

# NORFOLK VANGUARD OFFSHORE WIND FARM

## NOTICE TO MARINERS

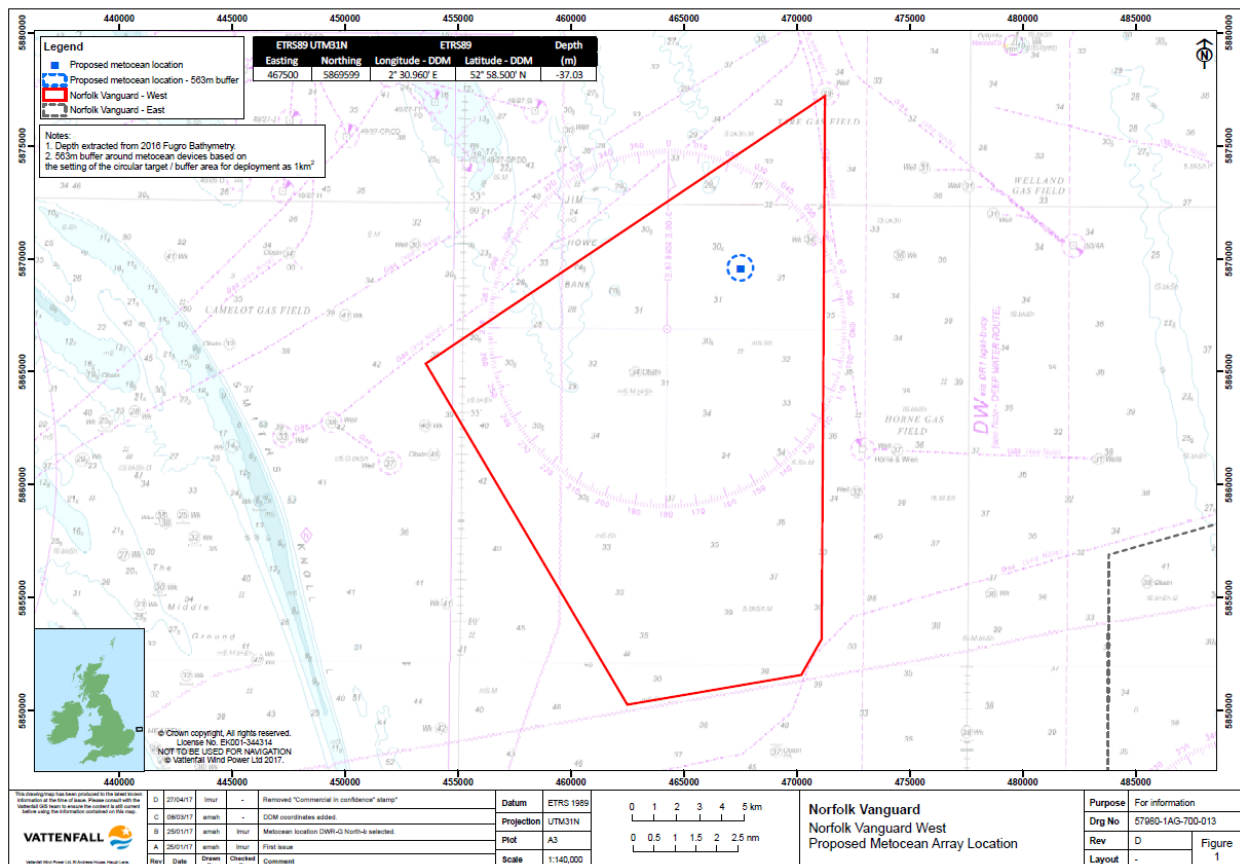
### Metocean Measurement Campaign Update 4

All Mariners are to be advised that a Metocean Measurement Campaign, primarily measuring waves and currents, is being conducted at one location in the north-east of the Norfolk Vanguard Offshore Wind Farm development zone. Two Trinity House Guard Buoys were deployed on 10<sup>th</sup> May 2017 and will remain in position for three years. One surface Directional Waverider Buoy was deployed on 15<sup>th</sup> June 2017 and will remain in position for three years. In addition, one seabed frame-mounted AWAC was deployed from 11<sup>th</sup> May 2018 for one year.

Table 1 summarises the planned metocean campaign locations (within ca. 500m of 52° 58'.50N, 002° 30'.96E).

Equipment	Deployment dates		Location (WGS84)		Approximate depth
	Deployment	Recovery	Latitude	Longitude	
Wave Buoy	15 <sup>th</sup> June 2017	31 <sup>st</sup> May 2020	52° 58'.520N	002° 30'.929E	-37mCD
Guard Buoy 1	10 <sup>th</sup> May 2017	31 <sup>st</sup> May 2020	52° 58'.597N	002° 30'.800E	
Guard Buoy 2	10 <sup>th</sup> May 2017	31 <sup>st</sup> May 2020	52° 58'.403N	002° 31'.120E	
AWAC Lander	11 <sup>th</sup> May 2018	31 <sup>st</sup> May 2019	52° 58'.509N	002° 31'.113E	

**Table 1: Metocean measurement campaign summary.**




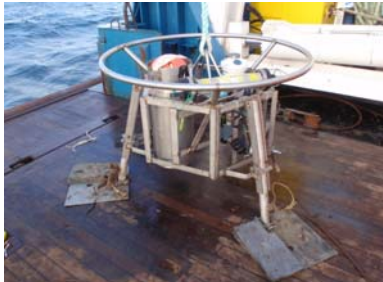

**Figure 1: Deployment location. This image is NOT for navigational purposes.**

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Table 2 provides further detail on equipment to be deployed.

Surface Directional Waverider Buoy	Seabed frame-mounted AWAC	Trinity House Guard Buoy
		
Approximately 1m diameter sphere, yellow	Approximately 2x2m footprint	Approximately 2.5m tall and 2m diameter, yellow

**Table 2: Equipment details**

The Trinity House Guard Buoys and Directional Waverider Buoy have navigational hazard lights visible to 3NM – five yellow flashes every 20 seconds. The Trinity House Guard Buoys are also equipped with a radar reflector.

The Directional Waverider Buoy will be visited once a year in order to inspect the moorings and maintain the instruments. The seabed frame-mounted AWAC will be visited once every 3 months in order to maintain the instruments and recover data.

We would be grateful if all shipping keeps at least **5 cables clear** of the moorings.

Work will be conducted from onboard CEFAS Endeavour - Call Sign: VQHF3. The vessel will use Lowestoft as a base harbour during operations. Vessels are requested to remain 1000m away from CEFAS Endeavour whilst it is deploying or recovering equipment. CEFAS Endeavour will display the shapes and lights prescribed in the International Rules for the Prevention of Collisions at Sea (COLREGS) Rule 27, to indicate restricted ability to manoeuvre, as required.

### Contacts

The measurement campaign will be conducted by CEFAS Ltd on behalf of Norfolk Vanguard Ltd:

Chris Comyn (Project Manager)  
+44(0)7814 179 324  
[chris.comyn@cefas.co.uk](mailto:chris.comyn@cefas.co.uk)

David Pearce (Principal Investigator)  
+44(0)7901 511 900  
[david.pearce@cefas.co.uk](mailto:david.pearce@cefas.co.uk)

The measurement campaign will be overseen by Consult-on-Sea Ltd on behalf of Norfolk Vanguard Ltd:

Garry Mardell (Client Representative)  
+44(0)7426 855 699  
[garry@consultonsea.com](mailto:garry@consultonsea.com)

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### Metocean Measurement Campaign Update 4



RV Cefas Endeavour is a multi-disciplinary research and survey vessel which is managed and operated by Cefas in partnership with P&O Maritime Services UK.

With a home port close to the Cefas laboratory in Lowestoft, RV Cefas Endeavour was built to exacting standards, optimising safety and minimising environmental impact.

The vessel provides an effective and economic platform for scientific research and commercial surveys in support of projects from a range of industry sectors including renewable energy, oil and gas, and telecommunications.





### General

Name	- <i>Cefas Endeavour</i>
Owner	- <i>Defra</i>
Manager	- <i>Cefas</i>
Operator	- <i>P&amp;O Maritime Services</i>
Builder	- <i>Ferguson Shipbuilders Ltd, Glasgow</i>
Year Built	- <i>2003</i>
Type	- <i>Research Vessel</i>
Classification	- <i>100A1 ICE CLASS 1D, ICC, LMC, IP, UMS, CCS, DP(CM), Propulsion Drives in tandem, SCM, Multipurpose Research Vessel</i>
Port of Registration	- <i>Lowestoft, UK</i>
Flag	- <i>British</i>
IMO No.	- <i>9251107</i>
MMSI	- <i>235005270</i>
Call Sign	- <i>VQHF3</i>

### Accommodation

Berths	- <i>35 Total</i>
Marine Crew	- <i>16</i>
Cabins	
Charterers Cabins	- <i>2 x twin en-suite (Pullman Berth)</i>
	- <i>15 x single en-suite</i>

### Fuel & Consumption

Fuel	- <i>Marine Gas Oil</i>
In Port	- <i>1.0 tonne per day</i>
Transit Speed	- <i>5.5 tonnes per day</i>
Survey Speed	- <i>4.8 tonnes per day</i>

### Main Characteristics

Length OA/PB	- <i>73.92m/67.30m</i>
Beam	- <i>16.11m/15.80m</i>
OA/Moulded	
Depth Moulded	- <i>8.20m</i>
Draft at	- <i>5.50m/5.00m</i>
Sea/Harbour	
Gross/Net	- <i>2983T/894T</i>
Tonnage	
Speed Max.	- <i>13.6 knots</i>
Speed Service	- <i>10.5 knots</i>
Speed	- <i>10.0 knots</i>
Economical	
Endurance	- <i>42 Days</i>
Deck Space	- <i>310m<sup>2</sup></i>

### Main Equipment

Main Engines	- <i>3 x Wärtsilä 6L20, 1000kW / 660v 50Hz 3-ph</i>
	- <i>1 x Cummins N14, 250 kVA / 415v 50Hz 3-ph</i>
DC Drives	- <i>2 x Ansaldo electric motors (each 1150kW, 0-150 rpm) 729v ripple DC</i>
Propulsion Power	- <i>2300 kW</i>
Bow Thrusters	- <i>820kW Schottel pump-jet, omni-directional</i>
Stem Thrusters	- <i>380kW Brunvoll tunnel, CP</i>
Bollard Pull	- <i>29 tonnes</i>
Electrical Systems	- <i>415v 3ph 225A / 240v 1ph 120A 50Hz</i>

