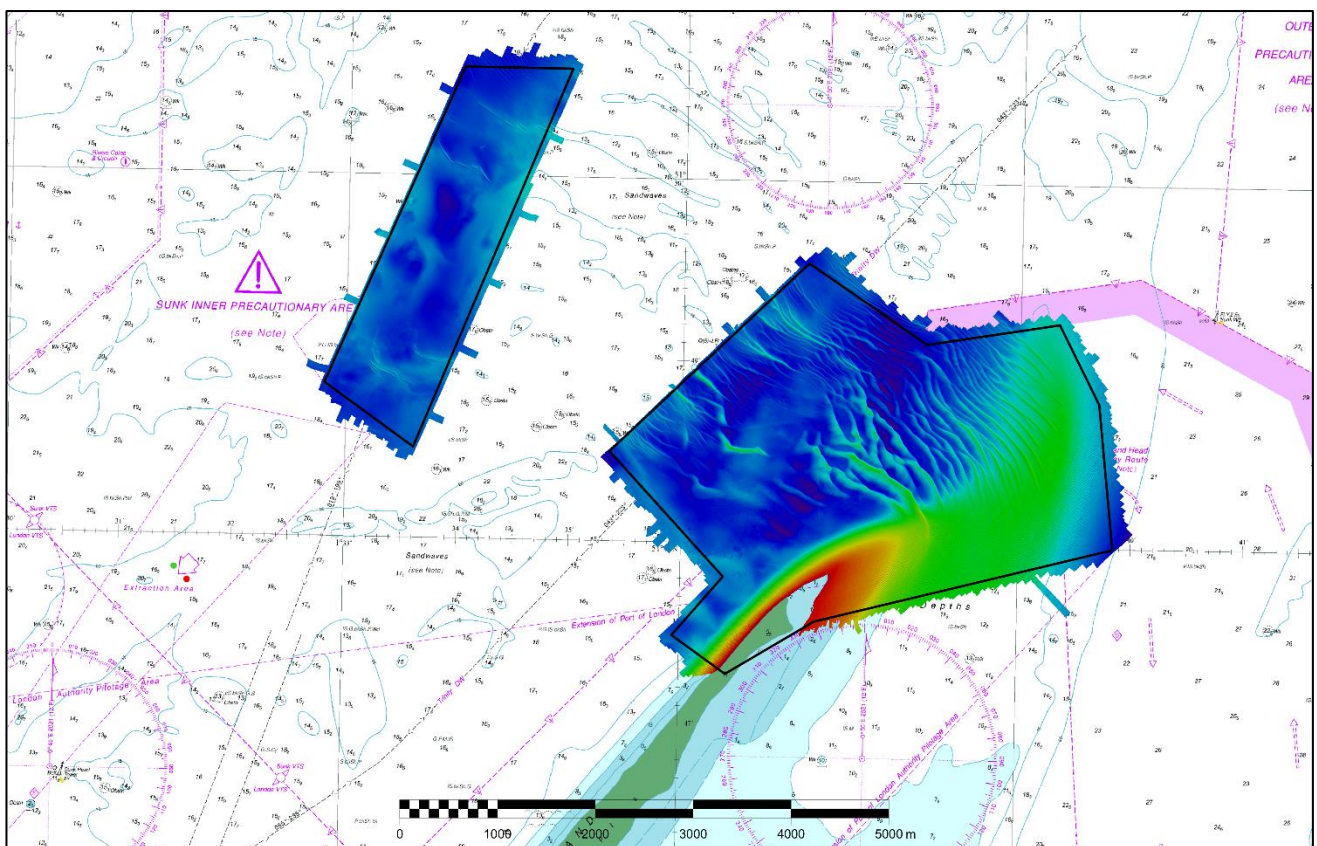




UK Hydrographic
Office

THAMES ESTUARY LONG SAND HEAD FOCUSED TE5A & SUNK DW FOCUSED TE5B 2021 ASSESSMENT

An assessment of the 2021 hydrographic survey of the area TE5A & TE5B: 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).

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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.

LONG SAND HEAD FOCUSED TE5A & SUNK DW FOCUSED TE5B, 2021

1. SUMMARY

Changes Detected

- 1.1 TE5A has seen the continued north-east sediment migration seen in previous years. However, this migration has further slowed, with the 10m contour of Long Sand Head moving 145m between 2016 and 2017 and only 33m between 2020 and 2021.
- 1.2 TE5B has remained relatively stable since 2020, with approximately 25m of sandwave movement north-east seen since 2020.
- 1.3 Controlling depths have moved slightly with small decreases in depth since the 2020 full survey.

Reasons for Continuing to Resurvey the Area

- 1.4 Due to the proximity of two Deep Water Routes (DWR) and the dynamic nature of the seabed, in addition to the continued north-east migration of Long Sand Head in the direction of Long Sand Head Two Way Route, the survey area should continue to be resurveyed.

Recommendations

- 1.5 The focused survey intervals for TE5A and TE5B should be continued at an annual interval. The full survey interval should also be continued at a 3-yearly interval.
- 1.6 The survey limits for TE5A and TE5B should remain the same.

2. LOCATION

- 2.1 Survey interval at time of resurvey: 1 year
- 2.2 Area Covered: 19.2 km² (5.04 km² TE5A, 14.2 km² TE5B)

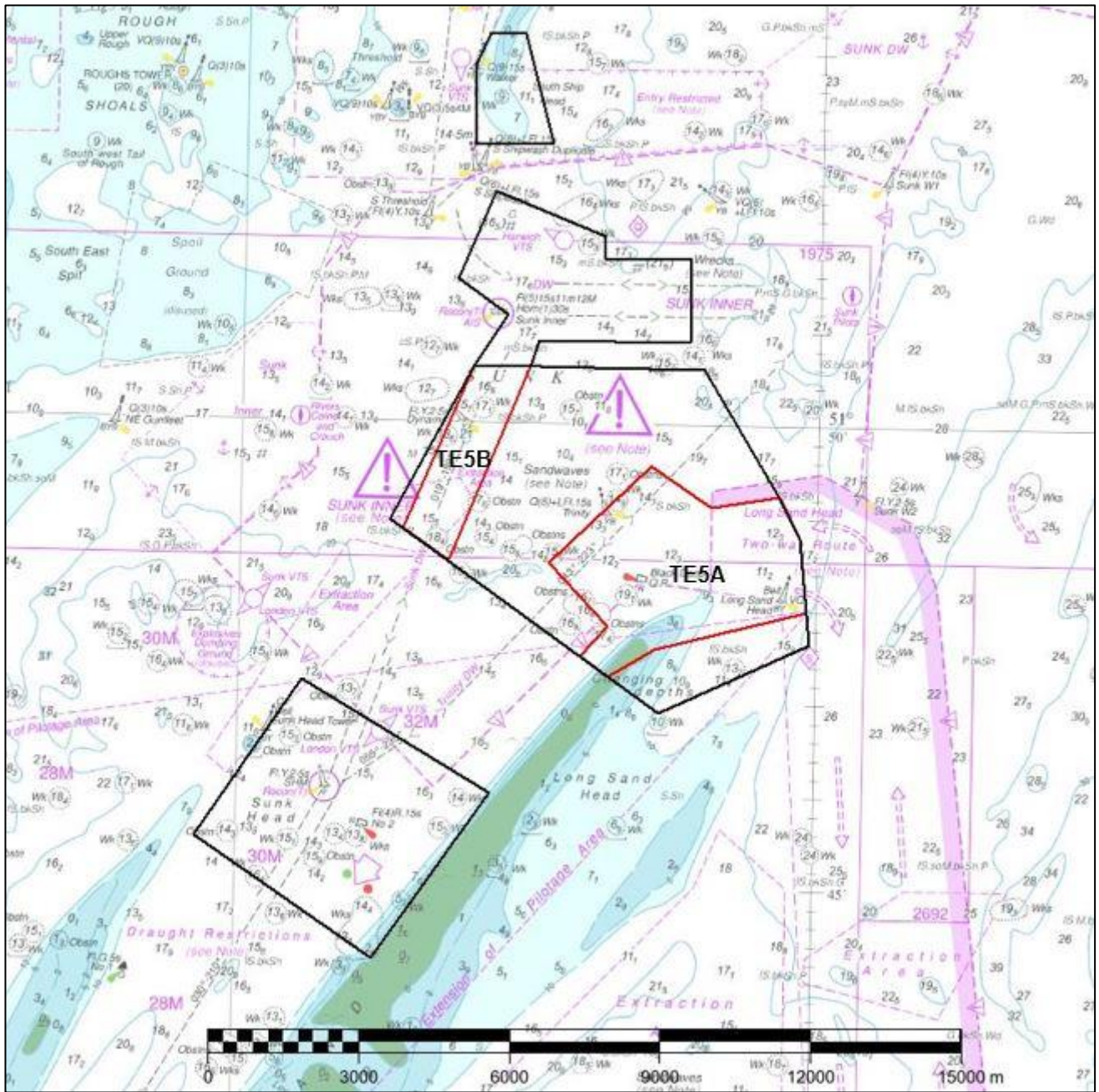


Figure 1: 2021 Thames Estuary Routine Resurvey areas and TE5 full area overlaid on BA Chart 2692 with area TE5A & TE5B in red

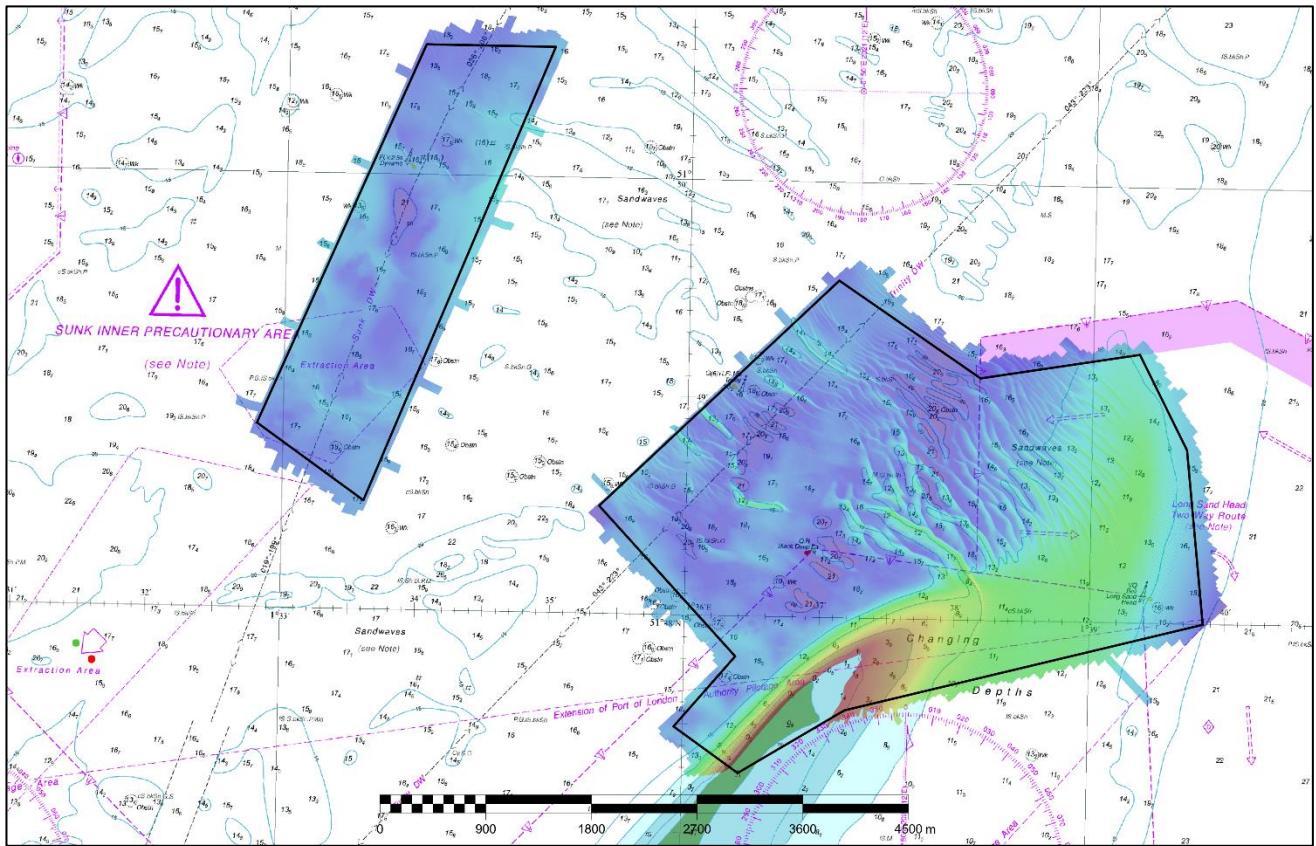


Figure 2: 2021 survey data overlaid on BA Chart 2692

3. REFERENCE SURVEY DETAIL

3.1 The previous full survey was conducted as part of the 2020 [Routine Resurvey Programme, CHP] between August and September 2020 as part of HI1692. The last focused survey for TE5A was conducted in August 2019 as part of HI1642. The last focused survey for TE5B was conducted in August 2019 as part of HI1643.

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 HI1640 was surveyed in September and October 2021.

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 Controlling depths have been highlighted in Figure 3 below.

TE5A

5.2 The 13.3m depth in the north-west section of TE5A has shoaled by 1.0m since 2020 and moved west by 115m.

5.3 Sediment migration in TE5A has remained consistent with previous years, generally moving north-east. The 10m contour at the north-east end of Long Sand Head has moved 33m since 2020 in a north-east direction, reflecting the reduced rate of migration seen in the 2019 report. The black arrows in Figures 4 and 5, show the direction of sandwave migration seen in TE5A since the 2019 focused surveys, and 2020 full survey.

5.4 The Trinity DW Route has also shoaled slightly since 2020 outside of sandwave areas, ranging from 0.1m in the southern section of the route, to 0.5m in the central section of the route. The area around Long Sand Head has seen more significant shoaling, which reflects the north east movement seen in the difference surfaces in Figures 4 and 5. The area to the east of TE5A, around the Long Sand Head Two Way Route has seen some shoaling of around 1m since 2019.

TE5B

5.5 In TE5B, the 15.1m depth has deepened by 0.1m since 2020 and moved south by 16m. The 10.7m depth in the eastern section has shoaled approximately 0.4m since 2020 and moved north 80m. The 12.0m depth in the western half of TE5B has shoaled 0.2m since 2020 and moved east by 25m. The 12.5m depth nearby has shoaled 0.8m since 2020 and moved south-east by 60m.

5.6 The difference surface in Figures 4 and 5 shows that TE5B has remained relatively stable since the 2019 focused survey, with sandwaves moving approximately 25m north east since 2019.

5.7 The colour banded depth plot in Figure 6, shows a very small amount of shoaling in TE5B around the Sunk DW route, of approximately 0.2m since 2020.

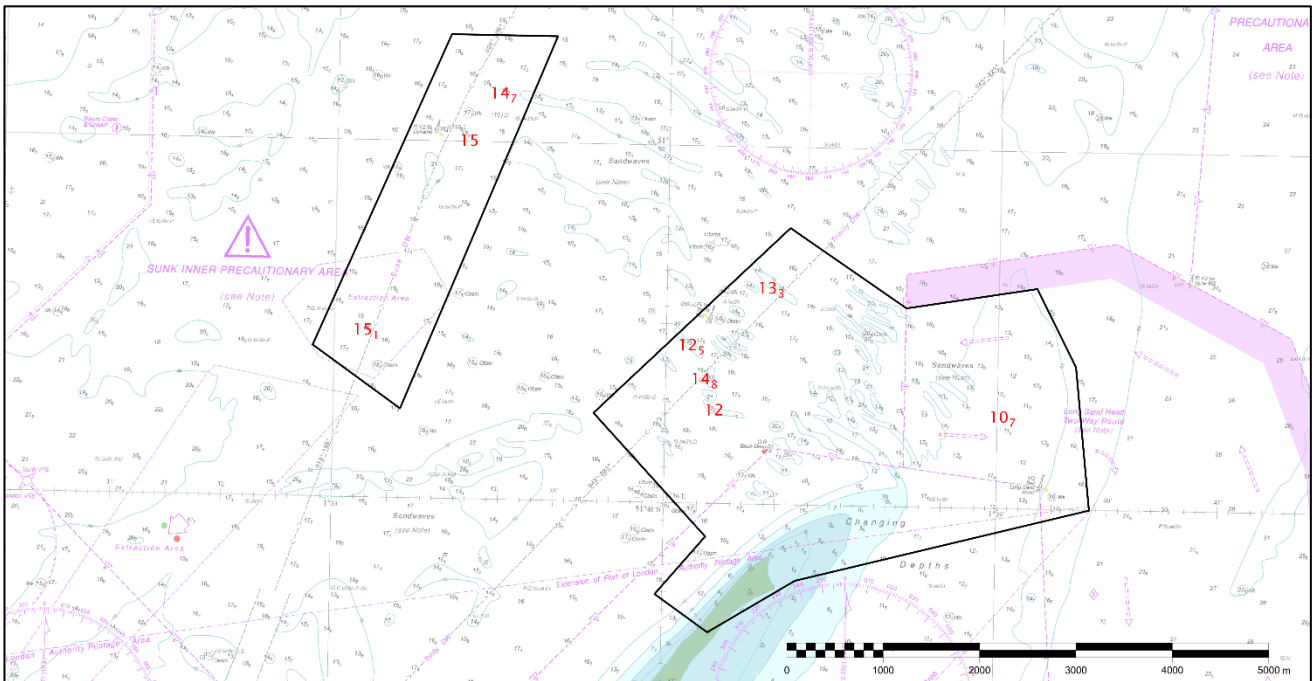


Figure 3: Controlling Depth soundings highlighted, overlaid on BA Chart 2692

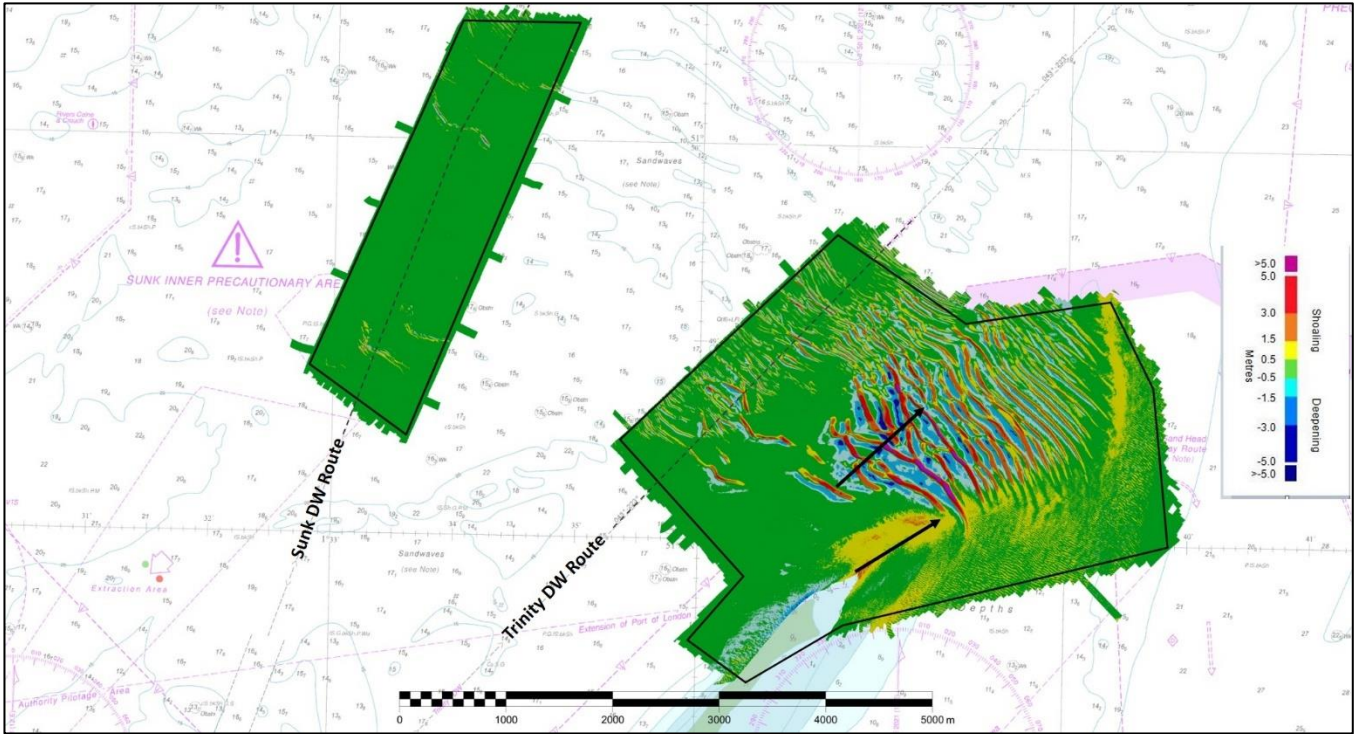


Figure 4: Difference surface showing bathymetric changes between the 2021 and 2020 surveys overlaid on BA Chart 2692 (Black arrows represent sandwave migration since 2020 survey)

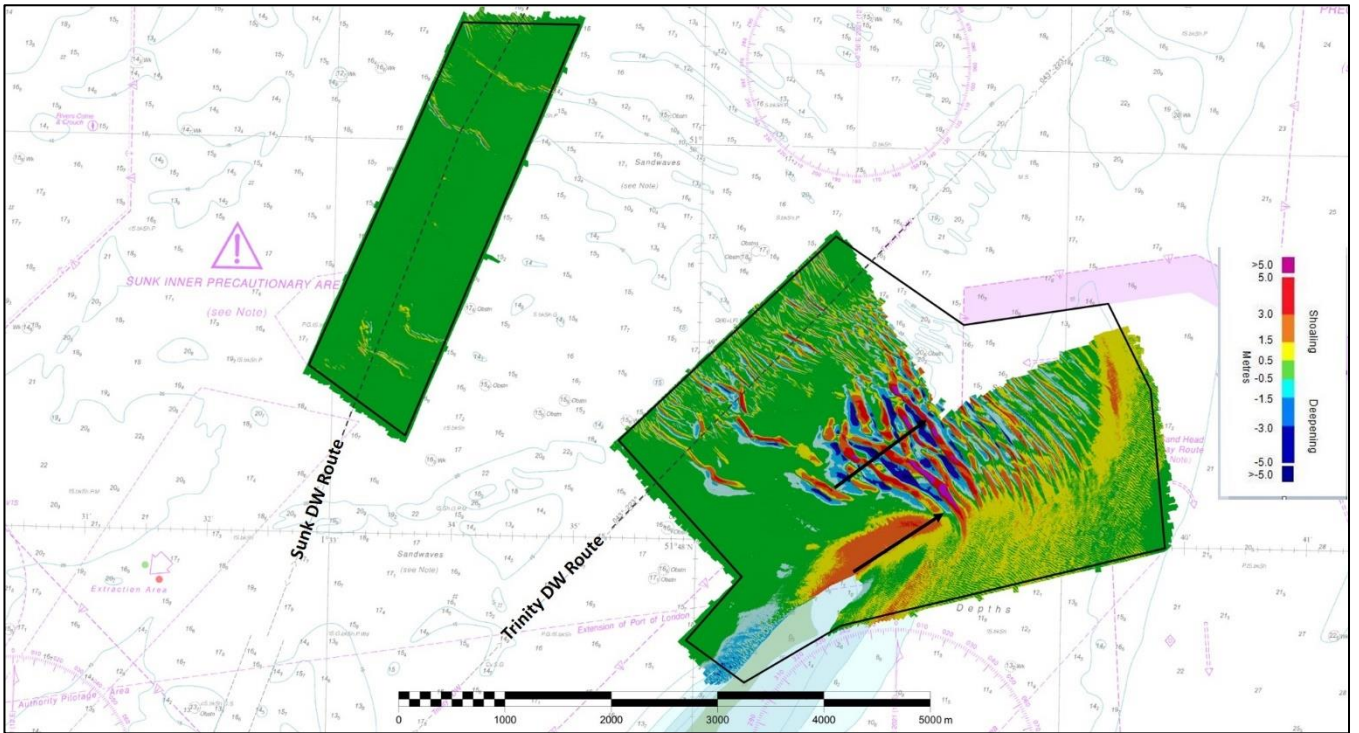


Figure 5: Difference surface showing bathymetric changes between the 2021 and 2019 surveys overlaid on BA Chart 2692 (Black arrows represent sandwave migration since 2019 survey)

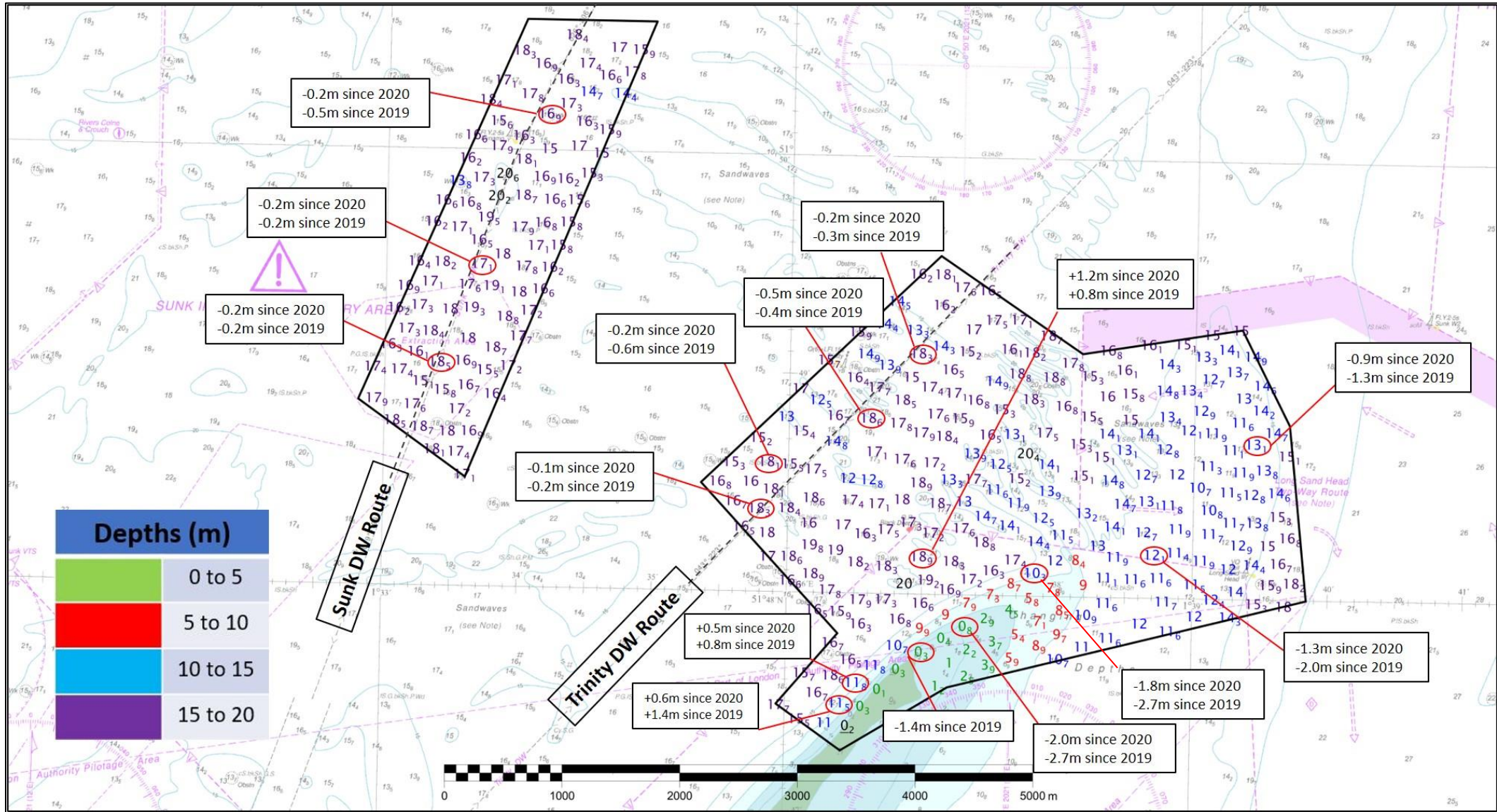


Figure 6: Colour banded depth plot from the 2021 survey with selected depth changes since the 2019 & 2020 survey. Positive values (+) represent deepening. Negative values (-) represent shoaling.

6. RECOMMENDATIONS FOR FUTURE SURVEYS

Survey Interval

6.1 Given the location of the area in relation to the DWR(s) and the draught of vessels navigating the area, TE5A and TE5B should remain on the annual survey interval.

Survey Area

6.2 The survey area should remain unchanged. The area limits are sufficient to cover sandbank and sand-wave migration for the time being.