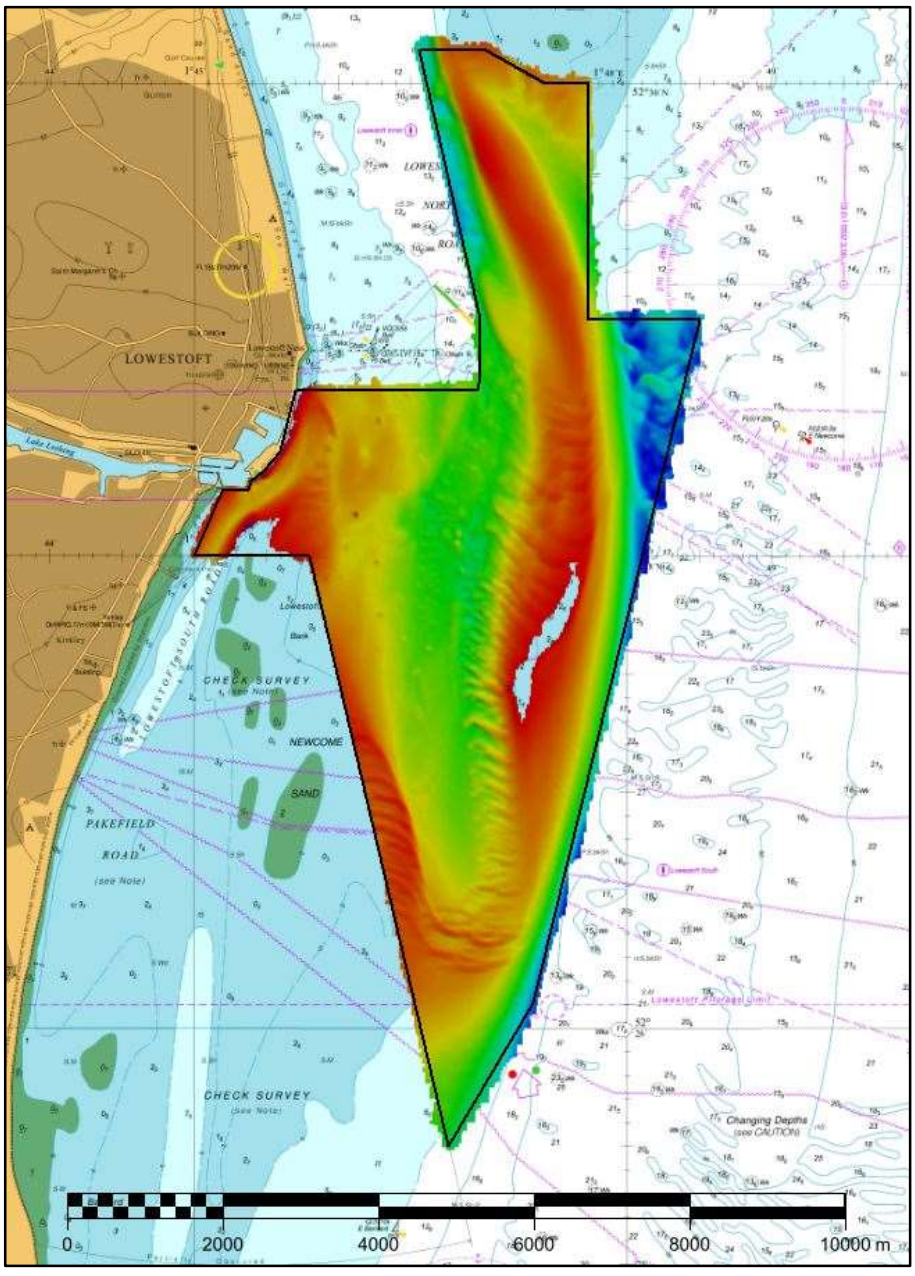
UK Hydrographic Office

EAST ANGLIA
APPROACHES TO LOWESTOFT (EA10)
2022 ASSESSMENT

An assessment of the 2022 hydrographic survey of the area EA10: 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.

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

APPROACHES TO LOWESTOFT, 2022

1. SUMMARY

Changes Detected

1.1 Newcome Sand continues its eastward migration into Stanford Channel, with the 5m contour moving 272m east since 2019.

1.2 North-west section of Lowestoft Bank is migrating north-westerly into Lowestoft South Road, with the 2m contour moving 122m since 2021.

1.3 General shoaling and eastward migration of the southern end of Holm Sand; the 5m contour has moved 200m east since 2019.

1.4 In the north, Holm Sand continues its westerly migration into Lowestoft North Road, with the 5m contour moving west 180m since 2021.

Reasons for Continuing to Resurvey the Area

1.5 Depths in the area remain mobile and potentially hazardous to vessels navigating the area, therefore continued monitoring through 3-year full surveys and 1-year focused surveys are required. [Note that EA10B was removed from RRS plan at the CHWG 2022].

Recommendations

1.6 The current full and focused area adequality cover all areas of mobile seabed, so no revision is required this time. EA10C focused area may need adjustment after the 2023 survey if there is continued westward migration of Holm Sand into Lowestoft North Road.

2. LOCATION

2.1 Survey interval at time of resurvey: 3 years full area, 1-year focused areas.

2.2 Area Covered: 14.8 km^2

Figure 1: 2022 East Anglia Routine Resurvey areas overlaid on BA Chart 1504 with area EA10 in red

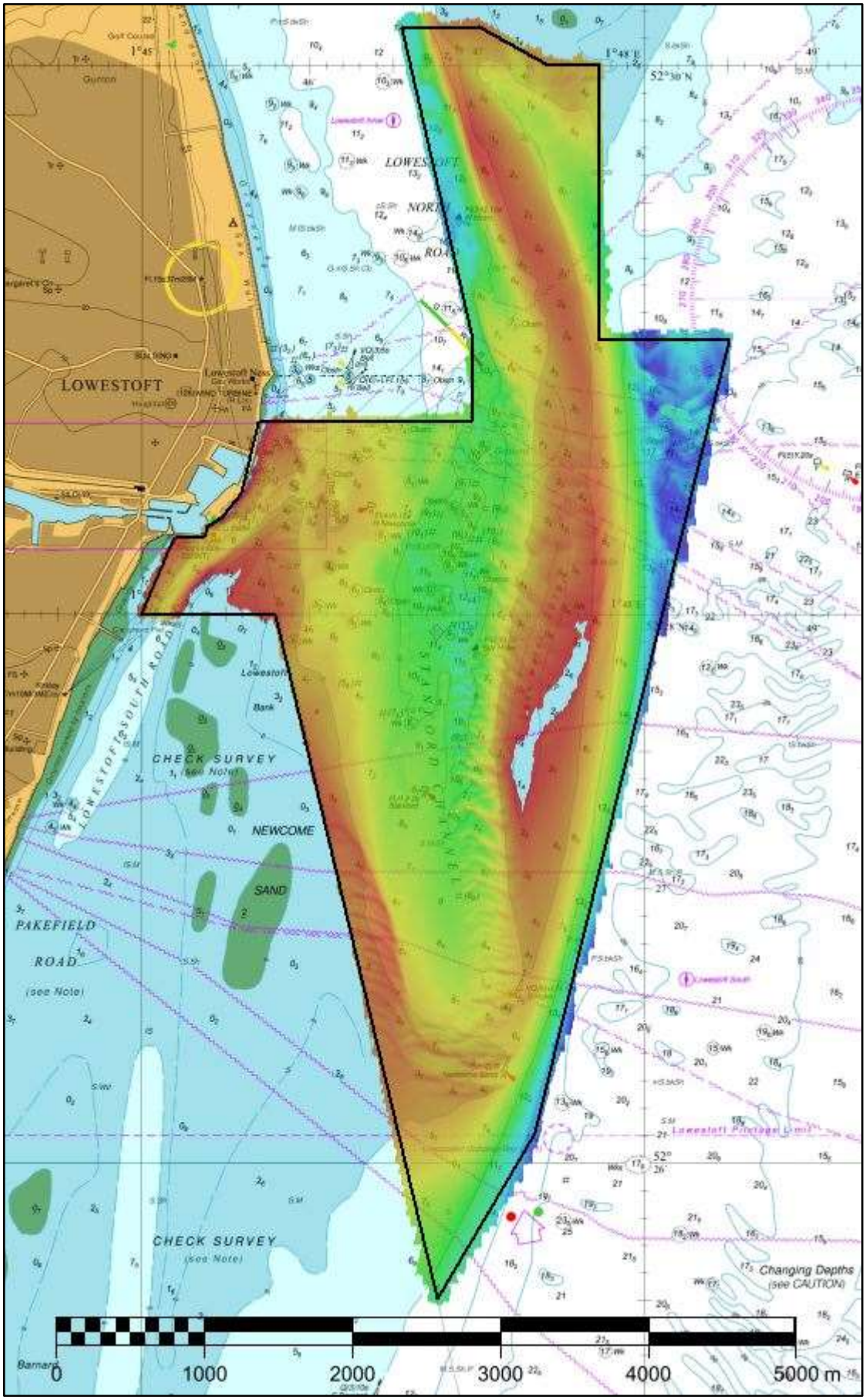

Figure 2: 2022 survey data overlaid on BA Chart 1535

3. REFERENCE SURVEY DETAIL

3.1 The previous full survey was conducted between September and October 2019 as part of HI1639, and the previous focused surveys were conducted in September 2021 as part of HI1738 EA10A, EA10B and EA10C.

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 The latest full survey was conducted within the 2022 Routine Resurvey Programme in October 2022.

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 The difference surface in Figure 4 shows general stability in the depth of water in Stanford Channel, except in the south-west where Newcome Sand continues its eastward migration into the channel with the 5m contour moving 272m east since 2019. In Figures 4 and 6 the difference surface in the extreme west of the surveyed area is showing the north-west section of Lowestoft Bank migrating north-westerly into Lowestoft South Road, with the 2m contour moving 122m since 2021. In the central eastern section of the surveyed area, Figure 4 shows the general shoaling and migration of Holm Sand eastwards, with the 5m contour moving 200m east since 2019. In the north, migration of Holm Sand into Lowestoft North Road continues with the 5m contour moving west 180m since 2021. In Figure 6 there is some shoaling of the Lowestoft Bank north towards the harbour entrance, should this continue, it will encroach into the port's survey area.

5.2 The depth plot in Figure 3 shows the controlling and/or significant depths for the full survey area. The entrance to Lowestoft Port has a controlling depth of 5m. This data shows that the white sector of Kirkley sector light had a significant depth of 4.6m, however this has since been dredged by ABP in Dec 22. The red sector has a significant depth of 4.5 over a wreck. There is an 8.3m significant depth over a wreck in the middle of Stanford Channel. In the north three depths have been highlighted as significant depths, as this area has seen 5m and 10m contours shift significantly. In the south, shoal depths that are relevant to the most likely navigable route between the southern tip of Holm Sand and Newcome Sand and have been highlighted as 3.4m, 4.1m and 4.7m. The 4.7m sounding is the most significant depth of these, as is it situated on the peak of a sandwave in the centre of the buoyed entrance to Holm Channel, and the first time a sub-5m depth has been shown here.

5.3 The contour plot in Figure 8 shows the 2m contour in the southern section of Holm Sand migrating south and east since the 2019 full survey. The 2m contour in this area migrated 300m south at the southern tip, and 480m east in the middle of this section. Figure 9 shows the 5m contours movement in the southern section of the surveyed area, highlighting the eastward progression of Newcome Sand into Stanford Channel since 2019. In the north, the 5m contours westward progression into Lowestoft North Road is highlighted with the contour moving 180m west since 2021.

5.4 Figures 10 and 11 show a colour banded sounding selection of the 2022 survey. Significant depth differences have been highlighted between the 2021 and 2019 surveys. Figures 10 and 11 show areas of shoaling and deepening consistent with a highly mobile seabed.

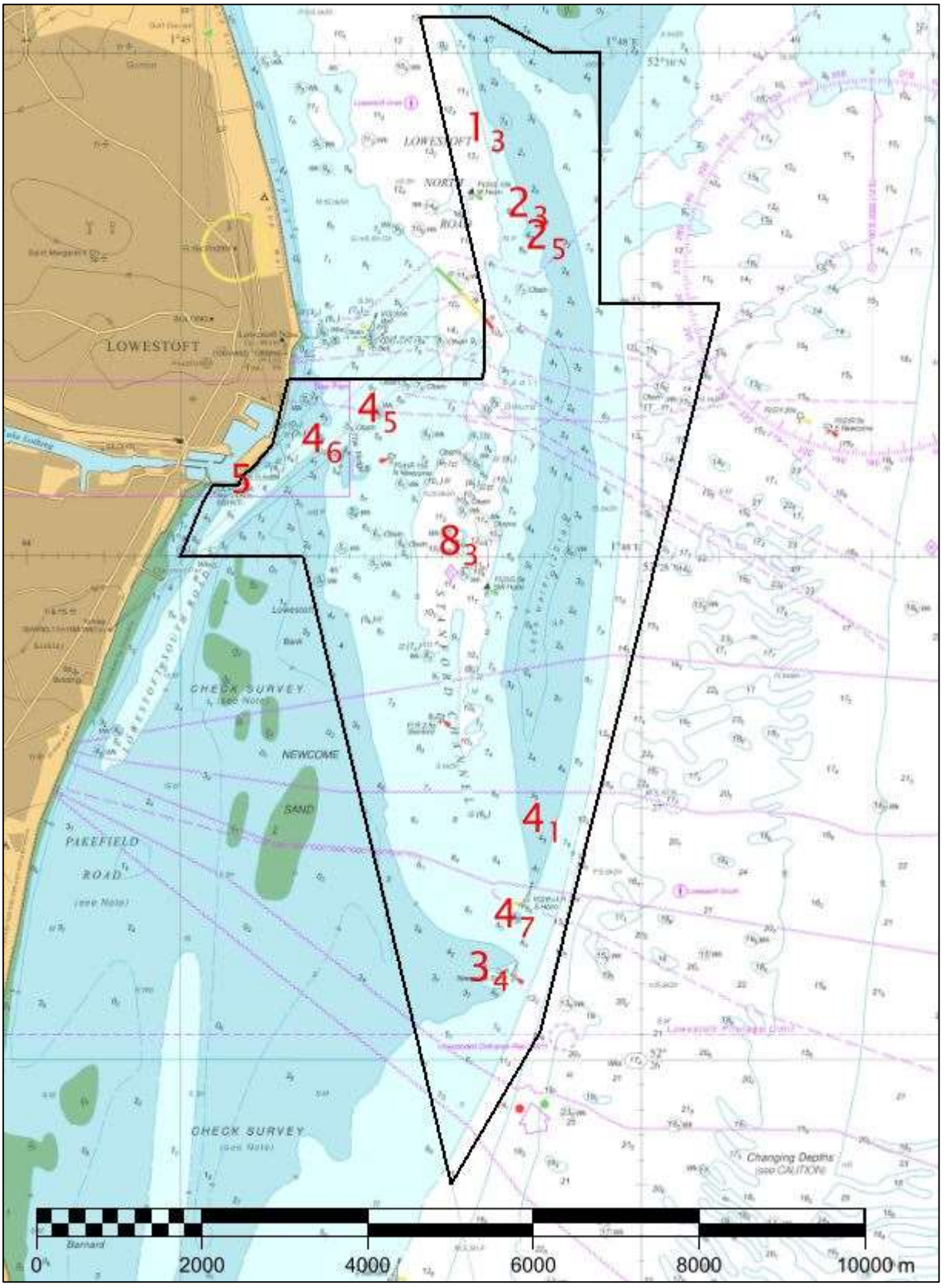

Figure 3: Controlling Depth soundings highlighted, overlaid on BA Chart 1535

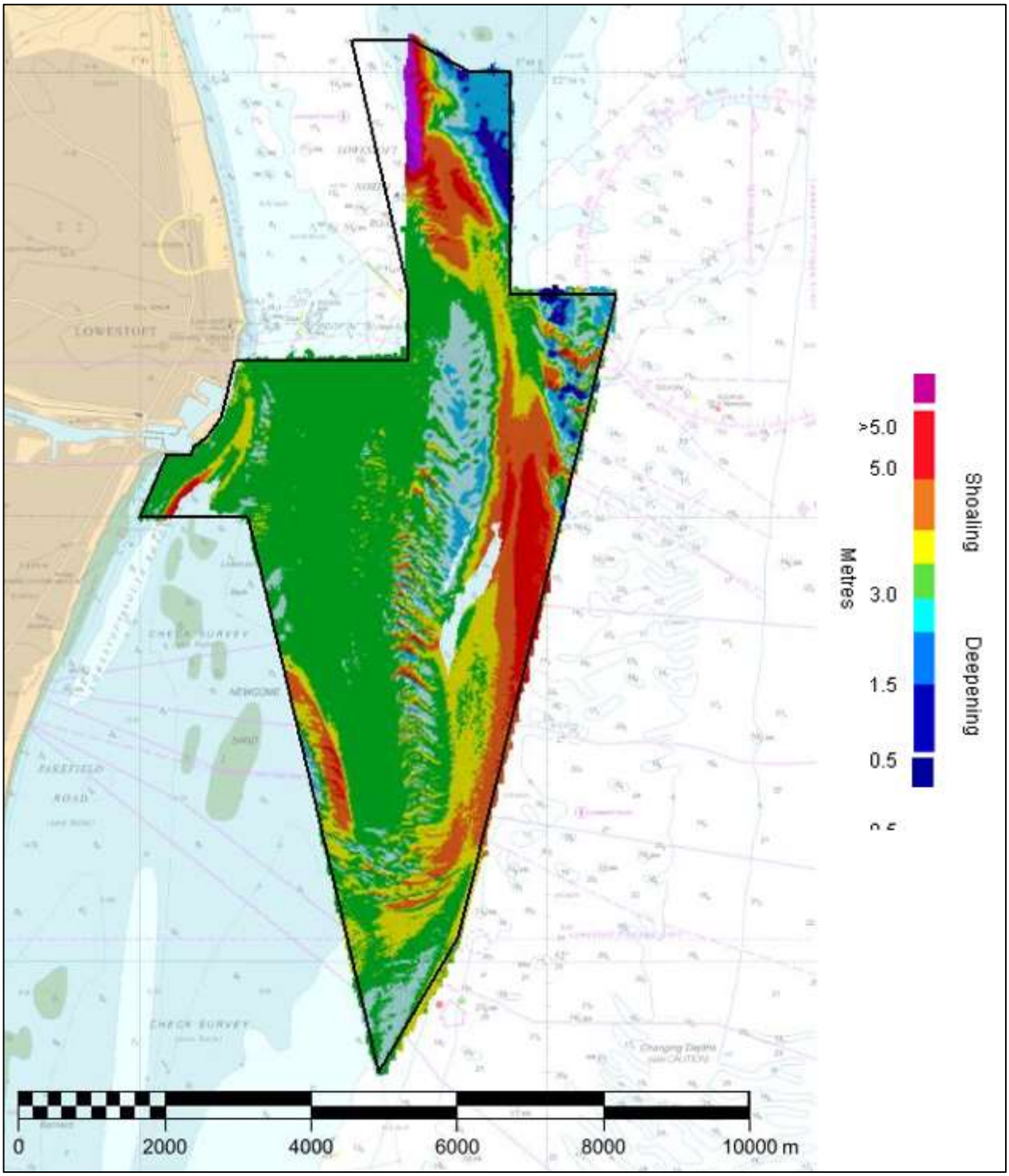

Figure 4: Difference surface showing bathymetric changes between the 2022 and 2019 surveys overlaid on BA Chart 1535

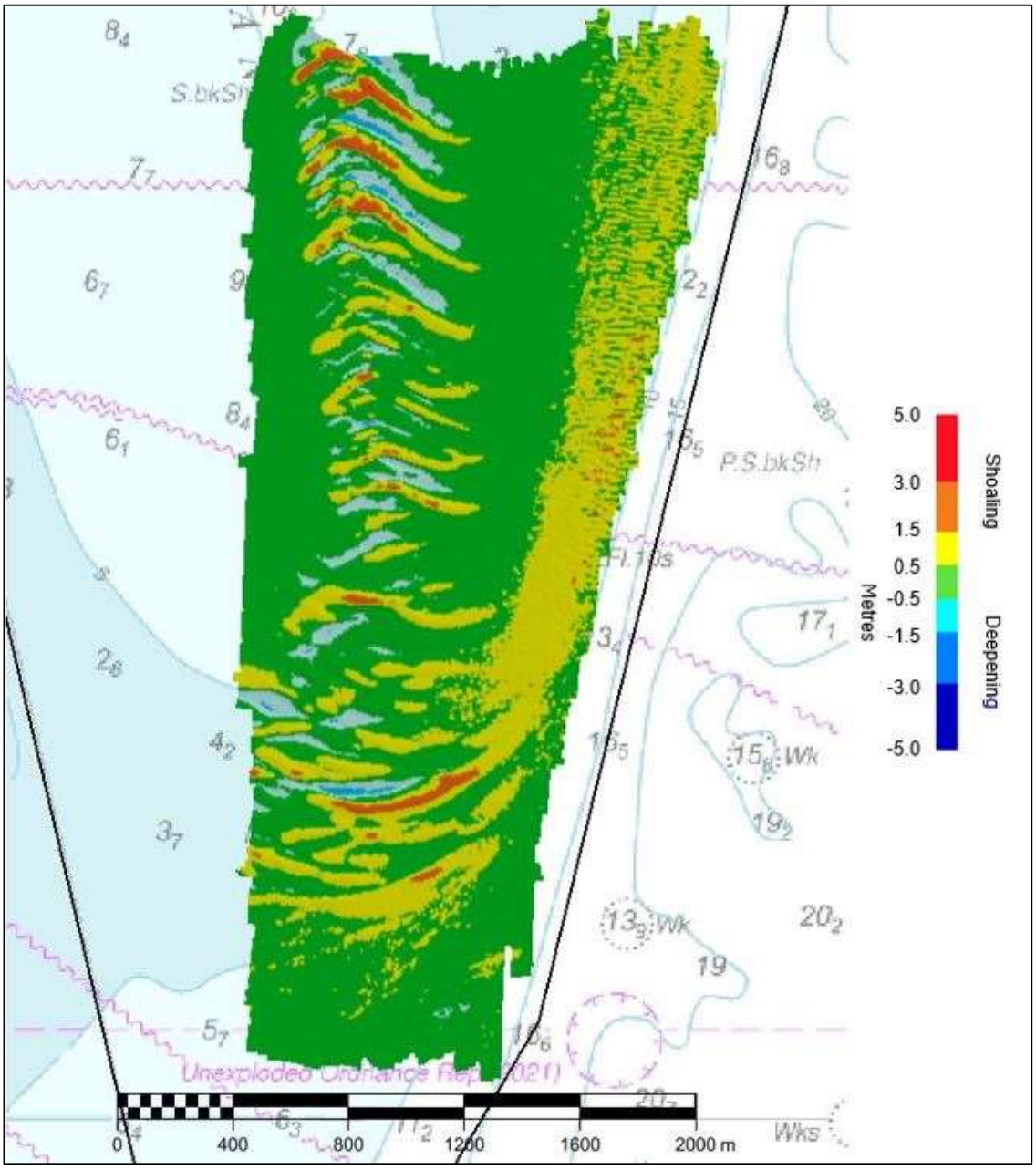

Figure 5: Difference surface showing bathymetric changes between the 2022 and 2021 surveys (EA10A) overlaid on BA Chart 1535

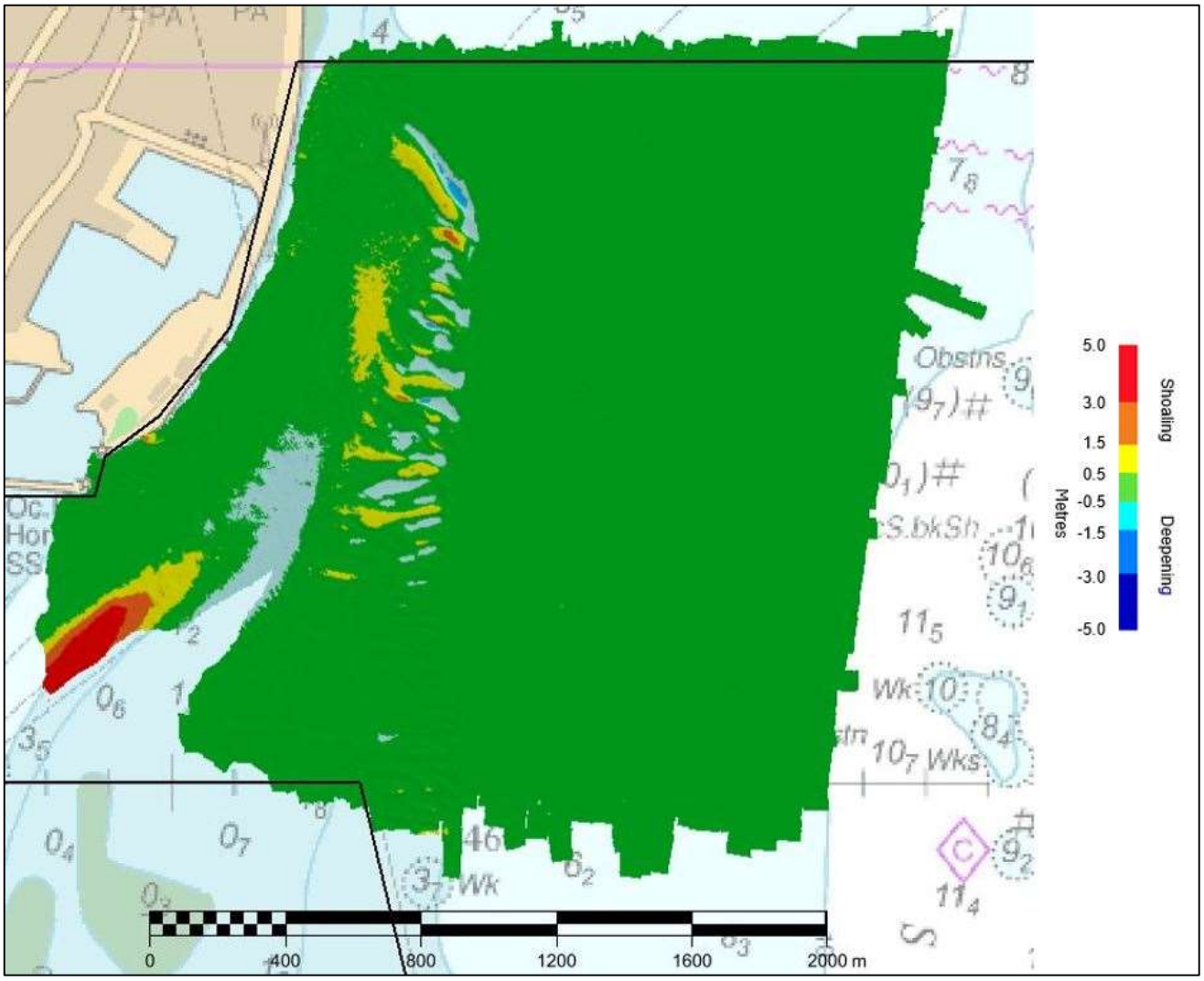

Figure 6: Difference surface showing bathymetric changes between the 2022 and 2021 surveys (EA10B) overlaid on BA Chart 1535. [Note that EA10B was removed from RRS plan at the CHWG 2022].

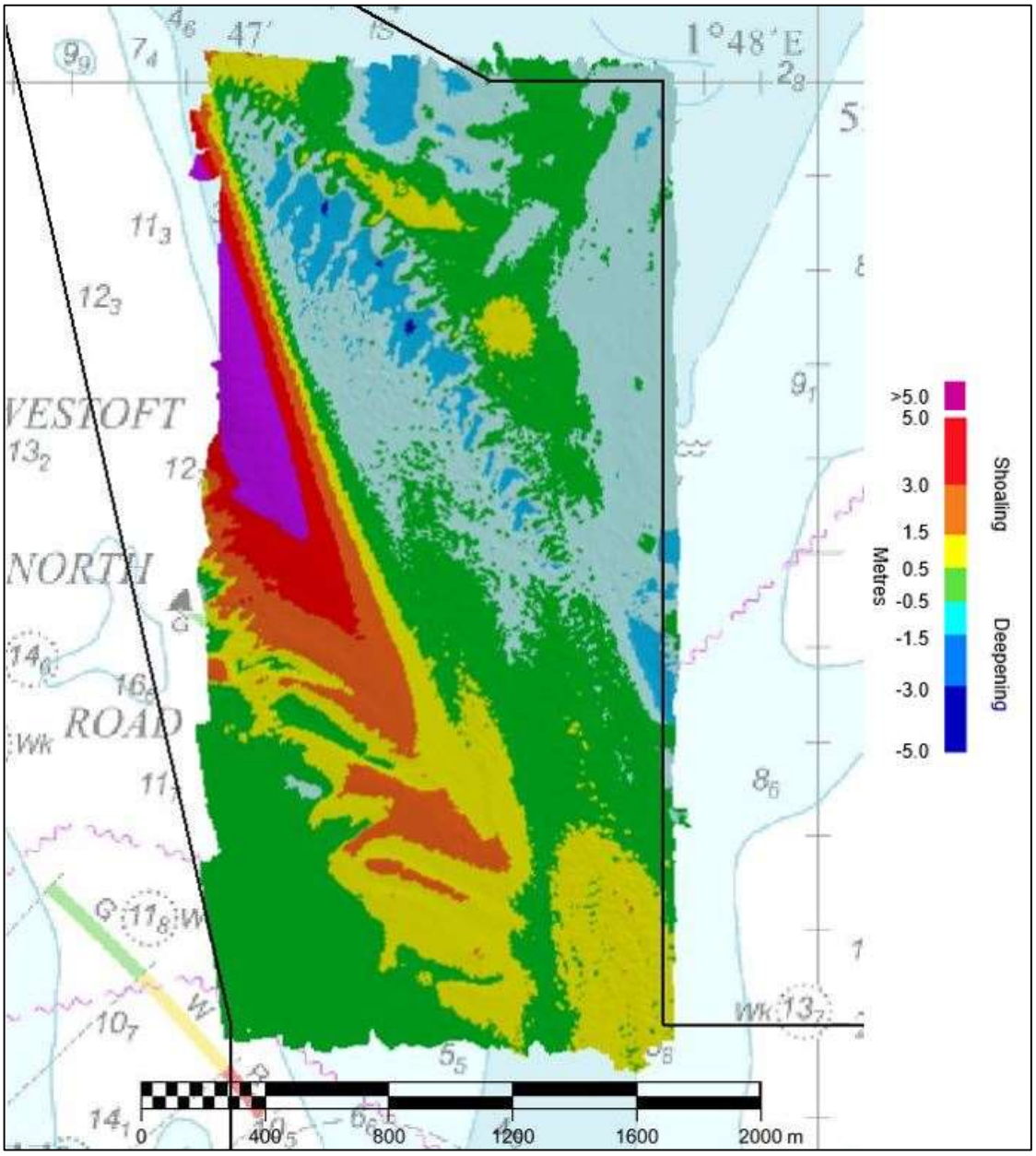

Figure 7: Difference surface showing bathymetric changes between the 2022 and 2021 surveys (EA10C) overlaid on BA Chart 1535

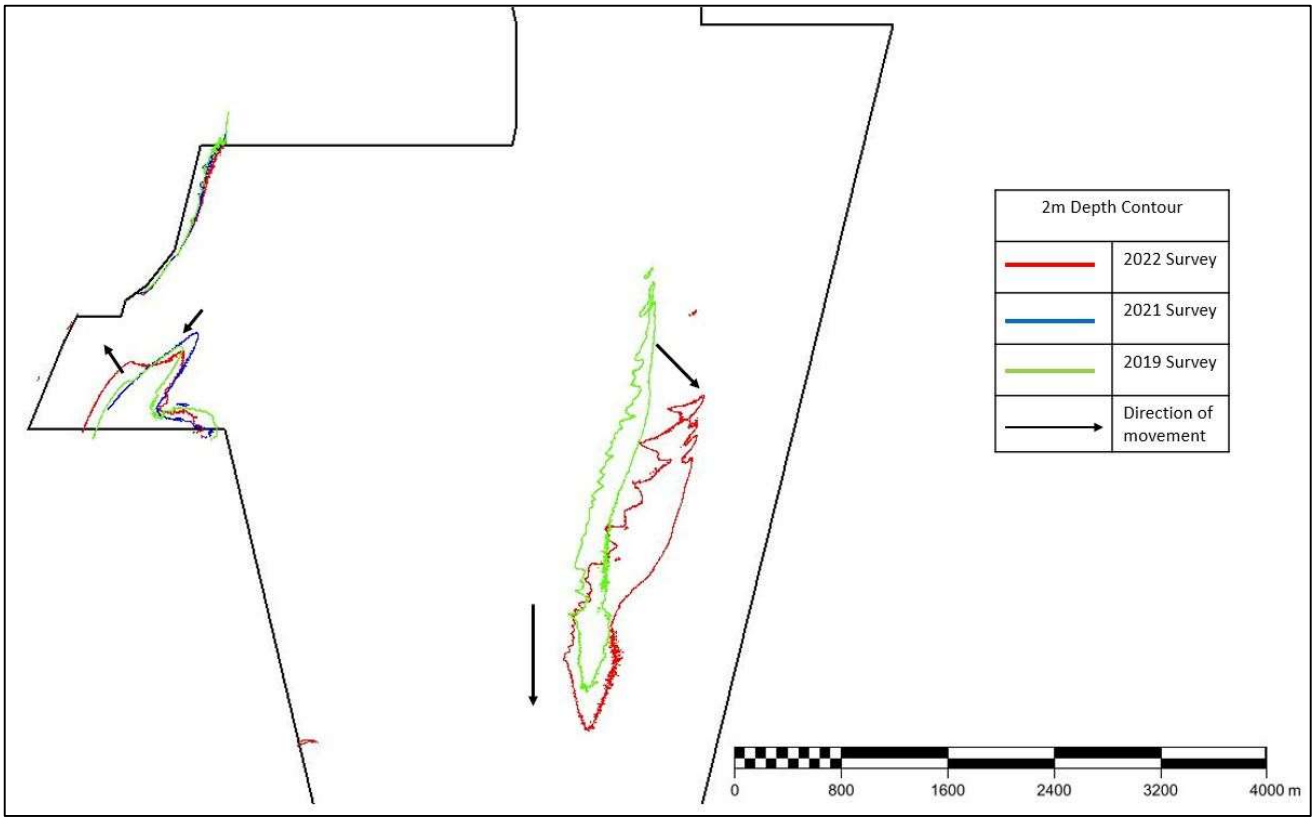

Figure 8: Contour plot showing changes in the 2m contour between 2022 (red), 2021 (blue) and 2019 (green). Black arrows represent contour migration.

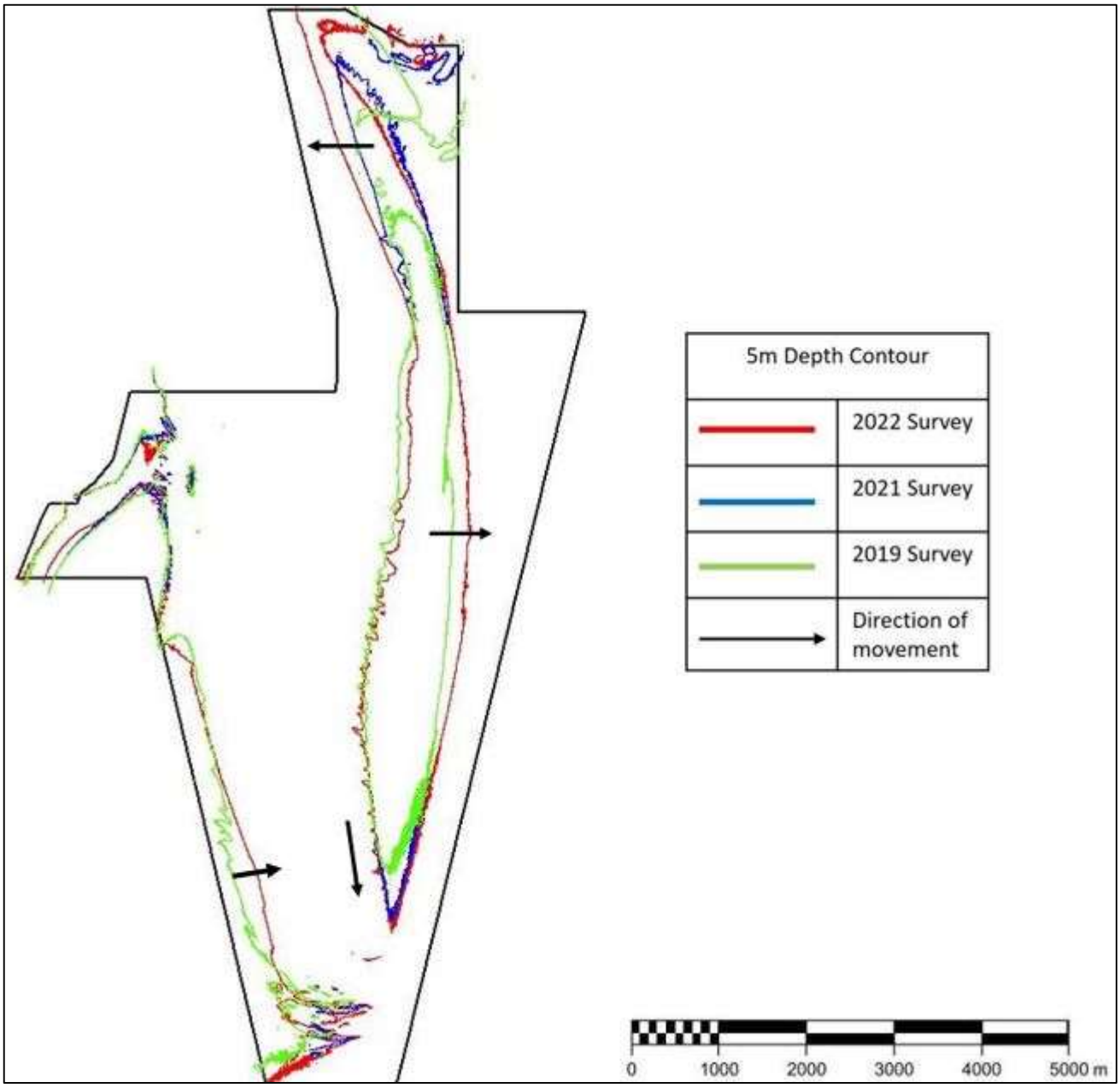

Figure 9: Contour plot showing changes in the 5m contour between 2022 (red), 2021 (blue) and 2019 (green). Black arrows represent contour migration.

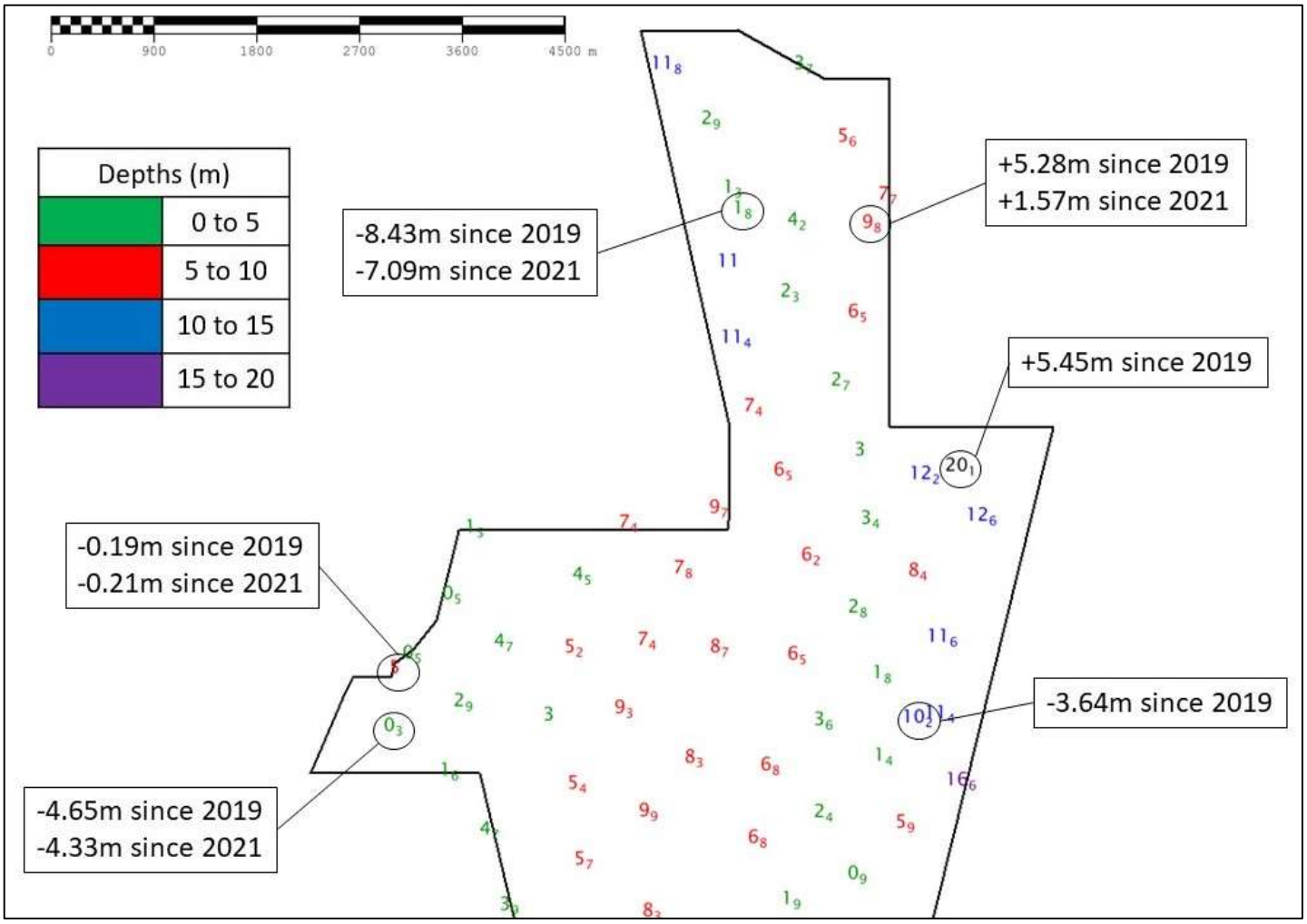

Figure 10: Colour banded depth plot from the 2022 survey with selected depth changes since the 2019 and 2021 surveys. Positive values (+) represent deepening. Negative values (-) represent shoaling.

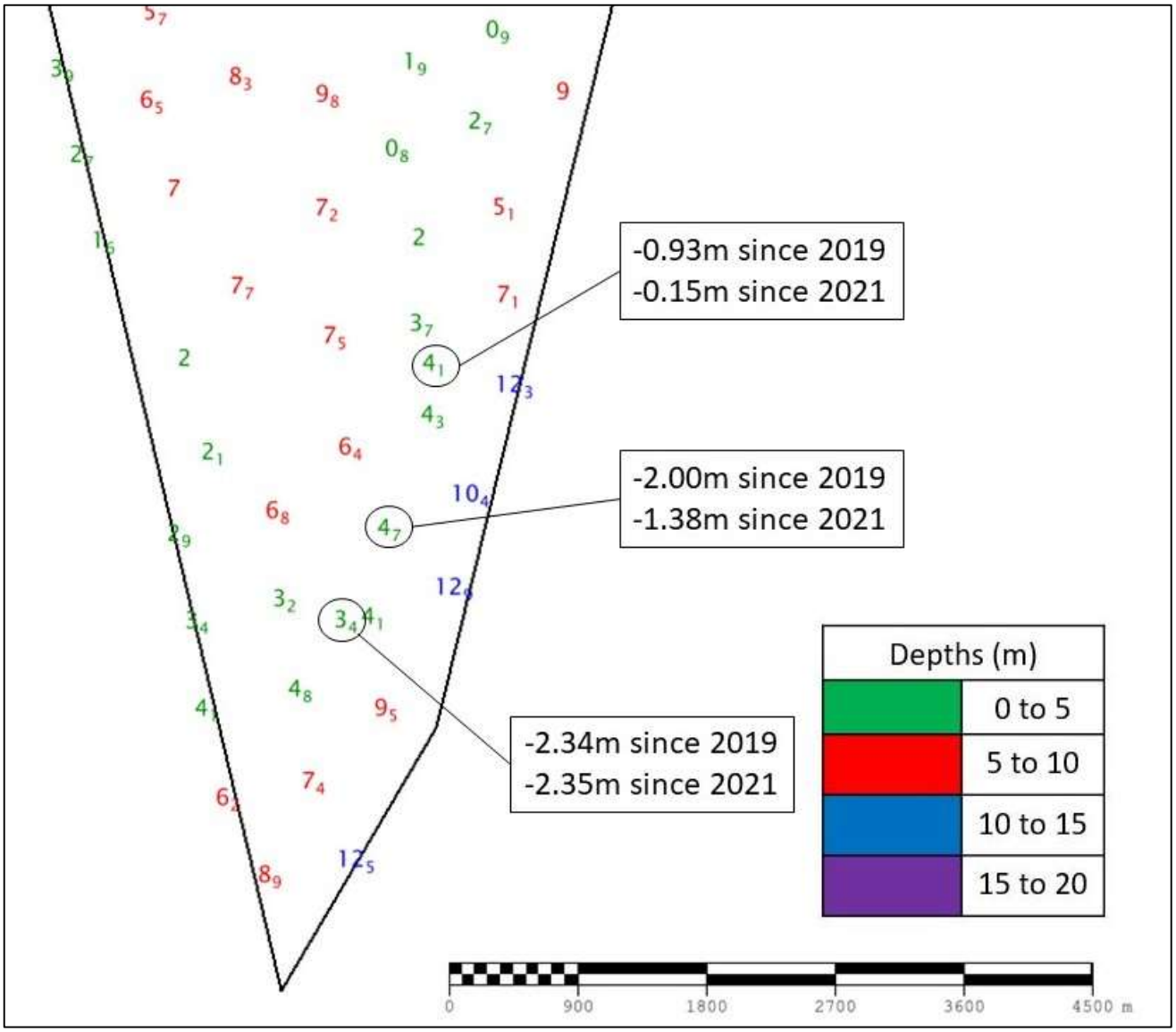

Figure 11: Colour banded depth plot from the 2022 survey with selected depth changes since the 2019 and 2021 surveys. Positive values (+) represent deepening. Negative values (-) represent shoaling.

6. RECOMMENDATIONS FOR FUTURE SURVEYS

Survey Interval

6.1 Given the continued sandbank migration surrounding Holm Sand and Newcome Sand, EA10 should remain on a 3-year full survey interval, with EA10A and EA10C remaining on an annual focused survey schedule.

Survey Area

6.2 The current full area survey limits of EA10 adequately cover the continued migration of Holm Sand into Lowestoft North Road and Newcome Sand into Stanford Channel, at least until the focused surveys in 2023. The focused survey EA10C survey area may need adjustment after 2023 if Holm Sand continues its north-westerly migration into Lowestoft North Road.