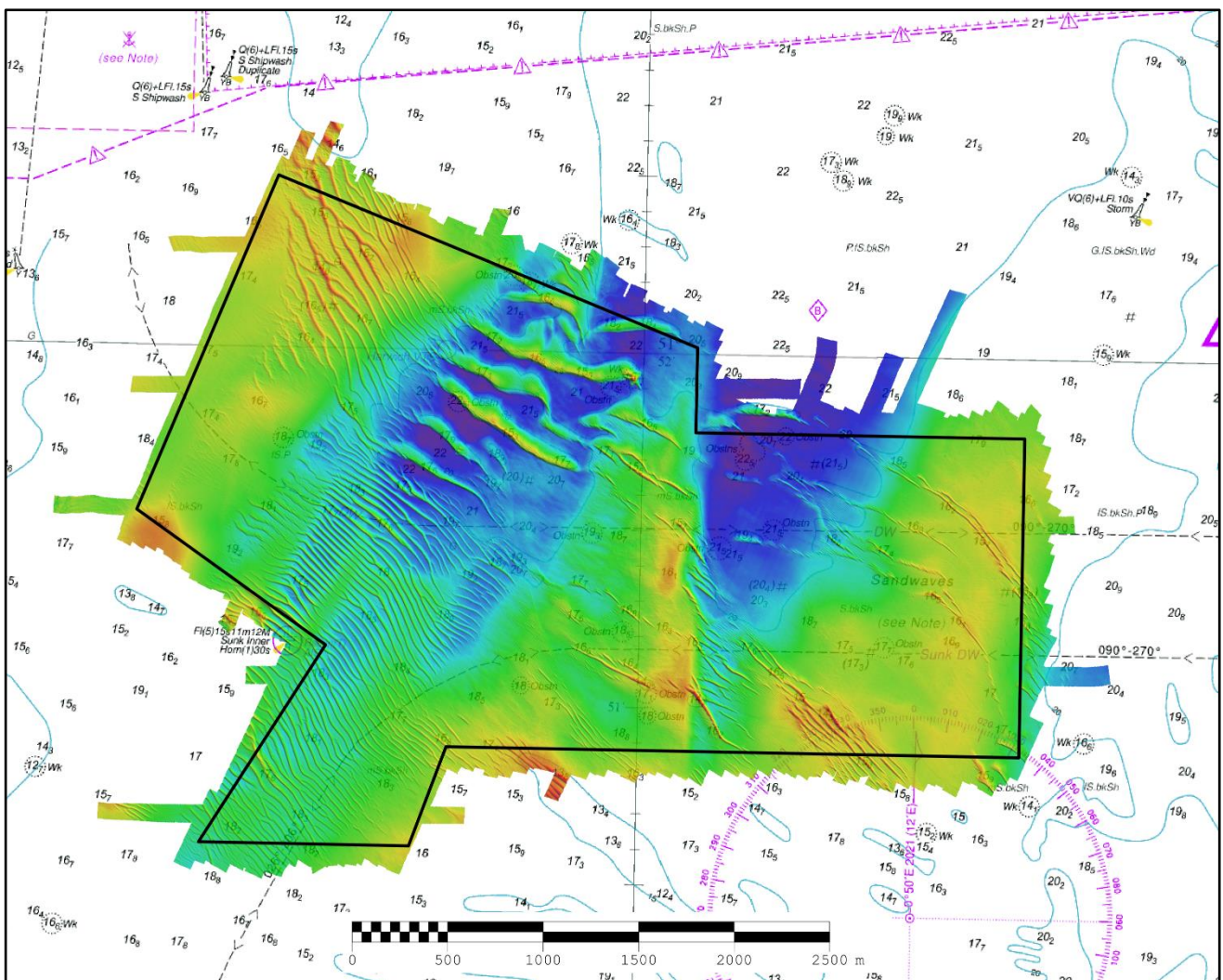




UK Hydrographic  
Office

## THAMES ESTUARY SUNK FOCUSED (TE3A) 2021 ASSESSMENT

An assessment of the 2021 hydrographic survey of the area TE3A: 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.

## **TE3A SUNK FOCUSED, 2021**

### **1. SUMMARY**

#### **Changes Detected**

- 1.1 The controlling depth of Harwich DWR is 0.1m deeper. The controlling depth of Sunk DWR is 0.1m shoaler.
- 1.2 Sandwave movement in the north of the survey area is migrating in a southwest direction, consistent with historical data. Outside of sandwave areas depths remain more stable.
- 1.3 The greatest depth changes between the 2021 and 2020 survey are due to the sandwave migration.

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

- 1.4 Depths in the area remain close to the draught of larger vessels which transit the area. The sandwave areas which appear to be moving more significantly are migrating towards the charted Deep-Water Routes.

#### **Recommendations**

- 1.5 Sandwaves are migrating in a southwest and northeast direction, towards both Deep Water Routes. Therefore the 3-year frequency for full surveys, with focused surveys in the intervening years, should be retained.
- 1.6 The full and focused survey limits should be retained to ensure the location and depth of the mobile sandwaves are adequately charted.

### **2. LOCATION**

- 2.1 Survey interval at time of resurvey: 1 year (Full area surveyed every 3 years, focused survey every year in-between).
- 2.2 Area Covered: 12.12 km<sup>2</sup>

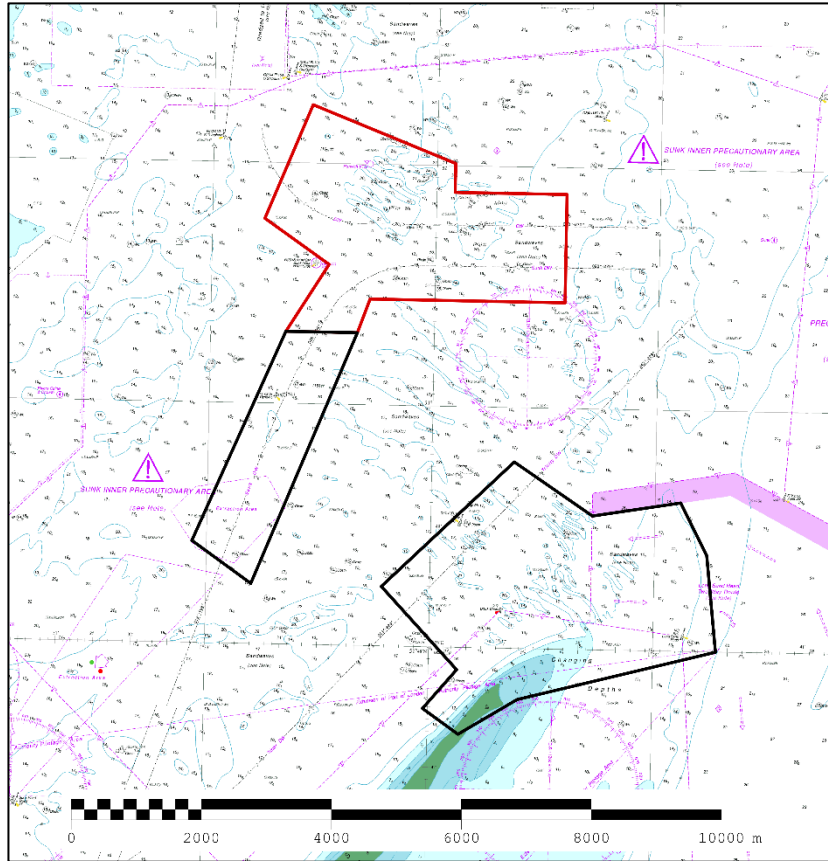


Figure 1: 2021 Thames Estuary Routine Resurvey areas overlaid on BA Chart 2692 with area TE3A Focused in red

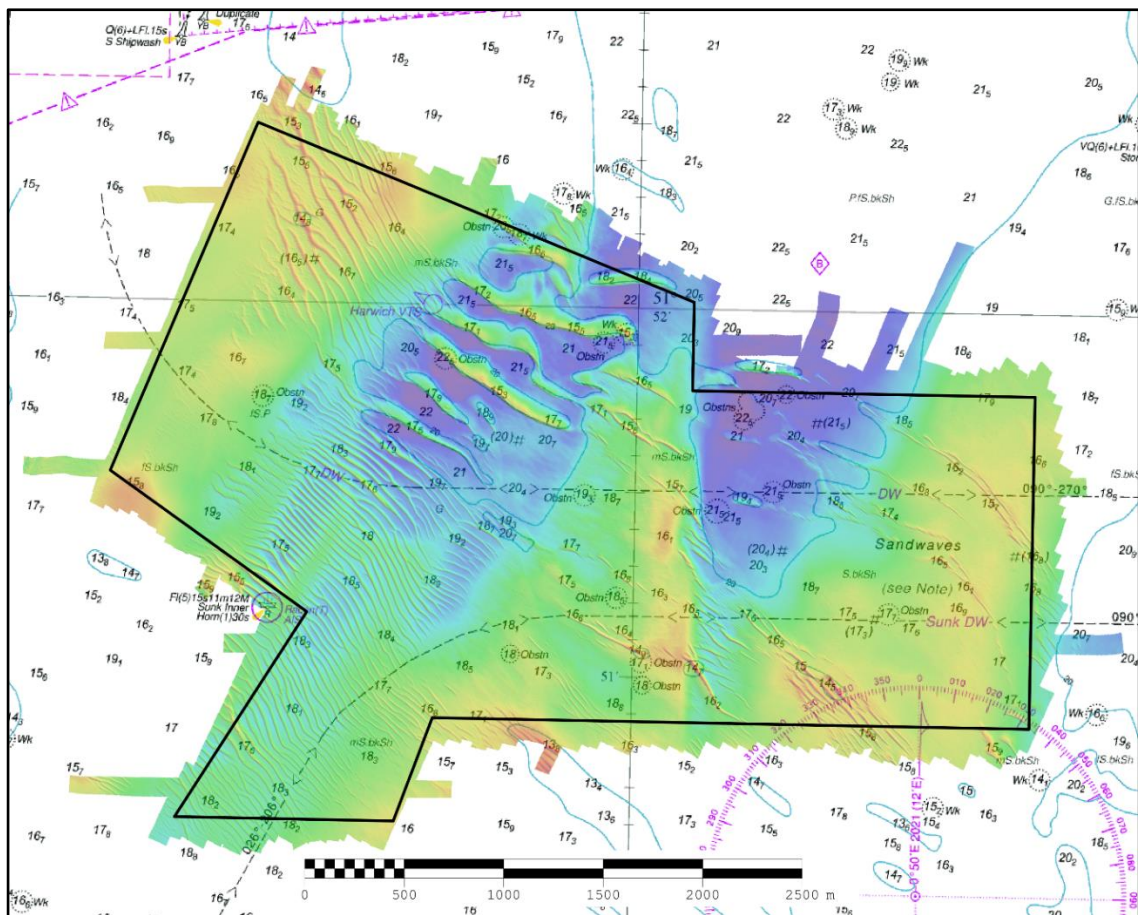


Figure 2: 2021 survey data overlaid on BA Chart 2692

### **3. REFERENCE SURVEY DETAIL**

- 3.1 The previous focused survey was conducted as part of the 2020 Routine Resurvey Programme in September 2020 as part of HI1691. The previous full survey was conducted in August and September 2019 as part of HI1641.
- 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 focused survey from the 2021 Routine Resurvey Programme was conducted in September 2021 as part of HI1739.
- 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 the controlling depths for Harwich DWR and Sunk DWR. In 2021 the Harwich DWR controlling depth is 15.8m (15.7m in 2020, in the same location and also 1.5km to the west) and the Sunk DWR controlling depth is 16.7m (16.8m in 2020 and 495m west). The least depth within the survey is 14.2m, 0.3m shoaler than the 2020 least depth at 14.5m.
- 5.2 The difference surfaces, Figures 4 & 5, show the movement of the sandwaves across the survey area between the 2020 and 2019 surveys. Sandwaves to the north of Harwich DWR are migrating southwest towards the DWR. The sandwaves to the south of Sunk DWR are migrating northeast, also towards the DWR; these sandwaves are usually the least depth in the survey area and are gradually becoming shoaler. (14.2m 2021, 14.5m 2020, 14.4m 2019, 14.7m 2018).
- 5.3 Figure 6 is a colour banded depth plot with selected differences between the 2020 and 2019 surveys. It shows the shoaling on and alongside the Sunk DWR and a shift in the position of the controlling depth, consistent with previous years data. The depths along the Harwich DWR remain more stable.
- 5.4 The greatest depth changes across the survey area are caused by the migration of the sandwaves in the north of the survey. The greatest changes in depth between 2020 and 2021 are -5.5m and +2.7m, Figure 6.



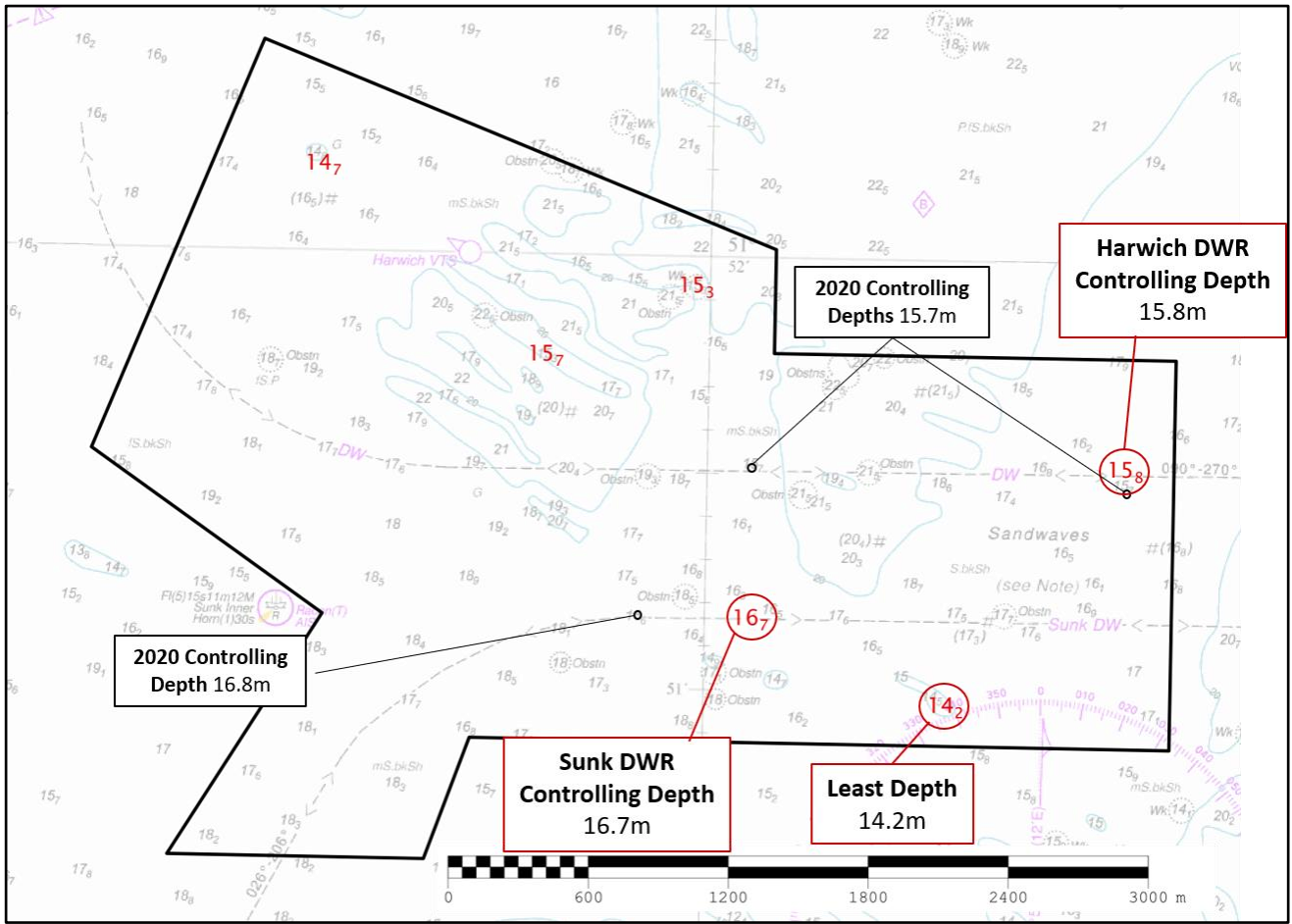


Figure 3: 2021 controlling depth soundings highlighted, overlaid on BA Chart 2692

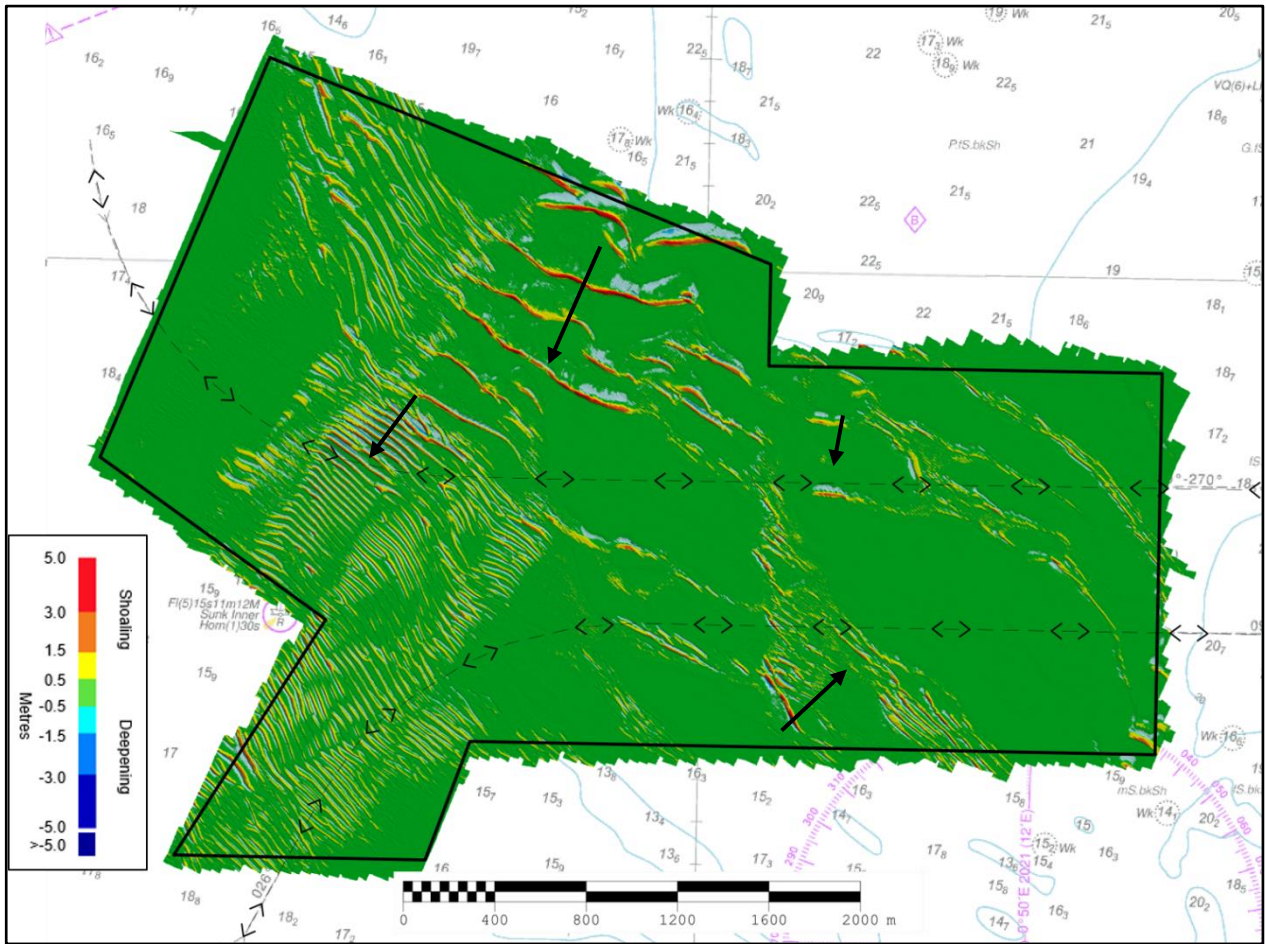


Figure 4: Difference surface showing bathymetric changes between the 2021 and 2020 surveys overlaid on BA Chart 2692 (Black arrows represent sandwave migration since 2020 survey)

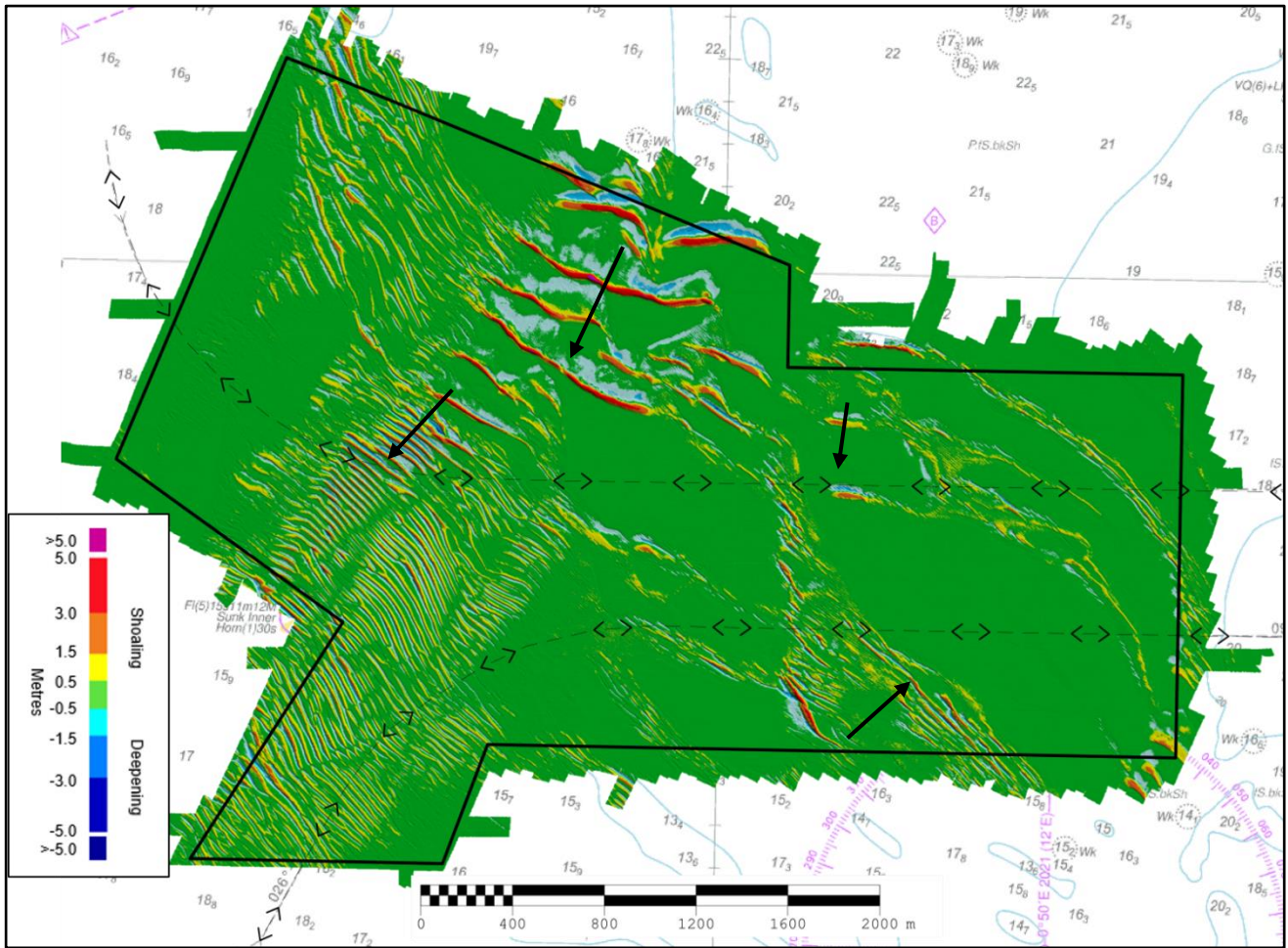


Figure 5: Difference surface showing bathymetric changes between the 2021 and 2019 surveys overlaid on BA Chart 2692 (Black arrows represent sandwave migration since 2019 survey)



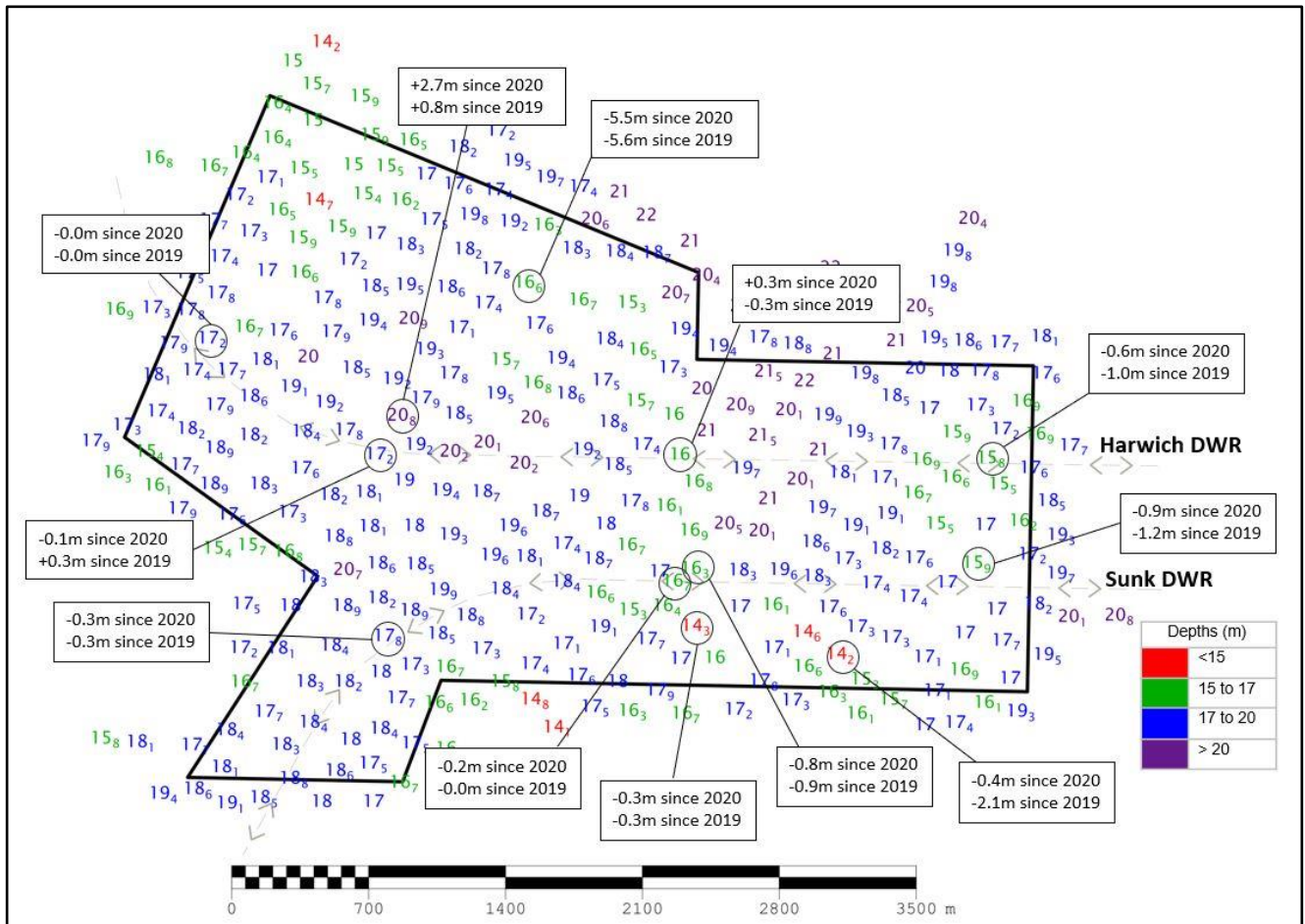


Figure 6: Colour banded depth plot from the 2021 survey with selected depth changes since the 2020 and 2019 surveys. Positive values (+) represent deepening. Negative values (-) represent shoaling.

## 6. RECOMMENDATIONS FOR FUTURE SURVEYS

### Survey Interval

- 6.1 Despite much of the survey area remaining consistent in the last year, there is obvious migration of sandwaves in a southwest and northeast direction, encroaching on both Deep-Water Routes. Therefore, the 3-year frequency for full surveys, with focused survey in the intervening years, should be retained.

### Survey Area

- 6.2 The full and focused survey limits should be retained to ensure the location and depth of the mobile sandwaves are adequately charted.