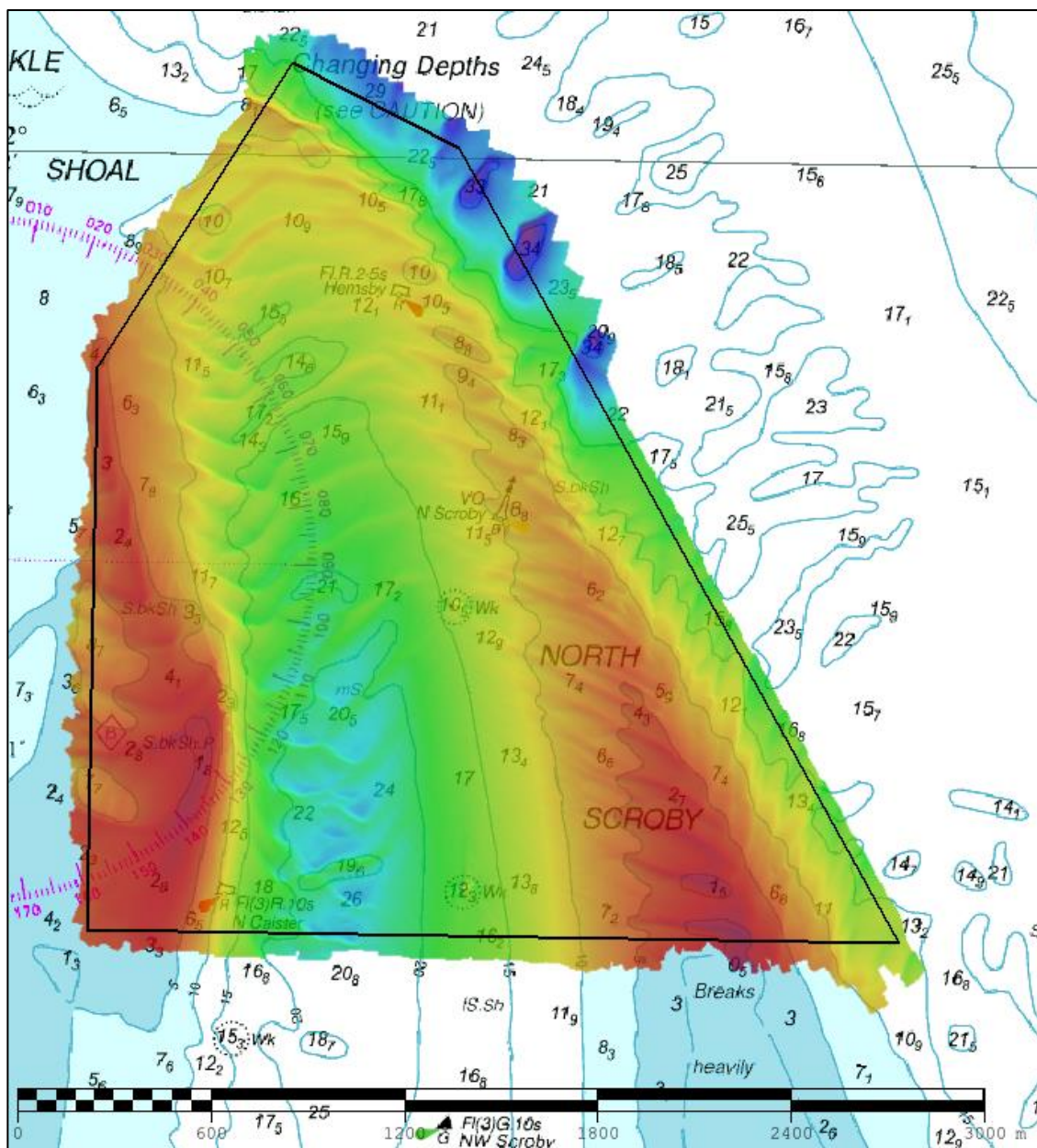




UK Hydrographic
Office

EAST ANGLIA EA3 – COCKLE SHOAL ASSESSMENT EA3/2017

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

Notes	2
1. SUMMARY	1
2. LOCATION	1
3. REFERENCE SURVEY DETAIL	3
4. COMPARISON SURVEY DETAIL	4
5. DESCRIPTION OF RECENT BATHYMETRIC CHANGE	4
6. RECOMMENDATIONS FOR FUTURE SURVEYS	9

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), by e-mail to 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.

EA3 – COCKLE SHOAL, 2017

1. SUMMARY

Changes Detected

- 1.1 Northern end of Caister Shoal is slowly encroaching East into Caister Road – 230m since 2014.
- 1.2 Movements of bedforms have migrated North, with depths increasing in the South, however the general depth has not changed in the North of Caister Road.

Reasons for Continuing to Resurvey the Area

- 1.3 North Scroby Bank and the Northern end of Caister Shoal are very mobile, both of which can encroach into the deeper navigable waters so can potentially be hazardous to vessels that draught more than 8m, therefore continued monitoring through the 3-year resurveys with 1-year focused surveys of the shoal banks should continue.

Recommendations

- 1.4 Due to the mobile nature of North Scroby and Caister Shoal the 3-year frequency should be maintained, with 1-year focused surveys continued over these two banks.
- 1.5 The full survey area currently encompasses mobile areas and any possible future changes; however, the Western side of the area can be moved further Eastwards by approx. 200m to follow the migrating Caister Shoal bank to reduce survey effort.
- 1.6 The focused area EA3b currently adequately covers the mobile bank of North Scroby so can remain unchanged. Focused area EA3a currently covers the North of Caister Shoal so can also remain unchanged, however the bank is migrating East into Caister Road so will need to be monitored closely during the next focused survey as part of HI 1608.

2. LOCATION

- 2.1 Survey interval at time of resurvey: 3 years full area, 1 years focused.
- 2.2 Area Covered: 4.4 km².

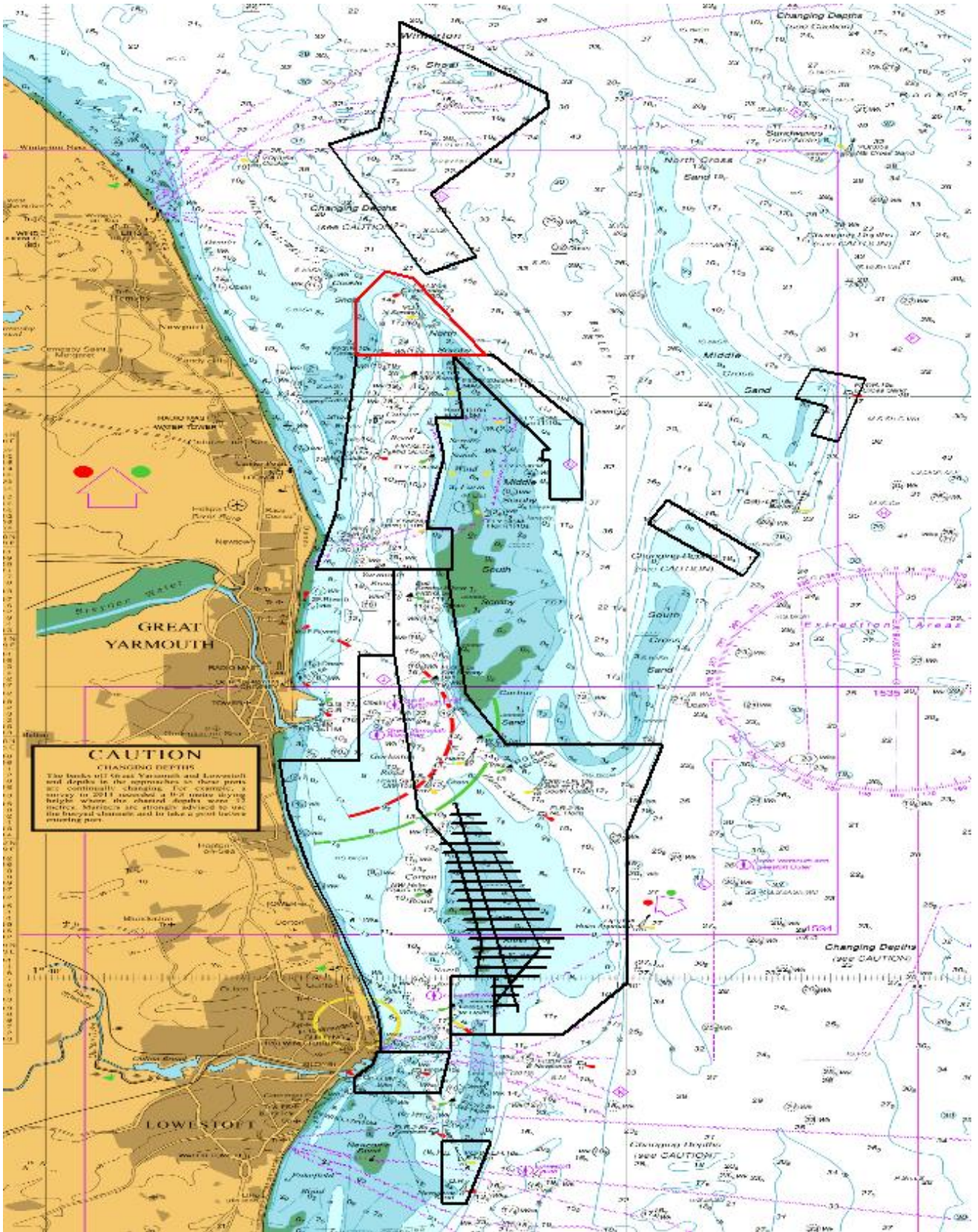


Figure 1 – 2017 East Anglia RRS areas overlaid on BA 1543 with EA3 shown in Red

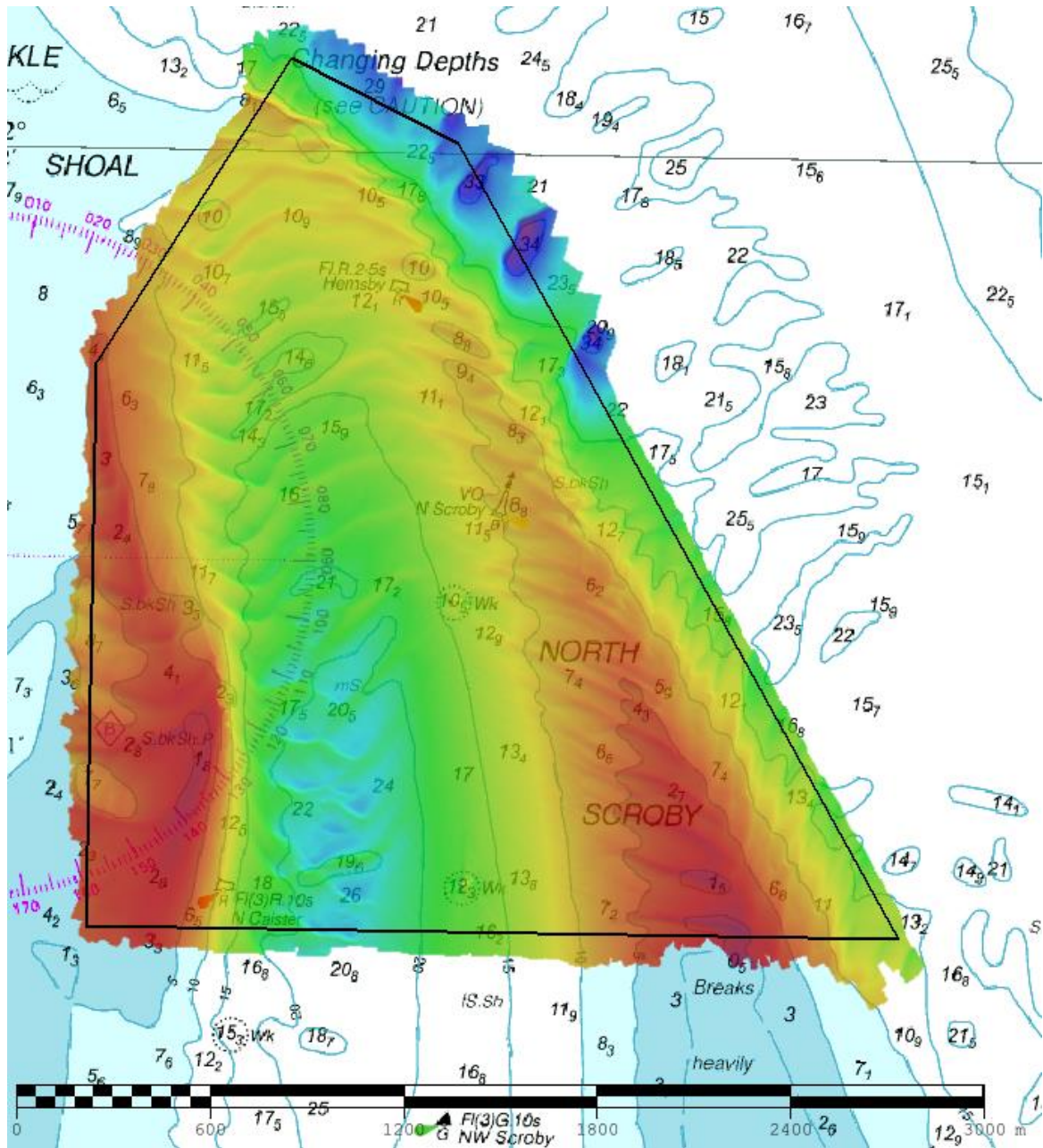


Figure 2 – 2017 survey data sun-illuminated view overlaid on BA Chart 1534

3. REFERENCE SURVEY DETAIL

- 3.1 Previous full survey conducted in June 2014 as part of HI 1458 and focused survey conducted in September and October of 2016 as part of HI 1521.
- 3.2 The Report of Survey for these surveys are 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 Recent survey was conducted in July, September and November of 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 difference surface Figure 4 shows a significant shoaling along the western edge of Caister Road due to the eastern migration of Caister Shoal. Deepening of the south-western side of the channel and migrating sandwaves in the north and east in a north-westerly/south-easterly direction.
- 5.2 The controlling depths (figure 3) from the 2017 survey area 1.5m depth on the North Scroby bank and a 1.8m depth on the Caister Shoal bank. In the channel, controlling depths are a wreck in the south of 12.3m, a wreck in the centre of 11.1m and a shoal spot of 10m depth in the north.
- 5.3 The largest depth change occurred on the Caister Shoal where it has become 13.59m shoaler with the 5m and 10m contours moving up to 230m Eastwards into Caister Road.

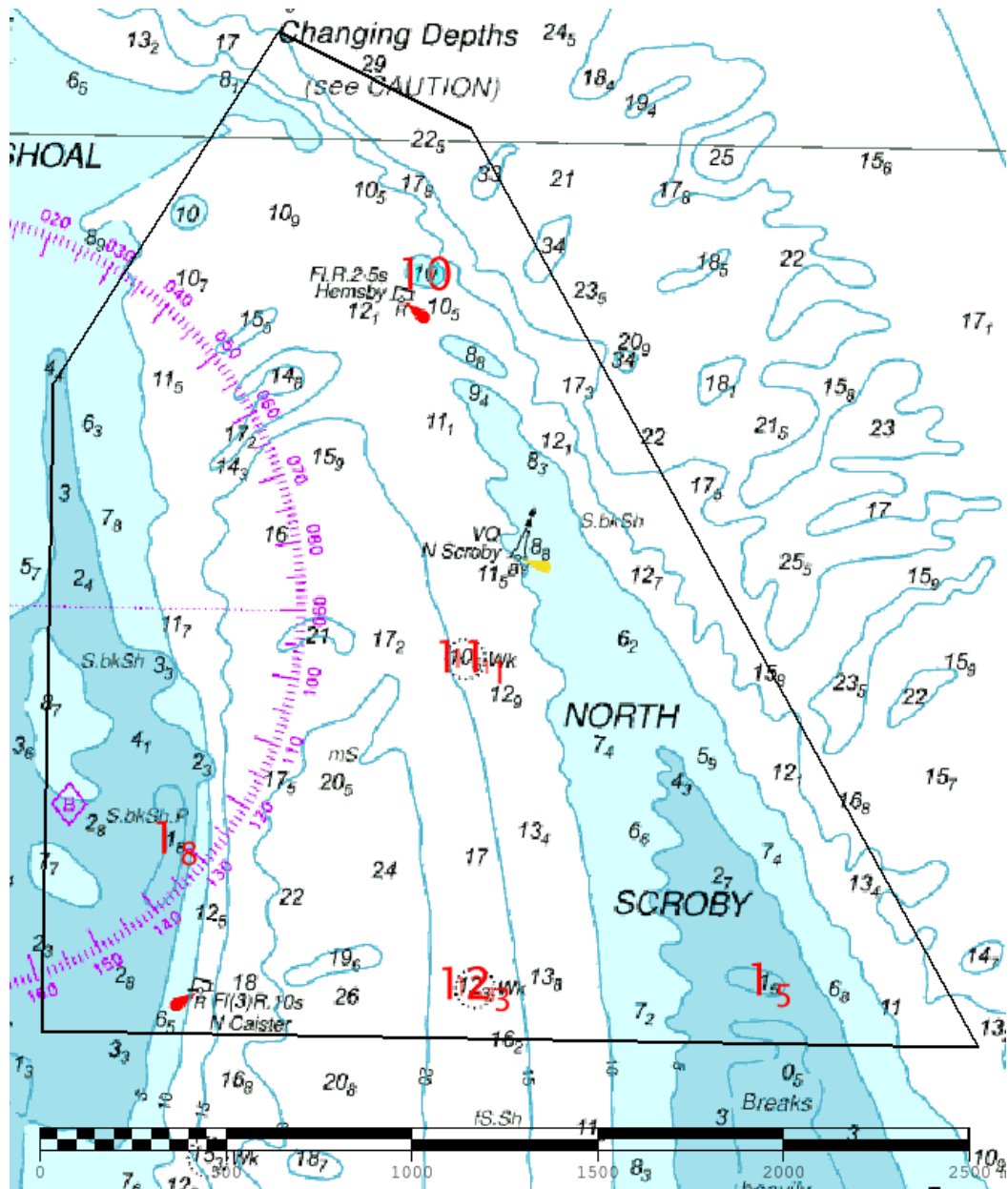


Figure 3 Shoal and Controlling depths from 2017 survey (shown in red) overlaid on BA Chart 1534

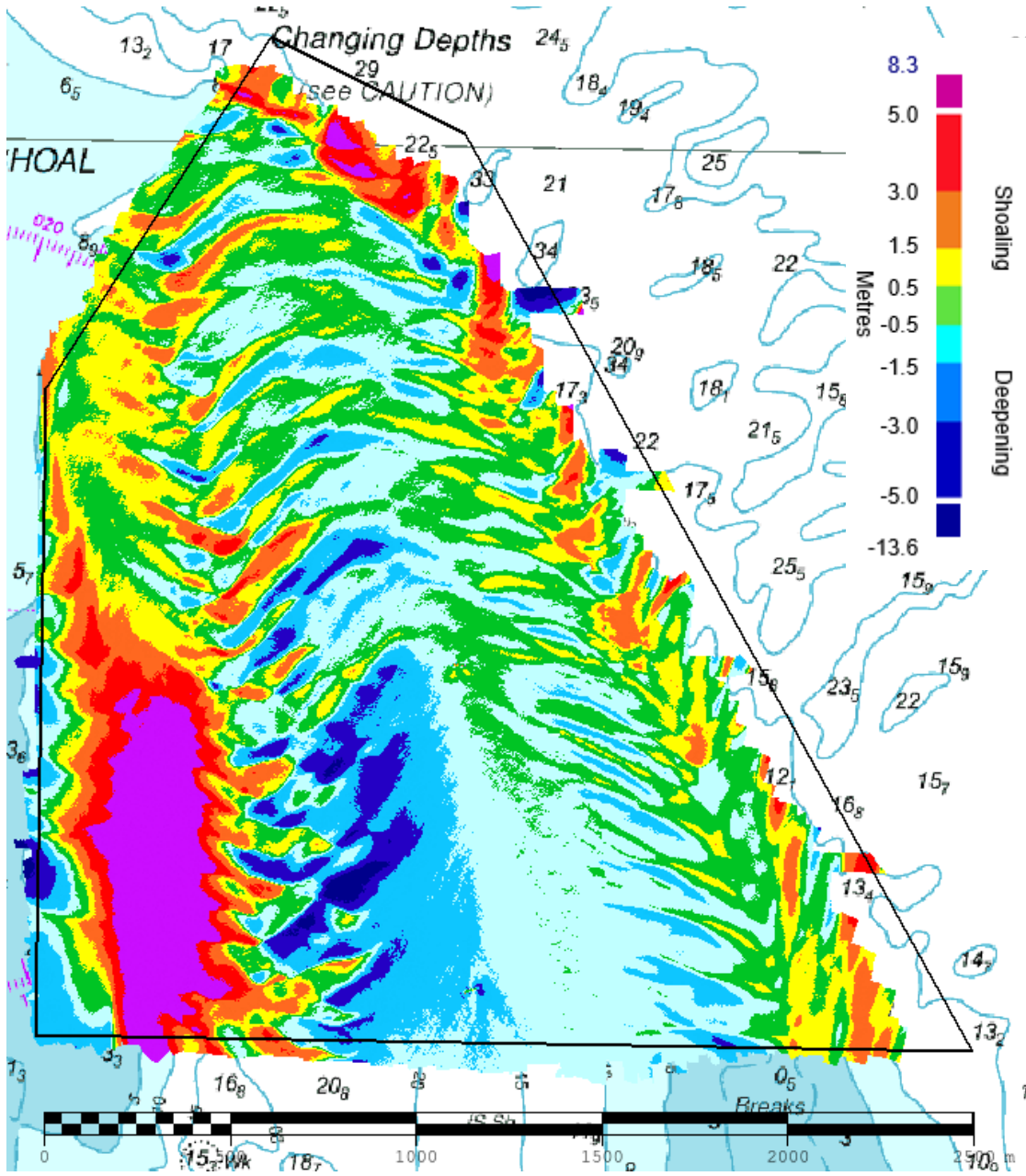


Figure 4 Difference plot 2014 vs 2017 survey overlaid on BA Chart 1534

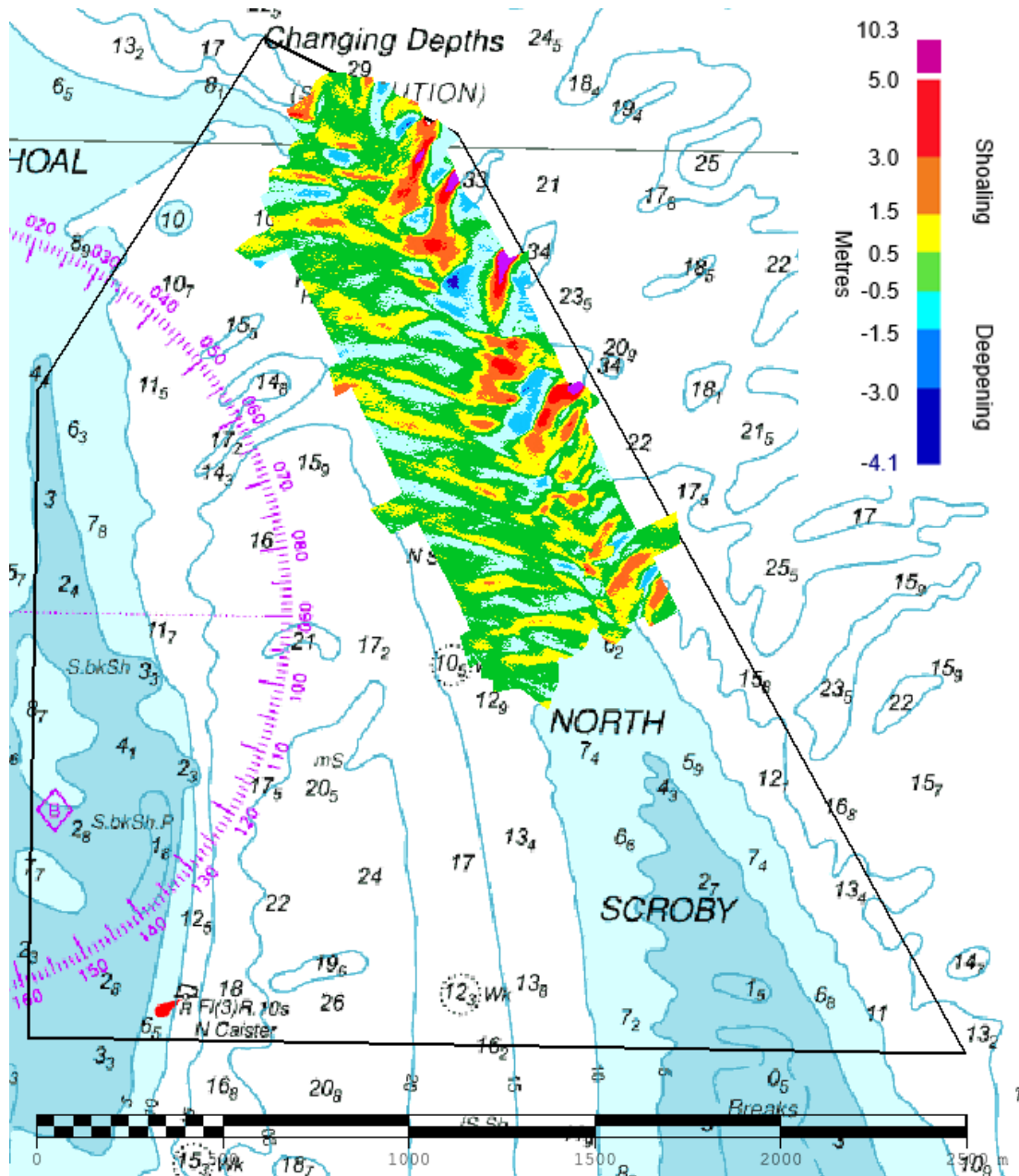
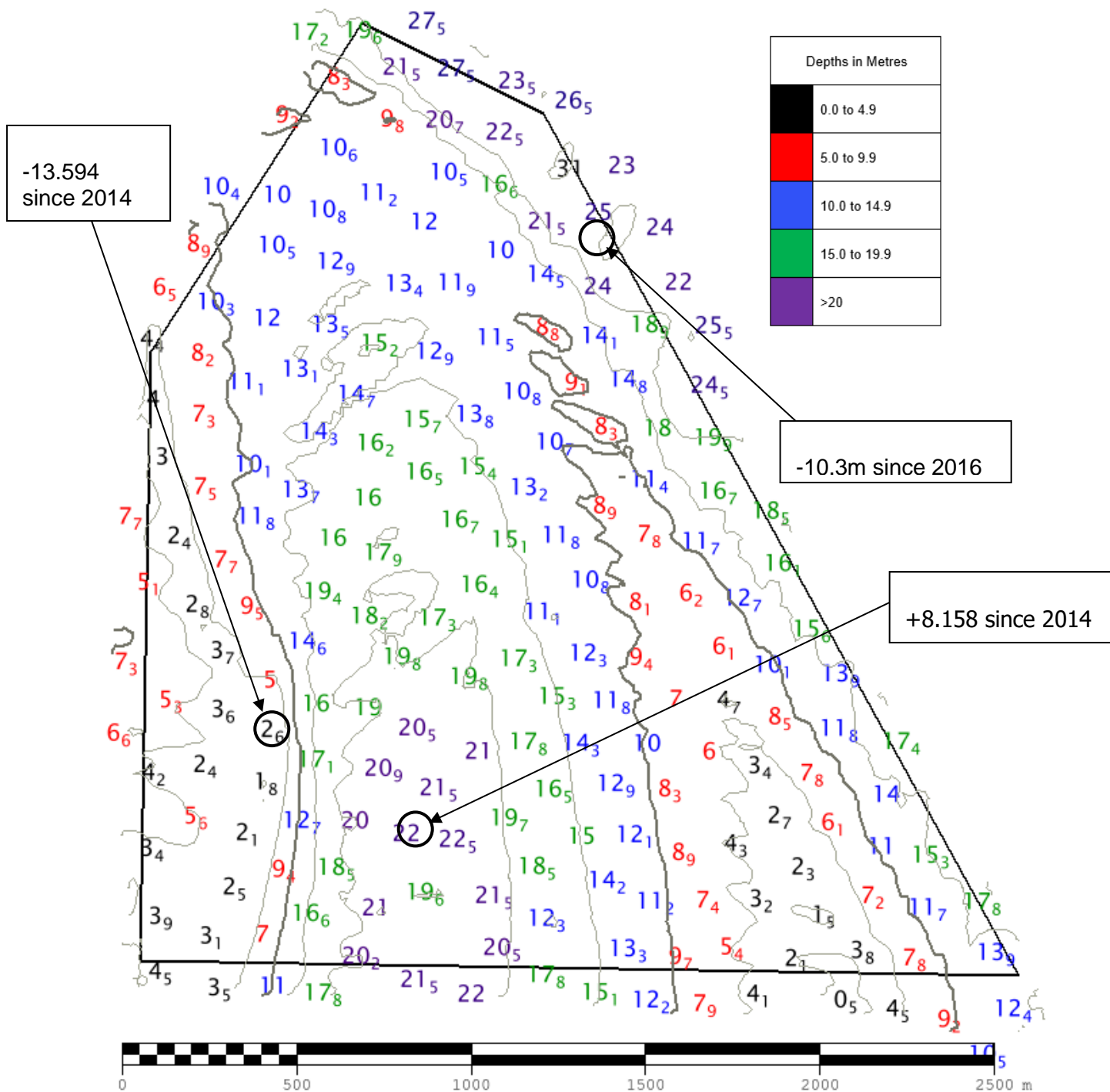


Figure 5 Difference plot 2016 focused survey vs 2017 survey overlaid on BA Chart 1534



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

Figure 6 – Colour Banded Depth Plot from the 2017 Survey with selected depth changes since the 2014 full survey and 2016 focused survey.

6. RECOMMENDATIONS FOR FUTURE SURVEYS

Survey Interval

- 6.1 Due to the mobile nature of North Scroby and Caister Shoal the 3-year frequency should be maintained, with 1-year focused surveys continued over these two banks.
- 6.2 The full survey area can be reduced by moving the western edge approx. 200m eastwards to follow the movement of Caister Shoal to reduce survey effort.

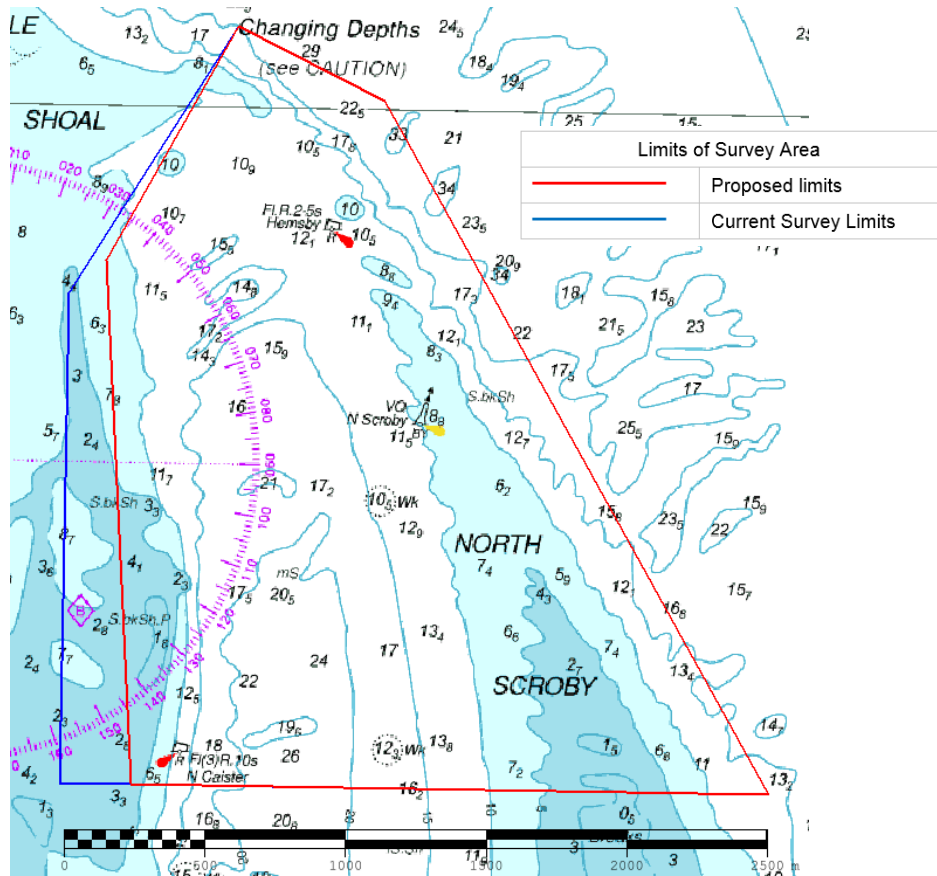


Figure 7 – Future survey limits of area EA3 (current limits given in Blue; future limits given in red)

The WGS'84 coordinates of the recommended adjusted survey area limits for the 3-year full area EA3 are shown below:

EA3 total area: 4.00 km²

A	52.678328N	001.759357E
B	52.695042N	001.757565E
C	52.702595N	001.764330E
D	52.700313N	001.772087E
E	52.678332N	001.792873E