TOSu)	12:09	203:23	
Total Operation Sampling (TOSa)	08:52	226:08	
Equipment/Downtime		09:45	
Ship/Plant Downtime		02:11	
Waiting On Weather		13:03	
Transit	02:30	76:48	
Standby Port		00:00	
Others		01:30	
Total:	24:00	576:00	

Overall Progress Geophysical Data Acquisition MBES/Sidescan

Segment/Area/Line	Today (Lkm)	Accum. (Lkm)	Current estimated total (Lkm)	Remarks
Acoustic: Multibeam				
Multibeam EM3000D / EM2040	120	1699.6		

Overall Progress Groundtruthing Samples

Action	Today (Lkm/samples)	Accum. (Lkm/samples)	Remarks
Hamon grab (0.1m ²)	19	365	
Camera sledge	6	95	
Drop camera	0	78	

Weather forecast for the next 24 hours

Variable 3 or 4. Slight or moderate, occasionally rough at first in Plymouth and Biscay. Fog patches. Moderate or good, occasionally very poor.

Planned operation for the next 24 hours (00:00 to 24:00 on ??th February 2012)

Continue multibeam acquisition at Western Channel, followed by transit to Wight-Barfleur Extension.

Agreed Changes to Scope/Survey operation priorities

There is a further small triangle of missing acoustic data at the western end of the Western Channel rMCZ but it was agreed with CEFAS staff on board and JNCC staff in Peterborough that it was not a good use of time to steam west and collect this data as its contribution to the whole is minor. Plan now is to complete acquisition of multibeam data at the large missing area and then transit to Wight-Barfleur extension. Sampling priority at WBE is ground truthing along existing acoustic lines that cross the area.

CEFAS/JNCC Comments

CEFAS SIC: [REDACTED] JNCC Rep: [REDACTED]

**DAILY LOG
STATUS REPORT**
Name of Area Survey
Rv Cefas Endeavour – JNCC – DPR No. 25 – Sunday 26th February 2012

Vessel: RV Cefas Endeavour GSM : 07799 773456	Project: MCZ Site Verification CEND 3/12 Satellite Voice Bridge: 00 870 (or 00871) 763998027
Daily Progress Report No. 25 Date: 26 th Feb. 2012	Location at 24:00: 49° 37.5' N 004° 39.4' W

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

Safety

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

Summary of operations 0000-2400

Time UTC (start)	Time UTC (end)	Type	Comments
00:00	00:10	ToSu	Continuation of in-fill multibeam at 'missing triangle' Western Channel
00:10	01:11	ToSu	WCMB-17400
01:11	01:45	ToSu	WCMB-17100
01:45	02:24	ToSu	WCMB-16800
02:24	03:05	ToSu	WCMB-16500
03:05	03:48	ToSu	WCMB-16200
03:48	04:31	ToSu	WCMB-15900
04:31	05:24	ToSu	WCMB-15600
05:24	06:17	ToSu	WCMB-15300
06:17	07:12	ToSu	WCMB-15000
07:12	08:10	ToSu	WCMB-14700
08:10	09:05	ToSu	WCMB-14400
09:05	09:59	ToSu	WCMB-14100
09:59	11:10	ToSu	WCMB-13800
11:10	12:13	ToSu	WCMB-13500
12:13	13:21	ToSu	WCMB-13200
13:21	14:34	ToSu	WCMB-12900
14:34	15:40	ToSu	WCMB-12600
15:40	16:59	ToSu	WCMB-12300
16:59	18:20	ToSu	WCMB-12000
18:20	19:47	ToSu	WCMB-11700
19:47	21:18	ToSu	WCMB-11400
21:18	22:39	ToSu	WCMB-11100
22:39	24:00	ToSu	WCMB-1800

DAILY LOG STATUS REPORT

Weather

Weather/sea state conditions	0000-0600	0600-1200	1200-1800	1800-2400	Remarks
Wind	N3	NE3	NW3	W2	
Sea state	Smooth	Smooth	Smooth	Calm	
Swell	Slight	Slight	Slight	Slight	
Vis	Good	Good	Good	Good	
Baro	1039	1040	1040	1040	

Overall Progress

Type	Today (hh:mm)	Accum (hh:mm)	Remarks
Mob/Demob		35:37	
Offshore Calibrations		07:35	
Total Operation Survey (TOSu)	24:00	227:23	
Total Operation Sampling (TOSa)		226:08	
Equipment/Downtime		09:45	
Ship/Plant Downtime		02:11	
Waiting On Weather		13:03	
Transit		76:48	
Standby Port		00:00	
Others		01:30	
Total:	24:00	600:00	

Overall Progress Geophysical Data Acquisition MBES/Sidescan

Segment/Area/Line	Today (Lkm)	Accum. (Lkm)	Current estimated total (Lkm)	Remarks
Acoustic: Multibeam				
Multibeam EM3000D / EM2040	290.2	1989.8		

Overall Progress Groundtruthing Samples

Action	Today (Lkm/samples)	Accum. (Lkm/samples)	Remarks
Hamon grab (0.1m ²)	0	365	
Camera sledge	0	95	
Drop camera	0	78	

Weather forecast for the next 24 hours

Variable 3 or 4. Slight or moderate, occasionally rough at first in Plymouth and Biscay. Fog patches. Moderate or good, occasionally very poor.

Planned operation for the next 24 hours (00:00 to 24:00 on 27th February 2012)

Complete multibeam acquisition at Western Channel, followed by transit to Wight-Barfleur Extension and limited multibeam and ground-truthing.

DAILY LOG STATUS REPORT

Agreed Changes to Scope/Survey operation priorities

Sampling plan for Wight-Barfleur focused on ground truthing around existing multibeam lines, including additional multibeam between sites.

In-fill multibeam lines at Western Channel – JNCC decision to abandon final NE to SW line as good quality coverage had already been achieved to within 50m of the outer boundary of the polygon. Adding the last line would have left the vessel at the western end of the site and delayed arrival at Wight-Barfleur Extension by at least 2 hours.

CEFAS/JNCC Comments

CEFAS SIC: [REDACTED] JNCC Rep: [REDACTED]

**DAILY LOG
STATUS REPORT
Name of Area Survey
Rv Cefas Endeavour – JNCC – DPR No. 26 – Monday 27th February 2012**

Vessel: RV Cefas Endeavour GSM : 07799 773456	Project: MCZ Site Verification CEND 3/12 Satellite Voice Bridge: 00 870 (or 00871) 763998027
Daily Progress Report No. 26 Date: 27 th Feb. 2012	Location at 24:00: 50° 11.0' N 001° 04.6' W

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

Safety

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

Summary of operations 0000-2400

Time UTC (start)	Time UTC (end)	Type	Comments
00:00	00:03	ToSu	Continuation of Multibeam at Western Channel
00:03	01:37	ToSu	MULTIBEAM WCMB-1500
01:37	03:10	ToSu	MULTIBEAM WCMB-1200
03:10	12:45	Transit	Transit from Western Channel to Wight-Barfleur Extension
12:45	13:09	Calibration	CTD
13:09	13:35	ToSu	Multibeam from CTD station to WBF1
13:35	13:50	ToSa	DROP CAMERA WMF 1
13:50	14:21	ToSu	MULTIBEAM WBF1-WBF2
14:21	14:37	ToSa	DROP CAMERA WBF2
14:37	15:12	ToSu	MULTIBEAM WBF2-WBF13
15:12	15:28	ToSa	DROP CAMERA WBF13
15:28	15:52	ToSu	MULTIBEAM WBF13-WBF14
15:52	16:05	ToSa	DROP CAMERA WBF14
16:05	16:24	ToSu	MULTIBEAM WBF14-WBF15
16:24	16:41	ToSa	DROP CAMERA WBF15
16:41	17:52	ToSu	MULTIBEAM WBF15-WBF16
17:52	17:55	ToSa	DROP CAMERA WBF16
17:55	18:13	ToSu	MULTIBEAM WBF16-WBF17
18:13	18:27	ToSa	DROP CAMERA WBF17
18:27	18:48	ToSu	MULTIBEAM WBF17-WBF12
18:48	19:03	ToSa	DROP CAMERA WBF12
19:03	19:17	ToSu	MULTIBEAM WBF12-WBF11
19:17	19:31	ToSa	DROP CAMERA WBF11
19:31	19:47	ToSu	MULTIBEAM WBF11-WBF10
19:47	20:01	ToSa	DROP CAMERA WBF10
20:01	20:34	ToSu	MULTIBEAM WBF10-WBF18
20:34	20:51	ToSa	DROP CAMERA WBF18
20:51	21:12	ToSu	MULTIBEAM WBF18-WBF19
21:12	21:28	ToSa	DROP CAMERA WBF19

DAILY LOG STATUS REPORT

21:28	21:55	ToSu	MULTIBEAM WBF19-WBF20
21:55	22:14	ToSa	DROP CAMERA WBF20
22:14	22:34	ToSu	MULTIBEAM WBF20-WBF9
22:34	23:18		CAMERA REPAIRS
23:18	23:38	ToSa	DROP CAMERA WBF9
23:38	23:58	ToSu	MULTIBEAM WBF9-WBF8
23:58	24:00	ToSa	DROP CAMERA WBF8

Weather

Weather/sea state conditions	0000-0600	0600-1200	1200-1800	1800-2400	Remarks
Wind	W3	W1	W4	W4	
Sea state	Slight	Slight	Slight	Slight	
Swell	Smooth	Smooth	Smooth	Smooth	
Vis	Moderate	Good	Moderate	Good	
Baro	1038	1037.8	1036	1035.8	

Overall Progress

Type	Today (hh:mm)	Accum (hh:mm)	Remarks
Mob/Demob		35:37	
Offshore Calibrations	00:24	07:59	
Total Operation Survey (TOSu)	09:43	237:06	
Total Operation Sampling (TOSa)	03:34	229:42	
Equipment/Downtime	00:44	10:29	Short term issue with drop camera. Resolved and station regained.
Ship/Plant Downtime		02:11	
Waiting On Weather		13:03	
Transit	09:35	86:23	
Standby Port		00:00	
Others		01:30	
Total:	24:00	624:00	

Overall Progress Geophysical Data Acquisition MBES/Sidescan

Segment/Area/Line	Today (Lkm)	Accum. (Lkm)	Current estimated total (Lkm)	Remarks
Acoustic: Multibeam				
Multibeam EM3000D / EM2040	69.3	2059.1		

Overall Progress Groundtruthing Samples

Action	Today (Lkm/samples)	Accum. (Lkm/samples)	Remarks
Hamon grab (0.1m ²)	0	365	
Camera sledge	0	95	
Drop camera	15	93	

DAILY LOG STATUS REPORT

Weather forecast for the next 24 hours

West backing south 3 or 4. Slight or moderate. Occasional drizzle, fog patches. Moderate or poor, occasionally very poor.

Planned operation for the next 24 hours (00:00 to 24:00 on 28th February 2012)

Complete additional ground truthing and multibeam at Wight-Barfleur Extension followed by additional unplanned work at Offshore Brighton to approx 14:00 – end of survey work. Passage to Lowestoft.

Agreed Changes to Scope/Survey operation priorities

Request from JNCC to add some samples from Offshore Brighton. Agreed to try for 2-3 drop camera samples from along existing multibeam line.

CEFAS/JNCC Comments

CEFAS SIC... [REDACTED] JNCC Rep: ... [REDACTED]

5.7 Fisheries Liaison Officer (FLO) Report

The vessels detailed below were observed to be operating within the Western Channel rMCZ during the survey CEND 03/12.

Mobile Fishing Gear

Vessel	Home Port	Gear Type	Target Species
FV Felir.	Saint Brieuc.	Stern Trawl.	Mixed
FV Pors Moguer.	Saint Brieuc.	Stern Trawl.	Mixed
FV Melisandre.	Saint Brieuc.	Stern Trawl.	Mixed
FV Testarossa.	Saint Brieuc.	Stern Trawl.	Mixed
FV Ecume Des Jours.	Saint Brieuc.	Stern Trawl.	Mixed
FV Alexandra.	Saint Malo.	Stern Trawl.	Mixed
FV Phoenix.	Saint Malo.	Stern Trawl.	Mixed
FV Celacante.	Paimpol.	Stern Trawl.	Mixed
FV Cap Frehel.	Morlaix.	Stern Trawl.	Mixed

Static Fishing Gear

Vessel	Home Port	Gear Type	Target Species
FV Marie-Lou.	Brest.	Tangle Nets.	Mixed
FV Berlewen.	Padstow.	Gill nets.	Mixed
FV Emma Jane.	Salcombe.	Pots.	Lobster/Crab.
FV Pen Glas.	Salcombe.	Pots.	Lobster/Crab.

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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.

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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.

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

Head office

Centre for Environment, Fisheries & Aquaculture Science
Pakefield Road, Lowestoft,
Suffolk NR33 0HT UK

Tel +44 (0) 1502 56 2244

Fax +44 (0) 1502 51 3865

Web www.cefas.defra.gov.uk

Centre for Environment, Fisheries & Aquaculture Science
Barrack Road, The Nothe
Weymouth, DT4 8UB

Tel +44 (0) 1305 206600

Fax +44 (0) 1305 206601