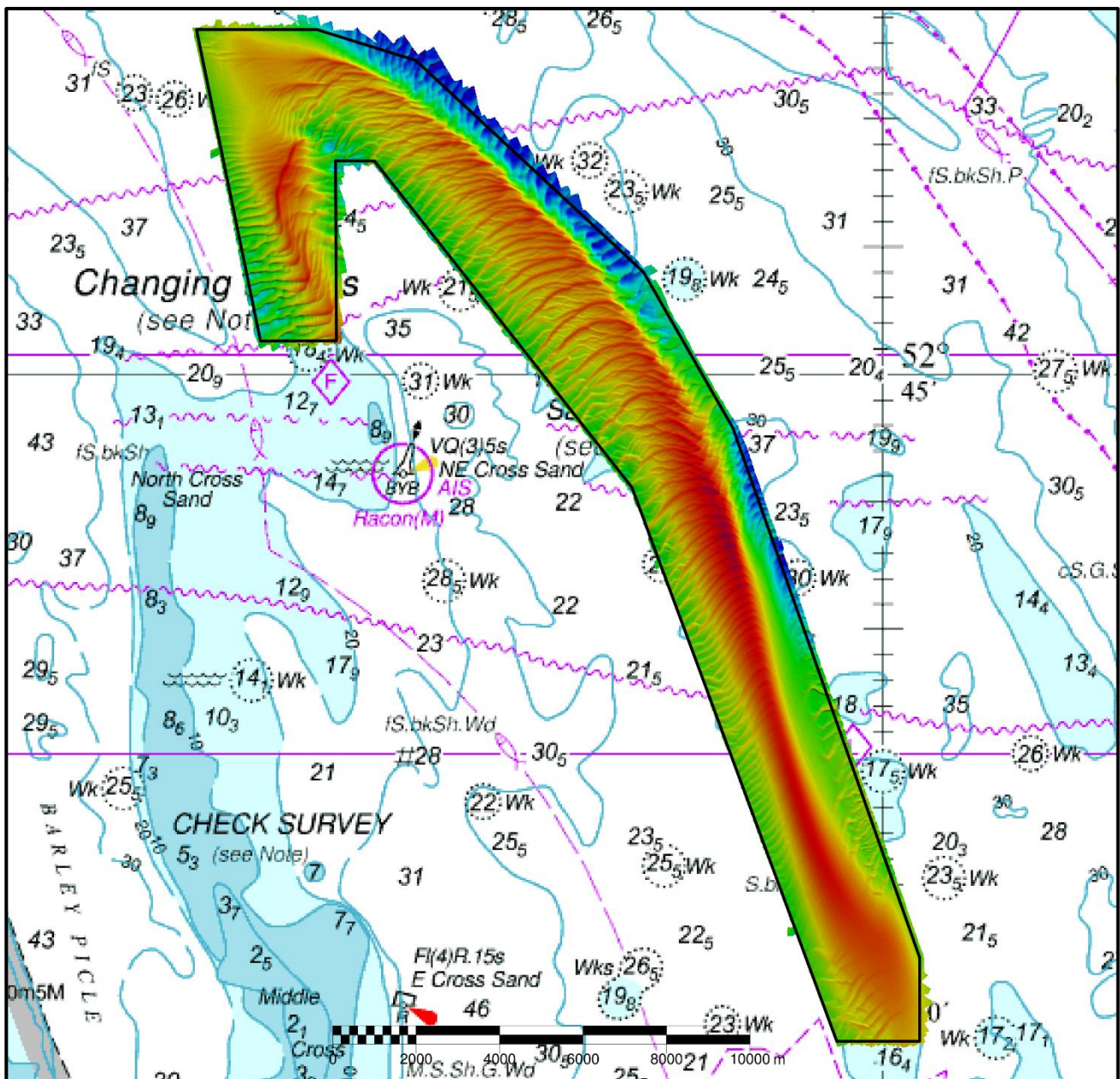




UK Hydrographic
Office

EAST ANGLIA NEWARP BANKS FULL (EA2) 2023 ASSESSMENT

An assessment of the 2023 hydrographic survey of the area EA2: 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 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 Vertical Offshore Reference Frame (VORF) Model.

EA2 NEWARP BANKS FULL, 2023

1. SUMMARY

Changes Detected

- 1.1 Bathymetric changes from the last survey of this area are significant. This partly reflects the long survey interval, but also reflects the highly mobile nature of the seabed here.
- 1.2 In general, the sandbanks are moving eastwards and are becoming shoaler as they do so. The least depth of Newarp Bank (7.0m) has shoaled by 1.7m since 2014.
- 1.3 In the NW of the survey area, two significant depths of 9.0m and 11.9m are seen. These show the least depth (9.0m) in the northern section of the survey area, and a shoal depth (11.9m) that is near to possible shipping going through Haisborough Gat. The 9.0m sounding has shoaled by 4.9m since 2011, and 0.7m since 2014. The 11.9m sounding has shoaled by 0.3m since 2011, and by 0.4m since 2014.

Reasons for Continuing to Resurvey the Area

- 1.4 Newarp Banks (EA2) is a highly mobile area of the seabed and has experienced substantial bathymetric changes. The proximity of these features to major shipping routes necessitates routine resurveys to mitigate potential dangers arising from the migration of shoal features into high-traffic areas.

Recommendations

- 1.5 The current 12-year interval remains sufficient for monitoring. Although this area is highly vertically mobile and subject to dramatic changes, it does not indicate significant horizontal movement towards Haisborough Gat. It therefore does not require more regular monitoring than at present. No changes to the survey interval are necessary.
- 1.6 The survey area currently covers important areas of the moving seabed. At present no changes to the survey area are necessary.

2. LOCATION

- 2.1 Survey interval at time of resurvey: 12 years.
- 2.2 Area Covered: 38.06 km²

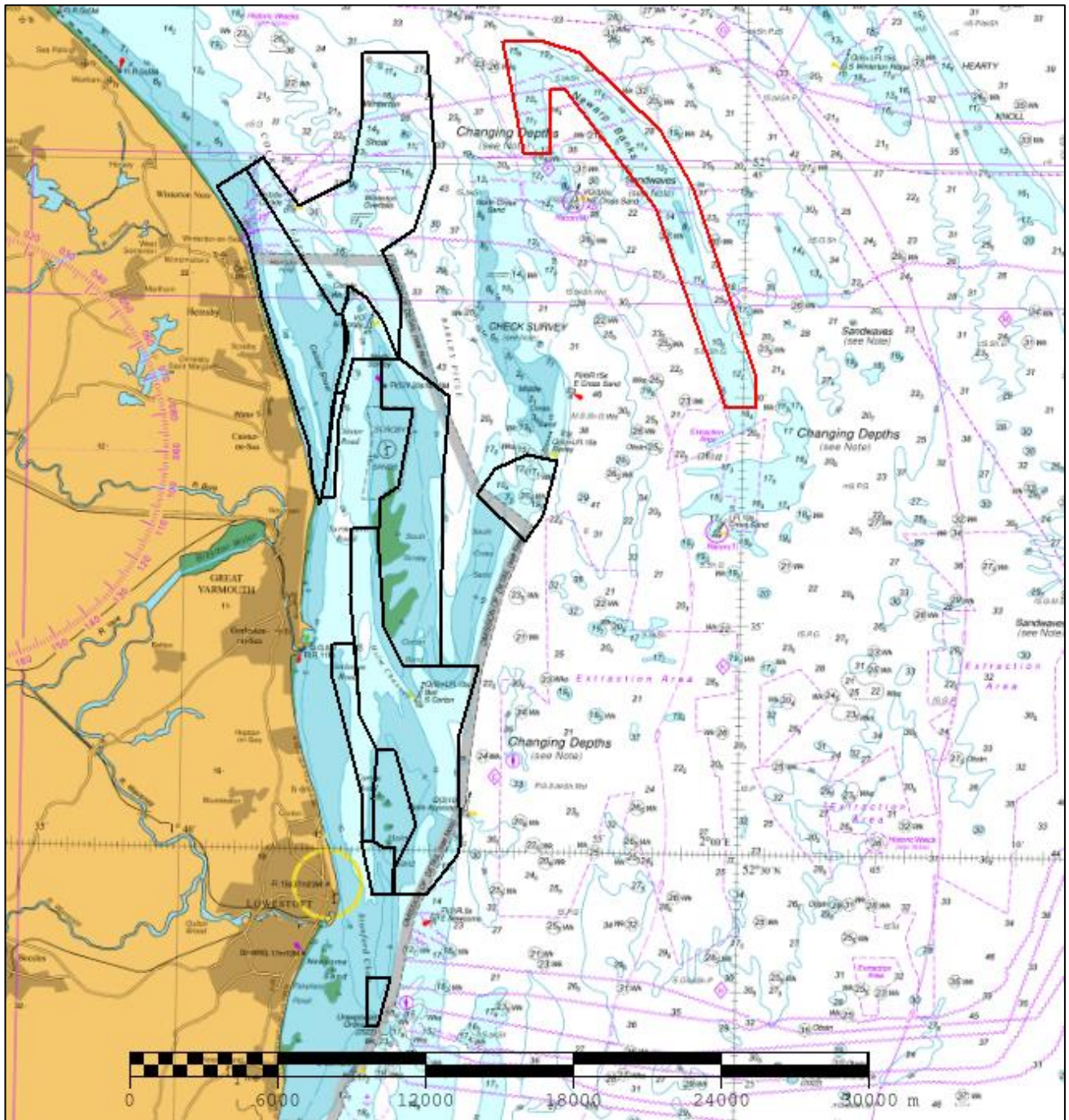


Figure 1: 2023 East Anglia Routine Resurvey areas overlain on BA Chart 1504-0 with area EA2 in red.

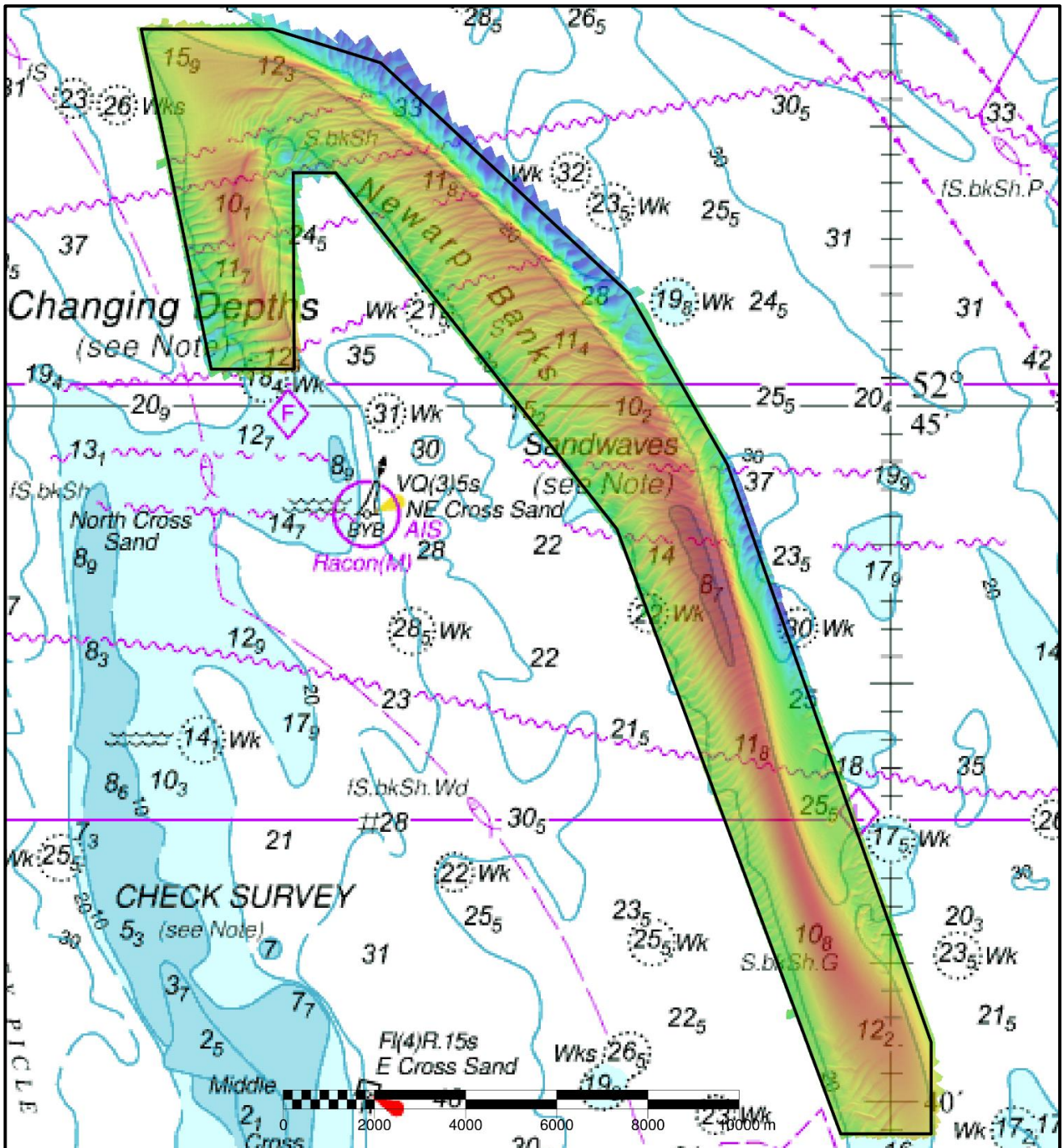


Figure 2: 2023 survey data overlain on BA Chart 1504-0.

3. REFERENCE SURVEY DETAIL

- 3.1 The previous full survey of the area was conducted as part of the 2011 Routine Resurvey Programme (CHP) between May and July 2011 under the designation of HI1367. The area has also subsequently been surveyed between April and July 2014 under the designation of HI1428. Data from both surveys are used to assess changes in the EA2 area.
- 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 the Admiralty Marine Data Portal.

4. NEW SURVEY DETAIL

- 4.1 This survey of the EA2 Newarp Banks Full area was undertaken as part of the 2023 Routine Resurvey Programme. It was conducted between the 09th and 12th of September 2023 under the designation HI1822.
- 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 Bathymetric changes within area EA2 are significant. This mostly reflects the long interval between surveys, but it should also be noted that the seabed here is very vertically mobile. Changes in excess of 5 metres of both deepening and shoaling areas can be found across the survey.
- 5.2 In general sediment is moving in an easterly direction, this is shown by the difference plots (Figures 4 and 5), and by the migration of the 15 m contour (Figure 6).
- 5.3 The large shallow bank in the easterly arm of the survey area is moving to the east. Additionally, as this sandbank moves east, it is becoming increasingly shallow (see Figure 2). The least depth of this survey (7.0m) is located on this eastern sandbank and has shoaled by 1.7m since 2014.
- 5.4 In the NW of the survey area, two significant depths are shown in Figure 3. The 9.0 m sounding, located on the bank that branches down towards the NE Cross Sand buoy, is shown as it is the shoalest depth in the broad northern survey area. This area has shoaled by 4.9 m since 2011, but only by 0.7 m since 2014. The 11.9 m sounding nearby has been highlighted, as it is the shoalest sounding that is nearest to possible shipping going through Haisborough Gat, and is immediately adjacent to deeper depths of 26-39 m on the seaward side of Newarp Bank, and depths of 12.4-18.1 m on the other side.
- 5.5 The large bank feature in the eastern arm of the survey area is composed of a number of smaller sand waves and ripples which are orientated perpendicular to this. These features are migrating slowly to the north and northeast. Small areas of large bathymetric change relate to the migration of these smaller, mobile seabed features.
- 5.6 The sandbank in the western arm of the survey area is also moving to the east and is shoaling as it does so. This feature is composed of smaller sand waves and ripples; these are migrating in a northerly direction, perpendicular to the main body of the sandbank.
- 5.7 Sand waves in the south of the western arm of the survey are interacting with the wreck (ID 96543) and this has resulted in an area of shallow seabed (~18.1 m) immediately adjacent to the wreck which is shoaler than the marked depth of the wreck (18.4 m).

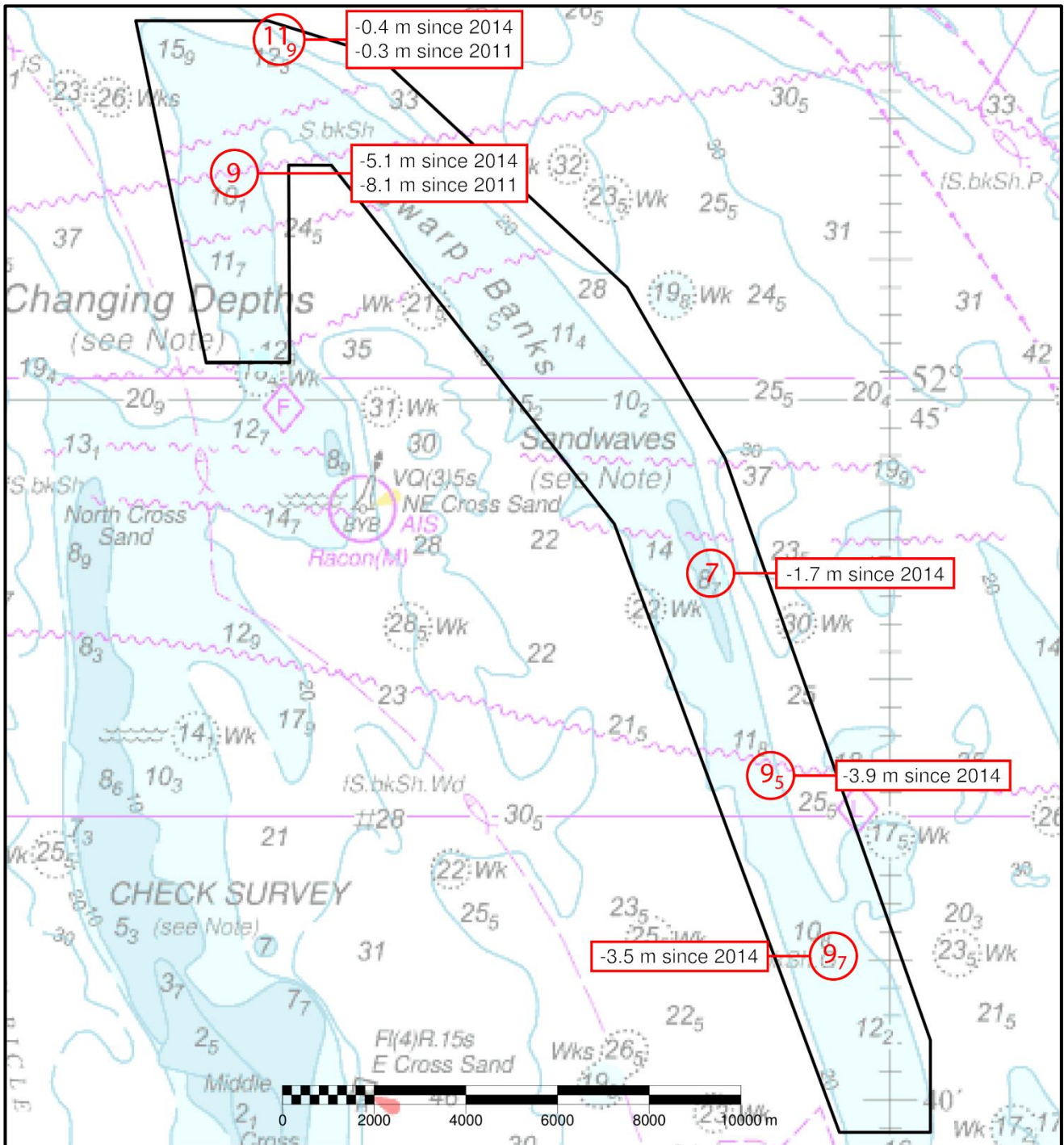


Figure 3: Significant depth soundings highlighted, overlain on BA Chart 1504-0. Positive values (+) represent deepening. Negative values (-) represent shoaling.

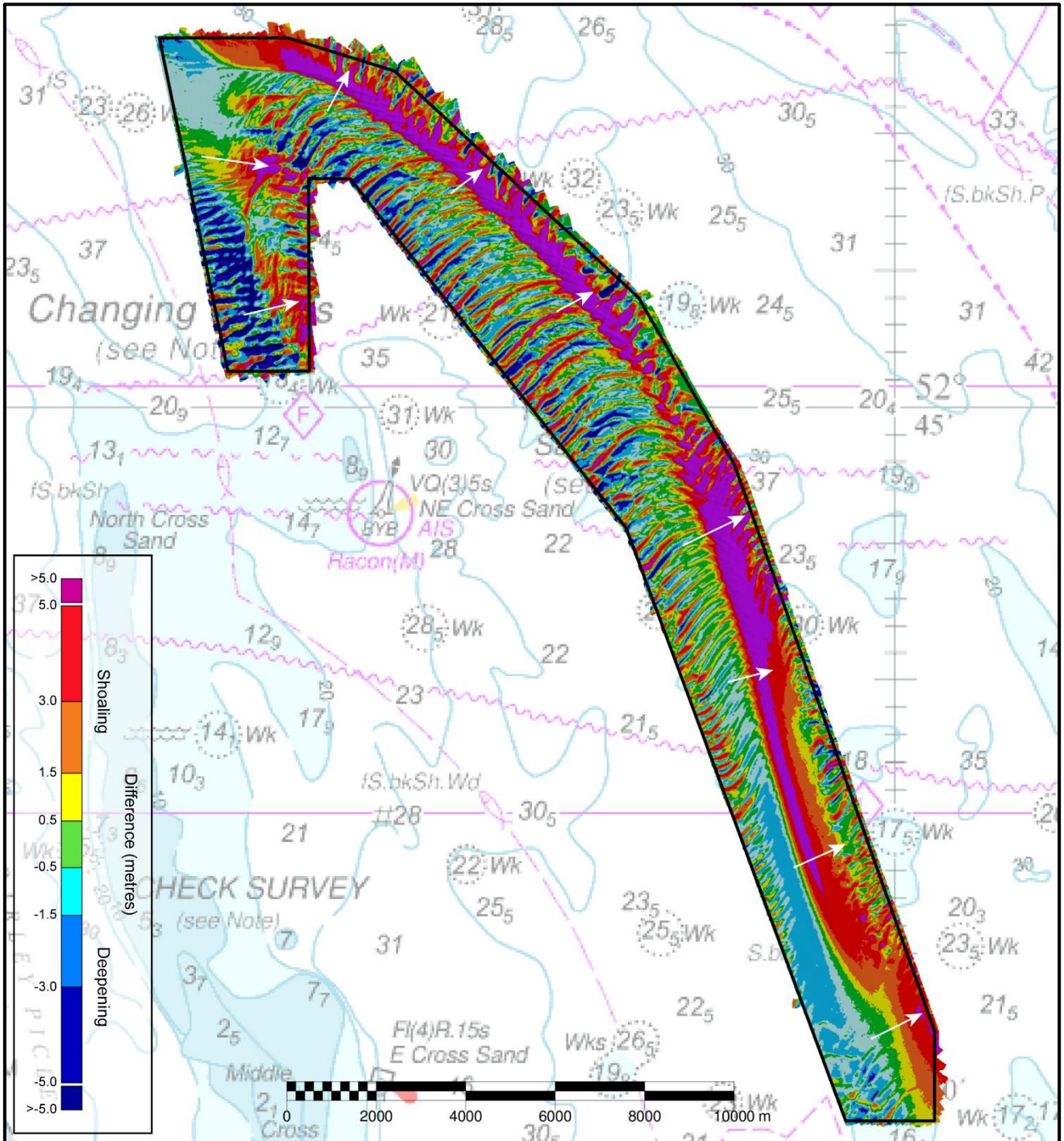


Figure 4: Difference surface showing bathymetric changes between the 2023 and 2014 surveys overlaid on BA Chart 1504-0 (White arrows represent areas of shoaling since 2014 survey).

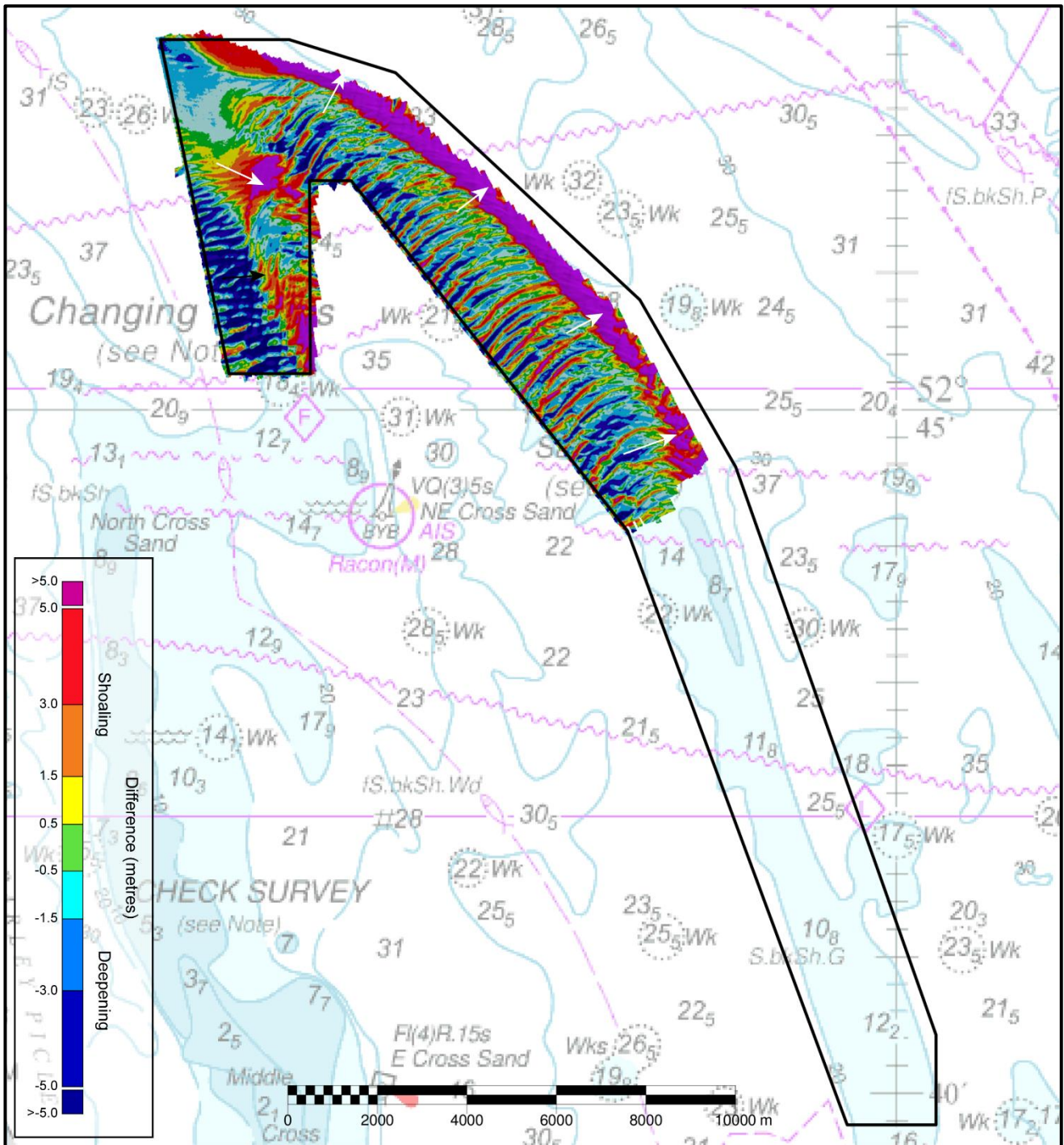


Figure 5: Difference surface showing bathymetric changes between the 2023 and 2011 surveys overlaid on BA Chart 1504-0 (White arrows represent areas of shoaling since 2011 survey).

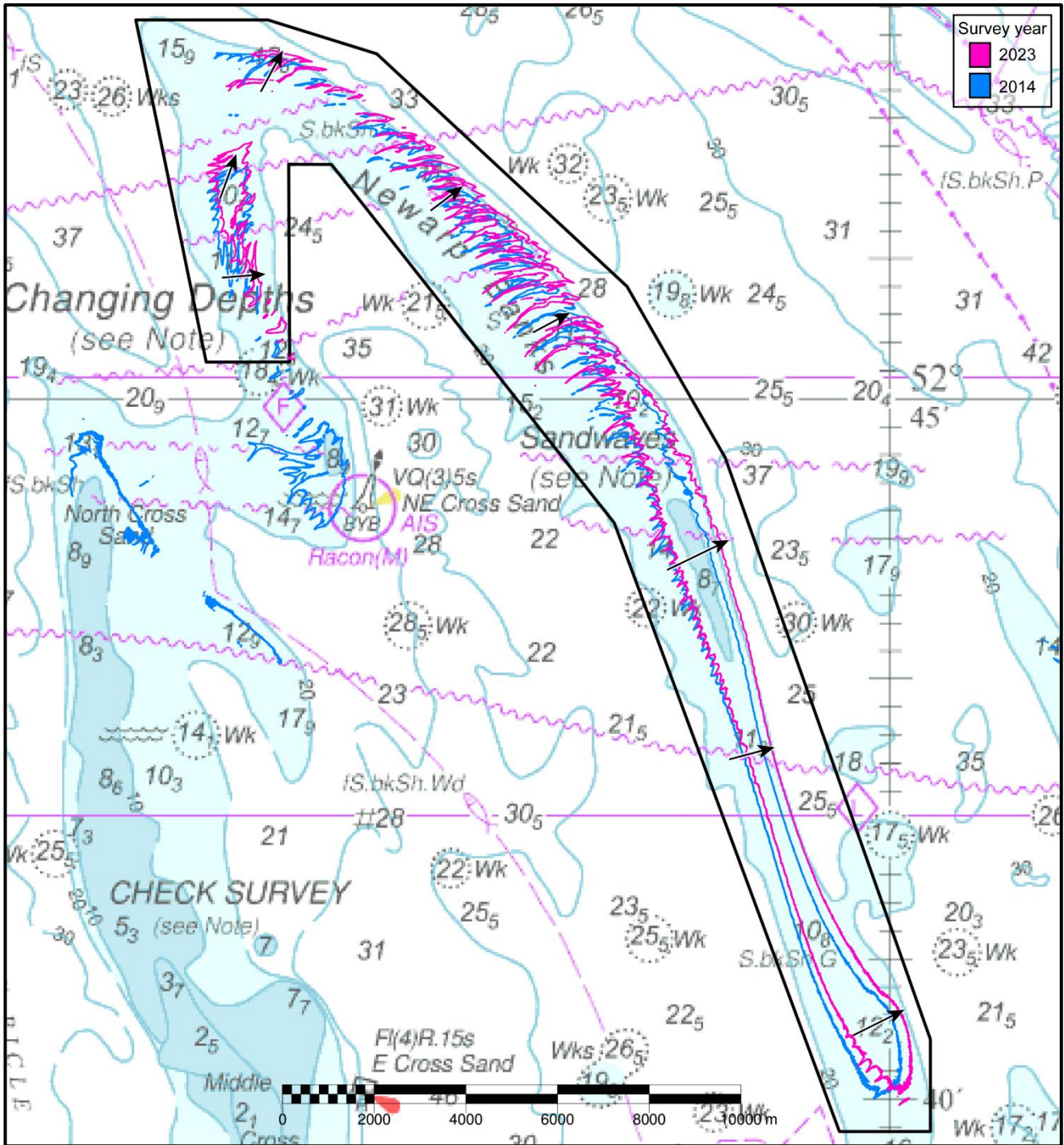


Figure 6: Contour plot showing changes in the 15 metre contours between 2011 (purple), 2014 (blue), and 2023 (magenta). Black arrows represent the approximate direction and magnitude of feature migration.

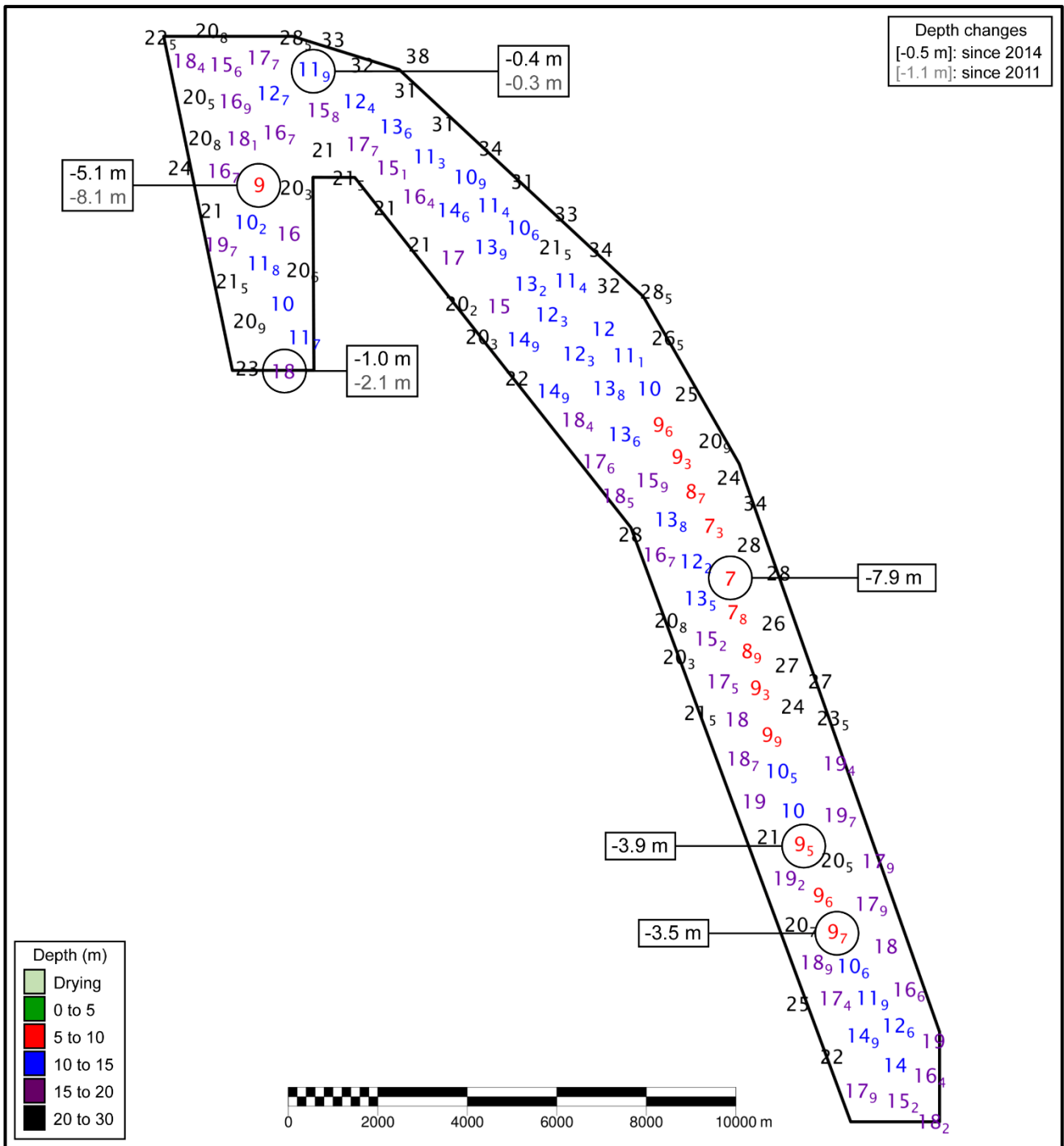


Figure 7: Colour banded depth plot from the 2023 survey with selected depth changes since the 2014 survey (black) and 2011 survey (grey). Positive values (+) represent deepening. Negative values (-) represent shoaling.

6. RECOMMENDATIONS FOR FUTURE SURVEYS

Survey Interval

- 6.1 The Newarp Banks survey area has seen substantial bathymetric changes over the last 12 years. Although this survey area is highly vertically mobile and subject to dramatic changes, it does not indicate significant horizontal movement towards Haisborough Gat. Consequently, whilst it is important to monitor change in this area, the current 12-year interval remains sufficient for monitoring. No changes to the survey interval are necessary.

Survey Area

- 6.2 The survey area adequately captures the most prominent parts of the moving seabed. Providing that seabed features continue to migrate at their current speeds the next survey interval (12 years time; ~2035) will capture changes to the most important and shallowest parts of Newarp Banks (Figure 6). After this time, the survey area may need to be adjusted to account for the continued movement of seabed features. Therefore, any potential changes to the future survey area are best assessed during the next RRS analysis and reporting phase for EA2. At present no changes to the survey area are necessary.