CENTRE FOR ENVIRONMENT, FISHERIES AND AQUACULTURE SCIENCE LOWESTOFT LABORATORY, SUFFOLK, NR33 0HT

2016 RESEARCH VESSEL PROGRAMME

REPORT: RV Cefas Endeavour **Survey:** CEND1116

STAFF:

Paul McIlwaine (Cefas - Scientist in charge)
Marc Whybrow (Cefas – Marine technician and night shift lead)
Chris Jenkins (Cefas – Day shift lead, side scan sonar data interpretation)
Bill Meadows (Cefas – Hydrographic surveyor/Senior marine technician)
Louise Brown (Cefas – Survey data manager)
Suzanne Ware (Cefas – Lead benthic ecologist)
Neil Needham (Cefas – Marine instrument technician trainee)
Clare Marshall (Cefas – Marine instrument technician trainee)
Andrew Eggett (JNCC – Survey planning lead)
Gemma Singleton (JNCC – Offshore Industries Advisor)
Jennifer Lawson (JNCC – Marine Protected Areas Advisor)
Megan Parry (JNCC – Marine Ecologist)
Phil Ray replaced by Nicola Edwards (NE – Marine Evidence Specialist and Marine Lead Advisor respectively)
Sandra Unterhollenburg replaced by Pete Walker (NE – Marine Advisor and Lead Advisor Marine Data Management and Geographic Information respectively)
Stephen Thomson replaced by Pete Welby (EIFCA – Research Officers - Acoustic imaging specialists)

DURATION: 31st May – 19th June 2016

LOCATION: North Norfolk

AIMS:

The objectives are provided below in order of priority:

Objective 1. Acquire acoustic data to identify locations of topographical features of a series of sandbanks across NNSSR, IDRBNR & HHW.

Objective 1 has three sub-objectives:

i. **Collect acoustic corridors covering each of two case study areas (Indefatigable Bank and Leman Bank).**

ii. **Collect acoustic corridors across thirteen wider characterising transects.**

iii. **Collect acoustic corridors covering beyond sandbank areas at two of the case study areas.**

The data acquired will;

a) Enable positioning of sandbank sampling stations and epifaunal trawls during the survey based on bathymetry and backscatter.

b) Provide data for a monitoring time series, to monitor changes in the location of sandbank topographic features over time.

c) Enable a post-hoc comparison with acoustic data acquired in previous surveys (e.g. CEND 22/13 & CEND 05/11) to assist with determining changes in position of sandbank topographic features.

Objective 2. Collect data to investigate the structure, function, and distribution of biological communities in and between sandbanks across NNSSR, IDRBNR & HHW.

Objective 2 has three sub-objectives:

i. **Comprehensive sampling at two case study areas (Leman Bank and Indefatigable Bank).**

ii. **Lower intensity sampling along the wider characterising transects.**

iii. **Targeted investigation of the transition between delineated sandbank and trough areas.**

The data acquired will;

a) Provide data for a monitoring time series.

b) Improve understanding of functional sandbank ecology.

c) Provide information for condition assessment of the Annex I Sandbanks feature.

Objective 3. Acquire data to determine the presence and condition of *Sabellaria spinulosa* reef in 'high confidence' areas (closures, NE 'core reef' areas and other previously surveyed areas) cross NNSSR, IDRBNR & HHW.

Objective 3 has two sub-objectives:

i. **Acquire data to determine the presence and condition of *Sabellaria spinulosa* reef in 'higher confidence' areas.**

ii. **Verify presence and condition of *Sabellaria spinulosa* reef in two 'lower confidence' areas in HHW.**

The data acquired will;

a) Provide information on whether *Sabellaria* aggregations have persisted in specific locations over time and determine whether their condition at those locations has substantially changed.

b) Provide data for a monitoring time series.

c) Provide information for condition assessment of the Annex I Reef feature.

NARRATIVE:

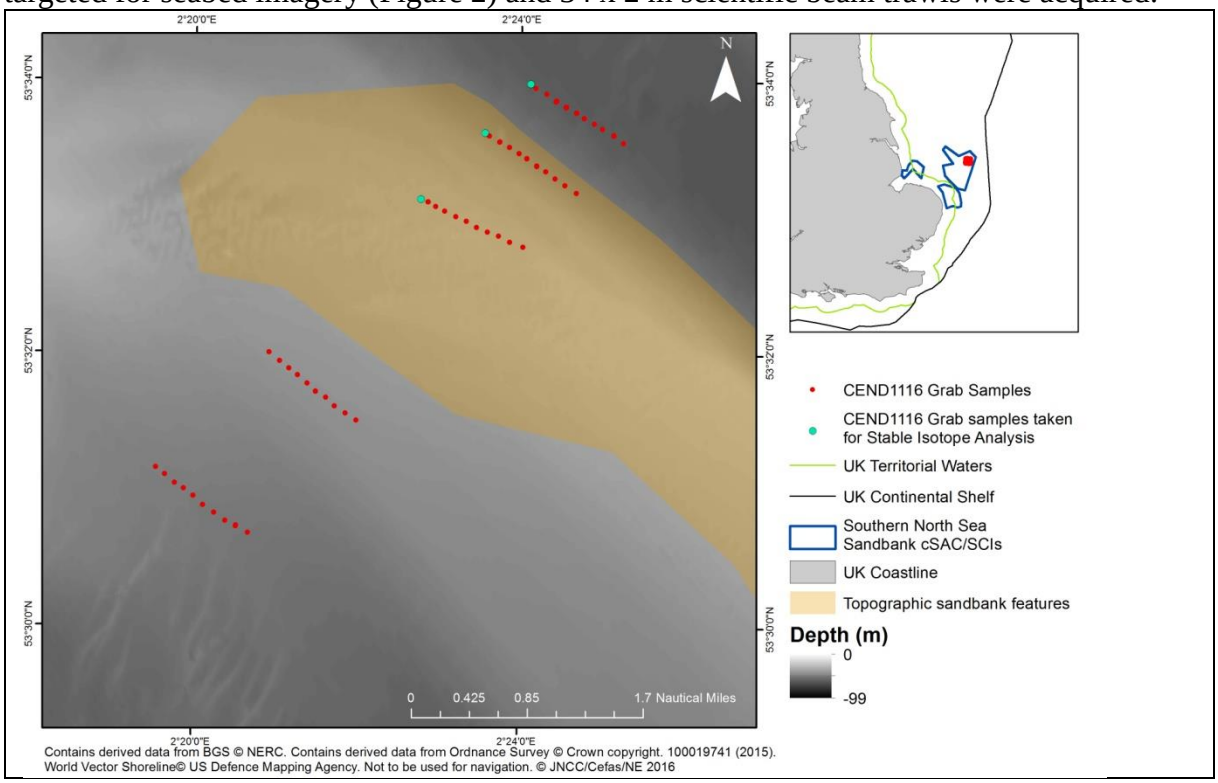
The RV Cefas Endeavour was mobbed on the morning of the 31st May 2016 before a vessel safety induction was conducted by the ships Safety Officer at 12:00 hrs. The vessel departed Lowestoft for a timed arrival at the North Norfolk Sandbanks and Saturn Reef (NNSSR) site at 05:00 hrs on the 1st June 2016. All aims and objectives

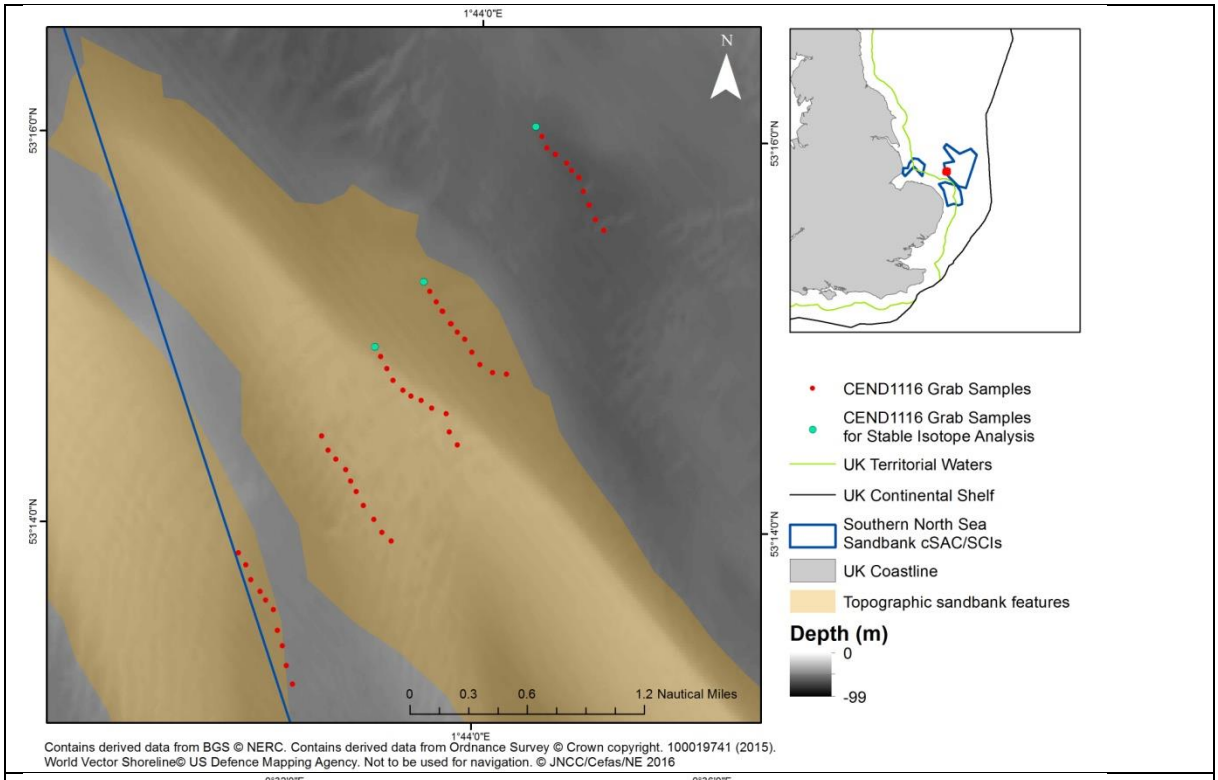
were met in all three cSAC/SCI areas and the vessel returned to Lowestoft port on the morning tide of the 19th June 2016 to commence demobilisation of equipment, samples and survey staff.

RESULTS:

Data from this survey will be made available publically following processing and distribution to the relevant data archive centre. A survey report for this work (and another for concurrent work carried out under the auspices of this project, working towards the same aims) will be published also. In summary, three candidate SAC/SCI areas were visited

A total of 217 km of MBES data and 554 km of side scan sonar data were acquired. 216 Hamon grabs were collected for sediment and faunal analyses (Figure 1, Table 1), 118 stations were targeted for seabed imagery (Figure 2) and 34 x 2 m scientific beam trawls were acquired.





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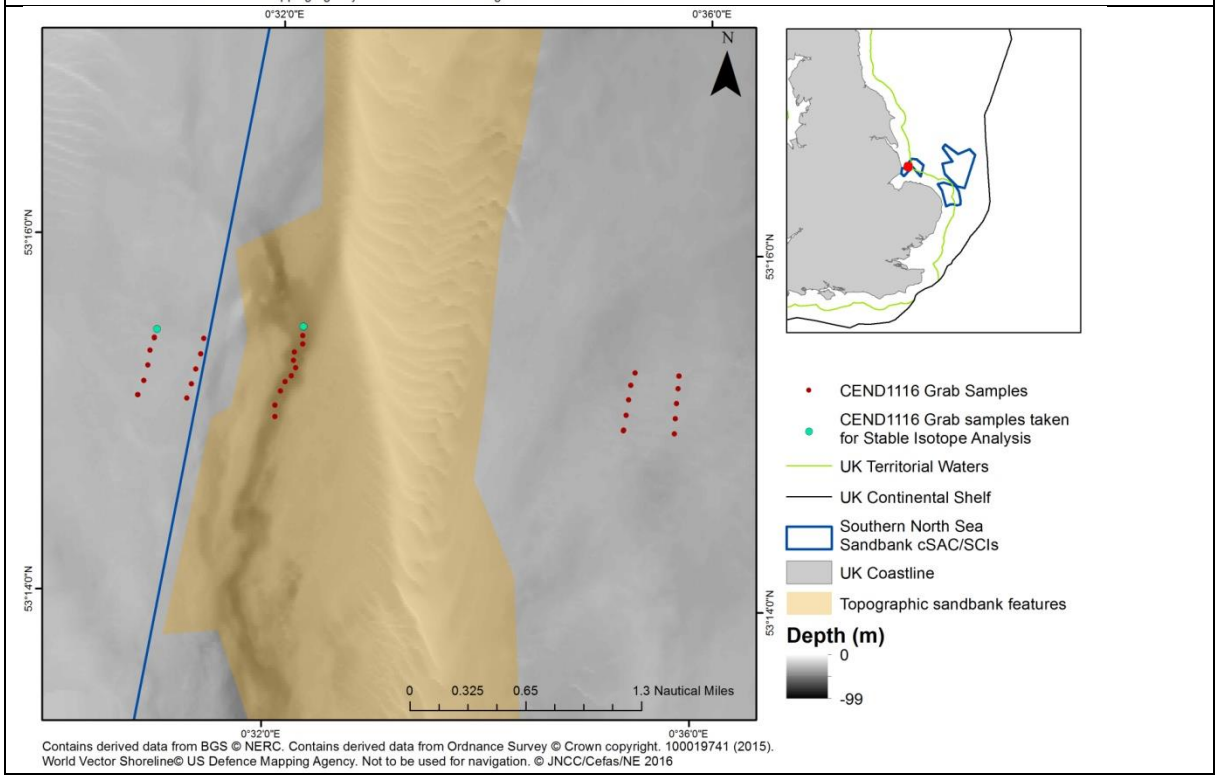

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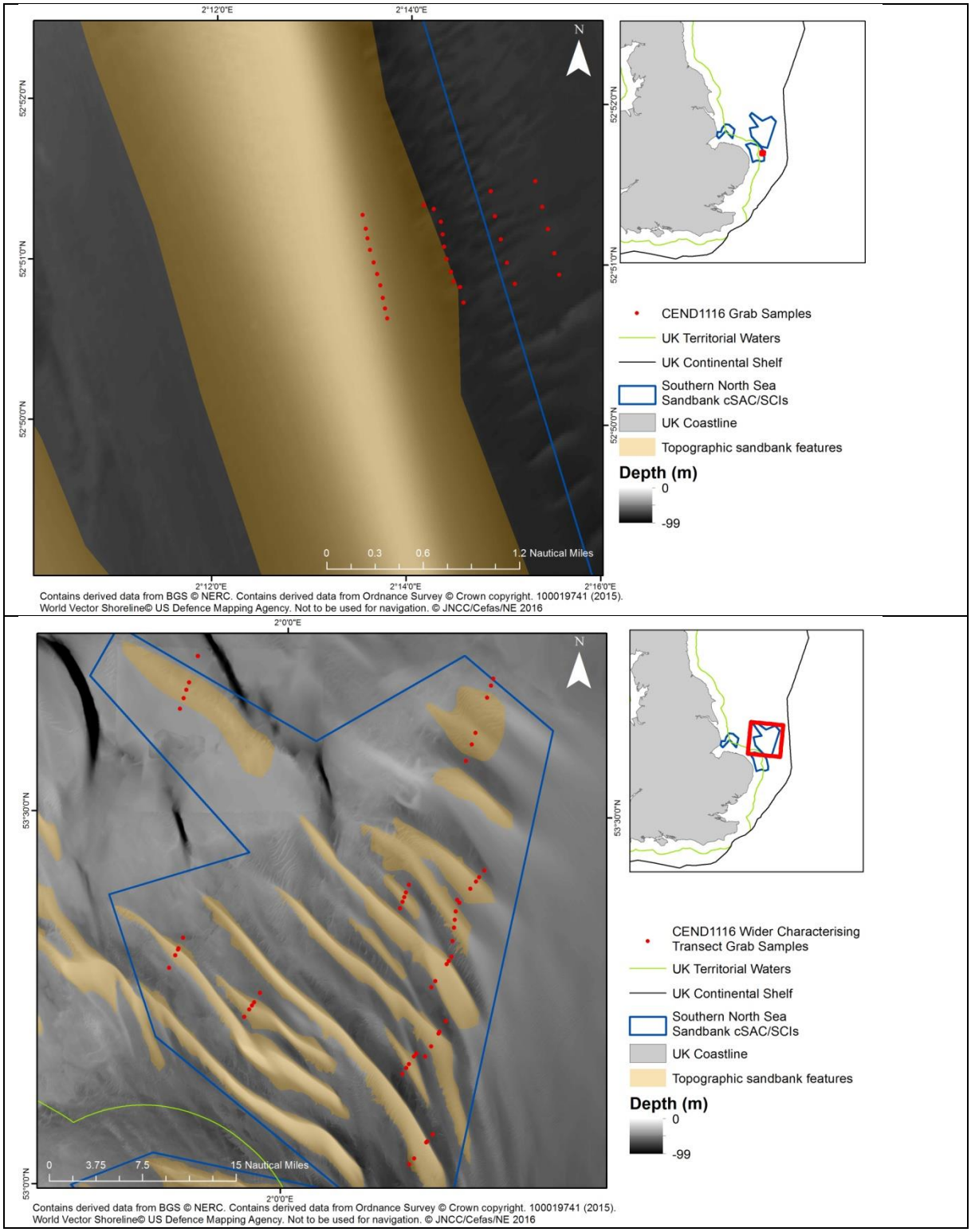
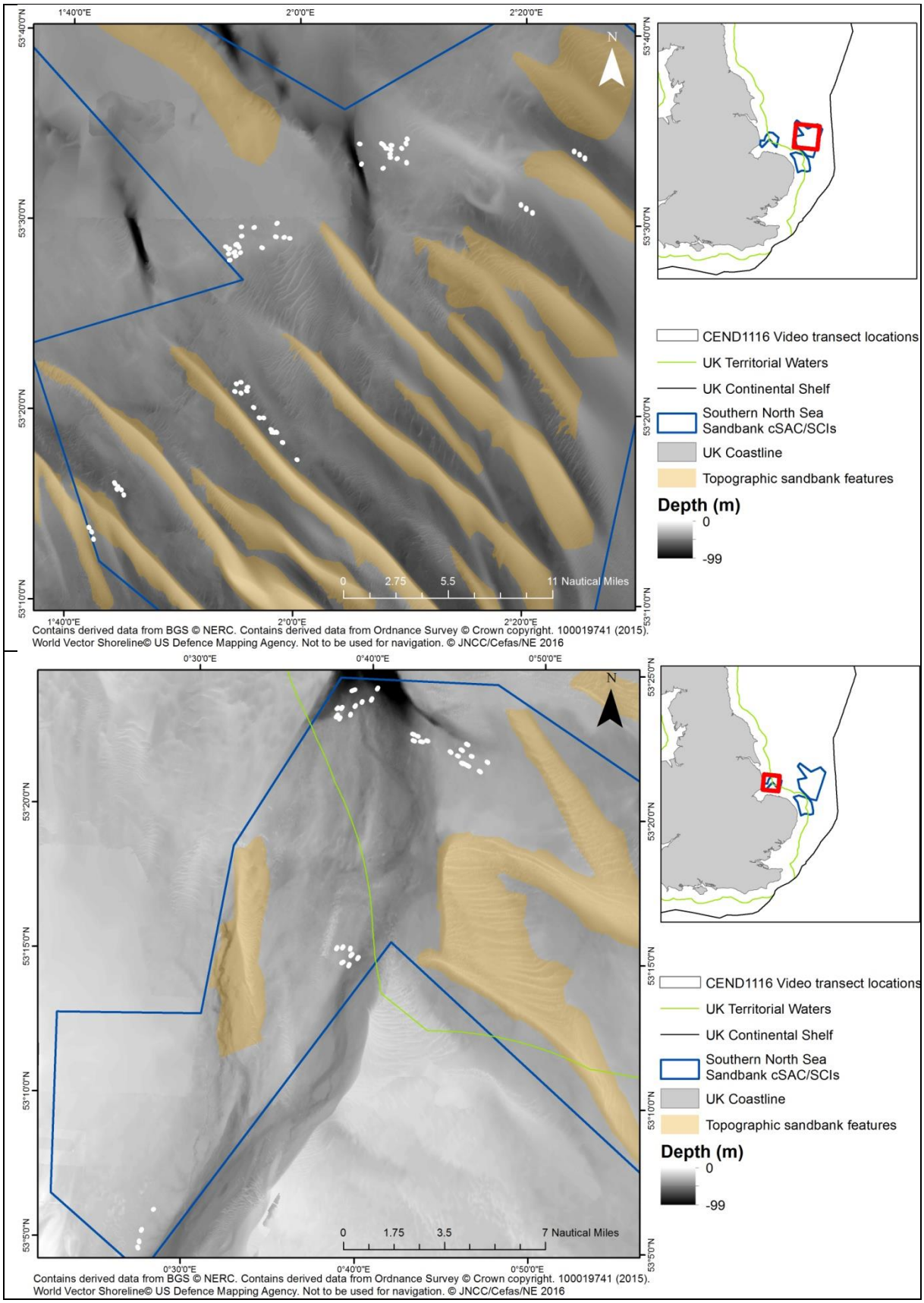


Figure 1 Grabs

Table 1 Grabs

Area	Number of sediment samples successfully collected
Indefatigable Bank	50 (Case Study Area and 3 Stable Isotope)
Inner Dowsing	30 (Case Study Area and 2 Stable Isotope)
Leman Bank	50 (Case Study Area and 3 Stable Isotope)

Smith's Knoll	30 (Case Study Area only)
Wider Charactering Transects	56 (WCT_001 with 6 samples. WCT_002-011 with 5 samples at each)



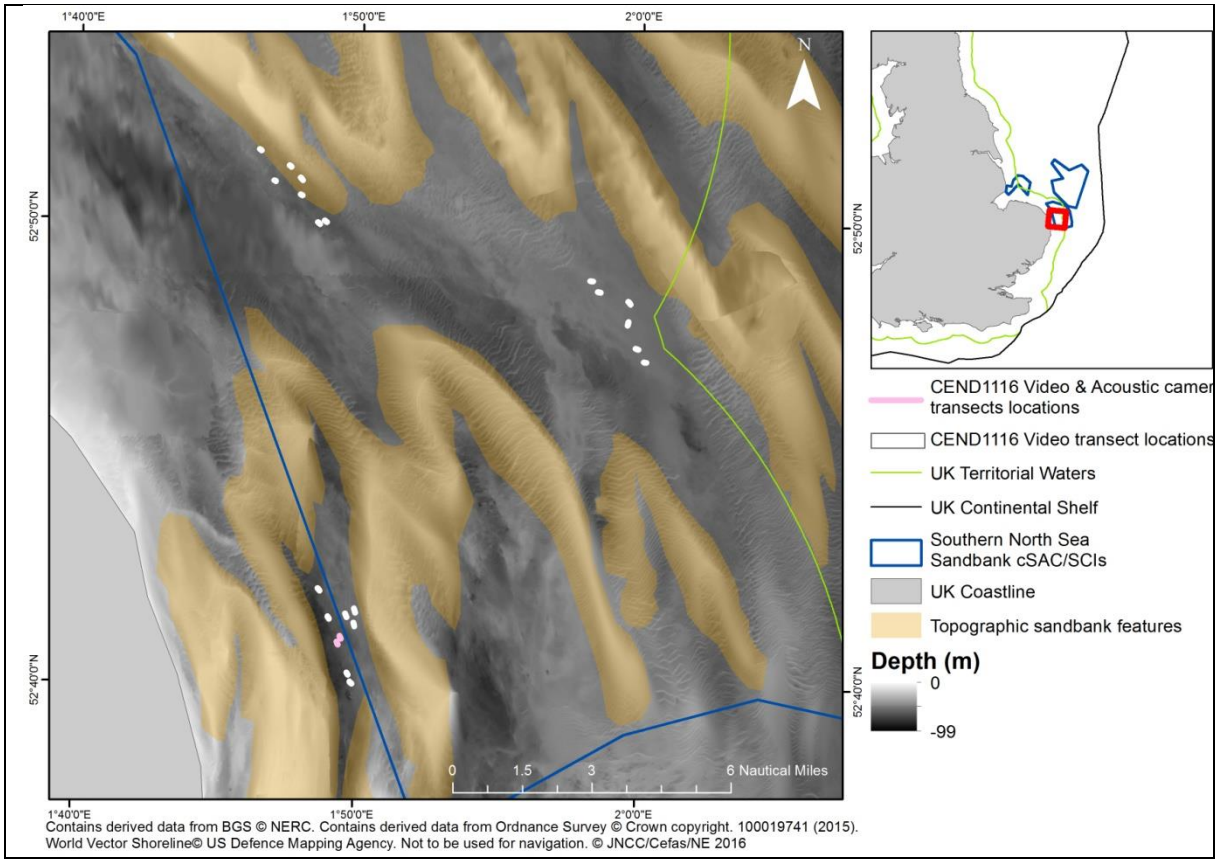


Figure 2 Seabed imagery

Paul McIlwaine
Scientist In Charge
07/09/2016

SEEN IN DRAFT

Master:
Senior Fishing Mate:

INITIALLED:

DISTRIBUTION: