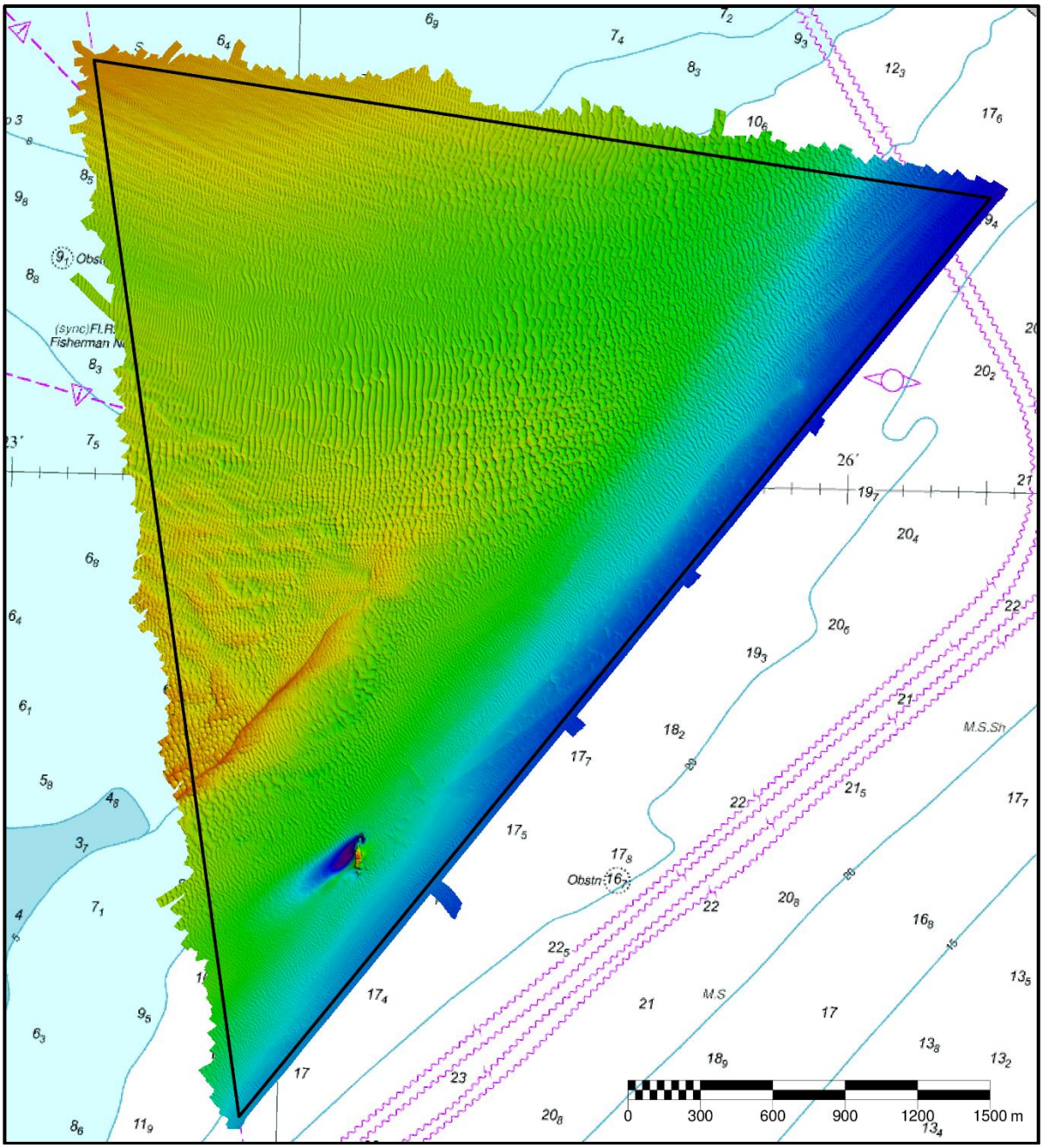
UK Hydrographic Office

THAMES ESTUARY
FISHERMANS GAT FOCUSED (TE19)
2023 ASSESSMENT

An assessment of the 2023 hydrographic survey of the area TE19: 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.

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.

TE19, FISHERMANS GAT FOCUSED 2023

1. SUMMARY

Changes Detected

1.1 Bathymetric changes in area TE19 are relatively modest and relate to the gradual migration of sand ripple and wave features in a broadly westerly direction. Additionally, there are some minor areas of sediment build-up (shoaling) in the lee of the sole wreck within this area.

Reasons for Continuing to Resurvey the Area

1.2 Depths in the area remain changeable due to the mobile nature of the seabed. Consequently, this area has the potential to be hazardous to deep-draught vessels navigating through the area. Continued monitoring through regular resurveys is required to track and mitigate these risks.

Recommendations

1.3 This survey area lies in a busy area of the Thames Estuary. Bathymetric changes within the area are relatively modest. However, there are potential risks to shipping from changing depths and it is important to continue to track the changing seafloor within this area.

1.4 The survey area should remain unchanged; it adequately captures the modest changes in bathymetry within this area.

2. LOCATION

2.1 Survey interval at time of resurvey: 6 years (12 years for full area).

2.2 Area Covered: 8.95 km^2

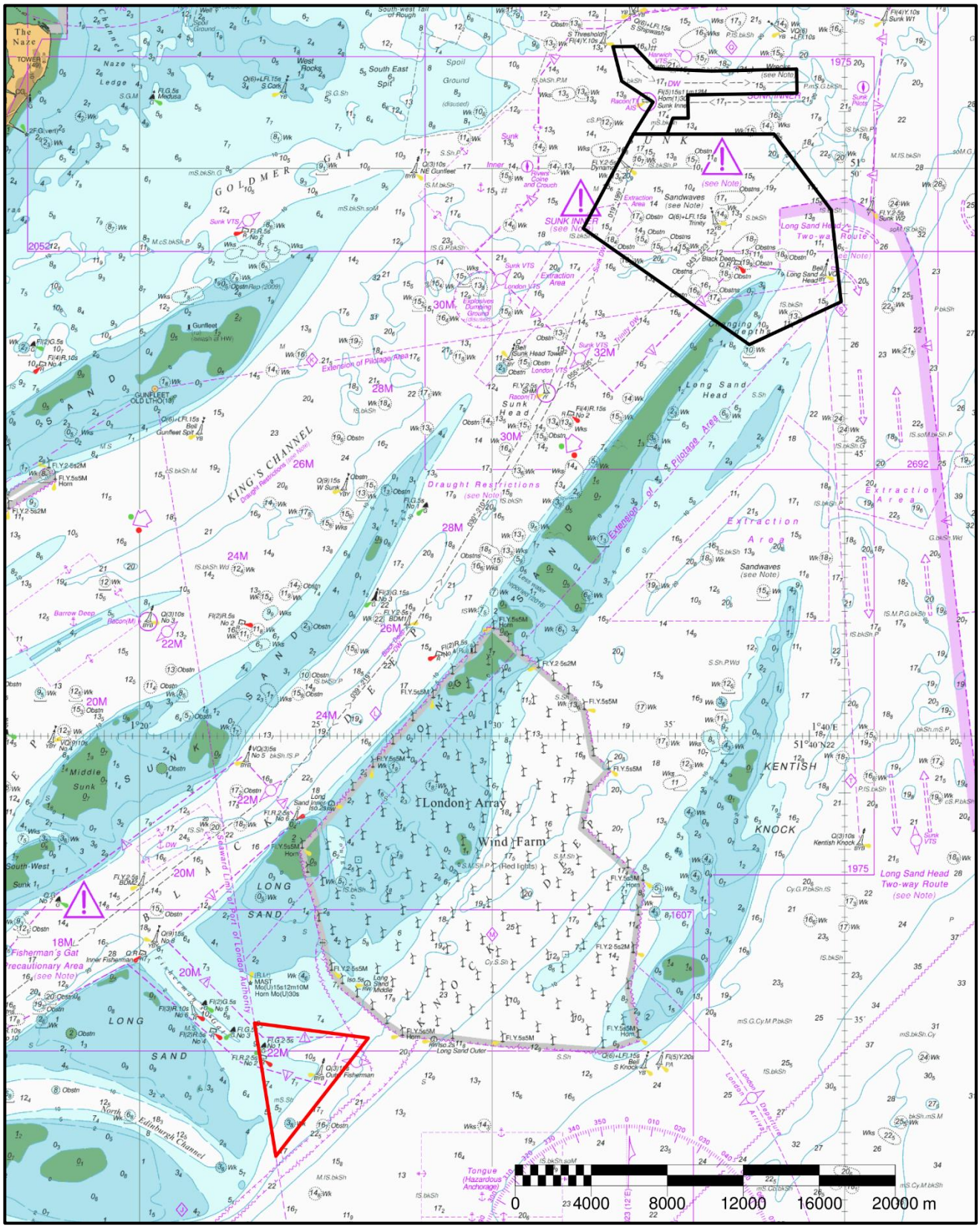

Figure 1: 2023 Thames Estuary Routine Resurvey areas overlaid on BA Chart 1183-0 with area TE19 in red.

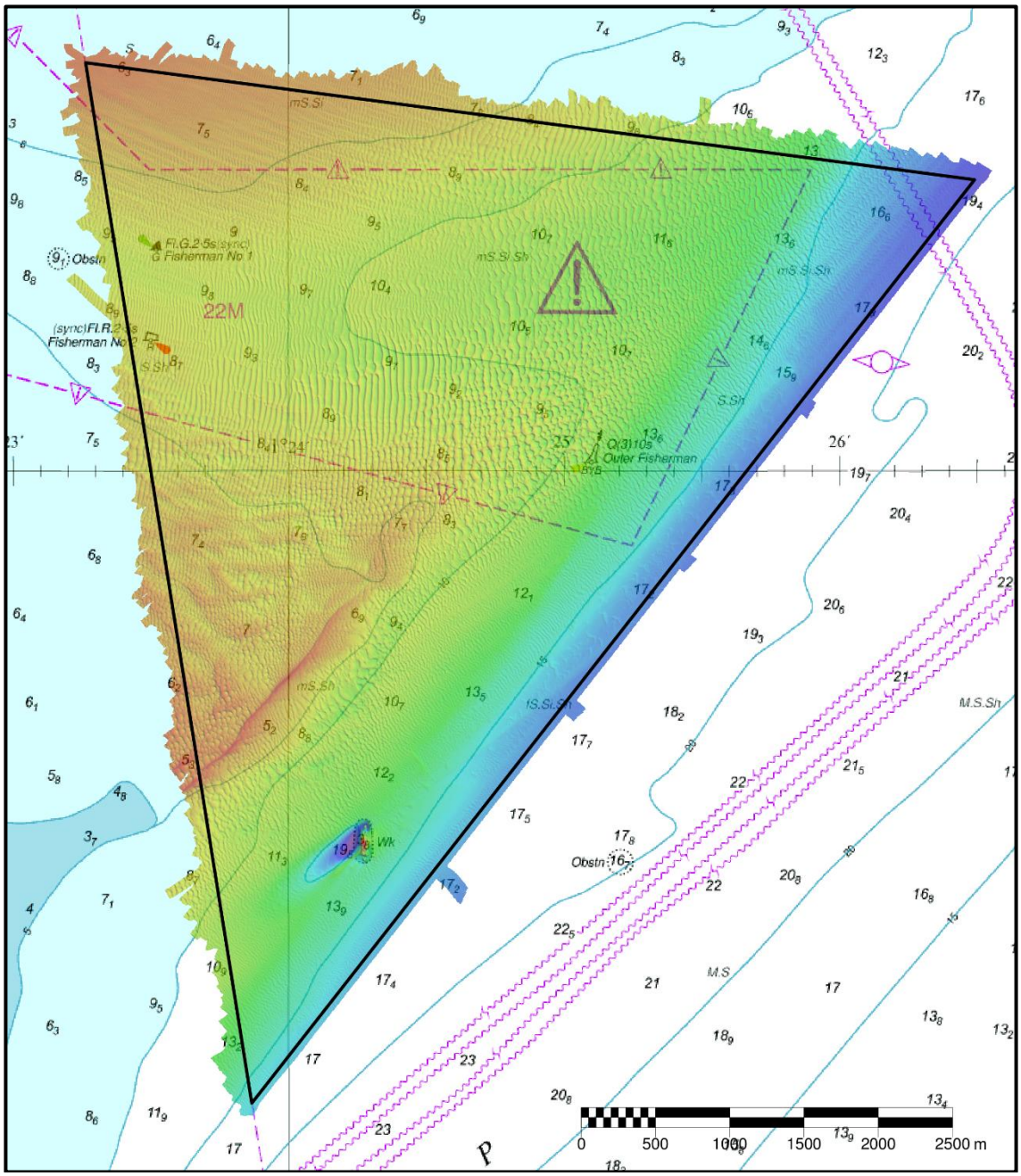

Figure 2: 2023 survey data overlaid on BA Chart 1606-0.

3. REFERENCE SURVEY DETAIL

The previous full survey was conducted as part of the 2017 Routine Resurvey Programme (CHP) between August and November 2017 under the designation of HI1546. Prior to that the area was surveyed in June 2005 under the designation HI1119. This survey resulted in sparse XYZ SBES data. Consequently, these are not used in this analysis and report.

3.1 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 TE19 Fishermans Gat Focused area was undertaken as part of the 2023 Routine Resurvey Programme. It was conducted between the 24th and 28th of August 2023 under the designation HI1833.

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

Bathymetric changes within the TE19 survey area are relatively modest, despite the large interval between surveys. The seabed within consists of mobile sand ripples and sand waves (Figure 2). Bathymetric changes within the survey data presented here relate solely to the erosion and deposition of sediment which together represent the movement of seabed features.

5.1 In general sediment is moving in a westerly direction, this is shown by difference plot (Figure 4) and by the changing position of the 10 m contour (Figure 5). Overall, there is limited change to the broad shape and depth of the seabed. Small areas of large change relate to the migration of mobile seabed features rather than a general shallowing or deepening trend.

5.2 There are also some small changes in the seabed around the sole wreck within this area. The lee (southeast) of the wreck has experienced an accumulation of sediment and consequently there is some shallowing in this area. The difference plot (Figure 4) also shows some larger changes around the wreck. However, the latter should be disregarded as they relate to discrepancies in the horizontal positioning of the survey data between the 2017 and 2023 surveys.

5.3 A controlling depth of 8.8 metres was identified within the buoyed ‘Fishermans Gat’ channel. This is the shallowest depth within the surveyed area that lies within the channel fairway and is important to shipping transiting the area.

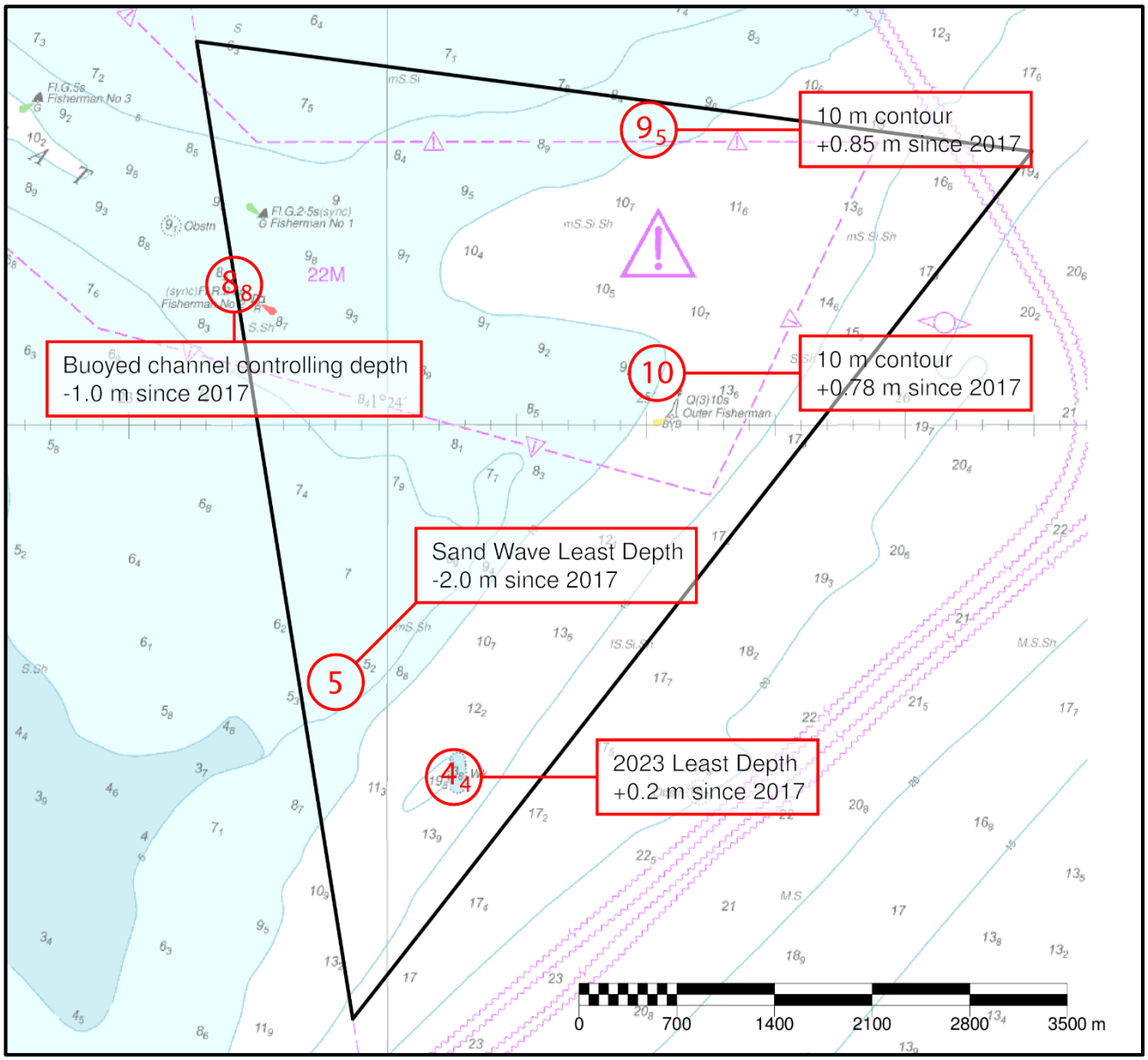

Figure 3: Controlling Depth soundings highlighted, overlaid on BA Chart 1606-0.

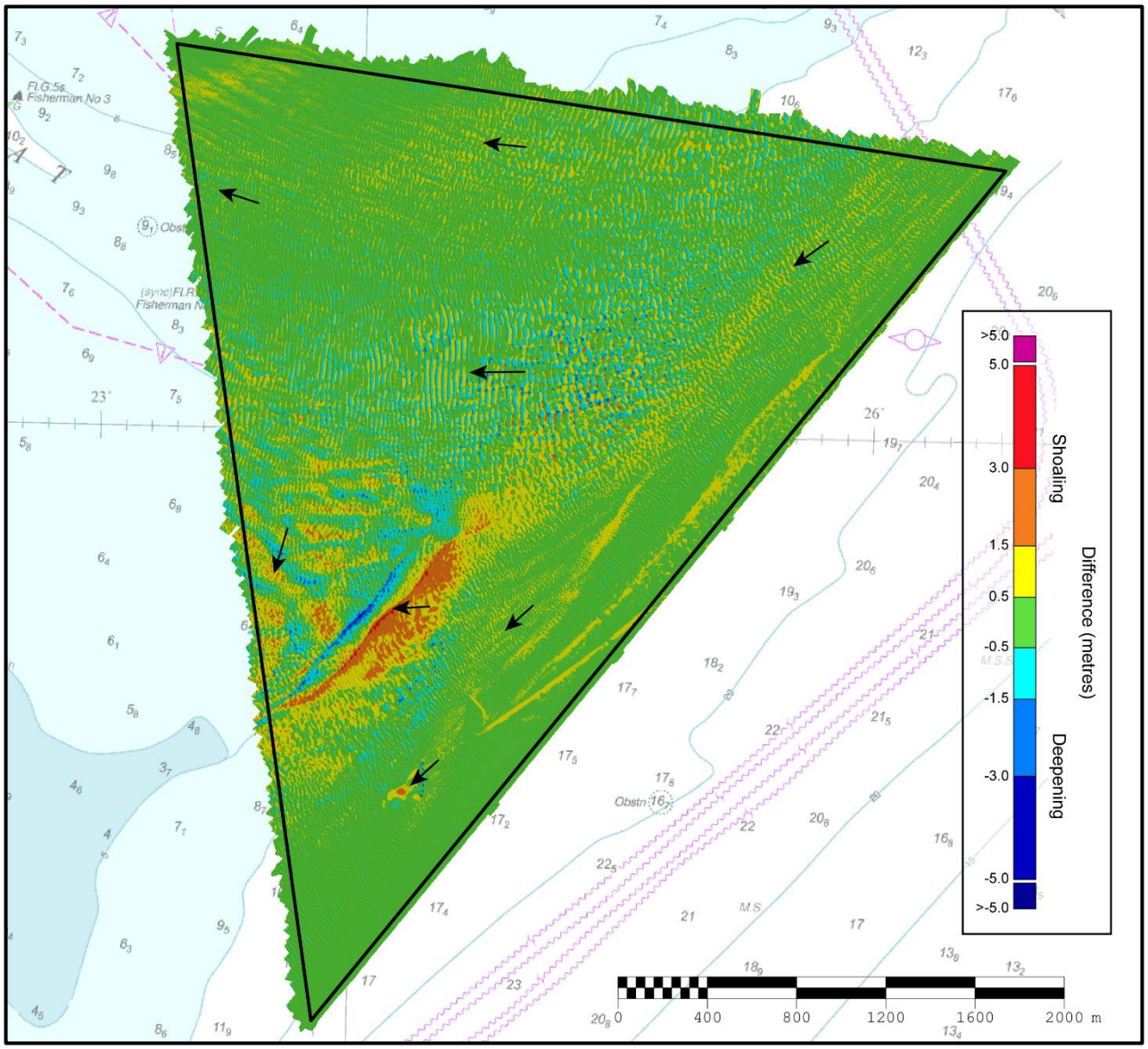

Figure 4: Difference surface showing bathymetric changes between the 2023 and 2017 surveys overlaid on BA Chart 1606-0. Black arrows represent the direction and magnitude of sandwave migration since the 2017 survey.

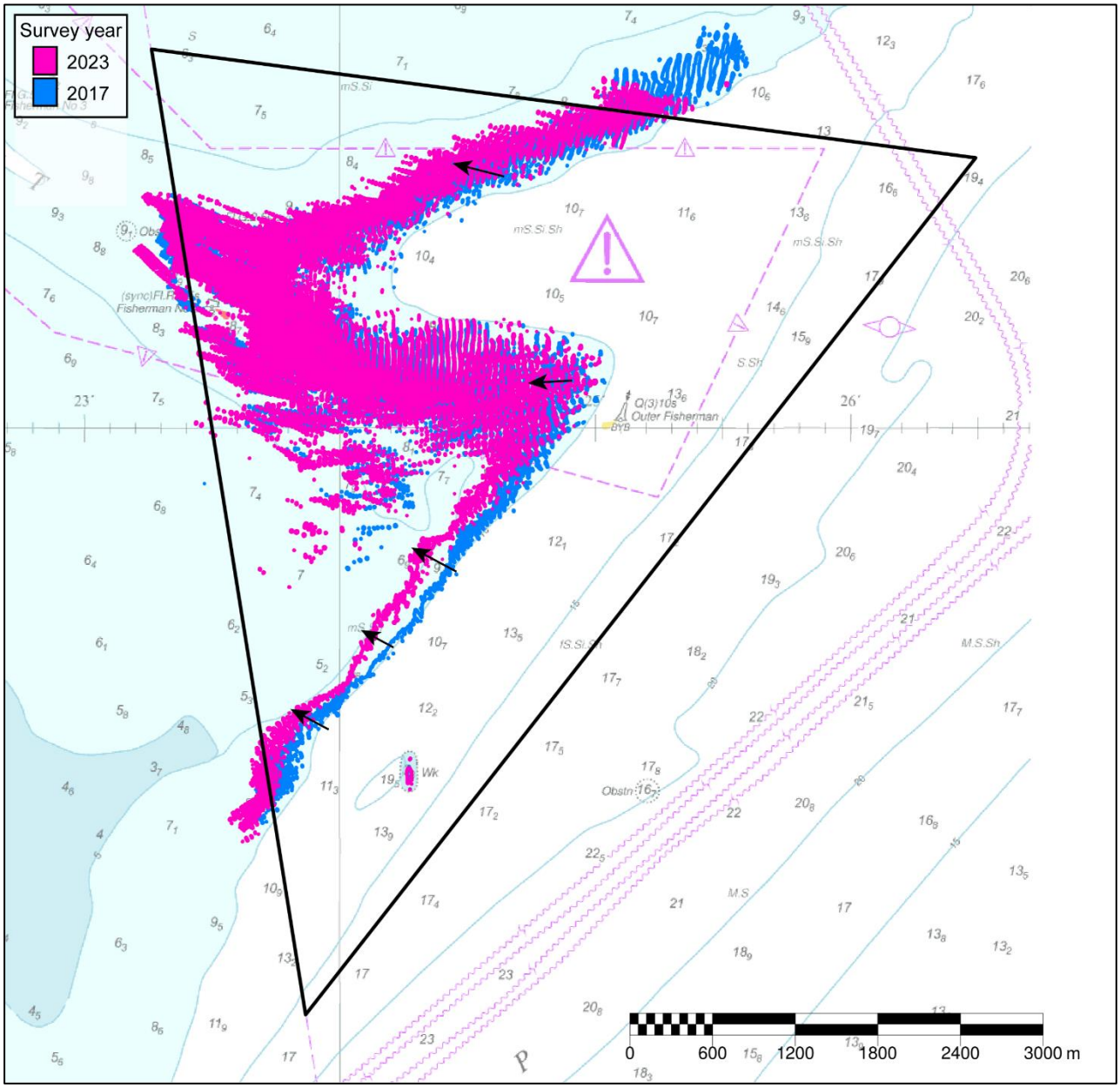

Figure 5: Contour plot showing changes in the 10 metre contour between 2017 (blue) and 2023 (magenta). Black arrows represent the direction and approximate magnitude of feature migration.

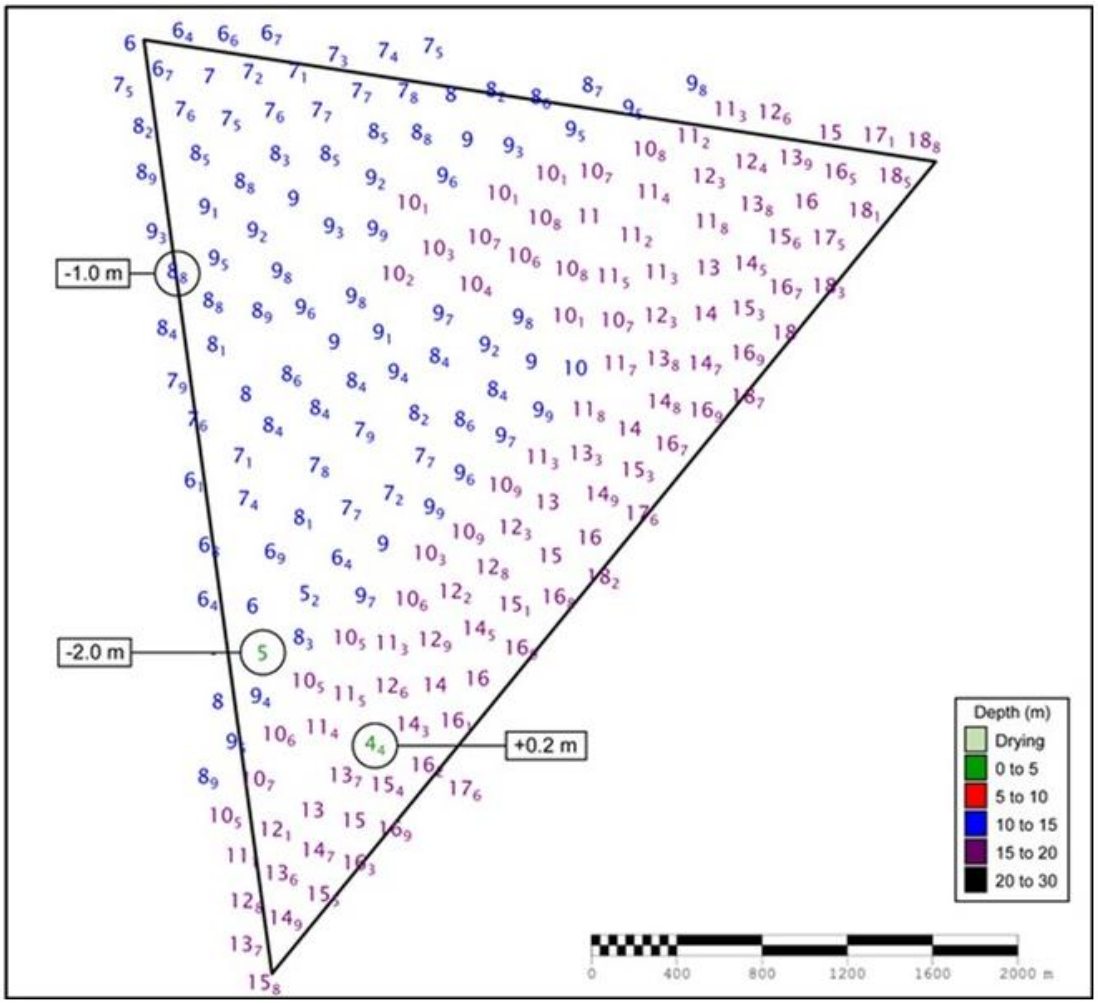

Figure 6: Colour banded depth plot from the 2023 survey with selected depth changes since the 2017 survey. Positive values (+) represent deepening. Negative values (-) represent shoaling.

6. RECOMMENDATIONS FOR FUTURE SURVEYS

Survey Interval

6.1 This survey area continues to exhibit mobile seafloor characteristics and requires regular monitoring to ensure dangers to marine traffic are mitigated. Bathymetric changes are relatively minor. However, given the location of the area in relation to the DWR and the draught of vessels navigating the area, the TE19 Focused area should remain on a six-yearly survey interval with more extensive monitoring undertaken at 12-year intervals within the TE19 Full area.

6.2 Additionally, this area of the Thames Estuary is regularly monitored by PLA. The most critical sections of TE19 to navigation, specifically depths <10 m, are surveyed approximately every four months, mitigating the need for more regular CHP surveying.

Survey Area

6.3 The TE19 Focused survey area adequately captures the most mobile features within the shipping channel. The survey area should remain the same to continue the long-term monitoring of sand wave and ripple features across the survey area. Additionally, the presence of a very prominent wreck within the survey area further strengthens the case for continued monitoring of bathymetric changes here.