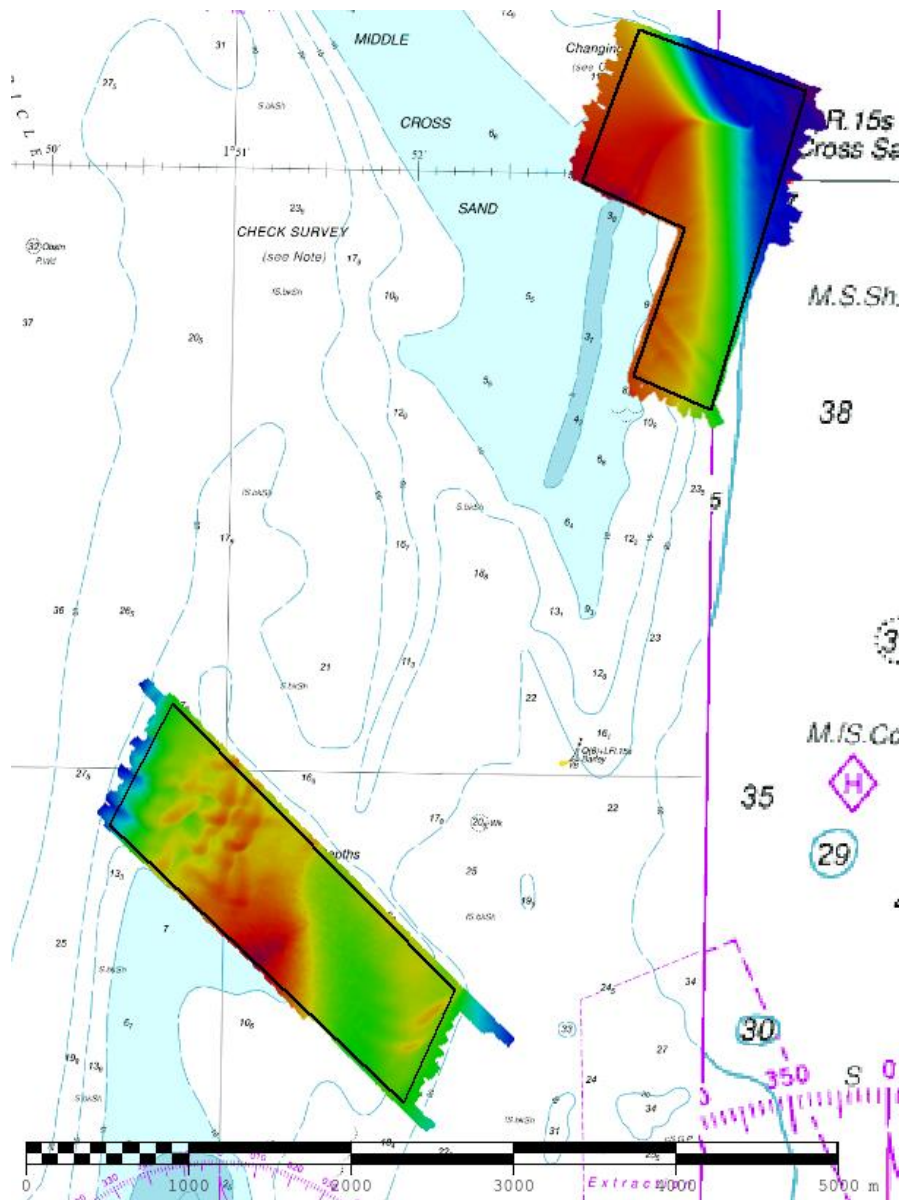


## EAST ANGLIA EA7A & EA7B – CROSS SAND FOCUSSED 2017 ASSESSMENT

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.



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### 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).

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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.

## **EA7A & EA7B – CROSS SAND, 2017**

### **1. SUMMARY**

#### **Changes Detected**

- 1.1 Middle Cross Sand shoal (area EA7b) continues to move to the north, with the 10m contour having moved approximately 625m since 2014.
- 1.2 The northern end of South Cross (area EA7a) has moved west by approximately 150m with some additional shoals building in the north.

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

- 1.3 Depths in the area are dynamic and remain potentially hazardous vessels with a draught of 6m or more that navigate the area and therefore require continued monitoring through 12-year surveys with 3-year focused surveys over the mobile shoals.

#### **Recommendations**

- 1.4 EA7a limits will require revision to ensure future seabed change at the Northern end of South Cross is monitored.
- 1.5 EA7b will also require revision, moving further North to match the movement of Middle Cross Sand.

### **2. LOCATION**

- 2.1 Survey interval at time of resurvey: 12 years full area, 3 years focused.
- 2.2 Area Covered:
  - 2.2.1 EA7a: 1.89 km<sup>2</sup>
  - 2.2.2 EA7b: 1.66 km<sup>2</sup>



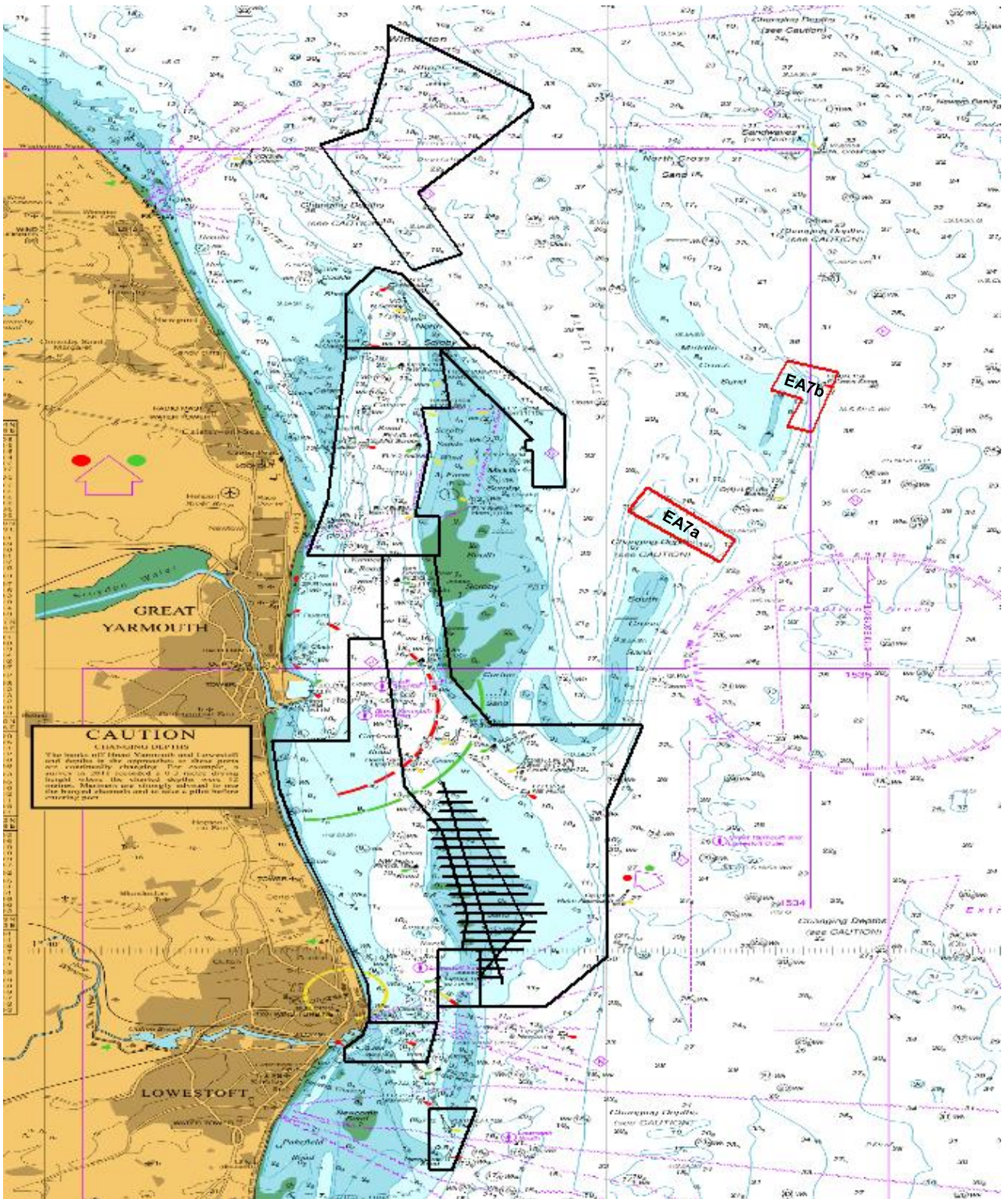


Figure 1 – 2017 East Anglia RRS areas overlaid on BA 1543 with EA7a and EA7b shown in Red



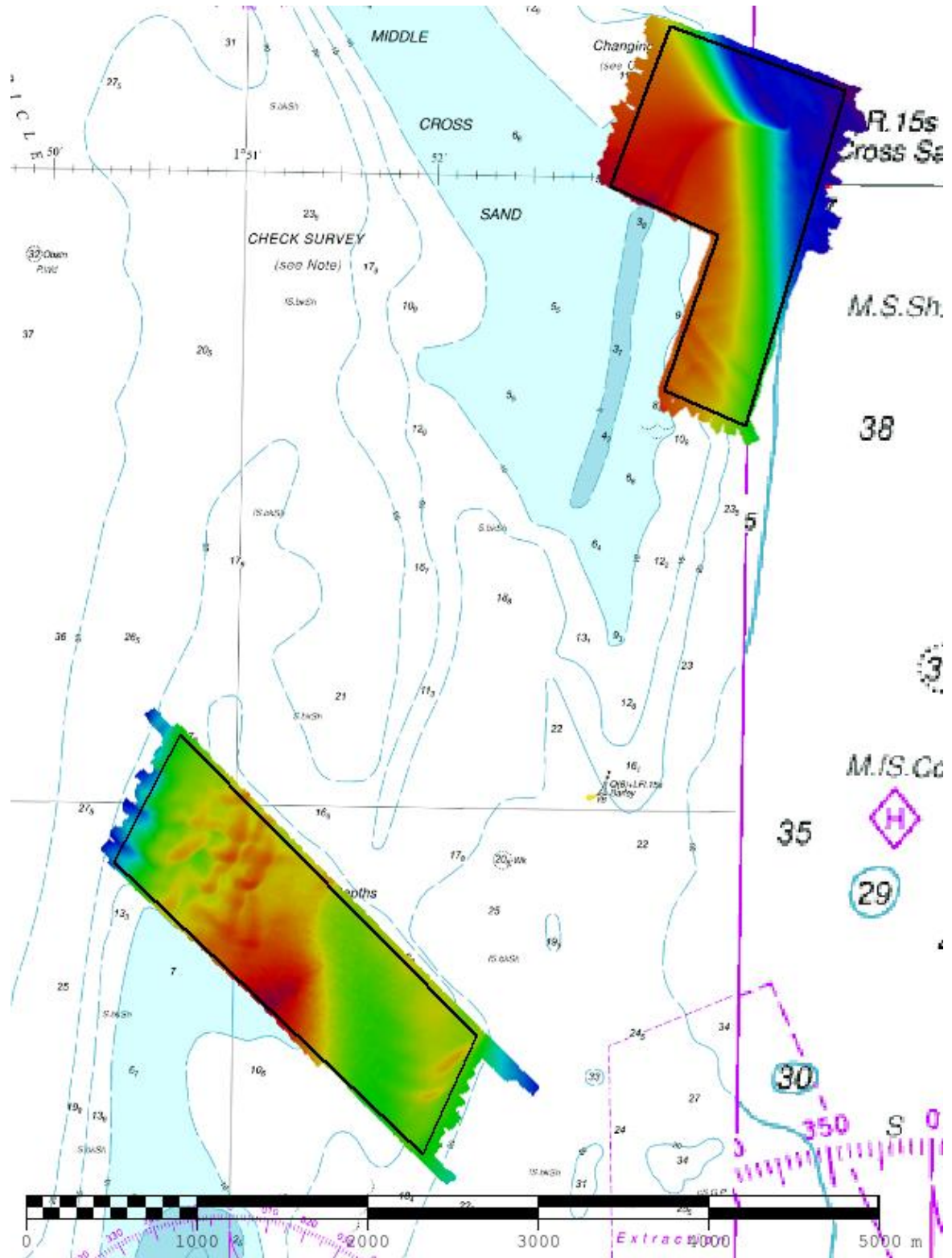


Figure 2 – 2017 survey data sun-illuminated view overlaid on BA Chart 1534

### 3. REFERENCE SURVEY DETAIL

- 3.1 Previous survey conducted in August and September of 2014 as part of HI 1458.
- 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 Focused survey was conducted in May, July and September – 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 Controlling depths (figure 3) of area EA7a is a shoal spot of 7.8m presenting a potential hazard to vessels with a draft of 6m or more navigating the Barley Picle channel.
- 5.2 A controlling depth (figure 3) of 7.3 is found in area EA7b, again potentially exhibiting a hazard to vessels that draught 5.5m or more.
- 5.3 The difference surface (Figure 4) shows the movement of Middle Cross shoal to the north, and the easterly movement of South Cross with slight shoal depths in the north.

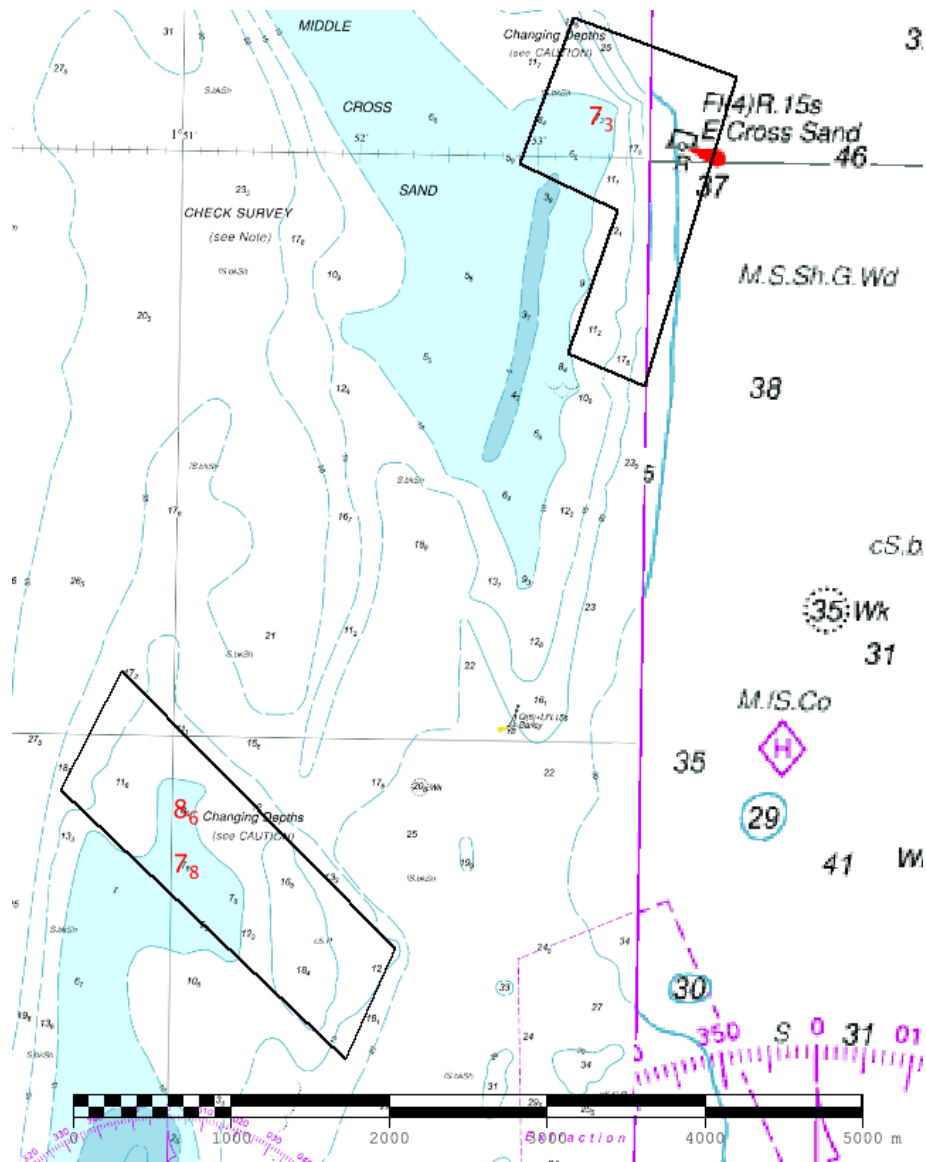


Figure 3 Controlling depths from 2017 survey (shown in red) overlaid on BA Chart 1534

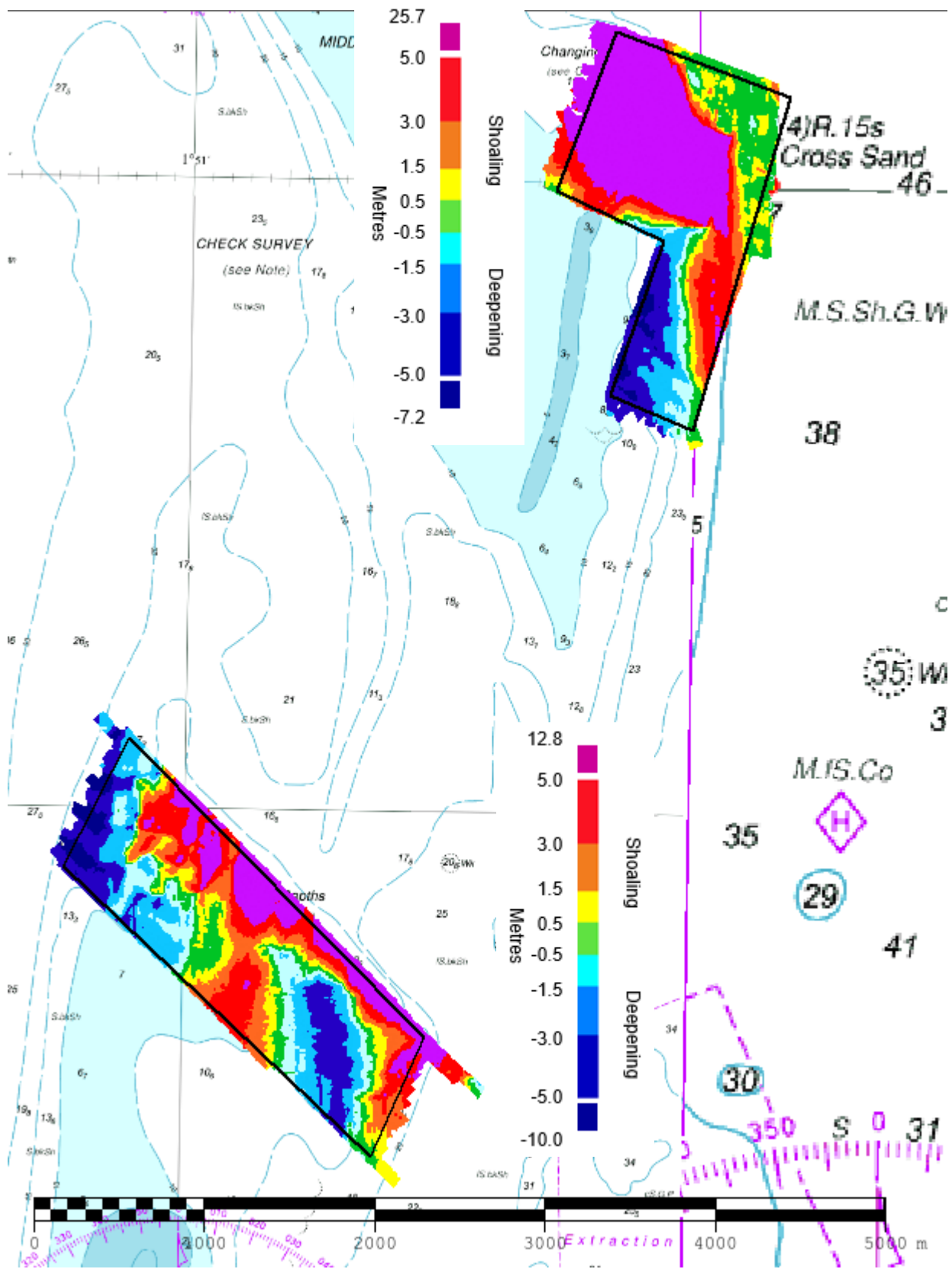
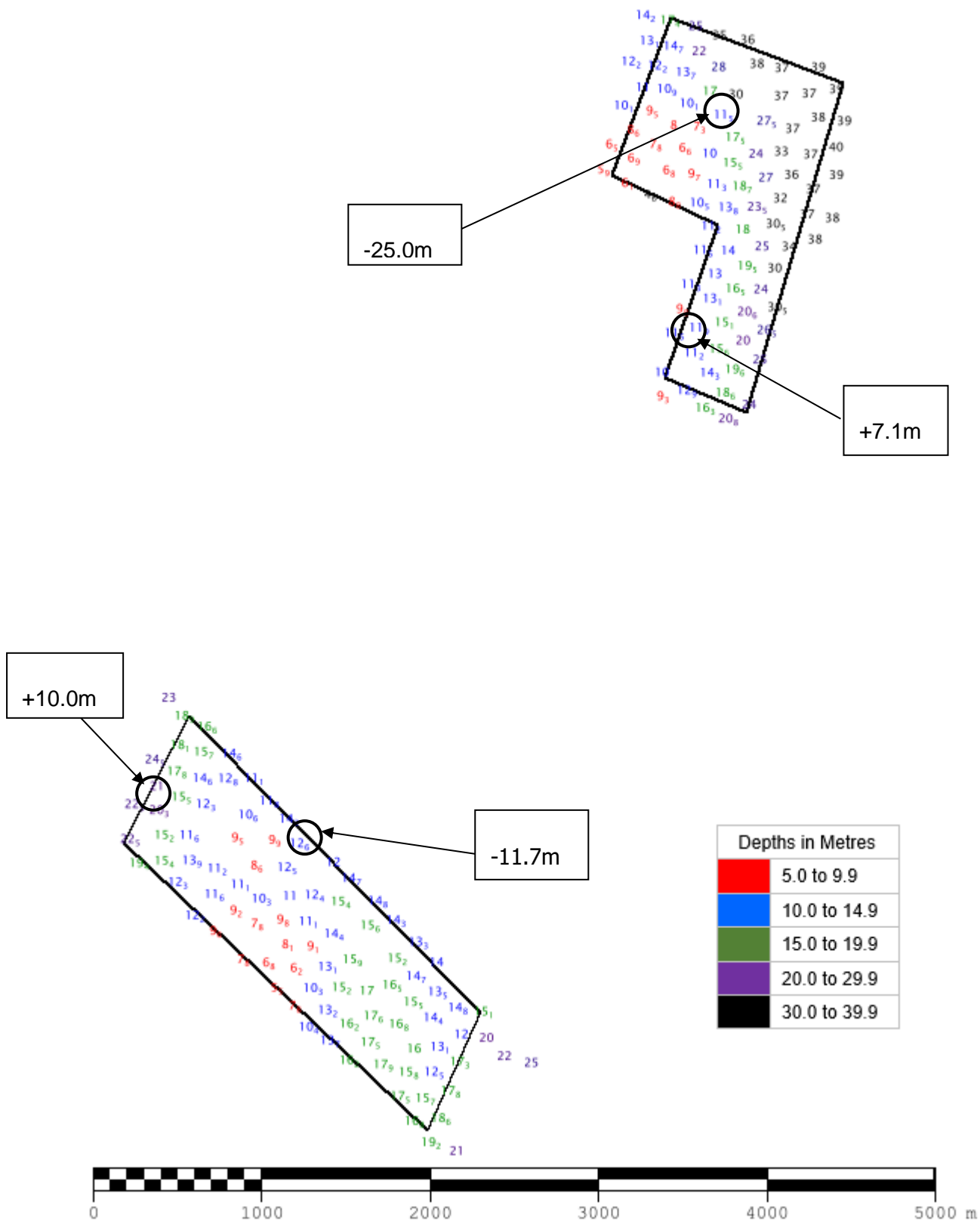


Figure 4 Difference plot 2014 survey vs 2017 survey overlaid on BA Chart 1534



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 2014 survey



## 6. RECOMMENDATIONS FOR FUTURE SURVEYS

### Survey Interval

6.1 The interval of surveys can remain at 12-years for the full area, while the focused areas over the mobile shoals can continue every 3-years.

### Survey Area

6.2 Both focused areas need revision to continue monitoring the mobile shoals of Middle Cross and South Cross.

6.3 EA7a should extend north and south while still encompassing shoaler areas in the east.

6.4 EA7b should be extended to move north to follow the Middle Cross Shoal migration.

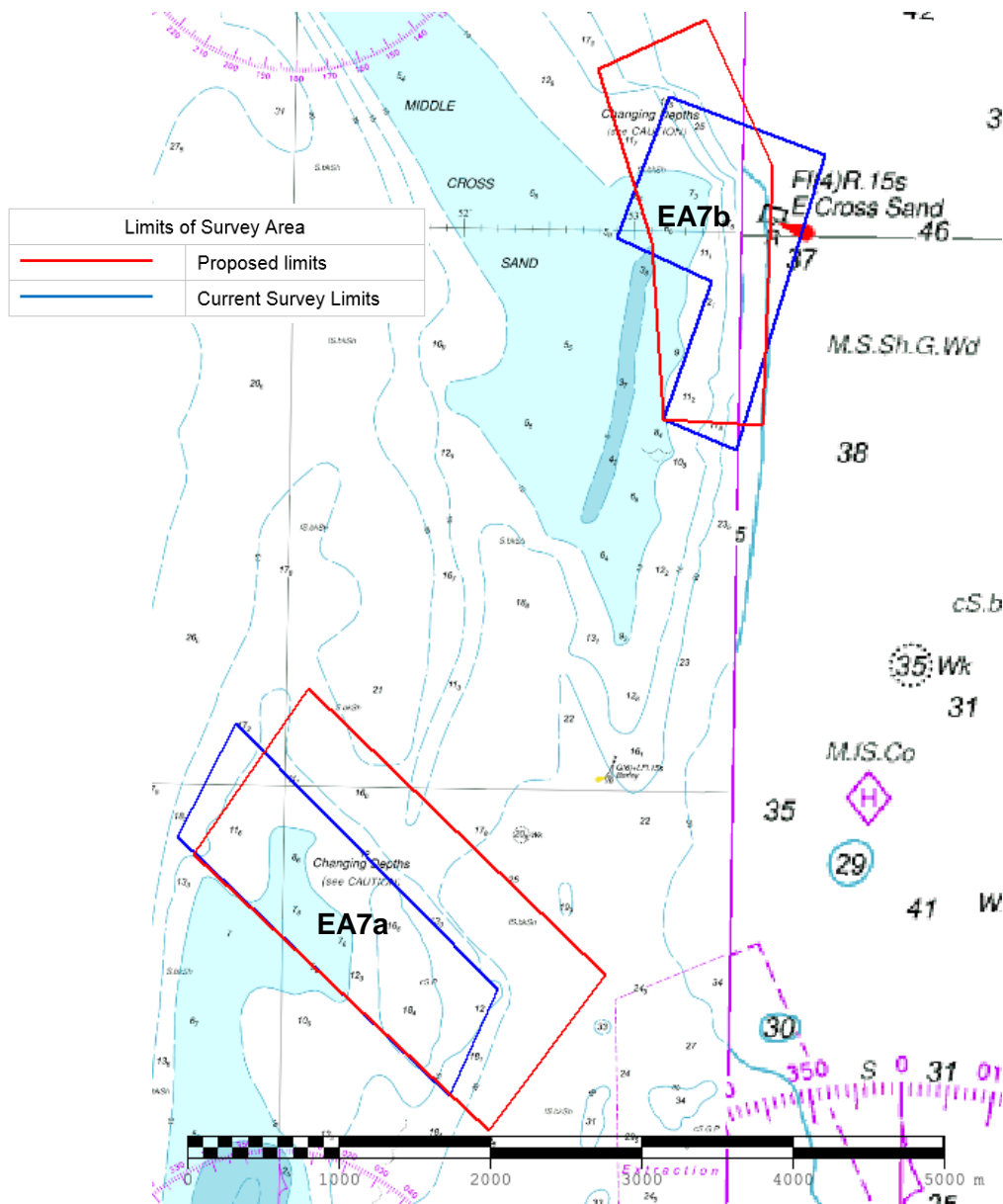


Figure 6 – Proposed future survey limits of areas EA7a and EA7b (current limits given in Blue; future limits given in red)

The WGS'84 coordinates of the recommended adjusted survey area limits for the annual focused area EA7a and EA7b are shown below:

EA7a total area: 3.50 km<sup>2</sup>

A	52.62921	1.84117
B	52.63916	1.85208
C	52.62238	1.88151
D	52.61302	1.87037

EA7b total area: 2.00 km<sup>2</sup>

A	52.67624	1.87945
B	52.67925	1.88985
C	52.67058	1.89658
D	52.65518	1.89606
E	52.65550	1.88635
F	52.66603	1.88495