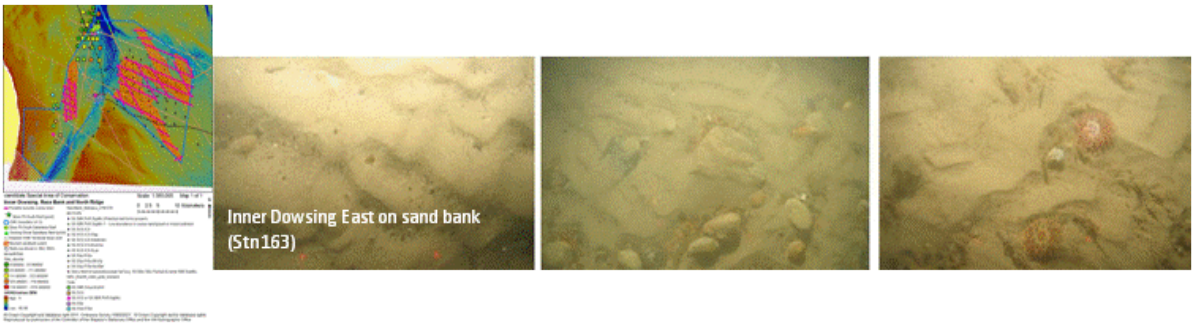
Cefas Endeavour Cruise Report

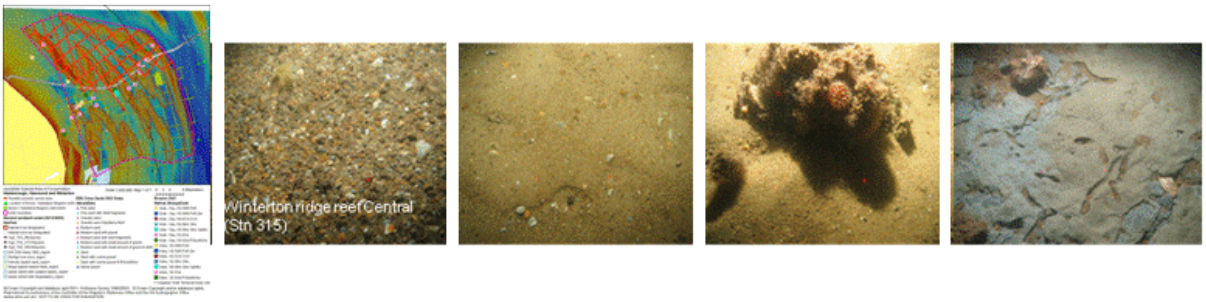
C END 05/11

Inner Dowsing, Race Bank and North Ridge

Haisborough, Hammond and Winterton

Paul Whomersley, Koen Vanstaen, Neil Golding & Ian Saunders





Cefas
JNCC
Joint Nature Conservation Committee
NATURAL ENGLAND

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Cruise report C End 11_11a

Location: Inner Dowsing, Race Bank, North Ridge, Haisborough, Hammond and Winterton.

Cruise Staff

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Cruise Aims

1. To acquire high quality acoustic and biological data of suitable resolution to contribute to the development of a baseline for long term monitoring of feature condition, taking account of current and potential future pressures affecting these sites.

2. To gather sufficient data to enable an initial assessment of the condition of the Annex I sandbank and biogenic reef features (to be undertaken at a later date) within the two sites according to Common Standards Monitoring Guidance.

3. To collect opportunistic plankton samples to assess the occurrence of invasive species

Sites of interest

1. The Inner Dowsing, Race Bank and North Ridge Candidate Special Area of Conservation (cSAC) is located off the south Lincolnshire coast in the vicinity of Skegness, extending eastwards and north from Burnham Flats on the North Norfolk coast. Habitats of interest include biogenic reef (*Sabellaria spinulosa* reefs) and sandbanks which are slightly covered by seawater all the time i.e.dynamic sand communities and gravelly muddy sand communities (Annex 1 habitats) (fig 1)

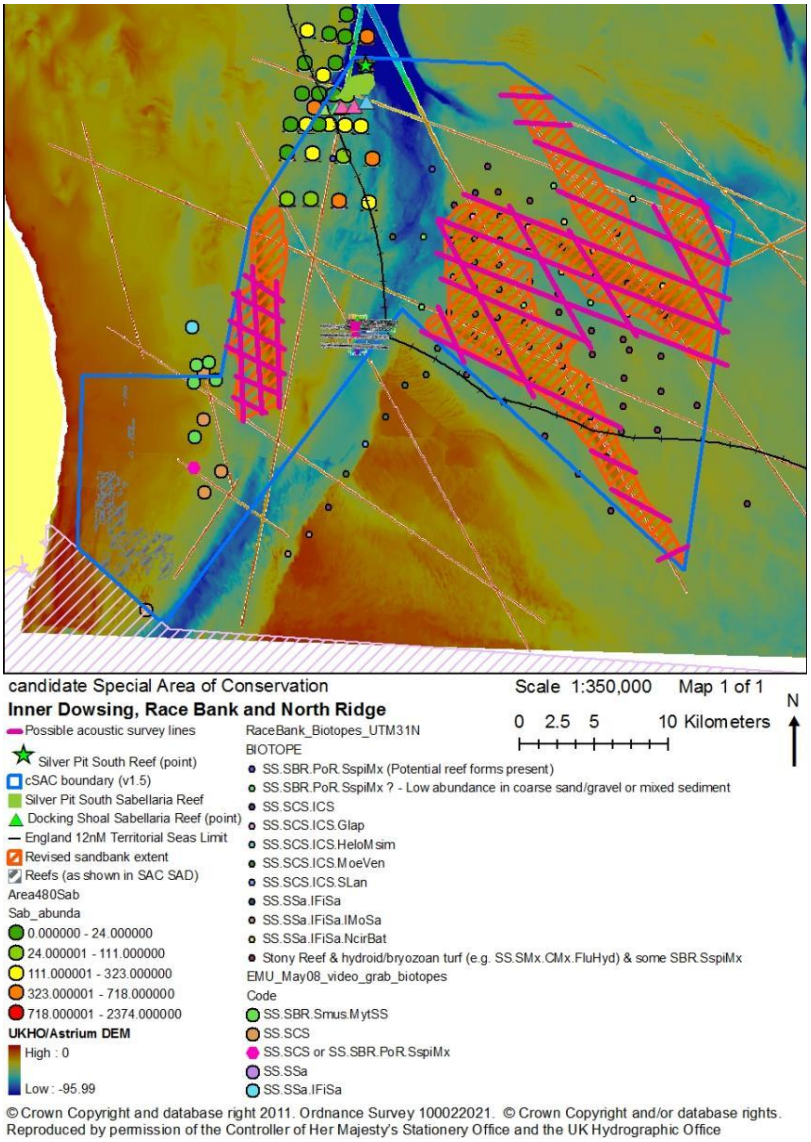


Figure 1. Site boundary for the Inner Dowsing, Race Bank and North Ridge cSAC

2. The Haisborough, Hammond and Winterton Candidate Special Area of Conservation (cSAC) lies off the north east coast of Norfolk, and contains a series of sandbanks which meet the Annex I habitat description “Sandbanks slightly covered by sea water all the time”. Other habitats of interest include (*Sabellaria spinulosa* reefs) (fig 2)

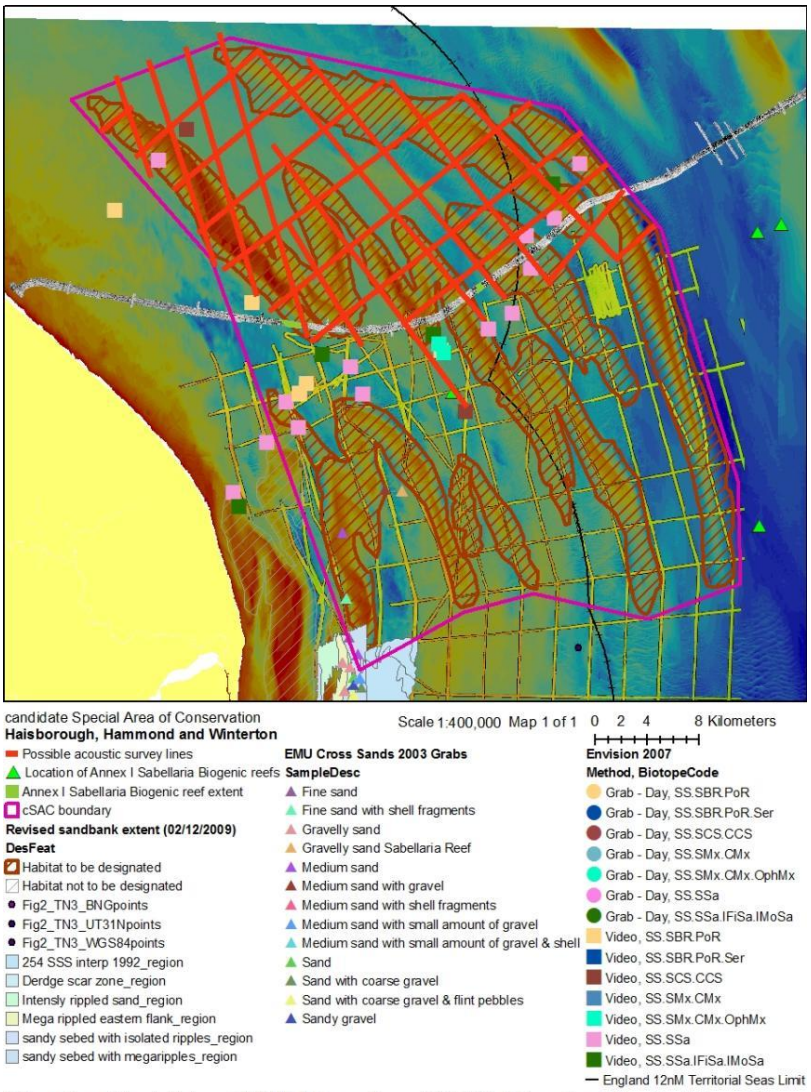


Figure 2. Site boundaries for Haisborough Hammond and Winterton cSAC

Cruise narrative

At 18:00 11_06_11 *Cefas Endeavour* departed Lowestoft and transited North to a pre-determined Multibeam (MB) Echosounder calibration site located North East of the planned acoustic survey (01:00, 12_06_11). During the transit the provisional survey design (fig 1) was modified to take into account the ships safe operational depth with the drop keel deployed and also restricted manoeuvrability due to sandbanks. This involved the reorientation of some acoustic lines to run parallel with and where possible inside the charted 15m contour.

During the survey if the initial data acquired was not deemed sufficient to delineate the boundaries of the features of interest but did indicated that the vessel could safely work closer to the features then the survey lines were adjusted in attempt to acquire the necessary data. To aid the location of the sand bank boundaries the MB swathe width on the channel adjacent to the sandbank edge was increased

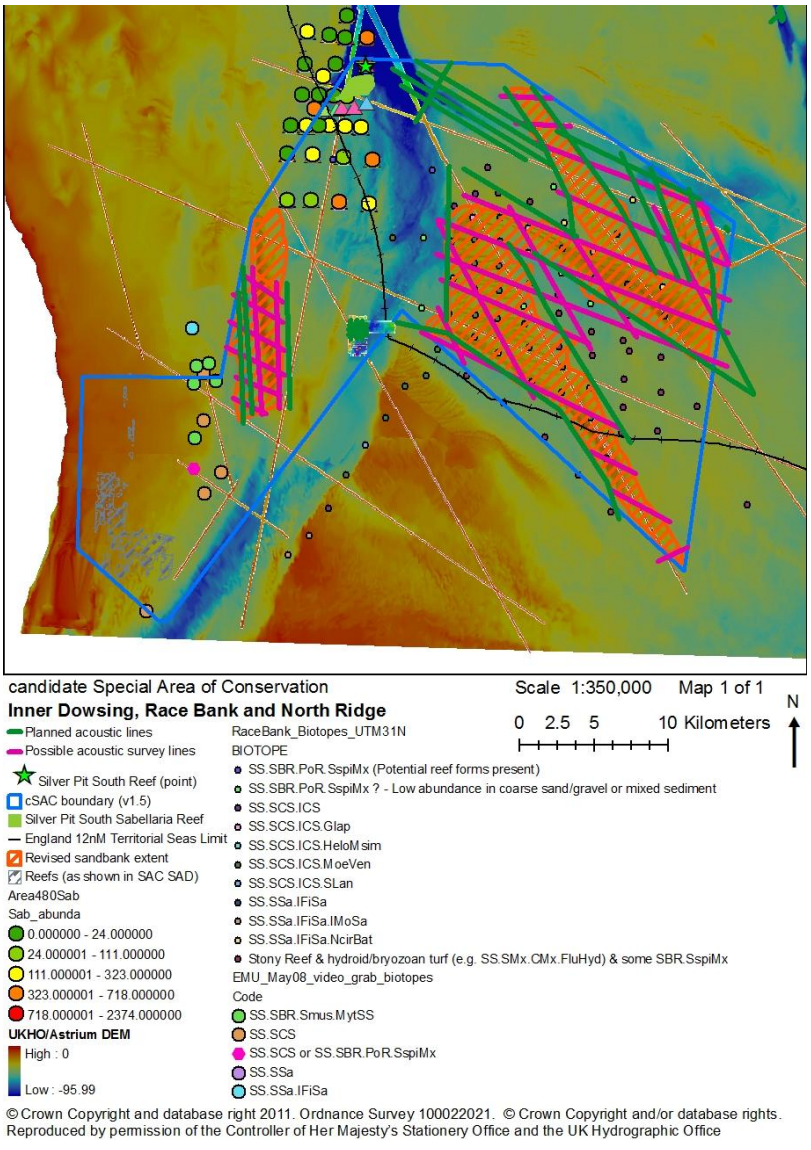


Figure 3. .Re-orientation of survey lines at IDRBNR

On completion of the calibration procedure gear deployment trials were undertaken to ensure that once within the sand bank system of Race Bank and North Ridge multiple gears (Sub-Bottom Profiler - SBP, Sidescan Sonar- SS) could be deployed and recovered safely. These trials highlighted a problem with the side scan sonar winch which was resolved (1 hour down time logged). The deployment and recovery trials also highlighted the fact that when the SBP was deployed that only turns to starboard could be made without recovering the gear first. On completion of these trials 11:30 (12_06_11) *Cefas Endeavour* transited west to the most easterly survey line of the IDRBNR acoustic survey

On arrival at the start of line (12:00, 12_06_11) a SVP cast (and then at either every 24 hours or the start of a new survey) along with a plankton sample were taken before starting the acoustic survey lines using the SBP, MB and SS. During the survey of this line the MB dropped out due to the loss of heading. While this was rectified the survey of the line continued using only the SBP and SS. Once the MB heading issue was rectified the survey of acoustic lines (26, 15, 24, 18, 33 and 14) continued with all three gears. During the survey of line 18 the MB heading dropped out again. The survey was halted until the problem was rectified (1 hour down time logged). Due to the quality of the output from the SBP due to weather conditions and sediment type the SBP was not deployed on every subsequent acoustic line.

Several features of interest were logged which included possible *Sabellaria spinulosa* reef and sediment bed-forms boundaries (fig 4)

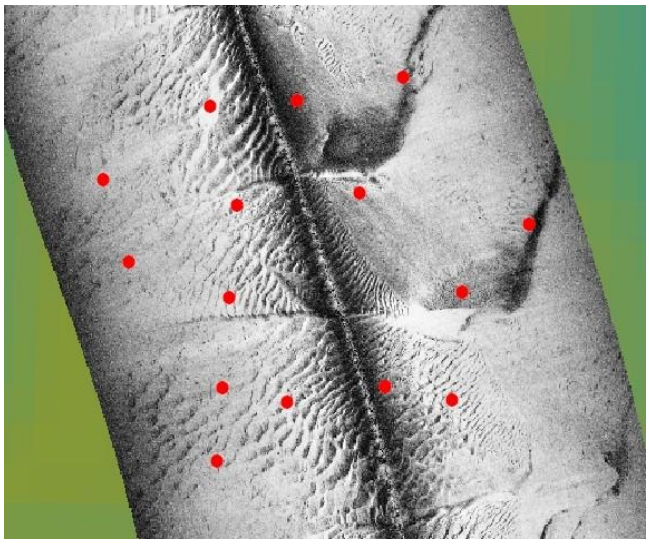


Figure 4. Bed form boundaries observed on acoustic line 26, red dots indicate groundtruthing sample positions

The acoustic survey of IDRBNR continued with acquisition of data from survey lines 31, 32, 34, 25 and 13. (07:00, 13_06_11). On completion of this line *Cefas Endeavour* transited to East Silver Pit to carry out an acoustic survey of a potential *Sabellaria spinulosa* reef. The acoustic survey of this reef was completed by (fig 5) (16:00, 13_06_11).

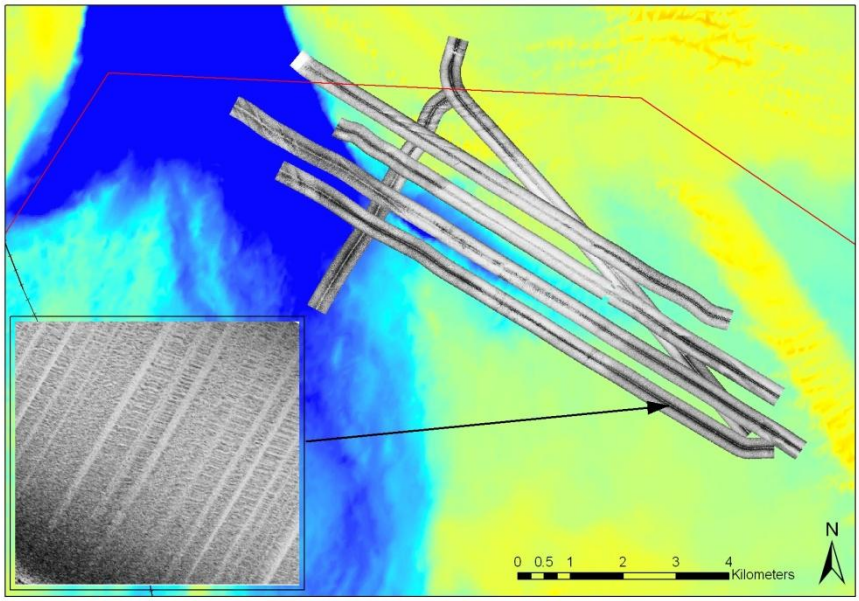


Figure 5. Acoustic (MB, SS) survey of East Silver Pit

During this time a ground discrimination survey Hamcam (HC) and Drop Camera (DC) aimed at assessing biological community variability within the sandbank complex of IDRBNR was designed. After the completion of the East Silver Pit acoustic survey *Cefas Endeavour* transited east back to the eastern edge of the cSAC boundary to conduct biological community variability surveys (18:00, 13-06_11). These surveys entailed sampling 15 randomly generated stations within a 10 hectare survey area which had been selected from previously collected and processed acoustic data (fig 5). Within the offshore area of IDRBNR 5 areas of interest were sampled in this way, two survey areas in the east of the site, one on and one off the sandbank complex (04:30), 14_06_11) (fig 6), West Dudgeon Shoal (09:00, 14_06_11), East North Ridge (13:00, 14_06_11) and On North Ridge (17:00, 14_06_11). The *Sabellaria spinulosa* reef recording protocol was followed at all grab stations where *Sabellaria spinulosa* reef was collected (Annex 5) i.e. a photograph of the whole sample was taken, a photograph of tubes with scale was taken and a mean tube length/elevation assessment carried out.

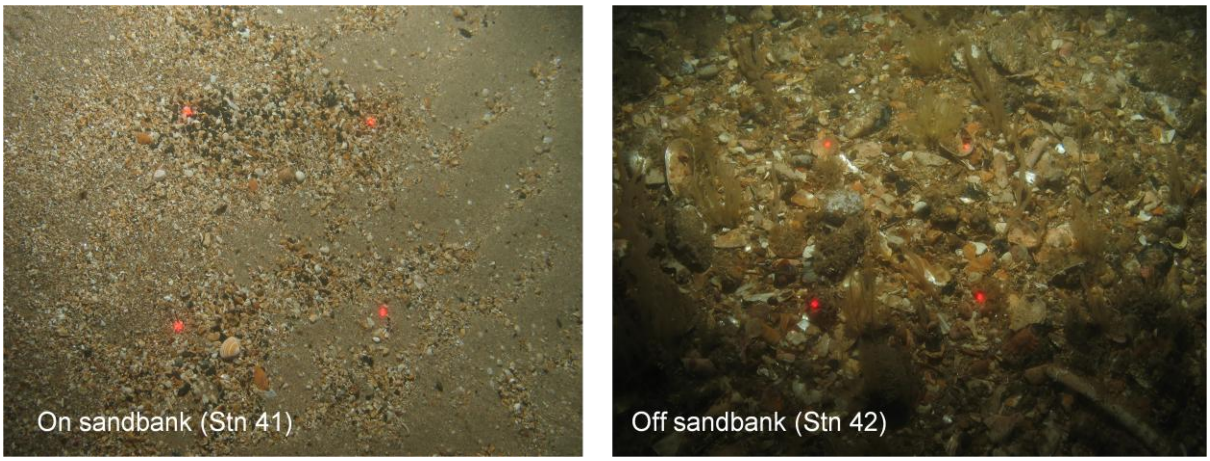


Figure 6. Still images taken from the DC deployments at stations on and off the sandbank depicting the different niche habitats found on and off the sand banks

During this work a camera survey based on the processed MB and SS data collected from the East Silver Pit site (fig 5) was designed. The survey aimed at assessing the quality and patchiness of *Sabellaria spinulosa* reef in the area. Seven ~ 200m long drop camera tows were sited based on knowledge of the acoustic signature of *Sabellaria* sp reef and crust (fig 5). Patchy *Sabellaria spinulosa* reef was identified during 5 of the 7 DC deployments (fig 7).

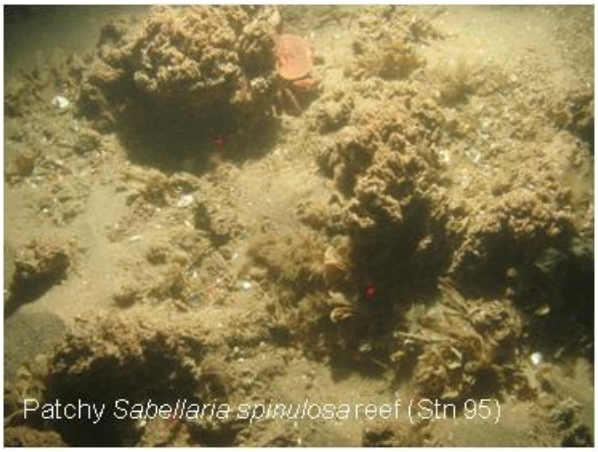


Figure 7. Still image taken during a Drop Camera deployment at East Silver Pit depicting patchy *Sabellaria* sp reef

After completion of the DC survey at East Silver Pit *Cefas Endeavour* transited to Docking Shoal to carry out an acoustic survey of an existing *Sabellaria spinulosa* reef. Multibeam data was collected during transit. On arrival (02:58, 15_06_11) a SVP cast was carried out and a plankton sample collected

On completion of the Docking Shoal acoustic survey (fig 8) *Cefas Endeavour* transited to the Inner Dowsing Sand bank complex to begin the planned acoustic survey (07:20, 15_06_11). Acoustic lines 7, 8 and 9 were completed (14:30, 15_06_11) before *Cefas Endeavour* transited back to Docking Shoal to carry out a ground truthing survey based on the previously collected and processed MB and SS data.

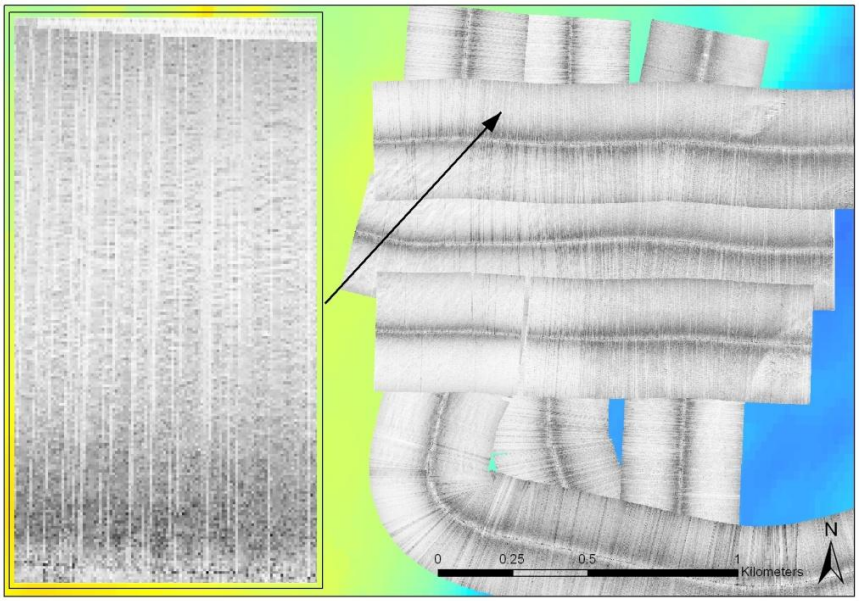


Figure 8. Processed acoustic data from the Docking Shoal *Sabellaria spinulosa* reef survey

During the transit *Cefas Endeavour* collected additional MB data and re-ran line 31 closer in to the sandbank complex to identify the bank edge. On arrival at Docking Shoal work began on the DC survey. On retrieval of the DC frame after the first deployment the starboard camera winch malfunctioned resulting in the DC frame being lost overboard (17:00, 15_06_11). A grapple was made using an Agassi beam trawl (net removed) and several grappling hooks attached. During this time a search for the frame was conducted using both MB and HIPAP. Once the grapple was constructed *Cefas Endeavour* reversed course (100m) then proceeded to retrace her course. At 20:30 15_06_11 the DC frame was grappled and retrieved on deck with just superficial damage to the protective mesh on the top of the frame (5 hours down-time logged). Due to the damage to the starboard camera cable operations were transferred to the stern. This resulted in the loss of HC capability due to operational restrictions relating to the deployment of gear off the stern of the vessel. At 22:00, 15_06_11. The DC survey resumed. Five drop camera tows were carried out. *Sabellaria* crust was identified in 3 of the 5 camera tows (00:30, 15_06_11) (fig 9).

Figure 9. Still image taken during a Drop Camera deployment at Docking Shoal showing *Sabellaria* sp reef fragments

On completion of this survey a Hamon grab (HG) survey of 15 randomly placed stations within the acoustically defined area was completed (04:00, 16_06_11). An additional 5 stations to assess reef quality were abandoned due to the poor quality of reef structure identified during the DC survey (fig 9). During this time repairs were ongoing on the damaged starboard camera cable.

On completion of the Docking Shoal *Sabellaria spinulosa* survey *Cefas Endeavour* transited west back to Inner Dowsing to ground truth the processed MB and SS data. As previously 15 randomly generated stations were placed in niche environments i.e. off and on sandbank features. Three stations were chosen, west on the bank, west off the bank and east on the bank (fig 10). On completion of this work *Cefas Endeavour* transited east to Silver Pit East to carry out a *Sabellaria spinulosa* reef assessment survey. During this survey the HC was again available for use due to the completion of the repair to the starboard camera cable. This was the final piece of work carried out in the IDRBNR cSAC before *Cefas Endeavour* transited south to Haisborough, Hammond and Winterton cSAC (00:00, 17_06_11).

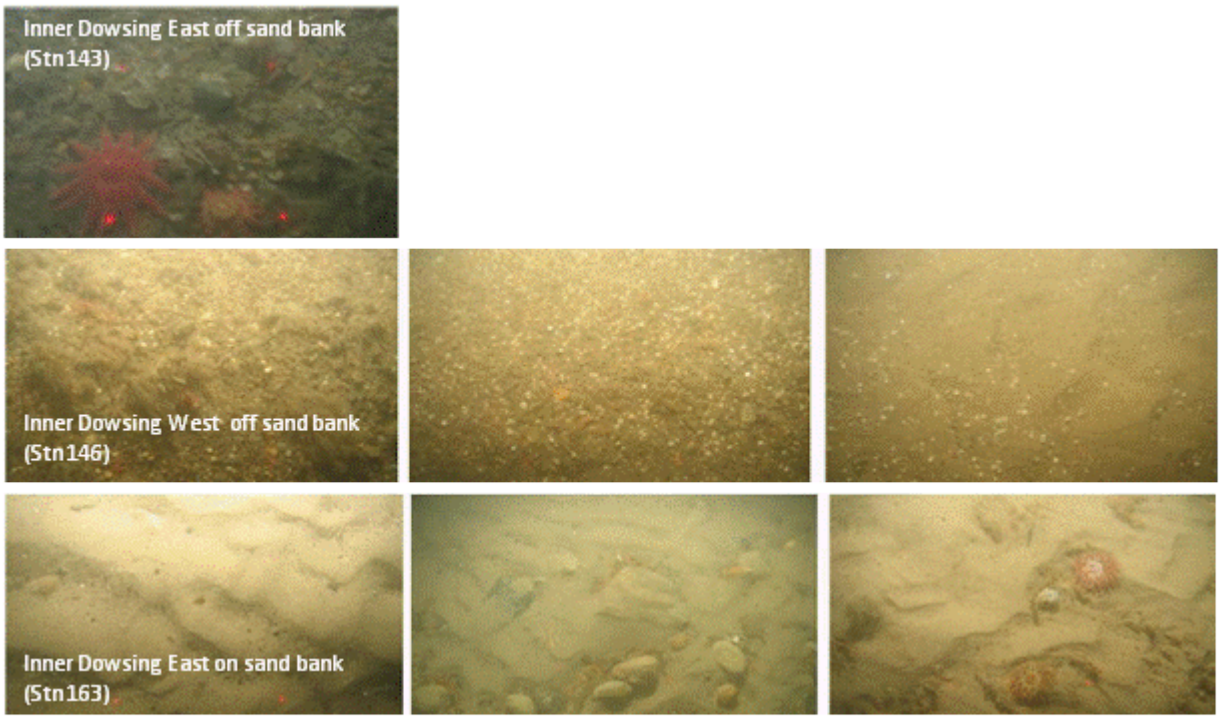


Figure 10. Still images taken during Drop Camera deployments depicting a range of niche environments around the Inner Dowsing sand bank complex.

During transit the provisional survey design for HHW (fig 2) was modified to take into account the ships safe operational depth with the drop keel deployed and also restricted manoeuvrability due to sandbanks. This resulted in the reorientation of some acoustic lines to run parallel with and where possible inside the charted 15m contour (fig 11).

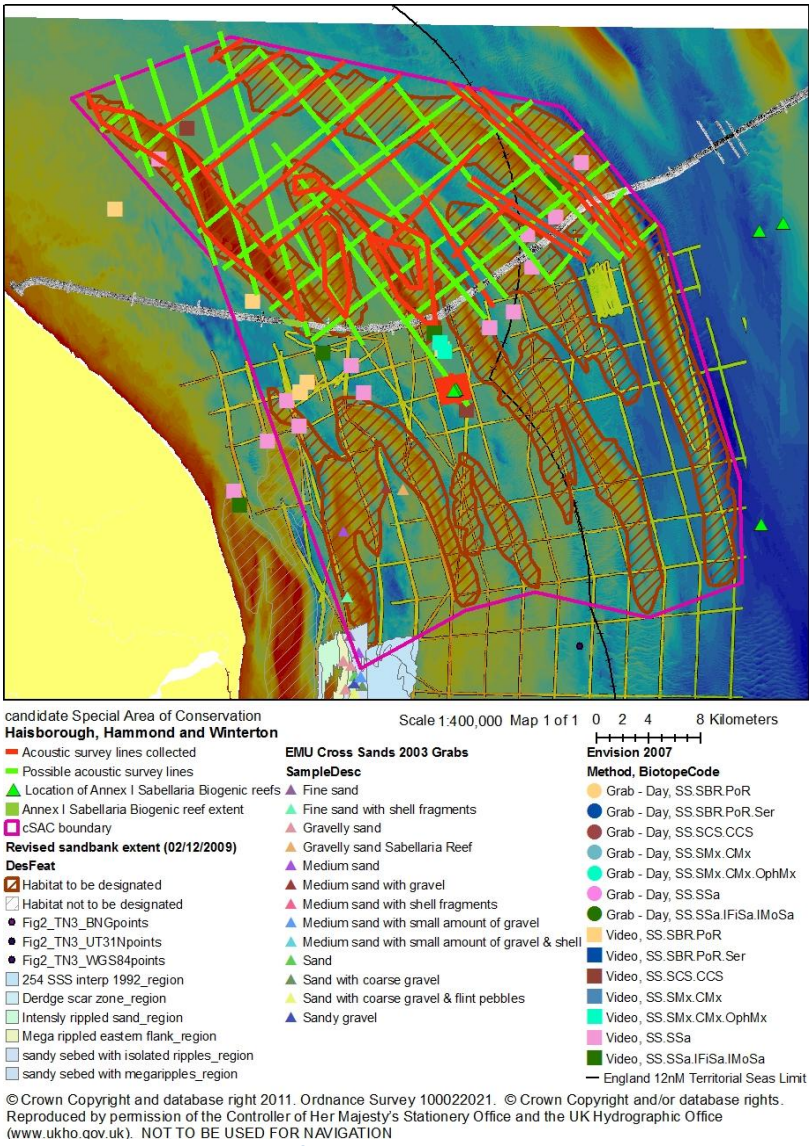


Figure 11. Re-orientation of survey lines at HHW.

During the transit south to HHW an opportunistic MB line was run along Race Bank. On arrival within HHW cSAC a SVP cast and plankton sample were carried out (11:30, 17_06_11). The acoustic survey of the area was carried out using MB, SS and SBP. Survey lines HHW2, 3, 1 were completed (17:40, 17_06_11) before another plankton and SVP cast were carried out. The acoustic survey continued, completing lines HHW4, 18, 17, 6, 5, 19,20 and 21 (11:18, 18_06_11).

During the above acoustic survey all MB and SS data were processed to allow ground discrimination HC and DC surveys to be planned. Five initial sites were chosen (the west side of Haisborough sandbank, Haisborough Tail Bight, Haisborough Tail Deep, Hewitts Ridge Crest and Hewitts Ridge Trough). The fist site (West Haisborough sandbank was sampled using HC and DC (DC tow abandoned due to poor visibility and tidal conditions). Observations from the HC footage showed sand waves to be present throughout the sample area. On completion of this ground discrimination survey (21:30, 18_06_11) an opportunistic MB and SS line was run through the Haisborough Tail *Sabellaria spinulosa* reef on transit to Haisborough

Gat. On arrival at Haisborough Gat reef acoustic data was acquired (fig 12) from the planned survey lines (22, 24, 26, 27, 29, 30, 28, 25, 23 and 31) (04:00, 19_06_11).

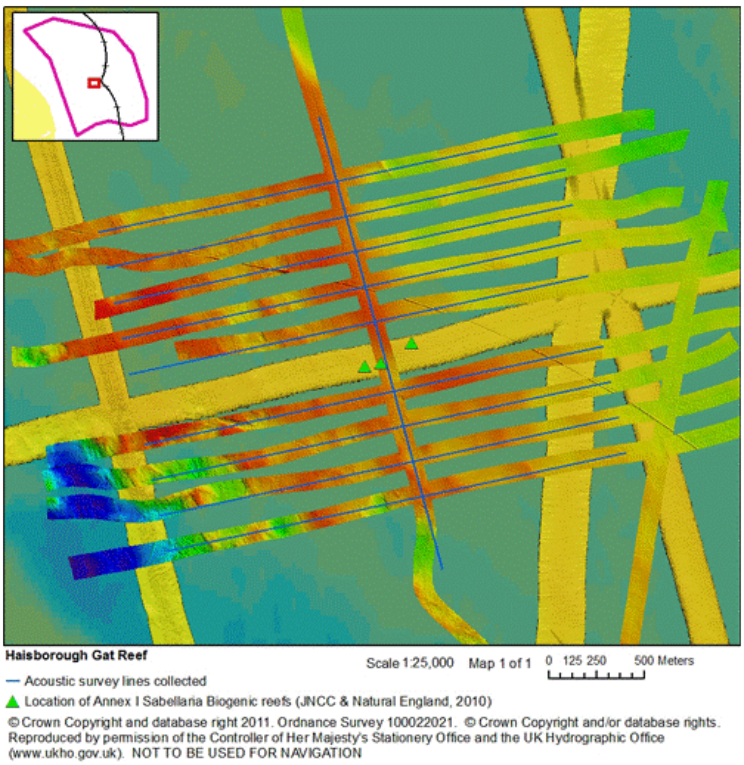


Figure 12. Acoustic survey of Haisborough Gat *Sabellaria spinulosa* Reef

On completion of the Haisborough Gat reef acoustic survey *Cefas Endeavour* transited North to survey the remaining survey lines within the HHW cSAC boundary (8, CL1, 9, 10, 11, 12 and 13) (19:30, 19_06_11). To allow the acquired acoustic data to be processed *Cefas Endeavour* proceeded back to the planned ground discrimination stations (Haisborough Tail Bight, Haisborough Tail Deep, Hewitts Ridge Crest and Hewitts Ridge Trough) to carry out the HC and DC surveys (fig 13).

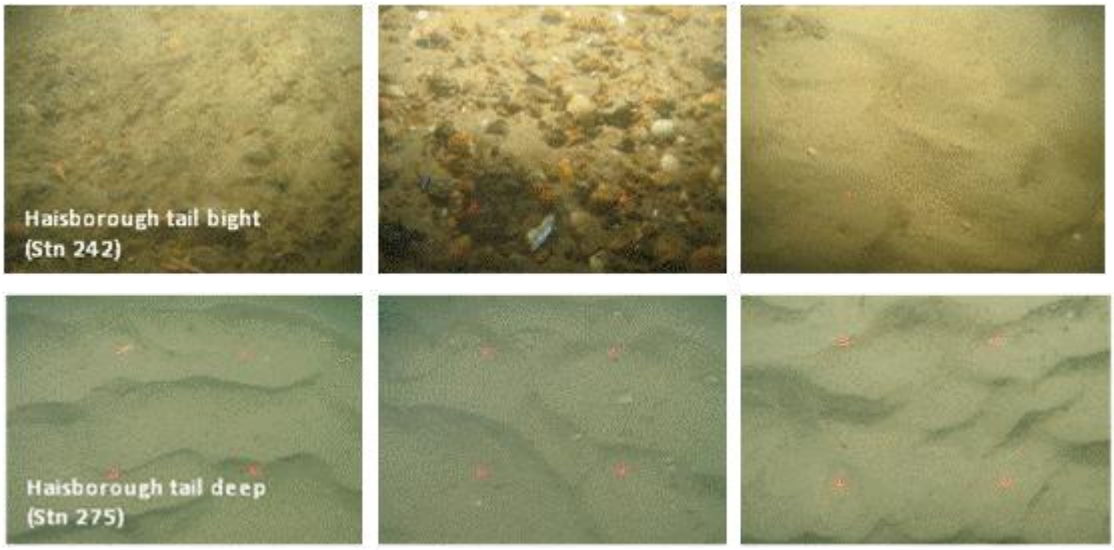


Figure 13. Still images taken during Drop Camera deployments at Haisborough Tail Bight and Haisborough Tail Deep

During the sampling of the above ground discrimination stations two surveys (Smiths Knoll transect and a *Sabellaria spinulosa* survey were designed based on the processed acoustic data collected the previous day (fig 14) (02:00, 20_06_11).

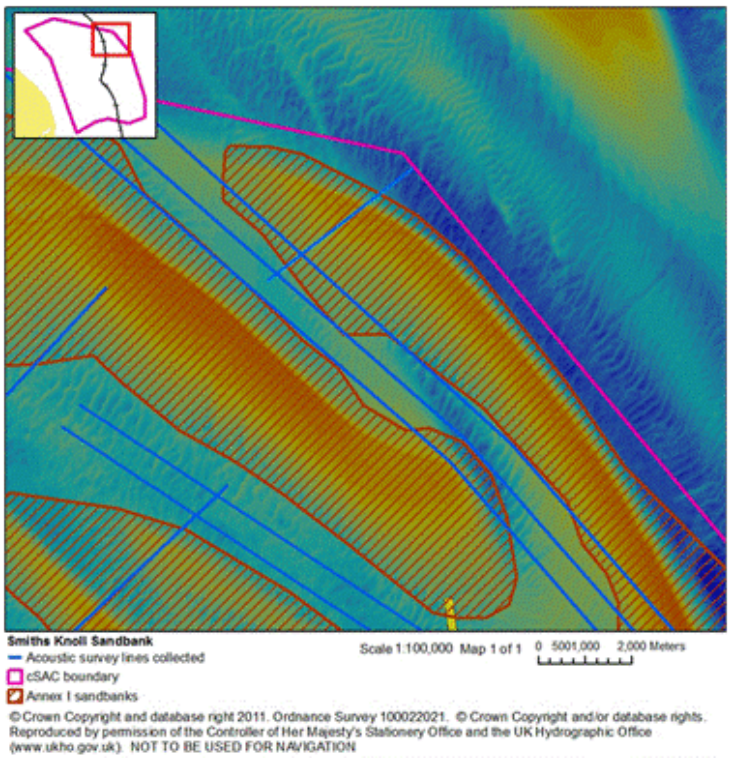


Figure 14. Extent of acoustic survey at Smiths Knoll sandbank complex

Figure 15. Acoustic survey lines and extent of ANNEX 1 *Sabellaria spinulosa* reef identified in the vicinity of Winterton Ridge

On completion of the planned work at both Hainsborough Tail and Hewitts Ridge (13:00, 20/06/11) *Cefas Endeavour* transited to Smiths Knoll to carry out an acoustic and HC survey. All grabs were collected successfully and at 20:00, 20/06/11 *Cefas Endeavour* transited south to begin the planned DC reef survey based on previously collected and processed acoustic data at Winterton Ridge. Patchy *Sabellaria spinulosa* reef was identified in the north, central and southern areas of the survey area (01:00, 21/06/11) (fig 15 and 16).

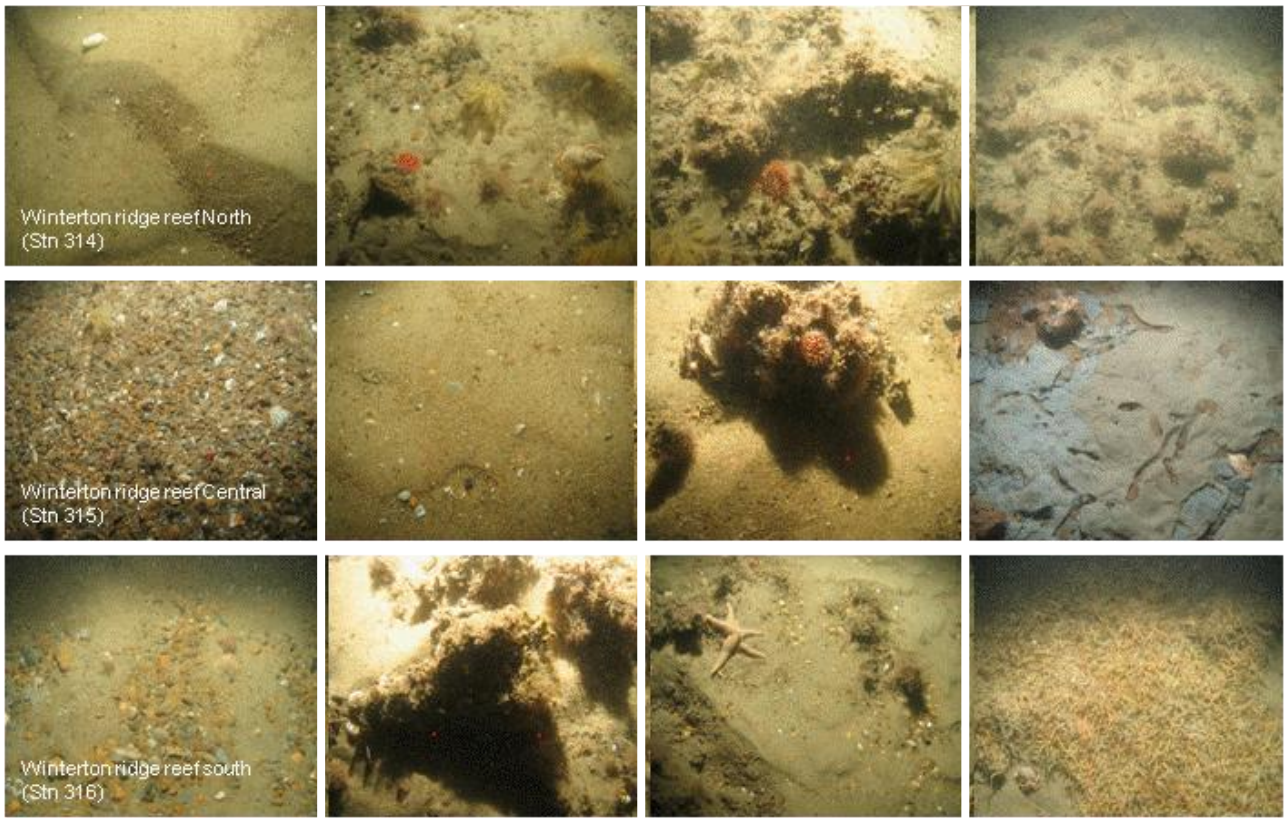


Figure 16. Still images taken during Drop Camera deployments at Winterton reef

Cefas Endeavour then transited south to carry out further DC and HC surveys (again based on previously collected and processed acoustic data) at Gat Reef where extensive *Sabellaria spinulosa* reef was identified (fig 17). On completion of these surveys a final plankton sample was collected before *Cefas Endeavour* had to leave the site to transit back to port (08:08, 21/06/11).

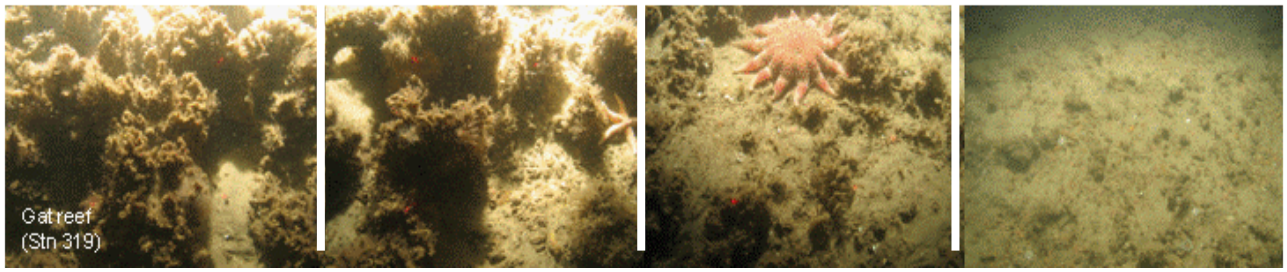


Figure 17. Still images taken during Drop Camera deployments at Gat reef

Sabellaria spinulosa reef assessment

Due to the importance of identifying the presence of *Sabellaria spinulosa* biogenic reef structures from acoustic anomalies and assessing the distribution and type of reef present, a reef assessment was carried out on any grab sample that contained *Sabellaria spinulosa (Annex 5).* Descriptions of reef structures were also noted during drop camera deployments

Figure 18. Images of sections of *Sabellaria spinulosa* reef sampled using the HamCam during groundtruthing surveys

Observed anthropogenic pressures

Human activities observed within and around the survey areas included

- Aggregate dredging (fig 19)

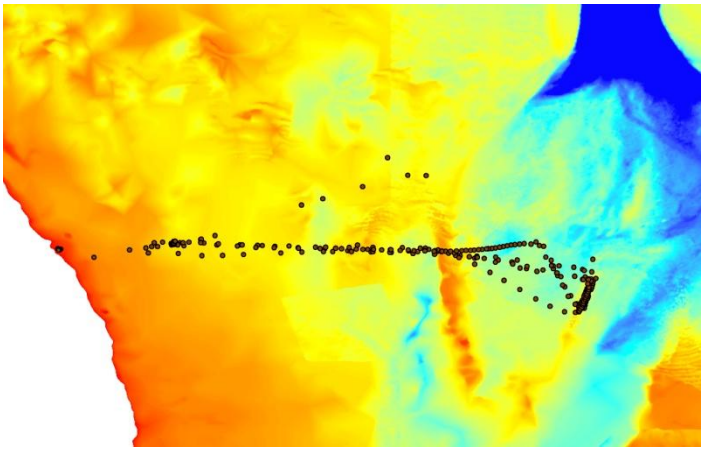


Figure 19. Track of the dredging vessel Pallieter

- Gas platform and export pipelines (fig 20)

Figure 20. Gas platform and pipeline within the Hewett Gas Field

- Evidence of static gear around Inner Dowsing
- Trawl marks were observed throughout the survey areas
- Wind turbines (Lincs round 2 wind farm) (fig 21)
- The construction of wind turbines (jackup installation barges were present)

Figure 21. Off shore wind farm construction

- General marine traffic

The MEMO (Mnemiopsis Ecology Modelling and Observation) Project

The MEMO (*Mnemiopsis* Ecology Modelling and Observation) Project is part of a wider sampling program in collaboration with Ifremer (France), ILVO (Belgium) and Deltares (Netherlands). The aims of the project are to improve the understanding of the distribution, life history and ecology of the ctenophore, *Mnemiopsis Leidyi*.

Mnemiopsis Leidyi is native to western Atlantic coastal waters, but was found as an invasive species in first the Black Sea and later in the Caspian Sea. In those ecosystems it caused a dramatic decline in fish and zooplankton populations due to its carnivorous diet. In 2006 it was first recorded in the North and Baltic Seas, which is why the MEMO project was established.

During this survey a cross section of the planktonic communities, including phytoplankton, zooplankton and gelatinous species were sampled using a set of Bongo nets (fig 22) and identified onboard. A large number of ctenophores and jellyfish were recorded but no *Mnemiopsis Leidyi* were identified.

Figure 22. The deployment of the Bongo nets during sampling for the invasive Ctnephore *Mnemiopsis Leidyi*

Annex 1 Daily Progress Reports

DAILY LOG
STATUS REPORT
IDRBNR & HHW cSAC
RV Cefas Endeavour – JNCC – NE - DPR No. 1 – Sat 11/6/11

Vessel: *RV Cefas Endeavour* GSM : 07799 773456 Email: Cefas.endeavour@gtships.com	Project: *IDRBNR & HHW* Satellite Voice Bridge: 00 870 763998027 or 00871763998027
Daily Progress Report No. 1	Location at 24:00: 53.2643N; 01.0357E
Date: Sat 11th June '11	

To Company:	Attention:	E-mail:
JNCC	Steve Gibson	Steve.Gibson@jncc.gov.uk
JNCC	Jon Davies	Jon.Davies@jncc.gov.uk
JNCC	Anna Noble	Anna.Noble@jncc.gov.uk
NE	Chris Pirie	Chris.Pirie@naturalengland.org.uk
NE	Ian Reach	Ian.Reach@naturalengland.org.uk
NE	Jen Ashworth	Jen.ashworth@naturalengland.org.uk
Cefas	Dave Limpenny	david.limpenny@Cefas.co.uk
Cefas	Sian Limpenny	Sian.Limpenny@Cefas.co.uk

Safety

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

Summary of operations 0000-2400

Time UTC	Type	Comments
10:00	Mob/Demob	Mobilisation
18:00	Transit	Depart Lowestoft & Transit to calibration area north east of IDRBNR

Weather

Weather/sea state conditions	0000-0600	0600-1200	1200-1800	1800-2400	Remarks
	On Quay	On Quay	On Quay	Clear/cloudy 1m swell Viz: Good/Clear	

Overall Progress

Type	Today (hh:mm)	Accum (hh:mm)		Remarks
Mob/Demob	7:00	7:00		Mobilisation from Lowestoft
Offshore Calibrations				
Total Operation Survey (TOSu)				
Total Operation Sampling (TOSa)				
Equipment/Downtime				
Ship/Plant Downtime				
Waiting On Weather				
Transit	7:00	7:00		Transit to calibration area
Standby Port				
Others				

DAILY LOG
STATUS REPORT

Total:	**14:00**	**14:00**		

Weather forecast for the next 24 hours

Clear and calm weather forecast, with low moving in.

Planned operation for the next 24 hours (00:00 to 24:00 on Date)

Commence calibration for multibeam and then start acoustic lines within IDRBNR cSAC

Agreed Changes to Scope/Survey operation priorities

CEFAS Comments

Cefas Scientist in Charge: Paul Whormesley *JNCC Client Rep.* : Neil Golding

Natural England Client Ref: Ian Saunders

DAILY LOG
STATUS REPORT

Vessel: *RV Cefas Endeavour* GSM : 07799 773456 Email: Cefas.endeavour@gtships.com	Project: *IDRBNR & HHW* Satellite Voice Bridge: 00 870 763998027 or 00871763998027
Daily Progress Report No. 2	Location at 24:00: 53.3823ºN 0.8052ºE
Date: Sun 12th June '11	

To Company:	Attention:	E-mail:
JNCC	Steve Gibson	Steve.Gibson@jncc.gov.uk
JNCC	Jon Davies	Jon.Davies@jncc.gov.uk
JNCC	Anna Noble	Anna.Noble@jncc.gov.uk
NE	Chris Pirie	Chris.Pirie@naturalengland.org.uk
NE	Ian Reach	Ian.Reach@naturalengland.org.uk
NE	Jen Ashworth	Jen.ashworth@naturalengland.org.uk
Cefas	Dave Limpenny	david.limpenny@Cefas.co.uk
Cefas	Sian Limpenny	Sian.Limpenny@Cefas.co.uk

Safety

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

Summary of operations 0000-2400

Time UTC	Type	Comments
00:00	Transit	Transit to calibration site
01:30:00	Calibrations	
09:30:00	Equipment downtime	SIS software not gridding multibeam data Sidescan winch tripping during operations
10:30:00	Transit	Transit to survey site
12:06:00	TOSu	Acoustic surveying, multibeam, sidescan and sub bottom profiler
15:15:00	Equipment downtime	Error with heading sensors on multibeam
17:31:00	TOSu	Acoustic surveying – sidescan and sub bottom profiler only
18:08:00	TOSu	Multibeam sonar back in operation
19:22:00	TOSu	Sub bottom profiler recovered due to poor weather
20:28:00	Transit	
20:56:00	TOSu	Acoustic survey - Multibeam and sidescan only
22:45:00	Transit	
22:52:00	TOSu	Acoustic survey – multibeam and sidescan only

Weather

Weather/sea state conditions	0000-0600	0600-1200	1200-1800	1800-2400	Remarks
	Clear/cloudy 1m swell, good visibility	Clear, 1m+ swell, good visibility	Clear/cloudy 1m swell, good visibility	Rain, 2m swell, poor visibility	

Overall Progress

Type	Today (hh:mm)	Accum (hh:mm)		Remarks
Mob/Demob	00:00	07:00		
Offshore Calibrations	08:00	08:00		
Total Operation	08:00	08:00		

DAILY LOG
STATUS REPORT

Survey (TOSu)				
Total Operation Sampling (TOSa)	00:00	00:00		
Equipment/Downtime	03:16	03:16		
Ship/Plant Downtime	00:00	00:00		
Waiting On Weather	00:00	00:00		
Transit	03:06	10:06		
Standby Port	00:00	00:00		
Transit within survey area	01:38	01:38		
Total:	**24:00**	**38:00**		

Overall Progress Geophysical Data Acquisition MBES

Segment/Area/Line	Today (Lkm)	Accum. (Lkm)	Current estimated total (Lkm)	Remarks
Broadscale Acoustic				
EM3002D Multibeam	118	118	118	
Fine Scale Acoustic				
Edgetech 300/600 4200 Sidescan Sonar	122	122	122	
Sub- Bottom Profiling				
Edgetech SB-216S SBP	47	47	47	

Overall Progress Groundtruthing Samples

Action					Remarks
N/A					No samples taken

Consumables

Items	Today	Acc.	Remarks
N/A			

Weather forecast for the next 24 hours

Weather due to improve for Mon 13th June, with fair forecast

Planned operation for the next 24 hours (00:00 to 24:00 on Date)

Finish planned transects of sandbanks and commence groundtruthing – using Hamon Grab with HamCam initially. Also commence acoustic data acquisition for biogenic reef areas around Silver Pit East and Docking Shoal

Agreed Changes to Scope/Survey operation priorities

Planned survey lines needed modification as cross-sandbank transects were limited by depth. Vessel required to stay outside the 15m contour on Admiralty charts (>15m) so survey effort has been restricted to outer flanks of sandbanks. No transects across the crests of sandbanks are possible. Survey effort will be redistributed, with potential to increase survey effort of *S. spinulosa* reefs.

CEFAS Comments

Survey progressing well, several areas of interest identified for further investigation using grab and drop down camera techniques.

DAILY LOG
STATUS REPORT

Cefas Scientist in Charge: Paul Whomersley *JNCC Client Rep*. : Neil Golding

Natural England Client Rep: Ian Saunders

DAILY LOG
STATUS REPORT

Vessel: *RV Cefas Endeavour* GSM : 07799 773456 Email: Cefas.endeavour@gtships.com	Project: *IDRBNR & HHW* Satellite Voice Bridge: 00 870 763998027 or 00 871 763998027
Daily Progress Report No. 3	Location at 24:00: 53° 19.1 N; 0° 59.2 E
Date: Mon 13th June '11	

To Company:	Attention:	E-mail:
JNCC	Steve Gibson	Steve.Gibson@jncc.gov.uk
JNCC	Jon Davies	Jon.Davies@jncc.gov.uk
JNCC	Anna Noble	Anna.Noble@jncc.gov.uk
NE	Chris Pirie	Chris.Pirie@naturalengland.org.uk
NE	Ian Reach	Ian.Reach@naturalengland.org.uk
NE	Jen Ashworth	Jen.ashworth@naturalengland.org.uk
Cefas	Dave Limpenny	david.limpenny@Cefas.co.uk
Cefas	Sian Limpenny	Sian.Limpenny@Cefas.co.uk

Safety

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

Summary of operations 0000-2400

Time UTC	Type	Comments
00:00	TOSu	Acoustic survey lines 31a, 31, 32a, 32b, 34, 25, 13
07:45	TOSa	CTD
09:09	TOSu	Acoustic survey lines SPE01, SPE02, SPE03
13:49	TOSa	CTD
14:00	TOSu	Acoustic survey lines SPE04, SPE05
16:08	Transit	Transit to grab sample site OFFB (off bank)
18:14	TOSa	Hamon grab sampling at site OFFB (off bank)
20:48	Transit	Transit to grab site ONB (on bank)
22:16	TOSa	Hamon grab sampling at site ONB (on bank)

Weather

Weather/sea state conditions	0000-0600	0600-1200	1200-1800	1800-2400	Remarks
	Wind 170° 35 Sea ht 2.5 Swell 170° 2 1016.5 mb Vis 5	Wind 190° 15 Sea ht 1 Swell 170° 2 1016 mb Vis 6	Wind 210° 16 Sea ht 1 Swell 200° 2 1016.5 mb Vis 7	Wind 350° >10 Sea ht >1 Swell 210° 1 1020 mb Vis 7	

Overall Progress

Type	Today (hh:mm)	Accum (hh:mm)		Remarks
Mob/Demob	00:00	07:00		
Offshore Calibrations	01:35	09:35		
Total Operation Survey (TOSu)	09:52	17:52		
Total Operation Sampling (TOSa)	04:18	04:18		
Equipment/Downtime	00:00	03:16		
Ship/Plant Downtime	00:00	00:00		
Waiting On Weather	00:00	00:00		

DAILY LOG
STATUS REPORT

Type	Today (hh:mm)	Accum (hh:mm)		Remarks
Transit	00:00	10:06		
Standby Port	00:00	00:00		
Transit within survey area	08:15	09:53		
Total:	**24:00**	**62:00**		

Overall Progress Geophysical Data Acquisition MBES

Segment/Area/Line	Today (Lkm)	Accum. (Lkm)	Current estimated total (Lkm)	Remarks
Multibeam (Acoustic)				
EM3002D Multibeam	158	276	276	
Sidescan (Acoustic)				
Edgetech 300/600 4200 Sidescan Sonar	120	242	242	
Sub-bottom profiler				
Edgetech SB-216S SBP	5	52	52	

Overall Progress Groundtruthing Samples

Action	**Quantity today**	**Quantity accum.**			**Remarks**
Hamon grab samples	24	24			

Consumables

Items	Today	Acc.	Remarks

Weather forecast for the next 24 hours

Fine

Planned operation for the next 24 hours (00:00 to 24:00 on Date)

Continue to collect biological samples from North Ridge and continue to East Silver Pit potential sabellaria area if time allows.

Agreed Changes to Scope/Survey operation priorities

CEFAS Comments

Cefas Scientist in Charge: Paul Whormesley *JNCC Client Rep.*: Neil Golding

Natural England Client Rep: Ian Saunders

DAILY LOG
STATUS REPORT

Vessel: *RV Cefas Endeavour* GSM : 07799 773456 Email: Cefas.endeavour@gtships.com	Project: *IDRBNR & HHW* Satellite Voice Bridge: 00 870 763998027 or 00 871 763998027
Daily Progress Report No. 4	Location at 24:00: 53º 22.1'N 0º 48.4'E
Date: Tues 14th June '11	

To Company:	Attention:	E-mail:
JNCC	Steve Gibson	Steve.Gibson@jncc.gov.uk
JNCC	Jon Davies	Jon.Davies@jncc.gov.uk
JNCC	Anna Noble	Anna.Noble@jncc.gov.uk
NE	Chris Pirie	Chris.Pirie@naturalengland.org.uk
NE	Ian Reach	Ian.Reach@naturalengland.org.uk
NE	Jen Ashworth	Jen.ashworth@naturalengland.org.uk
Cefas	Dave Limpenny	david.limpenny@Cefas.co.uk
Cefas	Sian Limpenny	Sian.Limpenny@Cefas.co.uk

Safety

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

Summary of operations 0000-2400

Time UTC	Type	Comments
00:00	TOSa	Continue Hamon grab sampling on ONB (on bank) stations.
01:12	Calibration	CTD and plankton sample
01:45	Transit within survey area	Transit to carry out drop camera transects within ONB (on bank) and OFFB (off bank) survey boxes on Dudgeon Shoal.
02:30	TOSa	Drop camera within ONB survey box
03:45	Transit within survey area	Transit to OFFB survey box
04:10	TOSa	Drop camera within OFFB survey box
05:10	Transit within survey area	Transit to West Dudgeon Shoal (WDS) survey box to undertake Hamon grabs (15 random generated samples in 10 hectare box)
05:58	TOSa	15 Hamon grabs at West Dudgeon Shoal
09:00	Transit within survey area	Transit to East North Ridge (ENR) survey box to undertake Hamon grabs (15 random generated samples in 10 hectare box). This was in the trough between North Ridge and Dudgeon Shoal
09:44	Calibration	CTD and plankton sample
10:02	TOSa	15 Hamon grabs at East North Ridge (ENR) survey box
12:58	TOSu	Transit to Off North Ridge (ONR) survey box to undertake Hamon grabs (15 random generated samples in 10 hectare box). This was just off North Ridge bank. Acoustic data gathered during transit
13:48	TOSa	15 Hamon grabs at Off North Ridge (ONR) survey box
17:19	TOSu	Transit to Silver Pit East (SPE) survey box to undertake drop camera transects to examine potential *Sabellaria* acoustic signatures on sidescan lines. Acoustic data gathered during transit
18:27	TOSa	Camera transects SPEDC2, SPEDC3, SPEDC1, SPEDC6, & SPEDC7 over potential *Sabellaria* sidescan targets.

DAILY LOG
STATUS REPORT

Weather

Weather/sea state conditions	0000-0600	0600-1200	1200-1800	1800-2400	Remarks
	Wind 300° 14 Sea ht 1 Swell 200° 1 1024 mb Vis 7	Wind 310° 10 Sea ht 1 Swell Neg 1026 mb Vis 7	Wind 310° 7 Sea ht 0.5 Swell ~° 0 1029 mb Vis 8	Wind 180° >10 Sea ht 0.5 Swell ~° 0 1029 mb Vis 8	

Overall Progress

Type	Today (hh:mm)	Accum (hh:mm)		Remarks
Mob/Demob		07:00		
Offshore Calibrations	00:51	10:26		
Total Operation Survey (TOSu)	01:58	19:50		
Total Operation Sampling (TOSa)	18:29	22:47		
Equipment/Downtime		03:16		
Ship/Plant Downtime				
Waiting On Weather				
Transit		10:06		
Standby Port				
Transit within survey area	02:42	12:35		
Total:	**24:00**	**86:00**		

Overall Progress Data Acquisition

Segment/Area/Line	***Today (Lkm/samples)***	***Accum. (Lkm/samples)***	***Remarks***
Multibeam (Acoustic)			
EM3002D Multibeam	*11 km*	*287 km*	
Sidescan (Acoustic)			
Edgetech 300/600 4200 Sidescan Sonar	*6 km*	*248 km*	
Sub-bottom profiler			
Edgetech SB-216S SBP	*0 km*	*52 km*	
Groundtruthing			
Hamon grab 0.1m^3	*51 samples*	*75 samples*	
Camera Drop frame	*7 transects*	*7 transects*	

Weather forecast for the next 24 hours

Overcast with showers but light winds

Planned operation for the next 24 hours (00:00 to 24:00 on Date)

Move to Docking Shoal and Inner Dowsing Bank (via Race Bank) to collect acoustic data and groundtruthing samples for reef and sandbank features

DAILY LOG
STATUS REPORT

Agreed Changes to Scope/Survey operation priorities

Problems have been experienced during processing the sidescan sonar data – with layback issues. This is a fault known by Cefas and will require the sidescan lines to be re-processed once a 'software patch' has been provided by Triton. This is planned to be done whilst still on-board.

CEFAS Comments

Cefas Scientist in Charge: Paul Whormesley *JNCC Client Rep*. : Neil Golding

Natural England Client Rep: Ian Saunders

DAILY LOG
STATUS REPORT

Vessel: *RV Cefas Endeavour* GSM : 07799 773456 Email: Cefas.endeavour@gtships.com	Project: *IDRBNR & HHW* Satellite Voice Bridge: 00 870 763998027 or 00 871 763998027
Daily Progress Report No.5	Location at 24:00: 53° 14.9N, 0° 38.5E
Date: Wed 15th June '11	

To Company:	Attention:	E-mail:
JNCC	Steve Gibson	Steve.Gibson@jncc.gov.uk
JNCC	Jon Davies	Jon.Davies@jncc.gov.uk
JNCC	Anna Noble	Anna.Noble@jncc.gov.uk
NE	Chris Pirie	Chris.Pirie@naturalengland.org.uk
NE	Ian Reach	Ian.Reach@naturalengland.org.uk
NE	Jen Ashworth	Jen.ashworth@naturalengland.org.uk
Cefas	Dave Limpenny	david.limpenny@Cefas.co.uk
Cefas	Sian Limpenny	Sian.Limpenny@Cefas.co.uk

Safety

	Today	To Date
Accidents/Incidents	1	1
Near Misses	0	0
Safety Drills/Induction	0	1
Additional comments:	Suspected malfunction on side winch remote caused winch to wind in uncontrollably, resulting in wire snapping and drop camera falling over board. Camera frame recovered. P&O and Cefas incident forms have been filed.	

Summary of operations 0000-2400

Time UTC	Type	Comments
00:00	TOSa	Drop camera transects on Silver Pit East – SPEDC4 and SPEDC5
01:58	Calibration	CTD & Plankton sample
02:29	TOSu	Acoustic lines DS2, DS1, DS3, DS2 (alternate direction) DS4, DS6 & DS5.
08:20	Calibration	CTD and plankton sample
09:12	TOSu	Acoustic lines 7, 8 & 9 (Inner Dowsing sandbank lines)
15:28	TOSa	Drop camera tows DSDC01 (Docking Shoal)
16:00	Ship/Plant Downtime	incident with side gantry winch (see incident note above)
18:30	TOSa	Continue camera tows on Docking Shoal
19:30	Equipment/ Downtime	Fault with camera cable connection to rear gantry – no video signal reaching main lab.
20:00	TOSa	Continue camera tows on Docking Shoal (DSDC04, 05, 02 & 06)

Weather

Weather/sea state conditions	0000-0600	0600-1200	1200-1800	1800-2400	Remarks
	Wind 140º 13 Sea ht 1 Swell 130º 1 1025 mB Vis 7	Wind 180º 20 Sea ht 1 Swell 170 º 1 1023 mB Vis 7	Wind 190º 13 Sea ht 1 Swell 180º 1 1023 mB Vis 7	Wind 205º 10 Sea ht 1 Swell 180º 1 1023 mB Vis 7	

Overall Progress

Type	Today (hh:mm)	Accum (hh:mm)		Remarks
Mob/Demob		07:00		
Offshore Calibrations	01:23	11:49		
Total Operation Survey (TOSu)	12:07	31:57		

DAILY LOG
STATUS REPORT

Type	Today (hh:mm)	Accum (hh:mm)		Remarks
Total Operation Sampling (TOSa)	07:30	30:17		
Equipment/Downtime	00:30	3:46		
Ship/Plant Downtime	02:30	02:30		
Waiting On Weather				
Transit		10:06		
Standby Port				
Transit within survey area		12:35		
Total:	**24:00**	**110:00**		

Overall Progress - Data Acquisition

Segment/Area/Line	***Today (Lkm/samples)***	***Accum. (Lkm/samples)***	***Remarks***
Multibeam (Acoustic)			
EM3002D Multibeam	*72km*	*359km*	
Sidescan (Acoustic)			
Edgetech 300/600 4200 Sidescan Sonar	*70km*	*318km*	
Sub-bottom profiler			
Edgetech SB-216S SBP	*59km*	*111km*	
Groundtruthing			
Hamon grab 0.1m^3	*0*	*75 samples*	
Camera Drop frame	*7 transects*	*14 transects*	

Weather forecast for the next 24 hours

Forecast w/sw 3-4. Backing south later. Vis moderate or good, showers. Sea state slight.

Planned operation for the next 24 hours (00:00 to 24:00 on Thurs 16th June '11)

15 randomised grabs within Docking Shoal *Sabellaria* box (10 hectares). Grab samples are then planned for Inner Dowsing (named on and off bank sample boxes) – although it hasn't been possible to gather data on the top of Inner Dowsing bank due to the draft restrictions of Cefas Endeavour.

General observations / Agreed changes to scope / Survey operation priorities

Sidescan signatures from Docking Shoal suggested that *Sabellaria* reef was present, but following 5 camera transects across the study area, this signature turned out to be a gravel consisting of broken tubes. This will be further validated by grab sampling to be undertaken afterwards. During the survey, aggregate dredgers were working in the area of Docking Shoal.

CEFAS Comments

Cefas Scientist in Charge: Paul Whormesley

JNCC Client Rep. : Neil Golding

Natural England Client Rep: Ian Saunders

DAILY LOG
STATUS REPORT

Vessel: *RV Cefas Endeavour* GSM : 07799 773456 Email: Cefas.endeavour@gtships.com	Project: *IDRBNR & HHW* Satellite Voice Bridge: 00 870 763998027 or 00 871 763998027
Daily Progress Report No.6 Date: Thurs 16th June 2011	Location at 24:00: 53° 21.7N, 0° 47.4E

To Company:	Attention:	E-mail:
JNCC	Steve Gibson	Steve.Gibson@jncc.gov.uk
JNCC	Jon Davies	Jon.Davies@jncc.gov.uk
JNCC	Anna Noble	Anna.Noble@jncc.gov.uk
NE	Chris Pirie	Chris.Pirie@naturalengland.org.uk
NE	Ian Reach	Ian.Reach@naturalengland.org.uk
NE	Jen Ashworth	Jen.ashworth@naturalengland.org.uk
Cefas	Dave Limpenny	david.limpenny@Cefas.co.uk
Cefas	Sian Limpenny	Sian.Limpenny@Cefas.co.uk

Safety

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

Summary of operations 0000-2400

Time UTC	Type	Comments
00:00	TOSa	Completion of drop camera work – Docking Shoal
01:30	TOSa	Hamon Grab sampling within Docking Shoal 10 hectare box (15 grabs)
04:00	Transit within survey area	Transit up to East Inner Dowsing Bank
05:00	TOSa	Hamon Grab sampling within East Inner Dowsing Bank (on bank 10 hectare box - 15 grabs)
09:59	TOSa	Drop camera – Inner Dowsing East (on bank)
11:12	TOSu	Line 129 & 130 up the West Inner Dowsing Bank
11:50	Calibration	CTD & Plankton net
12:10	TOSa	Drop camera – Inner Dowsing West (off bank)
13:01	TOSa	Hamon grab sampling with West Inner Dowsing (off banks 10 hectare box - 15 grabs)
16:03	Calibration	CTD & Plankton net
16:45	TOSa	Drop camera – Inner Dowsing West (on banks)
17:32	TOSa	Hamon grab – Inner Dowsing West Bank (on bank 10 hectare box - 15 grabs)
20:04	TOSu	Multibeam transect transiting up to Silver Pit East *Sabellaria* site
23:00	Calibration	CTD & Plankton
23:40	TOSa	Hamon grab sampling – 1 out of the 15 random grabs within 10 hectare box plus 3 targetted at *Sabellaria* were taken by midnight on 16/6/11

Weather

Weather/sea state conditions	0000-0600	0600-1200	1200-1800	1800-2400	Remarks
	Wind:250°, 10 Sea height: 1 Swell: - Barom:1019 Viz:7	Wind: 260°, 16 Sea height:1 Swell: - Barom: 1017 Viz: 7	Wind: 220°, 17 Sea height:1 Swell: - Barom:1019 Viz: 7	Wind: 284°, 8 Sea height: 1 Swell: - Barom: 1017 Viz:7	

DAILY LOG
STATUS REPORT

Overall Progress

Type	Today (hh:mm)	Accum (hh:mm)		Remarks
Mob/Demob		07:00		
Offshore Calibrations	01:32	13:31		
Total Operation Survey (TOSu)	03:34	35:31		
Total Operation Sampling (TOSa)	17:44	48:01		
Equipment/Downtime		03:46		
Ship/Plant Downtime		02:30		
Waiting On Weather		0:00		
Transit		10:06		
Standby Port		0:00		
Transit within survey area	01:00	13:35		
Total:	**24:00**	**134:00**		

Overall Progress - Data Acquisition

Segment/Area/Line	***Today (Lkm/samples)***	***Accum. (Lkm/samples)***	***Remarks***
Multibeam (Acoustic)			
EM3002D Multibeam	*34km*	*393km*	
Sidescan (Acoustic)			
Edgetech 300/600 4200 Sidescan Sonar	*0km*	*318km*	
Sub-bottom profiler			
Edgetech SB-216S SBP	*0km*	*111km*	
Groundtruthing			
Hamon grab 0.1m^3	*61 grabs*	*136 grabs*	
Camera Drop frame	*3 transects*	*17 transects*	

Weather forecast for the next 24 hours

Forecast F4- 6, decreasing 5 southerly, sea state slight, Pressure 1002mB, visibility good becoming moderate

Planned operation for the next 24 hours (00:00 to 24:00 on Friday 17th June '11)

Complete 15 random grab samples within Silver Pit East *Sabellaria* box. Then depart for HHW completing a sidescan/MBES acoustic line down the length of Race Bank en-route. Then commence acoustic work delineating sandbanks within HHW survey area.

General observations / Agreed changes to scope/Survey operation priorities

Targeted *Sabellaria* reef grabs on Silver Pit reef over and above the 15 random samples were not particularly successful at grabbing samples of reef for analysis due to the patchy nature of the reef. Therefore, the 5 planned samples were reduced to 3.

CEFAS Comments

Cefas Scientist in Charge: Paul Whormesley *JNCC Client Rep.* : Neil Golding

Natural England Client Rep: Ian Saunders

DAILY LOG
STATUS REPORT

Vessel: *RV Cefas Endeavour* GSM : 07799 773456 Email: Cefas.endeavour@gtships.com	Project: *IDRBNR & HHW* Satellite Voice Bridge: 00 870 763998027 or 00 871 763998027
Daily Progress Report No.7 Date: Friday 17th June '11	Location at 24:00: 52.896°N, 1.7656°E

To Company:	Attention:	E-mail:
JNCC	Steve Gibson	Steve.Gibson@jncc.gov.uk
JNCC	Jon Davies	Jon.Davies@jncc.gov.uk
JNCC	Anna Noble	Anna.Noble@jncc.gov.uk
NE	Chris Pirie	Chris.Pirie@naturalengland.org.uk
NE	Ian Reach	Ian.Reach@naturalengland.org.uk
NE	Jen Ashworth	Jen.ashworth@naturalengland.org.uk
Cefas	Dave Limpenny	david.limpenny@Cefas.co.uk
Cefas	Sian Limpenny	Sian.Limpenny@Cefas.co.uk

Safety

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

Summary of operations 0000-2400

Time UTC	Type	Comments
00:00	TOSa	17 Hamon grabs from East Silver Pit *Sabellaria* reef. (14 of the remaining 15 random samples and 3 targeted grabs for *Sabellaria*.)
04:48	Calibration	CTD & plankton net
05:17	TOSu	Transit MBES down to Race Bank transect
06:30	Equipment/ Downtime	Sidescan towfish failed when deployed for Race Bank transect
07:15	TOSu	MBES transect down Race Bank
11:26	Calibration	CTD & Plankton
12:00	TOSu	MBES transect down to HHW and then commenced HHW lines 2A through to 2M. Then lines 3A, 1G through to 1A and 1. These HHW lines were run using MBES, SS and SBP.
17:40	Calibration	CTD & transect
18:00	TOSu	MBES/SS lines – SBP brought back on deck due to bad weather.

Weather

Weather/sea state conditions	0000-0600	0600-1200	1200-1800	1800-2400	Remarks
	Wind: 230°, 21 Sea height:1m Swell: 210°, 1 Barom:1019.5 Viz:8	Wind: 220°, 26 Sea height:1m Swell: 180°, 1 Barom:1018 Viz:8	Wind: 160°, 18 Sea height:1m Swell: 180°, 1 Barom:1019.5 Viz:7	Wind: 180°, 18 Sea height:2m Swell: 180°, 1 Barom:1012 Viz:6	

Overall Progress

Type	Today (hh:mm)	Accum (hh:mm)		Remarks
Mob/Demob		07:00		
Offshore Calibrations	01:23	14:54		
Total Operation Survey (TOSu)	17:04	52:35		
Total Operation Sampling (TOSa)	04:48	52:49		

DAILY LOG
STATUS REPORT

Type	Today (hh:mm)	Accum (hh:mm)		Remarks
Equipment/Downtime	00:45	4:31		
Ship/Plant Downtime		2:30		
Waiting On Weather				
Transit		10:06:		
Standby Port				
Transit within survey area		13:35		
Total:	**24:00**	**158:00**		

Overall Progress - Data Acquisition

Segment/Area/Line	***Today (Lkm/samples)***	***Accum. (Lkm/samples)***	***Remarks***
Multibeam (Acoustic)			
EM3002D Multibeam	*97 km*	*490km*	
Sidescan (Acoustic)			
Edgetech 300/600 4200 Sidescan Sonar	*75km*	*393km*	
Sub-bottom profiler			
Edgetech SB-216S SBP	*51km*	*162km*	
Groundtruthing			
Hamon grab 0.1m^2	*17 grabs*	*153 grabs*	
Camera Drop frame	*0*	*17 transects*	

Weather forecast for the next 24 hours

Forecast for Sat – F2-5 increasing to 6. SW to W. Sea state slight, Barom – 996mB. Visibility moderate to good

Planned operation for the next 24 hours (00:00 to 24:00 on Sat 18th June '11)

Continue acoustic coverage of HHW sandbank and reef features. Identify potential sampling locations once acoustic data processed.

General observations / Agreed changes to scope/Survey operation priorities

Targeted *Sabellaria* grabs weren't successful due to patchy nature of reef. Only three were taken as a result. Sidescan line wasn't achievable down Race Bank due to sidescan towfish downtime. Line run with MBES only.

CEFAS Comments

Cefas Scientist in Charge: Paul Whormesley

JNCC Client Rep. : Neil Golding

Natural England Client Rep: Ian Saunders

DAILY LOG
STATUS REPORT

Vessel: *RV Cefas Endeavour* GSM : 07799 773456 Email: Cefas.endeavour@gtships.com	Project: *IDRBNR & HHW* Satellite Voice Bridge: 00 870 763998027 or 00 871 763998027
Daily Progress Report No.8	Location at 24:00: 52° 49.2N, 1° 53.9E
Date: Saturday 18th June '11	

To Company:	Attention:	E-mail:
JNCC	Steve Gibson	Steve.Gibson@jncc.gov.uk
JNCC	Jon Davies	Jon.Davies@jncc.gov.uk
JNCC	Anna Noble	Anna.Noble@jncc.gov.uk
NE	Chris Pirie	Chris.Pirie@naturalengland.org.uk
NE	Ian Reach	Ian.Reach@naturalengland.org.uk
NE	Jen Ashworth	Jen.ashworth@naturalengland.org.uk
Cefas	Dave Limpenny	david.limpenny@Cefas.co.uk
Cefas	Sian Limpenny	Sian.Limpenny@Cefas.co.uk

Safety

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

Summary of operations 0000-2400

Time UTC	Type	Comments
00:00	TOSu	Acoustic lines (SS & MBES only – too rough for SBP) Line 18, 17, 6H, 6G, 6F, 6E, 5B, 5A, 5, 5C, 6, 6A, 6B, 6C, 6D, 19, 20 & 21
11:00	Calibration	CTD & Plankton
11:35	Equipment/ Downtime	Sidescan towfish failed – same fish as before, with suspected similar issue.
12:25	TOSu	Recommence line with SS & MBES
16:24	TOSu	Sidescan towfish changed to high speed multi-ping mode (low frequency only)
17:30	Calibration	CTD & Plankton
18:07	TOSa	Hamon grab sampling on Haisborough Sand West (on flank). Set of 15 random grabs in 10 hectare box.
21:15	TOSa	Camera drop on Haisborough Sand West (on flank). Transect aborted due to poor visibility and strong current (sandy seabed appeared to be flowing under the camera with tide)
21:48	TOSu	Acoustic transect down to Haisborough Gat reef (via Haisborough Tail reef). Specific file logged for H Tail reef.

Weather

Weather/sea state conditions	0000-0600	0600-1200	1200-1800	1800-2400	Remarks
	Wind: 130°, 20 Sea height:2m Swell: 150°, 2 Barom:1006 Viz:5	Wind: 270°, 25 Sea height:2m Swell: 230°, 2 Barom:1004 Viz:5	Wind: 270°, 11 Sea height:1.5 Swell: 230°,1.5 Barom:1009 Viz:6	Wind: 190°, 15 Sea height:1m Swell: 250°,1 Barom:1009 Viz:7	

Overall Progress

Type	Today (hh:mm)	Accum (hh:mm)	Remarks
Mob/Demob		07:00	
Offshore Calibrations	01:12	16:06	
Total Operation Survey (TOSu)	18:17	70:52	

DAILY LOG
STATUS REPORT

Type	Today (hh:mm)	Accum (hh:mm)	Remarks
Total Operation Sampling (TOSa)	03:41	56:30	
Equipment/Downtime	0:50	05:21	
Ship/Plant Downtime		02:30	
Waiting On Weather			
Transit		10:06	
Standby Port			
Transit within survey area		13:35	
Total:	**24:00**	**182:00**	

Overall Progress - Data Acquisition

Segment/Area/Line	***Today (Lkm/samples)***	***Accum. (Lkm/samples)***	***Remarks***
Multibeam (Acoustic)			
EM3002D Multibeam	*171km*	*661km*	
Sidescan (Acoustic)			
Edgetech 300/600 4200 Sidescan Sonar	*151km*	*544km*	
Sub-bottom profiler			
Edgetech SB-216S SBP	*0*	*162km*	*Weather too rough for SBP*
Groundtruthing			
Hamon grab 0.1m^2	*15 grabs*	*168 grabs*	*Clean sand from flank of Haisborough Sands*
Camera Drop frame	*1 transect (Short)*	*18 transects*	

Weather forecast for the next 24 hours

Wind Westerly or southwesterly 5 or 6, decreasing 3 or 4, backing southerly later. Sea State Slight, occasionally moderate at first. Weather Showers, fair for a time. Visibility Moderate or good.

Planned operation for the next 24 hours (00:00 to 24:00 Sunday 19th June '11)

Complete acoustic grid over Haisborough Gat reef in the inshore region before undertaking acoustic lines in the inshore/offshore swales/troughs between the sandbanks to determine extent of reefs recorded on Baird/Bacton pipeline data.

General observations / Agreed changes to scope/Survey operation priorities

No obvious *Sabellaria* signature detected during transect over Haisborough Tail reef. This will be further investigated once processed. Samples from West flank of Haisborough sand were very impoverished (amphipods and *Nephtys*) – extremely mobile sand habitat, demonstrated by the Hamon grab sinking into the bank and evidence of sediment movement during the camera tow.

CEFAS Comments

Cefas Scientist in Charge: Paul Whormesley *JNCC Client Rep.* : Neil Golding

Natural England Client Rep: Ian Saunders

DAILY LOG
STATUS REPORT

Vessel: *RV Cefas Endeavour* GSM : 07799 773456 Email: Cefas.endeavour@gtships.com	Project: *IDRBNR & HHW* Satellite Voice Bridge: 00 870 763998027 or 00 871 763998027
Daily Progress Report No.9	Location at 24:00:
Date: Sunday 19th June '11	

To Company:	Attention:	E-mail:
JNCC	Steve Gibson	Steve.Gibson@jncc.gov.uk
JNCC	Jon Davies	Jon.Davies@jncc.gov.uk
JNCC	Anna Noble	Anna.Noble@jncc.gov.uk
NE	Chris Pirie	Chris.Pirie@naturalengland.org.uk
NE	Ian Reach	Ian.Reach@naturalengland.org.uk
NE	Jen Ashworth	Jen.ashworth@naturalengland.org.uk
Cefas	Dave Limpenny	david.limpenny@Cefas.co.uk
Cefas	Sian Limpenny	Sian.Limpenny@Cefas.co.uk

Safety

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

Summary of operations 0000-2400

Time UTC	Type	Comments
00:00	TOSu	Acoustic lines HHW26, 27, 29, 30, 28, 25, 23, 31, 8, 32, 9, 10,
12:00	Calibration	CTD & Bongo
12:30	TOSu	Acoustic lines HHW11, 11A, 12A, 12, 13, 13A,
19:35	Calibration	CTD & Bongo
20:10	TOSa	Hamon Grab – Haisborough Tail Bight (HTB) (15 grabs)
23:20	TOSa	Drop Camera – HTB DC

Weather

Weather/sea state conditions	0000-0600	0600-1200	1200-1800	1800-2400	Remarks
	Wind: ° Sea height: Swell: ° Barom: Viz:	Wind: ° Sea height: Swell: ° Barom: Viz:	Wind: ° Sea height: Swell: ° Barom: Viz:	Wind: ° Sea height: Swell: ° Barom: Viz:	

Overall Progress

Type	Today (hh:mm)	Accum (hh:mm)		Remarks
Mob/Demob		7:00		
Offshore Calibrations	01:05	17:11		
Total Operation Survey (TOSu)	19:05	89:57		
Total Operation Sampling (TOSa)	03:50	60:20		
Equipment/Downtime		05:21		
Ship/Plant Downtime		02:30		
Waiting On Weather		00:00		
Transit		10:06		
Standby Port		00:00		
Transit within survey area		13:35		

DAILY LOG
STATUS REPORT

Type	Today (hh:mm)	Accum (hh:mm)		Remarks
Total:	**24:00**	**206:00**		

Overall Progress - Data Acquisition

Segment/Area/Line	***Today (Lkm/samples)***	***Accum. (Lkm/samples)***	***Remarks***
Multibeam (Acoustic)			
EM3002D Multibeam	*155km*	*816km*	
Sidescan (Acoustic)			
Edgetech 300/600 4200 Sidescan Sonar	*155km*	*699km*	
Sub-bottom profiler			
Edgetech SB-216S SBP	*0*	*162km*	
Groundtruthing			
Hamon grab 0.1m^2	*15*	*183 grabs*	
Camera Drop frame	*1*	*19 transects*	

Weather forecast for the next 24 hours

Wind Southerly 3 or 4, veering southwesterly 4 or 5, occasionally 6 in south later. Sea State Mainly slight.
Weather Occasional rain or drizzle. Visibility Moderate or good, occasionally poor.

Planned operation for the next 24 hours (00:00 to 24:00 on Date)

General observations / Agreed changes to scope/Survey operation priorities

CEFAS Comments

Cefas Scientist in Charge: Paul Whormesley *JNCC Client Rep.* : Neil Golding

Natural England Client Rep: Ian Saunders

DAILY LOG
STATUS REPORT

Vessel: *RV Cefas Endeavour* GSM : 07799 773456 Email: Cefas.endeavour@gtships.com	Project: *IDRBNR & HHW* Satellite Voice Bridge: 00 870 763998027 or 00 871 763998027
Daily Progress Report No.10	Location at 24:00:
Date: Monday 20th June '11	

To Company:	Attention:	E-mail:
JNCC	Steve Gibson	Steve.Gibson@jncc.gov.uk
JNCC	Jon Davies	Jon.Davies@jncc.gov.uk
JNCC	Anna Noble	Anna.Noble@jncc.gov.uk
NE	Chris Pirie	Chris.Pirie@naturalengland.org.uk
NE	Ian Reach	Ian.Reach@naturalengland.org.uk
NE	Jen Ashworth	Jen.ashworth@naturalengland.org.uk
Cefas	Dave Limpenny	david.limpenny@Cefas.co.uk
Cefas	Sian Limpenny	Sian.Limpenny@Cefas.co.uk

Safety

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

Summary of operations 0000-2400

Time UTC	Type	Comments
00:00	TOSa	Drop camera – Haisborough Tail Deep (HTD)
01:19	TOSa	Hamon grab – HTD – 15 random samples within box
03:45	Transit within survey area	
04:50	TOSa	Hamon grab – HRC (Hewett Ridge Crest) – 15 random samples within box
08:15	TOSa	Drop camera - HRC
08:58	TOSa	Drop camera – HRT (Hewett Ridge Trough)
09:50	TOSa	HRT grabs
13:10	TOSu	Acoustic survey to SKD boxes
14:30	Calibration	CTD & Bongo
14:45	TOSa	Hamon grab = SKD (Smiths Knoll Deep) 5 random grabs
17:29	TOSa	Hamon grab = SKM (Smiths Knoll Medium) 5 random grabs
18:26	TOSa	Hamon grab = SKS (Smiths Knoll Shallow) 5 random grabs
19:22	TOSa	Hamon grab = SKVS (Smiths Knoll Very Shallow) 5 random grabs
21:45	TOSa	Drop camera – Winterton Ridge Reef North WRRN
22:00	Equipment downtime	Lights failed – frame back on deck for fixing
22:30	TOSa	Drop Camera – WRRN attempt 2
23:42	TOSa	Drop camera – Winterton Ridge Reef Central WRRC

Weather

Weather/sea state conditions	0000-0600	0600-1200	1200-1800	1800-2400	Remarks
	Wind: ° Sea height: Swell: ° Barom: Viz:	Wind: ° Sea height: Swell: ° Barom: Viz:	Wind: ° Sea height: Swell: ° Barom: Viz:	Wind: ° Sea height: Swell: ° Barom: Viz:	

Overall Progress

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

DAILY LOG
STATUS REPORT

Type	Today (hh:mm)	Accum (hh:mm)		Remarks
Mob/Demob		7:00		
Offshore Calibrations	00:15	17:26		
Total Operation Survey (TOSu)	01:20	91:17		
Total Operation Sampling (TOSa)	20:50	81:10		
Equipment/Downtime	00:30	05:51		
Ship/Plant Downtime		02:30		
Waiting On Weather				
Transit		10:06		
Standby Port				
Transit within survey area	01:05	14:40		
Total:	**24:00**	**230:00**		

Overall Progress - Data Acquisition

Segment/Area/Line	***Today (Lkm/samples)***	***Accum. (Lkm/samples)***	***Remarks***
Multibeam (Acoustic)			
EM3002D Multibeam	*21km*	*837km*	
Sidescan (Acoustic)			
Edgetech 300/600 4200 Sidescan Sonar	*21km*	*720km*	
Sub-bottom profiler			
Edgetech SB-216S SBP	*0*	*0*	
Groundtruthing			
Hamon grab 0.1m^2	*65*	*248 grabs*	
Camera Drop frame	*5*	*24 transects*	

Weather forecast for the next 24 hours

Planned operation for the next 24 hours (00:00 to 24:00 on 21st June '11)

General observations / Agreed changes to scope/Survey operation priorities

CEFAS Comments

Cefas Scientist in Charge: Paul Whormesley *JNCC Client Rep.* : Neil Golding

Natural England Client Rep: Ian Saunders

DAILY LOG
STATUS REPORT

Vessel: *RV Cefas Endeavour* GSM : 07799 773456 Email: Cefas.endeavour@gtships.com	Project: *IDRBNR & HHW* Satellite Voice Bridge: 00 870 763998027 or 00 871 763998027
Daily Progress Report No.11	Location at 24:00:
Date: Tues 21st June '11	

To Company:	Attention:	E-mail:
JNCC	Steve Gibson	Steve.Gibson@jncc.gov.uk
JNCC	Jon Davies	Jon.Davies@jncc.gov.uk
JNCC	Anna Noble	Anna.Noble@jncc.gov.uk
NE	Chris Pirie	Chris.Pirie@naturalengland.org.uk
NE	Ian Reach	Ian.Reach@naturalengland.org.uk
NE	Jen Ashworth	Jen.ashworth@naturalengland.org.uk
Cefas	Dave Limpenny	david.limpenny@Cefas.co.uk
Cefas	Sian Limpenny	Sian.Limpenny@Cefas.co.uk

Safety

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

Summary of operations 0000-2400

Time UTC	Type	Comments
00:00	TOSa	Complete WRRC camera drop
00:42	TOSa	Drop camera – Winterton Ridge Reef south WRRS
01:10	TOSu	Acoustic survey to Haisborough Gat Reef (HGR)
02:22	TOSa	Drop camera – HGR01
03:00	TOSa	Drop camera – HGR02
03:53	TOSa	Drop camera – HGR03
05:10	TOSa	Hamon Grab samples – 15 random samples
08:08	Calibration	CTD & Bongo
08:15	TOSu	Acoustic survey on transit out of site
09:17	Transit	Transit to return to Lowestoft
09:30	Demob	Alongside at Lowestoft (10:30 BST)

Weather

Weather/sea state conditions	0000-0600	0600-1200	1200-1800	1800-2400	Remarks
	Wind: ° Sea height: Swell: ° Barom: Viz:	Wind: ° Sea height: Swell: ° Barom: Viz:	Wind: ° Sea height: Swell: ° Barom: Viz:	Wind: ° Sea height: Swell: ° Barom: Viz:	

Overall Progress

Type	Today (hh:mm)	Accum (hh:mm)		Remarks
Mob/Demob	02:30	09:30		
Offshore Calibrations	00:07	17:33		
Total Operation Survey (TOSu)	01:27	92:44		
Total Operation Sampling (TOSa)	06:56	88:06		
Equipment/Downtime		05:51		
Ship/Plant Downtime		02:30		

DAILY LOG
STATUS REPORT

Type	Today (hh:mm)	Accum (hh:mm)		Remarks
Waiting On Weather				
Transit	01:00	11:06		
Standby Port				
Transit within survey area		14:40		
Total:	**12:00**	**242:00**		

Overall Progress - Data Acquisition

Segment/Area/Line	***Today (Lkm/samples)***	***Accum. (Lkm/samples)***	***Remarks***
Multibeam (Acoustic)			
EM3002D Multibeam	*24*	*861km*	
Sidescan (Acoustic)			
Edgetech 300/600 4200 Sidescan Sonar	*24*	*744km*	
Sub-bottom profiler			
Edgetech SB-216S SBP			
Groundtruthing			
Hamon grab 0.1m^2	*15*	*263*	
Camera Drop frame	*4*	*28 transects*	

Weather forecast for the next 24 hours

Planned operation for the next 24 hours (00:00 to 24:00 on Date)

General observations / Agreed changes to scope/Survey operation priorities

CEFAS Comments

Cefas Scientist in Charge: Paul Whormesley *JNCC Client Rep.* : Neil Golding

Natural England Client Rep: Ian Saunders

Annex 2 Cefas Endeavour specification

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 tandom 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 Intering anti-roll system Local Area Network with scientific data management system Ship-wide general information system CCTV
Class	LRS 100A1+LMC UMS SCM CCS ICC IP ES(2) DP(CM) ICE class 2

Annex 3 Survey equipment specification

Hull-mounted Multibeam Echosounder
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.

Olex System

The Olex plotter system is installed on more than 2500 commercial fishing vessels and is used to assist navigation and seabed mapping. The company Collates data collected by users adds the data to the database and in return gives the user an updated copy.

The system on RV Cefas Endeavour uses the ships multibeam sounder to collect large amounts of high-quality acoustic data in real-time. Unlike survey operations the system can be used at cruising-speeds during transits without the need to calibrate the system, stop for sound velocity profiles or to have the drop-keel fully deployed.

The Olex grids the multibeam data in real-time producing a mosaic of the data which allows identification of seabed features and landscape types.

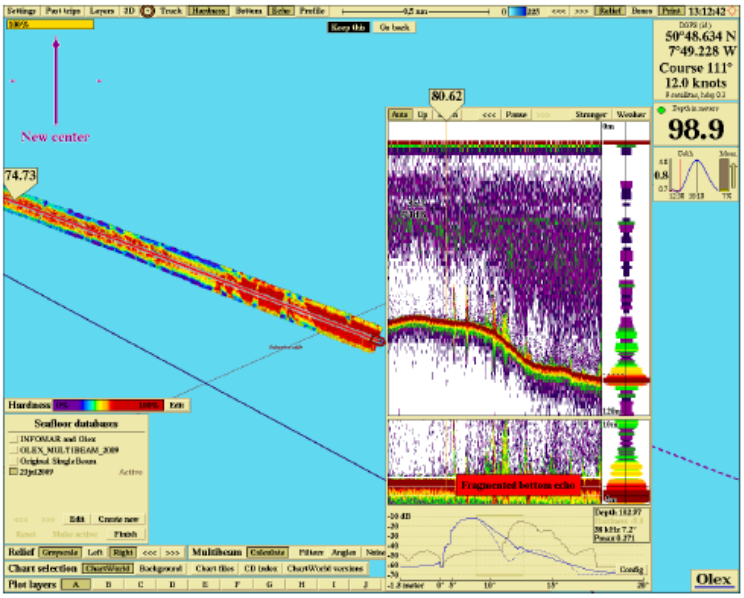


Figure 23. Single swath of multibeam data showing variations in backscatter strength along-track as well as profile of the feature

The quality of the GPS means positional accuracy of better than three meters is usually maintained and the multibeam can collect 512 soundings at up to 40 times per second.

The data has automatic error filters applied to remove “spiky”data. The density of soundings depends on the output rate of positions and depths from the ship's instruments and is by defaulted gridded at a resolution of 0.46m.

The Olex software lets the user browse the database at will. Viewing options include 2D contours, 2D shaded relief, 3D views, profile cuts and more. Soundings may be exported as XYZ data for use in other GIS tools.

Positioning Software – Tower CEMAP

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.
Drop video camera and stills system

Camera (video and stills) model: Kongsberg OE14-208

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

Figure 24. Drop camera frame

Side Scan sonar

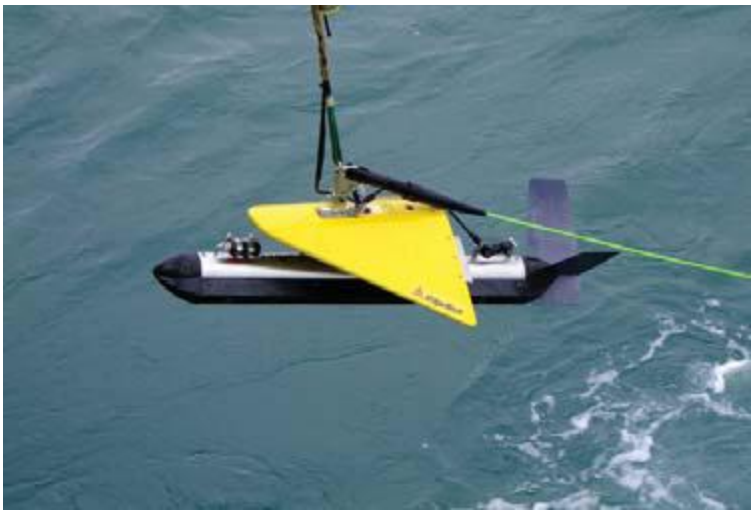


Figure 25. Side Scan Sonar fish, EdgeTech Type 4200MP

The 4200 Series is a versatile side scan sonar system that can be configured for almost any survey application from shallow to deep water operations. The 4200 utilizes EdgeTech's Full Spectrum® CHIRP technology to provide crisp, high resolution imagery at ranges up to 50% greater than non-CHIRP systems; thus allowing customers to cover larger areas and save money spent on costly surveys.
One of the unique features of the 4200 is the optional Multi-Pulse (MP) technology, which places two sound pulses in the water rather than one pulse like conventional side scan sonar systems. This allows the 4200 to be towed at speeds of up to 10 knots while still maintaining 100% bottom coverage. In addition, the MP technology will provide twice the resolution when operating at normal tow speeds, thus allowing for better target detection and classification ability. The addition of the optional MP technology provides the operator with two modes of operation; either High Definition Mode (HDM) or High Speed Mode (HSM). This software-selectable mode of operation provides the operator the ability to select the best configuration for the specific job type.

Cefas fish is Type 4200MP
Frequency 300/600 kHz dual simultaneous
Operating Range (meters/side) 100 kHz: 500m, 300 kHz: 230m, 400 kHz: 150m, 600 kHz: 120m, 900 kHz: 75m
Horizontal Beam Width: 300 kHz: 0.5, 600 kHz: 0.26°, In High Speed Mode: 100 kHz: 1.26°,
300 kHz: 0.54°, 400 kHz: 0.4°, 600 kHz: 0.34°,
900 kHz: 0.3°
In High Definition Mode: 100 kHz: 0.64°,
300 kHz: 0.28°, 400 kHz: 0.3°, 600 kHz: 0.26°,
900 kHz: 0.2°
Resolution Along Track 100 kHz: 5 m @ 200 m
300 kHz: 1.3 m @ 150 m
600 kHz: 0.45 m @ 100 m
High Definition Mode:
300 kHz: 1.0m @ 200m
600 kHz: 0.45m @ 100m
HIgh Speed Mode:
300 kHz: 1.9m @ 200m
600 kHz: 0.6m @ 100m
Resolution Across Track 300 kHz: 3 cm, 600 kHz: 1.5 cm
Vertical Beam Width 50°
Depression Angle Tilted down 20°

Diameter 11.4 cm (4.5 inches)
Length 125.6 cm (49.5 inches)
Weight in Air/Saltwater 48 / 36 kg (105 / 80 pounds) 30 / 18 kg (66 / 40 pounds)
Depth Rating (Max) 2,000m 500m
Standard Sensors Heading, pitch & roll
Optional Sensor Port fitted (1) Serial – RS 232C, 9600 Baud, Bi-directional & 27 VDC

Options fitted Pressure Sensor, Depressor,

PC is Ventrix industrial PC
Operating System Windows© XP Pro running Discover acquisition software
File Format Native JSF or XTF
Output Ethernet
Coaxial double-armored 100m towcable – cable out measured electronically onboard vessel.

Figure 26. Side scan Sonar fish benthos 1624

Dual frequency 100/400kHz
Broadscale: 200m swathe; 400m range
Finescale: 200m swathe, 400m range
Depression angle: 030°
Pulse: variable (chirp systems; dependant on range)
Gains (fixed) Low frequency: 9dB (port and starboard)
High frequency: 12dB (port and starboard)

Benthic Grab

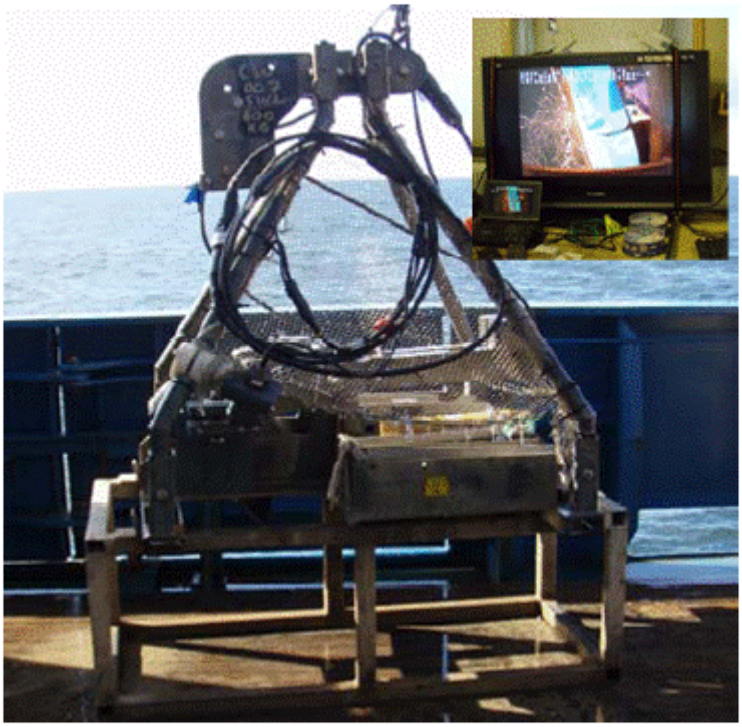


Figure 27. HamCam

Grab type: 0.1m2 Hamon Grab with attached video camera
Video camera model: Bowtech L3CHR2A4 inspection camera

CEFAS ‘HamCam’: 0.1m2 Hamon grab with video camera.
Georeferenced video image

Portable sub-bottom profile system (SB-216S)

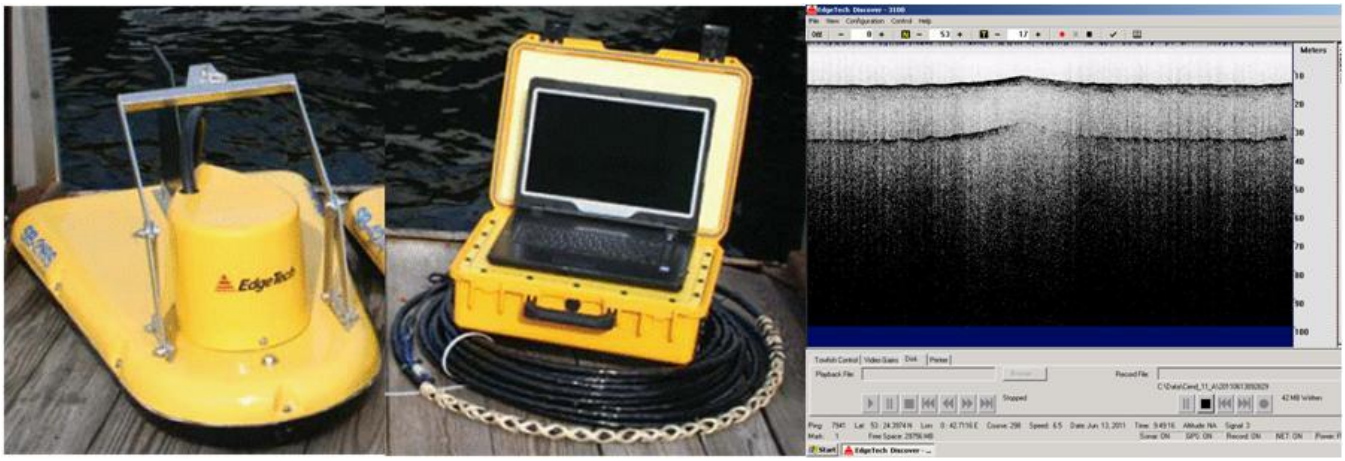


Figure 28. Portable sub-bottom profile system, top side processor and output

Towfish	
Frequency range	2-16 kHz
Vertical resolution	6-10cm
Penetration	
Coarse sand	6m
Clay	80m
Size	
Length	105cm
Width	67cm
Height	40cm
Weight	76Kg
Depth rating	300m

Topside processor	
Hardware	Rugged portable splashproof enclosure
Operating system	Windows XP
Display	Splashproof semi-rugged laptop
Archive	DVD-RW
File Format	SEG Y

Annex 4 Report of Surveys

General Area	ENGLAND NORTH SEA
Name of Survey	CEND 11/11 – IDRBNR
Area/Block number	
Unit Name	Inner Dowsing, Race Bank and North Ridge
Company	Cefas
Scientist in Charge	Paul Whomersley
Start Date of Survey	11/06/2011
End Date of Survey	17/06/2011
Scale (if applicable)	
Recommended survey category	
HMOG	
Report version	1

INTRODUCTION

a. Survey purpose

To collect baseline characterisation data for the Inner Dowsing, Race Bank and North Ridge candidate SAC. A multibeam echosounder was used to acquire acoustic seabed data, and targeted sampling was undertaken to characterise the different seabed habitats and features. This work was undertaken in partnership with Natural England and the JNCC. The survey focussed on the sandbank and *Sabellaria* reef features within the cSAC. A series of individual lines of multibeam echosounder

data were collected throughout the area. Due to the draft of R/V Cefas Endeavour, the shallow parts of the sandbanks (<10m) were generally not covered by this survey.

b. Additional sources of information

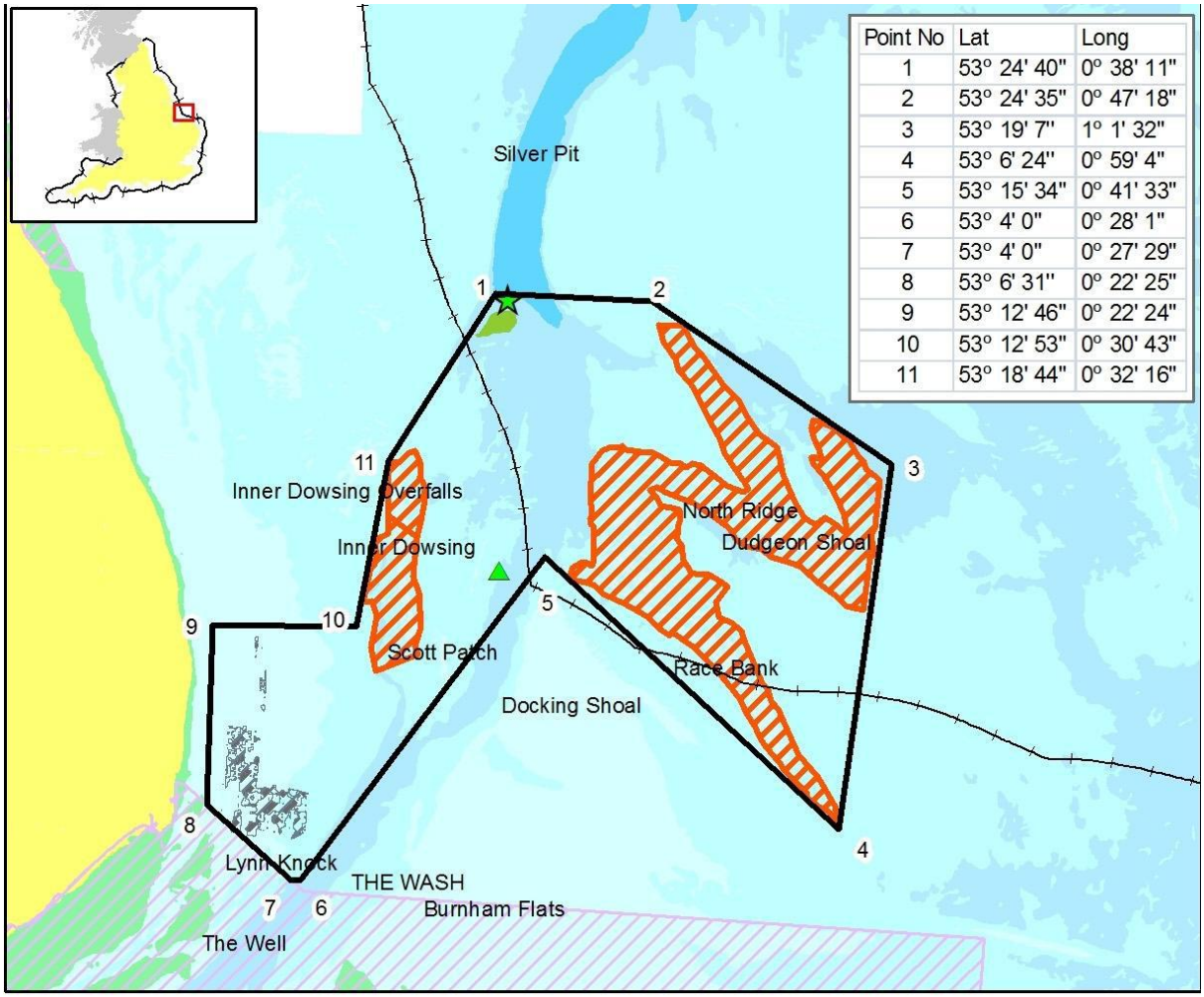
In the planning of the survey all available data for the area was gathered in a GIS.

A. GENERAL DATA

- This section is to include:
    - Summary of survey activity –

TOTAL	SEA			
		Days Lost		
Calendar Days	Surveying	Weather, Ship and Equipment Downtime	Passage	General Service Duties
5	2	0	0.5	2.50

Surveyed Area Polygon Point Name	Position (Coordinates in WGS 1984 UTM zone 31N)	
	Eastings	Northings
1	53° 24' 40"	0° 38' 11"
2	53° 24' 35"	0° 47' 18"
3	53° 19' 7"	1° 1' 32"
4	53° 6' 24"	0° 59' 4"
5	53° 15' 34"	0° 41' 33"
6	53° 4' 0"	0° 28' 1"
7	53° 4' 0"	0° 27' 29"
8	53° 6' 31"	0° 22' 25"
9	53° 12' 46"	0° 22' 24"
10	53° 12' 53"	0° 30' 43"
11	53° 18' 44"	0° 32' 16"



Point No	Lat	Long
1	53° 24' 40"	0° 38' 11"
2	53° 24' 35"	0° 47' 18"
3	53° 19' 7"	1° 1' 32"
4	53° 6' 24"	0° 59' 4"
5	53° 15' 34"	0° 41' 33"
6	53° 4' 0"	0° 28' 1"
7	53° 4' 0"	0° 27' 29"
8	53° 6' 31"	0° 22' 25"
9	53° 12' 46"	0° 22' 24"
10	53° 12' 53"	0° 30' 43"
11	53° 18' 44"	0° 32' 16"

candidate Special Area of Conservation
Inner Dowsing, Race Bank and North Ridge

- candidate Special Area of Conservation
- Special Areas of Conservation
- Silver Pit South Sabellaria Reef
- Lynn Knock Sabellaria Reefs
- Silver Pit South Reef (point)
- Docking Shoal Sabellaria Reef (point)
- Sandbanks which are slightly covered by sea water all the time
- England 12nM Territorial Seas Limit

Depth Areas

- Drying
- <=10m
- <=20m
- <=50m
- <=100m
- Land

EU Site Code: UK0030370
Version number: 1.5
Longitude: 0° 43' 14" E
Latitude: 53° 15' 26"N
Projection: UTM 31N (WGS84)
Area of SAC: 845.14 sq km 84,514 ha

Theme ID: 1452092
Grid Ref: TF918774
Version: 7
Plotted: 21/07/2010
Plot ID: 5

Scale 1:500,000 Map 1 of 1
0 2.5 5 10 Kilometers

N

Candidate Special Area of Conservation Directive 92/43/EEC
Submitted to the EC by the Secretary of State for Environment, Food and Rural Affairs. Date: 20/08/2010

JNCC Joint Nature Conservation Committee NATURAL ENGLAND

- Equipment defects influencing conduct of the survey;

Equipment	Period unavailable	Remarks
Primary gyro - MAHRS	11-15/06/2011	During multibeam patch test it was identified that the MAHRS gyro readings were about 15 degrees different from the secondary gyro. The system was switched to the secondary gyro, but some further problems were experienced whilst data was acquired. Data collected after 11th July 2011 uses secondary gyro without further problems
C-Nav 3050	11-15/06/2011	Occasional drop out of RTK correction signal

- Laybacks;

Survey Inputs	X[1]	Y[1]	Z[1]	Remarks
Motion sensor	0.00	0.00	0.00	
GPS antenna	0.29	-4.01	21.09	
EM3002D - Sonar Head 1	-0.25	14.50	-7.36	
EM3002D - Sonar Head 2	0.26	14.49	-7.37	
EA600 50kHz sounder	-0.01	15.82	-9.45	

Notes: 1. In metres from the reference sensor.
- Input figures positive for starboard, forward and above; negative for port, aft and below.

- List of personnel involved in the survey;

Scientist in Charge	Dates	
	From	To
Paul Whomersley	11/06/2011	17/06/2011
Surveyors		
Koen Vanstaen (data acquisition and data processing) Ken May (data acquisition and data processing) Julia Rance (data acquisition and data processing)	11/06/2011	17/06/2011

- Hydrographic Notes.

Data was not assessed to produce Hydrographic Notes.

Reference	Date	Subject

B. DAILY NARRATIVE

- Daily Narrative - Cefas cruise report extract

C1 SURVEY DATA – MBES

- **MBES Rendered Data.**

Rendered Data		**Name/Number**
Digital files	Total of raw.all files (Simrad)	\\lowfile6\cyan$\2011\ *_IDRBNR.all 0000 to 0150 152 files – 33.4GB
	CARIS HIPS Project	YES
	GSF	YES
	Fledermaus SD	YES
Graphics		n/a

- **Introduction.**

All MBES data were recorded on the EM3002D Big-SIS data acquisition system. The data was backed up daily on a local external hard drive. At the end of the survey, an additional data back-up was made on a second external hard drive. Data processing was undertaken using Caris HIPS package and GSF files were produced for data visualisation in IVS3D Fledermaus and data analysis in ArcGIS.
Backscatter data was processed using IVS3D FMGT.

Bathymetry

- **System Hardware and Software.**

Hardware On-line	**Remarks**
Kongsberg EM3002D	Head serial 272 – 280
Seatex MRU-5	Serial 2043
C-Nav 3050 GPS	OS RTK corrections
Thales 3011 GPS	Fugro Seastar differential corrections
MAHRS Gyro	Primary gyro – Faulty
Anschutz gyro	Secondary gyro – Version 222 NG01 4000996009
SAIV SD204	CTD casts
Reson SVP24	Mounted on blade next to sonar heads
Druck PTX 1830	Vessel draft sensor
Hardware Off-line	**Remarks**

Software (including version)	Remarks
Kongsberg SIS V3.6.1	System was unable to show gridded data
Caris HIPS V7.1 Hotfix 1-2	
IVS3D Fledermaus v7.3	

- **Survey Sensor Inputs and Interfaces.**

Survey Inputs	Sensor	Remarks
Primary Motion Sensor	Seatex MRU-5	
Secondary Motion Sensor	N/A	
SBES / NBSS	Kongsberg EA600	
MBES / HRMBSS	Kongsberg EM3002D	
Precise Navigation	C-Nav 3050	OS RTK Corrections
Gyro / Ring Laser Gyro	TSS MAHRS	Primary - FAULTY
Gyro	Anschutz	Secondary
Hull Mounted SV Sensor	Reson SVP	

- **Survey Parameters.**

Actions	As surveyed	Remarks
Order of survey achieved	Habitat Mapping	
MBES used	EM3002D	
Operating frequencies (kHz)	293 -307kHz	
SBES used	EA600	
Operating frequencies (kHz)	50KHz	
Heave compensation applied (Yes/No)	Yes	
Squat data used	No	Expected to be insignificant
Horizontal datum	WGS84	
Spheroid	WGS84	
Projection	UTM Zone 31N	
Central Meridian and Grid Zone	3º East	
Vertical datum	Chart Datum	
Average sounding line direction (°)	Various	
Average sounding line spacing (m)	n/a	
Cross-line direction (°)	n/a	
Cross-line spacing (m)	n/a	
Average sounding speed (kn)	8 kn	
Average across track % overlap	n/a	
Average along track % overlap	Nil	

- **MBES Calibration.**

Full system calibration on 7th January 2011. Gyro calibration 5th January 2011.

Throughout the duration of the cruise the derived calibration values were continually verified as part of the post-processing procedure.
A full system calibration was started on 11th June 2011 but proved unusable due to the gyro issues identified. The last successful calibration settings were applied (7th January 2011) as no changes to the system occurred since. Review of the data collected proved that these calibration settings were suitable.

- **Data Logging Parameters.**

Parameter	Setting	Remarks
Beam spacing	High density equi-distant	
Number of beams	254/254	
Swath angle (º)	65/65	
Sidescan sonar range (m)		Same as bathymetry coverage
Blade deployment depth	1.0m	
Configured Draught (m)	1.34	
Water column data logged	No	

- **Data Processing Techniques.**

8.1 All data processing was conducted in accordance with the Cefas Standard Operating Procedure for Caris HIPS multibeam data processing.

8.2 The Cefas Endeavour Vessel Configuration File (VCF) which contains all sensor locations, offsets and dimensions was updated to take account of survey specific settings.

8.3 The Kongsberg raw .all files were imported using the Conversion Wizard and converted into Caris HDCS format. Navigation and attitude data were examined and no editing was required.

8.4 Limited automated data filtering was undertaken based on "minimum and maximum depth", "beam to beam slopes", "beam numbers" and "angle from nadir". Next, the swath data was examined line-by-line and sounding outliers were removed manually.

8.5 Tidal data was extracted from GPS Height and applied in Caris HIPS. Offset from GRS80 ellipsoid to Chart Datum was corrected using VORF offsets made available by UKHO All lines were merged and a fieldsheet with base surface was created.

8.6 Where necessary, further manual sounding editing is undertaken using the subset editor. Following manual editing a CUBE surface filter was applied to the data. All data was exported to GSF files on completion of all data processing.

- **Tide Files.**

Tide file name	Remarks
n/a	GPS Height used

- **Cross-line Comparisons.**

N/A

- **Data File Naming Convention.**

File type	Name	Remarks
Kongsberg raw .all	*Line no_date_time_***IDRBNR.all**	0000-0150

- **Bathymetry Results.**

The multibeam system performed well during the survey, and the resulting data was found to be of good quality.
Data from 12th June 2011 was temporarily affected by incorrect gyro data.

Side-scan Sonar

Sidescan sonar data was simultaneously collected.

- **Parameters.**

Side scan Sonar type:

Actions	As surveyed	Remarks
Sonar sweep category		
Sonar equipment used	Edgetech FS-4200	
Operating frequency (kHz)	300/600	
Range scale used (m)	150	
Pulse length		
Line spacing (m)		
Line direction (°)		
Cross-line direction (°)		
Sonar speed (kn)		
Layback measurement [USBL or Manual (see form H272)]		

- **Sonar Coverage.**

Similar to multibeam echosounder data

- **Sonar Results.**

Sonar results were generally found to be of good quality

Conclusions

-
-

D. GEODETIC DATA

- **Geodetic Rendered Data.**

Rendered Data	**Name**
Digital Files	No data
Graphics (if applicable)	No data
H Forms	No data

- **Survey Details.**

Survey Type	Bathymetry - Habitat Mapping (Multibeam echosounder)
Horizontal Datum	ETRS89
Vertical Datum	Chart Datum
Analogue Equipment	None
Digital Equipment	EM3002D

Geodetic Parameters

- **Geodetic Reference System.**

Datum	ETRF89
Spheroid	GRS80
Semi-major axis	6378137.000
Semi-minor axis	6356752.314
Inverse flattening	298.257223563

- **Projection System.**

Projection	Transverse Mercator
Central Meridian (CM)	3° E
Latitude of Origin	0 N
False Easting	500,000.000
False Northing	0.000
Scale Factor on CM	0.9996

- **GPS Geodetic System.**

Datum	ETRS89
Spheroid	GRS80
Semi-major axis	6378137.000
Semi-minor axis	6356752.314
Inverse flattening	298.257223563

- **Positioning System.**

Primary	C-Nav 3050
Software version	
Accuracy	RTK Mode – Centimetre accuracy

Secondary	Thales 3011

Software version	V1
Accuracy	DGPS mode

- **DGPS Reference Stations.**

Primary Positioning
C-Nav 3050 with OS Net corrections

Secondary Positioning

Fugro Seastar operated in Virtual Base Station Mode (VBS) RTCM from 3000L

Geodetic Control

N/A

- **Description of Observations.**

- **Horizontal Datum, Spheroid, Projection and Grid Details; List of Co-ordinates.**

Dynamic Validation

N/A

- **Description of Methodology.**

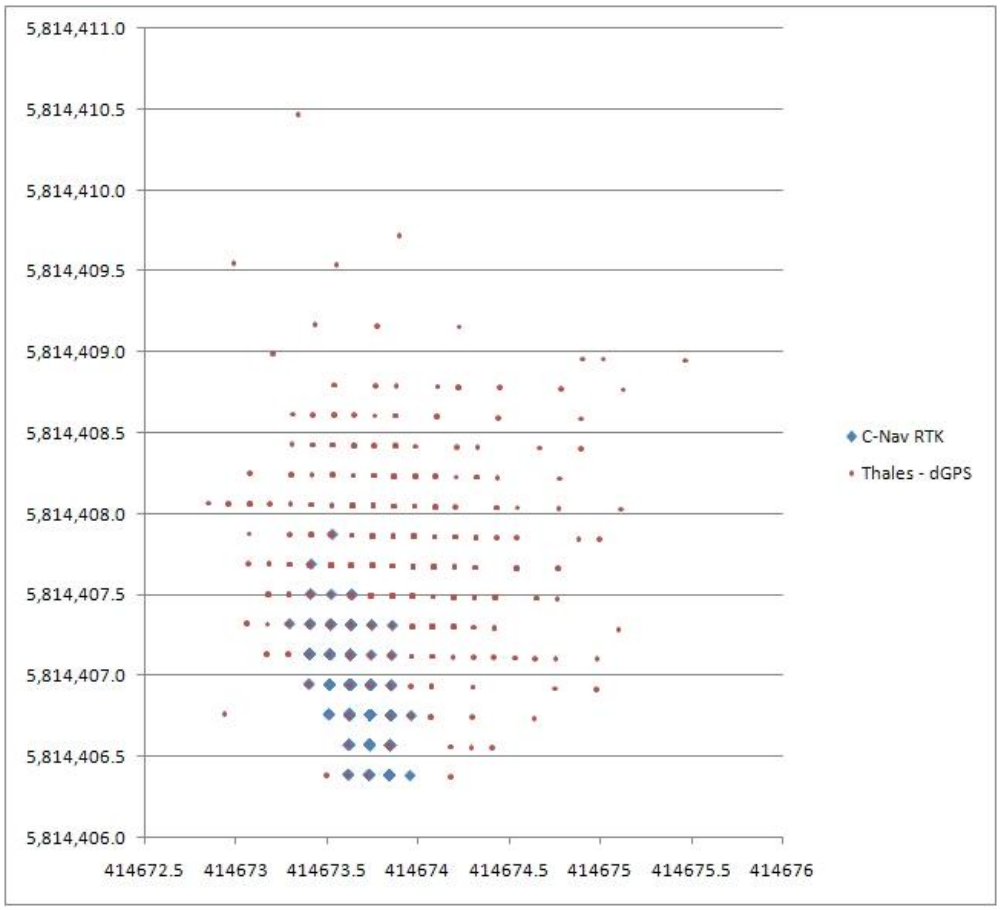
- **Validation Results.**

Static Validation

A validation of the primary and secondary GPS system was undertaken in Lowestoft on 21st December 2010.

- **Description of Methodology.**
  The outputs from both primary and secondary positioning system were logged simultaneously and were compared with each other.
  Both system proved to be working well, with C-Nav providing greater accuracy.

- **Validation Results.**



Conclusions

- There were no issues during the survey.

E. TIDAL DATA

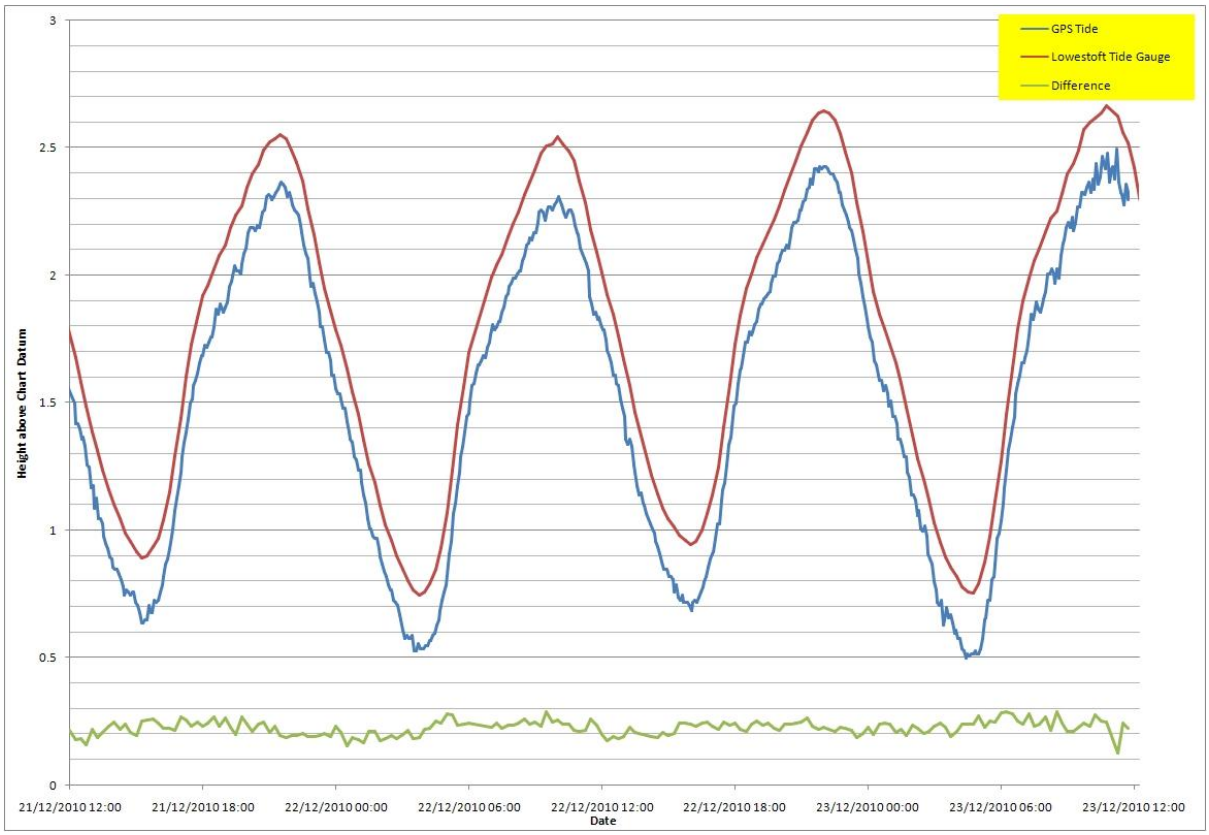
Tidal Observations

- **Tides Rendered Data.**

Rendered Data	Name
Digital Files	n/a
Graphics (if applicable)	n/a
H Forms	n/a

- **Levelling and Establishment of Sounding Datum.**

2.1 All soundings are reduced to Chart Datum. GPS Height was used for tidal correction. Offsets between GRS80 and CD were obtained from UKHO VORF model.
The GPS Height data obtained from the C-Nav 3050 system was compared against the Lowestoft Tide Gauge observations in December 2010 and was generally found to be performing well.



- **Tide gauges.**

N/A

Tide gauge	Position		Location	Owning Authority	Periods of continuous data	Periods of downtime	Remarks
	Lat	Long					

- **Predicted Tides.**

Periods used	Primary/Secondary port	Software and version	Reason	Remarks

- **Co-tidal Data.**

No co-tidal modelling undertaken.

Data point names	Position		Co-tidal range	Co-tidal time
	Lat	Long		

- **Mean Sea Level.**

- **Conclusions**

Tidal corrections using GPS height were found to work well.

F. ENVIRONMENTAL DATA

Sound Velocity Observations

- **Sound Velocity Rendered Data.**

Rendered Data	Name
Digital Files	CEND11_11_*.asvp (5 files)
Graphics (if applicable)	n/a
H Forms	n/a

- **Probes Used and Methods Employed.**

2.1 SAIV SD204

2.2 A sound velocity profile was collected in the deepest part of the survey area prior to the start of the survey. Data was recorded during the descent and ascent through the water column. Once the data was downloaded, the sound velocity was calculated and saved to the original file. The data from the upcast was exported in the Kongsberg SIS .asvp format and reviewed for erroneous measurements using the SVPeditor software. The checked file was loaded in the Kongsberg SIS software.
Additional SV profiles were collected on a daily basis or when monitoring of surface sound velocity showed significant variations.

- **Problems.**

No issues were encountered.

- **Results.**

Sound velocity was monitored constantly throughout the survey using a hull-mounted sound velocity probe and did not affect the quality of the multibeam data.

G. SEABED FEATURES AND CONTACTS

- **Seabed Features and Contacts Rendered Data.**

Rendered Data	Name
Digital Files	n/a
Graphics (if applicable)	n/a
H Forms	n/a

Seabed Sampling

- **Seabed Sampling Strategy.**

n/a

- **Equipment Used and Methods Employed.**

  n/a

- **Results.**

n/a

Wreck investigations were not part of this survey.

HI WRECKS AND OBSTRUCTIONS									
Listed Position Provided by UKHO				Observed Position					
Listed Wreck No.	Latitude	Longitude	Listed Depth (m)	Latitude	Longitude	Echo Sounder on top (m)	Dimensions	Orientation	Comments/Recommendations

Conclusions

L. ADDITIONAL DATA COLLECTED

Rendered Data		**Name/Number**
Digital files	Continuous log file	NO
	AGDS data collected	NO
	EK60 split beam echosounder data	NO
	Video/Stills footage	YES

General Area	ENGLAND NORTH SEA
Name of Survey	CEND 11/11 – HHW
Area/Block number	
Unit Name	Haisborough, Hammond and Winterton
Company	Cefas
Scientist in Charge	Paul Whomersley
Start Date of Survey	17/06/2011
End Date of Survey	21/06/2011
Scale (if applicable)	
Recommended survey category	
HMOG	
Report version	1

INTRODUCTION

a. Survey purpose

To collect baseline characterisation data for the Haisborough, Hammond and Winterton candidate SAC. A multibeam echosounder was used to acquire acoustic seabed data, and targeted sampling was undertaken to characterise the different seabed habitats and features. This work was undertaken in partnership with Natural England and the JNCC. The survey focussed on the sandbank

and *Sabellaria* reef features within the cSAC. A series of individual lines of multibeam echosounder data were collected throughout the area. Due to the draft of R/V Cefas Endeavour, the shallow parts of the sandbanks (<15m) were generally not covered by this survey.

b. Additional sources of information

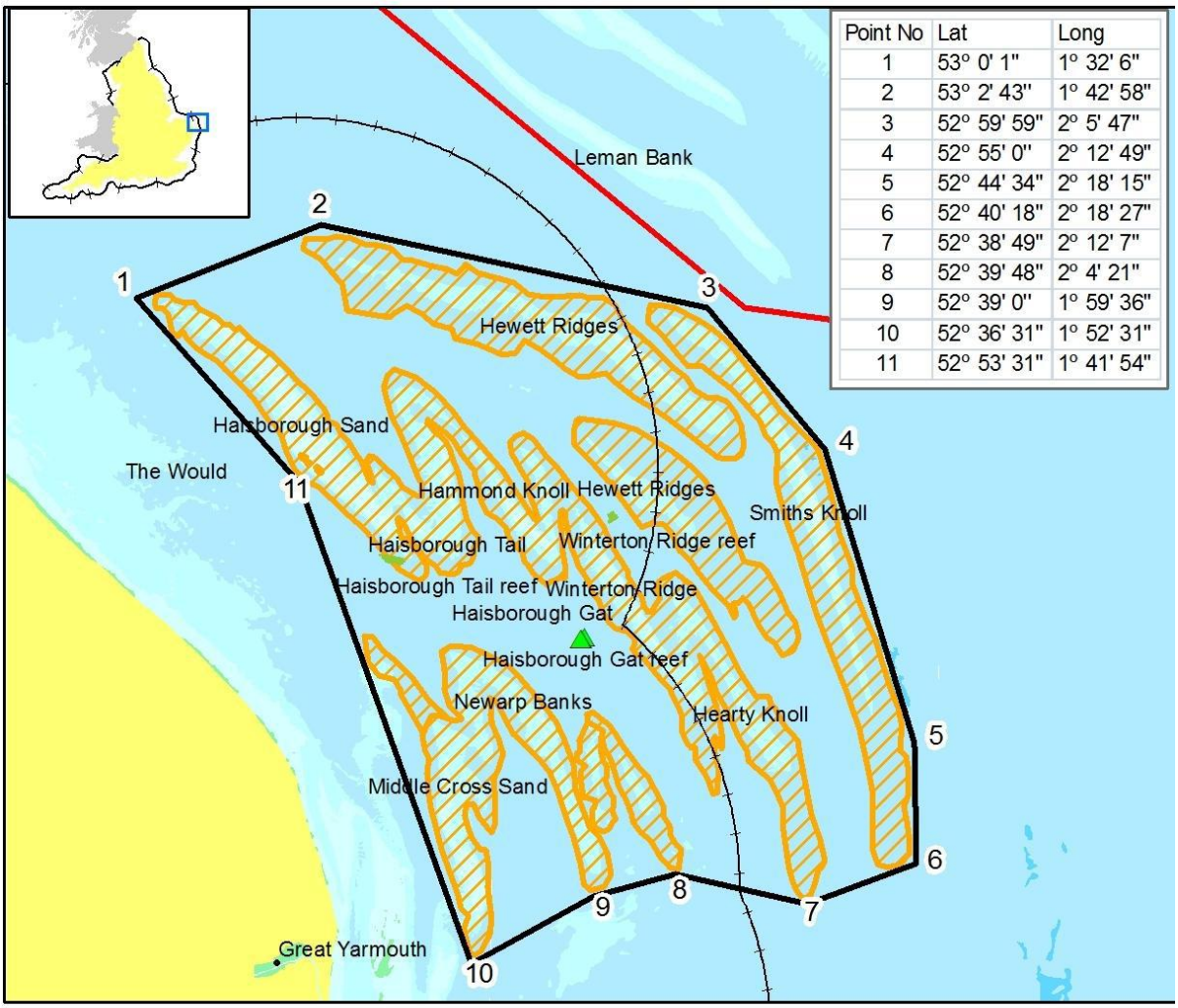
In the planning of the survey all available data for the area was gathered in a GIS.

A. GENERAL DATA

- This section is to include:
    - Summary of survey activity –

TOTAL	SEA			
		Days Lost		
Calendar Days	Surveying	Weather, Ship and Equipment Downtime	Passage	General Service Duties
5	2	0	0.5	2.50

Surveyed Area Polygon Point Name	Position (Coordinates in WGS 1984 UTM zone 31N)	
	Eastings	Northings
1	53° 0' 1"	1° 32' 6"
2	53° 2' 43"	1° 42' 58"
3	52° 59' 59"	2° 5' 47"
4	52° 55' 0"	2° 12' 49"
5	52° 44' 34"	2° 18' 15"
6	52° 40' 18"	2° 18' 27"
7	52° 38' 49"	2° 12' 7"
8	52° 39' 48"	2° 4' 21"
9	52° 39' 0"	1° 59' 36"
10	52° 36' 31"	1° 52' 31"
11	52° 53' 31"	1° 41' 54"



Point No	Lat	Long
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2	53° 2' 43"	1° 42' 58"
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4	52° 55' 0"	2° 12' 49"
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9	52° 39' 0"	1° 59' 36"
10	52° 36' 31"	1° 52' 31"
11	52° 53' 31"	1° 41' 54"

candidate Special Area of Conservation
Haisborough, Hammond and Winterton

- North Norfolk Sandbanks and Saturn Reef cSAC
- candidate Special Area of Conservation (v 1.4)
- Location of Annex I Sabellaria Biogenic reefs
- England 12nM Territorial Seas Limit
- Annex I Sabellaria Biogenic reef extent
- Sandbanks which are slightly covered by sea water all the time
- Land

Depth Areas

- Drying
- <=10m
- <=20m
- <=50m
- <=100m

EU Site Code: UK0030369
Version number: 1.4
Longitude: 1° 57' 58" E
Latitude: 52° 50' 27"N
Projection: UTM 31N (WGS84)
Area of SAC: 1467.59 sq km 146759 ha

Theme ID: 1452093
Grid Ref: TG642317
Version: 7
Plotted: 12/08/2010
Plot ID: 5

Scale 1:500,000 Map 1 of 1
0 2.5 5 10 Kilometers

N

Candidate Special Area of Conservation Directive 92/43/EEC
Submitted to the EC by the Secretary of State for Environment, Food and Rural Affairs. Date: 20/08/2010

JNCC Joint Nature Conservation Committee
NATURAL ENGLAND

- Equipment defects influencing conduct of the survey;

Equipment	Period unavailable	Remarks
Primary gyro - MAHRS	17-21/06/2011	During multibeam patch test it was identified that the MAHRS gyro readings were about 15 degrees different from the secondary gyro. The system was switched to the secondary gyro, but some further problems were experienced whilst data was acquired. Data collected after 12th July 2011 uses secondary gyro without further problems
C-Nav 3050	17-21/06/2011	Occasional drop out of RTK correction signal

- Laybacks;

Survey Inputs	X[1]	Y[1]	Z[1]	Remarks
Motion sensor	0.00	0.00	0.00	
GPS antenna	0.29	-4.01	21.09	
EM3002D - Sonar Head 1	-0.25	14.50	-7.36	
EM3002D - Sonar Head 2	0.26	14.49	-7.37	
EA600 50kHz sounder	-0.01	15.82	-9.45	

Notes: [1] In metres from the reference sensor.
Input figures positive for starboard, forward and above; negative for port, aft and below.

- List of personnel involved in the survey;

Scientist in Charge	Dates	
	From	To
Paul Whomersley	17/06/2011	21/06/2011
Surveyors		
Koen Vanstaen (data acquisition and data processing) Ken May (data acquisition and data processing) Julia Rance (data acquisition and data processing)	17/06/2011	21/06/2011

- Hydrographic Notes.

Data was not assessed to produce Hydrographic Notes.

Reference	Date	Subject

B. DAILY NARRATIVE

- Daily Narrative - Cefas cruise report extract

C1 SURVEY DATA – MBES

- **MBES Rendered Data.**

Rendered Data		**Name/Number**
Digital files	Total of raw.all files (Simrad)	\\lowfile6\cyan$\2011\ *_IDRBNR.all 0158 to 0328 171 files – 31.5GB
	CARIS HIPS Project	YES
	GSF	YES
	Fledermaus SD	YES
Graphics		n/a

- **Introduction.**

All MBES data were recorded on the EM3002D Big-SIS data acquisition system. The data was backed up daily on a local external hard drive. At the end of the survey, an additional data back-up was made on a second external hard drive. Data processing was undertaken using Caris HIPS package and GSF files were produced for data visualisation in IVS3D Fledermaus and data analysis in ArcGIS.
Backscatter data was processed using IVS3D FMGT.

Bathymetry

- **System Hardware and Software.**

Hardware On-line	**Remarks**
Kongsberg EM3002D	Head serial 272 – 280
Seatex MRU-5	Serial 2043
C-Nav 3050 GPS	OS RTK corrections
Thales 3011 GPS	Fugro Seastar differential corrections
MAHRS Gyro	Primary gyro – Faulty
Anschutz gyro	Secondary gyro – Version 222 NG01 4000996009
SAIV SD204	CTD casts
Reson SVP24	Mounted on blade next to sonar heads
Druck PTX 1830	Vessel draft sensor
Hardware Off-line	**Remarks**

Software (including version)	Remarks
Kongsberg SIS V3.6.1	System was unable to show gridded data
Caris HIPS V7.1 Hotfix 1-2	
IVS3D Fledermaus v7.3	

- **Survey Sensor Inputs and Interfaces.**

Survey Inputs	Sensor	Remarks
Primary Motion Sensor	Seatex MRU-5	
Secondary Motion Sensor	N/A	
SBES / NBSS	Kongsberg EA600	
MBES / HRMBSS	Kongsberg EM3002D	
Precise Navigation	C-Nav 3050	OS RTK Corrections
Gyro / Ring Laser Gyro	TSS MAHRS	Primary - FAULTY
Gyro	Anschutz	Secondary
Hull Mounted SV Sensor	Reson SVP	

- **Survey Parameters.**

Actions	As surveyed	Remarks
Order of survey achieved	Habitat Mapping	
MBES used	EM3002D	
Operating frequencies (kHz)	293 -307kHz	
SBES used	EA600	
Operating frequencies (kHz)	50KHz	
Heave compensation applied (Yes/No)	Yes	
Squat data used	No	Expected to be insignificant
Horizontal datum	WGS84	
Spheroid	WGS84	
Projection	UTM Zone 31N	
Central Meridian and Grid Zone	3º East	
Vertical datum	Chart Datum	
Average sounding line direction (°)	Various	
Average sounding line spacing (m)	n/a	
Cross-line direction (°)	n/a	
Cross-line spacing (m)	n/a	
Average sounding speed (kn)	8 kn	
Average across track % overlap	n/a	
Average along track % overlap	Nil	

- **MBES Calibration.**

Full system calibration on 7th January 2011. Gyro calibration 5th January 2011.

A full system calibration was started on 11th June 2011 but proved unusable due to the gyro issues identified. The last successful calibration settings were applied (7th January 2011) as no changes to the system occurred since. Review of the data collected proved that these calibration settings were suitable.

- **Data Logging Parameters.**

Parameter	Setting	Remarks
Beam spacing	High density equi-distant	
Number of beams	254/254	
Swath angle (º)	65/65	
Sidescan sonar range (m)		Same as bathymetry coverage
Blade deployment depth	1.0m	
Configured Draught (m)	1.34	
Water column data logged	No	

- **Data Processing Techniques.**

8.1 All data processing was conducted in accordance with the Cefas Standard Operating Procedure for Caris HIPS multibeam data processing.

8.2 The Cefas Endeavour Vessel Configuration File (VCF) which contains all sensor locations, offsets and dimensions was updated to take account of survey specific settings.

8.3 The Kongsberg raw .all files were imported using the Conversion Wizard and converted into Caris HDCS format. Navigation and attitude data were examined and no editing was required.

8.4 Limited automated data filtering was undertaken based on "minimum and maximum depth", "beam to beam slopes", "beam numbers" and "angle from nadir". Next, the swath data was examined line-by-line and sounding outliers were removed manually.

8.5 Tidal data was extracted from GPS Height and applied in Caris HIPS. Offset from GRS80 ellipsoid to Chart Datum was corrected using VORF offsets made available by UKHO All lines were merged and a fieldsheet with base surface was created.

8.6 Where necessary, further manual sounding editing is undertaken using the subset editor. Following manual editing a CUBE surface filter was applied to the data. All data was exported to GSF files on completion of all data processing.

- **Tide Files.**

Tide file name	Remarks
n/a	GPS Height used

- **Cross-line Comparisons.**

N/A

- **Data File Naming Convention.**

File type	Name	Remarks
Kongsberg raw .all	*Line no_date_time*_**IDRBNR.all**	0158 to 0328

- **Bathymetry Results.**

The multibeam system performed well during the survey, and the resulting data was found to be of good quality.

Side-scan Sonar

Sidescan sonar data was simultaneously collected.

- **Parameters.**

Side scan Sonar type:

Actions	As surveyed	Remarks
Sonar sweep category		
Sonar equipment used	Edgetech FS-4200	
Operating frequency (kHz)	300/600	
Range scale used (m)	150	
Pulse length		
Line spacing (m)		
Line direction (°)		
Cross-line direction (°)		
Sonar speed (kn)		
Layback measurement [USBL or Manual (see form H272)]		

- **Sonar Coverage.**

Similar to multibeam echosounder data

- **Sonar Results.**

Sonar results were generally found to be of good quality

Conclusions

-
-

D. GEODETIC DATA

- **Geodetic Rendered Data.**

Rendered Data	**Name**
Digital Files	No data
Graphics (if applicable)	No data
H Forms	No data

- **Survey Details.**

Survey Type	Bathymetry - Habitat Mapping (Multibeam echosounder)
Horizontal Datum	ETRS89
Vertical Datum	Chart Datum
Analogue Equipment	None
Digital Equipment	EM3002D

Geodetic Parameters

- **Geodetic Reference System.**

Datum	ETRF89
Spheroid	GRS80
Semi-major axis	6378137.000
Semi-minor axis	6356752.314
Inverse flattening	298.257223563

- **Projection System.**

Projection	Transverse Mercator
Central Meridian (CM)	3° E
Latitude of Origin	0 N
False Easting	500,000.000
False Northing	0.000
Scale Factor on CM	0.9996

- **GPS Geodetic System.**

Datum	ETRS89
Spheroid	GRS80
Semi-major axis	6378137.000
Semi-minor axis	6356752.314
Inverse flattening	298.257223563

- **Positioning System.**

Primary	C-Nav 3050
Software version	
Accuracy	RTK Mode – Centimetre accuracy

Secondary	Thales 3011

Software version	V1
Accuracy	DGPS mode

- **DGPS Reference Stations.**

Primary Positioning
C-Nav 3050 with OS Net corrections

Secondary Positioning

Fugro Seastar operated in Virtual Base Station Mode (VBS) RTCM from 3000L

Geodetic Control

N/A

- **Description of Observations.**

- **Horizontal Datum, Spheroid, Projection and Grid Details; List of Co-ordinates.**

Dynamic Validation

N/A

- **Description of Methodology.**

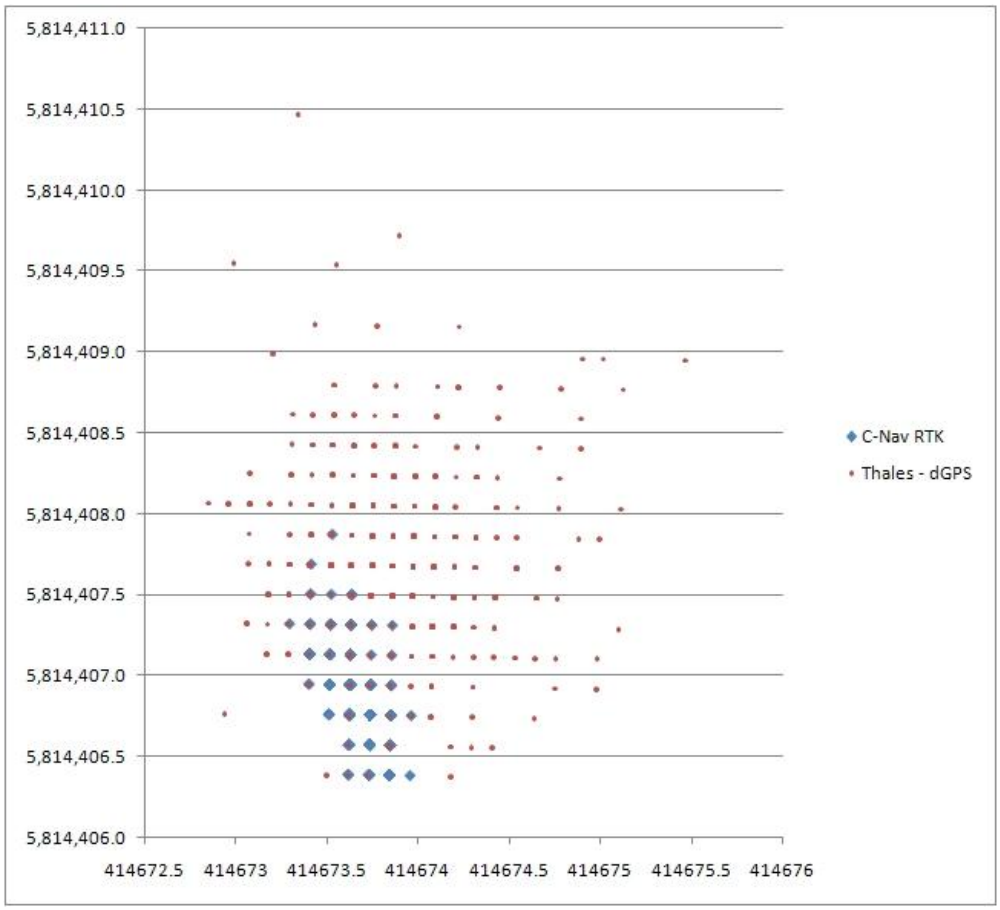
- **Validation Results.**

Static Validation

A validation of the primary and secondary GPS system was undertaken in Lowestoft on 21st December 2010.

- **Description of Methodology.**
  The outputs from both primary and secondary positioning system were logged simultaneously and were compared with each other.
  Both system proved to be working well, with C-Nav providing greater accuracy.

- **Validation Results.**



Conclusions

- There were no issues during the survey.

E. TIDAL DATA

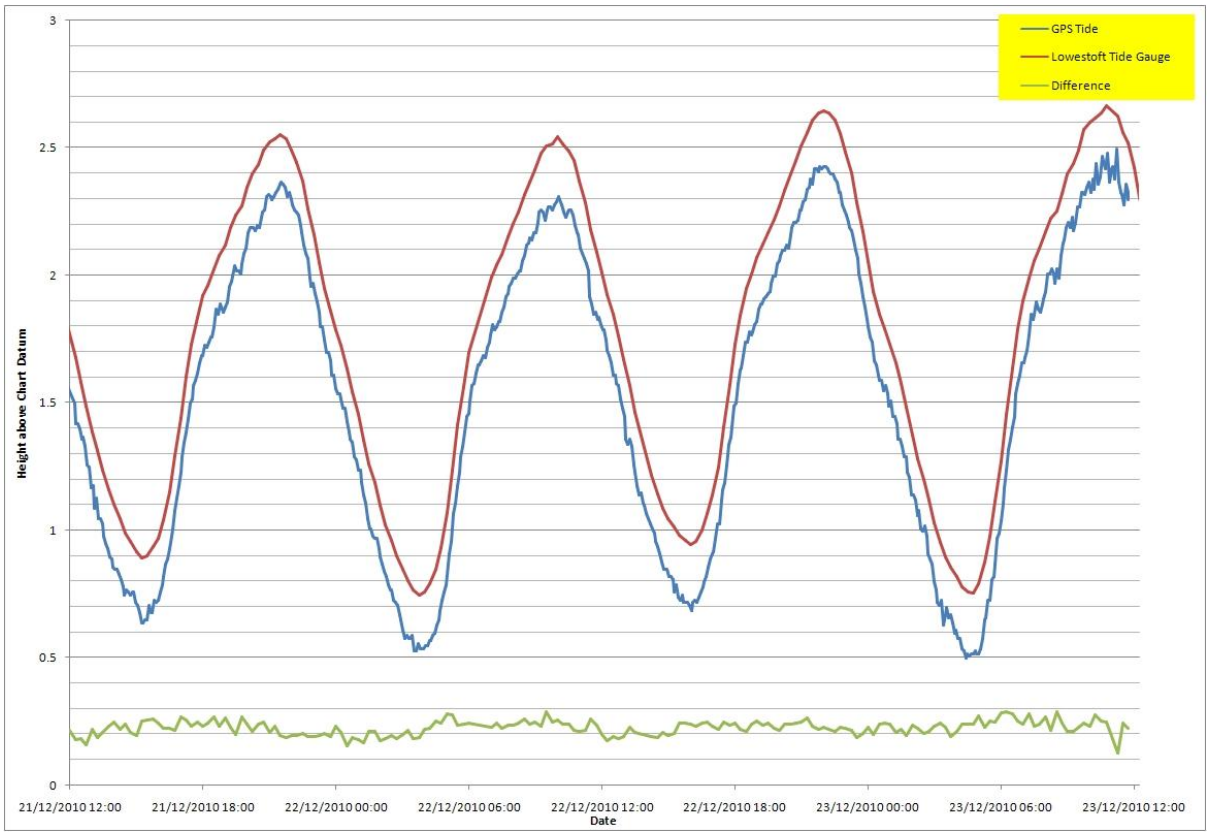
Tidal Observations

- **Tides Rendered Data.**

Rendered Data	Name
Digital Files	n/a
Graphics (if applicable)	n/a
H Forms	n/a

- **Levelling and Establishment of Sounding Datum.**

2.1 All soundings are reduced to Chart Datum. GPS Height was used for tidal correction. Offsets between GRS80 and CD were obtained from UKHO VORF model..
The GPS Height data obtained from the C-Nav 3050 system was compared against the Lowestoft Tide Gauge observations in December 2010 and was generally found to be performing well.



- **Tide gauges.**

N/A

	Position		Owning	Periods of	Periods of	Remarks

Tide gauge	Lat	Long	Location	Authority	continuous data	downtime	

- **Predicted Tides.**

Periods used	Primary/Secondary port	Software and version	Reason	Remarks

- **Co-tidal Data.**

No co-tidal modelling undertaken.

Data point names	Position		Co-tidal range	Co-tidal time
	Lat	Long		

- **Mean Sea Level.**
- **Conclusions**

Tidal corrections using GPS height were found to work well.

F. ENVIRONMENTAL DATA

Sound Velocity Observations

- **Sound Velocity Rendered Data.**

Rendered Data	Name
Digital Files	CEND11_11_*.asvp (5 files)
Graphics (if applicable)	n/a
H Forms	n/a

- **Probes Used and Methods Employed.**

2.1 SAIV SD204

2.2 A sound velocity profile was collected in the deepest part of the survey area prior to the start of the survey. Data was recorded during the descent and ascent through the water column. Once the data was downloaded, the sound velocity was calculated and saved to the original file. The data from the upcast was exported in the Kongsberg SIS .asvp format and reviewed for erroneous measurements using the SVPeditor software. The checked file was loaded in the Kongsberg SIS software.
Additional SV profiles were collected on a daily basis or when monitoring of surface sound velocity showed significant variations.

- **Problems.**

No issues were encountered.

- **Results.**

Sound velocity was monitored constantly throughout the survey using a hull-mounted sound velocity probe and did not affect the quality of the multibeam data.

G. SEABED FEATURES AND CONTACTS

- **Seabed Features and Contacts Rendered Data.**

Rendered Data	Name
Digital Files	n/a
Graphics (if applicable)	n/a
H Forms	n/a

Seabed Sampling

- **Seabed Sampling Strategy.**

n/a

- **Equipment Used and Methods Employed.**

  n/a

- **Results.**

n/a

Wreck investigations were not part of this survey.

HI WRECKS AND OBSTRUCTIONS									
Listed Position Provided by UKHO				Observed Position					
Listed Wreck No.	Latitude	Longitude	Listed Depth (m)	Latitude	Longitude	Echo Sounder on top (m)	Dimensions	Orientation	Comments/Recommendations

Conclusions

L. ADDITIONAL DATA COLLECTED

Rendered Data		**Name/Number**
Digital files	Continuous log file	NO
	AGDS data collected	NO
	EK60 split beam echosounder data	NO
	Video/Stills footage	YES

Annex 5 Meta data

DIGILOG benthos bio

Cruise code	Area name	Station no.	Station code	Gear name	Latitude (degrees)	Longitude (degrees)	Date sampled	Volume of sample (litres)	Photo?	Sieve mesh size (mm)	PSA	Macrofauna	Sediment type	Replicate
CEND 11/11	IDNRRB	3	IDRBNR_SS_MB_SB	EdgeTech 4200	53.26	1.01	12/06/2011	0.00	FALSE	1	FALSE	FALSE		26B
CEND 11/11	IDNRRB	3	IDRBNR_SS_MB_SB	EdgeTech 4200	53.29	1.00	12/06/2011	0.00	FALSE	1	FALSE	FALSE		26B
CEND 11/11	IDNRRB	3	IDRBNR_SS_MB_SB	EdgeTech 4200	53.22	1.05	12/06/2011	0.00	FALSE	1	FALSE	FALSE		26C
CEND 11/11	IDNRRB	3	IDRBNR_SS_MB_SB	EdgeTech 4200	53.26	1.01	12/06/2011	0.00	FALSE	1	FALSE	FALSE		26C
CEND 11/11	IDNRRB	3	IDRBNR_SS_MB_SB	EdgeTech 4200	53.22	1.02	12/06/2011	0.00	FALSE	1	FALSE	FALSE		15 TURN
CEND 11/11	IDNRRB	3	IDRBNR_SS_MB_SB	EdgeTech 4200	53.22	1.05	12/06/2011	0.00	FALSE	1	FALSE	FALSE		15 TURN
CEND 11/11	IDNRRB	3	IDRBNR_SS_MB_SB	EdgeTech 4200	53.30	0.82	12/06/2011	0.00	FALSE	1	FALSE	FALSE		15i
CEND 11/11	IDNRRB	3	IDRBNR_SS_MB_SB	EdgeTech 4200	53.22	1.05	12/06/2011	0.00	FALSE	1	FALSE	FALSE		15i
CEND 11/11	IDNRRB	3	IDRBNR_SS_MB_SB	EdgeTech 4200	53.30	0.82	12/06/2011	0.00	FALSE	1	FALSE	FALSE		15ii
CEND 11/11	IDNRRB	3	IDRBNR_SS_MB_SB	EdgeTech 4200	53.30	0.82	12/06/2011	0.00	FALSE	1	FALSE	FALSE		15ii
CEND 11/11	IDNRRB	3	IDRBNR_SS_MB_SB	EdgeTech 4200	53.29	1.00	12/06/2011	0.00	FALSE	1	FALSE	FALSE		26A
CEND 11/11	IDNRRB	3	IDRBNR_SS_MB_SB	EdgeTech 4200	53.33	0.98	12/06/2011	0.00	FALSE	1	FALSE	FALSE		26A
CEND 11/11	IDNRRB	3	IDRBNR_SS_MB_SB	Kongsberg EM3002D	53.26	1.01	12/06/2011	0.00	FALSE	1	FALSE	FALSE		26B

Cruise code	Area name	Station no.	Station code	Gear name	Latitude (degrees)	Longitude (degrees)	Date sampled	Volume of sample (litres)	Photo?	Sieve mesh size (mm)	PSA	Macrofauna	Sediment type	Replicate
CEND 11/11	IDNRRB	3	IDRBNR_SS_MB_SB	Kongsberg EM3002D	53.29	1.00	12/06/2011	0.00	FALSE	1	FALSE	FALSE		26B
CEND 11/11	IDNRRB	3	IDRBNR_SS_MB_SB	Kongsberg EM3002D	53.22	1.05	12/06/2011	0.00	FALSE	1	FALSE	FALSE		26C
CEND 11/11	IDNRRB	3	IDRBNR_SS_MB_SB	Kongsberg EM3002D	53.26	1.01	12/06/2011	0.00	FALSE	1	FALSE	FALSE		26C
CEND 11/11	IDNRRB	3	IDRBNR_SS_MB_SB	Kongsberg EM3002D	53.22	1.02	12/06/2011	0.00	FALSE	1	FALSE	FALSE		15 TURN
CEND 11/11	IDNRRB	3	IDRBNR_SS_MB_SB	Kongsberg EM3002D	53.22	1.05	12/06/2011	0.00	FALSE	1	FALSE	FALSE		15 TURN
CEND 11/11	IDNRRB	3	IDRBNR_SS_MB_SB	Kongsberg EM3002D	53.30	0.82	12/06/2011	0.00	FALSE	1	FALSE	FALSE		15i
CEND 11/11	IDNRRB	3	IDRBNR_SS_MB_SB	Kongsberg EM3002D	53.22	1.05	12/06/2011	0.00	FALSE	1	FALSE	FALSE		15i
CEND 11/11	IDNRRB	3	IDRBNR_SS_MB_SB	Kongsberg EM3002D	53.30	0.82	12/06/2011	0.00	FALSE	1	FALSE	FALSE		15ii
CEND 11/11	IDNRRB	3	IDRBNR_SS_MB_SB	Kongsberg EM3002D	53.30	0.82	12/06/2011	0.00	FALSE	1	FALSE	FALSE		15ii
CEND 11/11	IDNRRB	3	IDRBNR_SS_MB_SB	Kongsberg EM3002D	53.29	1.00	12/06/2011	0.00	FALSE	1	FALSE	FALSE		26A
CEND 11/11	IDNRRB	3	IDRBNR_SS_MB_SB	Kongsberg EM3002D	53.33	0.98	12/06/2011	0.00	FALSE	1	FALSE	FALSE		26A
CEND 11/11	IDNRRB	3	IDRBNR_SS_MB_SB	Sub-bottom profiler	53.26	1.01	12/06/2011	0.00	FALSE	1	FALSE	FALSE		26B
CEND 11/11	IDNRRB	3	IDRBNR_SS_MB_SB	Sub-bottom profiler	53.29	1.00	12/06/2011	0.00	FALSE	1	FALSE	FALSE		26B
CEND 11/11	IDNRRB	3	IDRBNR_SS_MB_SB	Sub-bottom profiler	53.22	1.05	12/06/2011	0.00	FALSE	1	FALSE	FALSE		26C
CEND 11/11	IDNRRB	3	IDRBNR_SS_MB_SB	Sub-bottom profiler	53.26	1.01	12/06/2011	0.00	FALSE	1	FALSE	FALSE		26C

Cruise code	Area name	Station no.	Station code	Gear name	Latitude (degrees)	Longitude (degrees)	Date sampled	Volume of sample (litres)	Photo?	Sieve mesh size (mm)	PSA	Macrofauna	Sediment type	Replicate
CEND 11/11	IDNRRB	3	IDRBNR_SS_MB_SB	Sub-bottom profiler	53.22	1.02	12/06/2011	0.00	FALSE	1	FALSE	FALSE		15 TURN
CEND 11/11	IDNRRB	3	IDRBNR_SS_MB_SB	Sub-bottom profiler	53.22	1.05	12/06/2011	0.00	FALSE	1	FALSE	FALSE		15 TURN
CEND 11/11	IDNRRB	3	IDRBNR_SS_MB_SB	Sub-bottom profiler	53.30	0.82	12/06/2011	0.00	FALSE	1	FALSE	FALSE		15i
CEND 11/11	IDNRRB	3	IDRBNR_SS_MB_SB	Sub-bottom profiler	53.22	1.05	12/06/2011	0.00	FALSE	1	FALSE	FALSE		15i
CEND 11/11	IDNRRB	3	IDRBNR_SS_MB_SB	Sub-bottom profiler	53.30	0.82	12/06/2011	0.00	FALSE	1	FALSE	FALSE		15ii
CEND 11/11	IDNRRB	3	IDRBNR_SS_MB_SB	Sub-bottom profiler	53.30	0.82	12/06/2011	0.00	FALSE	1	FALSE	FALSE		15ii
CEND 11/11	IDNRRB	3	IDRBNR_SS_MB_SB	Sub-bottom profiler	53.29	1.00	12/06/2011	0.00	FALSE	1	FALSE	FALSE		26A
CEND 11/11	IDNRRB	3	IDRBNR_SS_MB_SB	Sub-bottom profiler	53.33	0.98	12/06/2011	0.00	FALSE	1	FALSE	FALSE		26A
CEND 11/11	IDNRRB	4	CTD_3	CTD Micrologger	53.30	0.81	12/06/2011	0.00	FALSE	1	FALSE	FALSE		A
CEND 11/11	IDNRRB	5	IDRBNR_SS_MB_SB	EdgeTech 4200	53.29	0.82	12/06/2011	0.00	FALSE	1	FALSE	FALSE		24
CEND 11/11	IDNRRB	5	IDRBNR_SS_MB_SB	EdgeTech 4200	53.30	0.80	12/06/2011	0.00	FALSE	1	FALSE	FALSE		24
CEND 11/11	IDNRRB	5	IDRBNR_SS_MB_SB	EdgeTech 4200	53.25	0.73	12/06/2011	0.00	FALSE	1	FALSE	FALSE		18A
CEND 11/11	IDNRRB	5	IDRBNR_SS_MB_SB	EdgeTech 4200	53.20	0.85	12/06/2011	0.00	FALSE	1	FALSE	FALSE		18A
CEND 11/11	IDNRRB	5	IDRBNR_SS_MB_SB	EdgeTech 4200	53.20	0.85	12/06/2011	0.00	FALSE	1	FALSE	FALSE		18C_18B
CEND 11/11	IDNRRB	5	IDRBNR_SS_MB_SB	EdgeTech 4200	53.14	0.91	12/06/2011	0.00	FALSE	1	FALSE	FALSE		18C_18B

Cruise code	Area name	Station no.	Station code	Gear name	Latitude (degrees)	Longitude (degrees)	Date sampled	Volume of sample (litres)	Photo?	Sieve mesh size (mm)	PSA	Macrofauna	Sediment type	Replicate
CEND 11/11	IDNRRB	5	IDRBNR_SS_MB_SB	EdgeTech 4200	53.14	0.91	12/06/2011	0.00	FALSE	1	FALSE	FALSE		18C TRANSIT
CEND 11/11	IDNRRB	5	IDRBNR_SS_MB_SB	EdgeTech 4200	53.12	0.98	12/06/2011	0.00	FALSE	1	FALSE	FALSE		18C TRANSIT
CEND 11/11	IDNRRB	5	IDRBNR_SS_MB_SB	EdgeTech 4200	53.26	0.84	12/06/2011	0.00	FALSE	1	FALSE	FALSE		24A
CEND 11/11	IDNRRB	5	IDRBNR_SS_MB_SB	EdgeTech 4200	53.29	0.82	12/06/2011	0.00	FALSE	1	FALSE	FALSE		24A
CEND 11/11	IDNRRB	5	IDRBNR_SS_MB_SB	EdgeTech 4200	53.18	0.93	12/06/2011	0.00	FALSE	1	FALSE	FALSE		24B
CEND 11/11	IDNRRB	5	IDRBNR_SS_MB_SB	EdgeTech 4200	53.26	0.84	12/06/2011	0.00	FALSE	1	FALSE	FALSE		24B
CEND 11/11	IDNRRB	5	IDRBNR_SS_MB_SB	EdgeTech 4200	53.30	0.96	12/06/2011	0.00	FALSE	1	FALSE	FALSE		TRANSIT 34
CEND 11/11	IDNRRB	5	IDRBNR_SS_MB_SB	EdgeTech 4200	53.29	0.95	12/06/2011	0.00	FALSE	1	FALSE	FALSE		TRANSIT 34
CEND 11/11	IDNRRB	5	IDRBNR_SS_MB_SB	EdgeTech 4200	53.37	0.82	12/06/2011	0.00	FALSE	1	FALSE	FALSE		TRANSIT TO SPE01(4)
CEND 11/11	IDNRRB	5	IDRBNR_SS_MB_SB	EdgeTech 4200	53.40	0.78	12/06/2011	0.00	FALSE	1	FALSE	FALSE		TRANSIT TO SPE01(4)
CEND 11/11	IDNRRB	5	IDRBNR_SS_MB_SB	EdgeTech 4200	53.40	0.78	12/06/2011	0.00	FALSE	1	FALSE	FALSE		TRANSIT TO SPE01(3)
CEND 11/11	IDNRRB	5	IDRBNR_SS_MB_SB	EdgeTech 4200	53.40	0.80	12/06/2011	0.00	FALSE	1	FALSE	FALSE		TRANSIT TO SPE01(3)
CEND 11/11	IDNRRB	5	IDRBNR_SS_MB_SB	EdgeTech 4200	53.40	0.80	12/06/2011	0.00	FALSE	1	FALSE	FALSE		TRANSIT TO SPE01(2)
CEND 11/11	IDNRRB	5	IDRBNR_SS_MB_SB	EdgeTech 4200	53.38	0.86	12/06/2011	0.00	FALSE	1	FALSE	FALSE		TRANSIT TO SPE01(2)
CEND 11/11	IDNRRB	5	IDRBNR_SS_MB_SB	EdgeTech 4200	53.38	0.86	12/06/2011	0.00	FALSE	1	FALSE	FALSE		TRANSIT TO SPE01 (1)

Cruise code	Area name	Station no.	Station code	Gear name	Latitude (degrees)	Longitude (degrees)	Date sampled	Volume of sample (litres)	Photo?	Sieve mesh size (mm)	PSA	Macrofauna	Sediment type	Replicate
CEND 11/11	IDNRRB	5	IDRBNR_SS_MB_SB	EdgeTech 4200	53.37	0.84	12/06/2011	0.00	FALSE	1	FALSE	FALSE		TRANSIT TO SPE01 (1)
CEND 11/11	IDNRRB	5	IDRBNR_SS_MB_SB	EdgeTech 4200	53.35	0.84	12/06/2011	0.00	FALSE	1	FALSE	FALSE		13
CEND 11/11	IDNRRB	5	IDRBNR_SS_MB_SB	EdgeTech 4200	53.33	0.99	12/06/2011	0.00	FALSE	1	FALSE	FALSE		13
CEND 11/11	IDNRRB	5	IDRBNR_SS_MB_SB	EdgeTech 4200	53.33	0.99	12/06/2011	0.00	FALSE	1	FALSE	FALSE		TRANSIT TO 13
CEND 11/11	IDNRRB	5	IDRBNR_SS_MB_SB	EdgeTech 4200	53.28	0.98	12/06/2011	0.00	FALSE	1	FALSE	FALSE		TRANSIT TO 13
CEND 11/11	IDNRRB	5	IDRBNR_SS_MB_SB	EdgeTech 4200	53.28	0.98	12/06/2011	0.00	FALSE	1	FALSE	FALSE		25
CEND 11/11	IDNRRB	5	IDRBNR_SS_MB_SB	EdgeTech 4200	53.35	0.94	12/06/2011	0.00	FALSE	1	FALSE	FALSE		25
CEND 11/11	IDNRRB	5	IDRBNR_SS_MB_SB	EdgeTech 4200	53.28	0.98	12/06/2011	0.00	FALSE	1	FALSE	FALSE		TRANSIT 25
CEND 11/11	IDNRRB	5	IDRBNR_SS_MB_SB	EdgeTech 4200	53.40	0.94	12/06/2011	0.00	FALSE	1	FALSE	FALSE		TRANSIT 25
CEND 11/11	IDNRRB	5	IDRBNR_SS_MB_SB	EdgeTech 4200	53.25	0.58	12/06/2011	0.00	FALSE	1	FALSE	FALSE		18
CEND 11/11	IDNRRB	5	IDRBNR_SS_MB_SB	EdgeTech 4200	53.25	0.73	12/06/2011	0.00	FALSE	1	FALSE	FALSE		18
CEND 11/11	IDNRRB	5	IDRBNR_SS_MB_SB	EdgeTech 4200	53.40	0.91	12/06/2011	0.00	FALSE	1	FALSE	FALSE		34
CEND 11/11	IDNRRB	5	IDRBNR_SS_MB_SB	EdgeTech 4200	53.30	0.96	12/06/2011	0.00	FALSE	1	FALSE	FALSE		34
CEND 11/11	IDNRRB	5	IDRBNR_SS_MB_SB	EdgeTech 4200	53.35	0.74	12/06/2011	0.00	FALSE	1	FALSE	FALSE		33
CEND 11/11	IDNRRB	5	IDRBNR_SS_MB_SB	EdgeTech 4200	53.26	0.73	12/06/2011	0.00	FALSE	1	FALSE	FALSE		33

Cruise code	Area name	Station no.	Station code	Gear name	Latitude (degrees)	Longitude (degrees)	Date sampled	Volume of sample (litres)	Photo?	Sieve mesh size (mm)	PSA	Macrofauna	Sediment type	Replicate
CEND 11/11	IDNRRB	5	IDRBNR_SS_MB_SB	EdgeTech 4200	53.29	0.95	12/06/2011	0.00	FALSE	1	FALSE	FALSE		32B
CEND 11/11	IDNRRB	5	IDRBNR_SS_MB_SB	EdgeTech 4200	53.33	0.91	12/06/2011	0.00	FALSE	1	FALSE	FALSE		32B
CEND 11/11	IDNRRB	5	IDRBNR_SS_MB_SB	EdgeTech 4200	53.33	0.91	12/06/2011	0.00	FALSE	1	FALSE	FALSE		32A
CEND 11/11	IDNRRB	5	IDRBNR_SS_MB_SB	EdgeTech 4200	53.40	0.82	12/06/2011	0.00	FALSE	1	FALSE	FALSE		32A
CEND 11/11	IDNRRB	5	IDRBNR_SS_MB_SB	EdgeTech 4200	53.26	0.73	12/06/2011	0.00	FALSE	1	FALSE	FALSE		33 TRANSIT
CEND 11/11	IDNRRB	5	IDRBNR_SS_MB_SB	EdgeTech 4200	53.25	0.68	12/06/2011	0.00	FALSE	1	FALSE	FALSE		33 TRANSIT
CEND 11/11	IDNRRB	5	IDRBNR_SS_MB_SB	EdgeTech 4200	53.40	0.82	12/06/2011	0.00	FALSE	1	FALSE	FALSE		32A TRANSIT
CEND 11/11	IDNRRB	5	IDRBNR_SS_MB_SB	EdgeTech 4200	53.40	0.79	12/06/2011	0.00	FALSE	1	FALSE	FALSE		32A TRANSIT
CEND 11/11	IDNRRB	5	IDRBNR_SS_MB_SB	EdgeTech 4200	53.40	0.79	12/06/2011	0.00	FALSE	1	FALSE	FALSE		31
CEND 11/11	IDNRRB	5	IDRBNR_SS_MB_SB	EdgeTech 4200	53.37	0.83	12/06/2011	0.00	FALSE	1	FALSE	FALSE		31
CEND 11/11	IDNRRB	5	IDRBNR_SS_MB_SB	EdgeTech 4200	53.37	0.83	12/06/2011	0.00	FALSE	1	FALSE	FALSE		31A
CEND 11/11	IDNRRB	5	IDRBNR_SS_MB_SB	EdgeTech 4200	53.33	0.86	12/06/2011	0.00	FALSE	1	FALSE	FALSE		31A
CEND 11/11	IDNRRB	5	IDRBNR_SS_MB_SB	EdgeTech 4200	53.33	0.86	12/06/2011	0.00	FALSE	1	FALSE	FALSE		31B
CEND 11/11	IDNRRB	5	IDRBNR_SS_MB_SB	EdgeTech 4200	53.31	0.86	12/06/2011	0.00	FALSE	1	FALSE	FALSE		31B
CEND 11/11	IDNRRB	5	IDRBNR_SS_MB_SB	EdgeTech 4200	53.31	0.86	12/06/2011	0.00	FALSE	1	FALSE	FALSE		14

Cruise code	Area name	Station no.	Station code	Gear name	Latitude (degrees)	Longitude (degrees)	Date sampled	Volume of sample (litres)	Photo?	Sieve mesh size (mm)	PSA	Macrofauna	Sediment type	Replicate
CEND 11/11	IDNRRB	5	IDRBNR_SS_MB_SB	EdgeTech 4200	53.35	0.75	12/06/2011	0.00	FALSE	1	FALSE	FALSE		14
CEND 11/11	IDNRRB	5	IDRBNR_SS_MB_SB	Kongsberg EM3002D	53.29	0.82	12/06/2011	0.00	FALSE	1	FALSE	FALSE		24
CEND 11/11	IDNRRB	5	IDRBNR_SS_MB_SB	Kongsberg EM3002D	53.30	0.80	12/06/2011	0.00	FALSE	1	FALSE	FALSE		24
CEND 11/11	IDNRRB	5	IDRBNR_SS_MB_SB	Kongsberg EM3002D	53.25	0.73	12/06/2011	0.00	FALSE	1	FALSE	FALSE		18A
CEND 11/11	IDNRRB	5	IDRBNR_SS_MB_SB	Kongsberg EM3002D	53.20	0.85	12/06/2011	0.00	FALSE	1	FALSE	FALSE		18A
CEND 11/11	IDNRRB	5	IDRBNR_SS_MB_SB	Kongsberg EM3002D	53.20	0.85	12/06/2011	0.00	FALSE	1	FALSE	FALSE		18C_18B
CEND 11/11	IDNRRB	5	IDRBNR_SS_MB_SB	Kongsberg EM3002D	53.14	0.91	12/06/2011	0.00	FALSE	1	FALSE	FALSE		18C_18B
CEND 11/11	IDNRRB	5	IDRBNR_SS_MB_SB	Kongsberg EM3002D	53.14	0.91	12/06/2011	0.00	FALSE	1	FALSE	FALSE		18C TRANSIT
CEND 11/11	IDNRRB	5	IDRBNR_SS_MB_SB	Kongsberg EM3002D	53.12	0.98	12/06/2011	0.00	FALSE	1	FALSE	FALSE		18C TRANSIT
CEND 11/11	IDNRRB	5	IDRBNR_SS_MB_SB	Kongsberg EM3002D	53.26	0.84	12/06/2011	0.00	FALSE	1	FALSE	FALSE		24A
CEND 11/11	IDNRRB	5	IDRBNR_SS_MB_SB	Kongsberg EM3002D	53.29	0.82	12/06/2011	0.00	FALSE	1	FALSE	FALSE		24A
CEND 11/11	IDNRRB	5	IDRBNR_SS_MB_SB	Kongsberg EM3002D	53.18	0.93	12/06/2011	0.00	FALSE	1	FALSE	FALSE		24B
CEND 11/11	IDNRRB	5	IDRBNR_SS_MB_SB	Kongsberg EM3002D	53.26	0.84	12/06/2011	0.00	FALSE	1	FALSE	FALSE		24B
CEND 11/11	IDNRRB	5	IDRBNR_SS_MB_SB	Kongsberg EM3002D	53.30	0.96	12/06/2011	0.00	FALSE	1	FALSE	FALSE		TRANSIT 34
CEND 11/11	IDNRRB	5	IDRBNR_SS_MB_SB	Kongsberg EM3002D	53.29	0.95	12/06/2011	0.00	FALSE	1	FALSE	FALSE		TRANSIT 34

Cruise code	Area name	Station no.	Station code	Gear name	Latitude (degrees)	Longitude (degrees)	Date sampled	Volume of sample (litres)	Photo?	Sieve mesh size (mm)	PSA	Macrofauna	Sediment type	Replicate
CEND 11/11	IDNRRB	5	IDRBNR_SS_MB_SB	Kongsberg EM3002D	53.37	0.82	12/06/2011	0.00	FALSE	1	FALSE	FALSE		TRANSIT TO SPE01(4)
CEND 11/11	IDNRRB	5	IDRBNR_SS_MB_SB	Kongsberg EM3002D	53.40	0.78	12/06/2011	0.00	FALSE	1	FALSE	FALSE		TRANSIT TO SPE01(4)
CEND 11/11	IDNRRB	5	IDRBNR_SS_MB_SB	Kongsberg EM3002D	53.40	0.78	12/06/2011	0.00	FALSE	1	FALSE	FALSE		TRANSIT TO SPE01(3)
CEND 11/11	IDNRRB	5	IDRBNR_SS_MB_SB	Kongsberg EM3002D	53.40	0.80	12/06/2011	0.00	FALSE	1	FALSE	FALSE		TRANSIT TO SPE01(3)
CEND 11/11	IDNRRB	5	IDRBNR_SS_MB_SB	Kongsberg EM3002D	53.40	0.80	12/06/2011	0.00	FALSE	1	FALSE	FALSE		TRANSIT TO SPE01(2)
CEND 11/11	IDNRRB	5	IDRBNR_SS_MB_SB	Kongsberg EM3002D	53.38	0.86	12/06/2011	0.00	FALSE	1	FALSE	FALSE		TRANSIT TO SPE01(2)
CEND 11/11	IDNRRB	5	IDRBNR_SS_MB_SB	Kongsberg EM3002D	53.38	0.86	12/06/2011	0.00	FALSE	1	FALSE	FALSE		TRANSIT TO SPE01 (1)
CEND 11/11	IDNRRB	5	IDRBNR_SS_MB_SB	Kongsberg EM3002D	53.37	0.84	12/06/2011	0.00	FALSE	1	FALSE	FALSE		TRANSIT TO SPE01 (1)
CEND 11/11	IDNRRB	5	IDRBNR_SS_MB_SB	Kongsberg EM3002D	53.35	0.84	12/06/2011	0.00	FALSE	1	FALSE	FALSE		13
CEND 11/11	IDNRRB	5	IDRBNR_SS_MB_SB	Kongsberg EM3002D	53.33	0.99	12/06/2011	0.00	FALSE	1	FALSE	FALSE		13
CEND 11/11	IDNRRB	5	IDRBNR_SS_MB_SB	Kongsberg EM3002D	53.33	0.99	12/06/2011	0.00	FALSE	1	FALSE	FALSE		TRANSIT TO 13
CEND 11/11	IDNRRB	5	IDRBNR_SS_MB_SB	Kongsberg EM3002D	53.28	0.98	12/06/2011	0.00	FALSE	1	FALSE	FALSE		TRANSIT TO 13
CEND 11/11	IDNRRB	5	IDRBNR_SS_MB_SB	Kongsberg EM3002D	53.28	0.98	12/06/2011	0.00	FALSE	1	FALSE	FALSE		25
CEND 11/11	IDNRRB	5	IDRBNR_SS_MB_SB	Kongsberg EM3002D	53.35	0.94	12/06/2011	0.00	FALSE	1	FALSE	FALSE		25
CEND 11/11	IDNRRB	5	IDRBNR_SS_MB_SB	Kongsberg EM3002D	53.28	0.98	12/06/2011	0.00	FALSE	1	FALSE	FALSE		TRANSIT 25

Cruise code	Area name	Station no.	Station code	Gear name	Latitude (degrees)	Longitude (degrees)	Date sampled	Volume of sample (litres)	Photo?	Sieve mesh size (mm)	PSA	Macrofauna	Sediment type	Replicate
CEND 11/11	IDNRRB	5	IDRBNR_SS_MB_SB	Kongsberg EM3002D	53.40	0.94	12/06/2011	0.00	FALSE	1	FALSE	FALSE		TRANSIT 25
CEND 11/11	IDNRRB	5	IDRBNR_SS_MB_SB	Kongsberg EM3002D	53.25	0.58	12/06/2011	0.00	FALSE	1	FALSE	FALSE		18
CEND 11/11	IDNRRB	5	IDRBNR_SS_MB_SB	Kongsberg EM3002D	53.25	0.73	12/06/2011	0.00	FALSE	1	FALSE	FALSE		18
CEND 11/11	IDNRRB	5	IDRBNR_SS_MB_SB	Kongsberg EM3002D	53.40	0.91	12/06/2011	0.00	FALSE	1	FALSE	FALSE		34
CEND 11/11	IDNRRB	5	IDRBNR_SS_MB_SB	Kongsberg EM3002D	53.30	0.96	12/06/2011	0.00	FALSE	1	FALSE	FALSE		34
CEND 11/11	IDNRRB	5	IDRBNR_SS_MB_SB	Kongsberg EM3002D	53.35	0.74	12/06/2011	0.00	FALSE	1	FALSE	FALSE		33
CEND 11/11	IDNRRB	5	IDRBNR_SS_MB_SB	Kongsberg EM3002D	53.26	0.73	12/06/2011	0.00	FALSE	1	FALSE	FALSE		33
CEND 11/11	IDNRRB	5	IDRBNR_SS_MB_SB	Kongsberg EM3002D	53.29	0.95	12/06/2011	0.00	FALSE	1	FALSE	FALSE		32B
CEND 11/11	IDNRRB	5	IDRBNR_SS_MB_SB	Kongsberg EM3002D	53.33	0.91	12/06/2011	0.00	FALSE	1	FALSE	FALSE		32B
CEND 11/11	IDNRRB	5	IDRBNR_SS_MB_SB	Kongsberg EM3002D	53.33	0.91	12/06/2011	0.00	FALSE	1	FALSE	FALSE		32A
CEND 11/11	IDNRRB	5	IDRBNR_SS_MB_SB	Kongsberg EM3002D	53.40	0.82	12/06/2011	0.00	FALSE	1	FALSE	FALSE		32A
CEND 11/11	IDNRRB	5	IDRBNR_SS_MB_SB	Kongsberg EM3002D	53.26	0.73	12/06/2011	0.00	FALSE	1	FALSE	FALSE		33 TRANSIT
CEND 11/11	IDNRRB	5	IDRBNR_SS_MB_SB	Kongsberg EM3002D	53.25	0.68	12/06/2011	0.00	FALSE	1	FALSE	FALSE		33 TRANSIT
CEND 11/11	IDNRRB	5	IDRBNR_SS_MB_SB	Kongsberg EM3002D	53.40	0.82	12/06/2011	0.00	FALSE	1	FALSE	FALSE		32A TRANSIT
CEND 11/11	IDNRRB	5	IDRBNR_SS_MB_SB	Kongsberg EM3002D	53.40	0.79	12/06/2011	0.00	FALSE	1	FALSE	FALSE		32A TRANSIT

Cruise code	Area name	Station no.	Station code	Gear name	Latitude (degrees)	Longitude (degrees)	Date sampled	Volume of sample (litres)	Photo?	Sieve mesh size (mm)	PSA	Macrofauna	Sediment type	Replicate
CEND 11/11	IDNRRB	5	IDRBNR_SS_MB_SB	Kongsberg EM3002D	53.40	0.79	12/06/2011	0.00	FALSE	1	FALSE	FALSE		31
CEND 11/11	IDNRRB	5	IDRBNR_SS_MB_SB	Kongsberg EM3002D	53.37	0.83	12/06/2011	0.00	FALSE	1	FALSE	FALSE		31
CEND 11/11	IDNRRB	5	IDRBNR_SS_MB_SB	Kongsberg EM3002D	53.37	0.83	12/06/2011	0.00	FALSE	1	FALSE	FALSE		31A
CEND 11/11	IDNRRB	5	IDRBNR_SS_MB_SB	Kongsberg EM3002D	53.33	0.86	12/06/2011	0.00	FALSE	1	FALSE	FALSE		31A
CEND 11/11	IDNRRB	5	IDRBNR_SS_MB_SB	Kongsberg EM3002D	53.33	0.86	12/06/2011	0.00	FALSE	1	FALSE	FALSE		31B
CEND 11/11	IDNRRB	5	IDRBNR_SS_MB_SB	Kongsberg EM3002D	53.31	0.86	12/06/2011	0.00	FALSE	1	FALSE	FALSE		31B
CEND 11/11	IDNRRB	5	IDRBNR_SS_MB_SB	Kongsberg EM3002D	53.31	0.86	12/06/2011	0.00	FALSE	1	FALSE	FALSE		14
CEND 11/11	IDNRRB	5	IDRBNR_SS_MB_SB	Kongsberg EM3002D	53.35	0.75	12/06/2011	0.00	FALSE	1	FALSE	FALSE		14
CEND 11/11	IDNRRB	5	IDRBNR_SS_MB_SB	Sub-bottom profiler	53.29	0.82	12/06/2011	0.00	FALSE	1	FALSE	FALSE		24
CEND 11/11	IDNRRB	5	IDRBNR_SS_MB_SB	Sub-bottom profiler	53.30	0.80	12/06/2011	0.00	FALSE	1	FALSE	FALSE		24
CEND 11/11	IDNRRB	5	IDRBNR_SS_MB_SB	Sub-bottom profiler	53.25	0.73	12/06/2011	0.00	FALSE	1	FALSE	FALSE		18A
CEND 11/11	IDNRRB	5	IDRBNR_SS_MB_SB	Sub-bottom profiler	53.20	0.85	12/06/2011	0.00	FALSE	1	FALSE	FALSE		18A
CEND 11/11	IDNRRB	5	IDRBNR_SS_MB_SB	Sub-bottom profiler	53.20	0.85	12/06/2011	0.00	FALSE	1	FALSE	FALSE		18C_18B
CEND 11/11	IDNRRB	5	IDRBNR_SS_MB_SB	Sub-bottom profiler	53.14	0.91	12/06/2011	0.00	FALSE	1	FALSE	FALSE		18C_18B
CEND 11/11	IDNRRB	5	IDRBNR_SS_MB_SB	Sub-bottom profiler	53.14	0.91	12/06/2011	0.00	FALSE	1	FALSE	FALSE		18C TRANSIT

Cruise code	Area name	Station no.	Station code	Gear name	Latitude (degrees)	Longitude (degrees)	Date sampled	Volume of sample (litres)	Photo?	Sieve mesh size (mm)	PSA	Macrofauna	Sediment type	Replicate
CEND 11/11	IDNRRB	5	IDRBNR_SS_MB_SB	Sub-bottom profiler	53.12	0.98	12/06/2011	0.00	FALSE	1	FALSE	FALSE		18C TRANSIT
CEND 11/11	IDNRRB	5	IDRBNR_SS_MB_SB	Sub-bottom profiler	53.26	0.84	12/06/2011	0.00	FALSE	1	FALSE	FALSE		24A
CEND 11/11	IDNRRB	5	IDRBNR_SS_MB_SB	Sub-bottom profiler	53.29	0.82	12/06/2011	0.00	FALSE	1	FALSE	FALSE		24A
CEND 11/11	IDNRRB	5	IDRBNR_SS_MB_SB	Sub-bottom profiler	53.18	0.93	12/06/2011	0.00	FALSE	1	FALSE	FALSE		24B
CEND 11/11	IDNRRB	5	IDRBNR_SS_MB_SB	Sub-bottom profiler	53.26	0.84	12/06/2011	0.00	FALSE	1	FALSE	FALSE		24B
CEND 11/11	IDNRRB	5	IDRBNR_SS_MB_SB	Sub-bottom profiler	53.30	0.96	12/06/2011	0.00	FALSE	1	FALSE	FALSE		TRANSIT 34
CEND 11/11	IDNRRB	5	IDRBNR_SS_MB_SB	Sub-bottom profiler	53.29	0.95	12/06/2011	0.00	FALSE	1	FALSE	FALSE		TRANSIT 34
CEND 11/11	IDNRRB	5	IDRBNR_SS_MB_SB	Sub-bottom profiler	53.37	0.82	12/06/2011	0.00	FALSE	1	FALSE	FALSE		TRANSIT TO SPE01(4)
CEND 11/11	IDNRRB	5	IDRBNR_SS_MB_SB	Sub-bottom profiler	53.40	0.78	12/06/2011	0.00	FALSE	1	FALSE	FALSE		TRANSIT TO SPE01(4)
CEND 11/11	IDNRRB	5	IDRBNR_SS_MB_SB	Sub-bottom profiler	53.40	0.78	12/06/2011	0.00	FALSE	1	FALSE	FALSE		TRANSIT TO SPE01(3)
CEND 11/11	IDNRRB	5	IDRBNR_SS_MB_SB	Sub-bottom profiler	53.40	0.80	12/06/2011	0.00	FALSE	1	FALSE	FALSE		TRANSIT TO SPE01(3)
CEND 11/11	IDNRRB	5	IDRBNR_SS_MB_SB	Sub-bottom profiler	53.40	0.80	12/06/2011	0.00	FALSE	1	FALSE	FALSE		TRANSIT TO SPE01(2)
CEND 11/11	IDNRRB	5	IDRBNR_SS_MB_SB	Sub-bottom profiler	53.38	0.86	12/06/2011	0.00	FALSE	1	FALSE	FALSE		TRANSIT TO SPE01(2)
CEND 11/11	IDNRRB	5	IDRBNR_SS_MB_SB	Sub-bottom profiler	53.38	0.86	12/06/2011	0.00	FALSE	1	FALSE	FALSE		TRANSIT TO SPE01 (1)
CEND 11/11	IDNRRB	5	IDRBNR_SS_MB_SB	Sub-bottom profiler	53.37	0.84	12/06/2011	0.00	FALSE	1	FALSE	FALSE		TRANSIT TO SPE01 (1)

Cruise code	Area name	Station no.	Station code	Gear name	Latitude (degrees)	Longitude (degrees)	Date sampled	Volume of sample (litres)	Photo?	Sieve mesh size (mm)	PSA	Macrofauna	Sediment type	Replicate
CEND 11/11	IDNRRB	5	IDRBNR_SS_MB_SB	Sub-bottom profiler	53.35	0.84	12/06/2011	0.00	FALSE	1	FALSE	FALSE		13
CEND 11/11	IDNRRB	5	IDRBNR_SS_MB_SB	Sub-bottom profiler	53.33	0.99	12/06/2011	0.00	FALSE	1	FALSE	FALSE		13
CEND 11/11	IDNRRB	5	IDRBNR_SS_MB_SB	Sub-bottom profiler	53.33	0.99	12/06/2011	0.00	FALSE	1	FALSE	FALSE		TRANSIT TO 13
CEND 11/11	IDNRRB	5	IDRBNR_SS_MB_SB	Sub-bottom profiler	53.28	0.98	12/06/2011	0.00	FALSE	1	FALSE	FALSE		TRANSIT TO 13
CEND 11/11	IDNRRB	5	IDRBNR_SS_MB_SB	Sub-bottom profiler	53.28	0.98	12/06/2011	0.00	FALSE	1	FALSE	FALSE		25
CEND 11/11	IDNRRB	5	IDRBNR_SS_MB_SB	Sub-bottom profiler	53.35	0.94	12/06/2011	0.00	FALSE	1	FALSE	FALSE		25
CEND 11/11	IDNRRB	5	IDRBNR_SS_MB_SB	Sub-bottom profiler	53.28	0.98	12/06/2011	0.00	FALSE	1	FALSE	FALSE		TRANSIT 25
CEND 11/11	IDNRRB	5	IDRBNR_SS_MB_SB	Sub-bottom profiler	53.40	0.94	12/06/2011	0.00	FALSE	1	FALSE	FALSE		TRANSIT 25
CEND 11/11	IDNRRB	5	IDRBNR_SS_MB_SB	Sub-bottom profiler	53.25	0.58	12/06/2011	0.00	FALSE	1	FALSE	FALSE		18
CEND 11/11	IDNRRB	5	IDRBNR_SS_MB_SB	Sub-bottom profiler	53.25	0.73	12/06/2011	0.00	FALSE	1	FALSE	FALSE		18
CEND 11/11	IDNRRB	5	IDRBNR_SS_MB_SB	Sub-bottom profiler	53.40	0.91	12/06/2011	0.00	FALSE	1	FALSE	FALSE		34
CEND 11/11	IDNRRB	5	IDRBNR_SS_MB_SB	Sub-bottom profiler	53.30	0.96	12/06/2011	0.00	FALSE	1	FALSE	FALSE		34
CEND 11/11	IDNRRB	5	IDRBNR_SS_MB_SB	Sub-bottom profiler	53.35	0.74	12/06/2011	0.00	FALSE	1	FALSE	FALSE		33
CEND 11/11	IDNRRB	5	IDRBNR_SS_MB_SB	Sub-bottom profiler	53.26	0.73	12/06/2011	0.00	FALSE	1	FALSE	FALSE		33
CEND 11/11	IDNRRB	5	IDRBNR_SS_MB_SB	Sub-bottom profiler	53.29	0.95	12/06/2011	0.00	FALSE	1	FALSE	FALSE		32B

Cruise code	Area name	Station no.	Station code	Gear name	Latitude (degrees)	Longitude (degrees)	Date sampled	Volume of sample (litres)	Photo?	Sieve mesh size (mm)	PSA	Macrofauna	Sediment type	Replicate
CEND 11/11	IDNRRB	5	IDRBNR_SS_MB_SB	Sub-bottom profiler	53.33	0.91	12/06/2011	0.00	FALSE	1	FALSE	FALSE		32B
CEND 11/11	IDNRRB	5	IDRBNR_SS_MB_SB	Sub-bottom profiler	53.33	0.91	12/06/2011	0.00	FALSE	1	FALSE	FALSE		32A
CEND 11/11	IDNRRB	5	IDRBNR_SS_MB_SB	Sub-bottom profiler	53.40	0.82	12/06/2011	0.00	FALSE	1	FALSE	FALSE		32A
CEND 11/11	IDNRRB	5	IDRBNR_SS_MB_SB	Sub-bottom profiler	53.26	0.73	12/06/2011	0.00	FALSE	1	FALSE	FALSE		33 TRANSIT
CEND 11/11	IDNRRB	5	IDRBNR_SS_MB_SB	Sub-bottom profiler	53.25	0.68	12/06/2011	0.00	FALSE	1	FALSE	FALSE		33 TRANSIT
CEND 11/11	IDNRRB	5	IDRBNR_SS_MB_SB	Sub-bottom profiler	53.40	0.82	12/06/2011	0.00	FALSE	1	FALSE	FALSE		32A TRANSIT
CEND 11/11	IDNRRB	5	IDRBNR_SS_MB_SB	Sub-bottom profiler	53.40	0.79	12/06/2011	0.00	FALSE	1	FALSE	FALSE		32A TRANSIT
CEND 11/11	IDNRRB	5	IDRBNR_SS_MB_SB	Sub-bottom profiler	53.40	0.79	12/06/2011	0.00	FALSE	1	FALSE	FALSE		31
CEND 11/11	IDNRRB	5	IDRBNR_SS_MB_SB	Sub-bottom profiler	53.37	0.83	12/06/2011	0.00	FALSE	1	FALSE	FALSE		31
CEND 11/11	IDNRRB	5	IDRBNR_SS_MB_SB	Sub-bottom profiler	53.37	0.83	12/06/2011	0.00	FALSE	1	FALSE	FALSE		31A
CEND 11/11	IDNRRB	5	IDRBNR_SS_MB_SB	Sub-bottom profiler	53.33	0.86	12/06/2011	0.00	FALSE	1	FALSE	FALSE		31A
CEND 11/11	IDNRRB	5	IDRBNR_SS_MB_SB	Sub-bottom profiler	53.33	0.86	12/06/2011	0.00	FALSE	1	FALSE	FALSE		31B
CEND 11/11	IDNRRB	5	IDRBNR_SS_MB_SB	Sub-bottom profiler	53.31	0.86	12/06/2011	0.00	FALSE	1	FALSE	FALSE		31B
CEND 11/11	IDNRRB	5	IDRBNR_SS_MB_SB	Sub-bottom profiler	53.31	0.86	12/06/2011	0.00	FALSE	1	FALSE	FALSE		14
CEND 11/11	IDNRRB	5	IDRBNR_SS_MB_SB	Sub-bottom profiler	53.35	0.75	12/06/2011	0.00	FALSE	1	FALSE	FALSE		14

Cruise code	Area name	Station no.	Station code	Gear name	Latitude (degrees)	Longitude (degrees)	Date sampled	Volume of sample (litres)	Photo?	Sieve mesh size (mm)	PSA	Macrofauna	Sediment type	Replicate
CEND 11/11	IDNRRB	7	SPE01	Sub-bottom profiler	53.36	0.83	13/06/2011	0.00	FALSE	1	FALSE	FALSE		SPE02
CEND 11/11	IDNRRB	7	SPE01	Sub-bottom profiler	53.40	0.70	13/06/2011	0.00	FALSE	1	FALSE	FALSE		SPE02
CEND 11/11	IDNRRB	7	SPE01	Sub-bottom profiler	53.36	0.84	13/06/2011	0.00	FALSE	1	FALSE	FALSE		TRANSIT TO SPE03
CEND 11/11	IDNRRB	7	SPE01	Sub-bottom profiler	53.36	0.83	13/06/2011	0.00	FALSE	1	FALSE	FALSE		TRANSIT TO SPE03
CEND 11/11	IDNRRB	7	SPE01	Sub-bottom profiler	53.41	0.67	13/06/2011	0.00	FALSE	1	FALSE	FALSE		SPE03
CEND 11/11	IDNRRB	7	SPE01	Sub-bottom profiler	53.36	0.84	13/06/2011	0.00	FALSE	1	FALSE	FALSE		SPE03
CEND 11/11	IDNRRB	7	SPE01	Sub-bottom profiler	53.41	0.70	13/06/2011	0.00	FALSE	1	FALSE	FALSE		SPE01
CEND 11/11	IDNRRB	7	SPE01	Sub-bottom profiler	53.37	0.82	13/06/2011	0.00	FALSE	1	FALSE	FALSE		SPE01
CEND 11/11	IDNRRB	7	SPE01	Sub-bottom profiler	53.40	0.71	13/06/2011	0.00	FALSE	1	FALSE	FALSE		TRANSIT TO SPE02
CEND 11/11	IDNRRB	7	SPE01	Sub-bottom profiler	53.42	0.69	13/06/2011	0.00	FALSE	1	FALSE	FALSE		TRANSIT TO SPE02
CEND 11/11	IDNRRB	7	SPE01	EdgeTech 4200	53.36	0.83	13/06/2011	0.00	FALSE	1	FALSE	FALSE		SPE02
CEND 11/11	IDNRRB	7	SPE01	EdgeTech 4200	53.40	0.70	13/06/2011	0.00	FALSE	1	FALSE	FALSE		SPE02
CEND 11/11	IDNRRB	7	SPE01	EdgeTech 4200	53.36	0.84	13/06/2011	0.00	FALSE	1	FALSE	FALSE		TRANSIT TO SPE03
CEND 11/11	IDNRRB	7	SPE01	EdgeTech 4200	53.36	0.83	13/06/2011	0.00	FALSE	1	FALSE	FALSE		TRANSIT TO SPE03
CEND 11/11	IDNRRB	7	SPE01	EdgeTech 4200	53.41	0.67	13/06/2011	0.00	FALSE	1	FALSE	FALSE		SPE03
CEND 11/11	IDNRRB	7	SPE01	EdgeTech 4200	53.36	0.84	13/06/2011	0.00	FALSE	1	FALSE	FALSE		SPE03
CEND 11/11	IDNRRB	7	SPE01	EdgeTech 4200	53.41	0.70	13/06/2011	0.00	FALSE	1	FALSE	FALSE		SPE01

Cruise code	Area name	Station no.	Station code	Gear name	Latitude (degrees)	Longitude (degrees)	Date sampled	Volume of sample (litres)	Photo?	Sieve mesh size (mm)	PSA	Macrofauna	Sediment type	Replicate
CEND 11/11	IDNRRB	7	SPE01	EdgeTech 4200	53.37	0.82	13/06/2011	0.00	FALSE	1	FALSE	FALSE		SPE01
CEND 11/11	IDNRRB	7	SPE01	EdgeTech 4200	53.40	0.71	13/06/2011	0.00	FALSE	1	FALSE	FALSE		TRANSIT TO SPE02
CEND 11/11	IDNRRB	7	SPE01	EdgeTech 4200	53.42	0.69	13/06/2011	0.00	FALSE	1	FALSE	FALSE		TRANSIT TO SPE02
CEND 11/11	IDNRRB	7	SPE01	Kongsberg EM3002D	53.36	0.83	13/06/2011	0.00	FALSE	1	FALSE	FALSE		SPE02
CEND 11/11	IDNRRB	7	SPE01	Kongsberg EM3002D	53.40	0.70	13/06/2011	0.00	FALSE	1	FALSE	FALSE		SPE02
CEND 11/11	IDNRRB	7	SPE01	Kongsberg EM3002D	53.36	0.84	13/06/2011	0.00	FALSE	1	FALSE	FALSE		TRANSIT TO SPE03
CEND 11/11	IDNRRB	7	SPE01	Kongsberg EM3002D	53.36	0.83	13/06/2011	0.00	FALSE	1	FALSE	FALSE		TRANSIT TO SPE03
CEND 11/11	IDNRRB	7	SPE01	Kongsberg EM3002D	53.41	0.67	13/06/2011	0.00	FALSE	1	FALSE	FALSE		SPE03
CEND 11/11	IDNRRB	7	SPE01	Kongsberg EM3002D	53.36	0.84	13/06/2011	0.00	FALSE	1	FALSE	FALSE		SPE03
CEND 11/11	IDNRRB	7	SPE01	Kongsberg EM3002D	53.41	0.70	13/06/2011	0.00	FALSE	1	FALSE	FALSE		SPE01
CEND 11/11	IDNRRB	7	SPE01	Kongsberg EM3002D	53.37	0.82	13/06/2011	0.00	FALSE	1	FALSE	FALSE		SPE01
CEND 11/11	IDNRRB	7	SPE01	Kongsberg EM3002D	53.40	0.71	13/06/2011	0.00	FALSE	1	FALSE	FALSE		TRANSIT TO SPE02
CEND 11/11	IDNRRB	7	SPE01	Kongsberg EM3002D	53.42	0.69	13/06/2011	0.00	FALSE	1	FALSE	FALSE		TRANSIT TO SPE02
CEND 11/11	IDNRRB	9	IDRBNR_SS_MB	EdgeTech 4200	53.37	0.70	13/06/2011	0.00	FALSE	1	FALSE	FALSE		SPE05
CEND 11/11	IDNRRB	9	IDRBNR_SS_MB	EdgeTech 4200	53.41	0.74	13/06/2011	0.00	FALSE	1	FALSE	FALSE		SPE05
CEND 11/11	IDNRRB	9	IDRBNR_SS_MB	EdgeTech 4200	53.41	0.74	13/06/2011	0.00	FALSE	1	FALSE	FALSE		TURN3 TO SPE05
CEND 11/11	IDNRRB	9	IDRBNR_SS_MB	EdgeTech 4200	53.41	0.73	13/06/2011	0.00	FALSE	1	FALSE	FALSE		TURN3 TO SPE05
CEND 11/11	IDNRRB	9	IDRBNR_SS_MB	EdgeTech 4200	53.35	0.81	13/06/2011	0.00	FALSE	1	FALSE	FALSE		SPE04
CEND 11/11	IDNRRB	9	IDRBNR_SS_MB	EdgeTech 4200	53.24	0.69	13/06/2011	0.00	FALSE	1	FALSE	FALSE		SPE04

Cruise code	Area name	Station no.	Station code	Gear name	Latitude (degrees)	Longitude (degrees)	Date sampled	Volume of sample (litres)	Photo?	Sieve mesh size (mm)	PSA	Macrofauna	Sediment type	Replicate
CEND 11/11	IDNRRB	9	IDRBNR_SS_MB	EdgeTech 4200	53.35	0.81	13/06/2011	0.00	FALSE	1	FALSE	FALSE		TRANSIT TO SPE05
CEND 11/11	IDNRRB	9	IDRBNR_SS_MB	EdgeTech 4200	53.35	0.82	13/06/2011	0.00	FALSE	1	FALSE	FALSE		TRANSIT TO SPE05
CEND 11/11	IDNRRB	9	IDRBNR_SS_MB	EdgeTech 4200	53.41	0.73	13/06/2011	0.00	FALSE	1	FALSE	FALSE		TURN TO SPE05
CEND 11/11	IDNRRB	9	IDRBNR_SS_MB	EdgeTech 4200	53.35	0.82	13/06/2011	0.00	FALSE	1	FALSE	FALSE		TURN TO SPE05
CEND 11/11	IDNRRB	9	IDRBNR_SS_MB	Kongsberg EM3002D	53.37	0.70	13/06/2011	0.00	FALSE	1	FALSE	FALSE		SPE05
CEND 11/11	IDNRRB	9	IDRBNR_SS_MB	Kongsberg EM3002D	53.41	0.74	13/06/2011	0.00	FALSE	1	FALSE	FALSE		SPE05
CEND 11/11	IDNRRB	9	IDRBNR_SS_MB	Kongsberg EM3002D	53.41	0.74	13/06/2011	0.00	FALSE	1	FALSE	FALSE		TURN3 TO SPE05
CEND 11/11	IDNRRB	9	IDRBNR_SS_MB	Kongsberg EM3002D	53.41	0.73	13/06/2011	0.00	FALSE	1	FALSE	FALSE		TURN3 TO SPE05
CEND 11/11	IDNRRB	9	IDRBNR_SS_MB	Kongsberg EM3002D	53.35	0.81	13/06/2011	0.00	FALSE	1	FALSE	FALSE		SPE04
CEND 11/11	IDNRRB	9	IDRBNR_SS_MB	Kongsberg EM3002D	53.24	0.69	13/06/2011	0.00	FALSE	1	FALSE	FALSE		SPE04
CEND 11/11	IDNRRB	9	IDRBNR_SS_MB	Kongsberg EM3002D	53.35	0.81	13/06/2011	0.00	FALSE	1	FALSE	FALSE		TRANSIT TO SPE05
CEND 11/11	IDNRRB	9	IDRBNR_SS_MB	Kongsberg EM3002D	53.35	0.82	13/06/2011	0.00	FALSE	1	FALSE	FALSE		TRANSIT TO SPE05
CEND 11/11	IDNRRB	9	IDRBNR_SS_MB	Kongsberg EM3002D	53.41	0.73	13/06/2011	0.00	FALSE	1	FALSE	FALSE		TURN TO SPE05
CEND 11/11	IDNRRB	9	IDRBNR_SS_MB	Kongsberg EM3002D	53.35	0.82	13/06/2011	0.00	FALSE	1	FALSE	FALSE		TURN TO SPE05
CEND 11/11	IDNRRB	10	OFFB15	HamCam	53.33	0.98	13/06/2011	5.00	TRUE	1	TRUE	TRUE	SLIGHTLY MUDDY SHELLY SAND	A
CEND 11/11	IDNRRB	11	OFFB5	HamCam	53.33	0.98	13/06/2011	0.00	TRUE	1	TRUE	TRUE	SLIGHTLY SHELLY SLIGHTLY COBBLY MUD	A
CEND 11/11	IDNRRB	11	OFFB5	HamCam	53.33	0.98	13/06/2011	0.00	FALSE	1	FALSE	FALSE		X
CEND 11/11	IDNRRB	12	OFFB14	HamCam	53.33	0.98	13/06/2011	5.00	TRUE	1	TRUE	TRUE	MUD LUMPS IN SHELL, GRAVEL SAND	A
CEND 11/11	IDNRRB	13	OFFB13	HamCam	53.33	0.98	13/06/2011	5.00	TRUE	1	TRUE	TRUE	MIXED MUD/CLAY LUMPS,SHELL GRAVEL	A

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CEND 11/11	IDNRRB	14	OFFB11	HamCam	0.00	0.00	13/06/2011	5.00	TRUE	1	TRUE	TRUE	LARGE CLAY LUMPS AND MUD FRAGMENTS, SHELLY SANDY MUD	A
CEND 11/11	IDNRRB	15	OFFB9	HamCam	53.33	0.98	13/06/2011	6.00	TRUE	1	TRUE	TRUE	MUDDY SHELLY SAND	A
CEND 11/11	IDNRRB	16	OFFB6	HamCam	53.33	0.98	13/06/2011	6.00	TRUE	1	TRUE	TRUE	MUDDY GRAVELLY SHELLY SAND	A
CEND 11/11	IDNRRB	17	OFFB1	HamCam	53.33	0.98	13/06/2011	5.00	TRUE	1	TRUE	TRUE	MUDDY SHELLY GRAVELLY SAND	A
CEND 11/11	IDNRRB	18	OFFB12	HamCam	53.33	0.98	13/06/2011	7.00	TRUE	1	TRUE	TRUE	MUDDY SHELLY GRAVELLY SAND	A
CEND 11/11	IDNRRB	19	OFFB07	HamCam	53.33	0.98	13/06/2011	4.50	TRUE	1	TRUE	TRUE	SHELLY (LARGE) MUDDY GRAVELLY SAND	A
CEND 11/11	IDNRRB	20	OFFB2	HamCam	53.33	0.98	13/06/2011	4.00	TRUE	1	TRUE	TRUE	MUDDY SHELLY GRAVELLY SAND	A
CEND 11/11	IDNRRB	21	OFFB4	HamCam	53.33	0.98	13/06/2011	6.00	TRUE	1	TRUE	TRUE		A
CEND 11/11	IDNRRB	22	OFFB8	HamCam	53.33	0.98	13/06/2011	5.00	TRUE	1	TRUE	TRUE	MUDDY SHELLY GRAVELLY SAND	A
CEND 11/11	IDNRRB	23	OFFB10	HamCam	53.33	0.98	13/06/2011	4.00	TRUE	1	TRUE	TRUE	MUDDY GRAVELLY SHELLY SAND	A
CEND 11/11	IDNRRB	24	OFFB03	HamCam	53.33	0.98	13/06/2011	4.00	TRUE	1	TRUE	TRUE		A
CEND 11/11	IDNRRB	25	ONB13	HamCam	53.32	0.99	13/06/2011	4.00	TRUE	1	TRUE	TRUE	FINE SAND AND SHELL FRAGMENTS	A
CEND 11/11	IDNRRB	26	ONB15	HamCam	53.32	0.99	13/06/2011	0.00	TRUE	1	TRUE	TRUE	MEDIUM SAND AND SHELL FRAGMENTS	A
CEND 11/11	IDNRRB	27	ONB10	HamCam	53.32	0.99	13/06/2011	6.00	TRUE	1	TRUE	TRUE	FINE SAND AND SHELL FRAGS	A
CEND 11/11	IDNRRB	28	ONB14	HamCam	53.32	0.99	13/06/2011	8.00	TRUE	1	TRUE	TRUE	COARSE SHELLY SAND	A
CEND 11/11	IDNRRB	29	ONB08	HamCam	53.32	0.99	13/06/2011	4.00	TRUE	1	TRUE	TRUE	FINE SHELLY SAND	A
CEND 11/11	IDNRRB	30	ONB06	HamCam	53.32	0.99	13/06/2011	8.00	TRUE	1	TRUE	TRUE		A
CEND 11/11	IDNRRB	31	ONB05	HamCam	53.32	0.99	13/06/2011	7.00	TRUE	1	TRUE	TRUE	COARSE SAND AND SHELL FRAGMENTS	A
CEND 11/11	IDNRRB	32	ONB03	HamCam	53.32	0.99	13/06/2011	2.00	TRUE	1	TRUE	TRUE	COARSE SAND WITH CLAY	A
CEND 11/11	IDNRRB	33	ONB11	HamCam	53.32	0.99	13/06/2011	0.00	TRUE	1	TRUE	TRUE	SHELLY COARSE SAND	A
CEND 11/11	IDNRRB	33	ONB11	HamCam	53.32	0.99	13/06/2011	0.00	FALSE	1	FALSE	FALSE		X
CEND 11/11	IDNRRB	34	ONB09	HamCam	53.32	0.99	13/06/2011	0.00	TRUE	1	TRUE	TRUE	SHELLY GRAVLLY SAND	A
CEND 11/11	IDNRRB	35	ONB04	HamCam	53.32	0.99	13/06/2011	9.00	TRUE	1	TRUE	TRUE		A
CEND 11/11	IDNRRB	36	ONB07	HamCam	53.32	0.99	13/06/2011	6.00	TRUE	1	TRUE	TRUE	COARSE SAND WITH LARGE SHELL	A
CEND 11/11	IDNRRB	37	ONB02	HamCam	53.32	0.99	14/06/2011	10.00	TRUE	1	TRUE	TRUE		A
CEND 11/11	IDNRRB	38	ONB01	HamCam	53.32	0.99	14/06/2011	9.00	TRUE	1	TRUE	TRUE		A

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CEND 11/11	IDNRRB	39	ONB12	HamCam	53.32	0.99	14/06/2011	7.00	TRUE	1	TRUE	TRUE	SHELLY COARSE SAND	A
CEND 11/11	IDNRRB	40	RINGNET_4	Ringnet	0.00	0.00	14/06/2011	0.00	FALSE	1	FALSE	FALSE		A
CEND 11/11	IDNRRB	41	DCON	DropCam	53.32	0.99	14/06/2011	0.00	FALSE	1	FALSE	FALSE		B
CEND 11/11	IDNRRB	41	DCON	DropCam	53.32	0.99	14/06/2011	0.00	FALSE	1	FALSE	FALSE		B
CEND 11/11	IDNRRB	41	DCON	DropCam	53.32	0.99	14/06/2011	0.00	FALSE	1	FALSE	FALSE		A
CEND 11/11	IDNRRB	41	DCON	DropCam	53.32	0.99	14/06/2011	0.00	FALSE	1	FALSE	FALSE		A
CEND 11/11	IDNRRB	42	DCOFF	DropCam	53.33	0.98	14/06/2011	0.00	FALSE	1	FALSE	FALSE		A
CEND 11/11	IDNRRB	42	DCOFF	DropCam	53.33	0.98	14/06/2011	0.00	FALSE	1	FALSE	FALSE		A
CEND 11/11	IDNRRB	43	WDS12	HamCam	53.28	0.98	14/06/2011	5.00	TRUE	1	TRUE	TRUE	SLIGHTLY SHELLY MUDDY SAND	A
CEND 11/11	IDNRRB	44	WDS05	HamCam	53.28	0.98	14/06/2011	0.00	TRUE	1	TRUE	TRUE	SHELLY COARSE SAND	A
CEND 11/11	IDNRRB	45	WDS07	HamCam	53.28	0.98	14/06/2011	10.00	TRUE	1	TRUE	TRUE	SLIGHTLY SHELLY COARSE SAND	A
CEND 11/11	IDNRRB	46	WDS01	HamCam	53.28	0.98	14/06/2011	5.00	TRUE	1	TRUE	TRUE	SLIGHTLY SHELLY MUDDY SAND	A
CEND 11/11	IDNRRB	47	WDS03	HamCam	53.28	0.98	14/06/2011	5.00	TRUE	1	TRUE	TRUE	SLIGHTLY SHELLY SAND	A
CEND 11/11	IDNRRB	48	WDS06	HamCam	53.28	0.98	14/06/2011	5.00	TRUE	1	TRUE	TRUE	SLIGHTLY SHELLY SAND	A
CEND 11/11	IDNRRB	49	WDS15	HamCam	53.28	0.98	14/06/2011	5.00	TRUE	1	TRUE	TRUE	SLIGHTLY SHELLY SAND	A
CEND 11/11	IDNRRB	50	WDS13	HamCam	53.28	0.98	14/06/2011	0.00	TRUE	1	TRUE	TRUE	VERY FINE MUDDY SAND	A
CEND 11/11	IDNRRB	51	WDS02	HamCam	53.28	0.98	14/06/2011	3.00	TRUE	1	TRUE	TRUE	VERY FINE MUDDY SAND	A
CEND 11/11	IDNRRB	52	WDS11	HamCam	53.28	0.98	14/06/2011	5.00	TRUE	1	TRUE	TRUE	VERY FINE MUDDY SAND	A
CEND 11/11	IDNRRB	53	WDS04	HamCam	53.28	0.98	14/06/2011	0.00	TRUE	1	TRUE	TRUE	SHELLY SAND	A
CEND 11/11	IDNRRB	54	WDS09	HamCam	53.28	0.98	14/06/2011	4.00	TRUE	1	TRUE	TRUE	SHELLY SAND	A
CEND 11/11	IDNRRB	55	WDS10	HamCam	53.28	0.98	14/06/2011	0.00	TRUE	1	TRUE	TRUE		A
CEND 11/11	IDNRRB	56	WDS08	HamCam	53.28	0.98	14/06/2011	3.00	TRUE	1	TRUE	TRUE	SAND	A
CEND 11/11	IDNRRB	57	WDS14	HamCam	53.28	0.98	14/06/2011	5.00	TRUE	1	TRUE	TRUE	GRAVELLY SAND	A
CEND 11/11	IDNRRB	59	ENR10	HamCam	53.32	0.94	14/06/2011	4.00	TRUE	1	TRUE	TRUE	SANDY GRAVEL	A
CEND 11/11	IDNRRB	60	ENR01	HamCam	53.32	0.94	14/06/2011	5.00	TRUE	1	TRUE	TRUE	GRAVELLY SAND WITH LARGE SHELL	A
CEND 11/11	IDNRRB	61	ENR3	HamCam	53.32	0.94	14/06/2011	6.00	TRUE	1	TRUE	TRUE	GRAVELLY SAND	A
CEND 11/11	IDNRRB	62	ENR7	HamCam	53.32	0.94	14/06/2011	3.00	TRUE	1	TRUE	TRUE	GRAVELLY SAND	A
CEND 11/11	IDNRRB	63	ENR13	HamCam	53.32	0.94	14/06/2011	5.00	TRUE	1	TRUE	TRUE	GRAVELLY SAND WITH OCCASIONAL LARGE SHELL	A
CEND 11/11	IDNRRB	64	ENR09	HamCam	53.32	0.94	14/06/2011	0.00	TRUE	1	TRUE	TRUE	FINE SAND WITH SHELL	A

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CEND 11/11	IDNRRB	65	ENR11	HamCam	53.32	0.94	14/06/2011	0.00	TRUE	1	TRUE	TRUE	FINE SAND WITH SHELL	A
CEND 11/11	IDNRRB	66	ENR06	HamCam	53.32	0.94	14/06/2011	0.00	TRUE	1	TRUE	TRUE	FINE SAND WITH SHELL FRAGMENTS	A
CEND 11/11	IDNRRB	67	ENR08	HamCam	53.32	0.94	14/06/2011	9.00	TRUE	1	TRUE	TRUE	SLIGHTLY SHELLY FINE SAND	A
CEND 11/11	IDNRRB	68	ENR15	HamCam	53.32	0.94	14/06/2011	8.00	TRUE	1	TRUE	TRUE	SLIGHTLY SHELLY FINE SAND	A
CEND 11/11	IDNRRB	69	ENR4	HamCam	53.32	0.94	14/06/2011	3.00	TRUE	1	TRUE	TRUE	FINE SAND WITH SHELL FRAGMENTS	A
CEND 11/11	IDNRRB	70	ENR05	HamCam	53.32	0.94	14/06/2011	6.00	TRUE	1	TRUE	TRUE	FINE SAND WITH SHELL FRAGMENTS	A
CEND 11/11	IDNRRB	71	ENR12	HamCam	53.32	0.94	14/06/2011	7.00	TRUE	1	TRUE	TRUE	FINES SAND WITH SHELL AND COAL FRAGMENTS	A
CEND 11/11	IDNRRB	72	ENR14	HamCam	53.32	0.94	14/06/2011	6.00	TRUE	1	TRUE	TRUE	FINES SAND WITH SHELL AND COAL FRAGMENTS	A
CEND 11/11	IDNRRB	73	ENR02	HamCam	53.32	0.94	14/06/2011	6.00	TRUE	1	TRUE	TRUE	FINE SAND WITH SHELL AND COAL FRAGMENTS	A
CEND 11/11	IDNRRB	74	TRANSIT ENR-ONR	Kongsberg EM3002D	53.37	0.85	14/06/2011	0.00	FALSE	1	FALSE	FALSE		A
CEND 11/11	IDNRRB	74	TRANSIT ENR-ONR	Kongsberg EM3002D	53.32	0.94	14/06/2011	0.00	FALSE	1	FALSE	FALSE		A
CEND 11/11	IDNRRB	76	ONR1	HamCam	53.37	0.85	14/06/2011	5.00	TRUE	1	TRUE	TRUE	SILTY SAND WITH SABELLARIA AND GRAVEL	A
CEND 11/11	IDNRRB	77	ONR13	HamCam	53.37	0.85	14/06/2011	8.00	TRUE	1	TRUE	TRUE	COARSE SILTY SAND WITH LUMPS OF SABELLARIA	A
CEND 11/11	IDNRRB	78	ONR09	HamCam	53.37	0.85	14/06/2011	0.00	TRUE	1	TRUE	TRUE	SAND WITH SOME SILT, SHELLS AND PEBBLES	A
CEND 11/11	IDNRRB	79	ONR02	HamCam	53.37	0.85	14/06/2011	8.00	TRUE	1	TRUE	TRUE	FINE SILTY SAND WITH SABELLARIA AND SHELL GRAVEL	A
CEND 11/11	IDNRRB	80	ONR5	HamCam	53.37	0.85	14/06/2011	5.00	TRUE	1	TRUE	TRUE	SILTY SAND WITH SABELLARIA	A
CEND 11/11	IDNRRB	81	ONR4	HamCam	53.37	0.85	14/06/2011	6.00	TRUE	1	TRUE	TRUE	SILTY SAND WITH SABELLARIA ON STONES	A
CEND 11/11	IDNRRB	82	ONR6	HamCam	53.37	0.85	14/06/2011	5.00	TRUE	1	TRUE	TRUE	SILTY SAND WITH SABELLARIA LUMPS ON SHELL	A
CEND 11/11	IDNRRB	83	ONR10	HamCam	53.37	0.85	14/06/2011	6.00	TRUE	1	TRUE	TRUE	SILTY SAND WITH SABELLARIA	A
CEND 11/11	IDNRRB	84	ONR14	HamCam	53.37	0.85	14/06/2011	3.00	TRUE	1	TRUE	TRUE	SAND AND SILT WITH SABELLARIA ON SHELL	A
CEND 11/11	IDNRRB	85	ONR3	HamCam	53.37	0.85	14/06/2011	5.00	TRUE	1	TRUE	TRUE	SILTY SAND WITH SABELLARIA ON SHELL	A

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CEND 11/11	IDNRRB	86	ONR8	HamCam	53.37	0.85	14/06/2011	6.00	TRUE	1	TRUE	TRUE	SILTY SAND WITH SABELLARIA CLUMPS	A
CEND 11/11	IDNRRB	87	ONR12	HamCam	53.37	0.85	14/06/2011	3.00	TRUE	1	TRUE	TRUE	SAND AND SILT WITH SABELLARIA	A
CEND 11/11	IDNRRB	88	ONR15	HamCam	53.37	0.85	14/06/2011	5.00	TRUE	1	TRUE	TRUE	SILTY SAND WITH SABELLARIA SPINULOSA	A
CEND 11/11	IDNRRB	89	ONR7	HamCam	53.37	0.85	14/06/2011	6.00	TRUE	1	TRUE	TRUE	SILTY SAND WITH SABELLARIA AND SHELL AND COAL FRAGMENTS	A
CEND 11/11	IDNRRB	90	ONR11	HamCam	53.38	0.85	14/06/2011	6.00	TRUE	1	TRUE	TRUE	SILTY SAND WITH SABELLARIA	A
CEND 11/11	IDNRRB	91	ONR-7 TRANSIT	Kongsberg EM3002D	53.40	0.77	14/06/2011	0.00	FALSE	1	FALSE	FALSE		A
CEND 11/11	IDNRRB	91	ONR-7 TRANSIT	Kongsberg EM3002D	53.38	0.85	14/06/2011	0.00	FALSE	1	FALSE	FALSE		A
CEND 11/11	IDNRRB	92	LINE 31	EdgeTech 4200	53.37	0.83	14/06/2011	0.00	FALSE	1	FALSE	FALSE		31
CEND 11/11	IDNRRB	92	LINE 31	EdgeTech 4200	53.40	0.78	14/06/2011	0.00	FALSE	1	FALSE	FALSE		31
CEND 11/11	IDNRRB	92	LINE 31	Kongsberg EM3002D	53.37	0.83	14/06/2011	0.00	FALSE	1	FALSE	FALSE		31
CEND 11/11	IDNRRB	92	LINE 31	Kongsberg EM3002D	53.40	0.78	14/06/2011	0.00	FALSE	1	FALSE	FALSE		31
CEND 11/11	IDNRRB	93	SPEDC2	DropCam	53.35	0.83	14/06/2011	0.00	FALSE	1	FALSE	FALSE		A
CEND 11/11	IDNRRB	93	SPEDC2	DropCam	53.35	0.83	14/06/2011	0.00	FALSE	1	FALSE	FALSE		A
CEND 11/11	IDNRRB	94	SPEDC3	DropCam	53.36	0.82	14/06/2011	0.00	FALSE	1	FALSE	FALSE		A
CEND 11/11	IDNRRB	94	SPEDC3	DropCam	53.36	0.82	14/06/2011	0.00	FALSE	1	FALSE	FALSE		A
CEND 11/11	IDNRRB	95	SPEDC1	DropCam	53.36	0.79	14/06/2011	0.00	FALSE	1	FALSE	FALSE		A
CEND 11/11	IDNRRB	95	SPEDC1	DropCam	53.36	0.79	14/06/2011	0.00	FALSE	1	FALSE	FALSE		A
CEND 11/11	IDNRRB	97	SPEDC6	DropCam	53.36	0.80	14/06/2011	0.00	FALSE	1	FALSE	FALSE		A
CEND 11/11	IDNRRB	97	SPEDC6	DropCam	53.36	0.80	14/06/2011	0.00	FALSE	1	FALSE	FALSE		A
CEND 11/11	IDNRRB	98	SPEDC7	DropCam	53.37	0.81	15/06/2011	0.00	FALSE	1	FALSE	FALSE		A
CEND 11/11	IDNRRB	98	SPEDC7	DropCam	53.37	0.81	15/06/2011	0.00	FALSE	1	FALSE	FALSE		A
CEND 11/11	IDNRRB	99	SPEDC4	DropCam	53.37	0.81	15/06/2011	0.00	FALSE	1	FALSE	FALSE		A
CEND 11/11	IDNRRB	99	SPEDC4	DropCam	53.38	0.70	15/06/2011	0.00	FALSE	1	FALSE	FALSE		A
CEND 11/11	IDNRRB	100	SPEDC5	DropCam	53.38	0.71	15/06/2011	0.00	FALSE	1	FALSE	FALSE		A
CEND 11/11	IDNRRB	100	SPEDC5	DropCam	53.38	0.71	15/06/2011	0.00	FALSE	1	FALSE	FALSE		A
CEND 11/11	IDNRRB	103	DS SS	EdgeTech 4200	53.25	0.65	15/06/2011	0.00	FALSE	1	FALSE	FALSE		D5

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CEND 11/11	IDNRRB	103	DS SS	EdgeTech 4200	53.24	0.65	15/06/2011	0.00	FALSE	1	FALSE	FALSE		D5
CEND 11/11	IDNRRB	103	DS SS	EdgeTech 4200	53.24	0.65	15/06/2011	0.00	FALSE	1	FALSE	FALSE		TRANSIT TO D5
CEND 11/11	IDNRRB	103	DS SS	EdgeTech 4200	53.23	0.65	15/06/2011	0.00	FALSE	1	FALSE	FALSE		TRANSIT TO D5
CEND 11/11	IDNRRB	103	DS SS	EdgeTech 4200	53.23	0.65	15/06/2011	0.00	FALSE	1	FALSE	FALSE		D6
CEND 11/11	IDNRRB	103	DS SS	EdgeTech 4200	53.26	0.65	15/06/2011	0.00	FALSE	1	FALSE	FALSE		D6
CEND 11/11	IDNRRB	103	DS SS	EdgeTech 4200	53.26	0.65	15/06/2011	0.00	FALSE	1	FALSE	FALSE		TRANSIT TO DS6
CEND 11/11	IDNRRB	103	DS SS	EdgeTech 4200	53.25	0.64	15/06/2011	0.00	FALSE	1	FALSE	FALSE		TRANSIT TO DS6
CEND 11/11	IDNRRB	103	DS SS	EdgeTech 4200	53.25	0.64	15/06/2011	0.00	FALSE	1	FALSE	FALSE		DS4
CEND 11/11	IDNRRB	103	DS SS	EdgeTech 4200	53.24	0.64	15/06/2011	0.00	FALSE	1	FALSE	FALSE		DS4
CEND 11/11	IDNRRB	103	DS SS	EdgeTech 4200	53.24	0.64	15/06/2011	0.00	FALSE	1	FALSE	FALSE		TRANSIT TO DS4
CEND 11/11	IDNRRB	103	DS SS	EdgeTech 4200	53.25	0.67	15/06/2011	0.00	FALSE	1	FALSE	FALSE		TRANSIT TO DS4
CEND 11/11	IDNRRB	103	DS SS	EdgeTech 4200	53.25	0.64	15/06/2011	0.00	FALSE	1	FALSE	FALSE		TRANSIT TO DS2
CEND 11/11	IDNRRB	103	DS SS	EdgeTech 4200	53.24	0.65	15/06/2011	0.00	FALSE	1	FALSE	FALSE		TRANSIT TO DS2
CEND 11/11	IDNRRB	103	DS SS	EdgeTech 4200	53.24	0.66	15/06/2011	0.00	FALSE	1	FALSE	FALSE		TRANSIT TO DS3
CEND 11/11	IDNRRB	103	DS SS	EdgeTech 4200	53.25	0.65	15/06/2011	0.00	FALSE	1	FALSE	FALSE		TRANSIT TO DS3
CEND 11/11	IDNRRB	103	DS SS	EdgeTech 4200	53.25	0.65	15/06/2011	0.00	FALSE	1	FALSE	FALSE		DS1
CEND 11/11	IDNRRB	103	DS SS	EdgeTech 4200	53.25	0.64	15/06/2011	0.00	FALSE	1	FALSE	FALSE		DS1
CEND 11/11	IDNRRB	103	DS SS	EdgeTech 4200	53.25	0.64	15/06/2011	0.00	FALSE	1	FALSE	FALSE		DS2
CEND 11/11	IDNRRB	103	DS SS	EdgeTech 4200	53.25	0.66	15/06/2011	0.00	FALSE	1	FALSE	FALSE		DS2
CEND 11/11	IDNRRB	103	DS SS	EdgeTech 4200	53.15	0.72	15/06/2011	0.00	FALSE	1	FALSE	FALSE		TRANSIT
CEND 11/11	IDNRRB	103	DS SS	EdgeTech 4200	53.25	0.66	15/06/2011	0.00	FALSE	1	FALSE	FALSE		TRANSIT
CEND 11/11	IDNRRB	103	DS SS	EdgeTech 4200	53.25	0.67	15/06/2011	0.00	FALSE	1	FALSE	FALSE		DS2
CEND 11/11	IDNRRB	103	DS SS	EdgeTech 4200	53.25	0.64	15/06/2011	0.00	FALSE	1	FALSE	FALSE		DS2

Cruise code	Area name	Station no.	Station code	Gear name	Latitude (degrees)	Longitude (degrees)	Date sampled	Volume of sample (litres)	Photo?	Sieve mesh size (mm)	PSA	Macrofauna	Sediment type	Replicate
CEND 11/11	IDNRRB	103	DS SS	EdgeTech 4200	53.24	0.65	15/06/2011	0.00	FALSE	1	FALSE	FALSE		DS3
CEND 11/11	IDNRRB	103	DS SS	EdgeTech 4200	53.24	0.66	15/06/2011	0.00	FALSE	1	FALSE	FALSE		DS3
CEND 11/11	IDNRRB	103	DS SS	Simrad EM3000D Multibeam	53.25	0.65	15/06/2011	0.00	FALSE	1	FALSE	FALSE		D5
CEND 11/11	IDNRRB	103	DS SS	Simrad EM3000D Multibeam	53.24	0.65	15/06/2011	0.00	FALSE	1	FALSE	FALSE		D5
CEND 11/11	IDNRRB	103	DS SS	Simrad EM3000D Multibeam	53.24	0.65	15/06/2011	0.00	FALSE	1	FALSE	FALSE		TRANSIT TO D5
CEND 11/11	IDNRRB	103	DS SS	Simrad EM3000D Multibeam	53.23	0.65	15/06/2011	0.00	FALSE	1	FALSE	FALSE		TRANSIT TO D5
CEND 11/11	IDNRRB	103	DS SS	Simrad EM3000D Multibeam	53.23	0.65	15/06/2011	0.00	FALSE	1	FALSE	FALSE		D6
CEND 11/11	IDNRRB	103	DS SS	Simrad EM3000D Multibeam	53.26	0.65	15/06/2011	0.00	FALSE	1	FALSE	FALSE		D6
CEND 11/11	IDNRRB	103	DS SS	Simrad EM3000D Multibeam	53.26	0.65	15/06/2011	0.00	FALSE	1	FALSE	FALSE		TRANSIT TO DS6
CEND 11/11	IDNRRB	103	DS SS	Simrad EM3000D Multibeam	53.25	0.64	15/06/2011	0.00	FALSE	1	FALSE	FALSE		TRANSIT TO DS6
CEND 11/11	IDNRRB	103	DS SS	Simrad EM3000D Multibeam	53.25	0.64	15/06/2011	0.00	FALSE	1	FALSE	FALSE		DS4
CEND 11/11	IDNRRB	103	DS SS	Simrad EM3000D Multibeam	53.24	0.64	15/06/2011	0.00	FALSE	1	FALSE	FALSE		DS4
CEND 11/11	IDNRRB	103	DS SS	Simrad EM3000D Multibeam	53.24	0.64	15/06/2011	0.00	FALSE	1	FALSE	FALSE		TRANSIT TO DS4
CEND 11/11	IDNRRB	103	DS SS	Simrad EM3000D Multibeam	53.25	0.67	15/06/2011	0.00	FALSE	1	FALSE	FALSE		TRANSIT TO DS4
CEND 11/11	IDNRRB	103	DS SS	Simrad EM3000D Multibeam	53.25	0.64	15/06/2011	0.00	FALSE	1	FALSE	FALSE		TRANSIT TO DS2
CEND 11/11	IDNRRB	103	DS SS	Simrad EM3000D Multibeam	53.24	0.65	15/06/2011	0.00	FALSE	1	FALSE	FALSE		TRANSIT TO DS2

Cruise code	Area name	Station no.	Station code	Gear name	Latitude (degrees)	Longitude (degrees)	Date sampled	Volume of sample (litres)	Photo?	Sieve mesh size (mm)	PSA	Macrofauna	Sediment type	Replicate
CEND 11/11	IDNRRB	103	DS SS	Simrad EM3000D Multibeam	53.24	0.66	15/06/2011	0.00	FALSE	1	FALSE	FALSE		TRANSIT TO DS3
CEND 11/11	IDNRRB	103	DS SS	Simrad EM3000D Multibeam	53.25	0.65	15/06/2011	0.00	FALSE	1	FALSE	FALSE		TRANSIT TO DS3
CEND 11/11	IDNRRB	103	DS SS	Simrad EM3000D Multibeam	53.25	0.65	15/06/2011	0.00	FALSE	1	FALSE	FALSE		DS1
CEND 11/11	IDNRRB	103	DS SS	Simrad EM3000D Multibeam	53.25	0.64	15/06/2011	0.00	FALSE	1	FALSE	FALSE		DS1
CEND 11/11	IDNRRB	103	DS SS	Simrad EM3000D Multibeam	53.25	0.64	15/06/2011	0.00	FALSE	1	FALSE	FALSE		DS2
CEND 11/11	IDNRRB	103	DS SS	Simrad EM3000D Multibeam	53.25	0.66	15/06/2011	0.00	FALSE	1	FALSE	FALSE		DS2
CEND 11/11	IDNRRB	103	DS SS	Simrad EM3000D Multibeam	53.15	0.72	15/06/2011	0.00	FALSE	1	FALSE	FALSE		TRANSIT
CEND 11/11	IDNRRB	103	DS SS	Simrad EM3000D Multibeam	53.25	0.66	15/06/2011	0.00	FALSE	1	FALSE	FALSE		TRANSIT
CEND 11/11	IDNRRB	103	DS SS	Simrad EM3000D Multibeam	53.25	0.67	15/06/2011	0.00	FALSE	1	FALSE	FALSE		DS2
CEND 11/11	IDNRRB	103	DS SS	Simrad EM3000D Multibeam	53.25	0.64	15/06/2011	0.00	FALSE	1	FALSE	FALSE		DS2
CEND 11/11	IDNRRB	103	DS SS	Simrad EM3000D Multibeam	53.24	0.65	15/06/2011	0.00	FALSE	1	FALSE	FALSE		DS3
CEND 11/11	IDNRRB	103	DS SS	Simrad EM3000D Multibeam	53.24	0.66	15/06/2011	0.00	FALSE	1	FALSE	FALSE		DS3
CEND 11/11	IDNRRB	103	DS SS	Sub-bottom profiler	53.25	0.65	15/06/2011	0.00	FALSE	1	FALSE	FALSE		D5
CEND 11/11	IDNRRB	103	DS SS	Sub-bottom profiler	53.24	0.65	15/06/2011	0.00	FALSE	1	FALSE	FALSE		D5
CEND 11/11	IDNRRB	103	DS SS	Sub-bottom profiler	53.24	0.65	15/06/2011	0.00	FALSE	1	FALSE	FALSE		TRANSIT TO D5

Cruise code	Area name	Station no.	Station code	Gear name	Latitude (degrees)	Longitude (degrees)	Date sampled	Volume of sample (litres)	Photo?	Sieve mesh size (mm)	PSA	Macrofauna	Sediment type	Replicate
CEND 11/11	IDNRRB	103	DS SS	Sub-bottom profiler	53.23	0.65	15/06/2011	0.00	FALSE	1	FALSE	FALSE		TRANSIT TO D5
CEND 11/11	IDNRRB	103	DS SS	Sub-bottom profiler	53.23	0.65	15/06/2011	0.00	FALSE	1	FALSE	FALSE		D6
CEND 11/11	IDNRRB	103	DS SS	Sub-bottom profiler	53.26	0.65	15/06/2011	0.00	FALSE	1	FALSE	FALSE		D6
CEND 11/11	IDNRRB	103	DS SS	Sub-bottom profiler	53.26	0.65	15/06/2011	0.00	FALSE	1	FALSE	FALSE		TRANSIT TO DS6
CEND 11/11	IDNRRB	103	DS SS	Sub-bottom profiler	53.25	0.64	15/06/2011	0.00	FALSE	1	FALSE	FALSE		TRANSIT TO DS6
CEND 11/11	IDNRRB	103	DS SS	Sub-bottom profiler	53.25	0.64	15/06/2011	0.00	FALSE	1	FALSE	FALSE		DS4
CEND 11/11	IDNRRB	103	DS SS	Sub-bottom profiler	53.24	0.64	15/06/2011	0.00	FALSE	1	FALSE	FALSE		DS4
CEND 11/11	IDNRRB	103	DS SS	Sub-bottom profiler	53.24	0.64	15/06/2011	0.00	FALSE	1	FALSE	FALSE		TRANSIT TO DS4
CEND 11/11	IDNRRB	103	DS SS	Sub-bottom profiler	53.25	0.67	15/06/2011	0.00	FALSE	1	FALSE	FALSE		TRANSIT TO DS4
CEND 11/11	IDNRRB	103	DS SS	Sub-bottom profiler	53.25	0.64	15/06/2011	0.00	FALSE	1	FALSE	FALSE		TRANSIT TO DS2
CEND 11/11	IDNRRB	103	DS SS	Sub-bottom profiler	53.24	0.65	15/06/2011	0.00	FALSE	1	FALSE	FALSE		TRANSIT TO DS2
CEND 11/11	IDNRRB	103	DS SS	Sub-bottom profiler	53.24	0.66	15/06/2011	0.00	FALSE	1	FALSE	FALSE		TRANSIT TO DS3
CEND 11/11	IDNRRB	103	DS SS	Sub-bottom profiler	53.25	0.65	15/06/2011	0.00	FALSE	1	FALSE	FALSE		TRANSIT TO DS3
CEND 11/11	IDNRRB	103	DS SS	Sub-bottom profiler	53.25	0.65	15/06/2011	0.00	FALSE	1	FALSE	FALSE		DS1
CEND 11/11	IDNRRB	103	DS SS	Sub-bottom profiler	53.25	0.64	15/06/2011	0.00	FALSE	1	FALSE	FALSE		DS1

Cruise code	Area name	Station no.	Station code	Gear name	Latitude (degrees)	Longitude (degrees)	Date sampled	Volume of sample (litres)	Photo?	Sieve mesh size (mm)	PSA	Macrofauna	Sediment type	Replicate
CEND 11/11	IDNRRB	103	DS SS	Sub-bottom profiler	53.25	0.64	15/06/2011	0.00	FALSE	1	FALSE	FALSE		DS2
CEND 11/11	IDNRRB	103	DS SS	Sub-bottom profiler	53.25	0.66	15/06/2011	0.00	FALSE	1	FALSE	FALSE		DS2
CEND 11/11	IDNRRB	103	DS SS	Sub-bottom profiler	53.15	0.72	15/06/2011	0.00	FALSE	1	FALSE	FALSE		TRANSIT
CEND 11/11	IDNRRB	103	DS SS	Sub-bottom profiler	53.25	0.66	15/06/2011	0.00	FALSE	1	FALSE	FALSE		TRANSIT
CEND 11/11	IDNRRB	103	DS SS	Sub-bottom profiler	53.25	0.67	15/06/2011	0.00	FALSE	1	FALSE	FALSE		DS2
CEND 11/11	IDNRRB	103	DS SS	Sub-bottom profiler	53.25	0.64	15/06/2011	0.00	FALSE	1	FALSE	FALSE		DS2
CEND 11/11	IDNRRB	103	DS SS	Sub-bottom profiler	53.24	0.65	15/06/2011	0.00	FALSE	1	FALSE	FALSE		DS3
CEND 11/11	IDNRRB	103	DS SS	Sub-bottom profiler	53.24	0.66	15/06/2011	0.00	FALSE	1	FALSE	FALSE		DS3
CEND 11/11	IDNRRB	105	ID_SS_MB_SB	EdgeTech 4200	53.20	0.58	15/06/2011	0.00	FALSE	1	FALSE	FALSE		7
CEND 11/11	IDNRRB	105	ID_SS_MB_SB	EdgeTech 4200	53.27	0.58	15/06/2011	0.00	FALSE	1	FALSE	FALSE		7
CEND 11/11	IDNRRB	105	ID_SS_MB_SB	EdgeTech 4200	53.28	0.54	15/06/2011	0.00	FALSE	1	FALSE	FALSE		8
CEND 11/11	IDNRRB	105	ID_SS_MB_SB	EdgeTech 4200	53.20	0.54	15/06/2011	0.00	FALSE	1	FALSE	FALSE		8
CEND 11/11	IDNRRB	105	ID_SS_MB_SB	EdgeTech 4200	53.19	0.54	15/06/2011	0.00	FALSE	1	FALSE	FALSE		9
CEND 11/11	IDNRRB	105	ID_SS_MB_SB	EdgeTech 4200	53.28	0.53	15/06/2011	0.00	FALSE	1	FALSE	FALSE		9
CEND 11/11	IDNRRB	105	ID_SS_MB_SB	Simrad EM3000D Multibeam	53.20	0.58	15/06/2011	0.00	FALSE	1	FALSE	FALSE		7
CEND 11/11	IDNRRB	105	ID_SS_MB_SB	Simrad EM3000D Multibeam	53.27	0.58	15/06/2011	0.00	FALSE	1	FALSE	FALSE		7
CEND 11/11	IDNRRB	105	ID_SS_MB_SB	Simrad EM3000D Multibeam	53.28	0.54	15/06/2011	0.00	FALSE	1	FALSE	FALSE		8

Cruise code	Area name	Station no.	Station code	Gear name	Latitude (degrees)	Longitude (degrees)	Date sampled	Volume of sample (litres)	Photo?	Sieve mesh size (mm)	PSA	Macrofauna	Sediment type	Replicate
CEND 11/11	IDNRRB	105	ID_SS_MB_SB	Simrad EM3000D Multibeam	53.20	0.54	15/06/2011	0.00	FALSE	1	FALSE	FALSE		8
CEND 11/11	IDNRRB	105	ID_SS_MB_SB	Simrad EM3000D Multibeam	53.19	0.54	15/06/2011	0.00	FALSE	1	FALSE	FALSE		9
CEND 11/11	IDNRRB	105	ID_SS_MB_SB	Simrad EM3000D Multibeam	53.28	0.53	15/06/2011	0.00	FALSE	1	FALSE	FALSE		9
CEND 11/11	IDNRRB	105	ID_SS_MB_SB	Sub-bottom profiler	53.20	0.58	15/06/2011	0.00	FALSE	1	FALSE	FALSE		7
CEND 11/11	IDNRRB	105	ID_SS_MB_SB	Sub-bottom profiler	53.27	0.58	15/06/2011	0.00	FALSE	1	FALSE	FALSE		7
CEND 11/11	IDNRRB	105	ID_SS_MB_SB	Sub-bottom profiler	53.28	0.54	15/06/2011	0.00	FALSE	1	FALSE	FALSE		8
CEND 11/11	IDNRRB	105	ID_SS_MB_SB	Sub-bottom profiler	53.20	0.54	15/06/2011	0.00	FALSE	1	FALSE	FALSE		8
CEND 11/11	IDNRRB	105	ID_SS_MB_SB	Sub-bottom profiler	53.19	0.54	15/06/2011	0.00	FALSE	1	FALSE	FALSE		9
CEND 11/11	IDNRRB	105	ID_SS_MB_SB	Sub-bottom profiler	53.28	0.53	15/06/2011	0.00	FALSE	1	FALSE	FALSE		9
CEND 11/11	IDNRRB	108	DSDC01	DropCam	53.25	0.66	15/06/2011	0.00	FALSE	1	FALSE	FALSE		A
CEND 11/11	IDNRRB	108	DSDC01	DropCam	53.25	0.66	15/06/2011	0.00	FALSE	1	FALSE	FALSE		A
CEND 11/11	IDNRRB	109	DSDC4	DropCam	53.25	0.66	15/06/2011	0.00	FALSE	1	FALSE	FALSE		A
CEND 11/11	IDNRRB	109	DSDC4	DropCam	53.25	0.65	15/06/2011	0.00	FALSE	1	FALSE	FALSE		A
CEND 11/11	IDNRRB	110	DSDC5	DropCam	53.24	0.66	15/06/2011	0.00	FALSE	1	FALSE	FALSE		A
CEND 11/11	IDNRRB	110	DSDC5	DropCam	53.24	0.66	15/06/2011	0.00	FALSE	1	FALSE	FALSE		A
CEND 11/11	IDNRRB	111	DSDC2	DropCam	53.25	0.64	15/06/2011	0.00	FALSE	1	FALSE	FALSE		A
CEND 11/11	IDNRRB	111	DSDC2	DropCam	53.25	0.64	15/06/2011	0.00	FALSE	1	FALSE	FALSE		A
CEND 11/11	IDNRRB	112	DSDC6	DropCam	53.24	0.68	15/06/2011	0.00	FALSE	1	FALSE	FALSE		A
CEND 11/11	IDNRRB	112	DSDC6	DropCam	53.24	0.68	15/06/2011	0.00	FALSE	1	FALSE	FALSE		A
CEND 11/11	IDNRRB	113	DSHG1	HamCam	53.25	0.65	16/06/2011	6.00	TRUE	1	TRUE	TRUE	GRAVELLY MUD WITH SABELLARIA	A
CEND 11/11	IDNRRB	114	DCHG6	HamCam	53.25	0.65	16/06/2011	0.00	TRUE	1	TRUE	TRUE	GRAVELLY MUD	A
CEND 11/11	IDNRRB	115	DSHG2	HamCam	53.25	0.65	16/06/2011	6.50	TRUE	1	TRUE	TRUE	FINE MUD/CLAY	A

Cruise code	Area name	Station no.	Station code	Gear name	Latitude (degrees)	Longitude (degrees)	Date sampled	Volume of sample (litres)	Photo?	Sieve mesh size (mm)	PSA	Macrofauna	Sediment type	Replicate
CEND 11/11	IDNRRB	116	DSHG14	HamCam	53.25	0.65	16/06/2011	7.00	TRUE	1	TRUE	TRUE	FINE MUD/CLAY	A
CEND 11/11	IDNRRB	117	DSHG13	HamCam	53.25	0.65	16/06/2011	8.00	TRUE	1	TRUE	TRUE	GRAVELLY MUD	A
CEND 11/11	IDNRRB	118	DSHG9	HamCam	53.25	0.64	16/06/2011	9.00	TRUE	1	TRUE	TRUE	GRAVELLY MUD	A
CEND 11/11	IDNRRB	119	DSHG7	HamCam	53.25	0.64	16/06/2011	8.00	TRUE	1	TRUE	TRUE	GRAVELLY MUD	A
CEND 11/11	IDNRRB	120	DSHG4	HamCam	53.25	0.64	16/06/2011	8.00	TRUE	1	TRUE	TRUE	GRAVELLY MUD	A
CEND 11/11	IDNRRB	121	DSHG15	HamCam	53.25	0.64	16/06/2011	8.00	TRUE	1	TRUE	TRUE	GRAVELLY MUD	A
CEND 11/11	IDNRRB	122	DSHG12	HamCam	53.25	0.64	16/06/2011	10.00	TRUE	1	TRUE	TRUE	GRAVELLY MUD	A
CEND 11/11	IDNRRB	123	DSHG10	HamCam	53.25	0.64	16/06/2011	7.00	TRUE	1	TRUE	TRUE	GRAVELLY MUD	A
CEND 11/11	IDNRRB	124	DSHG8	HamCam	53.25	0.64	16/06/2011	7.00	TRUE	1	TRUE	TRUE	GRAVELLY MUD	A
CEND 11/11	IDNRRB	125	DSHG3	HamCam	53.25	0.64	16/06/2011	6.00	TRUE	1	TRUE	TRUE	GRAVELLY MUD	A
CEND 11/11	IDNRRB	126	DSHG11	HamCam	53.25	0.64	16/06/2011	9.00	TRUE	1	TRUE	TRUE	GRAVELLY MUD	A
CEND 11/11	IDNRRB	127	DSHG5	HamCam	53.25	0.64	16/06/2011	8.00	TRUE	1	TRUE	TRUE	GRAVELLY MUD	A
CEND 11/11	IDNRRB	128	IDEON8	HamCam	53.24	0.58	16/06/2011		FALSE	1	FALSE	FALSE		X
CEND 11/11	IDNRRB	128	IDEON8	HamCam	53.24	0.58	16/06/2011	3.00	TRUE	1	TRUE	TRUE	SILTY SAND AND COBBLE	A
CEND 11/11	IDNRRB	129	IDEON11	HamCam	53.24	0.58	16/06/2011	3.00	TRUE	1	TRUE	TRUE	MUDDY AND WITH COBBLE	A
CEND 11/11	IDNRRB	130	IDEON13	HamCam	53.24	0.58	16/06/2011	0.00	TRUE	1	TRUE	TRUE	MUDDY SAND WITH COBBLE	A
CEND 11/11	IDNRRB	130	IDEON13	HamCam	53.24	0.58	16/06/2011	0.00	FALSE	1	FALSE	FALSE		X
CEND 11/11	IDNRRB	131	IDEON2	HamCam	53.24	0.58	16/06/2011	5.00	TRUE	1	TRUE	TRUE	SANDY MUD WITH PEBBLE	A
CEND 11/11	IDNRRB	132	IDEON12	HamCam	53.24	0.58	16/06/2011	6.00	TRUE	1	TRUE	TRUE	SANDY MUD WITH PEBBLES	A
CEND 11/11	IDNRRB	133	IDEON03	HamCam	53.24	0.58	16/06/2011	7.00	TRUE	1	TRUE	TRUE		A
CEND 11/11	IDNRRB	134	IDEON09	HamCam	53.24	0.58	16/06/2011	6.00	TRUE	1	TRUE	TRUE	SAND AND PEBBLE	A
CEND 11/11	IDNRRB	135	IDEON14	HamCam	53.24	0.58	16/06/2011	2.00	TRUE	1	TRUE	TRUE	MUDDY SAND WITH GRAVEL	A
CEND 11/11	IDNRRB	136	IDEON5	HamCam	53.24	0.58	16/06/2011	5.00	TRUE	1	TRUE	TRUE	SANDY CLAY MUD WITH PEBBLES	A
CEND 11/11	IDNRRB	137	IDEON4	HamCam	53.24	0.58	16/06/2011	6.00	TRUE	1	TRUE	TRUE		A
CEND 11/11	IDNRRB	138	IDEON1	HamCam	53.24	0.58	16/06/2011	5.00	TRUE	1	TRUE	TRUE	MUDDY SILT WITH GRAVEL	A
CEND 11/11	IDNRRB	139	IDEON15	HamCam	53.24	0.58	16/06/2011	8.00	TRUE	1	TRUE	TRUE	MUDDY SILT WITH GRAVEL	A
CEND 11/11	IDNRRB	140	IDEON6	HamCam	53.24	0.58	16/06/2011	3.00	TRUE	1	TRUE	TRUE	CLAY WITH ROCK LUMPS	A
CEND 11/11	IDNRRB	141	IDEON7	HamCam	53.24	0.58	16/06/2011	0.00	FALSE	1	FALSE	FALSE		X
CEND 11/11	IDNRRB	141	IDEON7	HamCam	53.24	0.58	16/06/2011	0.00	TRUE	1	TRUE	TRUE	MUDDY GRAVEL	A

Cruise code	Area name	Station no.	Station code	Gear name	Latitude (degrees)	Longitude (degrees)	Date sampled	Volume of sample (litres)	Photo?	Sieve mesh size (mm)	PSA	Macrofauna	Sediment type	Replicate
CEND 11/11	IDNRRB	142	IDEON10	HamCam	53.24	0.58	16/06/2011	8.00	TRUE	1	TRUE	TRUE	MUDDY AND GRAVEL	A
CEND 11/11	IDNRRB	143	IDEONDC1	DropCam	53.24	0.58	16/06/2011	0.00	FALSE	1	FALSE	FALSE		A
CEND 11/11	IDNRRB	143	IDEONDC1	DropCam	53.24	0.58	16/06/2011	0.00	FALSE	1	FALSE	FALSE		A
CEND 11/11	IDNRRB	146	IDWOFDC1	DropCam	53.26	0.53	16/06/2011	0.00	FALSE	1	FALSE	FALSE		A
CEND 11/11	IDNRRB	146	IDWOFDC1	DropCam	53.27	0.53	16/06/2011	0.00	FALSE	1	FALSE	FALSE		A
CEND 11/11	IDNRRB	147	IDWOF06	HamCam	53.27	0.54	16/06/2011	6.00	TRUE	1	TRUE	TRUE	MUDDY SAND	A
CEND 11/11	IDNRRB	148	IDWOF04	HamCam	53.26	0.54	16/06/2011	0.00	FALSE	1	FALSE	FALSE		X
CEND 11/11	IDNRRB	148	IDWOF04	HamCam	53.26	0.54	16/06/2011	4.00	TRUE	1	TRUE	TRUE	CLAY	A
CEND 11/11	IDNRRB	149	IDWOF12	HamCam	53.26	0.53	16/06/2011	8.00	TRUE	1	TRUE	TRUE	CLAY	A
CEND 11/11	IDNRRB	150	IDWOFOF	HamCam	53.26	0.53	16/06/2011	6.00	TRUE	1	TRUE	TRUE	MUDDY GRAVEL	A
CEND 11/11	IDNRRB	151	IDWOF02	HamCam	53.26	0.53	16/06/2011	4.00	TRUE	1	TRUE	TRUE	MUDDY GRAVEL	A
CEND 11/11	IDNRRB	152	IDWOF13	HamCam	53.26	0.53	16/06/2011	6.00	TRUE	1	TRUE	TRUE	MUDDY GRAVEL	A
CEND 11/11	IDNRRB	153	IDWFOF01	HamCam	53.26	0.53	16/06/2011	5.00	TRUE	1	TRUE	TRUE	CLAY WITH GRAVEL AND PEBBLE	A
CEND 11/11	IDNRRB	154	IDWF8	HamCam	53.26	0.53	16/06/2011	8.00	TRUE	1	TRUE	TRUE	MUDDY GRAVEL	A
CEND 11/11	IDNRRB	155	IDWOF3	HamCam	53.26	0.53	16/06/2011	7.00	TRUE	1	TRUE	TRUE	MUDDY SANDY GRAVEL	A
CEND 11/11	IDNRRB	157	IDWOF7	HamCam	53.27	0.53	16/06/2011	7.00	TRUE	1	TRUE	TRUE	MUDDY GRAVEL	A
CEND 11/11	IDNRRB	158	IDWOF14	HamCam	53.27	0.53	16/06/2011	4.00	TRUE	1	TRUE	TRUE	CLAY AND PEBBLE	A
CEND 11/11	IDNRRB	159	IDWOF9	HamCam	53.27	0.53	16/06/2011	7.00	TRUE	1	TRUE	TRUE	MUDDY GRAVEL	A
CEND 11/11	IDNRRB	160	IDWOF11	HamCam	53.27	0.53	16/06/2011	7.00	TRUE	1	TRUE	TRUE	MUDDY GRAVEL	A
CEND 11/11	IDNRRB	161	IDWF15	HamCam	53.27	0.53	16/06/2011	6.00	TRUE	1	TRUE	TRUE	MUDDY GRAVEL	A
CEND 11/11	IDNRRB	163	IDWONDC1	DropCam	53.27	0.54	16/06/2011	0.00	FALSE	1	FALSE	FALSE		A
CEND 11/11	IDNRRB	163	IDWONDC1	DropCam	53.27	0.54	16/06/2011	0.00	FALSE	1	FALSE	FALSE		A
CEND 11/11	IDNRRB	164	IDWON9	HamCam	53.27	0.54	16/06/2011	4.00	TRUE	1	TRUE	TRUE	SILTY GRAVEL	A
CEND 11/11	IDNRRB	165	IDWON02	HamCam	53.27	0.54	16/06/2011	14.00	TRUE	1	TRUE	TRUE	COARSE SAND WITH SILT AND GRAVEL	A
CEND 11/11	IDNRRB	166	IDWON1	HamCam	53.27	0.54	16/06/2011	2.00	TRUE	1	TRUE	TRUE	SILTY COARSE SAND WITH PEBBLES	A
CEND 11/11	IDNRRB	167	IDWON11	HamCam	53.27	0.54	16/06/2011	12.00	TRUE	1	TRUE	TRUE	COARSE SAND WITH SILT AND SHELL (COAL FRAGMENTS)	A
CEND 11/11	IDNRRB	168	IDWON7	HamCam	53.27	0.54	16/06/2011	6.00	TRUE	1	TRUE	TRUE	COARSE SAND WITH LARGE COBBLES	A

Cruise code	Area name	Station no.	Station code	Gear name	Latitude (degrees)	Longitude (degrees)	Date sampled	Volume of sample (litres)	Photo?	Sieve mesh size (mm)	PSA	Macrofauna	Sediment type	Replicate
CEND 11/11	IDNRRB	169	IDWON5	HamCam	53.27	0.54	16/06/2011	8.00	TRUE	1	TRUE	TRUE	COARSE SAND WITH SMALL SHELL FRAGMENTS	A
CEND 11/11	IDNRRB	170	IDWON14	HamCam	53.27	0.54	16/06/2011	4.00	TRUE	1	TRUE	TRUE		A
CEND 11/11	IDNRRB	171	IDWON12	HamCam	53.27	0.54	16/06/2011	11.00	TRUE	1	TRUE	TRUE	SILTY COARSE SAND	A
CEND 11/11	IDNRRB	172	IDWON4	HamCam	53.27	0.54	16/06/2011	10.00	TRUE	1	TRUE	TRUE	SILTY COARSE SAND	A
CEND 11/11	IDNRRB	173	IDWON8	HamCam	53.27	0.54	16/06/2011	7.00	TRUE	1	TRUE	TRUE	COARSE SAND	A
CEND 11/11	IDNRRB	174	IDWON15	HamCam	53.27	0.54	16/06/2011	11.00	TRUE	1	TRUE	TRUE	COARSE CLEAN SAND	A
CEND 11/11	IDNRRB	175	IDWON6	HamCam	53.27	0.54	16/06/2011	10.00	TRUE	1	TRUE	TRUE	COARSE CLEAN SAND (COAL FRAGS)	A
CEND 11/11	IDNRRB	176	IDWON10	HamCam	53.27	0.54	16/06/2011	13.00	TRUE	1	TRUE	TRUE	COARSE SAND	A
CEND 11/11	IDNRRB	177	IDWON3	HamCam	53.27	0.54	16/06/2011	12.00	TRUE	1	TRUE	TRUE	COARSE SAND	A
CEND 11/11	IDNRRB	178	IDWON13	HamCam	53.27	0.54	16/06/2011	10.00	TRUE	1	TRUE	TRUE	COARSE SAND	A
CEND 11/11	IDNRRB	181	SPEHG14	HamCam	53.36	0.79	16/06/2011	6.00	TRUE	1	TRUE	TRUE	GRAVELLY MUD WITH CONSOLIDATED LUMPS OF SABELLARIA	A
CEND 11/11	IDNRRB	182	SPEHG1	HamCam	53.36	0.79	16/06/2011	0.00	FALSE	1	FALSE	FALSE		A
CEND 11/11	IDNRRB	182	SPEHG1	HamCam	53.36	0.79	16/06/2011	0.00	FALSE	1	FALSE	FALSE	GRAVELLY MUD WITH CONSOLIDATED MUD	A
CEND 11/11	IDNRRB	183	SPEHG13	HamCam	53.36	0.79	17/06/2011	5.00	TRUE	1	TRUE	TRUE	GRAEVLLY MUD WITH SABELLARIA	A
CEND 11/11	IDNRRB	184	SPEHG10	HamCam	53.36	0.79	17/06/2011	3.00	TRUE	1	TRUE	TRUE	GRAVELLY MUD WITH LARGE PEBBLES/COBBLES	A
CEND 11/11	IDNRRB	185	SPEHG12	HamCam	53.36	0.79	17/06/2011	3.00	TRUE	1	TRUE	TRUE	GRAVELLY MUD WITH PEBBLES AND SABELLARIA	A
CEND 11/11	IDNRRB	186	SPEHG6	HamCam	53.36	0.79	17/06/2011	4.00	TRUE	1	TRUE	TRUE	GRAVELLY MUD WITH PEBBLES AND SABELLARIA	A
CEND 11/11	IDNRRB	187	SPEHG5	HamCam	53.36	0.79	17/06/2011	5.00	TRUE	1	TRUE	TRUE	GRAVELLY MUD WITH PEBBLES AND SMALL SABELLARIA CLUMPS	A
CEND 11/11	IDNRRB	188	SPEHG9	HamCam	53.36	0.79	17/06/2011	5.00	TRUE	1	TRUE	TRUE	GRAVELLY MUD AND PEBBLES WITH SMALL SABELLARIA CLUMPS	A
CEND 11/11	IDNRRB	189	SPEHG4	HamCam	53.36	0.79	17/06/2011	3.00	TRUE	1	TRUE	TRUE	GRAVELLY MUD WITH PEBBLES	A
CEND 11/11	IDNRRB	190	SPEHG11	HamCam	53.36	0.79	17/06/2011	4.00	TRUE	1	TRUE	TRUE	GRAVELLY MUD WITH PEBBLES AND SABELLARIA CLUMPS	A

Cruise code	Area name	Station no.	Station code	Gear name	Latitude (degrees)	Longitude (degrees)	Date sampled	Volume of sample (litres)	Photo?	Sieve mesh size (mm)	PSA	Macrofauna	Sediment type	Replicate
CEND 11/11	IDNRRB	191	SPEHG7	HamCam	53.36	0.79	17/06/2011	5.00	TRUE	1	TRUE	TRUE	GRAVELLY MUD WITH PEBBLES AND SABELLARIA	A
CEND 11/11	IDNRRB	192	SPEHG2	HamCam	53.36	0.79	17/06/2011	6.00	TRUE	1	TRUE	TRUE	GRAVELLY MUD WITH PEBBLES AND SABELLARIA	A
CEND 11/11	IDNRRB	193	SPEHG3	HamCam	53.36	0.79	17/06/2011	5.00	TRUE	1	TRUE	TRUE	GRAVELLY MUD WITH SABELLARIA AND PEBBLE	A
CEND 11/11	IDNRRB	194	SPEHG15	HamCam	53.36	0.79	17/06/2011	6.00	TRUE	1	TRUE	TRUE	GRAVELLY MUDDY SAND	A
CEND 11/11	IDNRRB	195	SPEHG8	HamCam	53.36	0.79	17/06/2011	9.00	TRUE	1	TRUE	TRUE	GRAVELLY MUD WITH SABELLARIA CLUMPS	A
CEND 11/11	IDNRRB	196	SPEHG01	HamCam	53.36	0.79	17/06/2011	2.00	TRUE	1	TRUE	TRUE	SABELLARIA CLUMPS IN MUDDY SAND	A
CEND 11/11	IDNRRB	197	SPEHG2	HamCam	53.36	0.79	17/06/2011	4.00	TRUE	1	TRUE	TRUE	SABELLARIA	A
CEND 11/11	IDNRRB	198	SPEHG3	HamCam	53.36	0.79	17/06/2011	4.00	TRUE	1	TRUE	TRUE	SAND WITH SABELLARIA CLUMPS	A
CEND 11/11	IDNRRB	200	LINE 33 RB	EdgeTech 4200	53.00	1.52	17/06/2011	0.00	FALSE	1	FALSE	FALSE		33
CEND 11/11	IDNRRB	200	LINE 33 RB	EdgeTech 4200	53.25	0.69	17/06/2011	0.00	FALSE	1	FALSE	FALSE		33
CEND 11/11	HHW	202	HHW2	SIS 1624	52.19	1.70	17/06/2011	0.00	FALSE	1	FALSE	FALSE		HHW1G-F
CEND 11/11	HHW	202	HHW2	SIS 1624	52.85	1.78	17/06/2011	0.00	FALSE	1	FALSE	FALSE		HHW1G-F
CEND 11/11	HHW	202	HHW2	SIS 1624	52.92	1.68	17/06/2011	0.00	FALSE	1	FALSE	FALSE		HHW1E-D
CEND 11/11	HHW	202	HHW2	SIS 1624	52.19	1.70	17/06/2011	0.00	FALSE	1	FALSE	FALSE		HHW1E-D
CEND 11/11	HHW	202	HHW2	SIS 1624	52.92	1.73	17/06/2011	0.00	FALSE	1	FALSE	FALSE		HHW2I-J
CEND 11/11	HHW	202	HHW2	SIS 1624	52.93	1.72	17/06/2011	0.00	FALSE	1	FALSE	FALSE		HHW2I-J
CEND 11/11	HHW	202	HHW2	SIS 1624	52.98	1.59	17/06/2011	0.00	FALSE	1	FALSE	FALSE		HHW1C-A
CEND 11/11	HHW	202	HHW2	SIS 1624	52.92	1.68	17/06/2011	0.00	FALSE	1	FALSE	FALSE		HHW1C-A
CEND 11/11	HHW	202	HHW2	SIS 1624	52.93	1.72	17/06/2011	0.00	FALSE	1	FALSE	FALSE		HHW2G-H
CEND 11/11	HHW	202	HHW2	SIS 1624	52.95	1.70	17/06/2011	0.00	FALSE	1	FALSE	FALSE		HHW2G-H
CEND 11/11	HHW	202	HHW2	SIS 1624	52.86	1.80	17/06/2011	0.00	FALSE	1	FALSE	FALSE		HHW3A
CEND 11/11	HHW	202	HHW2	SIS 1624	57.88	1.79	17/06/2011	0.00	FALSE	1	FALSE	FALSE		HHW3A
CEND 11/11	HHW	202	HHW2	SIS 1624	53.00	1.56	17/06/2011	0.00	FALSE	1	FALSE	FALSE		HHW1
CEND 11/11	HHW	202	HHW2	SIS 1624	52.98	1.59	17/06/2011	0.00	FALSE	1	FALSE	FALSE		HHW1

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CEND 11/11	HHW	202	HHW2	SIS 1624	52.92	1.73	17/06/2011	0.00	FALSE	1	FALSE	FALSE		HHW2K-L
CEND 11/11	HHW	202	HHW2	SIS 1624	52.92	1.73	17/06/2011	0.00	FALSE	1	FALSE	FALSE		HHW2K-L
CEND 11/11	HHW	202	HHW2	SIS 1624	52.96	1.68	17/06/2011	0.00	FALSE	1	FALSE	FALSE		HHW2C-D
CEND 11/11	HHW	202	HHW2	SIS 1624	52.98	1.64	17/06/2011	0.00	FALSE	1	FALSE	FALSE		HHW2C-D
CEND 11/11	HHW	202	HHW2	SIS 1624	52.96	1.68	17/06/2011	0.00	FALSE	1	FALSE	FALSE		HHW2B
CEND 11/11	HHW	202	HHW2	SIS 1624	52.98	1.64	17/06/2011	0.00	FALSE	1	FALSE	FALSE		HHW2B
CEND 11/11	HHW	202	HHW2	SIS 1624	52.98	1.64	17/06/2011	0.00	FALSE	1	FALSE	FALSE		HHW2A
CEND 11/11	HHW	202	HHW2	SIS 1624	53.00	1.55	17/06/2011	0.00	FALSE	1	FALSE	FALSE		HHW2A
CEND 11/11	HHW	202	HHW2	SIS 1624	52.95	1.70	17/06/2011	0.00	FALSE	1	FALSE	FALSE		HHW2E-F
CEND 11/11	HHW	202	HHW2	SIS 1624	52.96	1.68	17/06/2011	0.00	FALSE	1	FALSE	FALSE		HHW2E-F
CEND 11/11	HHW	202	HHW2	SIS 1624	52.88	1.79	17/06/2011	0.00	FALSE	1	FALSE	FALSE		HHW2L-M
CEND 11/11	HHW	202	HHW2	SIS 1624	52.92	1.73	17/06/2011	0.00	FALSE	1	FALSE	FALSE		HHW2L-M
CEND 11/11	HHW	202	HHW2	Kongsberg EM3002D	52.19	1.70	17/06/2011	0.00	FALSE	1	FALSE	FALSE		HHW1G-F
CEND 11/11	HHW	202	HHW2	Kongsberg EM3002D	52.85	1.78	17/06/2011	0.00	FALSE	1	FALSE	FALSE		HHW1G-F
CEND 11/11	HHW	202	HHW2	Kongsberg EM3002D	52.92	1.68	17/06/2011	0.00	FALSE	1	FALSE	FALSE		HHW1E-D
CEND 11/11	HHW	202	HHW2	Kongsberg EM3002D	52.19	1.70	17/06/2011	0.00	FALSE	1	FALSE	FALSE		HHW1E-D
CEND 11/11	HHW	202	HHW2	Kongsberg EM3002D	52.92	1.73	17/06/2011	0.00	FALSE	1	FALSE	FALSE		HHW2I-J
CEND 11/11	HHW	202	HHW2	Kongsberg EM3002D	52.93	1.72	17/06/2011	0.00	FALSE	1	FALSE	FALSE		HHW2I-J
CEND 11/11	HHW	202	HHW2	Kongsberg EM3002D	52.98	1.59	17/06/2011	0.00	FALSE	1	FALSE	FALSE		HHW1C-A
CEND 11/11	HHW	202	HHW2	Kongsberg EM3002D	52.92	1.68	17/06/2011	0.00	FALSE	1	FALSE	FALSE		HHW1C-A
CEND 11/11	HHW	202	HHW2	Kongsberg EM3002D	52.93	1.72	17/06/2011	0.00	FALSE	1	FALSE	FALSE		HHW2G-H
CEND 11/11	HHW	202	HHW2	Kongsberg EM3002D	52.95	1.70	17/06/2011	0.00	FALSE	1	FALSE	FALSE		HHW2G-H
CEND 11/11	HHW	202	HHW2	Kongsberg EM3002D	52.86	1.80	17/06/2011	0.00	FALSE	1	FALSE	FALSE		HHW3A
CEND 11/11	HHW	202	HHW2	Kongsberg EM3002D	57.88	1.79	17/06/2011	0.00	FALSE	1	FALSE	FALSE		HHW3A
CEND 11/11	HHW	202	HHW2	Kongsberg EM3002D	53.00	1.56	17/06/2011	0.00	FALSE	1	FALSE	FALSE		HHW1

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CEND 11/11	HHW	202	HHW2	Kongsberg EM3002D	52.98	1.59	17/06/2011	0.00	FALSE	1	FALSE	FALSE		HHW1
CEND 11/11	HHW	202	HHW2	Kongsberg EM3002D	52.92	1.73	17/06/2011	0.00	FALSE	1	FALSE	FALSE		HHW2K-L
CEND 11/11	HHW	202	HHW2	Kongsberg EM3002D	52.92	1.73	17/06/2011	0.00	FALSE	1	FALSE	FALSE		HHW2K-L
CEND 11/11	HHW	202	HHW2	Kongsberg EM3002D	52.96	1.68	17/06/2011	0.00	FALSE	1	FALSE	FALSE		HHW2C-D
CEND 11/11	HHW	202	HHW2	Kongsberg EM3002D	52.98	1.64	17/06/2011	0.00	FALSE	1	FALSE	FALSE		HHW2C-D
CEND 11/11	HHW	202	HHW2	Kongsberg EM3002D	52.96	1.68	17/06/2011	0.00	FALSE	1	FALSE	FALSE		HHW2B
CEND 11/11	HHW	202	HHW2	Kongsberg EM3002D	52.98	1.64	17/06/2011	0.00	FALSE	1	FALSE	FALSE		HHW2B
CEND 11/11	HHW	202	HHW2	Kongsberg EM3002D	52.98	1.64	17/06/2011	0.00	FALSE	1	FALSE	FALSE		HHW2A
CEND 11/11	HHW	202	HHW2	Kongsberg EM3002D	53.00	1.55	17/06/2011	0.00	FALSE	1	FALSE	FALSE		HHW2A
CEND 11/11	HHW	202	HHW2	Kongsberg EM3002D	52.95	1.70	17/06/2011	0.00	FALSE	1	FALSE	FALSE		HHW2E-F
CEND 11/11	HHW	202	HHW2	Kongsberg EM3002D	52.96	1.68	17/06/2011	0.00	FALSE	1	FALSE	FALSE		HHW2E-F
CEND 11/11	HHW	202	HHW2	Kongsberg EM3002D	52.88	1.79	17/06/2011	0.00	FALSE	1	FALSE	FALSE		HHW2L-M
CEND 11/11	HHW	202	HHW2	Kongsberg EM3002D	52.92	1.73	17/06/2011	0.00	FALSE	1	FALSE	FALSE		HHW2L-M
CEND 11/11	HHW	203	TRANSIT TO HEWETT RIDGES	Kongsberg EM3002D	52.87	1.83	17/06/2011	0.00	FALSE	1	FALSE	FALSE		A
CEND 11/11	HHW	203	TRANSIT TO HEWETT RIDGES	Kongsberg EM3002D	53.00	1.56	17/06/2011	0.00	FALSE	1	FALSE	FALSE		A
CEND 11/11	HHW	205	HHW_SS_MB	EdgeTech 4200	52.90	1.94	18/08/2011	0.00	FALSE	1	FALSE	FALSE		TURN TO HHW6A
CEND 11/11	HHW	205	HHW_SS_MB	EdgeTech 4200	52.91	1.95	18/08/2011	0.00	FALSE	1	FALSE	FALSE		TURN TO HHW6A
CEND 11/11	HHW	205	HHW_SS_MB	EdgeTech 4200	52.85	1.95	18/08/2011	0.00	FALSE	1	FALSE	FALSE		HHW6A
CEND 11/11	HHW	205	HHW_SS_MB	EdgeTech 4200	52.90	1.95	18/08/2011	0.00	FALSE	1	FALSE	FALSE		HHW6A
CEND 11/11	HHW	205	HHW_SS_MB	EdgeTech 4200	52.85	1.94	18/08/2011	0.00	FALSE	1	FALSE	FALSE		HHW6B
CEND 11/11	HHW	205	HHW_SS_MB	EdgeTech 4200	52.85	1.95	18/08/2011	0.00	FALSE	1	FALSE	FALSE		HHW6B

Cruise code	Area name	Station no.	Station code	Gear name	Latitude (degrees)	Longitude (degrees)	Date sampled	Volume of sample (litres)	Photo?	Sieve mesh size (mm)	PSA	Macrofauna	Sediment type	Replicate
CEND 11/11	HHW	205	HHW_SS_MB	EdgeTech 4200	52.51	1.54	18/08/2011	0.00	FALSE	1	FALSE	FALSE		HHW6C
CEND 11/11	HHW	205	HHW_SS_MB	EdgeTech 4200	52.85	1.94	18/08/2011	0.00	FALSE	1	FALSE	FALSE		HHW6C
CEND 11/11	HHW	205	HHW_SS_MB	EdgeTech 4200	52.91	1.88	18/08/2011	0.00	FALSE	1	FALSE	FALSE		HHW6D
CEND 11/11	HHW	205	HHW_SS_MB	EdgeTech 4200	52.51	1.54	18/08/2011	0.00	FALSE	1	FALSE	FALSE		HHW6D
CEND 11/11	HHW	205	HHW_SS_MB	EdgeTech 4200	52.87	1.93	18/08/2011	0.00	FALSE	1	FALSE	FALSE		HHW6H
CEND 11/11	HHW	205	HHW_SS_MB	EdgeTech 4200	52.90	1.90	18/08/2011	0.00	FALSE	1	FALSE	FALSE		HHW6H
CEND 11/11	HHW	205	HHW_SS_MB	EdgeTech 4200	52.91	1.69	18/08/2011	0.00	FALSE	1	FALSE	FALSE		TRANSIT TO HAISBRO BANK
CEND 11/11	HHW	205	HHW_SS_MB	EdgeTech 4200	58.89	1.64	18/08/2011	0.00	FALSE	1	FALSE	FALSE		TRANSIT TO HAISBRO BANK
CEND 11/11	HHW	205	HHW_SS_MB	EdgeTech 4200	58.98	1.64	18/08/2011	0.00	FALSE	1	FALSE	FALSE		21
CEND 11/11	HHW	205	HHW_SS_MB	EdgeTech 4200	53.04	1.78	18/08/2011	0.00	FALSE	1	FALSE	FALSE		21
CEND 11/11	HHW	205	HHW_SS_MB	EdgeTech 4200	53.03	1.68	18/08/2011	0.00	FALSE	1	FALSE	FALSE		22
CEND 11/11	HHW	205	HHW_SS_MB	EdgeTech 4200	53.03	1.82	18/08/2011	0.00	FALSE	1	FALSE	FALSE		22
CEND 11/11	HHW	205	HHW_SS_MB	EdgeTech 4200	52.92	1.87	18/08/2011	0.00	FALSE	1	FALSE	FALSE		TRANSIT TO 19(1)
CEND 11/11	HHW	205	HHW_SS_MB	EdgeTech 4200	52.91	1.88	18/08/2011	0.00	FALSE	1	FALSE	FALSE		TRANSIT TO 19(1)
CEND 11/11	HHW	205	HHW_SS_MB	EdgeTech 4200	53.02	1.91	18/08/2011	0.00	FALSE	1	FALSE	FALSE		TRANSIT TO 19(2)
CEND 11/11	HHW	205	HHW_SS_MB	EdgeTech 4200	52.92	1.87	18/08/2011	0.00	FALSE	1	FALSE	FALSE		TRANSIT TO 19(2)
CEND 11/11	HHW	205	HHW_SS_MB	EdgeTech 4200	52.91	1.95	18/08/2011	0.00	FALSE	1	FALSE	FALSE		HHW6
CEND 11/11	HHW	205	HHW_SS_MB	EdgeTech 4200	52.91	1.95	18/08/2011	0.00	FALSE	1	FALSE	FALSE		HHW6
CEND 11/11	HHW	205	HHW_SS_MB	EdgeTech 4200	52.92	1.73	18/08/2011	0.00	FALSE	1	FALSE	FALSE		HHW19
CEND 11/11	HHW	205	HHW_SS_MB	EdgeTech 4200	53.92	1.87	18/08/2011	0.00	FALSE	1	FALSE	FALSE		HHW19
CEND 11/11	HHW	205	HHW_SS_MB	EdgeTech 4200	53.03	1.85	18/08/2011	0.00	FALSE	1	FALSE	FALSE		HHW20

Cruise code	Area name	Station no.	Station code	Gear name	Latitude (degrees)	Longitude (degrees)	Date sampled	Volume of sample (litres)	Photo?	Sieve mesh size (mm)	PSA	Macrofauna	Sediment type	Replicate
CEND 11/11	HHW	205	HHW_SS_MB	EdgeTech 4200	52.95	1.70	18/08/2011	0.00	FALSE	1	FALSE	FALSE		HHW20
CEND 11/11	HHW	205	HHW_SS_MB	EdgeTech 4200	53.04	1.78	18/08/2011	0.00	FALSE	1	FALSE	FALSE		TRANSIT TO 21
CEND 11/11	HHW	205	HHW_SS_MB	EdgeTech 4200	53.03	1.68	18/08/2011	0.00	FALSE	1	FALSE	FALSE		TRANSIT TO 21
CEND 11/11	HHW	205	HHW_SS_MB	EdgeTech 4200	52.90	1.90	18/08/2011	0.00	FALSE	1	FALSE	FALSE		HHW17
CEND 11/11	HHW	205	HHW_SS_MB	EdgeTech 4200	52.93	2.00	18/08/2011	0.00	FALSE	1	FALSE	FALSE		HHW17
CEND 11/11	HHW	205	HHW_SS_MB	EdgeTech 4200	52.93	2.00	18/08/2011	0.00	FALSE	1	FALSE	FALSE		HHW18
CEND 11/11	HHW	205	HHW_SS_MB	EdgeTech 4200	52.90	1.77	18/08/2011	0.00	FALSE	1	FALSE	FALSE		HHW18
CEND 11/11	HHW	205	HHW_SS_MB	EdgeTech 4200	52.91	1.79	18/08/2011	0.00	FALSE	1	FALSE	FALSE		TRANSIT TO 18
CEND 11/11	HHW	205	HHW_SS_MB	EdgeTech 4200	52.90	1.77	18/08/2011	0.00	FALSE	1	FALSE	FALSE		TRANSIT TO 18
CEND 11/11	HHW	205	HHW_SS_MB	EdgeTech 4200	52.91	1.83	18/08/2011	0.00	FALSE	1	FALSE	FALSE		HHW4
CEND 11/11	HHW	205	HHW_SS_MB	EdgeTech 4200	52.88	1.88	18/08/2011	0.00	FALSE	1	FALSE	FALSE		HHW4
CEND 11/11	HHW	205	HHW_SS_MB	EdgeTech 4200	52.87	1.93	18/08/2011	0.00	FALSE	1	FALSE	FALSE		HHW6G
CEND 11/11	HHW	205	HHW_SS_MB	EdgeTech 4200	52.87	1.93	18/08/2011	0.00	FALSE	1	FALSE	FALSE		HHW6G
CEND 11/11	HHW	205	HHW_SS_MB	EdgeTech 4200	52.90	1.90	18/08/2011	0.00	FALSE	1	FALSE	FALSE		TRANSIT TO HHW6
CEND 11/11	HHW	205	HHW_SS_MB	EdgeTech 4200	52.90	1.90	18/08/2011	0.00	FALSE	1	FALSE	FALSE		TRANSIT TO HHW6
CEND 11/11	HHW	205	HHW_SS_MB	EdgeTech 4200	52.94	1.83	18/08/2011	0.00	FALSE	1	FALSE	FALSE		TURN TO HHW6
CEND 11/11	HHW	205	HHW_SS_MB	EdgeTech 4200	52.94	1.83	18/08/2011	0.00	FALSE	1	FALSE	FALSE		TURN TO HHW6
CEND 11/11	HHW	205	HHW_SS_MB	EdgeTech 4200	52.95	1.79	18/08/2011	0.00	FALSE	1	FALSE	FALSE		HHW5A
CEND 11/11	HHW	205	HHW_SS_MB	EdgeTech 4200	52.95	1.81	18/08/2011	0.00	FALSE	1	FALSE	FALSE		HHW5A
CEND 11/11	HHW	205	HHW_SS_MB	EdgeTech 4200	52.85	1.85	18/08/2011	0.00	FALSE	1	FALSE	FALSE		HHW4X
CEND 11/11	HHW	205	HHW_SS_MB	EdgeTech 4200	52.91	1.83	18/08/2011	0.00	FALSE	1	FALSE	FALSE		HHW4X
CEND 11/11	HHW	205	HHW_SS_MB	EdgeTech 4200		0.00	18/08/2011	0.00	FALSE	1	FALSE	FALSE		HHW5
CEND 11/11	HHW	205	HHW_SS_MB	EdgeTech 4200	53.03	1.82	18/08/2011	0.00	FALSE	1	FALSE	FALSE		TRANSIT 20-20A

Cruise code	Area name	Station no.	Station code	Gear name	Latitude (degrees)	Longitude (degrees)	Date sampled	Volume of sample (litres)	Photo?	Sieve mesh size (mm)	PSA	Macrofauna	Sediment type	Replicate
CEND 11/11	HHW	205	HHW_SS_MB	EdgeTech 4200	53.03	1.85	18/08/2011	0.00	FALSE	1	FALSE	FALSE		TRANSIT 20-20A
CEND 11/11	HHW	205	HHW_SS_MB	EdgeTech 4200	52.95	1.81	18/08/2011	0.00	FALSE	1	FALSE	FALSE		HHW5B
CEND 11/11	HHW	205	HHW_SS_MB	EdgeTech 4200	52.94	1.83	18/08/2011	0.00	FALSE	1	FALSE	FALSE		HHW5B
CEND 11/11	HHW	205	HHW_SS_MB	EdgeTech 4200	52.94	1.83	18/08/2011	0.00	FALSE	1	FALSE	FALSE		HHW6H
CEND 11/11	HHW	205	HHW_SS_MB	EdgeTech 4200	52.91	1.90	18/08/2011	0.00	FALSE	1	FALSE	FALSE		HHW6H
CEND 11/11	HHW	205	HHW_SS_MB	EdgeTech 4200	52.91	1.90	18/08/2011	0.00	FALSE	1	FALSE	FALSE		HHW6E
CEND 11/11	HHW	205	HHW_SS_MB	EdgeTech 4200	52.90	1.93	18/08/2011	0.00	FALSE	1	FALSE	FALSE		HHW6E
CEND 11/11	HHW	205	HHW_SS_MB	EdgeTech 4200	52.90	1.93	18/08/2011	0.00	FALSE	1	FALSE	FALSE		HHW6F
CEND 11/11	HHW	205	HHW_SS_MB	EdgeTech 4200	52.88	1.93	18/08/2011	0.00	FALSE	1	FALSE	FALSE		HHW6F
CEND 11/11	HHW	205	HHW_SS_MB	Kongsberg EM3002D	52.90	1.94	18/08/2011	0.00	FALSE	1	FALSE	FALSE		TURN TO HHW6A
CEND 11/11	HHW	205	HHW_SS_MB	Kongsberg EM3002D	52.91	1.95	18/08/2011	0.00	FALSE	1	FALSE	FALSE		TURN TO HHW6A
CEND 11/11	HHW	205	HHW_SS_MB	Kongsberg EM3002D	52.85	1.95	18/08/2011	0.00	FALSE	1	FALSE	FALSE		HHW6A
CEND 11/11	HHW	205	HHW_SS_MB	Kongsberg EM3002D	52.90	1.95	18/08/2011	0.00	FALSE	1	FALSE	FALSE		HHW6A
CEND 11/11	HHW	205	HHW_SS_MB	Kongsberg EM3002D	52.85	1.94	18/08/2011	0.00	FALSE	1	FALSE	FALSE		HHW6B
CEND 11/11	HHW	205	HHW_SS_MB	Kongsberg EM3002D	52.85	1.95	18/08/2011	0.00	FALSE	1	FALSE	FALSE		HHW6B
CEND 11/11	HHW	205	HHW_SS_MB	Kongsberg EM3002D	52.51	1.54	18/08/2011	0.00	FALSE	1	FALSE	FALSE		HHW6C
CEND 11/11	HHW	205	HHW_SS_MB	Kongsberg EM3002D	52.85	1.94	18/08/2011	0.00	FALSE	1	FALSE	FALSE		HHW6C
CEND 11/11	HHW	205	HHW_SS_MB	Kongsberg EM3002D	52.91	1.88	18/08/2011	0.00	FALSE	1	FALSE	FALSE		HHW6D
CEND 11/11	HHW	205	HHW_SS_MB	Kongsberg EM3002D	52.51	1.54	18/08/2011	0.00	FALSE	1	FALSE	FALSE		HHW6D
CEND 11/11	HHW	205	HHW_SS_MB	Kongsberg EM3002D	52.87	1.93	18/08/2011	0.00	FALSE	1	FALSE	FALSE		HHW6H
CEND 11/11	HHW	205	HHW_SS_MB	Kongsberg EM3002D	52.90	1.90	18/08/2011	0.00	FALSE	1	FALSE	FALSE		HHW6H
CEND 11/11	HHW	205	HHW_SS_MB	Kongsberg EM3002D	52.91	1.69	18/08/2011	0.00	FALSE	1	FALSE	FALSE		TRANSIT TO HAISBRO BANK

Cruise code	Area name	Station no.	Station code	Gear name	Latitude (degrees)	Longitude (degrees)	Date sampled	Volume of sample (litres)	Photo?	Sieve mesh size (mm)	PSA	Macrofauna	Sediment type	Replicate
CEND 11/11	HHW	205	HHW_SS_MB	Kongsberg EM3002D	58.89	1.64	18/08/2011	0.00	FALSE	1	FALSE	FALSE		TRANSIT TO HAISBRO BANK
CEND 11/11	HHW	205	HHW_SS_MB	Kongsberg EM3002D	58.98	1.64	18/08/2011	0.00	FALSE	1	FALSE	FALSE		21
CEND 11/11	HHW	205	HHW_SS_MB	Kongsberg EM3002D	53.04	1.78	18/08/2011	0.00	FALSE	1	FALSE	FALSE		21
CEND 11/11	HHW	205	HHW_SS_MB	Kongsberg EM3002D	53.03	1.68	18/08/2011	0.00	FALSE	1	FALSE	FALSE		22
CEND 11/11	HHW	205	HHW_SS_MB	Kongsberg EM3002D	53.03	1.82	18/08/2011	0.00	FALSE	1	FALSE	FALSE		22
CEND 11/11	HHW	205	HHW_SS_MB	Kongsberg EM3002D	52.92	1.87	18/08/2011	0.00	FALSE	1	FALSE	FALSE		TRANSIT TO 19(1)
CEND 11/11	HHW	205	HHW_SS_MB	Kongsberg EM3002D	52.91	1.88	18/08/2011	0.00	FALSE	1	FALSE	FALSE		TRANSIT TO 19(1)
CEND 11/11	HHW	205	HHW_SS_MB	Kongsberg EM3002D	53.02	1.91	18/08/2011	0.00	FALSE	1	FALSE	FALSE		TRANSIT TO 19(2)
CEND 11/11	HHW	205	HHW_SS_MB	Kongsberg EM3002D	52.92	1.87	18/08/2011	0.00	FALSE	1	FALSE	FALSE		TRANSIT TO 19(2)
CEND 11/11	HHW	205	HHW_SS_MB	Kongsberg EM3002D	52.91	1.95	18/08/2011	0.00	FALSE	1	FALSE	FALSE		HHW6
CEND 11/11	HHW	205	HHW_SS_MB	Kongsberg EM3002D	52.91	1.95	18/08/2011	0.00	FALSE	1	FALSE	FALSE		HHW6
CEND 11/11	HHW	205	HHW_SS_MB	Kongsberg EM3002D	52.92	1.73	18/08/2011	0.00	FALSE	1	FALSE	FALSE		HHW19
CEND 11/11	HHW	205	HHW_SS_MB	Kongsberg EM3002D	53.92	1.87	18/08/2011	0.00	FALSE	1	FALSE	FALSE		HHW19
CEND 11/11	HHW	205	HHW_SS_MB	Kongsberg EM3002D	53.03	1.85	18/08/2011	0.00	FALSE	1	FALSE	FALSE		HHW20
CEND 11/11	HHW	205	HHW_SS_MB	Kongsberg EM3002D	52.95	1.70	18/08/2011	0.00	FALSE	1	FALSE	FALSE		HHW20
CEND 11/11	HHW	205	HHW_SS_MB	Kongsberg EM3002D	53.04	1.78	18/08/2011	0.00	FALSE	1	FALSE	FALSE		TRANSIT TO 21
CEND 11/11	HHW	205	HHW_SS_MB	Kongsberg EM3002D	53.03	1.68	18/08/2011	0.00	FALSE	1	FALSE	FALSE		TRANSIT TO 21
CEND 11/11	HHW	205	HHW_SS_MB	Kongsberg EM3002D	52.90	1.90	18/08/2011	0.00	FALSE	1	FALSE	FALSE		HHW17
CEND 11/11	HHW	205	HHW_SS_MB	Kongsberg EM3002D	52.93	2.00	18/08/2011	0.00	FALSE	1	FALSE	FALSE		HHW17
CEND 11/11	HHW	205	HHW_SS_MB	Kongsberg EM3002D	52.93	2.00	18/08/2011	0.00	FALSE	1	FALSE	FALSE		HHW18
CEND 11/11	HHW	205	HHW_SS_MB	Kongsberg EM3002D	52.90	1.77	18/08/2011	0.00	FALSE	1	FALSE	FALSE		HHW18
CEND 11/11	HHW	205	HHW_SS_MB	Kongsberg EM3002D	52.91	1.79	18/08/2011	0.00	FALSE	1	FALSE	FALSE		TRANSIT TO 18

Cruise code	Area name	Station no.	Station code	Gear name	Latitude (degrees)	Longitude (degrees)	Date sampled	Volume of sample (litres)	Photo?	Sieve mesh size (mm)	PSA	Macrofauna	Sediment type	Replicate
CEND 11/11	HHW	205	HHW_SS_MB	Kongsberg EM3002D	52.90	1.77	18/08/2011	0.00	FALSE	1	FALSE	FALSE		TRANSIT TO 18
CEND 11/11	HHW	205	HHW_SS_MB	Kongsberg EM3002D	52.91	1.83	18/08/2011	0.00	FALSE	1	FALSE	FALSE		HHW4
CEND 11/11	HHW	205	HHW_SS_MB	Kongsberg EM3002D	52.88	1.88	18/08/2011	0.00	FALSE	1	FALSE	FALSE		HHW4
CEND 11/11	HHW	205	HHW_SS_MB	Kongsberg EM3002D	52.87	1.93	18/08/2011	0.00	FALSE	1	FALSE	FALSE		HHW6G
CEND 11/11	HHW	205	HHW_SS_MB	Kongsberg EM3002D	52.87	1.93	18/08/2011	0.00	FALSE	1	FALSE	FALSE		HHW6G
CEND 11/11	HHW	205	HHW_SS_MB	Kongsberg EM3002D	52.90	1.90	18/08/2011	0.00	FALSE	1	FALSE	FALSE		TRANSIT TO HHW6
CEND 11/11	HHW	205	HHW_SS_MB	Kongsberg EM3002D	52.90	1.90	18/08/2011	0.00	FALSE	1	FALSE	FALSE		TRANSIT TO HHW6
CEND 11/11	HHW	205	HHW_SS_MB	Kongsberg EM3002D	52.94	1.83	18/08/2011	0.00	FALSE	1	FALSE	FALSE		TURN TO HHW6
CEND 11/11	HHW	205	HHW_SS_MB	Kongsberg EM3002D	52.94	1.83	18/08/2011	0.00	FALSE	1	FALSE	FALSE		TURN TO HHW6
CEND 11/11	HHW	205	HHW_SS_MB	Kongsberg EM3002D	52.95	1.79	18/08/2011	0.00	FALSE	1	FALSE	FALSE		HHW5A
CEND 11/11	HHW	205	HHW_SS_MB	Kongsberg EM3002D	52.95	1.81	18/08/2011	0.00	FALSE	1	FALSE	FALSE		HHW5A
CEND 11/11	HHW	205	HHW_SS_MB	Kongsberg EM3002D	52.85	1.85	18/08/2011	0.00	FALSE	1	FALSE	FALSE		HHW4X
CEND 11/11	HHW	205	HHW_SS_MB	Kongsberg EM3002D	52.91	1.83	18/08/2011	0.00	FALSE	1	FALSE	FALSE		HHW4X
CEND 11/11	HHW	205	HHW_SS_MB	Kongsberg EM3002D		0.00	18/08/2011	0.00	FALSE	1	FALSE	FALSE		HHW5
CEND 11/11	HHW	205	HHW_SS_MB	Kongsberg EM3002D	53.03	1.82	18/08/2011	0.00	FALSE	1	FALSE	FALSE		TRANSIT 20-20A
CEND 11/11	HHW	205	HHW_SS_MB	Kongsberg EM3002D	53.03	1.85	18/08/2011	0.00	FALSE	1	FALSE	FALSE		TRANSIT 20-20A
CEND 11/11	HHW	205	HHW_SS_MB	Kongsberg EM3002D	52.95	1.81	18/08/2011	0.00	FALSE	1	FALSE	FALSE		HHW5B
CEND 11/11	HHW	205	HHW_SS_MB	Kongsberg EM3002D	52.94	1.83	18/08/2011	0.00	FALSE	1	FALSE	FALSE		HHW5B
CEND 11/11	HHW	205	HHW_SS_MB	Kongsberg EM3002D	52.94	1.83	18/08/2011	0.00	FALSE	1	FALSE	FALSE		HHW6H
CEND 11/11	HHW	205	HHW_SS_MB	Kongsberg EM3002D	52.91	1.90	18/08/2011	0.00	FALSE	1	FALSE	FALSE		HHW6H
CEND 11/11	HHW	205	HHW_SS_MB	Kongsberg EM3002D	52.91	1.90	18/08/2011	0.00	FALSE	1	FALSE	FALSE		HHW6E
CEND 11/11	HHW	205	HHW_SS_MB	Kongsberg EM3002D	52.90	1.93	18/08/2011	0.00	FALSE	1	FALSE	FALSE		HHW6E
CEND 11/11	HHW	205	HHW_SS_MB	Kongsberg EM3002D	52.90	1.93	18/08/2011	0.00	FALSE	1	FALSE	FALSE		HHW6F

Cruise code	Area name	Station no.	Station code	Gear name	Latitude (degrees)	Longitude (degrees)	Date sampled	Volume of sample (litres)	Photo?	Sieve mesh size (mm)	PSA	Macrofauna	Sediment type	Replicate
CEND 11/11	HHW	205	HHW_SS_MB	Kongsberg EM3002D	52.88	1.93	18/08/2011	0.00	FALSE	1	FALSE	FALSE		HHW6F
CEND 11/11	HHW	206	RINGNET_15	Ringnet	52.91	1.69	18/06/2011	0.00	FALSE	1	FALSE	FALSE		A
CEND 11/11	HHW	207	HSWON6	HamCam	52.91	1.69	18/06/2011	5.00	TRUE	1	TRUE	TRUE	CLEAN SAND	A
CEND 11/11	HHW	208	HSWON9	HamCam	52.91	1.69	18/06/2011	11.00	TRUE	1	TRUE	TRUE	CLEAN SAND	A
CEND 11/11	HHW	209	HSWON11	HamCam	52.91	1.69	18/06/2011	11.00	TRUE	1	TRUE	TRUE	CLEAN SAND	A
CEND 11/11	HHW	210	HSWON12	HamCam	52.91	1.70	18/06/2011	7.00	TRUE	1	TRUE	TRUE	CLEAN SAND	A
CEND 11/11	HHW	211	HSWON14	HamCam	52.91	1.69	18/06/2011	8.00	TRUE	1	TRUE	TRUE	CLEAN SAND	A
CEND 11/11	HHW	212	HSWON13	HamCam	52.91	1.69	18/06/2011	12.00	TRUE	1	TRUE	TRUE	CLEAN SAND	A
CEND 11/11	HHW	213	HSWON3	HamCam	52.91	1.69	18/06/2011	12.00	TRUE	1	TRUE	TRUE	CLEAN SAND	A
CEND 11/11	HHW	214	HSWON8	HamCam	52.91	1.69	18/06/2011	12.00	TRUE	1	TRUE	TRUE	CLEAN SAND	A
CEND 11/11	HHW	215	HSWON2	HamCam	52.91	1.69	18/06/2011	10.00	TRUE	1	TRUE	TRUE	CLEAN SAND	A
CEND 11/11	HHW	216	HSWON1	HamCam	52.91	1.69	18/06/2011	8.00	TRUE	1	TRUE	TRUE	CLEAN SAND	A
CEND 11/11	HHW	217	HSWON10	HamCam	52.91	1.69	18/06/2011	11.00	TRUE	1	TRUE	TRUE	CLEAN SAND	A
CEND 11/11	HHW	218	HSWON15	HamCam	52.91	1.69	18/06/2011	0.00	TRUE	1	TRUE	TRUE	CLEN SAND	A
CEND 11/11	HHW	219	HSWON4	HamCam	52.91	1.69	18/06/2011	11.00	TRUE	1	TRUE	TRUE	CLEAN SAND	A
CEND 11/11	HHW	220	HSWON5	HamCam	0.00	0.00	18/06/2011	3.00	TRUE	1	TRUE	TRUE	CLEAN SAND	A
CEND 11/11	HHW	220	HSWON5	HamCam	52.91	1.69	18/06/2011	0.00	FALSE	1	FALSE	FALSE		X
CEND 11/11	HHW	221	HSWON7	HamCam	52.91	1.69	18/06/2011	0.00	FALSE	1	FALSE	FALSE		X
CEND 11/11	HHW	221	HSWON7	HamCam	0.00	0.00	18/06/2011	10.00	TRUE	1	TRUE	TRUE	CLEAN SAND	A
CEND 11/11	HHW	222	HSWONDC	DropCam	52.91	1.69	18/06/2011	0.00	FALSE	1	FALSE	FALSE		A
CEND 11/11	HHW	222	HSWONDC	DropCam	52.91	1.69	18/06/2011	0.00	FALSE	1	FALSE	FALSE		A
CEND 11/11	HHW	223	HHW_SS_MB	EdgeTech 4200	52.92	2.05	18/06/2011	0.00	FALSE	1	FALSE	FALSE		CL1
CEND 11/11	HHW	223	HHW_SS_MB	EdgeTech 4200	52.90	1.99	18/06/2011	0.00	FALSE	1	FALSE	FALSE		CL1
CEND 11/11	HHW	223	HHW_SS_MB	EdgeTech 4200	52.82	1.97	18/06/2011	0.00	FALSE	1	FALSE	FALSE		HHW31
CEND 11/11	HHW	223	HHW_SS_MB	EdgeTech 4200	52.79	1.98	18/06/2011	0.00	FALSE	1	FALSE	FALSE		HHW31
CEND 11/11	HHW	223	HHW_SS_MB	EdgeTech 4200	52.92	1.96	18/06/2011	0.00	FALSE	1	FALSE	FALSE		HHW8
CEND 11/11	HHW	223	HHW_SS_MB	EdgeTech 4200	52.86	2.02	18/06/2011	0.00	FALSE	1	FALSE	FALSE		HHW8
CEND 11/11	HHW	223	HHW_SS_MB	EdgeTech 4200	52.81	1.99	18/06/2011	0.00	FALSE	1	FALSE	FALSE		HHW23

Cruise code	Area name	Station no.	Station code	Gear name	Latitude (degrees)	Longitude (degrees)	Date sampled	Volume of sample (litres)	Photo?	Sieve mesh size (mm)	PSA	Macrofauna	Sediment type	Replicate
CEND 11/11	HHW	223	HHW_SS_MB	EdgeTech 4200	52.81	1.96	18/06/2011	0.00	FALSE	1	FALSE	FALSE		HHW23
CEND 11/11	HHW	223	HHW_SS_MB	EdgeTech 4200	52.81	1.96	18/06/2011	0.00	FALSE	1	FALSE	FALSE		TRANSIT TO HHW23
CEND 11/11	HHW	223	HHW_SS_MB	EdgeTech 4200	52.80	1.96	18/06/2011	0.00	FALSE	1	FALSE	FALSE		TRANSIT TO HHW23
CEND 11/11	HHW	223	HHW_SS_MB	EdgeTech 4200	52.90	1.99	18/06/2011	0.00	FALSE	1	FALSE	FALSE		TRANSIT TO CL1
CEND 11/11	HHW	223	HHW_SS_MB	EdgeTech 4200	52.92	1.96	18/06/2011	0.00	FALSE	1	FALSE	FALSE		TRANSIT TO CL1
CEND 11/11	HHW	223	HHW_SS_MB	EdgeTech 4200	52.79	1.98	18/06/2011	0.00	FALSE	1	FALSE	FALSE		TRANSIT TO 31
CEND 11/11	HHW	223	HHW_SS_MB	EdgeTech 4200	52.81	1.94	18/06/2011	0.00	FALSE	1	FALSE	FALSE		TRANSIT TO 31
CEND 11/11	HHW	223	HHW_SS_MB	EdgeTech 4200	52.95	1.99	18/06/2011	0.00	FALSE	1	FALSE	FALSE		HHW10
CEND 11/11	HHW	223	HHW_SS_MB	EdgeTech 4200	52.89	2.13	18/06/2011	0.00	FALSE	1	FALSE	FALSE		HHW10
CEND 11/11	HHW	223	HHW_SS_MB	EdgeTech 4200	52.89	2.13	18/06/2011	0.00	FALSE	1	FALSE	FALSE		TRANSIT TO 10
CEND 11/11	HHW	223	HHW_SS_MB	EdgeTech 4200	52.90	2.13	18/06/2011	0.00	FALSE	1	FALSE	FALSE		TRANSIT TO 10
CEND 11/11	HHW	223	HHW_SS_MB	EdgeTech 4200	52.95	1.99	18/06/2011	0.00	FALSE	1	FALSE	FALSE		TRANSIT TO HHW9
CEND 11/11	HHW	223	HHW_SS_MB	EdgeTech 4200	52.93	2.05	18/06/2011	0.00	FALSE	1	FALSE	FALSE		TRANSIT TO HHW9
CEND 11/11	HHW	223	HHW_SS_MB	EdgeTech 4200	52.81	1.96	18/06/2011	0.00	FALSE	1	FALSE	FALSE		TRANSIT TO GAT REEF
CEND 11/11	HHW	223	HHW_SS_MB	EdgeTech 4200	52.90	1.69	18/06/2011	0.00	FALSE	1	FALSE	FALSE		TRANSIT TO GAT REEF
CEND 11/11	HHW	223	HHW_SS_MB	EdgeTech 4200	52.80	2.00	18/06/2011	0.00	FALSE	1	FALSE	FALSE		HHW28
CEND 11/11	HHW	223	HHW_SS_MB	EdgeTech 4200	52.80	1.96	18/06/2011	0.00	FALSE	1	FALSE	FALSE		HHW28
CEND 11/11	HHW	223	HHW_SS_MB	EdgeTech 4200	52.90	2.13	18/06/2011	0.00	FALSE	1	FALSE	FALSE		HHW9
CEND 11/11	HHW	223	HHW_SS_MB	EdgeTech 4200	52.95	1.99	18/06/2011	0.00	FALSE	1	FALSE	FALSE		HHW9
CEND 11/11	HHW	223	HHW_SS_MB	EdgeTech 4200	52.81	1.99	18/06/2011	0.00	FALSE	1	FALSE	FALSE		TRANSIT TO HHW25

Cruise code	Area name	Station no.	Station code	Gear name	Latitude (degrees)	Longitude (degrees)	Date sampled	Volume of sample (litres)	Photo?	Sieve mesh size (mm)	PSA	Macrofauna	Sediment type	Replicate
CEND 11/11	HHW	223	HHW_SS_MB	EdgeTech 4200	52.80	2.00	18/06/2011	0.00	FALSE	1	FALSE	FALSE		TRANSIT TO HHW25
CEND 11/11	HHW	223	HHW_SS_MB	EdgeTech 4200	52.81	2.00	18/06/2011	0.00	FALSE	1	FALSE	FALSE		HHW26
CEND 11/11	HHW	223	HHW_SS_MB	EdgeTech 4200	52.80	1.96	18/06/2011	0.00	FALSE	1	FALSE	FALSE		HHW26
CEND 11/11	HHW	223	HHW_SS_MB	EdgeTech 4200	52.81	1.99	18/06/2011	0.00	FALSE	1	FALSE	FALSE		TRANSIT TO HHW24
CEND 11/11	HHW	223	HHW_SS_MB	EdgeTech 4200	52.81	1.99	18/06/2011	0.00	FALSE	1	FALSE	FALSE		TRANSIT TO HHW24
CEND 11/11	HHW	223	HHW_SS_MB	EdgeTech 4200	52.81	1.96	18/06/2011	0.00	FALSE	1	FALSE	FALSE		HHW24
CEND 11/11	HHW	223	HHW_SS_MB	EdgeTech 4200	52.81	1.99	18/06/2011	0.00	FALSE	1	FALSE	FALSE		HHW24
CEND 11/11	HHW	223	HHW_SS_MB	EdgeTech 4200	52.80	1.96	18/06/2011	0.00	FALSE	1	FALSE	FALSE		TRANSIT TO HHW28
CEND 11/11	HHW	223	HHW_SS_MB	EdgeTech 4200	52.79	1.96	18/06/2011	0.00	FALSE	1	FALSE	FALSE		TRANSIT TO HHW28
CEND 11/11	HHW	223	HHW_SS_MB	EdgeTech 4200	52.86	2.02	18/06/2011	0.00	FALSE	1	FALSE	FALSE		TRANSIT TO HHW8
CEND 11/11	HHW	223	HHW_SS_MB	EdgeTech 4200	52.82	1.97	18/06/2011	0.00	FALSE	1	FALSE	FALSE		TRANSIT TO HHW8
CEND 11/11	HHW	223	HHW_SS_MB	EdgeTech 4200	52.80	1959.00	18/06/2011	0.00	FALSE	1	FALSE	FALSE		TURN TO HHW26
CEND 11/11	HHW	223	HHW_SS_MB	EdgeTech 4200	52.80	1.96	18/06/2011	0.00	FALSE	1	FALSE	FALSE		TURN TO HHW26
CEND 11/11	HHW	223	HHW_SS_MB	EdgeTech 4200	52.80	1.96	18/06/2011	0.00	FALSE	1	FALSE	FALSE		HHW25
CEND 11/11	HHW	223	HHW_SS_MB	EdgeTech 4200	52.81	1.99	18/06/2011	0.00	FALSE	1	FALSE	FALSE		HHW25
CEND 11/11	HHW	223	HHW_SS_MB	EdgeTech 4200	52.80	2.00	18/06/2011	0.00	FALSE	1	FALSE	FALSE		TURN TO HHW27
CEND 11/11	HHW	223	HHW_SS_MB	EdgeTech 4200	52.81	2.00	18/06/2011	0.00	FALSE	1	FALSE	FALSE		TURN TO HHW27
CEND 11/11	HHW	223	HHW_SS_MB	EdgeTech 4200	52.79	1.96	18/06/2011	0.00	FALSE	1	FALSE	FALSE		HHW27
CEND 11/11	HHW	223	HHW_SS_MB	EdgeTech 4200	52.80	2.00	18/06/2011	0.00	FALSE	1	FALSE	FALSE		HHW27
CEND 11/11	HHW	223	HHW_SS_MB	EdgeTech 4200	52.80	1.96	18/06/2011	0.00	FALSE	1	FALSE	FALSE		TRANSIT TO HHW29

Cruise code	Area name	Station no.	Station code	Gear name	Latitude (degrees)	Longitude (degrees)	Date sampled	Volume of sample (litres)	Photo?	Sieve mesh size (mm)	PSA	Macrofauna	Sediment type	Replicate
CEND 11/11	HHW	223	HHW_SS_MB	EdgeTech 4200	52.79	1.96	18/06/2011	0.00	FALSE	1	FALSE	FALSE		TRANSIT TO HHW29
CEND 11/11	HHW	223	HHW_SS_MB	EdgeTech 4200	52.80	2.00	18/06/2011	0.00	FALSE	1	FALSE	FALSE		HHW29
CEND 11/11	HHW	223	HHW_SS_MB	EdgeTech 4200	52.80	1.93	18/06/2011	0.00	FALSE	1	FALSE	FALSE		HHW29
CEND 11/11	HHW	223	HHW_SS_MB	EdgeTech 4200	52.80	2.00	18/06/2011	0.00	FALSE	1	FALSE	FALSE		TRANSIT TO HHW30
CEND 11/11	HHW	223	HHW_SS_MB	EdgeTech 4200	52.80	1.98	18/06/2011	0.00	FALSE	1	FALSE	FALSE		TRANSIT TO HHW30
CEND 11/11	HHW	223	HHW_SS_MB	EdgeTech 4200	52.79	1.96	18/06/2011	0.00	FALSE	1	FALSE	FALSE		HHW30
CEND 11/11	HHW	223	HHW_SS_MB	EdgeTech 4200	52.80	2.00	18/06/2011	0.00	FALSE	1	FALSE	FALSE		HHW30
CEND 11/11	HHW	223	HHW_SS_MB	EdgeTech 4200	52.81	1.99	18/06/2011	0.00	FALSE	1	FALSE	FALSE		HHW22
CEND 11/11	HHW	223	HHW_SS_MB	EdgeTech 4200	52.81	1.96	18/06/2011	0.00	FALSE	1	FALSE	FALSE		HHW22
CEND 11/11	HHW	223	HHW_SS_MB	Simrad EM3000D Multibeam	52.92	2.05	18/06/2011	0.00	FALSE	1	FALSE	FALSE		CL1
CEND 11/11	HHW	223	HHW_SS_MB	Simrad EM3000D Multibeam	52.90	1.99	18/06/2011	0.00	FALSE	1	FALSE	FALSE		CL1
CEND 11/11	HHW	223	HHW_SS_MB	Simrad EM3000D Multibeam	52.82	1.97	18/06/2011	0.00	FALSE	1	FALSE	FALSE		HHW31
CEND 11/11	HHW	223	HHW_SS_MB	Simrad EM3000D Multibeam	52.79	1.98	18/06/2011	0.00	FALSE	1	FALSE	FALSE		HHW31
CEND 11/11	HHW	223	HHW_SS_MB	Simrad EM3000D Multibeam	52.92	1.96	18/06/2011	0.00	FALSE	1	FALSE	FALSE		HHW8
CEND 11/11	HHW	223	HHW_SS_MB	Simrad EM3000D Multibeam	52.86	2.02	18/06/2011	0.00	FALSE	1	FALSE	FALSE		HHW8
CEND 11/11	HHW	223	HHW_SS_MB	Simrad EM3000D Multibeam	52.81	1.99	18/06/2011	0.00	FALSE	1	FALSE	FALSE		HHW23
CEND 11/11	HHW	223	HHW_SS_MB	Simrad EM3000D Multibeam	52.81	1.96	18/06/2011	0.00	FALSE	1	FALSE	FALSE		HHW23

Cruise code	Area name	Station no.	Station code	Gear name	Latitude (degrees)	Longitude (degrees)	Date sampled	Volume of sample (litres)	Photo?	Sieve mesh size (mm)	PSA	Macrofauna	Sediment type	Replicate
CEND 11/11	HHW	223	HHW_SS_MB	Simrad EM3000D Multibeam	52.81	1.96	18/06/2011	0.00	FALSE	1	FALSE	FALSE		TRANSIT TO HHW23
CEND 11/11	HHW	223	HHW_SS_MB	Simrad EM3000D Multibeam	52.80	1.96	18/06/2011	0.00	FALSE	1	FALSE	FALSE		TRANSIT TO HHW23
CEND 11/11	HHW	223	HHW_SS_MB	Simrad EM3000D Multibeam	52.90	1.99	18/06/2011	0.00	FALSE	1	FALSE	FALSE		TRANSIT TO CL1
CEND 11/11	HHW	223	HHW_SS_MB	Simrad EM3000D Multibeam	52.92	1.96	18/06/2011	0.00	FALSE	1	FALSE	FALSE		TRANSIT TO CL1
CEND 11/11	HHW	223	HHW_SS_MB	Simrad EM3000D Multibeam	52.79	1.98	18/06/2011	0.00	FALSE	1	FALSE	FALSE		TRANSIT TO 31
CEND 11/11	HHW	223	HHW_SS_MB	Simrad EM3000D Multibeam	52.81	1.94	18/06/2011	0.00	FALSE	1	FALSE	FALSE		TRANSIT TO 31
CEND 11/11	HHW	223	HHW_SS_MB	Simrad EM3000D Multibeam	52.95	1.99	18/06/2011	0.00	FALSE	1	FALSE	FALSE		HHW10
CEND 11/11	HHW	223	HHW_SS_MB	Simrad EM3000D Multibeam	52.89	2.13	18/06/2011	0.00	FALSE	1	FALSE	FALSE		HHW10
CEND 11/11	HHW	223	HHW_SS_MB	Simrad EM3000D Multibeam	52.89	2.13	18/06/2011	0.00	FALSE	1	FALSE	FALSE		TRANSIT TO 10
CEND 11/11	HHW	223	HHW_SS_MB	Simrad EM3000D Multibeam	52.90	2.13	18/06/2011	0.00	FALSE	1	FALSE	FALSE		TRANSIT TO 10
CEND 11/11	HHW	223	HHW_SS_MB	Simrad EM3000D Multibeam	52.95	1.99	18/06/2011	0.00	FALSE	1	FALSE	FALSE		TRANSIT TO HHW9
CEND 11/11	HHW	223	HHW_SS_MB	Simrad EM3000D Multibeam	52.93	2.05	18/06/2011	0.00	FALSE	1	FALSE	FALSE		TRANSIT TO HHW9
CEND 11/11	HHW	223	HHW_SS_MB	Simrad EM3000D Multibeam	52.81	1.96	18/06/2011	0.00	FALSE	1	FALSE	FALSE		TRANSIT TO GAT REEF
CEND 11/11	HHW	223	HHW_SS_MB	Simrad EM3000D Multibeam	52.90	1.69	18/06/2011	0.00	FALSE	1	FALSE	FALSE		TRANSIT TO GAT REEF
CEND 11/11	HHW	223	HHW_SS_MB	Simrad EM3000D Multibeam	52.80	2.00	18/06/2011	0.00	FALSE	1	FALSE	FALSE		HHW28

Cruise code	Area name	Station no.	Station code	Gear name	Latitude (degrees)	Longitude (degrees)	Date sampled	Volume of sample (litres)	Photo?	Sieve mesh size (mm)	PSA	Macrofauna	Sediment type	Replicate
CEND 11/11	HHW	223	HHW_SS_MB	Simrad EM3000D Multibeam	52.80	1.96	18/06/2011	0.00	FALSE	1	FALSE	FALSE		HHW28
CEND 11/11	HHW	223	HHW_SS_MB	Simrad EM3000D Multibeam	52.90	2.13	18/06/2011	0.00	FALSE	1	FALSE	FALSE		HHW9
CEND 11/11	HHW	223	HHW_SS_MB	Simrad EM3000D Multibeam	52.95	1.99	18/06/2011	0.00	FALSE	1	FALSE	FALSE		HHW9
CEND 11/11	HHW	223	HHW_SS_MB	Simrad EM3000D Multibeam	52.81	1.99	18/06/2011	0.00	FALSE	1	FALSE	FALSE		TRANSIT TO HHW25
CEND 11/11	HHW	223	HHW_SS_MB	Simrad EM3000D Multibeam	52.80	2.00	18/06/2011	0.00	FALSE	1	FALSE	FALSE		TRANSIT TO HHW25
CEND 11/11	HHW	223	HHW_SS_MB	Simrad EM3000D Multibeam	52.81	2.00	18/06/2011	0.00	FALSE	1	FALSE	FALSE		HHW26
CEND 11/11	HHW	223	HHW_SS_MB	Simrad EM3000D Multibeam	52.80	1.96	18/06/2011	0.00	FALSE	1	FALSE	FALSE		HHW26
CEND 11/11	HHW	223	HHW_SS_MB	Simrad EM3000D Multibeam	52.81	1.99	18/06/2011	0.00	FALSE	1	FALSE	FALSE		TRANSIT TO HHW24
CEND 11/11	HHW	223	HHW_SS_MB	Simrad EM3000D Multibeam	52.81	1.99	18/06/2011	0.00	FALSE	1	FALSE	FALSE		TRANSIT TO HHW24
CEND 11/11	HHW	223	HHW_SS_MB	Simrad EM3000D Multibeam	52.81	1.96	18/06/2011	0.00	FALSE	1	FALSE	FALSE		HHW24
CEND 11/11	HHW	223	HHW_SS_MB	Simrad EM3000D Multibeam	52.81	1.99	18/06/2011	0.00	FALSE	1	FALSE	FALSE		HHW24
CEND 11/11	HHW	223	HHW_SS_MB	Simrad EM3000D Multibeam	52.80	1.96	18/06/2011	0.00	FALSE	1	FALSE	FALSE		TRANSIT TO HHW28
CEND 11/11	HHW	223	HHW_SS_MB	Simrad EM3000D Multibeam	52.79	1.96	18/06/2011	0.00	FALSE	1	FALSE	FALSE		TRANSIT TO HHW28
CEND 11/11	HHW	223	HHW_SS_MB	Simrad EM3000D Multibeam	52.86	2.02	18/06/2011	0.00	FALSE	1	FALSE	FALSE		TRANSIT TO HHW8
CEND 11/11	HHW	223	HHW_SS_MB	Simrad EM3000D Multibeam	52.82	1.97	18/06/2011	0.00	FALSE	1	FALSE	FALSE		TRANSIT TO HHW8

Cruise code	Area name	Station no.	Station code	Gear name	Latitude (degrees)	Longitude (degrees)	Date sampled	Volume of sample (litres)	Photo?	Sieve mesh size (mm)	PSA	Macrofauna	Sediment type	Replicate
CEND 11/11	HHW	223	HHW_SS_MB	Simrad EM3000D Multibeam	52.80	1959.00	18/06/2011	0.00	FALSE	1	FALSE	FALSE		TURN TO HHW26
CEND 11/11	HHW	223	HHW_SS_MB	Simrad EM3000D Multibeam	52.80	1.96	18/06/2011	0.00	FALSE	1	FALSE	FALSE		TURN TO HHW26
CEND 11/11	HHW	223	HHW_SS_MB	Simrad EM3000D Multibeam	52.80	1.96	18/06/2011	0.00	FALSE	1	FALSE	FALSE		HHW25
CEND 11/11	HHW	223	HHW_SS_MB	Simrad EM3000D Multibeam	52.81	1.99	18/06/2011	0.00	FALSE	1	FALSE	FALSE		HHW25
CEND 11/11	HHW	223	HHW_SS_MB	Simrad EM3000D Multibeam	52.80	2.00	18/06/2011	0.00	FALSE	1	FALSE	FALSE		TURN TO HHW27
CEND 11/11	HHW	223	HHW_SS_MB	Simrad EM3000D Multibeam	52.81	2.00	18/06/2011	0.00	FALSE	1	FALSE	FALSE		TURN TO HHW27
CEND 11/11	HHW	223	HHW_SS_MB	Simrad EM3000D Multibeam	52.79	1.96	18/06/2011	0.00	FALSE	1	FALSE	FALSE		HHW27
CEND 11/11	HHW	223	HHW_SS_MB	Simrad EM3000D Multibeam	52.80	2.00	18/06/2011	0.00	FALSE	1	FALSE	FALSE		HHW27
CEND 11/11	HHW	223	HHW_SS_MB	Simrad EM3000D Multibeam	52.80	1.96	18/06/2011	0.00	FALSE	1	FALSE	FALSE		TRANSIT TO HHW29
CEND 11/11	HHW	223	HHW_SS_MB	Simrad EM3000D Multibeam	52.79	1.96	18/06/2011	0.00	FALSE	1	FALSE	FALSE		TRANSIT TO HHW29
CEND 11/11	HHW	223	HHW_SS_MB	Simrad EM3000D Multibeam	52.80	2.00	18/06/2011	0.00	FALSE	1	FALSE	FALSE		HHW29
CEND 11/11	HHW	223	HHW_SS_MB	Simrad EM3000D Multibeam	52.80	1.93	18/06/2011	0.00	FALSE	1	FALSE	FALSE		HHW29
CEND 11/11	HHW	223	HHW_SS_MB	Simrad EM3000D Multibeam	52.80	2.00	18/06/2011	0.00	FALSE	1	FALSE	FALSE		TRANSIT TO HHW30
CEND 11/11	HHW	223	HHW_SS_MB	Simrad EM3000D Multibeam	52.80	1.98	18/06/2011	0.00	FALSE	1	FALSE	FALSE		TRANSIT TO HHW30
CEND 11/11	HHW	223	HHW_SS_MB	Simrad EM3000D Multibeam	52.79	1.96	18/06/2011	0.00	FALSE	1	FALSE	FALSE		HHW30

Cruise code	Area name	Station no.	Station code	Gear name	Latitude (degrees)	Longitude (degrees)	Date sampled	Volume of sample (litres)	Photo?	Sieve mesh size (mm)	PSA	Macrofauna	Sediment type	Replicate
CEND 11/11	HHW	223	HHW_SS_MB	Simrad EM3000D Multibeam	52.80	2.00	18/06/2011	0.00	FALSE	1	FALSE	FALSE		HHW30
CEND 11/11	HHW	223	HHW_SS_MB	Simrad EM3000D Multibeam	52.81	1.99	18/06/2011	0.00	FALSE	1	FALSE	FALSE		HHW22
CEND 11/11	HHW	223	HHW_SS_MB	Simrad EM3000D Multibeam	52.81	1.96	18/06/2011	0.00	FALSE	1	FALSE	FALSE		HHW22
CEND 11/11	HHW	225	HHW11	EdgeTech 4200	53.01	1.95	19/06/2011	0.00	FALSE	1	FALSE	FALSE		HHW12
CEND 11/11	HHW	225	HHW11	EdgeTech 4200	52.90	2.18	19/06/2011	0.00	FALSE	1	FALSE	FALSE		HHW12
CEND 11/11	HHW	225	HHW11	EdgeTech 4200	52.90	2.18	19/06/2011	0.00	FALSE	1	FALSE	FALSE		TRANSIT TO HHW 12A
CEND 11/11	HHW	225	HHW11	EdgeTech 4200	52.90	2.18	19/06/2011	0.00	FALSE	1	FALSE	FALSE		TRANSIT TO HHW 12A
CEND 11/11	HHW	225	HHW11	EdgeTech 4200	53.02	1.98	19/06/2011	0.00	FALSE	1	FALSE	FALSE		TURN TO 13
CEND 11/11	HHW	225	HHW11	EdgeTech 4200	53.01	1.98	19/06/2011	0.00	FALSE	1	FALSE	FALSE		TURN TO 13
CEND 11/11	HHW	225	HHW11	EdgeTech 4200	52.91	2.17	19/06/2011	0.00	FALSE	1	FALSE	FALSE		HHW13
CEND 11/11	HHW	225	HHW11	EdgeTech 4200	53.02	1.98	19/06/2011	0.00	FALSE	1	FALSE	FALSE		HHW13
CEND 11/11	HHW	225	HHW11	EdgeTech 4200	52.94	2.12	19/06/2011	0.00	FALSE	1	FALSE	FALSE		HHW11
CEND 11/11	HHW	225	HHW11	EdgeTech 4200	52.90	2.18	19/06/2011	0.00	FALSE	1	FALSE	FALSE		HHW11
CEND 11/11	HHW	225	HHW11	Simrad EM3000D Multibeam	53.01	1.95	19/06/2011	0.00	FALSE	1	FALSE	FALSE		HHW12
CEND 11/11	HHW	225	HHW11	Simrad EM3000D Multibeam	52.90	2.18	19/06/2011	0.00	FALSE	1	FALSE	FALSE		HHW12
CEND 11/11	HHW	225	HHW11	Simrad EM3000D Multibeam	52.90	2.18	19/06/2011	0.00	FALSE	1	FALSE	FALSE		TRANSIT TO HHW 12A
CEND 11/11	HHW	225	HHW11	Simrad EM3000D Multibeam	52.90	2.18	19/06/2011	0.00	FALSE	1	FALSE	FALSE		TRANSIT TO HHW 12A
CEND 11/11	HHW	225	HHW11	Simrad EM3000D Multibeam	53.02	1.98	19/06/2011	0.00	FALSE	1	FALSE	FALSE		TURN TO 13

Cruise code	Area name	Station no.	Station code	Gear name	Latitude (degrees)	Longitude (degrees)	Date sampled	Volume of sample (litres)	Photo?	Sieve mesh size (mm)	PSA	Macrofauna	Sediment type	Replicate
CEND 11/11	HHW	225	HHW11	Simrad EM3000D Multibeam	53.01	1.98	19/06/2011	0.00	FALSE	1	FALSE	FALSE		TURN TO 13
CEND 11/11	HHW	225	HHW11	Simrad EM3000D Multibeam	52.91	2.17	19/06/2011	0.00	FALSE	1	FALSE	FALSE		HHW13
CEND 11/11	HHW	225	HHW11	Simrad EM3000D Multibeam	53.02	1.98	19/06/2011	0.00	FALSE	1	FALSE	FALSE		HHW13
CEND 11/11	HHW	225	HHW11	Simrad EM3000D Multibeam	52.94	2.12	19/06/2011	0.00	FALSE	1	FALSE	FALSE		HHW11
CEND 11/11	HHW	225	HHW11	Simrad EM3000D Multibeam	52.90	2.18	19/06/2011	0.00	FALSE	1	FALSE	FALSE		HHW11
CEND 11/11	HHW	227	HTB03	HamCam	52.93	1.83	19/06/2011	12.00	TRUE	1	TRUE	TRUE	CLEAN SAND	A
CEND 11/11	HHW	228	HTB15	HamCam	52.93	1.83	19/06/2011	0.00	TRUE	1	TRUE	TRUE	CLEAN SAND	A
CEND 11/11	HHW	229	HTB08	HamCam	52.93	1.83	19/06/2011	7.00	TRUE	1	TRUE	TRUE	GRAVELLY SAND	A
CEND 11/11	HHW	230	HTB05	HamCam	52.93	1.84	19/06/2011	3.00	TRUE	1	TRUE	TRUE	GRAVELLY SAND WITH LARGE PIECE OF FLINT	A
CEND 11/11	HHW	231	HTB5	HamCam	52.93	1.84	19/06/2011	5.00	TRUE	1	TRUE	TRUE	SHELLY GRAVELLY SAND	A
CEND 11/11	HHW	232	HTB09	HamCam	52.93	1.83	19/06/2011	5.00	TRUE	1	TRUE	TRUE	GRAVELLY SHELLY SAND	A
CEND 11/11	HHW	233	HTB02	HamCam	52.93	1.83	19/06/2011	11.00	TRUE	1	TRUE	TRUE	GRAVELLY SHELLY SAND	A
CEND 11/11	HHW	234	HTB12	HamCam	52.93	1.83	19/06/2011	3.00	TRUE	1	TRUE	TRUE	GRAVELLY SHELLY SAND	A
CEND 11/11	HHW	235	HTB01	HamCam	52.93	1.83	19/06/2011	11.00	TRUE	1	TRUE	TRUE	MUDDY GRAVELLY SHELLY SAND	A
CEND 11/11	HHW	236	HTB7	HamCam	52.93	1.83	19/06/2011	7.00	TRUE	1	TRUE	TRUE	SHELY SANDY GRAVEL	A
CEND 11/11	HHW	237	HTB11	HamCam	52.93	1.83	19/06/2011	10.00	TRUE	1	TRUE	TRUE	CLEAN SAND	A
CEND 11/11	HHW	238	HTB14	HamCam	52.93	1.83	19/06/2011	11.00	TRUE	1	TRUE	TRUE	CLEAN SAND	A
CEND 11/11	HHW	239	HTB13	HamCam	52.93	1.83	19/06/2011	8.00	TRUE	1	TRUE	TRUE	SHELLY GRAVELLY SAND	A
CEND 11/11	HHW	240	HTB6	HamCam	52.93	1.83	19/06/2011	8.00	TRUE	1	TRUE	TRUE	GRAVELLY MUDDY SHELLY SAND	A
CEND 11/11	HHW	241	HTB10	HamCam	52.93	1.83	19/06/2011	12.00	TRUE	1	TRUE	TRUE	SLIGHTLY SHELLY SAND	A
CEND 11/11	HHW	242	HTBCD	DropCam	52.93	1.83	19/06/2011	0.00	FALSE	1	FALSE	FALSE		A
CEND 11/11	HHW	242	HTBCD	DropCam	52.94	1.85	19/06/2011	0.00	FALSE	1	FALSE	FALSE		A
CEND 11/11	HHW	243	HTDDC	HamCam	52.94	1.85	20/06/2011	0.00	FALSE	1	FALSE	FALSE		A
CEND 11/11	HHW	244	HTD4	HamCam	52.94	1.85	20/06/2011	8.00	TRUE	1	TRUE	TRUE	SLIGHTLY GRAVELLY MUDDY SAND	A
CEND 11/11	HHW	245	HTD14	HamCam	52.94	1.85	20/06/2011	5.00	TRUE	1	TRUE	TRUE	SLIGHTLY GRAVELLY MUDDY SAND	A

Cruise code	Area name	Station no.	Station code	Gear name	Latitude (degrees)	Longitude (degrees)	Date sampled	Volume of sample (litres)	Photo?	Sieve mesh size (mm)	PSA	Macrofauna	Sediment type	Replicate
CEND 11/11	HHW	246	HTD15	HamCam	52.94	1.85	20/06/2011	10.00	TRUE	1	TRUE	TRUE	SLIGHTLY GRAVELLY MUDDY SAND	A
CEND 11/11	HHW	247	HTD6	HamCam	52.94	1.85	20/06/2011	4.00	TRUE	1	TRUE	TRUE	SLIGHTLY GRAVELLY MUD	A
CEND 11/11	HHW	248	HTD11	HamCam	52.94	1.85	20/06/2011	7.00	TRUE	1	TRUE	TRUE	SLIGHTLY GRAVELLY MUDDY SAND	A
CEND 11/11	HHW	249	HTD5	HamCam	52.94	1.85	20/06/2011	6.00	TRUE	1	TRUE	TRUE	SLIGHTLY GRAVELLY MUDDY SAND	A
CEND 11/11	HHW	250	HTD2	HamCam	52.94	1.85	20/06/2011	5.00	TRUE	1	TRUE	TRUE	SLIGHTLY GRAVELLY MUDDY SAND	A
CEND 11/11	HHW	251	HTD10	HamCam	52.94	1.85	20/06/2011	7.00	TRUE	1	TRUE	TRUE	SLIGHTLY GRAVELLY MUDDY SAND	A
CEND 11/11	HHW	252	HTD8	HamCam	52.94	1.85	20/06/2011	6.00	TRUE	1	TRUE	TRUE	GRAVELLY MUDDY SAND	A
CEND 11/11	HHW	253	HTW7	HamCam	52.94	1.85	20/06/2011	7.00	TRUE	1	TRUE	TRUE	SLIGHTLY GRAVELLY MUDDY SAND	A
CEND 11/11	HHW	254	HTD9	HamCam	52.94	1.85	20/06/2011	6.00	TRUE	1	TRUE	TRUE		A
CEND 11/11	HHW	255	HTD1	HamCam	52.94	1.85	20/06/2011	6.00	TRUE	1	TRUE	TRUE	GRAVELLY MUDDY SAND	A
CEND 11/11	HHW	256	HTD12	HamCam	52.94	1.85	20/06/2011	4.00	TRUE	1	TRUE	TRUE	GRAVELLY MUDDY SAND	A
CEND 11/11	HHW	257	HTD3	HamCam	52.94	1.85	20/06/2011	11.00	TRUE	1	TRUE	TRUE	GRAVELLY MUDDY SAND	A
CEND 11/11	HHW	258	HTD13	HamCam	52.94	1.85	20/06/2011	7.00	TRUE	1	TRUE	TRUE	GRAVELLY MUDDY SAND	A
CEND 11/11	HHW	259	HRC5	HamCam	52.99	1.95	20/06/2011	11.00	TRUE	1	TRUE	TRUE	CLEAN SAND	A
CEND 11/11	HHW	260	HRC7	HamCam	52.99	1.95	20/06/2011	3.00	TRUE	1	TRUE	TRUE	CLEAN SAND	A
CEND 11/11	HHW	261	HRC01	HamCam	52.99	1.95	20/06/2011	4.00	TRUE	1	TRUE	TRUE	CLEAN SAND	A
CEND 11/11	HHW	262	HRC12	HamCam	52.99	1.95	20/06/2011	0.00	FALSE	1	FALSE	FALSE		X
CEND 11/11	HHW	262	HRC12	HamCam	52.99	1.95	20/06/2011	9.00	TRUE	1	TRUE	TRUE	CLEAN SAND	A
CEND 11/11	HHW	263	HRC3	HamCam	52.99	1.96	20/06/2011	8.00	TRUE	1	TRUE	TRUE		X
CEND 11/11	HHW	263	HRC3	HamCam	52.99	1.96	20/06/2011	0.00	TRUE	1	TRUE	TRUE	CLEAN SAND	A
CEND 11/11	HHW	264	HRC09	HamCam	52.99	1.96	20/06/2011	13.00	TRUE	1	TRUE	TRUE	CLEAN SAND	A
CEND 11/11	HHW	264	HRC09	HamCam	52.99	1.96	20/06/2011	0.00	FALSE	1	FALSE	FALSE		X
CEND 11/11	HHW	265	HRC6	HamCam	52.99	1.95	20/06/2011	5.00	TRUE	1	TRUE	TRUE	CLEAN SAND	A
CEND 11/11	HHW	266	HRC15	HamCam	52.99	1.95	20/06/2011	7.00	TRUE	1	TRUE	TRUE	CLEAN SAND	A
CEND 11/11	HHW	267	HRC4	HamCam	52.99	1.95	20/06/2011	6.00	TRUE	1	TRUE	TRUE	CLEAN SAND	A
CEND 11/11	HHW	268	HRC14	HamCam	52.99	1.95	20/06/2011	5.00	TRUE	1	TRUE	TRUE	CLEAN SAND	A
CEND 11/11	HHW	268	HRC14	HamCam	52.99	1.95	20/06/2011	0.00	FALSE	1	FALSE	FALSE		X
CEND 11/11	HHW	269	HRC8	HamCam	52.99	1.95	20/06/2011	0.00	TRUE	1	TRUE	TRUE	CLEAN SAND	A
CEND 11/11	HHW	270	HRC10	HamCam	52.99	1.95	20/06/2011	13.00	TRUE	1	TRUE	TRUE	CLEAN SAND	A
CEND 11/11	HHW	271	HRC11	HamCam	52.99	1.95	20/06/2011	5.00	TRUE	1	TRUE	TRUE	CLEAN SAND	A

Cruise code	Area name	Station no.	Station code	Gear name	Latitude (degrees)	Longitude (degrees)	Date sampled	Volume of sample (litres)	Photo?	Sieve mesh size (mm)	PSA	Macrofauna	Sediment type	Replicate
CEND 11/11	HHW	272	HRC2	HamCam	52.99	1.95	20/06/2011	13.00	TRUE	1	TRUE	TRUE	CLEAN SAND	A
CEND 11/11	HHW	273	HRC13	HamCam	52.99	1.95	20/06/2011	8.00	TRUE	1	TRUE	TRUE	CLEAN SAND	A
CEND 11/11	HHW	274	HTDDC	DropCam	53.00	1.98	20/06/2011	0.00	FALSE	1	FALSE	FALSE		A
CEND 11/11	HHW	274	HTDDC	DropCam	52.99	1.95	20/06/2011	0.00	FALSE	1	FALSE	FALSE		A
CEND 11/11	HHW	275	HTDDC	DropCam	53.00	1.98	20/06/2011	0.00	FALSE	1	FALSE	FALSE		A
CEND 11/11	HHW	275	HTDDC	DropCam	53.00	1.97	20/06/2011	0.00	FALSE	1	FALSE	FALSE		A
CEND 11/11	HHW	276	HRT12	HamCam	53.00	1.97	20/06/2011	5.00	TRUE	1	TRUE	TRUE	FINE SAND WITH SHELL FRAGMENTS	A
CEND 11/11	HHW	277	HRT13	HamCam	53.00	1.98	20/06/2011	6.00	TRUE	1	TRUE	TRUE	FINE SAND WITH SHELL FRAGMENTS	A
CEND 11/11	HHW	278	HRT4	HamCam	53.00	1.98	20/06/2011	8.00	TRUE	1	TRUE	TRUE	FINE SAND WITH SHELL FRAGMENTS	A
CEND 11/11	HHW	279	HRT14	HamCam	53.00	1.97	20/06/2011	4.00	TRUE	1	TRUE	TRUE	FINE SAND WITH SHELL FRAGMENTS	A
CEND 11/11	HHW	280	HRT8	HamCam	53.00	1.97	20/06/2011	13.00	TRUE	1	TRUE	TRUE	SINE SAND WITH SHELL FRAGMENTS	A
CEND 11/11	HHW	281	HRT15	HamCam	53.00	1.97	20/06/2011	5.00	TRUE	1	TRUE	TRUE	SLIGHTLY SHELLY MEDIUM SAND	A
CEND 11/11	HHW	282	HRT3	HamCam	53.00	1.97	20/06/2011	0.00	TRUE	1	TRUE	TRUE	GRAVELLY SHELLY SAND	A
CEND 11/11	HHW	283	HRT2	HamCam	53.00	1.97	20/06/2011	4.00	TRUE	1	TRUE	TRUE	MEDIUM SAND	A
CEND 11/11	HHW	284	HRT5	HamCam	53.00	1.98	20/06/2011	11.00	TRUE	1	TRUE	TRUE	SLIGHTLY SHELLY SAND	A
CEND 11/11	HHW	285	HRT7	HamCam	53.00	1.98	20/06/2011	12.00	TRUE	1	TRUE	TRUE	MEDIUM SAND	A
CEND 11/11	HHW	286	HRT1	HamCam	53.00	1.98	20/06/2011	4.00	TRUE	1	TRUE	TRUE	MEDIUM SAND	A
CEND 11/11	HHW	287	HRT10	HamCam	53.00	1.98	20/06/2011	8.00	TRUE	1	TRUE	TRUE	SHELLY SAND	A
CEND 11/11	HHW	288	HRT6	HamCam	53.00	1.98	20/06/2011	8.00	TRUE	1	TRUE	TRUE	MEDIUM SHELLY SAND	A
CEND 11/11	HHW	289	HRT11	HamCam	53.00	1.98	20/06/2011	5.00	TRUE	1	TRUE	TRUE	MEDIUM SAND	A
CEND 11/11	HHW	290	HRT9	HamCam	53.00	1.98	20/06/2011	5.00	TRUE	1	TRUE	TRUE	MEDIUM SAND	A
CEND 11/11	HHW	291	SK1	EdgeTech 4200	53.00	2.10	20/06/2011	0.00	FALSE	1	FALSE	FALSE		SK1
CEND 11/11	HHW	291	SK1	EdgeTech 4200	52.98	2.05	20/06/2011	0.00	FALSE	1	FALSE	FALSE		SK1
CEND 11/11	HHW	291	SK1	Kongsberg EM3002D	53.00	2.10	20/06/2011	0.00	FALSE	1	FALSE	FALSE		SK1
CEND 11/11	HHW	291	SK1	Kongsberg EM3002D	52.98	2.05	20/06/2011	0.00	FALSE	1	FALSE	FALSE		SK1
CEND 11/11	HHW	293	SKD1	HamCam	53.00	2.10	20/06/2011	6.00	TRUE	1	TRUE	TRUE	SAND	A
CEND 11/11	HHW	294	SKD5	HamCam	53.00	2.10	20/06/2011	6.00	TRUE	1	TRUE	TRUE	CLEAN COARSE SAND	A
CEND 11/11	HHW	295	SKD2	HamCam	53.00	2.10	20/06/2011	5.00	TRUE	1	TRUE	TRUE	SLIGHTLY MUDDY SHELLY SAND	A

Cruise code	Area name	Station no.	Station code	Gear name	Latitude (degrees)	Longitude (degrees)	Date sampled	Volume of sample (litres)	Photo?	Sieve mesh size (mm)	PSA	Macrofauna	Sediment type	Replicate
CEND 11/11	HHW	296	SKD3	HamCam	53.00	2.10	20/06/2011	10.00	TRUE	1	TRUE	TRUE	CLEAN COARSE SAND	A
CEND 11/11	HHW	297	SKD4	HamCam	53.00	2.10	20/06/2011	11.00	TRUE	1	TRUE	TRUE	CLEAN COARSE SAND	A
CEND 11/11	HHW	298	SKM1	HamCam	53.00	2.07	20/06/2011	4.00	TRUE	1	TRUE	TRUE	MEDIUM SAND	A
CEND 11/11	HHW	299	SKM4	HamCam	53.00	2.07	20/06/2011	5.00	TRUE	1	TRUE	TRUE	MEDIUM SAND	A
CEND 11/11	HHW	300	SKM5	HamCam	53.00	2.07	20/06/2011	7.00	TRUE	1	TRUE	TRUE	MEDIUM SHELLY SAND	A
CEND 11/11	HHW	301	SKM3	HamCam	53.00	2.07	20/06/2011	0.00	TRUE	1	TRUE	TRUE	MEDIUM SAND	A
CEND 11/11	HHW	302	SKM2	HamCam	53.00	2.07	20/06/2011	12.00	TRUE	1	TRUE	TRUE	MEDIUM SHELLY SAND	A
CEND 11/11	HHW	303	SKS4	HamCam	53.00	2.06	20/06/2011	6.00	TRUE	1	TRUE	TRUE	SLIGHTLY SHELLY SAND	A
CEND 11/11	HHW	304	SKS1	HamCam	52.99	2.07	20/06/2011	11.00	TRUE	1	TRUE	TRUE	MEDIUM SAND	A
CEND 11/11	HHW	305	SKS5	HamCam	52.99	2.07	20/06/2011	11.00	TRUE	1	TRUE	TRUE	MEDIUM SAND	A
CEND 11/11	HHW	306	SKS3	HamCam	52.99	2.07	20/06/2011	12.00	TRUE	1	TRUE	TRUE	FINE SHELLY SAND	A
CEND 11/11	HHW	307	SKS2	HamCam	52.99	2.07	20/06/2011	10.00	TRUE	1	TRUE	TRUE		A
CEND 11/11	HHW	308	SKVS5	HamCam	52.99	2.07	20/06/2011	3.00	TRUE	1	TRUE	TRUE	SHELLY FINE SAND	A
CEND 11/11	HHW	309	SKVS1	HamCam	52.99	2.07	20/06/2011	7.00	TRUE	1	TRUE	TRUE	FINE SAND	A
CEND 11/11	HHW	310	SKVS4	HamCam	52.99	2.07	20/06/2011	10.00	TRUE	1	TRUE	TRUE	FINE SAND	A
CEND 11/11	HHW	311	SKVS2	HamCam	52.99	2.07	20/06/2011	14.00	TRUE	1	TRUE	TRUE	FINE MEDIUM SAND	A
CEND 11/11	HHW	312	SKVS3	HamCam	52.99	2.06	20/06/2011	12.00	TRUE	1	TRUE	TRUE	VERY FINE SAND	A
CEND 11/11	HHW	313	TRANSIT TO W RIDGE REEF	Kongsberg EM3002D	52.87	2.00	20/06/2011	0.00	FALSE	1	FALSE	FALSE		A
CEND 11/11	HHW	313	TRANSIT TO W RIDGE REEF	Kongsberg EM3002D	52.99	2.06	20/06/2011	0.00	FALSE	1	FALSE	FALSE		A
CEND 11/11	HHW	314	WRRN1	DropCam	52.90	1.99	20/06/2011	0.00	FALSE	1	FALSE	FALSE		A
CEND 11/11	HHW	314	WRRN1	DropCam	52.90	1.98	20/06/2011	0.00	FALSE	1	FALSE	FALSE		A
CEND 11/11	HHW	315	WRRC1	DropCam	52.87	2.00	20/06/2011	0.00	FALSE	1	FALSE	FALSE		A
CEND 11/11	HHW	315	WRRC1	DropCam	52.87	2.01	20/06/2011	0.00	FALSE	1	FALSE	FALSE		A
CEND 11/11	HHW	316	WRRS02	DropCam	52.86	2.02	21/06/2011	0.00	FALSE	1	FALSE	FALSE		A
CEND 11/11	HHW	316	WRRS02	DropCam	52.86	2.02	21/06/2011	0.00	FALSE	1	FALSE	FALSE		A
CEND 11/11	HHW	317	HRDC1	DropCam	52.80	1.98	21/06/2011	0.00	FALSE	1	FALSE	FALSE		A
CEND 11/11	HHW	317	HRDC1	DropCam	52.80	1.98	21/06/2011	0.00	FALSE	1	FALSE	FALSE		A
CEND 11/11	HHW	318	HGRDC2	DropCam	52.80	1.99	21/06/2011	0.00	FALSE	1	FALSE	FALSE		A
CEND 11/11	HHW	318	HGRDC2	DropCam	52.81	1.99	21/06/2011	0.00	FALSE	1	FALSE	FALSE		A

Cruise code	Area name	Station no.	Station code	Gear name	Latitude (degrees)	Longitude (degrees)	Date sampled	Volume of sample (litres)	Photo?	Sieve mesh size (mm)	PSA	Macrofauna	Sediment type	Replicate
CEND 11/11	HHW	319	HGRDC	DropCam	52.81	1.98	21/06/2011	0.00	FALSE	1	FALSE	FALSE		A
CEND 11/11	HHW	319	HGRDC	DropCam	52.81	1.97	21/06/2011	0.00	FALSE	1	FALSE	FALSE		A
CEND 11/11	HHW	321	HGR1_7	HamCam	52.80	1.98	21/06/2011	5.00	TRUE	1	TRUE	TRUE	GRAVEL AND MUD	A
CEND 11/11	HHW	322	HGR1	HamCam	52.80	1.98	21/06/2011	3.00	TRUE	1	TRUE	TRUE		A
CEND 11/11	HHW	323	HGR1_11	HamCam	52.80	1.98	21/06/2011	7.00	TRUE	1	TRUE	TRUE	GRAVELLY MUD WITH SAB	A
CEND 11/11	HHW	324	HGR1_10	HamCam	52.80	1.98	21/06/2011	0.00	FALSE	1	FALSE	FALSE	MUDDY GRAVEL WITH SAB	A
CEND 11/11	HHW	325	HGR1_6	HamCam	52.80	1.98	21/06/2011	3.00	TRUE	1	TRUE	TRUE	MUDDY GRAVEL WITH SAB	A
CEND 11/11	HHW	326	HGR1_13	HamCam	52.80	1.98	21/06/2011	6.00	TRUE	1	TRUE	TRUE		A
CEND 11/11	HHW	327	HGR1_9	HamCam	52.80	1.98	21/06/2011	6.00	TRUE	1	TRUE	TRUE	GRAVEL MUD AND SAB	A
CEND 11/11	HHW	328	HGR1_5	HamCam	52.80	1.98	21/06/2011	6.00	TRUE	1	TRUE	TRUE	MUDDY GRAVEL	A
CEND 11/11	HHW	329	HGR1_14	HamCam	52.80	1.98	21/06/2011	10.00	TRUE	1	TRUE	TRUE		A
CEND 11/11	HHW	330	HGR1_8	HamCam	52.80	1.98	21/06/2011	6.00	TRUE	1	TRUE	TRUE		A
CEND 11/11	HHW	331	HGR1_4	HamCam	52.80	1.98	21/06/2011	0.00	TRUE	1	TRUE	TRUE	GRAVELLY MUD	A
CEND 11/11	HHW	332	HGR1_15	HamCam	52.80	1.98	21/06/2011	4.00	TRUE	1	TRUE	TRUE		A
CEND 11/11	HHW	333	HGR1_2	HamCam	52.80	1.98	21/06/2011	8.00	TRUE	1	TRUE	TRUE	GRAVELLY MUD	A
CEND 11/11	HHW	334	HGR1_3	HamCam	52.80	1.98	21/06/2011	0.00	TRUE	1	TRUE	TRUE		A
CEND 11/11	HHW	335	HGR1_12	HamCam	52.80	1.98	21/06/2011	7.00	TRUE	1	TRUE	TRUE		A

Annex 6 Safety alert

Alert No: (HSEQ Office Use Only)	SAFETY ALERT (Form F04(b)) - Please refer to Part 8 For Guidance on completing this form	Cefas

Please use this form to record any uncontrolled hazard, near miss, unsafe act or damage that has taken place whilst working for CEFAS or working at a CEFAS Premises.
This form is available to ALL persons to use! - You do not need to be an employee of CEFAS.
Simply complete Parts 1 & 2 and hand / email to your Team Leader / Manager who will conduct an investigation. We aim to provide you with feedback on your SAFETY Alert within 3 working days, or, when you are due in for your next working shift. (for Contractors / Visitors - please hand to your CEFAS Contact)

Part 1 - Basic Details				(Complete immediately - by the originator)			
1.1 - Date of Alert	15/06/2011			1.2 - Time (24hr) of Alert	16:50		
1.3 - Date of this Report	16/06/2011			1.4 - Time (24hr) of this Report	11:30		
1.5 - Reported By	Paul Whomersley		1.6 - Job Title	SIC	1.7 - Tel No	1502 52403	
1.8 - Division	E&E	1.9 - Group	Ecosystems Effects & processes		1.10 - Team	Marine Ecology	

1.11 - Type of SAFETY Alert? (please mark X in one of the following options - Use the guidance overleaf to assist you if necessary)

UNCONTROLLED HAZARD		UNSAFE ACT	
NEAR MISS	X	ENVIRONMENTAL / PROPERTY DAMAGE	

1.12 - Where did the SAFETY Alert Occur? (Please mark X in one of the following - Provide further detail about the location in Part 2)

LABORATORY		YARD / CAR PARK		OFFICES		CANTEEN	
WORKSHOP		VEHICLE / VESSEL	X	IN THE FIELD	X	OTHER	

Part 2 – Detailed Description (Complete immediately - by the originator)

2.1 - Describe your observations (PROVIDE AS MUCH DETAIL AS POSSIBLE ABOUT THE EVENT)

Starboard winch malfuctioned resulting in the winch cable hauling in. The drop camera frame ran up to the block where the cable was pulled out of the electronics termination point dropping the camera frame over the side of the vessel into 30m of water. The cable end fell on to the deck catching an AB across the shoulders. There were no Cefas staff in the vicinity of the incident (starboard deck).

(use the box provided overleaf for diagrams or additional information if necessary)

2.2 - What immediate actions have you taken (CAN YOU REMOVE OR REDUCE THE DANGER NOW!)

The cause of the malfunction was attributed to a faulty winch remote control. The use of winch remote controls has been suspended. All winch operations are now being controled from the bridge.

2.3 - Do you have any suggestions about how a repeat occurrence can be prevented

Until the true cause of the incident has been fully investigated cannot suggets any other actions than have already been implemented.

Now please pass this form to your Team Leader / Manager!

Annex 7 *Sabellaria spinulosa* reef assessment

Table 1. Sabellaria spinulosa reef structure determination matrix

Reef Structure matrix			Elevation (cm)			
			<2	2 to 5	5 to 10	>10
			Not a reef	Low	Medium	High
Patchiness – (% coverage)	<10%	Not a reef	NOT A REEF	NOT A REEF	NOT A REEF	NOT A REEF
	10-20%	Low	NOT A REEF	LOW	LOW	LOW
	20-30%	Medium	NOT A REEF	LOW	MEDIUM	MEDIUM
	>30%	High	NOT A REEF	LOW	MEDIUM	HIGH

Table 2. Sabellaria spinulosa reef conservation quality matrix

Reef Structure vs area		Area (m^2)			
		<25	25 - 10,000	10,000 - 1,000,000	> 1,000,000
		Not a reef	Low	Medium	High
-Reef Quality (incl. Patchiness and Elevation)	Not a reef	NOT A REEF	NOT A REEF	NOT A REEF	NOT A REEF
	Low	NOT A REEF	LOW	LOW	LOW
	Medium	NOT A REEF	LOW	MEDIUM	MEDIUM
	High	NOT A REEF	MEDIUM	HIGH	HIGH