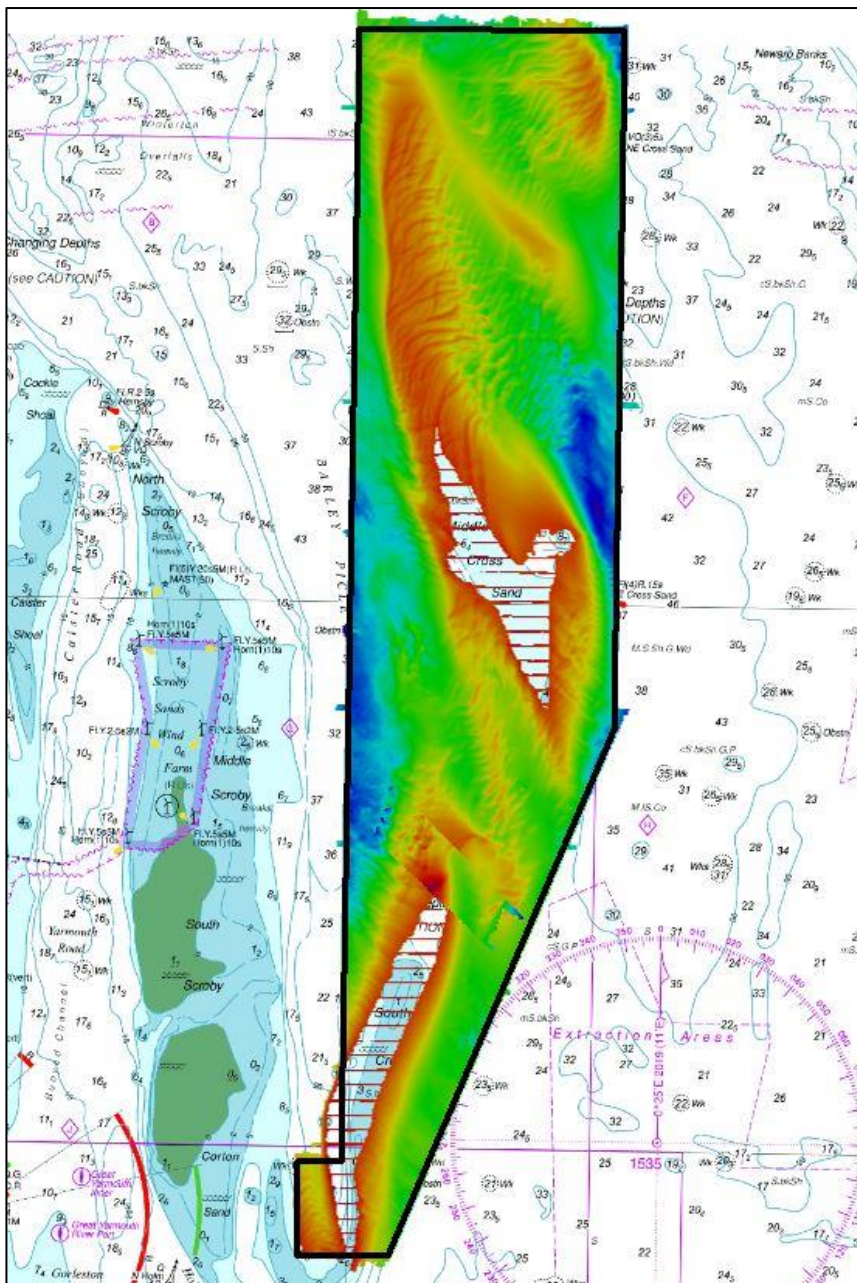




UK Hydrographic
Office

EAST ANGLIA EA7 CROSS SANDS FULL 2020 ASSESSMENT

An assessment of the 2020 hydrographic survey of the area EA7: 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 DfT (including the MCA) and the MOD (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.

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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 Chart Datum, defined using the UKHO VORF Model.

EA7 – CROSS SANDS, 2020

1. SUMMARY

Changes Detected

- 1.1 South Cross Sand continues to move north east into the deeper channel between South Cross Sand and Middle Cross Sand.
- 1.2 There is also continued movement north east around Middle Cross Sand since the 2017 survey.

Reasons for Continuing to Resurvey the Area

- 1.3 Depths in the area remain hazardous and changeable to deep draught vessel navigating the area and therefore require continued monitoring through 12-year full surveys and 3-year focused surveys.

Recommendations

- 1.4 EA7 full survey area should remain the same. However, EA7A and EA7B will require revision to their survey areas to help monitor movement of South Cross Sand and Middle Cross Sand.

2. LOCATION

- 2.1 Survey interval at time of resurvey: 12 years full, 3 years focused.
- 2.2 Area Covered: 82.15 km²

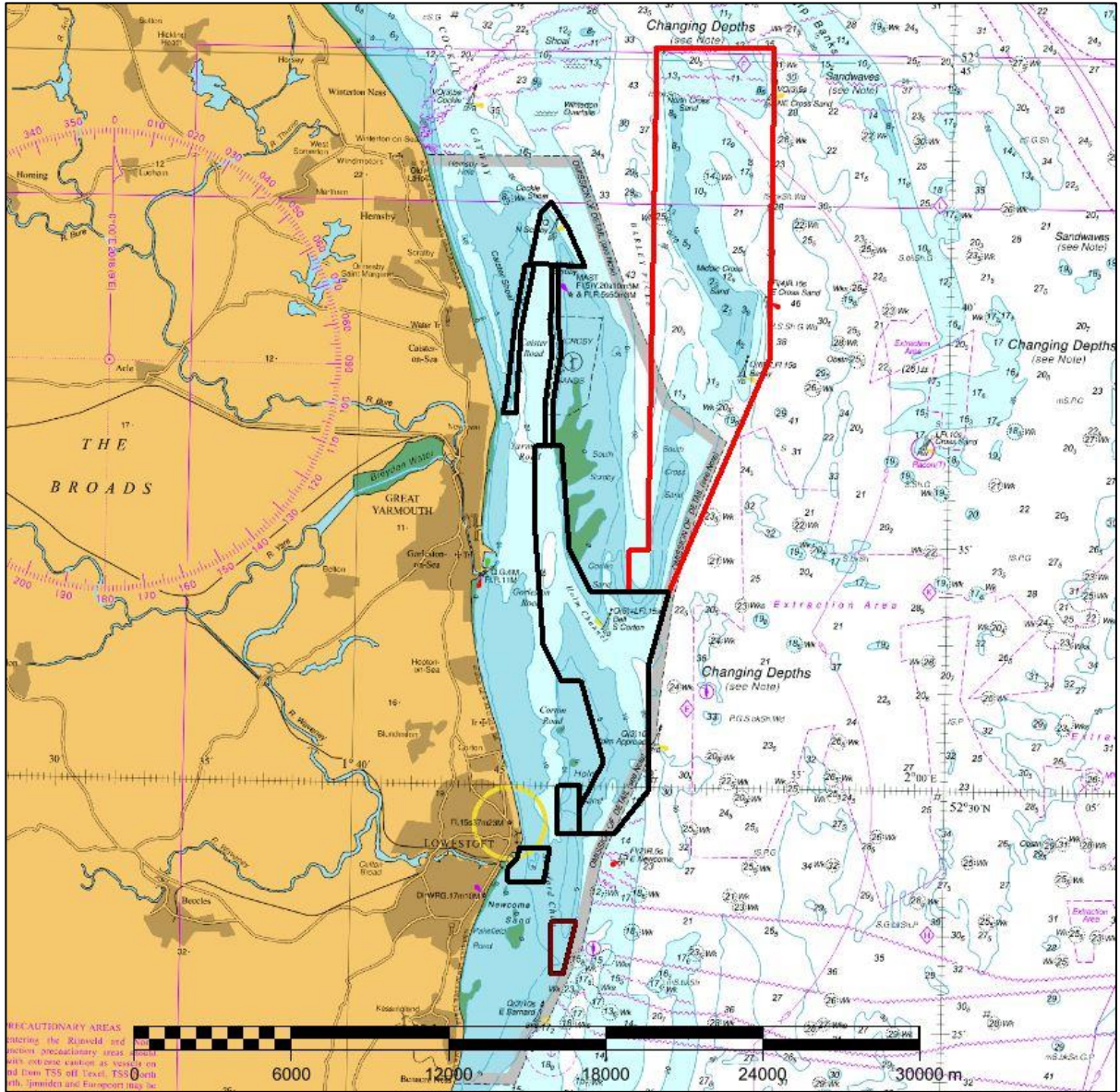


Figure 1: 2020 East Anglia Routine Resurvey areas overlaid on BA Chart 1504 with area EA7 in red

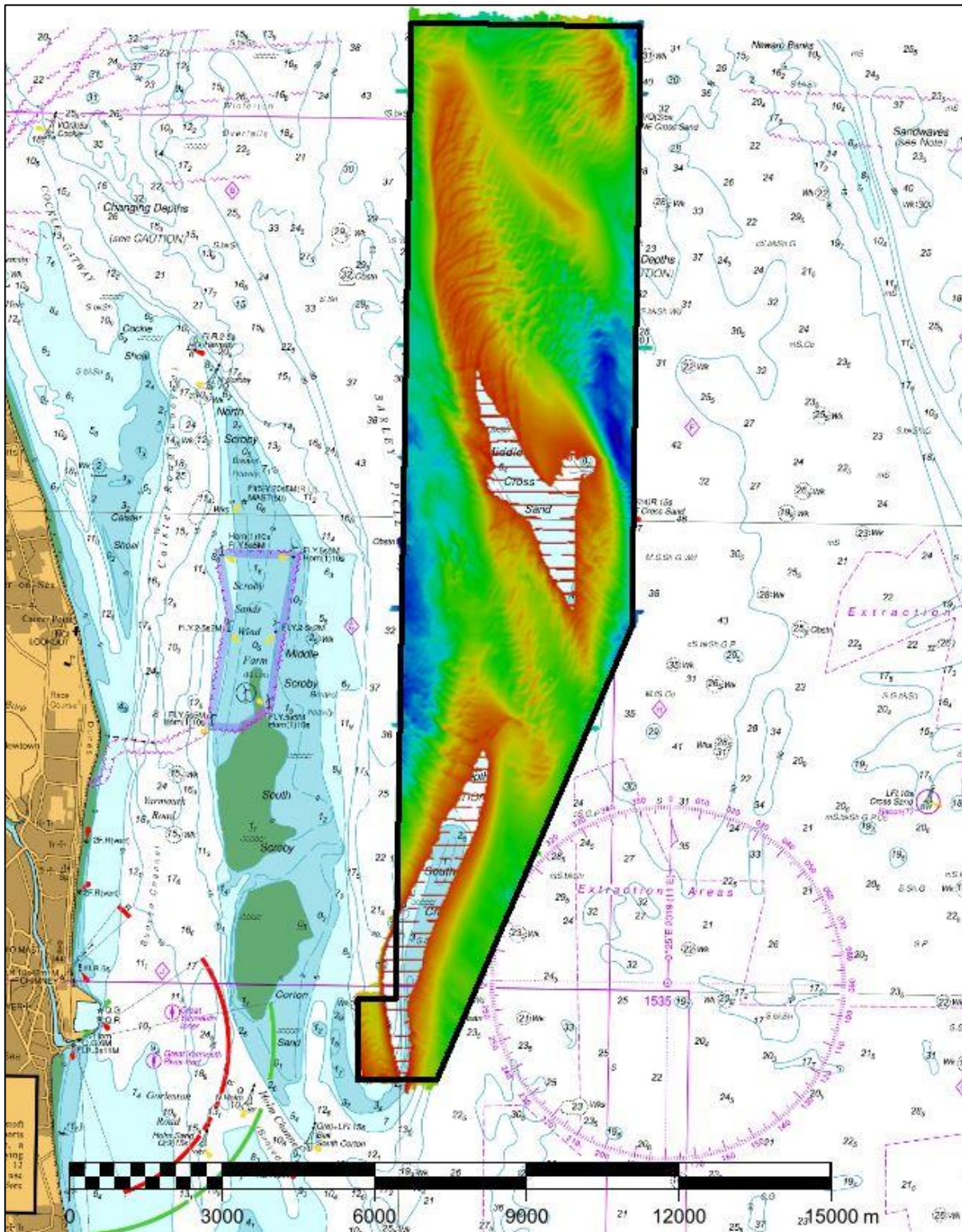


Figure 2: 2020 survey data overlaid on BA Chart 1543

3. REFERENCE SURVEY DETAIL

3.1 The previous focused survey was conducted as part of the 2017 Routine Resurvey Programme, CHP between May, July, September - November 2017 as HI 1545. Another focused survey was conducted as part of the 2014 Routine Resurvey Programme, CHP between August and September 2014 as HI 1458. The last full survey was conducted as part of the 2008 Routine Resurvey Programme, CHP between May and June 2008 as HI 1272.

- 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 the Admiralty Marine Data Portal.

4. NEW SURVEY DETAIL

- 4.1 Full survey was conducted as part of the 2020 Routine Resurvey Programme, CHP in October 2020 as HI 1686.
- 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 the Admiralty Marine Data Portal.

5. DESCRIPTION OF RECENT BATHYMETRIC CHANGE

- 5.1 Figure 3 shows that the least depth in the 2020 survey is 1.7 meters, located in the far south of the survey area. Significant depths are highlighted in red.
- 5.2 The difference surfaces in Figure 4 show continued shoaling in the north of South Cross Sand, with movement north east into the deeper channel between South Cross Sand and Middle Cross Sand since the 2017 survey. It appears that the eastern side of the central section of Middle Cross Sand is moving north east since the 2017 surveys, with shoaler depths showing north and east of the bank, as seen in Figure 5. Since the 2014 survey, there appears to be shoaling between South Cross Sand and Middle Cross Sand as seen in Figure 6. There is also shoaling around the central section of Middle Cross Sand. Finally, Figure 7 shows shoaling to the west of North Cross Sand since the 2014 survey.
- 5.3 The depth plot in Figure 9 and 10 show some significant differences in depth between the 2014, 2017 and the 2020 surveys. The least depth on the EA7A 2017 survey has moved 231m west from the 2020 survey. The least depth on the EA7B 2017 survey has moved 541m north west on the 2020 survey.

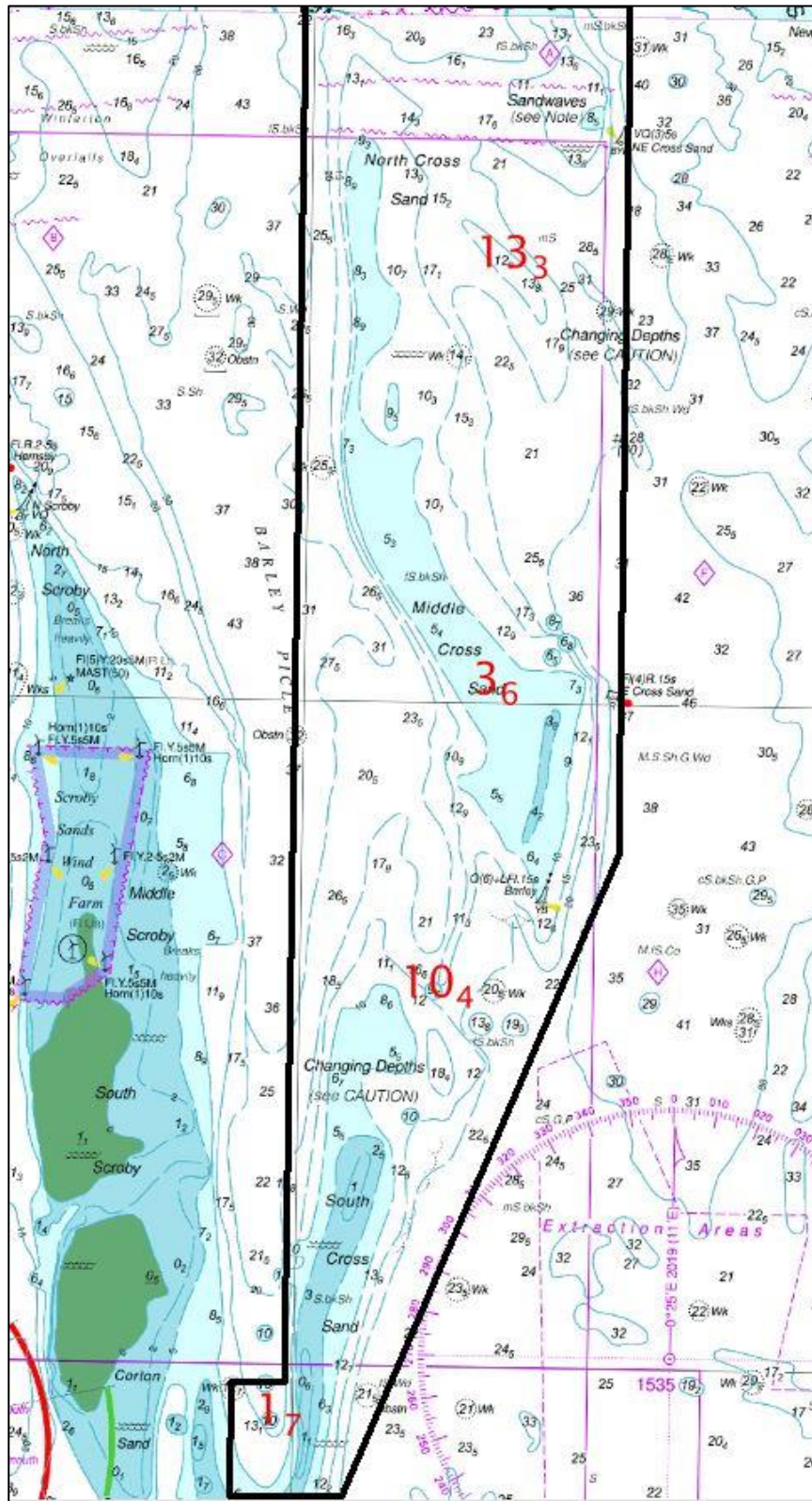


Figure 3: Significant depth soundings highlighted, overlaid on BA Chart 1543. Least depth seen in far south of survey area.

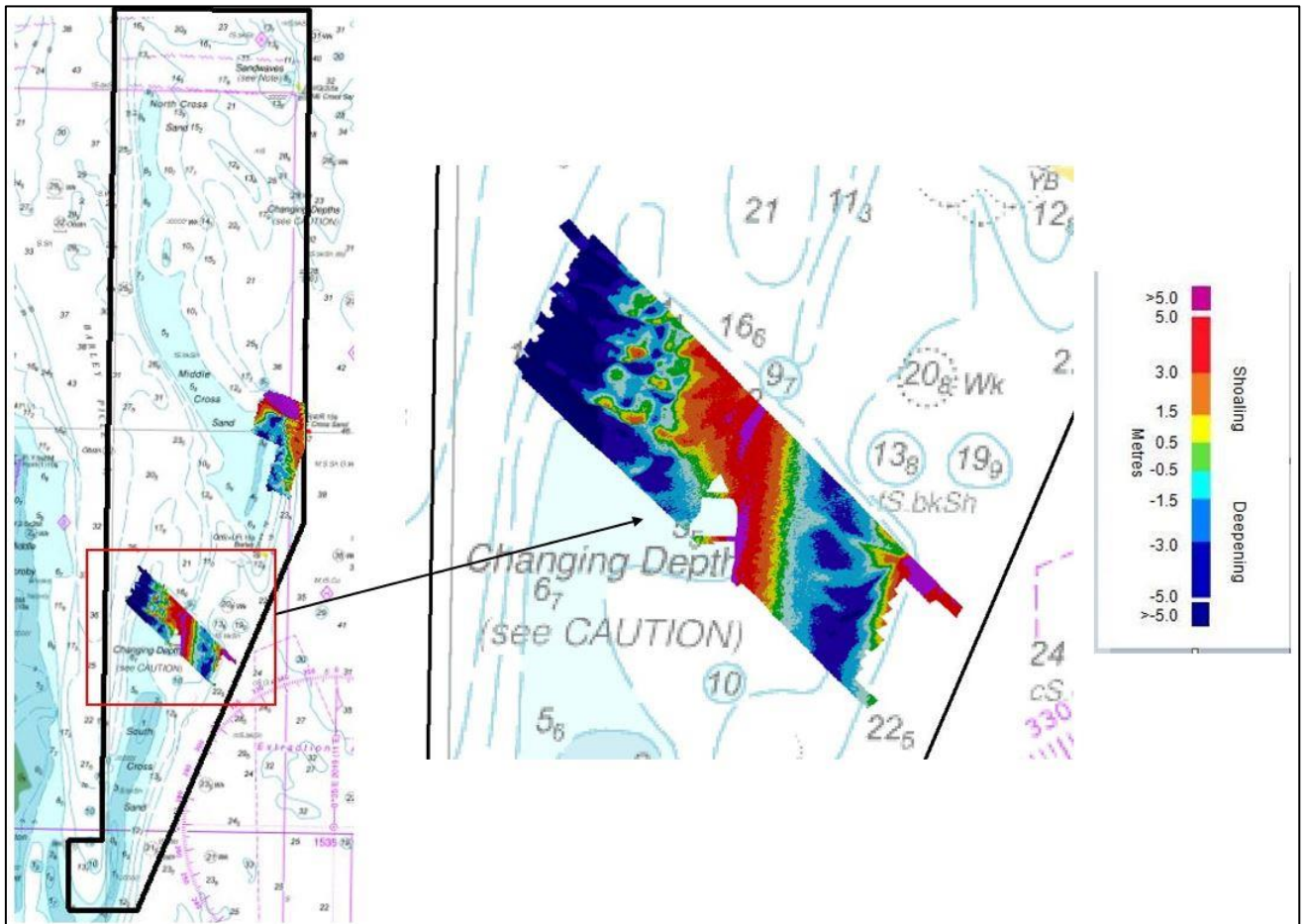


Figure 4: Difference surface showing bathymetric changes between the 2020 EA7 and 2017 EA7A and EA7B surveys overlaid on BA Chart 1543 (2017 EA7A highlighted in red)

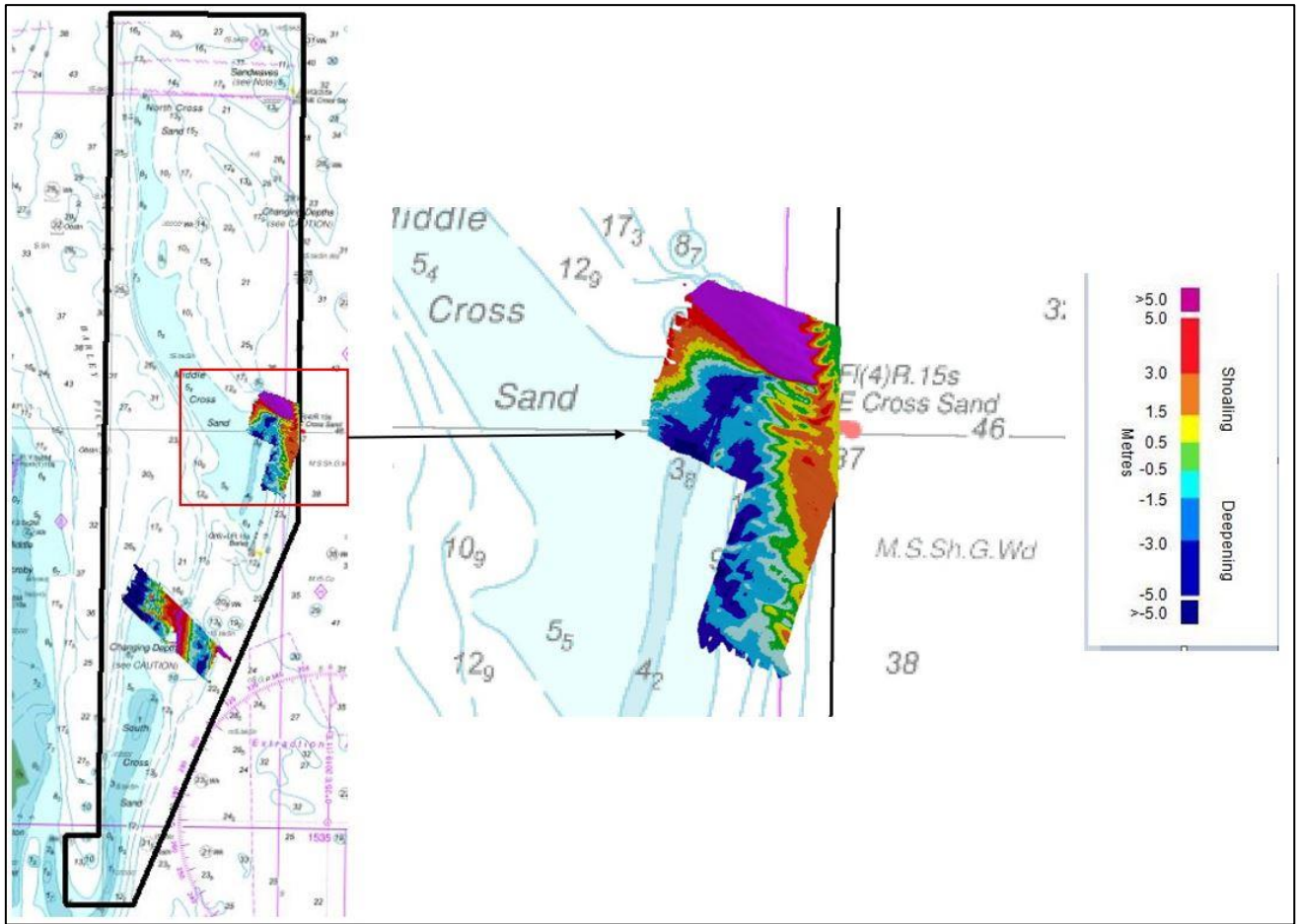


Figure 5: Difference surface showing bathymetric changes between the 2020 EA7 and 2017 EA7A and EA7B surveys overlaid on BA Chart 1543 (2017 EA7B highlighted in red)

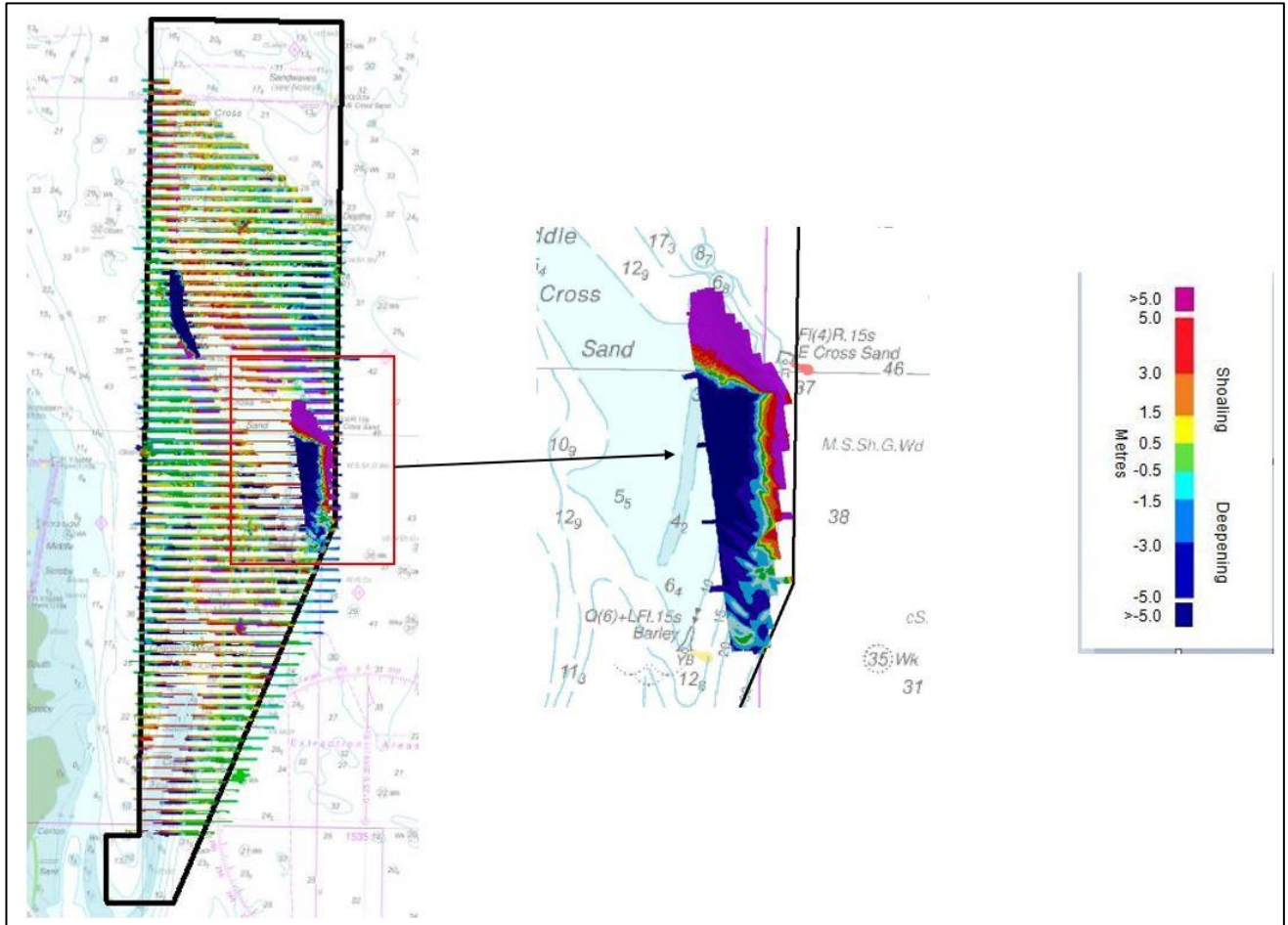


Figure 6: Difference surface showing bathymetric changes between the 2020 EA7 and 2014 EA7B and EA7C surveys overlaid on BA Chart 1543 (2014 EA7B highlighted in red)

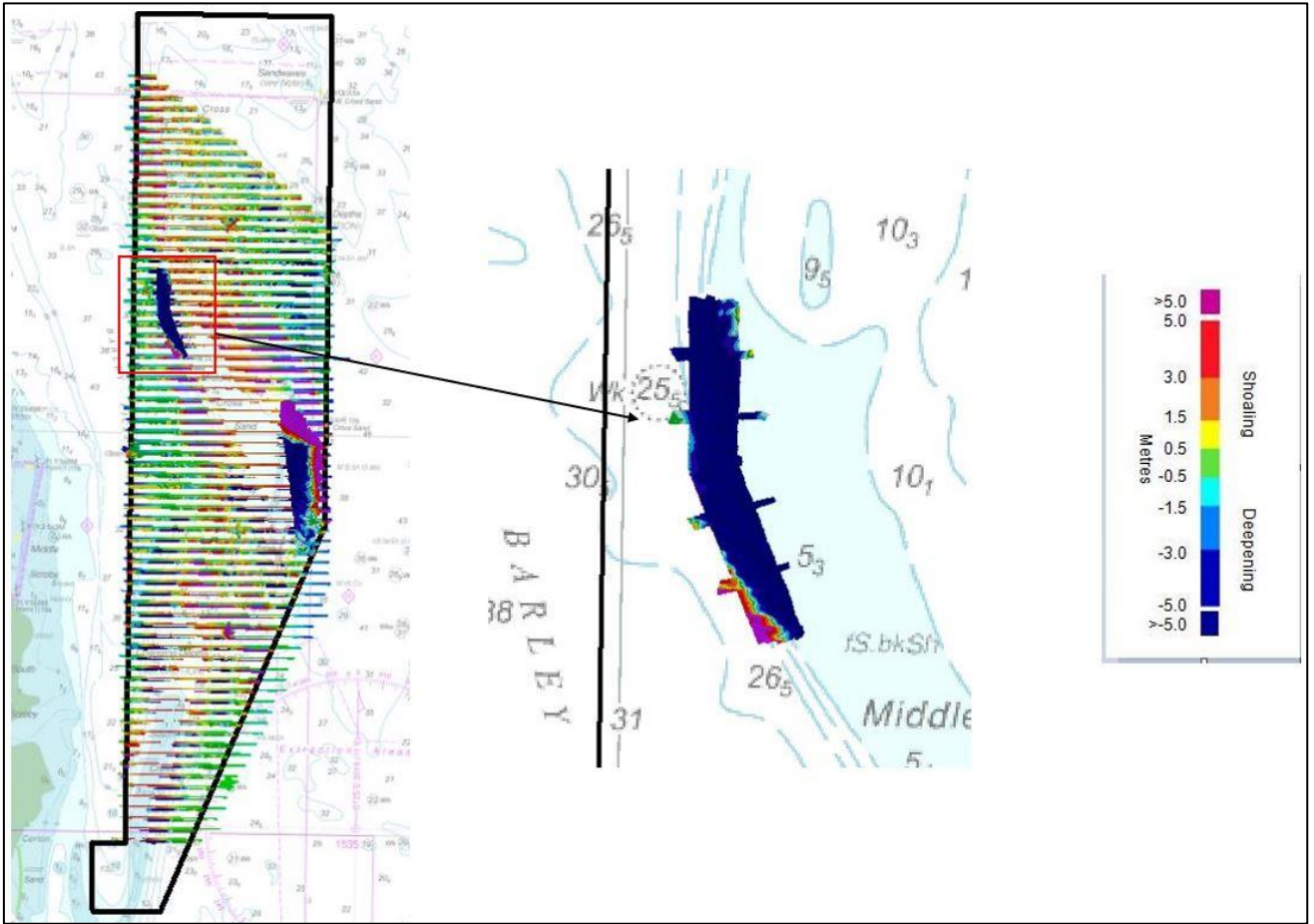


Figure 7: Difference surface showing bathymetric changes between the 2020 EA7 and 2014 EA7B and EA7C surveys overlaid on BA Chart 1543 (2014 EA7C highlighted in red)

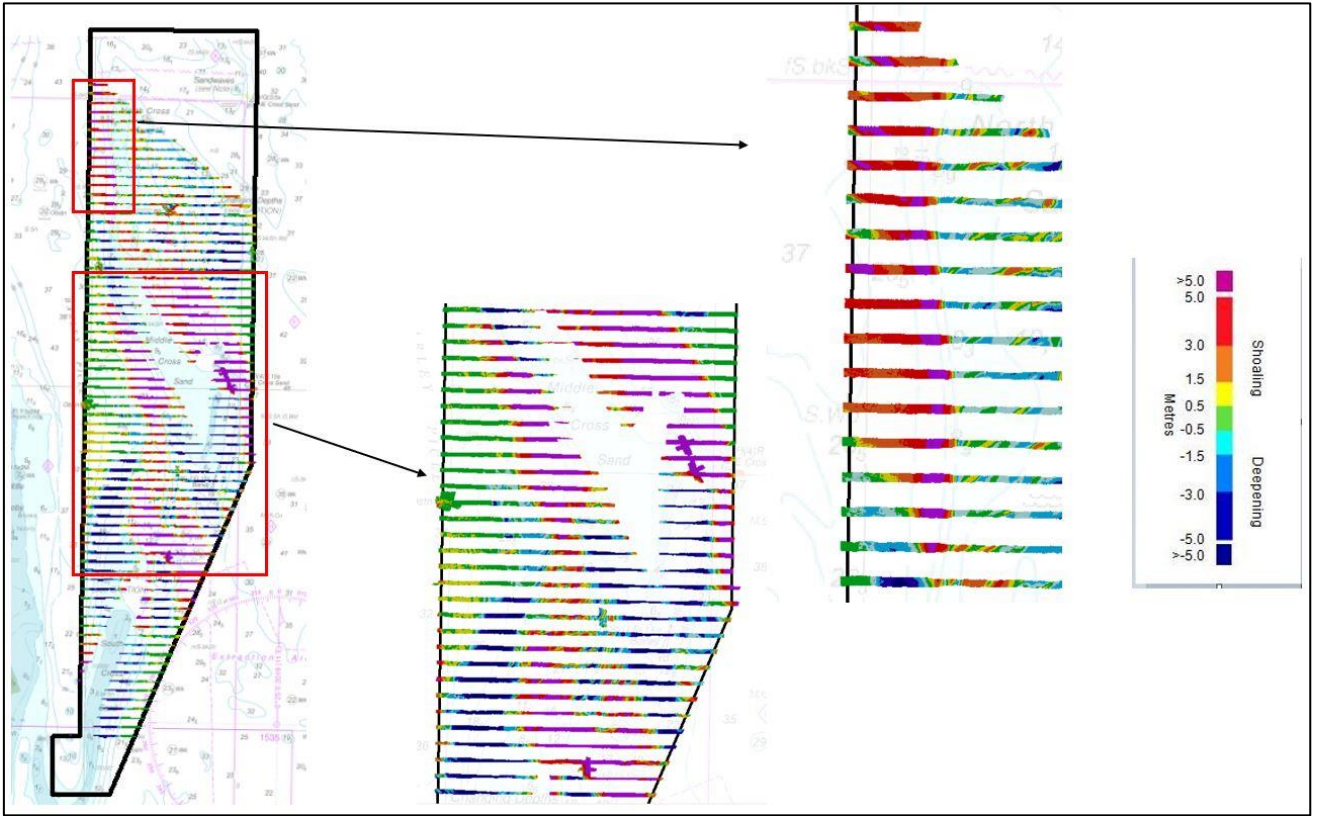


Figure 8: Difference surface showing bathymetric changes between the 2020 and 2014 EA7 surveys overlaid on BA Chart 1543 (Areas of significant shoaling highlighted in red)

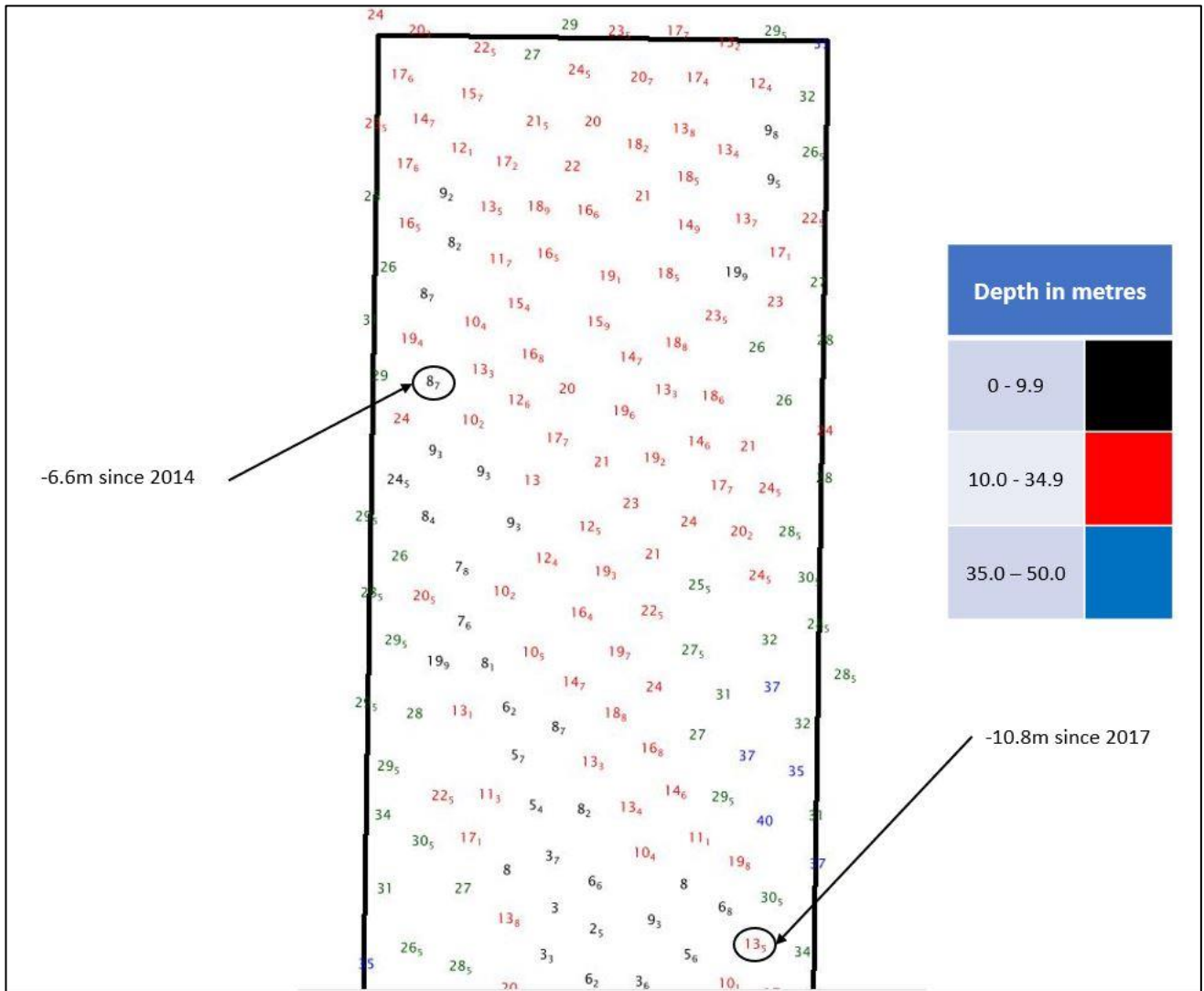


Figure 9: Colour banded depth plot from the 2020 survey with selected depth changes since the 2017 and 2014 surveys. Positive values (+) represent deepening. Negative values (-) represent shoaling.

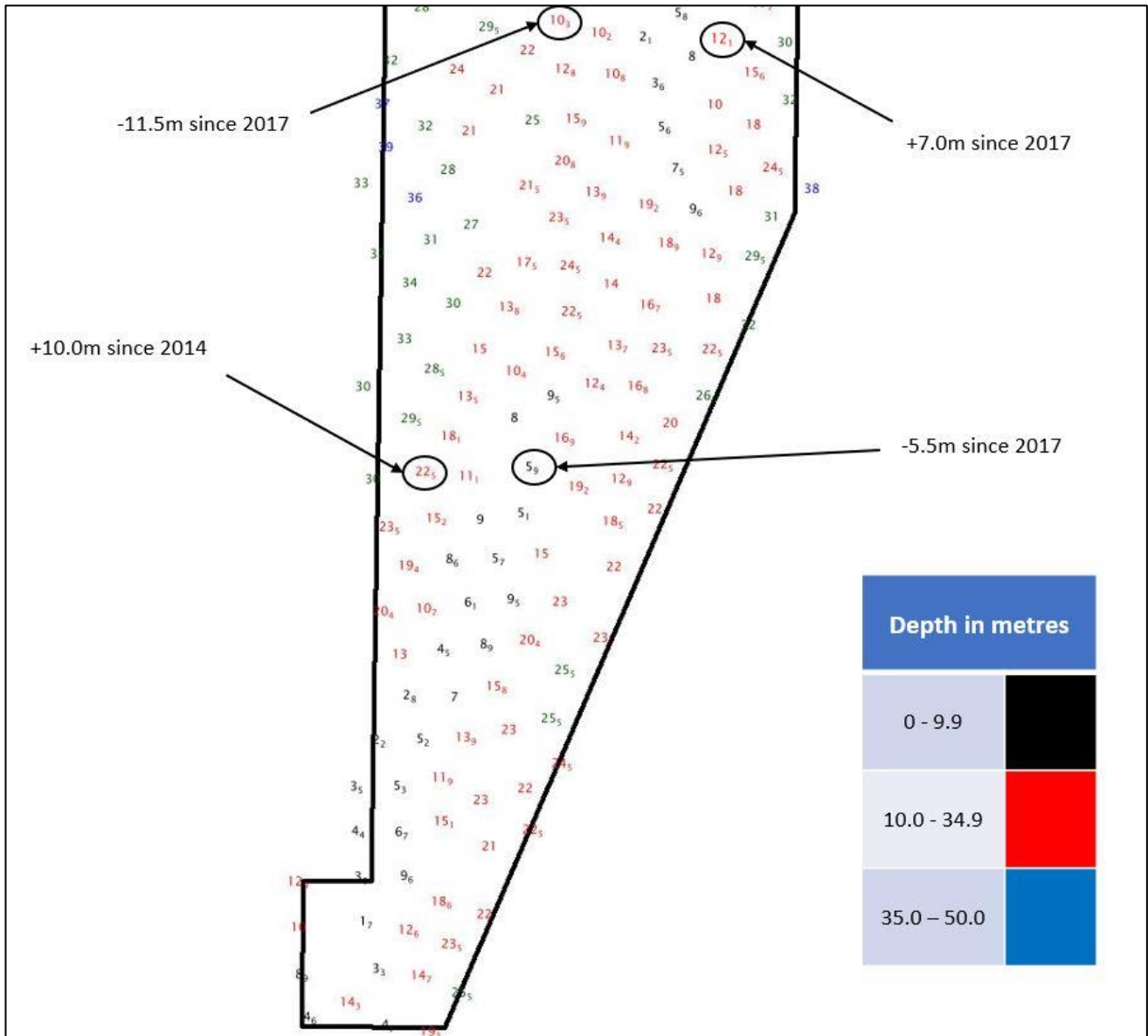


Figure 10: Colour banded depth plot from the 2020 survey with selected depth changes since the 2017 and 2014 surveys. Positive values (+) represent deepening. Negative values (-) represent shoaling.

6. RECOMMENDATIONS FOR FUTURE SURVEYS

Survey Interval

- 6.1 It is recommended that the 12-yearly EA7 full survey continue as well as the 3-yearly EA7A and EA7B focused survey.

Survey Area

- 6.2 The survey area for the EA7 full area should remain the same. However, the survey area for the focused areas EA7A and EA7B should change to monitor the movement of South Cross Sand north, and the movement of Middle Cross Sand north east.

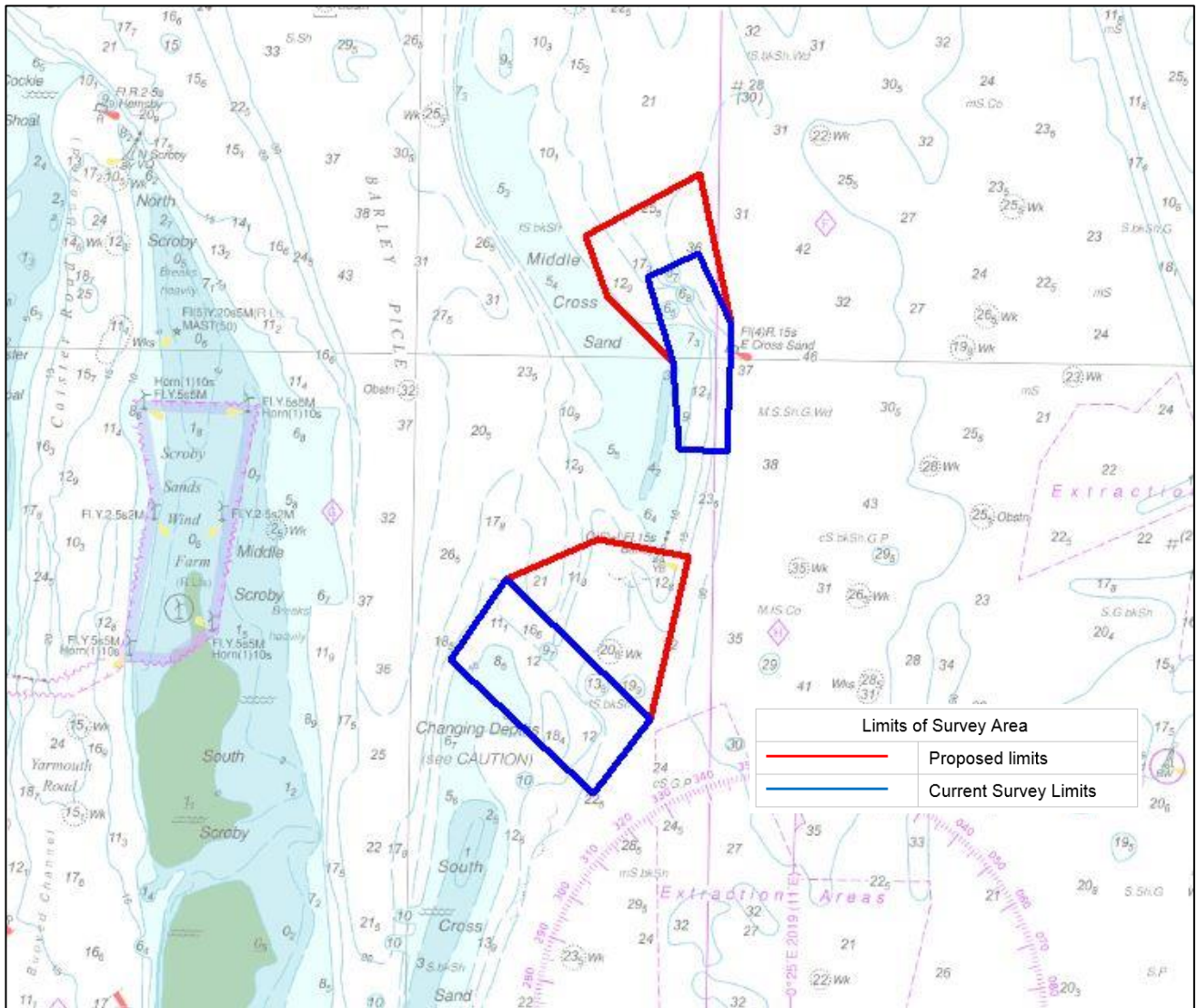


Figure 11: Recommended changes to survey limits of areas EA7A and EA7B

The coordinates of the recommended adjusted survey area limits for the 3-yearly focused areas EA7A and EA7B are shown below:

EA7A total area: 6.63 km²

A	52.62921N	1.84117E
B	52.63916N	1.85208E
C	52.64412N	1.87054E
D	52.64219N	1.88881E
E	52.62238N	1.88151E
H	52.61302N	1.87037E

EA7B total area: 4.05 km²

A	52.67372N	1.87157E
B	52.68125N	1.86701E
C	52.68903N	1.88968E
D	52.67058N	1.89658E

E	52.65518N	1.89606E
H	52.65550N	1.88635E
I	52.66603N	1.88495E