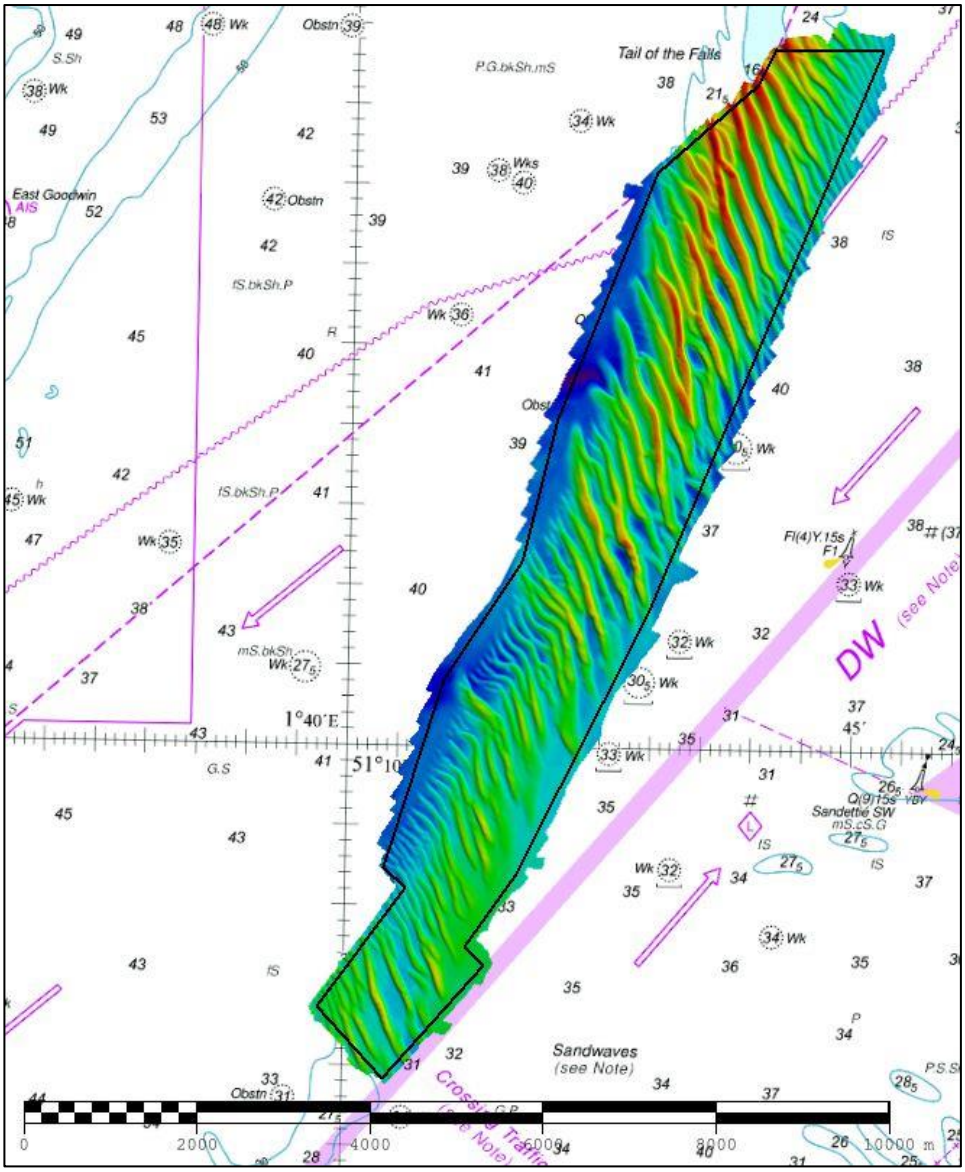
UK Hydrographic Office

DOVER STRAIT
TAIL OF THE FALLS (DWR C1)
2024 ASSESSMENT

An assessment of the 2024 hydrographic survey of the area DWR C1: to monitor recent seabed movement; to identify any implications for shipping; and to make recommendations for future surveys.



CONTENTS

Notes 2

1. SUMMARY 1

2. LOCATION 1

3. REFERENCE SURVEY DETAIL 3

4. NEW SURVEY DETAIL 3

5. DESCRIPTION OF RECENT BATHYMETRIC CHANGE 4

6. RECOMMENDATIONS FOR FUTURE SURVEYS 11

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.

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

TAIL OF THE FALLS (DWR C1), 2024

1. SUMMARY

Changes Detected

1.1 The least depth in the 2024 survey is shoaler at 18.5m, now located 1.3km southwest to the previous depth of 19.1m in 2023.

1.2 Significant depths highlighted in the Deep Water Route (DWR) are 20.3m, 21.0m, 22.5m, 27.0m and 25.5m of which all have shoaled on the same sandwaves since 2023.

1.3 The controlling depth remains in the same position as the 2023 survey in the centre of the DWR, however has shoaled by 0.6m.

1.4 Despite sandwaves showing a northeast rotational style movement, the main bank has maintained its overall shape since 2023.

Reasons for Continuing to Resurvey the Area

1.5 Depths in the area remain hazardous and changeable to deep draught vessels navigating the area and therefore require continued monitoring through annual resurveys.

Recommendations

1.6 Given the location of the area in relation to the DWR (see Figure 9) and the draught of vessels navigating the area, C1 should remain on the annual survey interval.

1.7 Due to minimal migration of the sandwaves affecting overall sandbank location, there are no recommended changes to the survey area. However, the survey area should be monitored closely due to continuing sandwave shoaling.

2. LOCATION

2.1 Survey interval at time of resurvey: Annual

2.2 Area Covered: 23.45 km^2

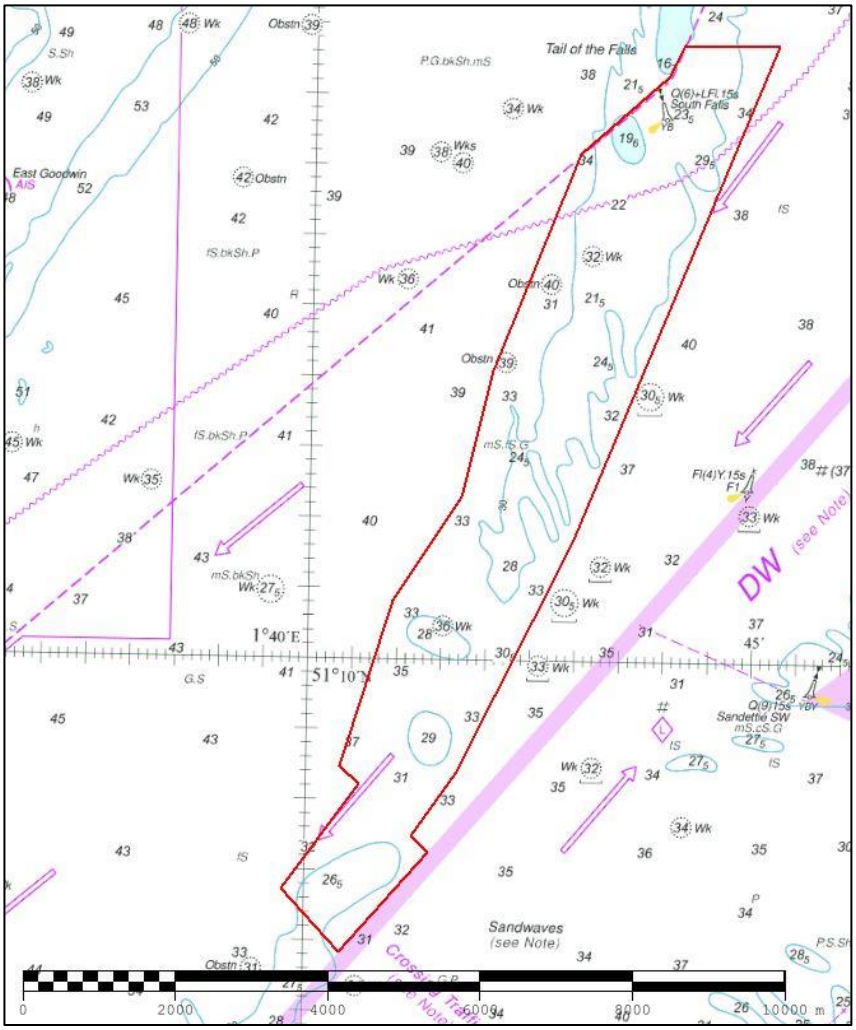


Figure 1: 2024 Dover Strait Routine Resurvey area overlaid on BA Chart 0323 with area DWR C1 in red.

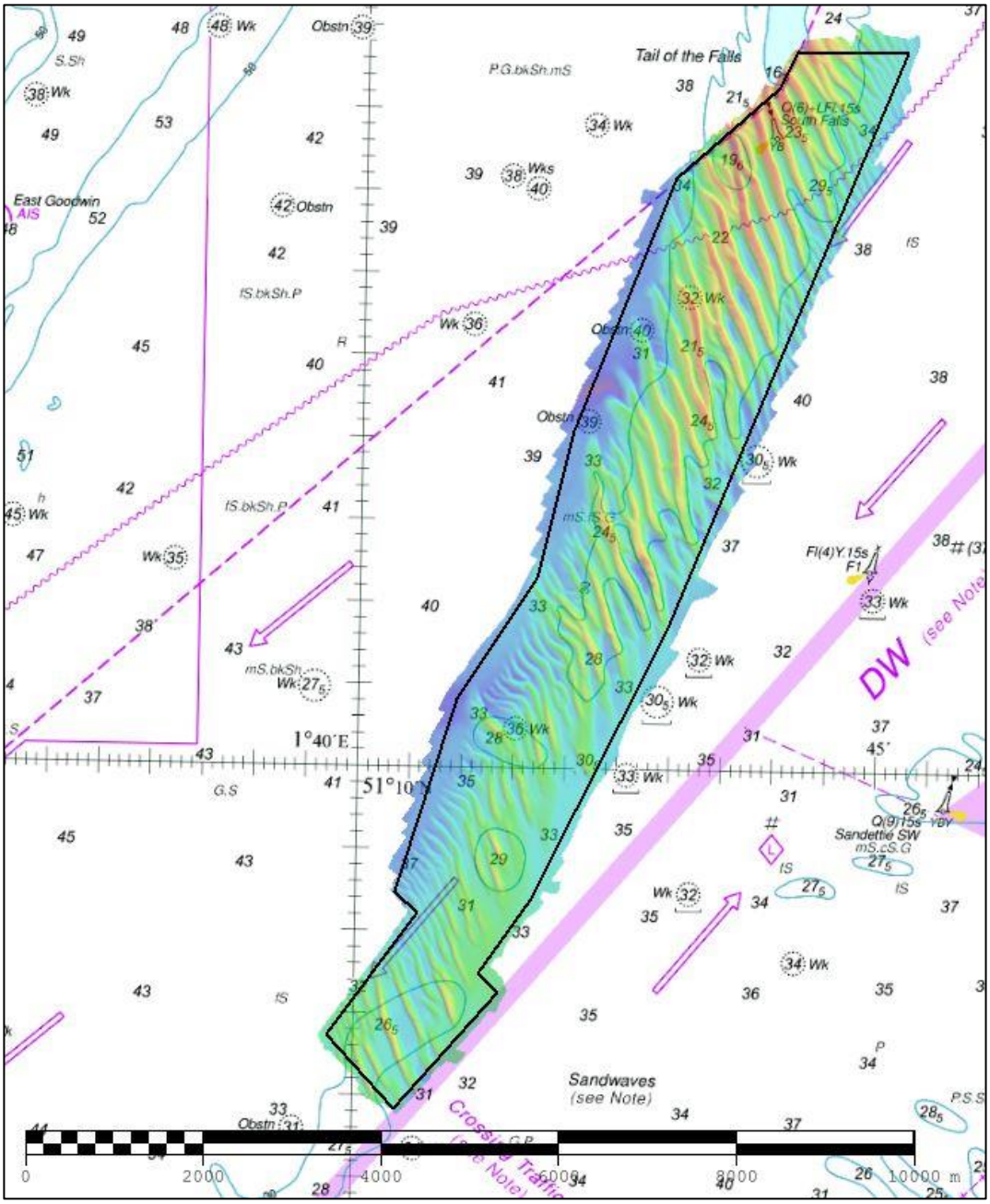


Figure 2: 2024 survey data overlaid on BA Chart 0323.

3. REFERENCE SURVEY DETAIL

3.1 The previous full survey was conducted as part of the 2023 Routine Resurvey Programme, in October 2023 as part of HI1834. It was surveyed prior to this in September 2022 as part of HI1766.

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 full survey is HI1865, surveyed in July 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 least depth in the 2024 survey is 18.5m. It is located at the northern edge of the survey limits in a DWR to the south of the Tail of the Falls. The previous least depth was ~1.3km northeast at 19.1m in 2023, demonstrating the least depth has shifted to a new location and shoaled.

- The controlling depth is 21m, located north of the centre of the DWR. This depth has remained in the same position since 2023 and shoaled 0.6m.

- There is another significant depth of 22.5.m in the centre of the DWR. It is on the same sandwave and 1.5m shoaler compared to 2023 with a depth of 24.0m.

- The largest change in the survey site to a significant depth is in the south where it has shoaled by 2m since 2023 and is now 25.5m .

5.2 The difference surface in Figure 4 shows areas of shoaling (>5.0m) due to the migration of sandwaves in a north-east direction between 2023 and 2024. Figure 5 indicates this migration has been occurring in a rotating northeast to southwest direction between 2022 to 2024 further highlighted in the contour plot in Figure 7. The remainder of the survey area has minimal rates of sediment and seabed change.

5.3 Contour plots in Figures 6 and 7 show the northern extents of the sandwaves have migrated approximately 20m between 2023 and 2024, consistent with the rate of change between 2022 and 2023. The southern extents of the sandwaves show little to no movement, illustrating a rotating pattern, continuing the trend identified in the 2023 survey.

5.4 Continued sandwave migration is evident throughout the survey area as seen in the changing depths in Figure 8. The least depth is now south of the Tail of the Falls, and at 18.5m it has shoaled by 1m since 2023. Sandwave movement has caused both deepening and shoaling, but despite these changes, the overall depth, main shoal bank shape and position in the survey area has remained consistent.

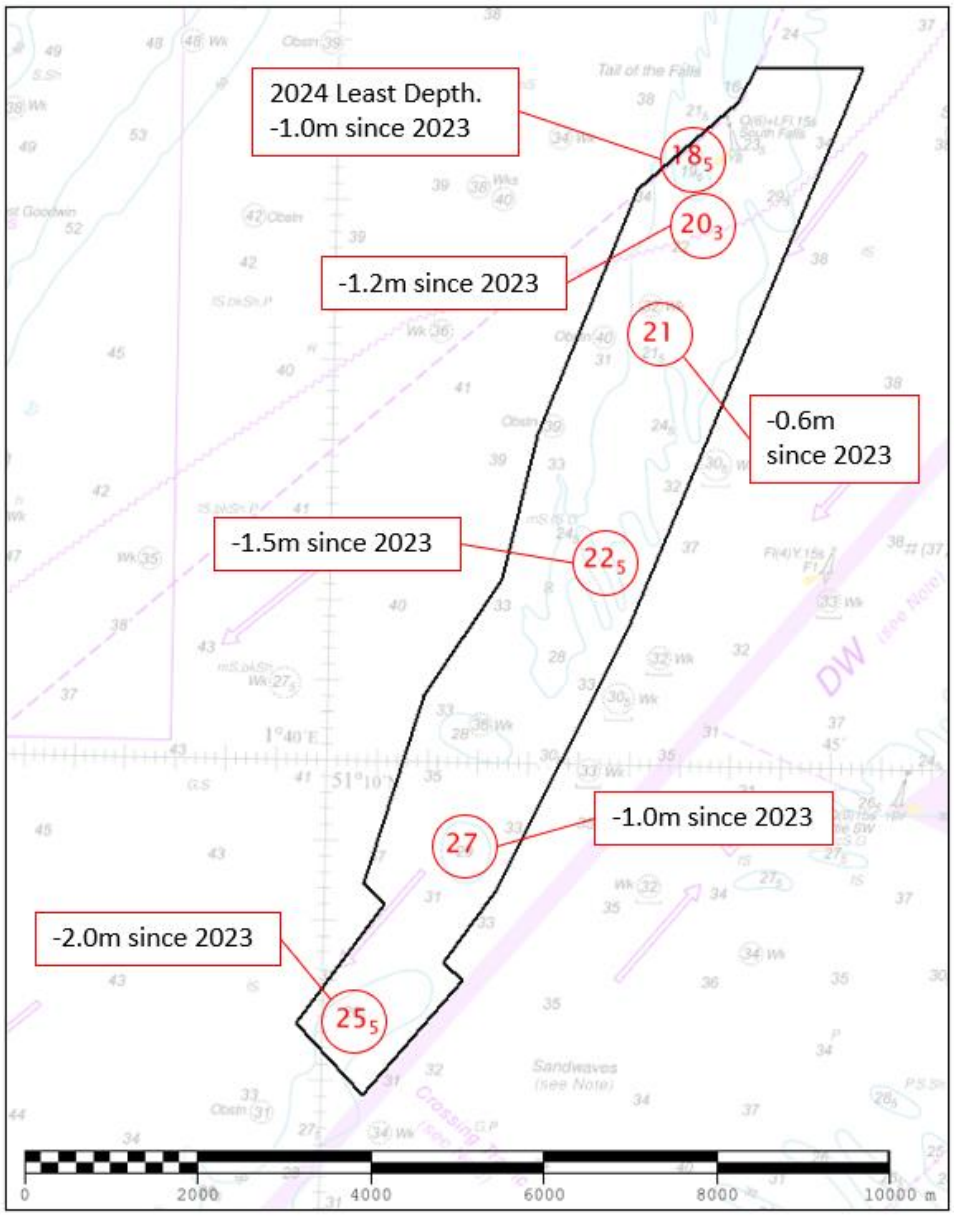


Figure 3: Controlling Depth sounding(s) highlighted, overlaid on BA Chart 0323. Positive values represent deepening, negative values represent shoaling.

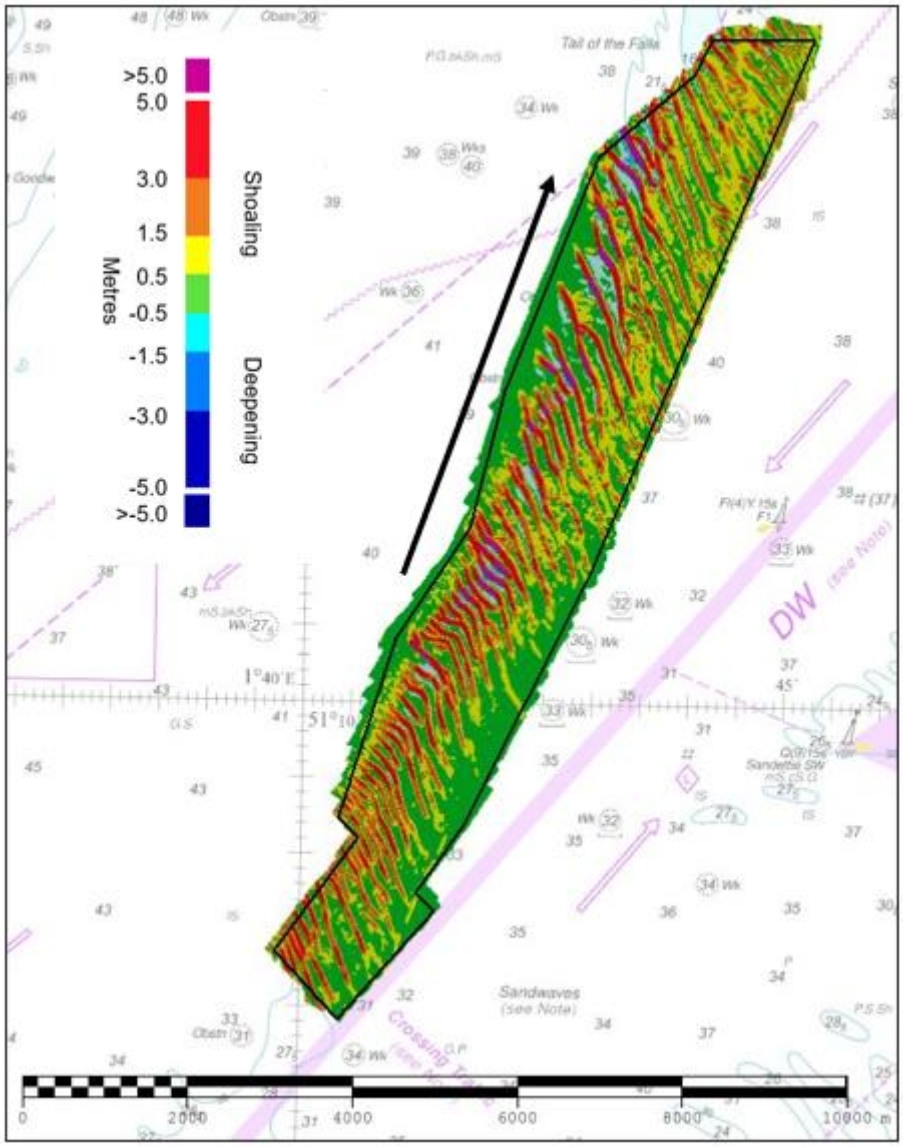


Figure 4: Difference surface showing bathymetric changes between the 2023 and 2024 surveys overlaid on BA Chart 0323 (Black arrows represent sandwave migration since 2023 survey)

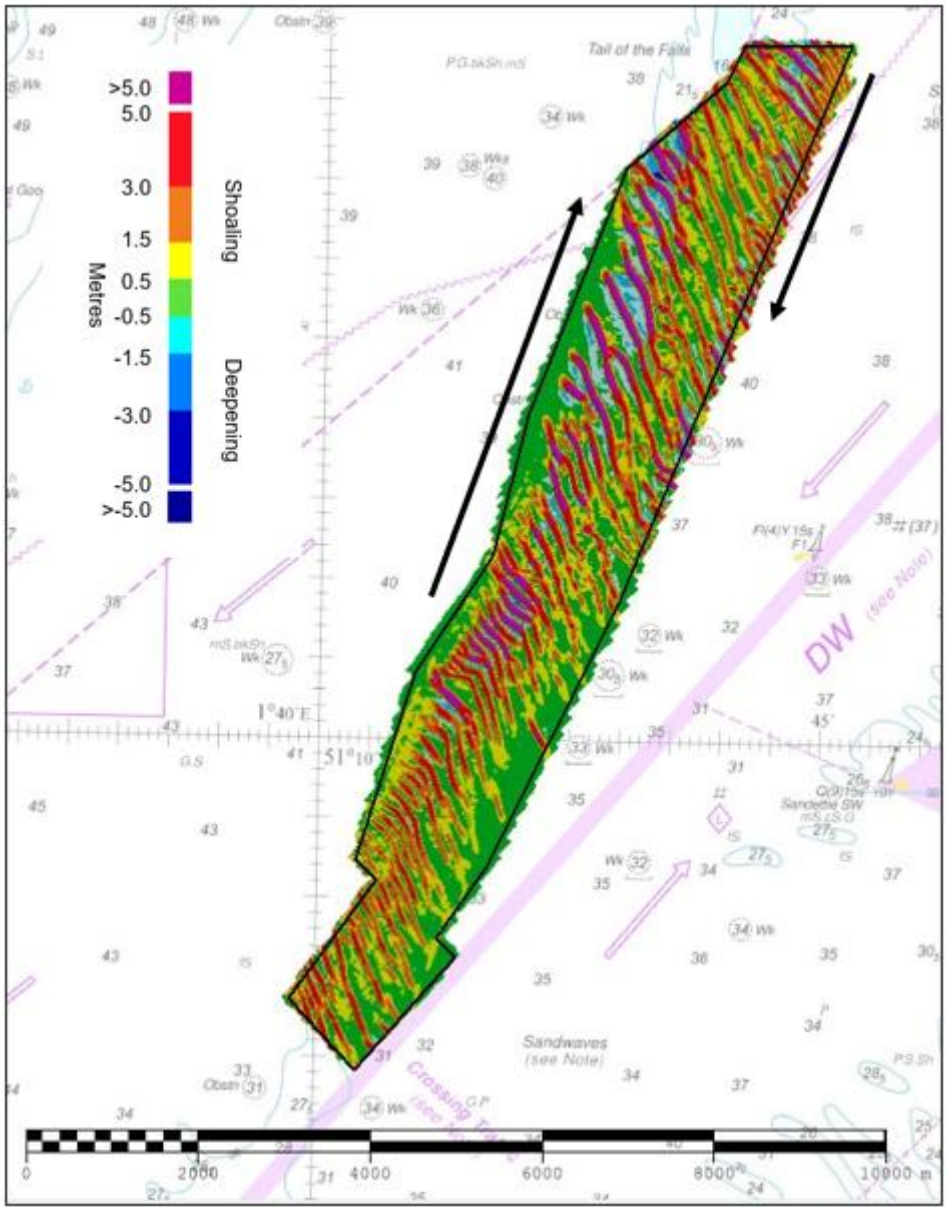


Figure 5: Difference surface showing bathymetric changes between the 2022 and 2024 surveys overlaid on BA Chart 0323 (Black arrows represent sandwave migration since 2022 survey)

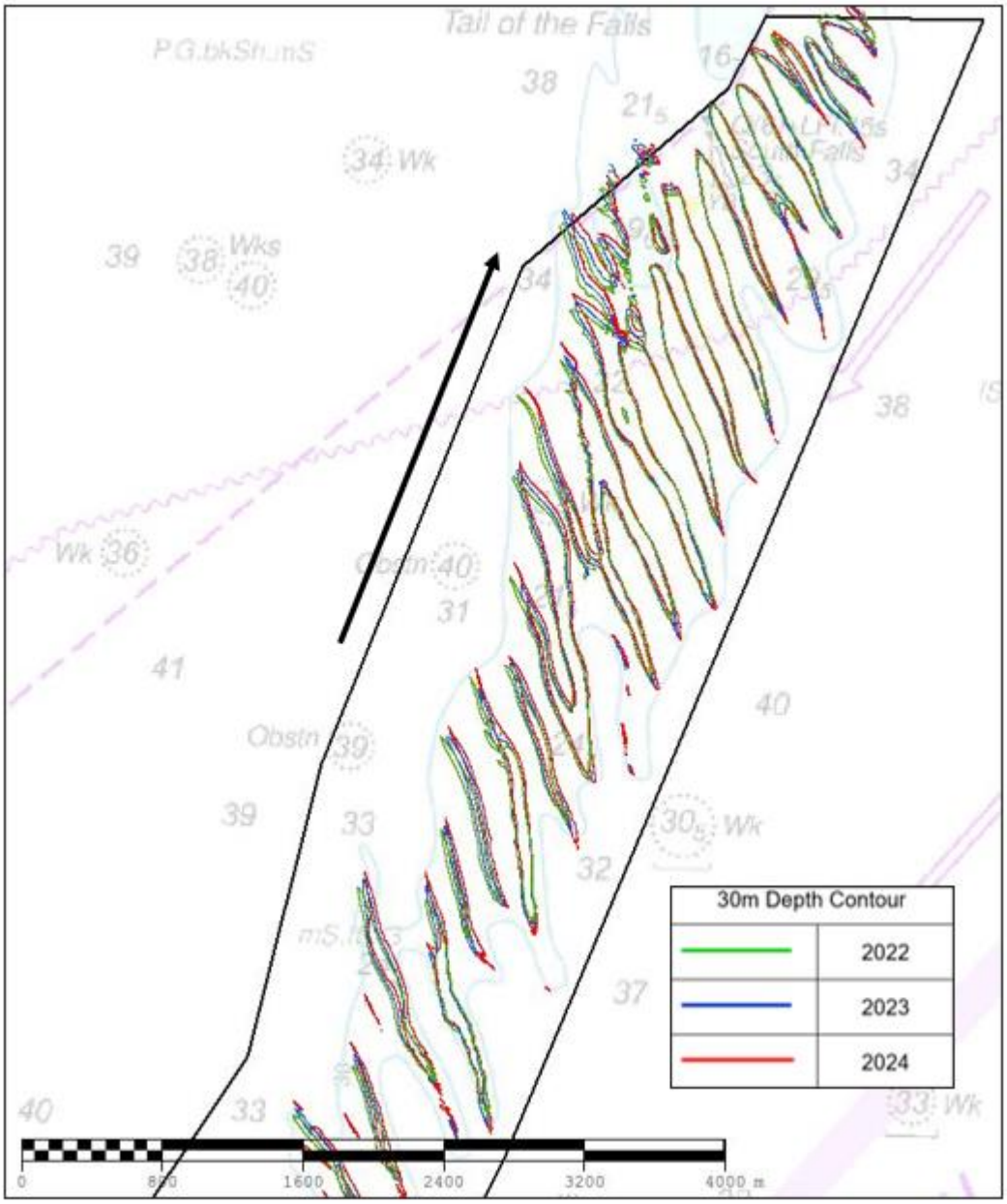


Figure 6: Contour plot showing changes in the 30m contours between 2024 (red), 2023 (blue) and 2022 (green) in the north of the survey. Black arrow represents feature migration.

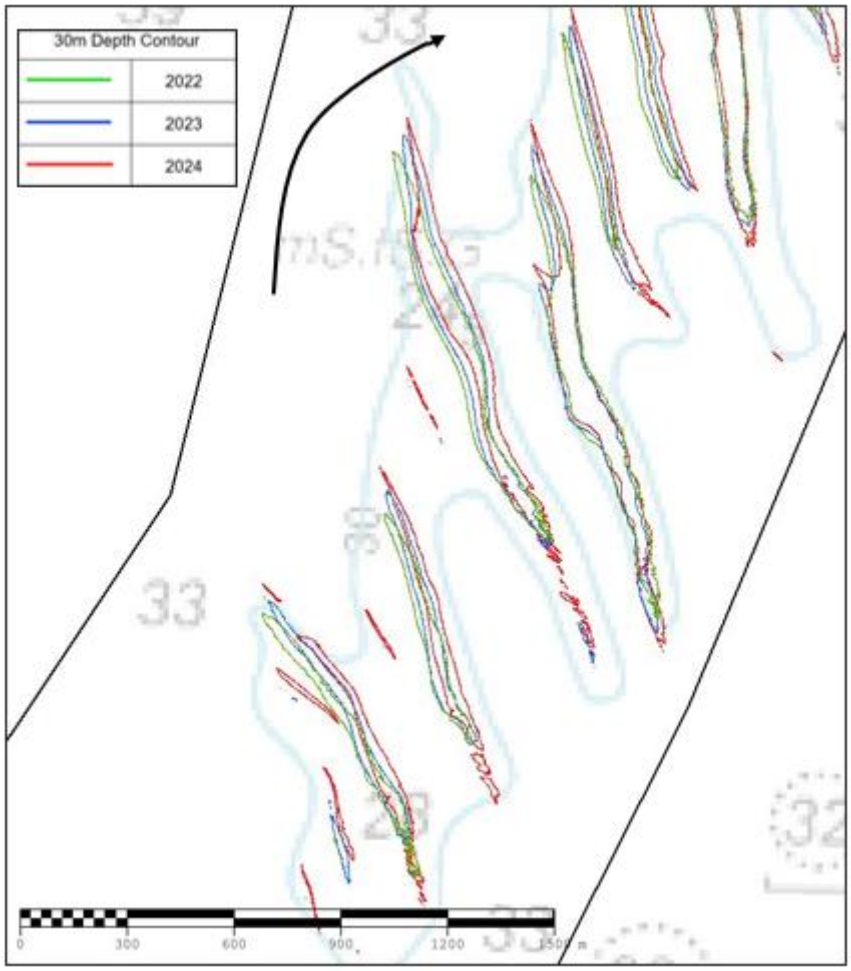


Figure 7: Contour plot showing changes in the 30m contours between 2024 (red), 2023 (blue) and 2022 (green) in the centre of the survey. Black arrow represents feature migration.

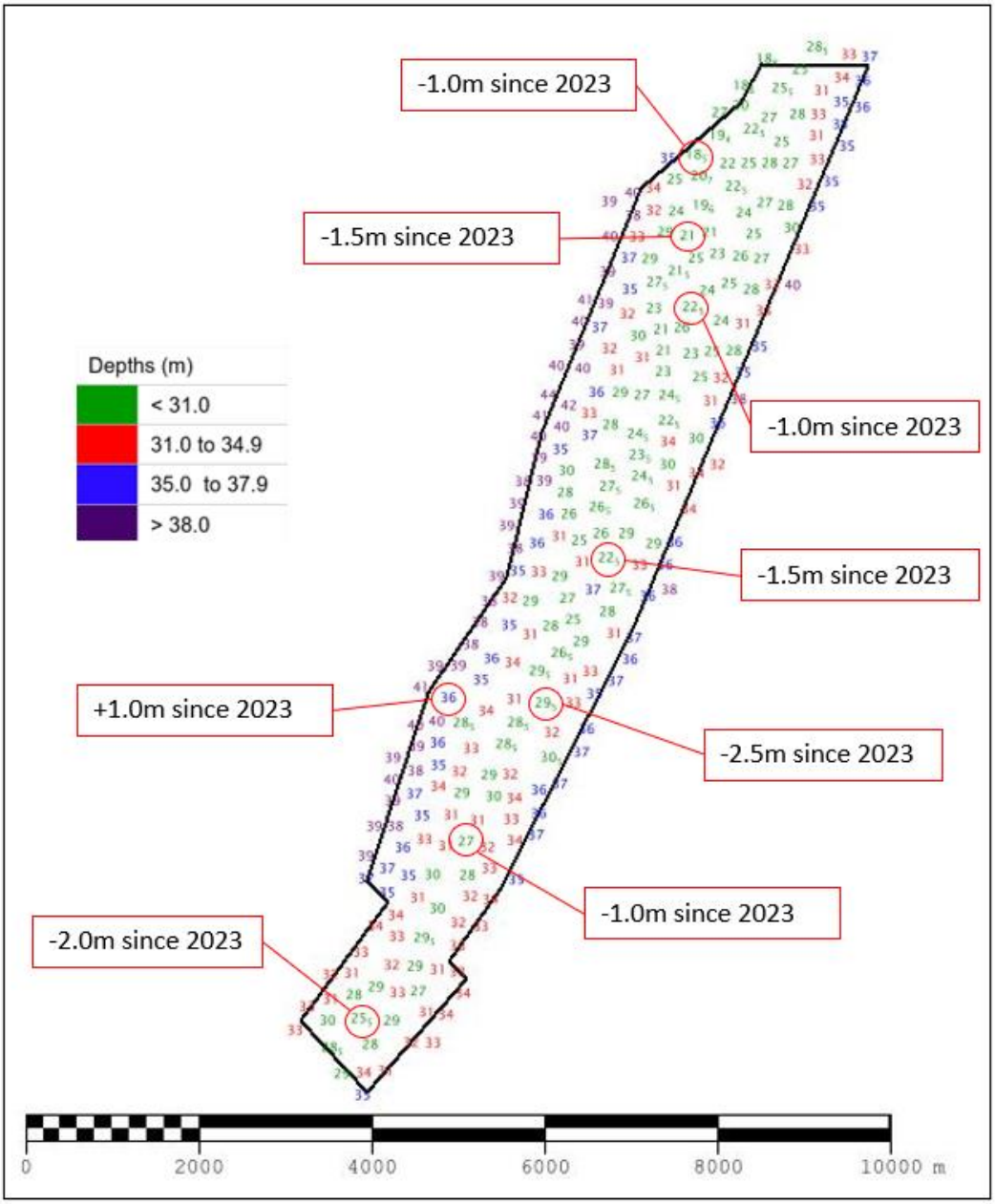


Figure 8: Colour banded depth plot from the 2024 survey with selected depth changes since the 2023 survey. Positive values (+) represent deepening. Negative values (-) represent shoaling.

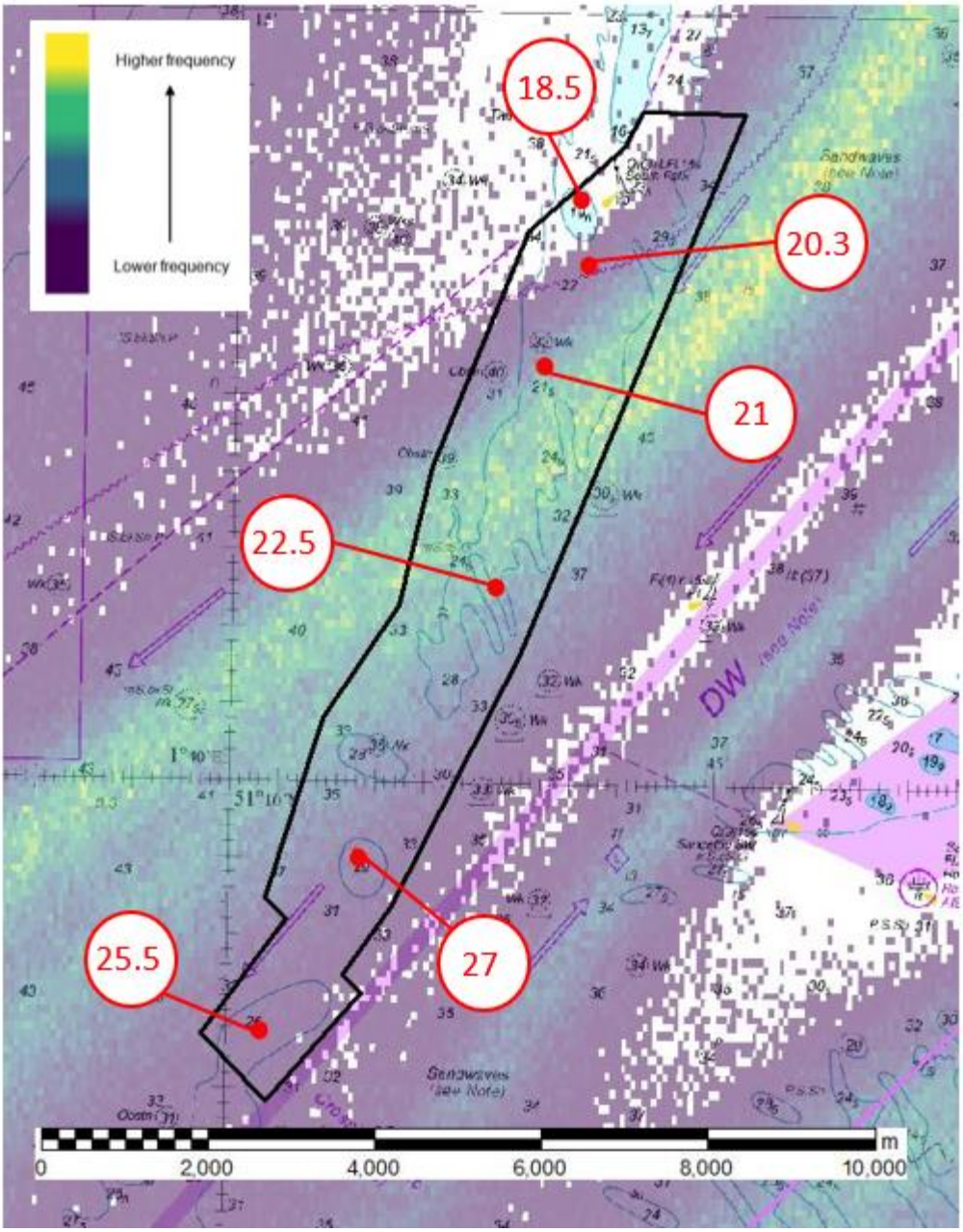


Figure 9: AIS ECDIS regulated annual tanker, passenger, and cargo vessel data from 2023 with Routine Resurvey DWR C1 2024 and controlling depth soundings (m) overlaid on BA Chart 0323.

6. RECOMMENDATIONS FOR FUTURE SURVEYS

Survey Interval

6.1 Given the location of the area in relation to the DWR and the draught of vessels navigating the area, in addition to the continued migration and shoaling of the sandwaves, DWR C1 should remain on an annual survey interval in the RRS programme.

6.2 Consideration should be given to the time of year when surveys take place. Storm events and spring tides are likely to change the shape and location of the sand waves, with greatest change occurring during storm events and Spring Tides.

Survey Area

6.3 The survey area limits are adequate at present, however, should be closely monitored due to continued sandwave mobility.