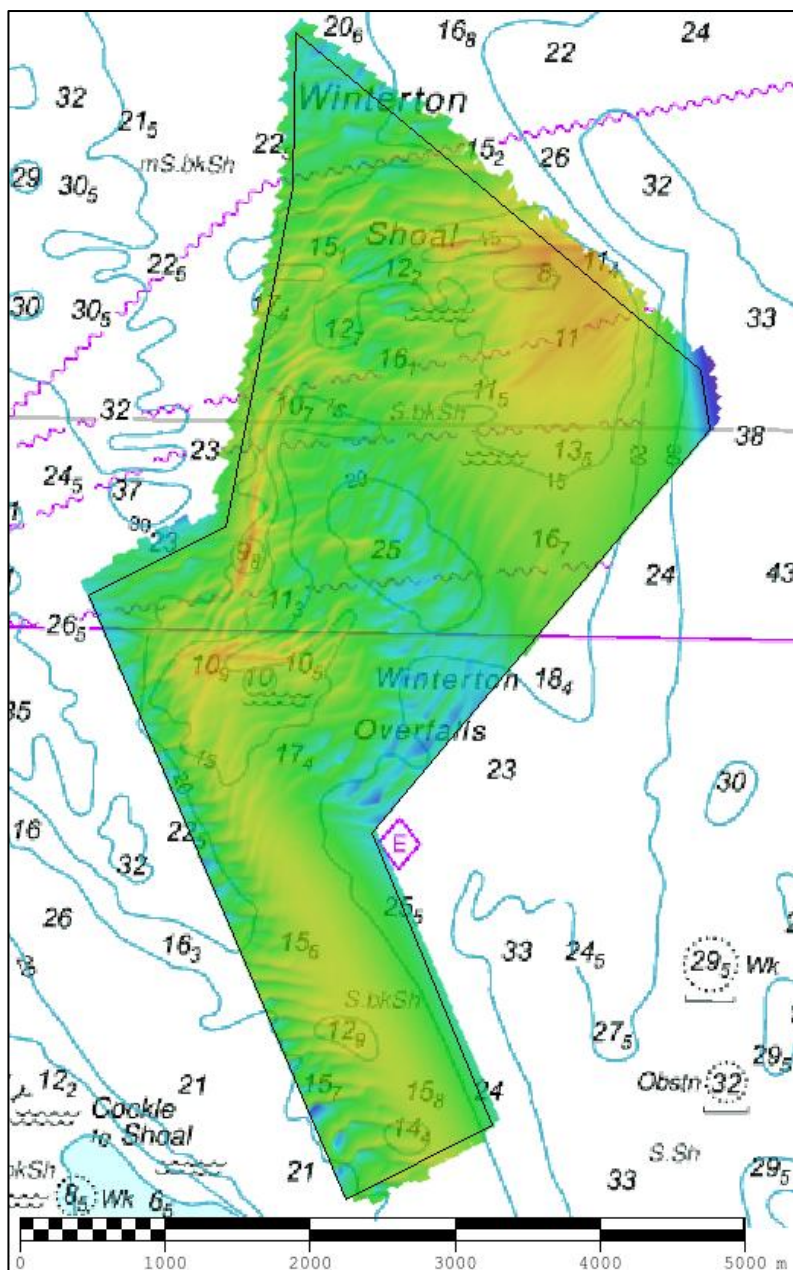




UK Hydrographic  
Office

## EAST ANGLIA EA1 - COCKLE GATEWAY (FOCUSSED) ASSESSMENT EA1/2017

An assessment of the 2017 hydrographic survey of the area: to monitor recent seabed movement; to identify any implications for shipping; and to make recommendations for future surveys.



## CONTENTS

1. SUMMARY	1
2. LOCATION	1
3. REFERENCE SURVEY DETAIL	3
4. COMPARISON SURVEY DETAIL	3
5. DESCRIPTION OF RECENT BATHYMETRIC CHANGE	4
6. RECOMMENDATIONS FOR FUTURE SURVEYS	7

### Notes

This Assessment is produced by the UK Hydrographic Office (UKHO) for the Maritime and Coastguard Agency (MCA). Analysis of the Routine Resurvey Areas forms part of the Civil Hydrography Programme and the reports are made available to through the UKHO website and are presented to the Civil Hydrography Working Group. When approved, the recommendations are incorporated into the Routine Resurvey Programme. The report is governed by a Memorandum of Understanding between the Department for Transport (including the MCA) and the Ministry of Defence (including the UKHO).

The Admiralty Chart extracts, other graphics and tables in this Report are included for illustrative purposes only and are NOT TO BE USED FOR NAVIGATION.

This material is protected by Crown Copyright. It may be downloaded from the UK Hydrographic Office's (UKHO) web site and printed in full for personal or non-commercial internal business use. Extracts may also be reproduced for personal or non-commercial internal business use on the condition that the UK Hydrographic Office is acknowledged as the publisher and the Crown is acknowledged as the copyright owner.

Applications for permission to reproduce the material for any other purpose (including any distribution of the material or extracts to third parties) can be made interactively on the UKHO's web site ([www.ukho.gov.uk](http://www.ukho.gov.uk)), by e-mail to [intellectualproperty@ukho.gov.uk](mailto:intellectualproperty@ukho.gov.uk) or in writing to Intellectual Property, UK Hydrographic Office, Admiralty Way, Taunton, Somerset, TA1 2DN.

No analysis of shipping traffic has been included within this report due to no AIS data being supplied by MCA.

All depths are to local chart datum, defined using the UKHO VORF Model.

## **EA1 – COCKLE GATEWAY, 2017**

### **1. SUMMARY**

#### **Changes Detected**

- 1.1 Moving bedforms causing localised deepening and shoaling over the entire area with sediment migrating north, but the general depth has not changed.

#### **Reasons for Continuing to Resurvey the Area**

- 1.2 Depths in the area remain mobile and can be potentially hazardous vessel navigating the area and therefore require continued monitoring through 12-year resurveys.

#### **Recommendations**

- 1.3 The current 12-year survey interval is adequate together with a focused area every 6-years to monitor any changes to the seabed and their effects on vessel navigation, so no change is recommended at this time.
- 1.4 The current extents of the area limit covers the majority of current and future potential seabed change, however, the north east of the area covering Winterton Shoal is recommended to extend north to fully cover the shoaling sediment of Winterton Shoal.

### **2. LOCATION**

- 2.1 Survey interval at time of resurvey: 12 years full area, 6 years focused.
- 2.2 Area Covered: 14.7 km<sup>2</sup>.

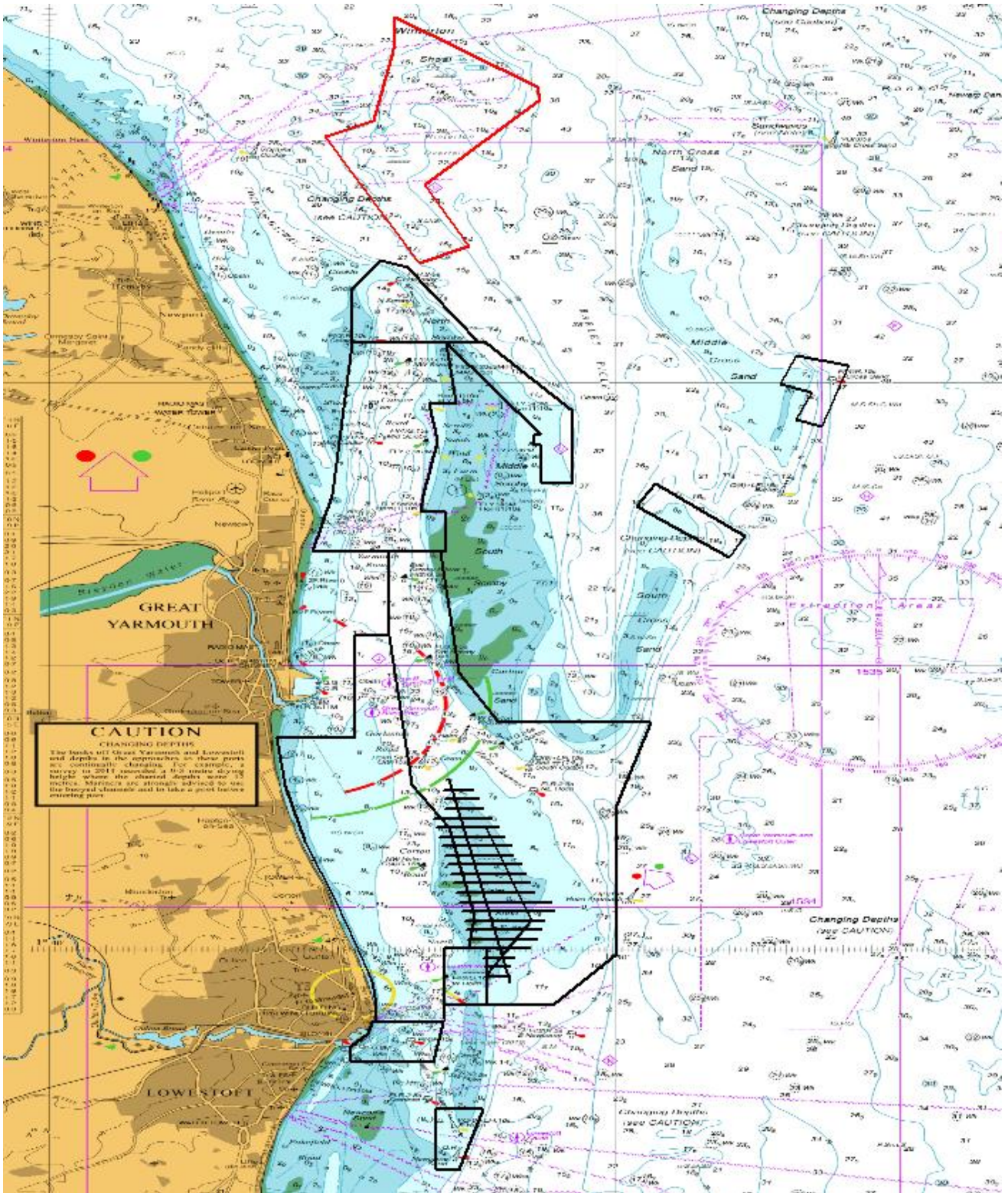


Figure 1 – 2017 East Anglia RRS areas overlaid on BA Chart 1543 with EA1 6-year focused area shown in Red

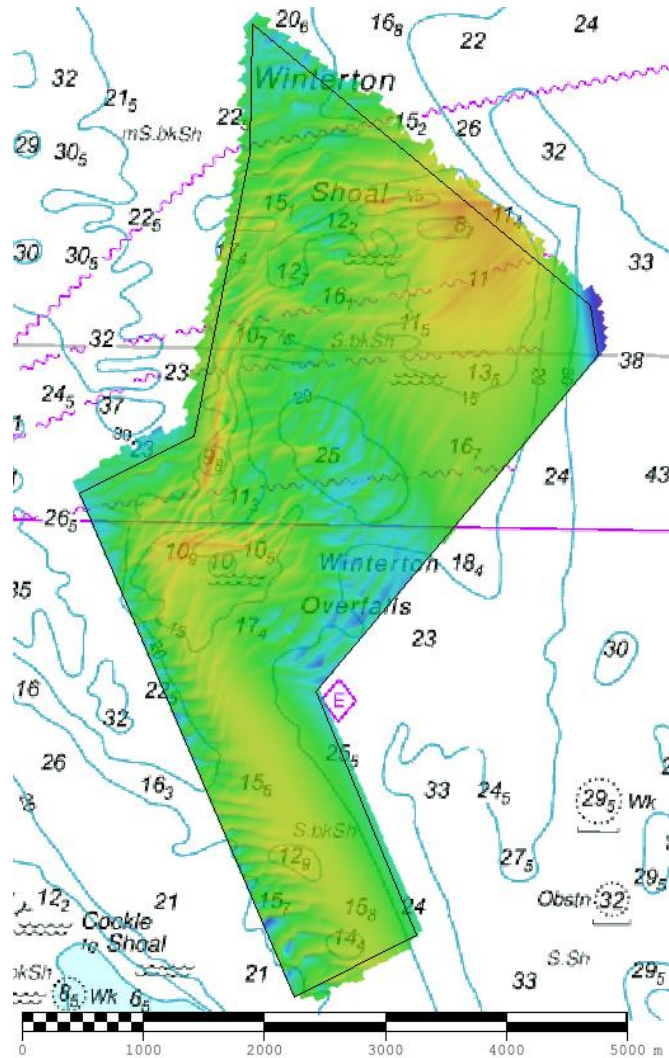


Figure 2 – 2017 survey data sun-illuminated view overlaid on BA Chart 106

### 3. REFERENCE SURVEY DETAIL

- 3.1 Previous survey conducted in May and June of 2011 as part of HI 1367.
- 3.2 The Report of Survey for this survey is available upon request from the UKHO and the validated bathymetric surfaces are available to download from INSPIRE portal and MEDIN Bathymetry Data Archive Centre.

### 4. COMPARISON SURVEY DETAIL

- 4.1 Latest survey conducted in May 2017 as part of HI 1545.
- 4.2 The Report of Survey for this survey is available upon request from the UKHO and the validated bathymetric surfaces are available to download from INSPIRE portal and MEDIN Bathymetry Data Archive Centre.

## 5. DESCRIPTION OF RECENT BATHYMETRIC CHANGE

- 5.1 The controlling depth in the 2017 survey (Figure 3) is 9.1m meters, located in the north-east of the area, with a similar controlling depth of 9.8m to the West.
- 5.2 The difference surface (Figure 4) shows localised deepening and shoaling of depths as bedforms move, however the general depths of the area as a whole, do not differ dramatically.

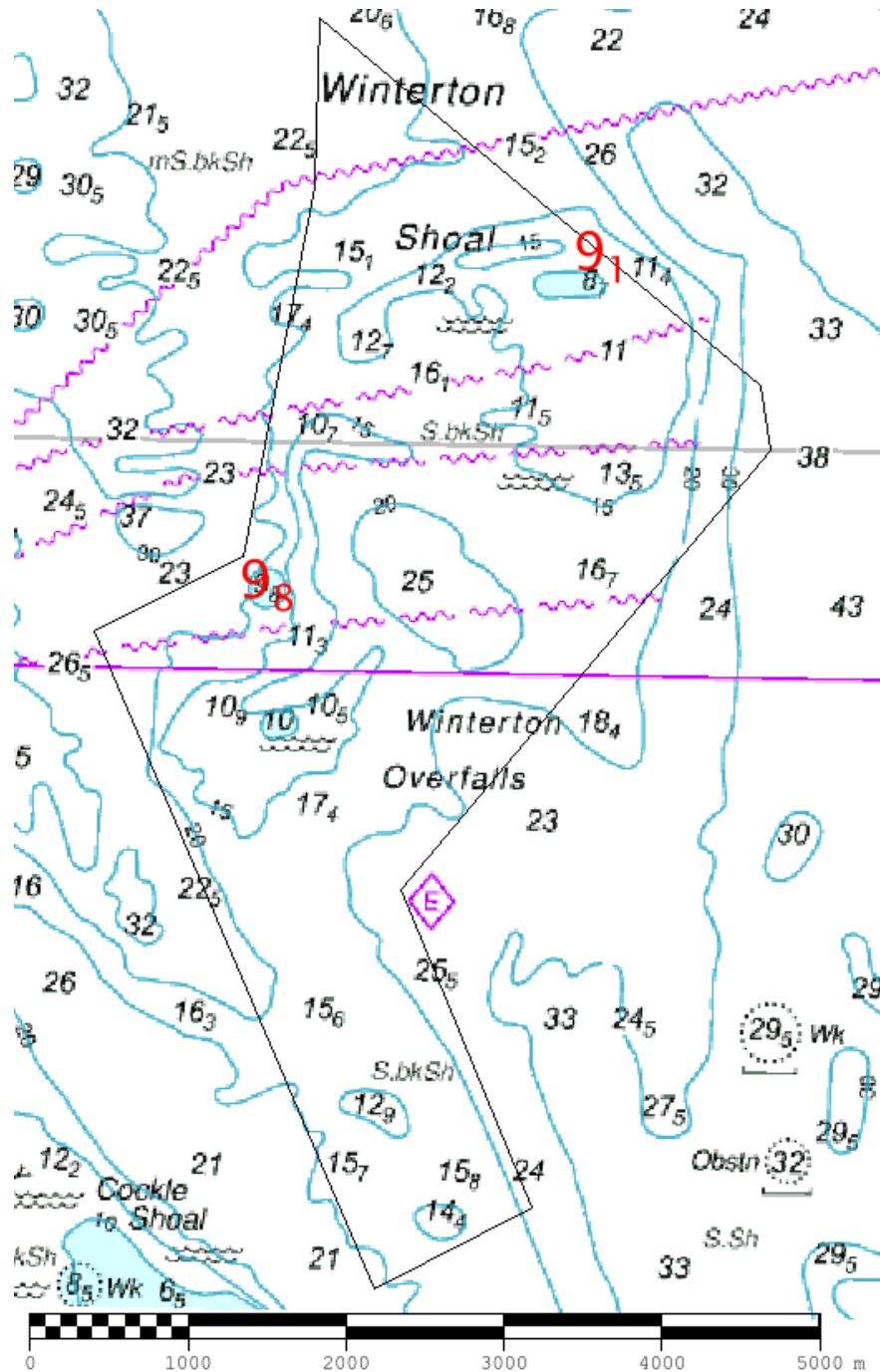


Figure 3 Controlling depths from 2017 survey (shown in red) overlaid on BA Chart 106

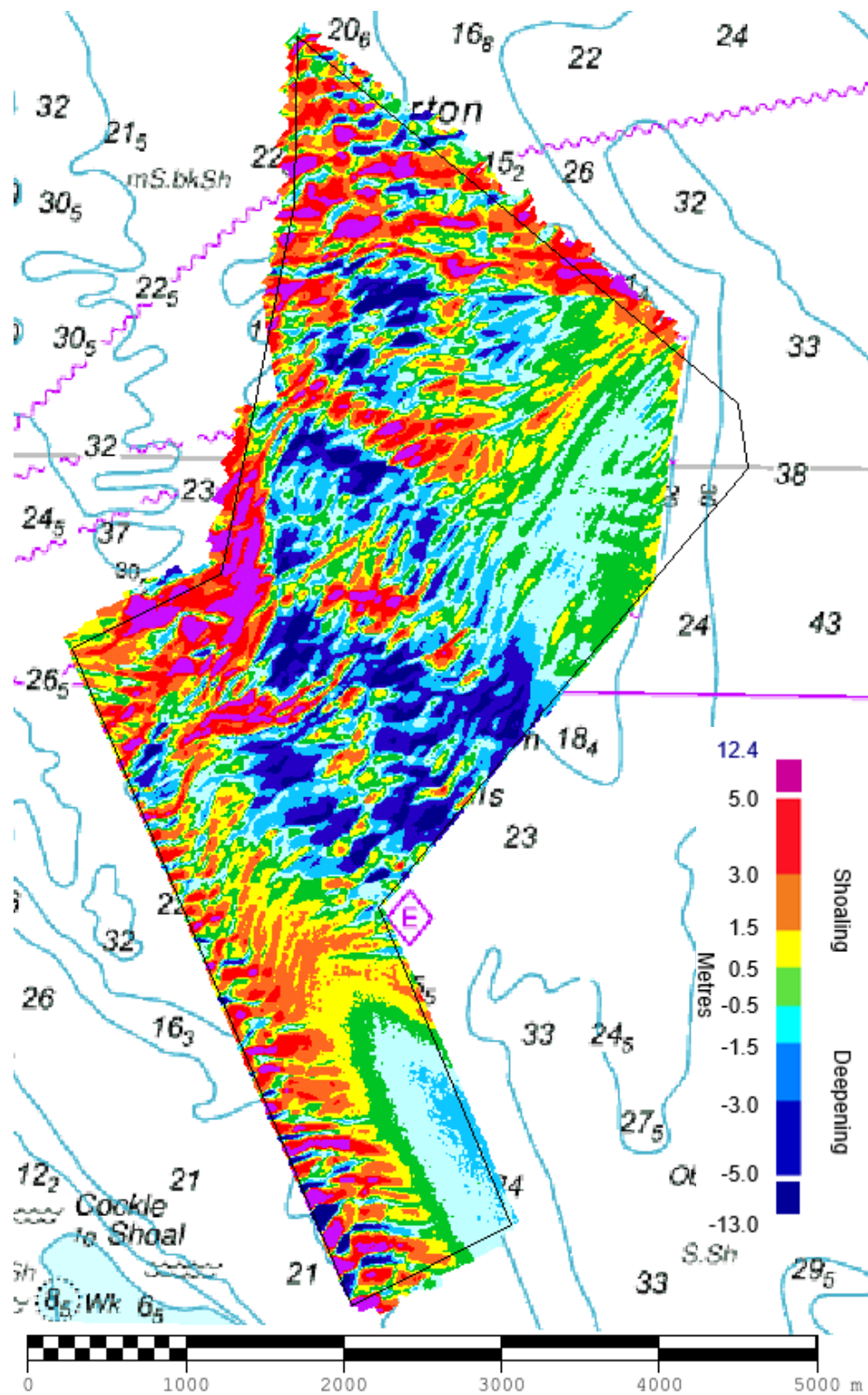
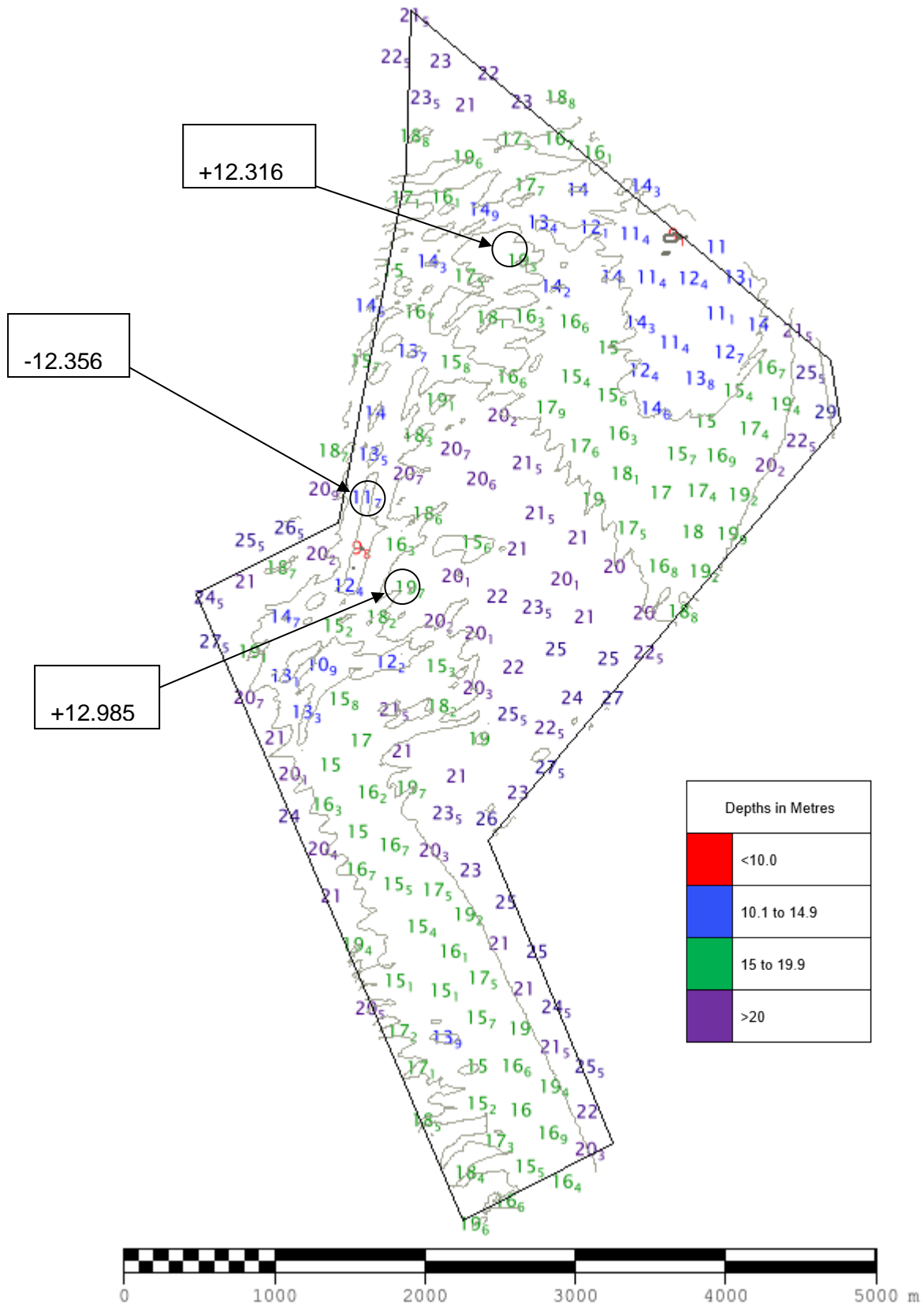


Figure 4 Difference plot 2011 vs 2017 survey overlaid on BA Chart 106



Positive values (+) represent deepening. Negative values (-) represent seabed depths becoming shallower.

Figure 5 – Colour Banded Depth Plot from the 2017 Survey with selected depth changes since the 2016 survey



## 6. RECOMMENDATIONS FOR FUTURE SURVEYS

### Survey Interval

6.1 Given the relatively slow movement of the sediment, but still with shoal depths that remain potentially hazardous to vessels with a draught of 7m or more the current 12-year survey interval should remain with a focused area every 6 years.

### Survey Area

6.2 The majority of the current extents of the area limit covers is adequate to cover current and future potential seabed change. However, the north east of the area limits are recommended to extend further north approximately 500m to encompass the mobile shoaling depths of Winterton Shoal.

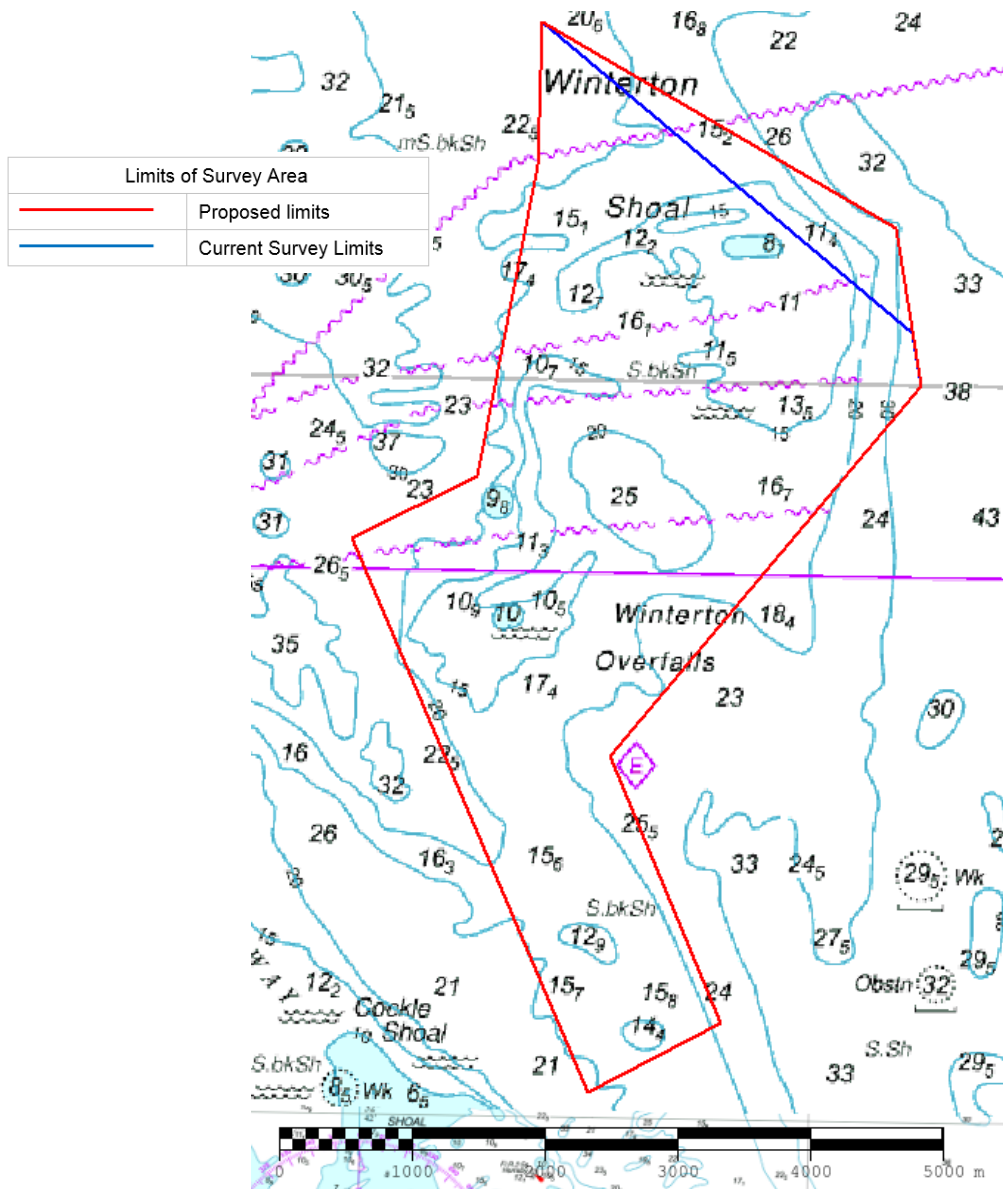


Figure 6 – Future survey limits of area EA1 (current limits given in Blue, future limits given in red)

The WGS'84 coordinates of the recommended adjusted survey area limits for the EA1 6-year focused area are shown below:

(EA5a total area: 15.68 km<sup>2</sup>)

A	52.76047	1.80803
B	52.74982	1.81114
C	52.72446	1.77719
D	52.70650	1.79000
E	52.70173	1.77531
F	52.73888	1.74800
G	52.74330	1.76184
H	52.76437	1.76803
I	52.77403	1.76815