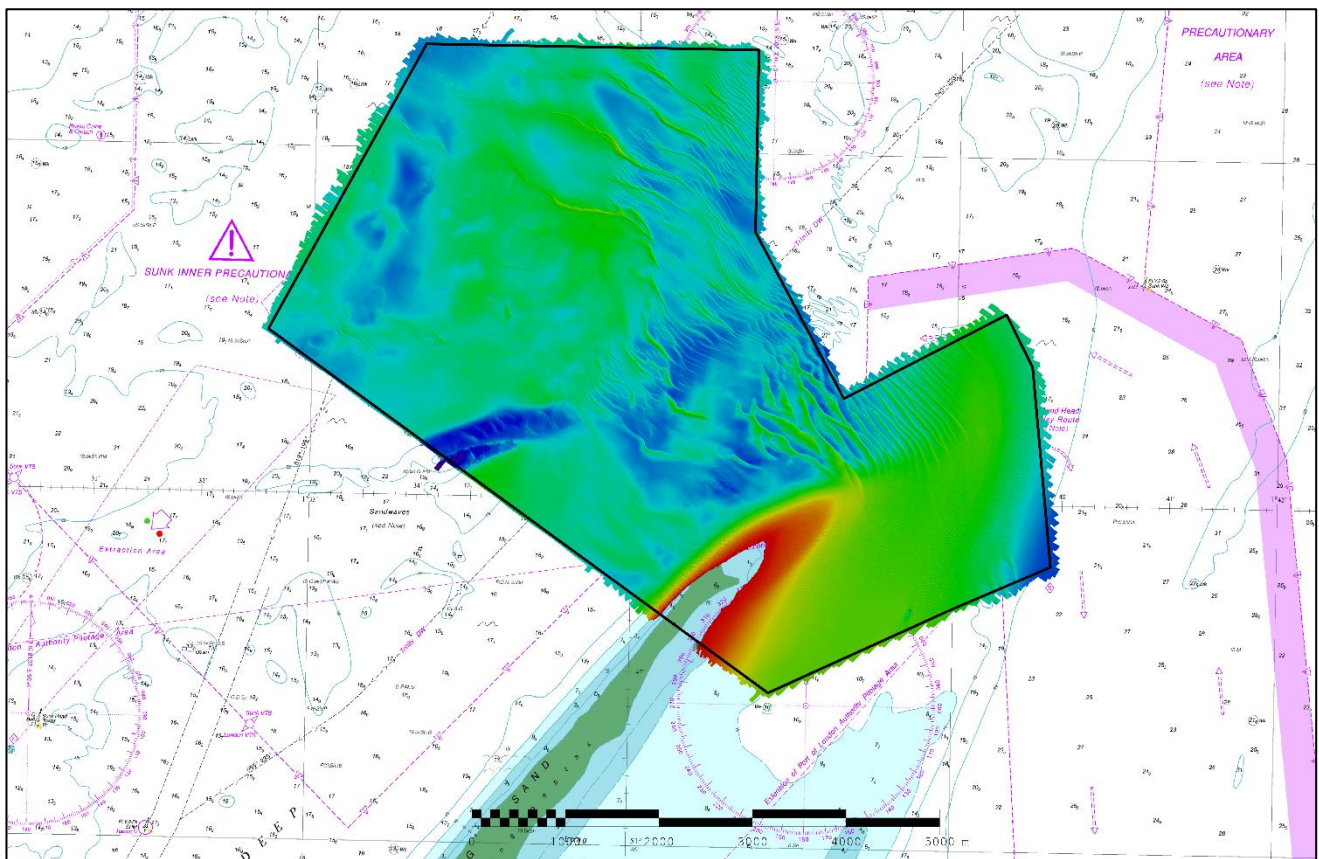




UK Hydrographic
Office

THAMES ESTUARY LONG SAND HEAD FULL AREA (TE5A) 2018 ASSESSMENT

An assessment of the 2018 hydrographic survey of the area TE5A Long Sand Head Full Area: to monitor recent seabed movement; to identify any implications for shipping; and to make recommendations for future surveys.



CONTENTS

1. SUMMARY	1
2. LOCATION	1
3. REFERENCE SURVEY DETAIL	3
4. COMPARISON SURVEY DETAIL	3
5. DESCRIPTION OF RECENT BATHYMETRIC CHANGE	3
6. RECOMMENDATIONS FOR FUTURE SURVEYS	7

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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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.

LONG SAND HEAD FULL AREA (TE5A), 2018

1. SUMMARY

Changes Detected

- 1.1 Sand waves continue to migrate in a north-eastward's direction within TE5A, which is consistent with historical trends.
- 1.2 Migration of Long Sand Head continues with up to 145m migration annually and up to 280m in a 3-year period.
- 1.3 There has been stability in the western half of the survey area.

Reasons for Continuing to Resurvey the Area

- 1.4 Depths in the area remain hazardous and highly changeable especially around Long Sand Head to deep draught vessel navigating the area and therefore require continued monitoring through annual resurveys.

Recommendations

- 1.5 Due to the stability in the Sunk DWR Focused Area, this focused area should be removed from the programme.
- 1.6 Due to the mobility of the area and the removal of the Sunk DWR Focused Area the interval for the Full TE5 Area should be increased to 2-years whilst being combined with the TE5A Full Area.
- 1.7 The limits of the TE5A Trinity DWR and Long Sand Head Focused Area remain unchanged.

2. LOCATION

- 2.1 Survey interval at time of resurvey: The TE5 area is surveyed every 6-years and the full TE5A area is surveyed every 3-years with two annual focused areas covering the Trinity DWR and Sunk DWR.
- 2.2 Area Covered: Full Area: 32.57 km²

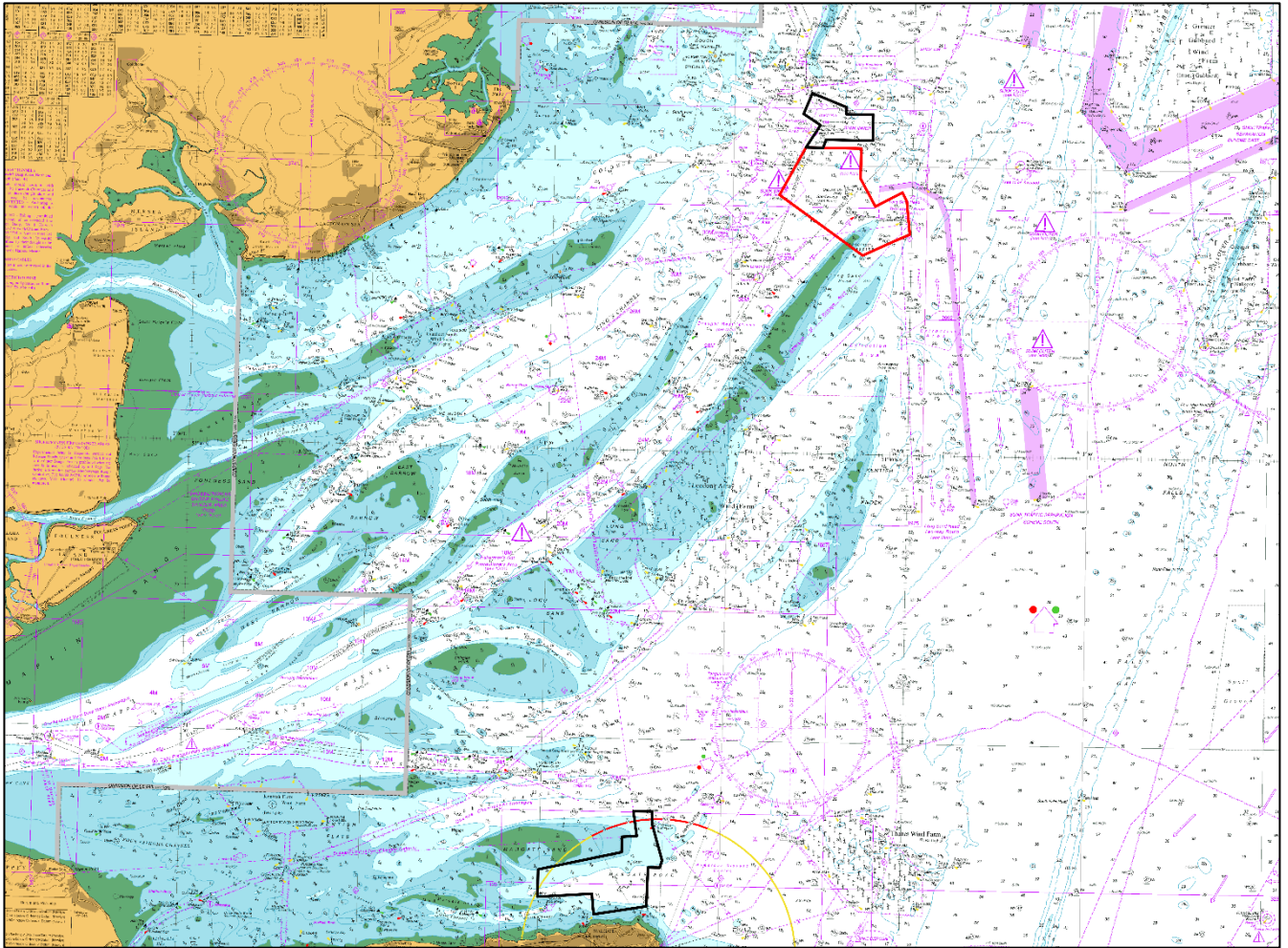


Figure 1 – 2018 Thames Estuary RRS areas overlaid on BA Chart 1183-0 with TE5A Long Sand Head Full Area in Red

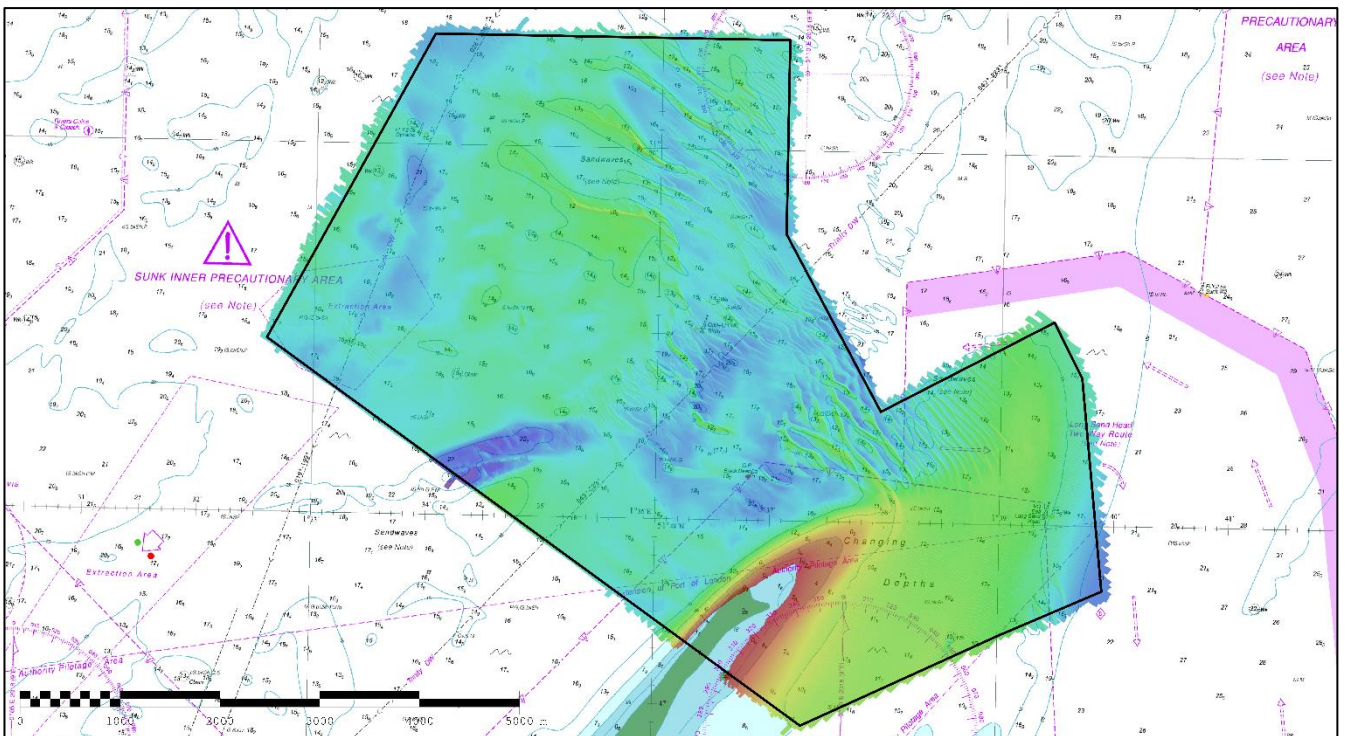


Figure 2 – 2018 TE5A Long Sand Head Full Area survey data sun-illuminated view overlaid on BA Chart 2692-0

3. REFERENCE SURVEY DETAIL

- 3.1 The previous full survey was conducted as part of the 2015 Routine Resurvey Programme between August and October 2015 as part of HI1483. The previous focused surveys were conducted as part of the 2017 Routine Resurvey Programme between July and November 2017 as part of HI1546.
- 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. COMPARISON SURVEY DETAIL

- 4.1 The latest full survey as part of the 2018 Routine Resurvey Programme was conducted in November and December 2018 as part of HI1615.
- 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 Figures 3 and 4 show a north-eastwards migration of sand waves within TE5a, which is consistent with historical trends in the area.
- 5.2 The southern part of Long Sand Head migrated 190m between 2015 and 2018, 145m of which occurred between 2017 and 2018. The northern tip of Long Sand Head migrated 90m between 2017 and 2018 and 280m between 2015 and 2018. The central part of Long Sand Head migrated 95m between 2015 and 2018 but showed stability between 2017 and 2018.
- 5.3 The difference plots (Figures 4 and 5) and the depth plot (Figures 6) show that there has been little movement in the western half of the survey area.
- 5.4 The depth plot (Figure 6) shows that there has been up to 3m change in depth in the eastern half of the survey area. However, despite the migration of Long Sand Head the depths remain relatively stable with changes less than 1m.

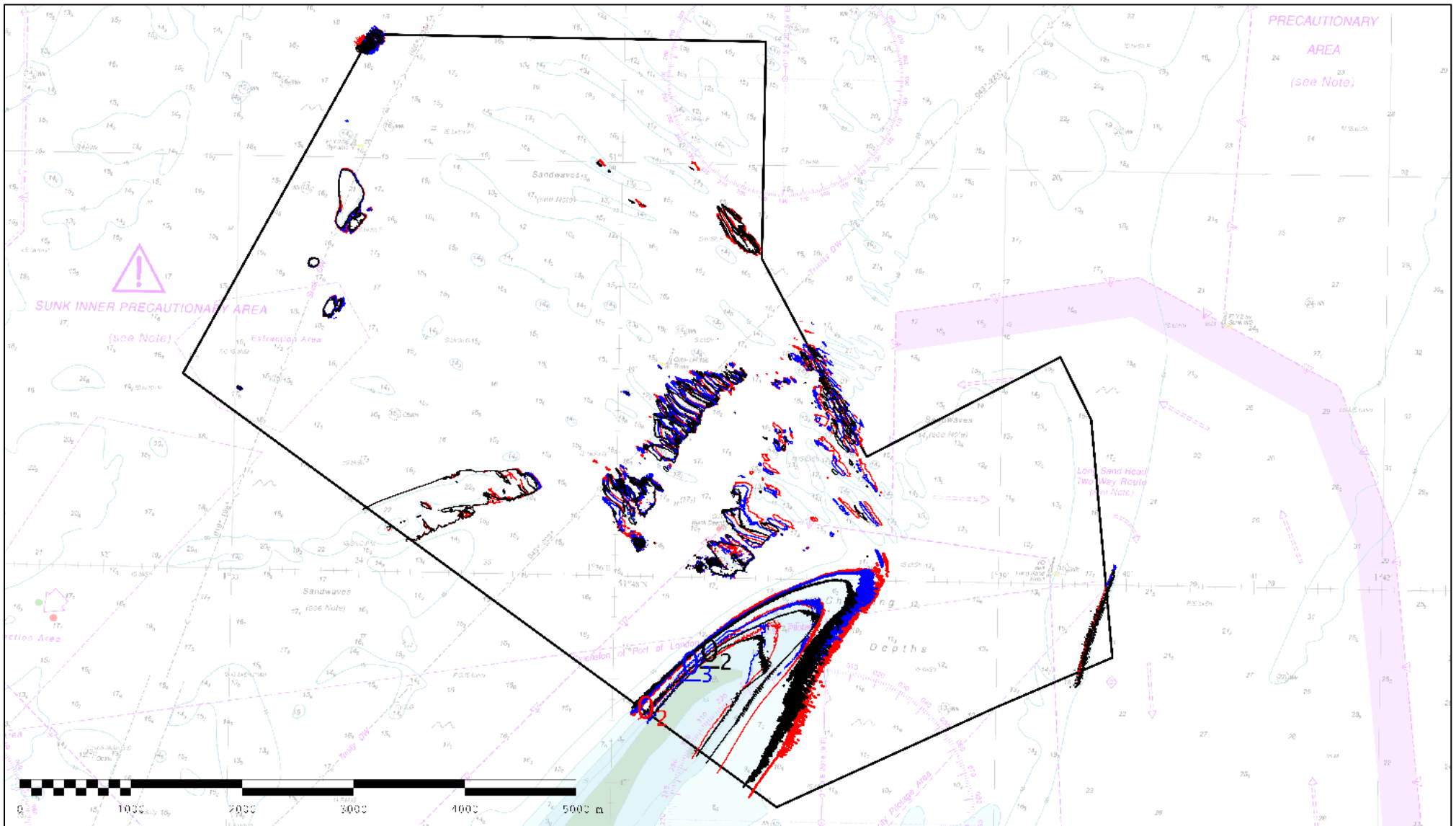


Figure 3 – Least Depth and 0, 2, 5, 10 & 20m Contours from 2018 (shown in red), 2017 (shown in blue) and 2015 (shown in black) overlaid on BA Chart 2692-0

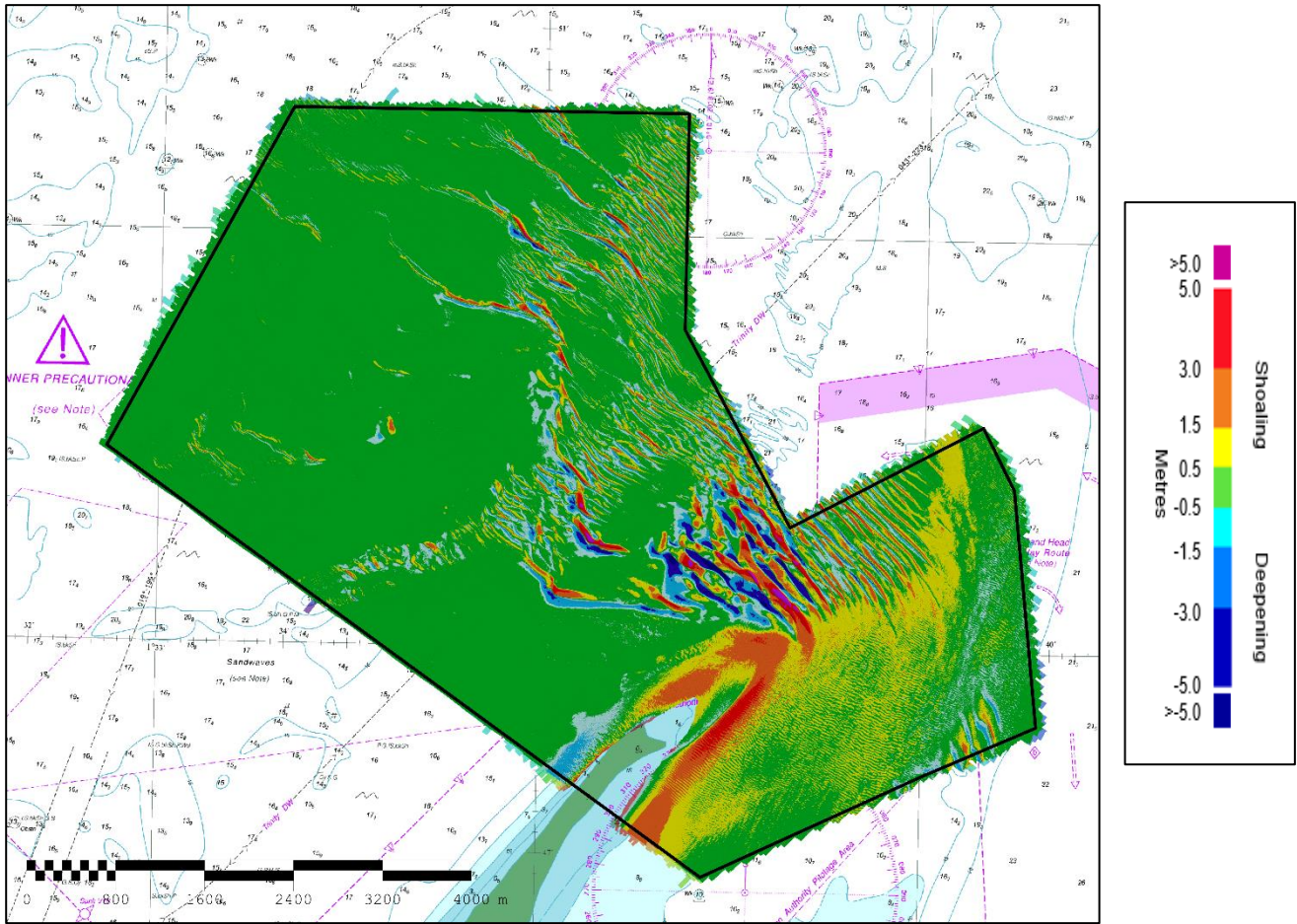


Figure 4 – Difference Plot 2015-2018 overlaid on BA Chart 2692-0

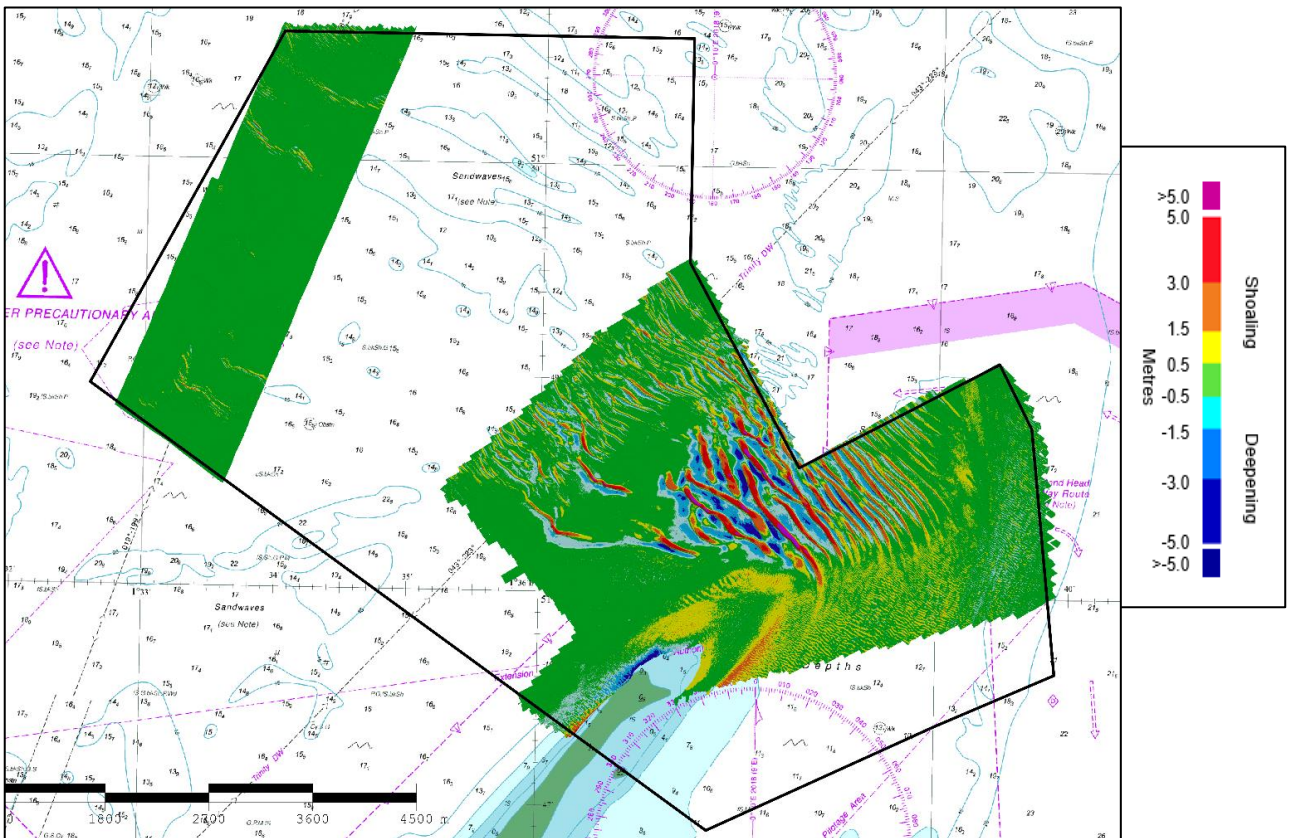
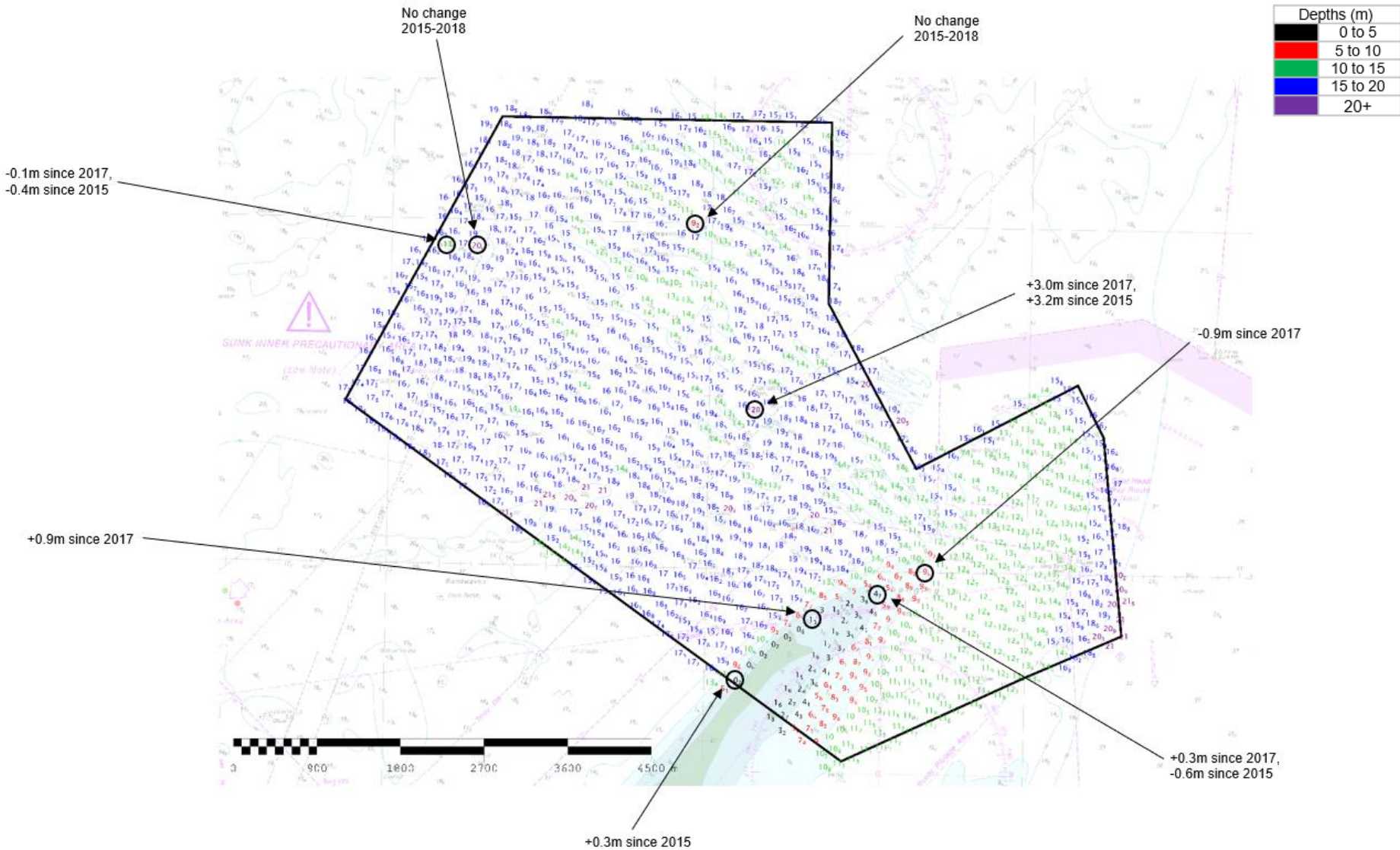


Figure 5 – Difference Plot 2017 Trinity and Sunk DWR Focused Areas - 2018 overlaid on BA Chart 2692-0



Positive values (+) represent deepening. Negative values (-) represent seabed depths becoming shallower

Figure 6 – Colour Banded Depth Plot from the 2018 Survey with selected depth changes since the 2017 (Focused) and 2015 (Full) Surveys overlaid on BA Chart 2692-0

6. RECOMMENDATIONS FOR FUTURE SURVEYS

Upon writing this report it was found that there was a 6-year TE5 “full” area shown in Figure 7 in blue, but unlike all other RRS conventions, the full area was significantly smaller than the focused, and although they were adjacent, they did not overlap. The old TE5 area has been combined with the TE5A full area to create a new TE5. The TE5A Trinity DWR and LSH focused area remains unchanged.

Survey Interval

- 6.1 Given the location of the area in relation to the DWR and vessels with large draughts navigating the area there is still a requirement for full and focused survey areas.
- 6.2 Due to the stability shown in the Sunk DWR it is recommended that the annual focused area around the Sunk DWR is removed and absorbed into the new TE5. Therefore, leaving only one annual focused survey – Trinity DWR and Long Sand Head.
- 6.3 Due to the mobility of the area, the limited under-keel clearance and the economic importance of this route, it is recommended that the full TE5 survey interval is set to 2-years.

Survey Area

- 6.4 At the CHWG in January 2019 it was agreed that TE5A survey area should be extended to the traffic separation scheme to account for the on-going north-eastwards migration of sand waves in the area. Instead of changing the TE5A limits, this requirement has been achieved by the creation of the new TE5 area.
- 6.5 The limits of the TE5A Trinity DWR and Long Sand Head Focused Area remain unchanged, but it is recommended that the full TE5 area be extended as follows:

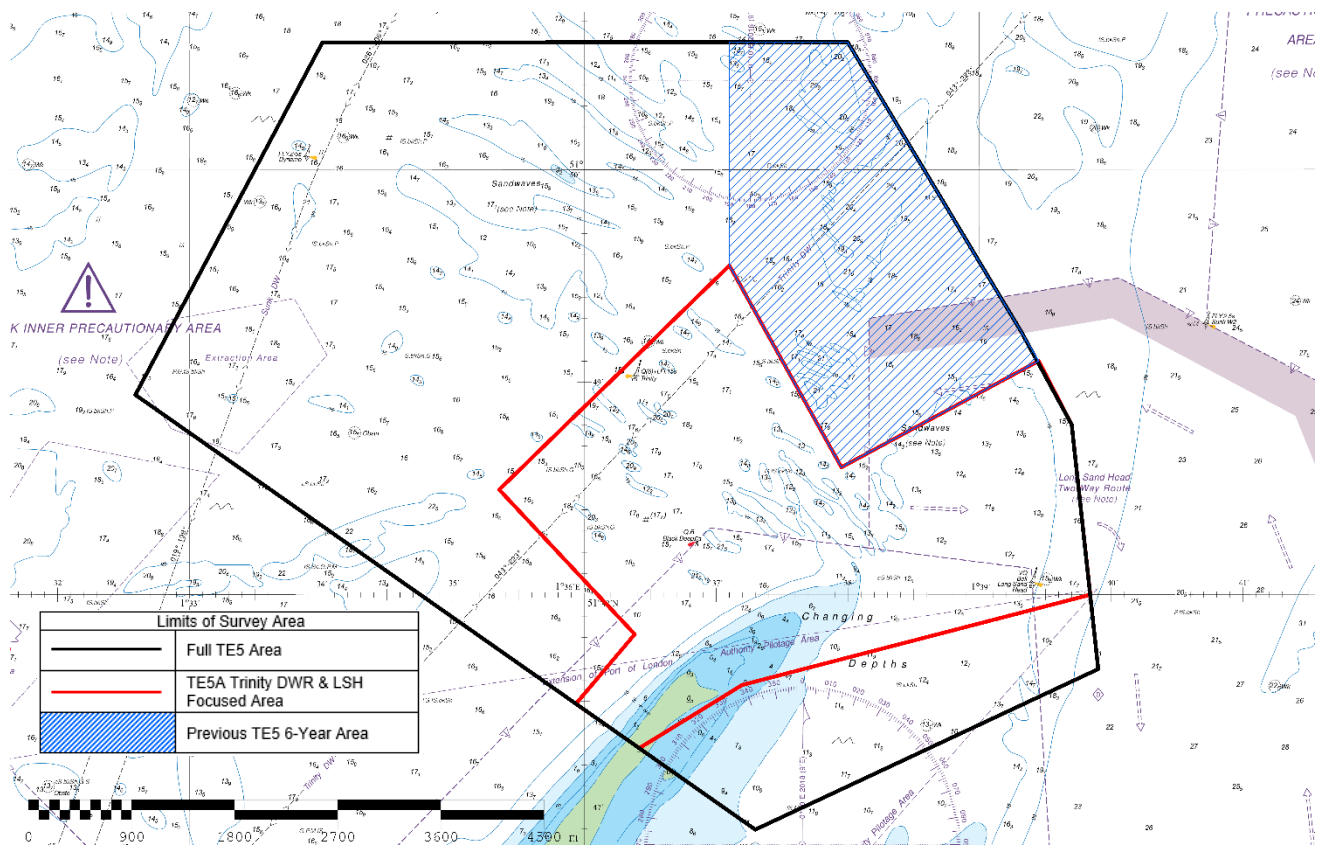


Figure 7 – Proposed Full TE5 and Focused TE5A areas overlaid on BA Chart 2692-0

Table 1 – List of Coordinates for new TE5 Full Area

	Latitude	Longitude
1	51-50.599N	001-34.008E
2	51-50.599N	001-34.584E
3	51-50.599N	001-35.157E
4	51-50.600N	001-37.029E
5	51-50.600N	001-38.000E
6	51-49.233N	001-39.321E
7	51-48.800N	001-39.700E
8	51-47.650N	001-39.900E
9	51-46.896N	001-37.296E
10	51-48.940N	001-32.588E
11	51-50.599N	001-34.008E