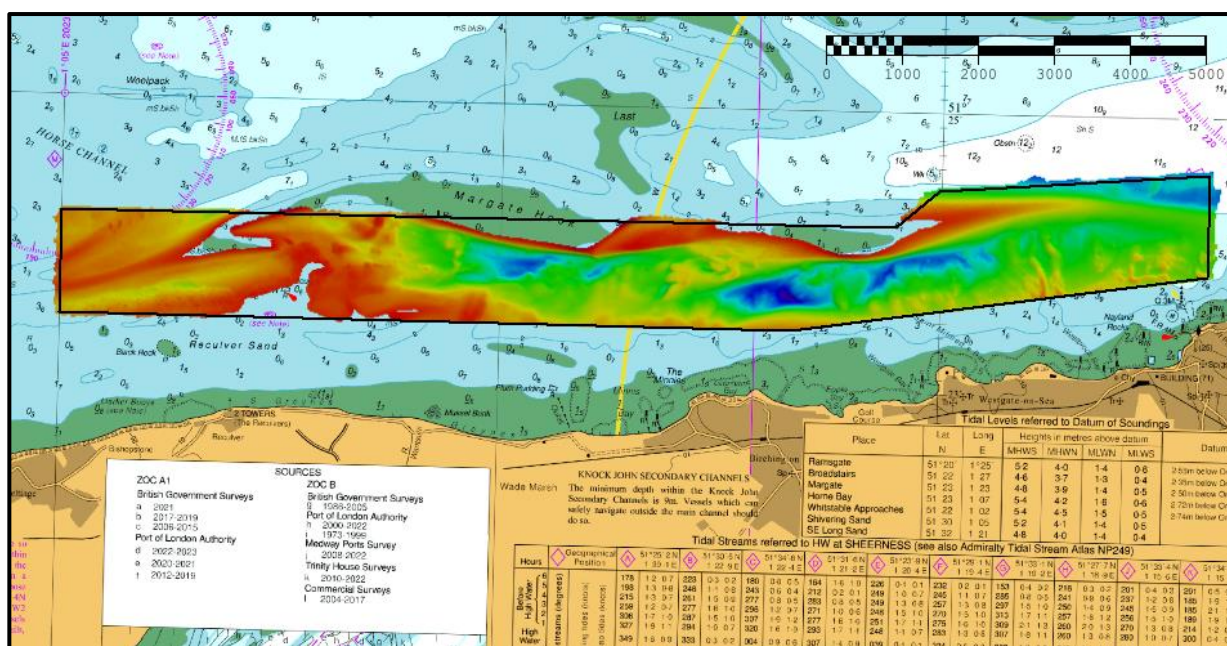


THAMES ESTUARY MARGATE SAND FOCUSED (TE17) 2024 ASSESSMENT

An assessment of the 2024 hydrographic survey of the area TE17: 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).

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All depths are to Chart Datum, defined using the UKHO Vertical Offshore Reference Frame (VORF) Model.

TE17 MARGATE SAND FOCUSED, 2024

1. SUMMARY

Changes Detected

- 1.1 The sections of Margate Sands within the survey area have shifted in the last 12 years, increasing in size, and beginning to push southwards and eastwards.
- 1.2 Shoaling of the bank between Copperas Channel and Gore Channel has created a new controlling depth for Copperas Channel of 0.8m.
- 1.3 The controlling depths for Gore Channel and South Channel remain largely unchanged at 4.2m and 5.8m respectively.
- 1.4 The eastern isolated sandbank within the survey area is beginning to move southward and eastward. Although currently not a danger to navigation, this pattern of movement may impact the entrance of vessels into South Channel in the future.
- 1.5 A wreck investigation in the entrance to South Channel has identified a reduced depth of 7.2m.

Reasons for Continuing to Resurvey the Area

- 1.6 Sandbank movement in the survey area is currently trending southwards and eastwards. Although changes in the last 12 years are limited and do not currently represent a major navigational hazard to Gore Channel and South Channel, monitoring of this trend should continue.

Recommendations

- 1.7 Given the location of the area in relation to Copperas Channel, Gore Channel and South Channel anchorages, and trends seen when comparing the previous survey to this one, the focused survey interval should remain at 12 years and full survey at 25 years.
- 1.8 The focused area sufficiently covers the areas of change and areas at risk to navigation, see Figure 8, no changes are recommended.

2. LOCATION

- 2.1 Survey interval at time of resurvey: 12 years Focused, with the Full area surveyed every 25 years.
- 2.2 Area Covered: 21.13 km²

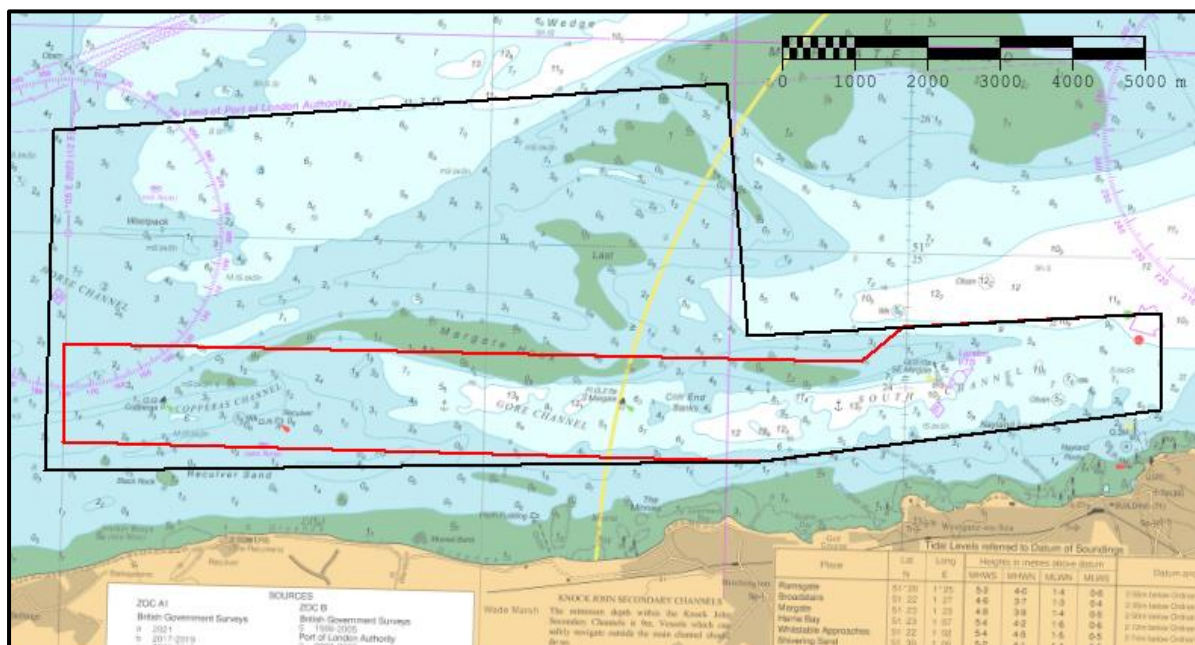


Figure 1: 2024 TE17 Full area (black) & TE17 Focused area (red) overlaid on BA Chart 1607.

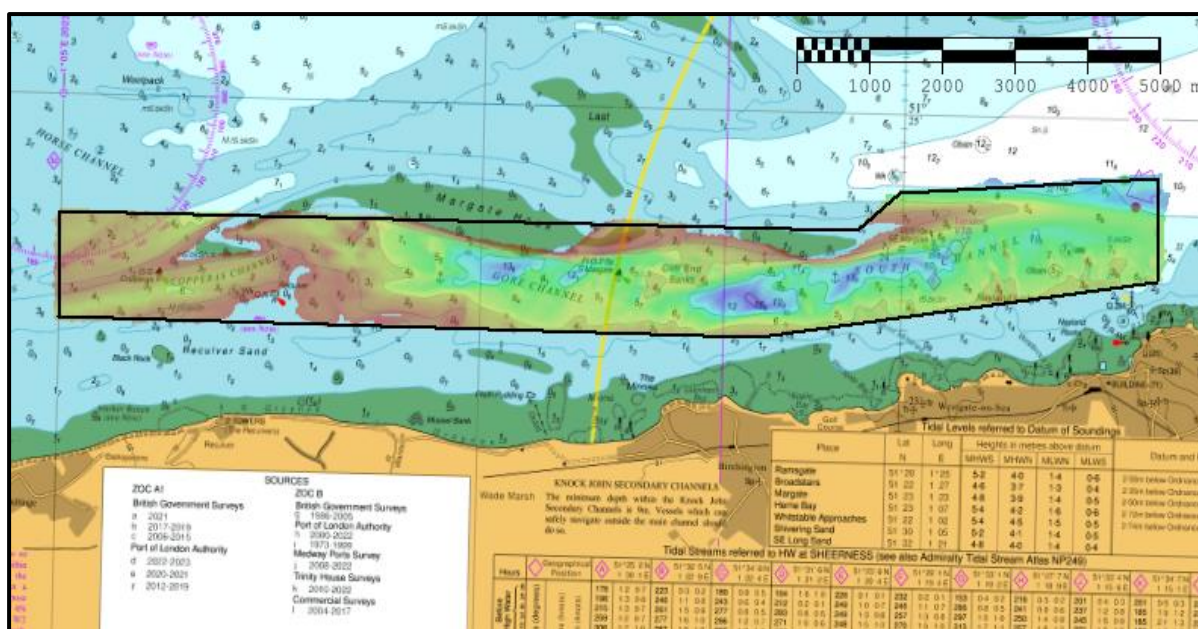


Figure 2: 2024 survey data overlaid on BA Chart 1607.

3. REFERENCE SURVEY DETAIL

- 3.1 The previous full survey was conducted as part of the 2010 Routine Resurvey Program, between November 2010 to January 2011 as part of HI1339.
- 3.2 The Report of Survey for this survey is available upon request 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 is HI1864, surveyed in May 2024 as part of the 2024 Routine Resurvey Programme.
- 4.2 The Report of Survey for this survey is available upon request and the validated bathymetric surfaces are available to download from the Admiralty Marine Data Portal.

5. DESCRIPTION OF RECENT BATHYMETRIC CHANGE

- 5.1 Significant depths from the 2024 survey are shown in Figure 3:
 - The bank between Copperas Channel and Gore Channel has shoaled to 0.8m, creating a new controlling depth for vessels transiting this route. A depth of 1.4m was observed here in the last CHP survey (HI1339) in 2010. The depth fluctuates with periodic shoaling and deepening between 0.8m-1.8m, evidenced by the Trinity House surveys that regularly take place.
 - The controlling depth for vessels transiting into Gore Channel from South Channel remains largely unchanged at 4.2m. This is 0.1m deeper than the depth found here from HI1339 in 2010.
 - The controlling depth for vessels transiting into South Channel but not through to Gore Channel remains largely un-changed at 5.8m. This is 0.1m deeper than the depth found here from HI1339 in 2010.
 - The wreck at the eastern entrance to South Channel has identified a reduced depth of 7.2m compared with the previous charted depth of 7.8m.
 - The sandbank to the north of the entrance to South Channel is beginning to extend east. The selected depth of 4.9m (HI1864 in 2024) shows that the 5m contour is extending out, having shoaled from 5.4m found in HI1339 in 2010. This change is evident in Figures 5 and 6 which shows the movement of the 2m and 5m CD contours between 2010-2024.
- 5.2 The difference surface in Figure 4 shows shoaling of the existing sandbanks. In particular, the western extent of Margate Hook has now joined up with the isolated sandbank to the west observed in the 2010 survey, creating a single larger sandbank. The eastern isolated sandbank has extended southward and eastward compared to the 2010 survey. This is also where there is the largest difference between the 2024 survey and the 2010 survey. Despite these changes, within the main channels the seabed remains largely unchanged. The exception to this is eastern extent of Copperas Channel, which has shoaled by 0.6m since the 2010 survey.

- 5.3 Contour plots in Figures 5 and 6 further illustrate the more localised changes to the sandbanks. Figure 5 shows the 2m contour advancing and shoaling the gap between Copperas Channel and Gore Channel that was present in the 2010 survey. Figures 5 and 6 also show where the 2m and 5m contours have moved southward and eastward compared to the 2010 survey. The 5m contour in the western section of the survey area remains largely unchanged, so was not included in this report.
- 5.4 Figure 7 highlights notable depth changes including the 0.6m shoaling between Copperas Channel and Gore Channel, and the 0.1m deepening of the Controlling Depth for Gore Channel. Figure 7 also shows the extent of the depth change to the eastern isolated sand bank, with a 0.7m shoaling present between the 6m sounding found from HI1339 in 2010 and the 5.3m sounding found from HI1864 in 2024.

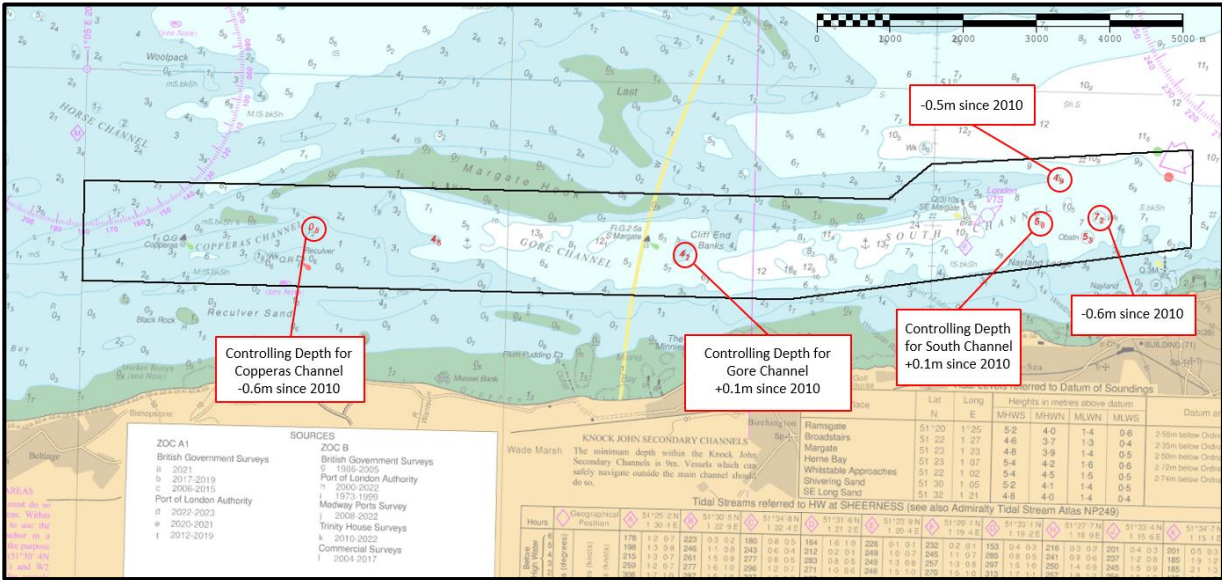


Figure 3: Controlling Depth sounding(s) highlighted, overlaid on BA Chart 1607

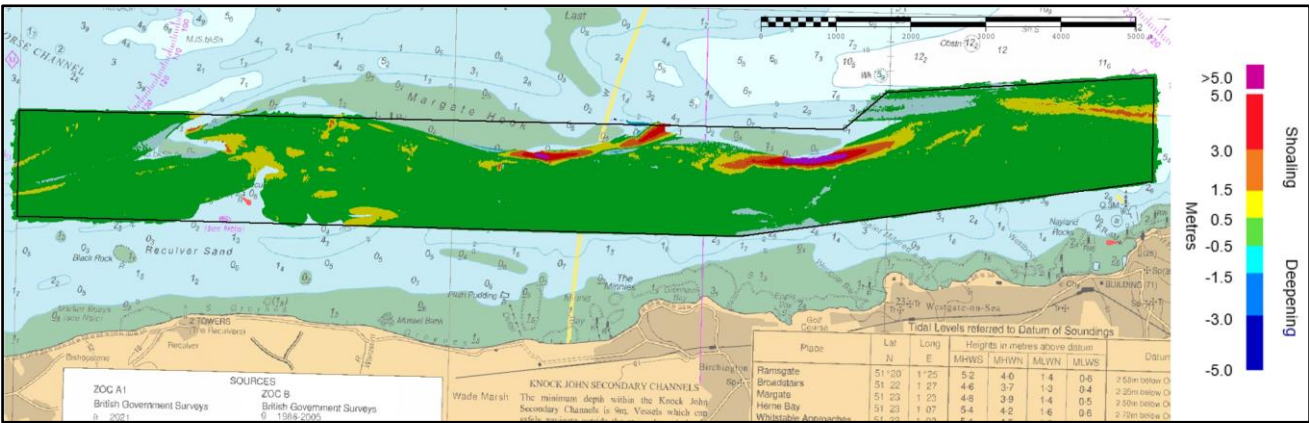


Figure 4: Difference surface showing bathymetric changes between the 2010 and 2024 surveys overlaid on BA Chart 1607

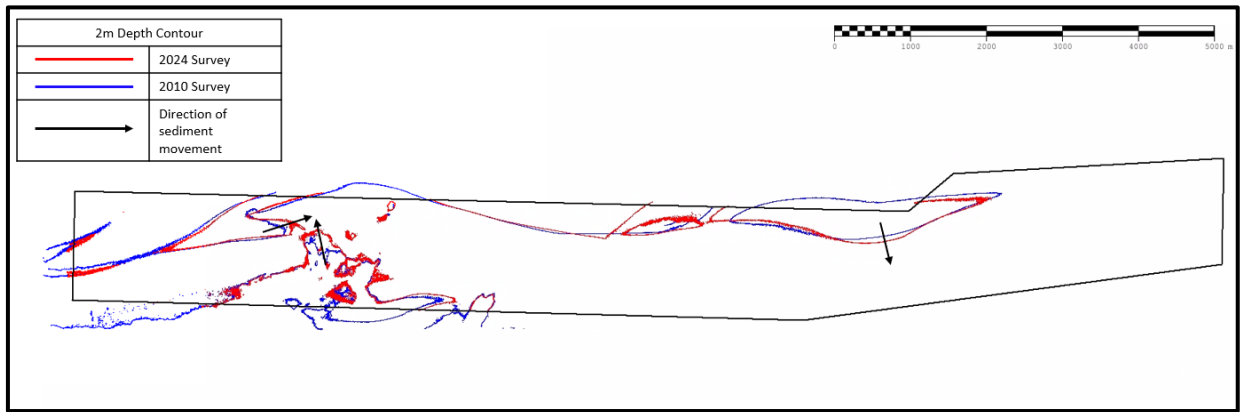


Figure 5: Contour plot showing changes in the 2m contour between 2024 (red) and 2010 (blue). Black arrow represents feature migration.

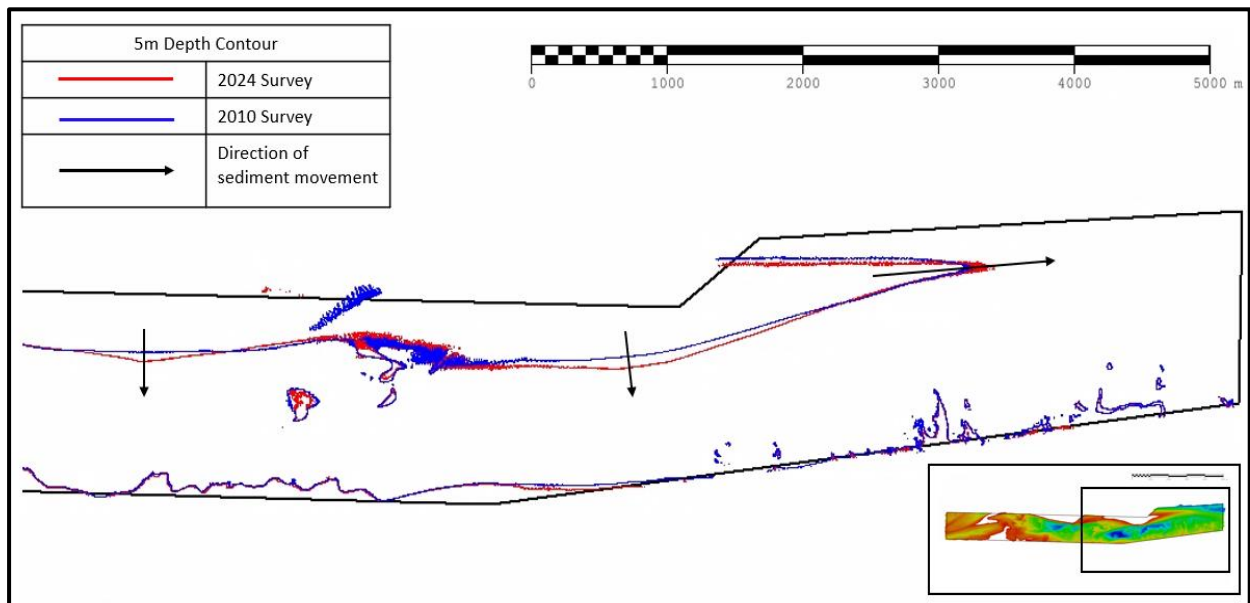


Figure 6: Contour plot showing changes in the 5m contour between 2024 (red) and 2010 (blue). Black arrow represents feature migration.

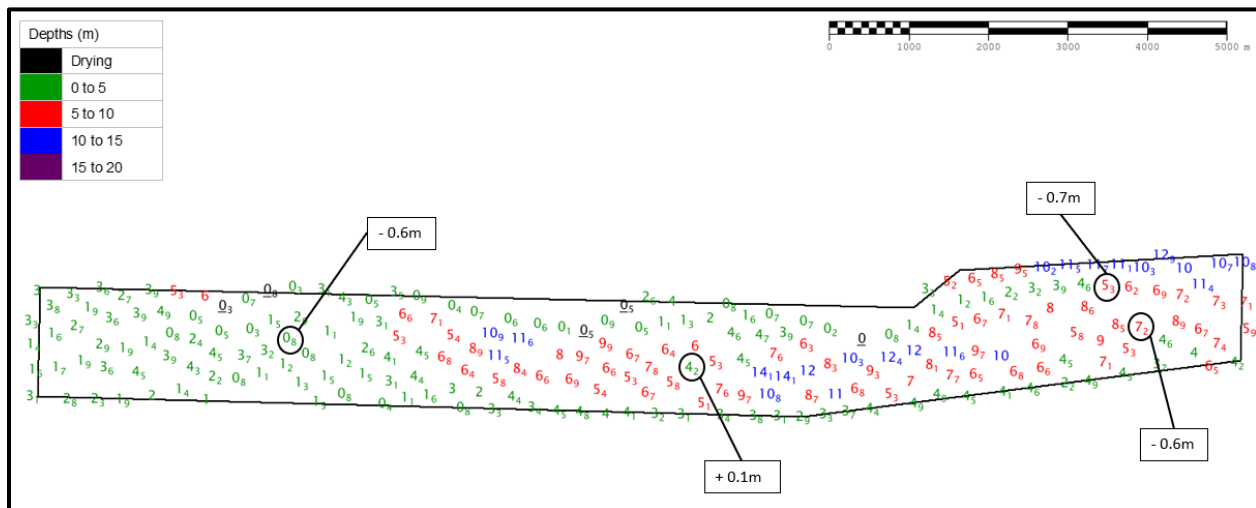


Figure 7: Colour banded depth plot from the 2024 survey with selected depth changes since the 2010 survey. Positive values (+) represent deepening. Negative values (-) represent shoaling.

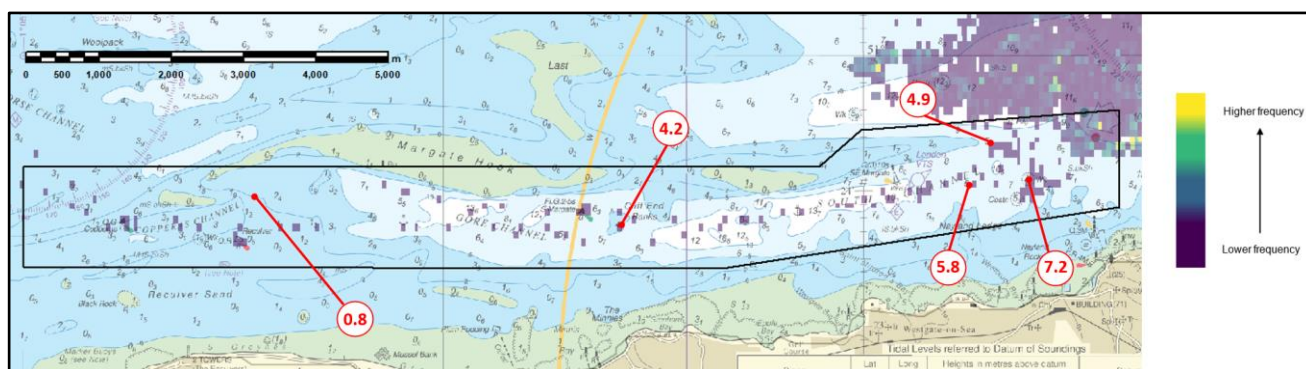


Figure 8: AIS ECDIS regulated annual tanker, passenger, and cargo vessel data from 2023 with Routine Resurvey TE17 2024 and controlling depth soundings (m) overlaid on BA Chart 1607.

6. RECOMMENDATIONS FOR FUTURE SURVEYS

Survey Interval

- 6.1 Seabed changes within the TE17 survey area in the last 12 years have been limited. However, the significant changes to the sandbanks in the north of the survey area (in particular, the southward and eastward movement into the Channels) over the past 12 years means TE17 should at least remain on the 12-year focused, 25-year full survey rotation. Consideration could be given to changing to a more frequent cycle for the focused area to monitor trends in bank movement. Note that Trinity House surveys take place in this area on a more frequent basis and provide assurance of the depths throughout Copperas Channel.

Survey Area

- 6.2 The survey area limits are adequate at present; therefore, no changes are recommended this year.