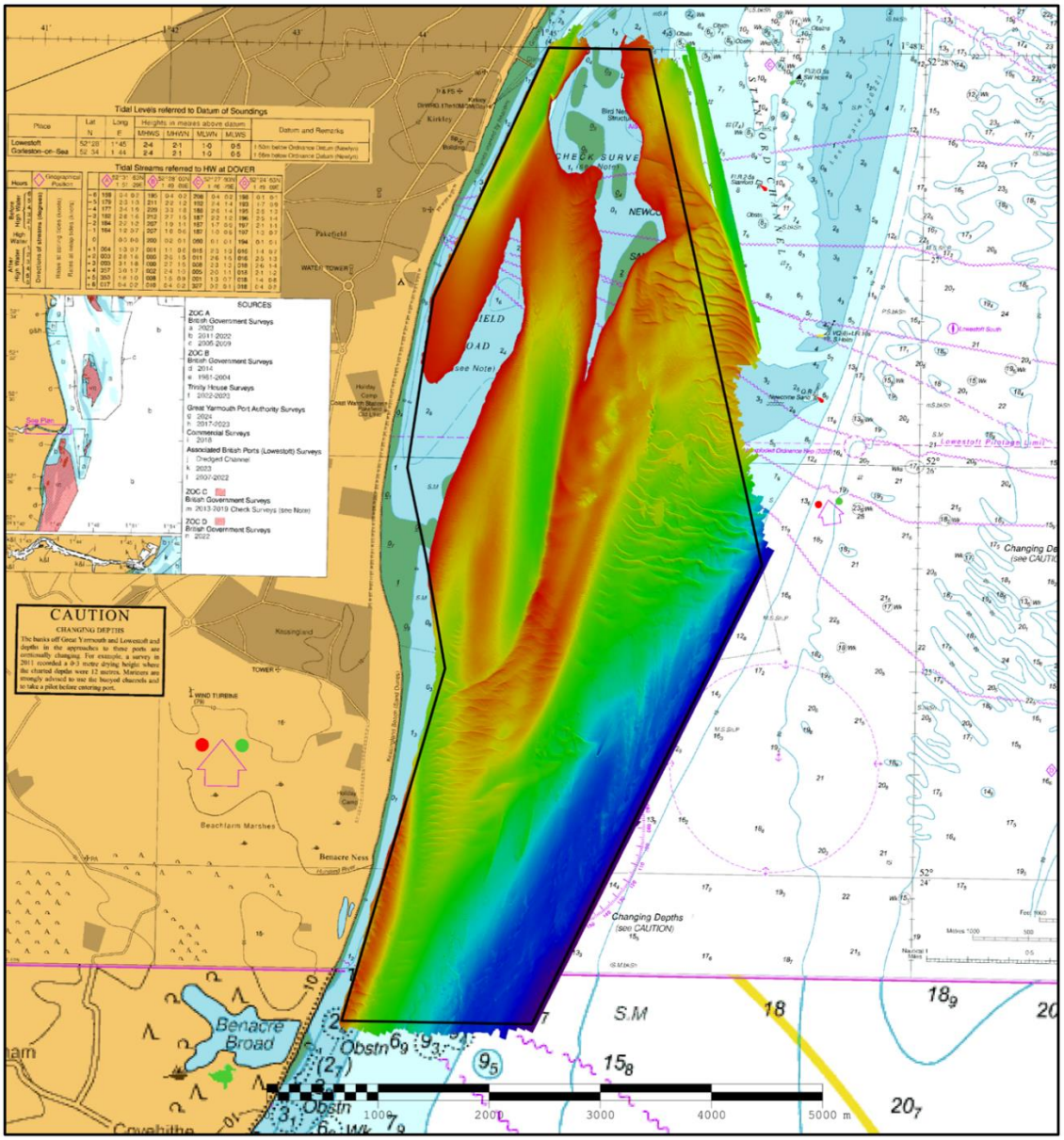
UK Hydrographic Office

EAST ANGLIA
PAKEFIELD ROAD (EA12)
2024 ASSESSMENT

An assessment of the 2024 hydrographic survey of the area EA12: 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.

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

PAKEFIELD ROAD, 2024

1. SUMMARY

Changes Detected

1.1 The least depth in Lowestoft South Road is 0.7m due to migration of Newcome Sand.

1.2 The sandbank in the centre of the survey, to the east of Barnard, is slowly migrating north.

1.3 Sandwaves to the east of Newcome Sand are migrating northeast, causing deepening to the south of Newcome Sand.

Reasons for Continuing to Resurvey the Area

1.4 Depths in the northern half of the EA12 full area remain changeable and there is the potential for new channels to open in the area, therefore continued monitoring on a 10-year interval is recommended. Consideration could be given to removing the southern half of the area where depths are less changeable and see more deepening.

Recommendations

1.5 The 10-year full interval with the 5-year focused over areas of higher movement effectively captures depth changes in the area. Potentially the full area could be reduced to checklines which would still capture movement and possibilities of new channels opening.

1.6 The EA12 full area could potentially be reduced in size in the south where there is little to no regulated traffic (see Figure 11), and minor bathymetric change in the last 10 years.

2. LOCATION

2.1 Survey interval at time of resurvey: 10 years Full, with Focused area every 5 years.

2.2 Area Covered: 19.61 km^2

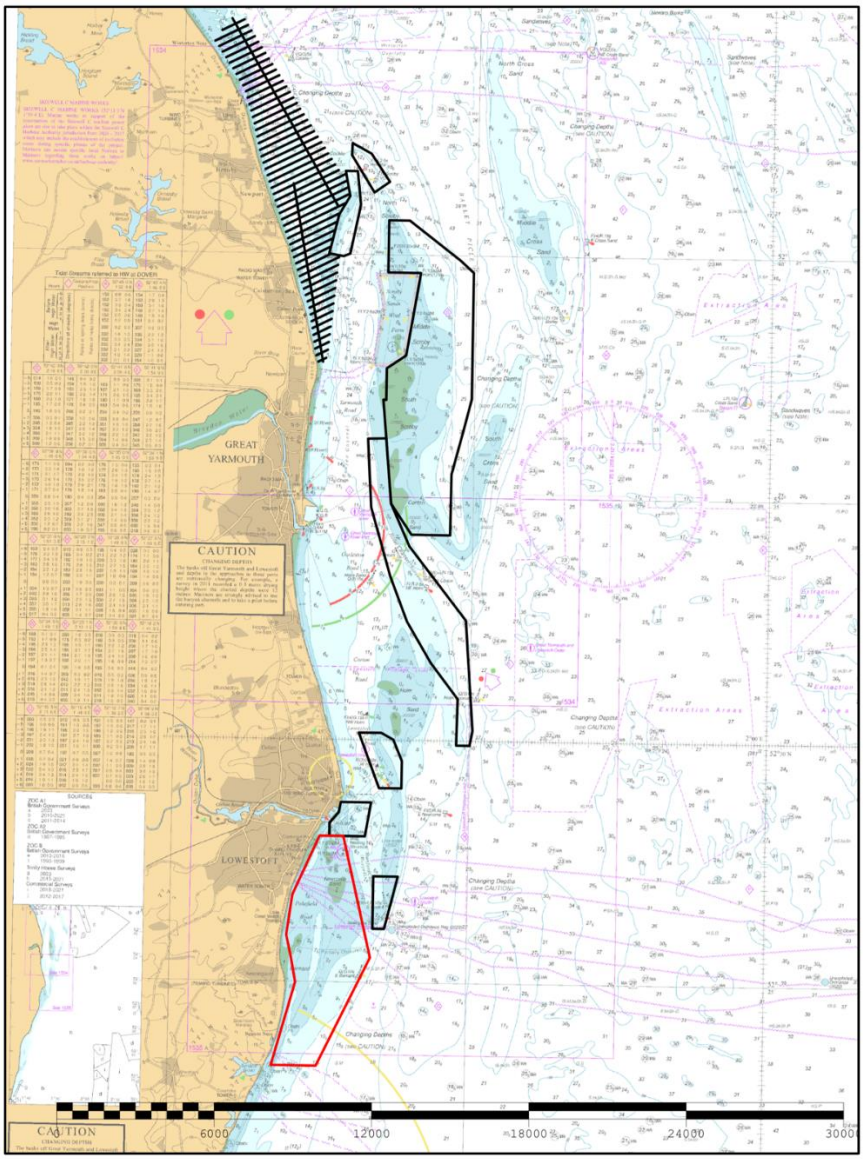

Figure 1: 2024 East Anglia Routine Resurvey areas overlaid on BA Chart 1543-0 with area EA12 in red.

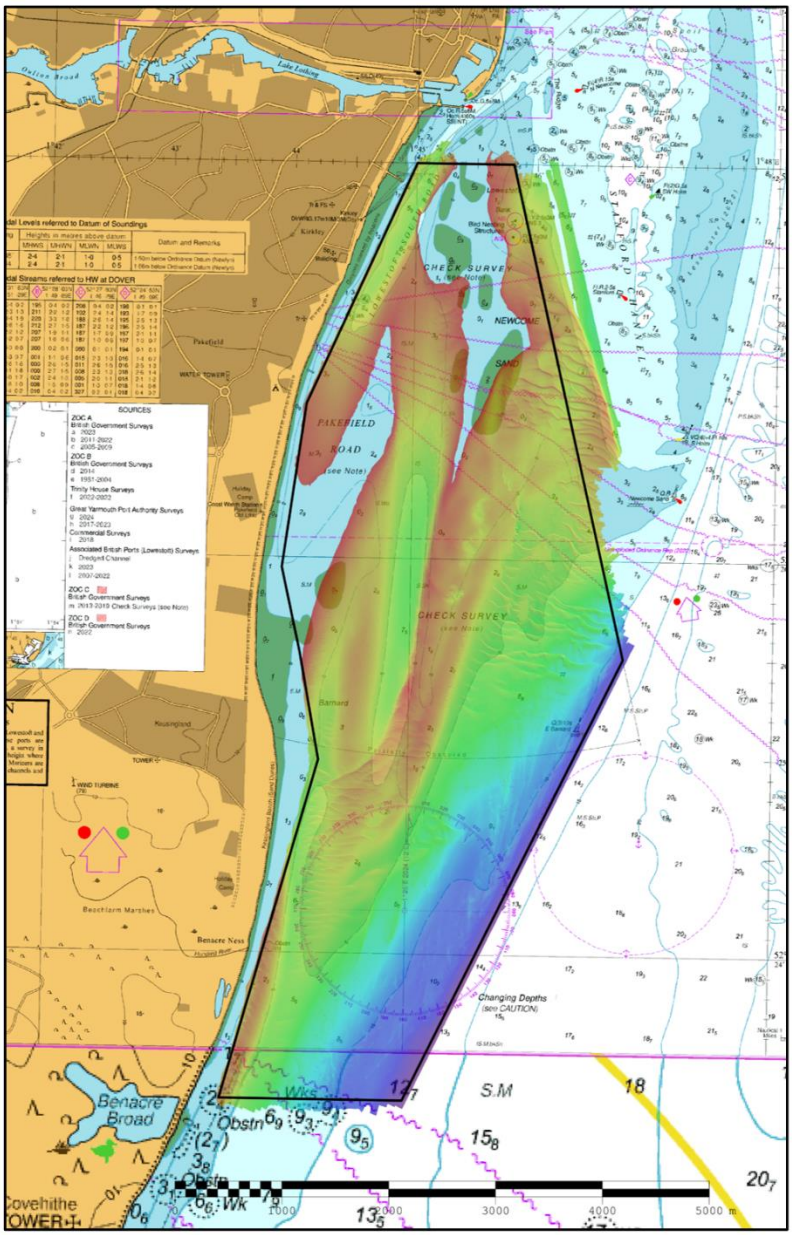

Figure 2: 2024 survey data overlaid on BA Chart 1535-0

3. REFERENCE SURVEY DETAIL

3.1 In October 2019 a focused survey was conducted as part of HI1640. The previous full survey was checklines only, surveyed between July to September 2014 as part of HI1458.

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 survey is HI1860, surveyed from August to September 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 Figure 3 shows that the least depth for Lowestoft South Road in the 2024 survey is 0.7m. This point is 5m shoaler than in 2019, due to the sandbanks to the east migrating northwest into the channel, as can be seen in the difference plot in Figure 4 and the 5m contours in Figure 8. In the 2019 survey the least depth was 0.9m, located approximately 170m to the southeast of the 0.7m 2024 sounding.

5.2 The 2014 survey of the full area was conducted with checklines only (Figure 5). An interpolated surface was created and used to generate contours and difference plots for Figures 6-9. Figure 6 shows the sandbank in the centre of the survey, to the east of Barnard, is slowly migrating north, this is also seen in the 5m contours in Figure 8. The least depth for navigating over this bank is 1.4m, as seen in Figure 3.

5.3 Figure 9 shows the 10m contour has remained relatively stable, only moving 100-150m to the northwest since 2014.

5.4 Sandwaves to the east of Newcome Sand have migrating northeast, causing shoaling along the eastern edge of the survey data extent (which is outside of the HI area) as seen in Figure 6. The 5m contour in this area has moved 200-300m northeast since 2014. This area is covered in the EA10 Full survey, undertaken every 3 years. The migration of sandwaves is also causing a general deepening in the south of Newcome Sand, as seen in Figure 6 and in Figure 10 where the 1.3m sounding has deepened by 2.9m since 2014.

5.5 2023 AIS data in Figure 11 shows that few, if any, regulated vessels are navigating in this area, instead using the Stanford Channel to the northeast to access Lowestoft, this area is covered by EA10 Full. However, the EA12 area is known to be used by local fishing vessels and leisure craft.

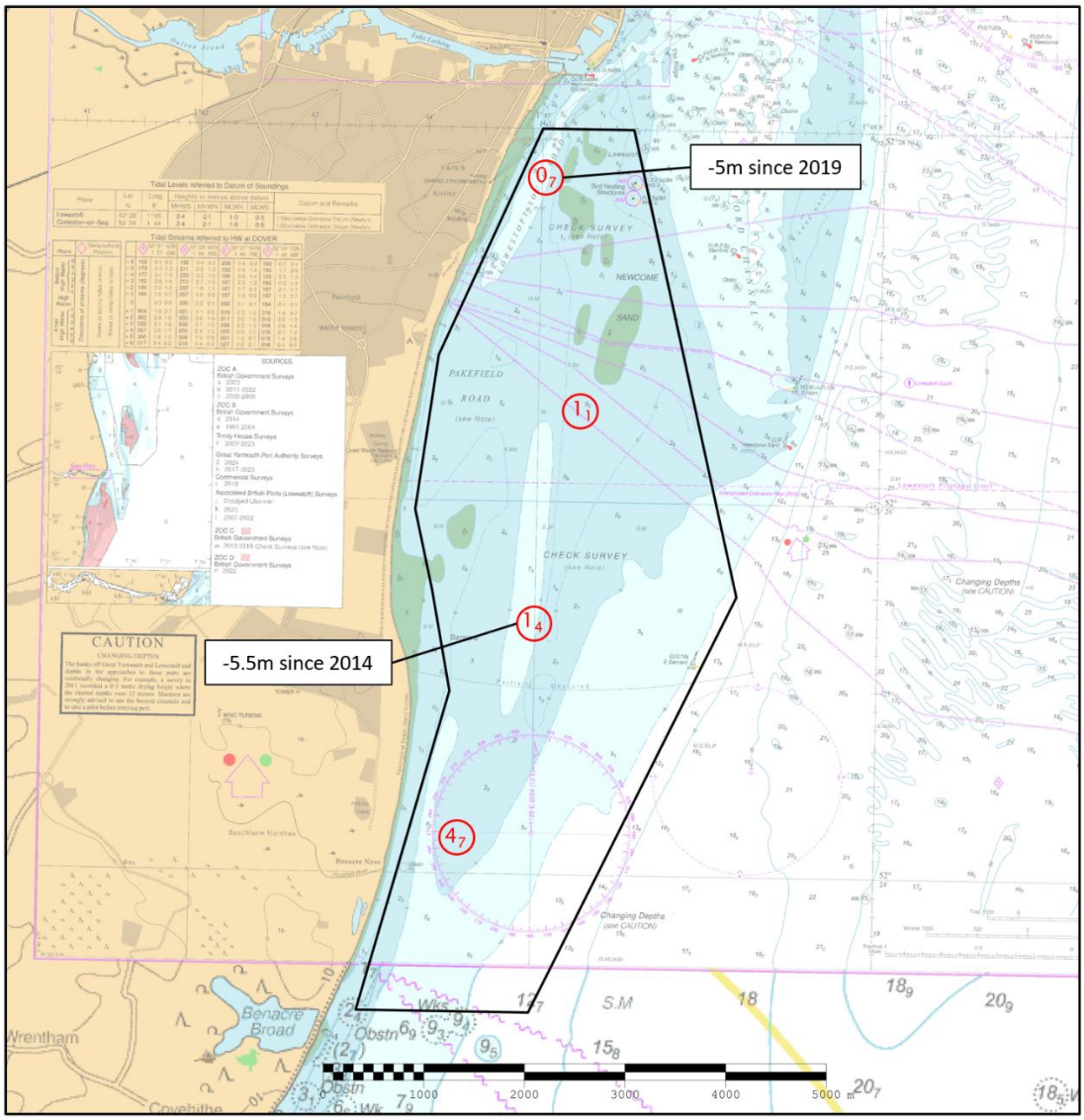

Figure 3: Significant Depth sounding(s) highlighted, overlaid on BA Chart 1535-0 and 1543-0

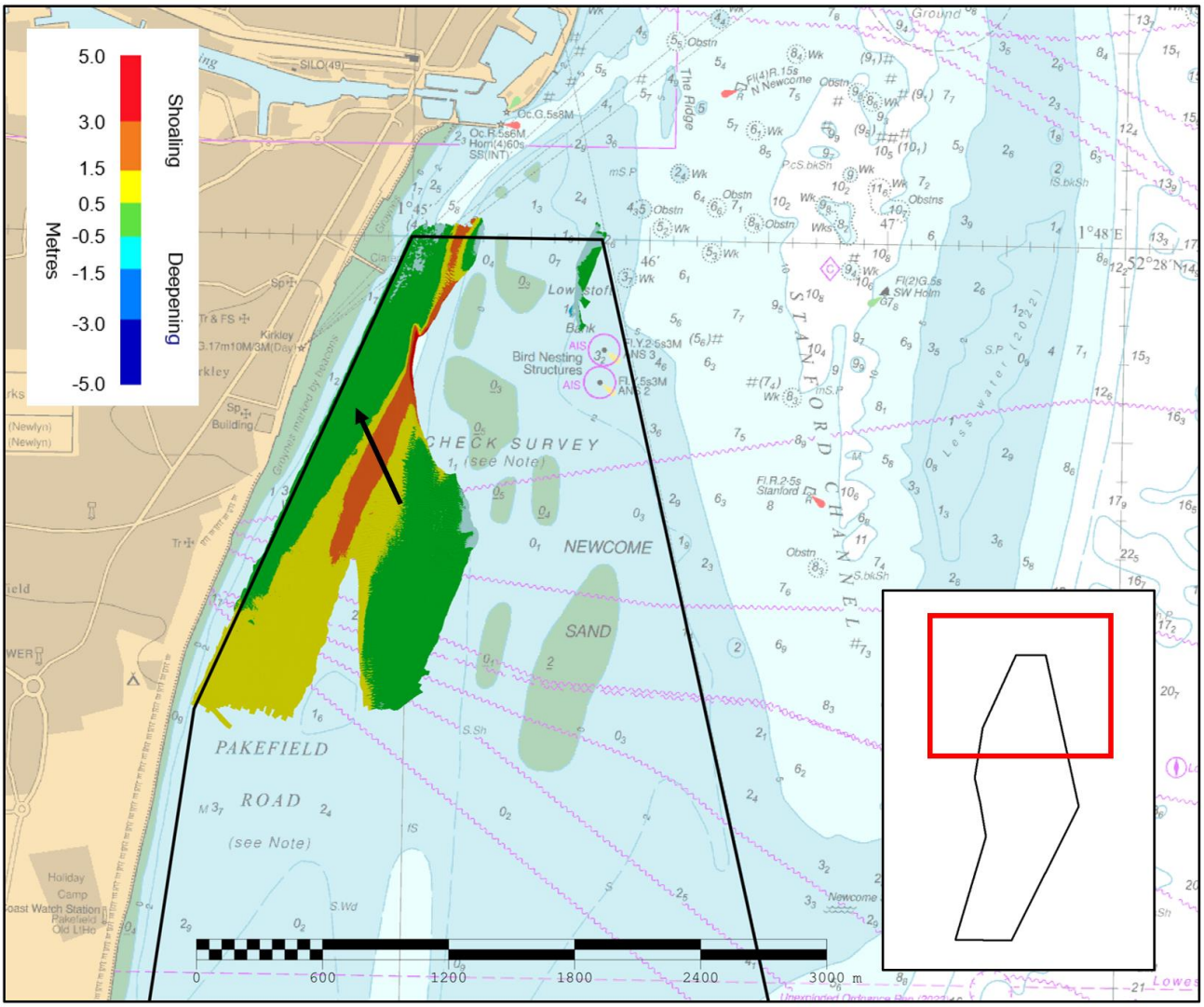

Figure 4: Difference surface showing bathymetric changes between the 2024 and 2019 surveys overlaid on BA Chart 1535-0

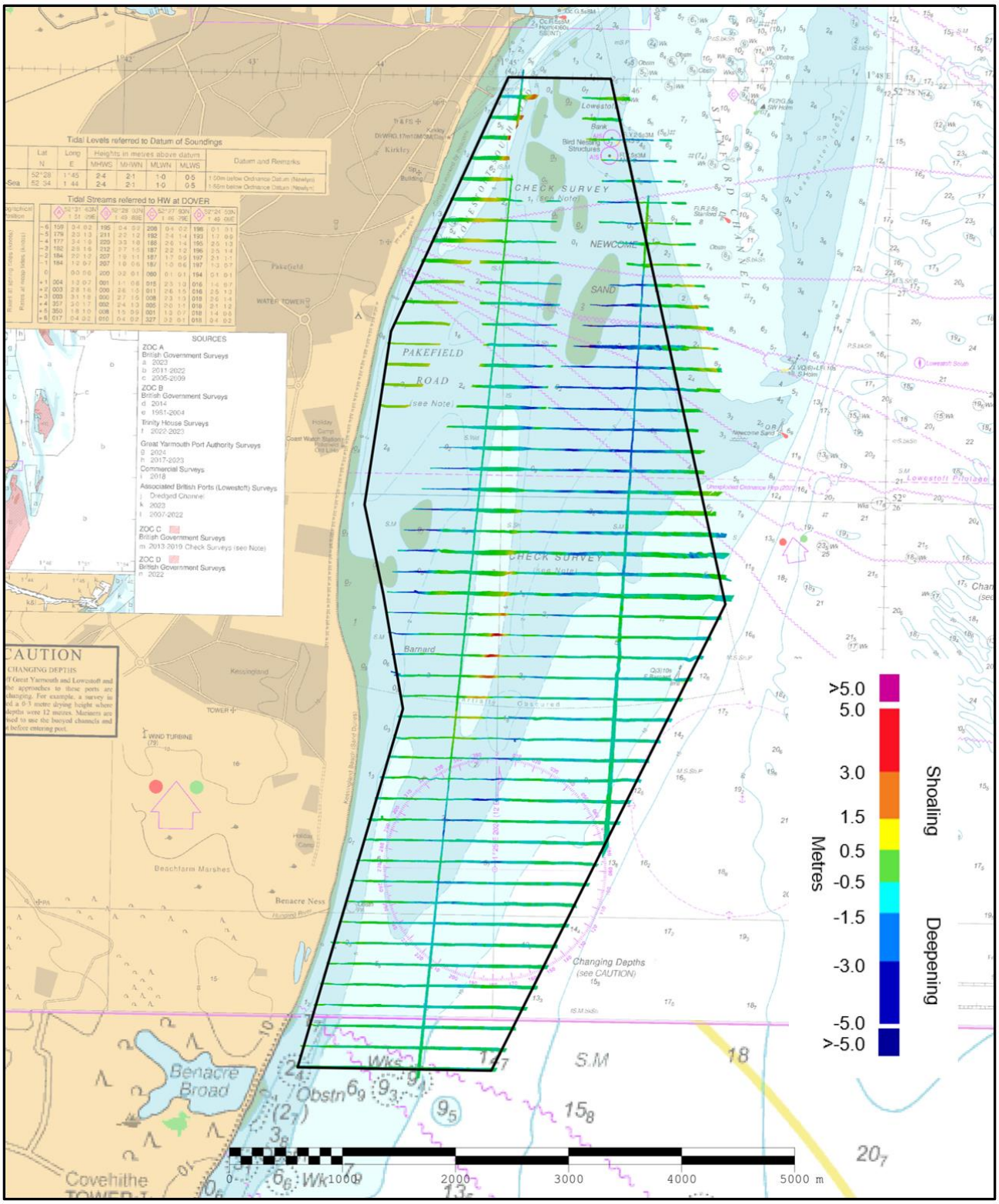

Figure 5: Difference surface showing bathymetric changes between the 2024 and 2014 (checklines) surveys overlaid on BA Chart 1535-0 and 1543-0

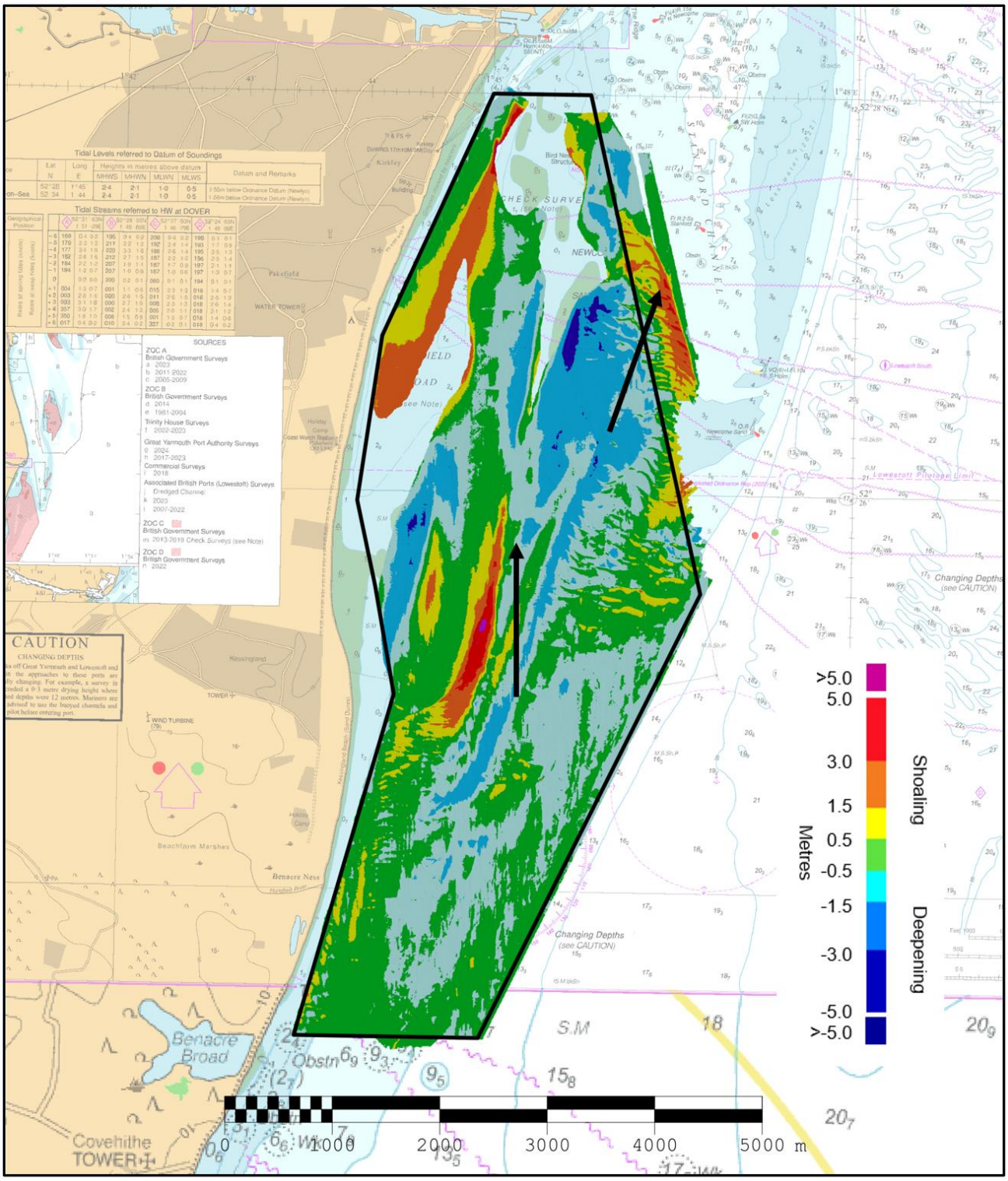

*Figure 6: Difference surface showing bathymetric changes between the 2024 survey and **an interpolated surface** built from the 2014 checkline survey, overlaid on BA Chart 1535-0 and 1543-0 (Black arrows represent sandwave migration since 2024 survey)*

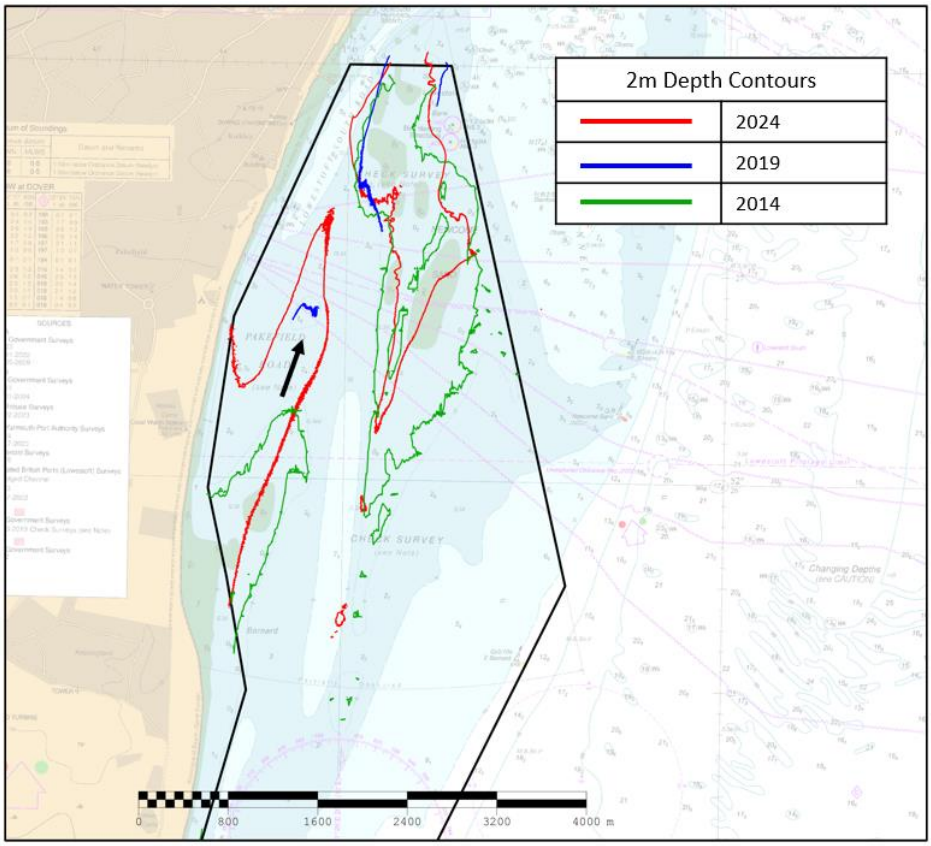

Figure 7: Contour plot showing changes in the 2m contours between 2024 (red) 2019 (blue) and 2014 (green). Black arrow represents feature migration.

Note: contours for 2014 are created from the interpolated surface of the 2014 checklines.

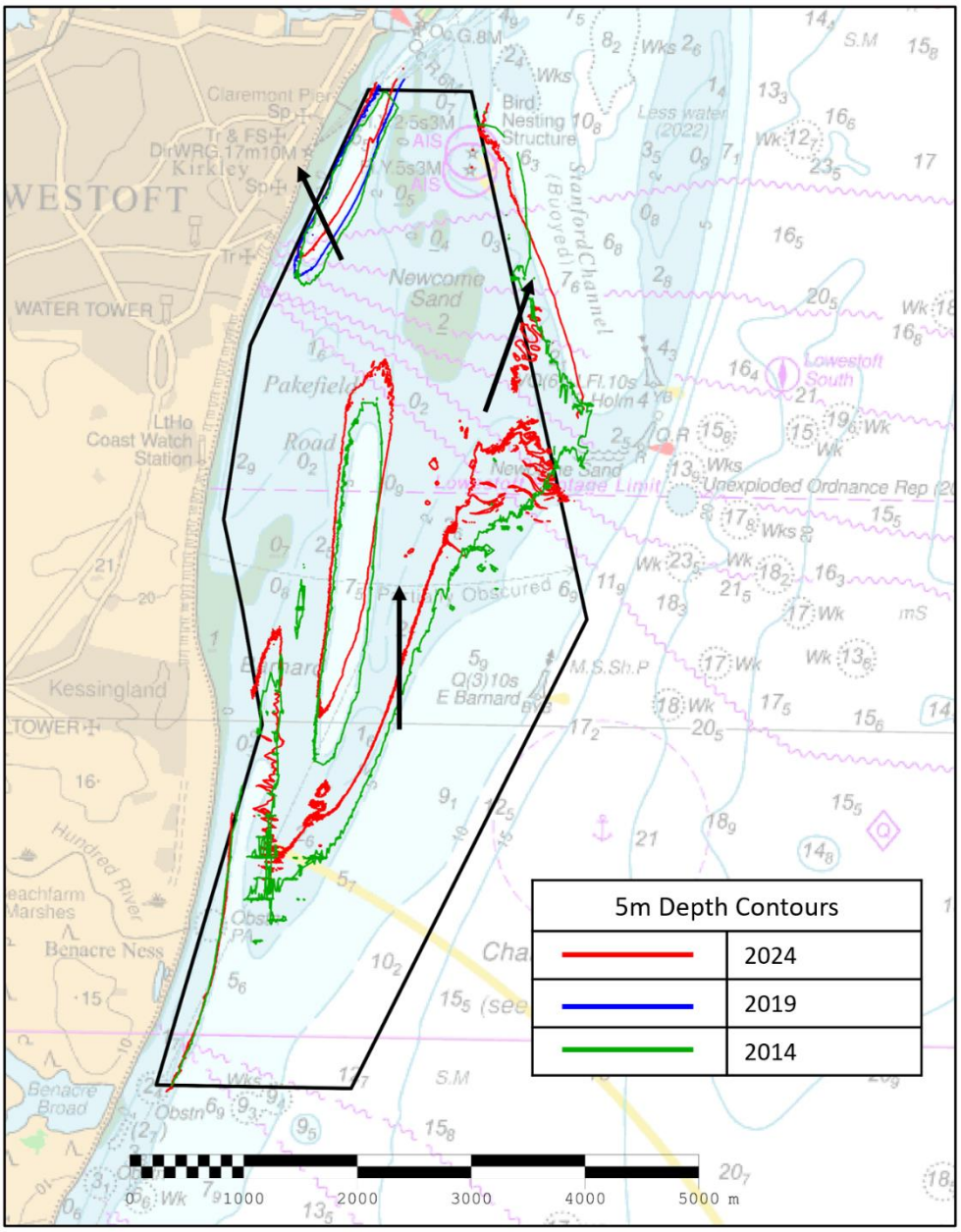

Figure 8: Contour plot showing changes in the 5m contours between 2024 (red) 2019 (blue) and 2014 (green). Black arrow represents feature migration.

Note: contours for 2014 are created from the interpolated surface of the 2014 checklines

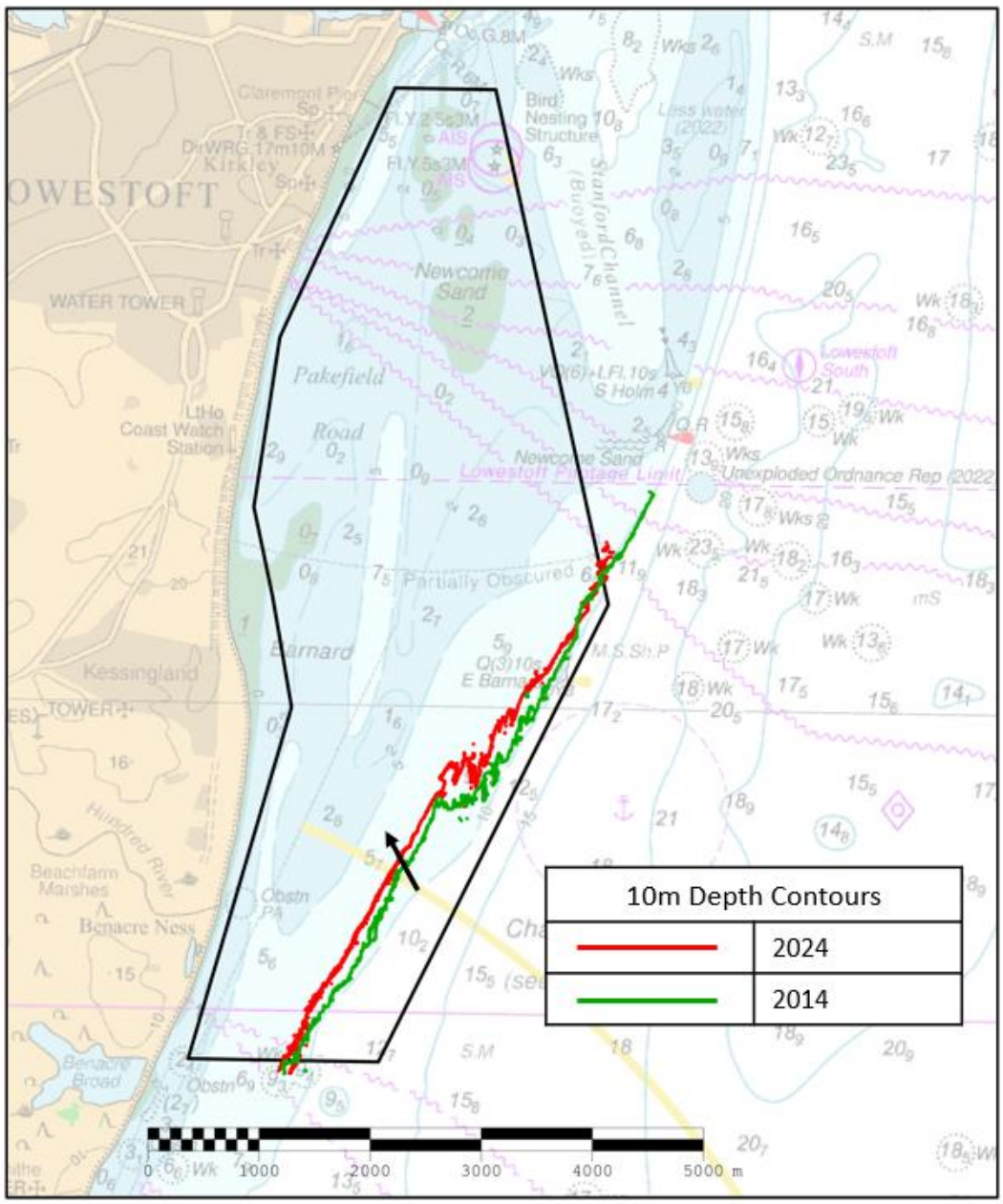

Figure 9: Contour plot showing changes in the 10m contours between 2024 (red) and 2014 (green). Black arrow represents feature migration.

Note: contours for 2014 are created from the interpolated surface of the 2014 checklines

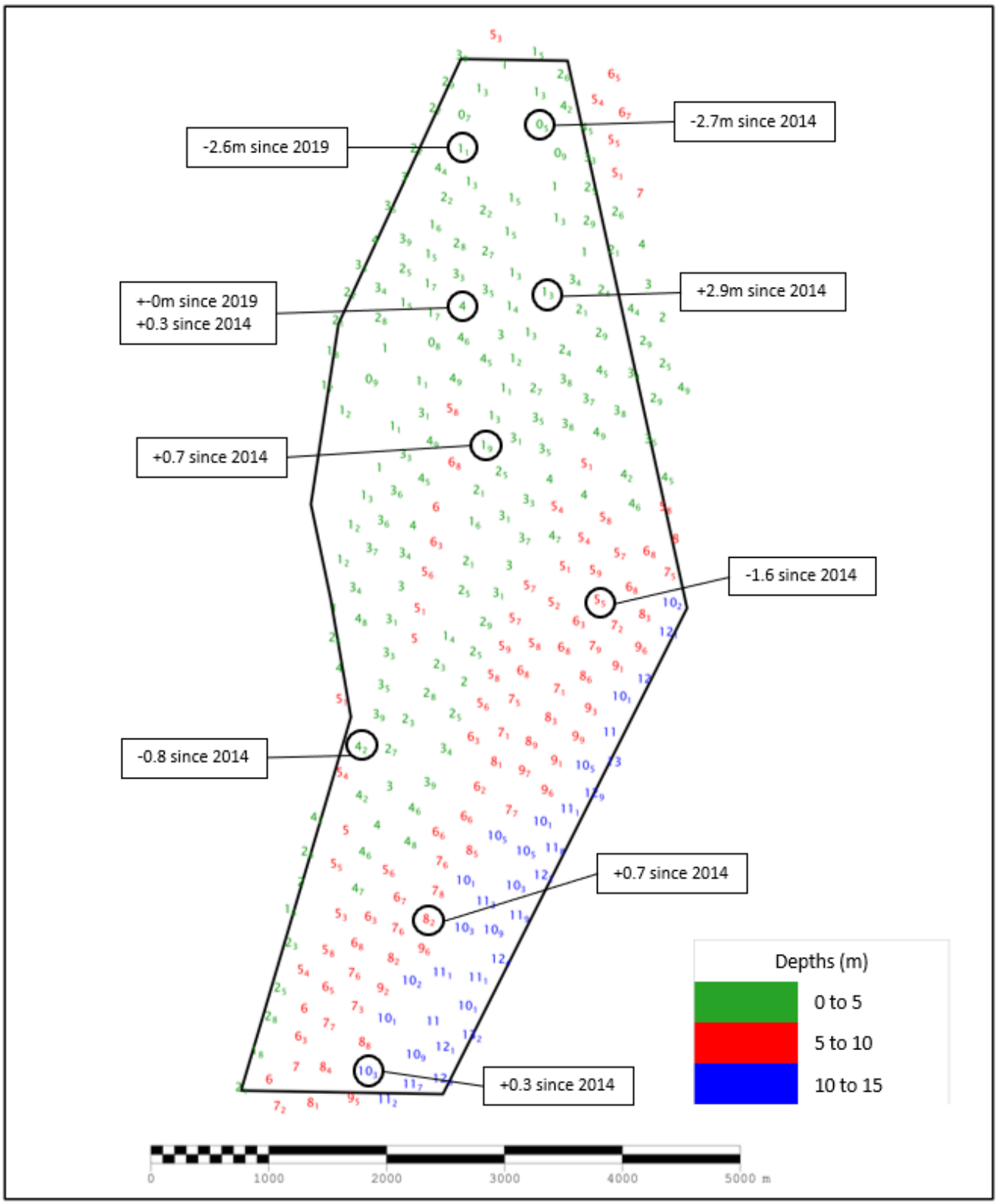

Figure 10: Colour banded depth plot from the 2024 survey with selected depth changes since the 2019 and 2014 surveys. Positive values (+) represent deepening. Negative values (-) represent shoaling.

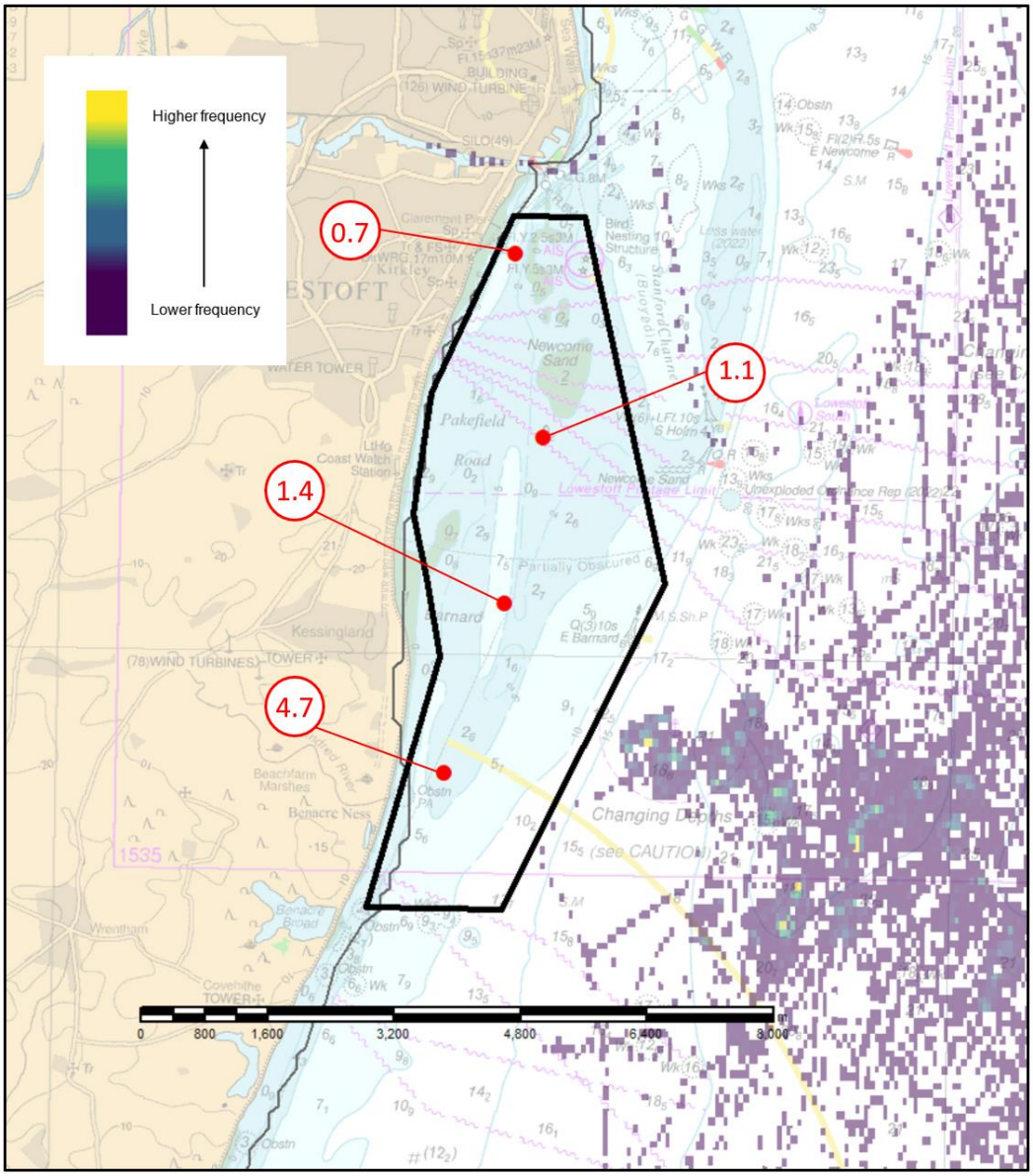

Figure 11: AIS ECDIS regulated annual tanker, passenger, and cargo vessel data from 2023 with Routine Resurvey area EA12 and controlling depth soundings (m) overlaid on BA Chart 1543-0.

6. RECOMMENDATIONS FOR FUTURE SURVEYS

Survey Interval

6.1 The 10-year full interval with the 5-year focused over areas of higher movement adequately captures depth changes in the area and does not need changing. Consideration could be given to running checklines in place of the full survey, which could then be undertaken as and when checklines indicate significant changes or highlight areas which may warrant further investigation.

Survey Area

6.2 The south of the EA12 area sees little to no regulated traffic, and there have not been any major bathymetric changes in the 10 years since the 2014 survey. The 10m contour has moved northwest, away from the E Bernard east cardinal buoy. Consideration could be given to removing the southern part of the EA12 area as shown in Figure 12 below. This would not affect the 5-year focused area. The proposed changes would continue to provide adequate coverage

of any changes around the E. Barnard cardinal mark and approaches to the deeper water behind the bank

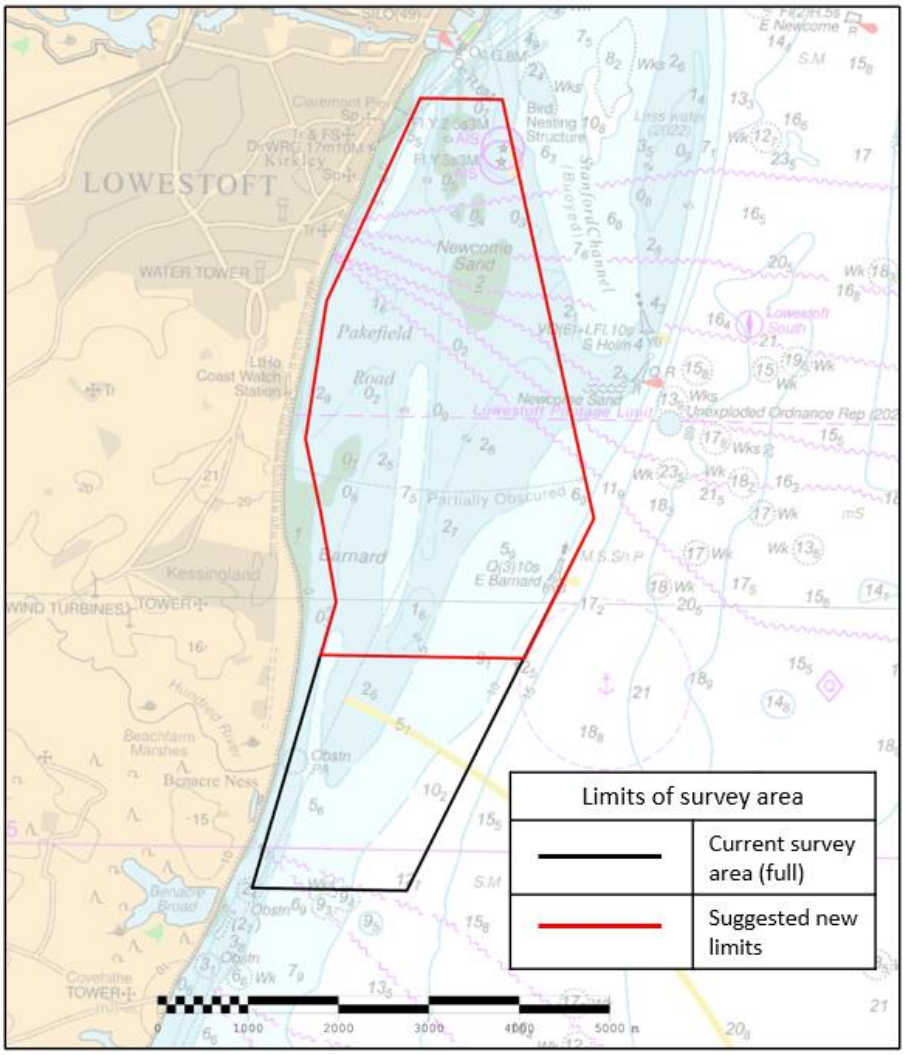

Figure 12: Potential changes to survey limits of area EA12

The coordinates of the adjusted survey area limits for the 10-year full area EA12 are shown below:

Current Limits:
EA12 total area: 19.61 km^2

Potential New Limits:
EA12 total area: 14.47km^2

	Latitude	Longitude
1	52.466665N	001.750000E
2	52.466670N	001.763330E
3	52.425056N	001.779402E
4	52.411000N	001.768484E
5	52.411000N	001.735368E
6	52.416305N	001.737705E
7	52.425335N	001.734910E
8	52.432490N	001.732250E
9	52.446295N	001.735295E