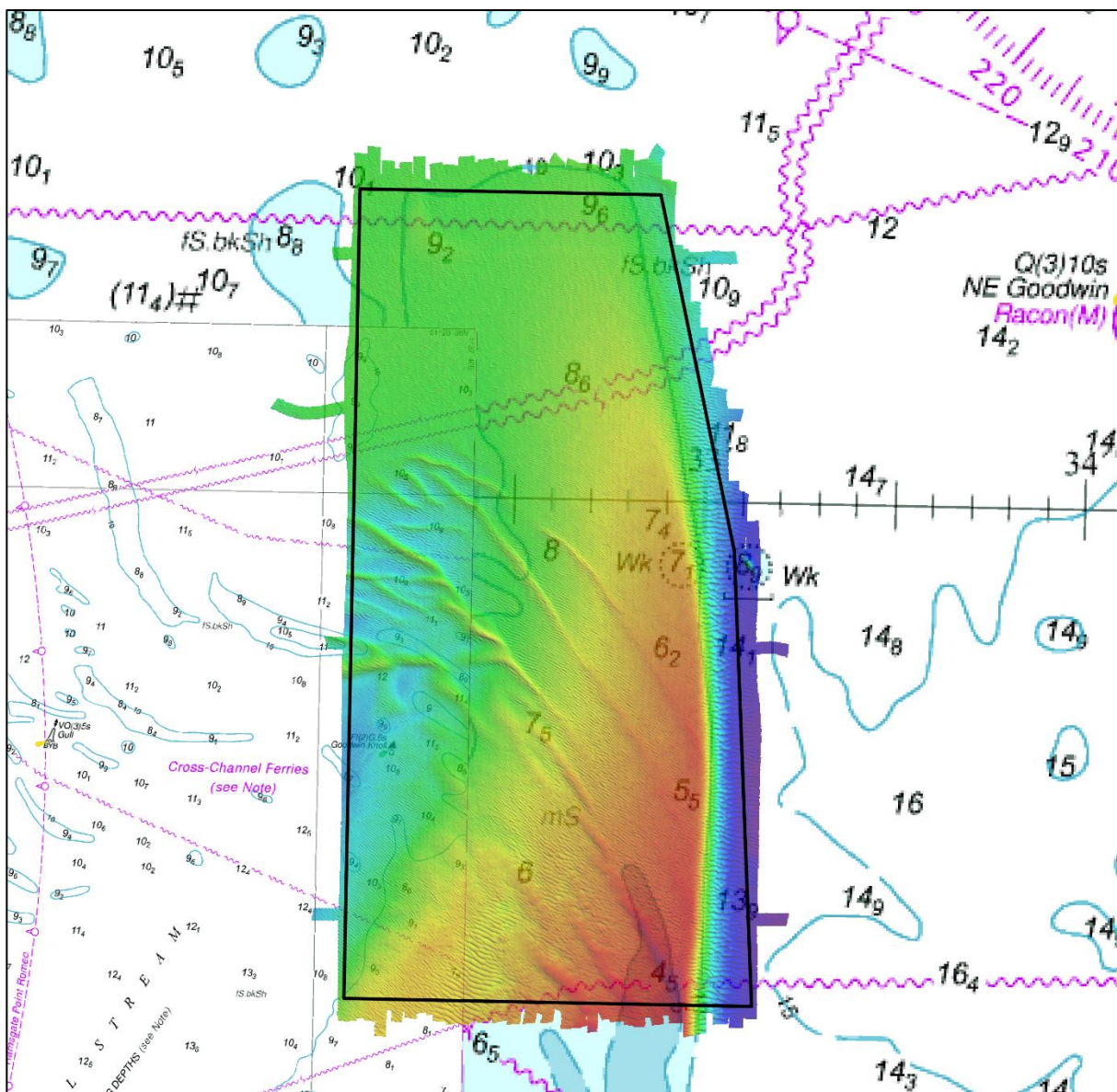




UK Hydrographic
Office

GOODWIN SANDS NORTH SAND HEAD (GS2B) 2018 ASSESSMENT

An assessment of the 2018 hydrographic survey of the focused area GS2b: 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 to 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.

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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

NORTH SAND HEAD (GS2B), 2018

1. SUMMARY

Changes Detected

- 1.1 In the southeast of the survey area at the northern end of North Sand Head sediment has migrated eastwards and the least depth has shoaled slightly from 4.5m in 2015 to 4.3m in 2019.
- 1.2 The sand ridges in the middle of the survey area have shoaled between 2015 and 2019. One ridge has shoaled from 9.9m to 7.9m.
- 1.3 There has been little change in the north of the survey area.

Reasons for Continuing to Resurvey the Area

- 1.4 The continued migration of sediment and shoaling of controlling depths within the survey area presents a hazard to vessels transiting close to North Sand Head, in and out of Ramsgate Harbour and Gull Stream.

Recommendations

- 1.5 The 3-year interval of the focused area should remain.
- 1.6 The north west corner of the survey area should be removed as this region is stable.

2. LOCATION

- 2.1 Survey interval at time of resurvey: 3 years
- 2.2 Area Covered: 2.79 km²

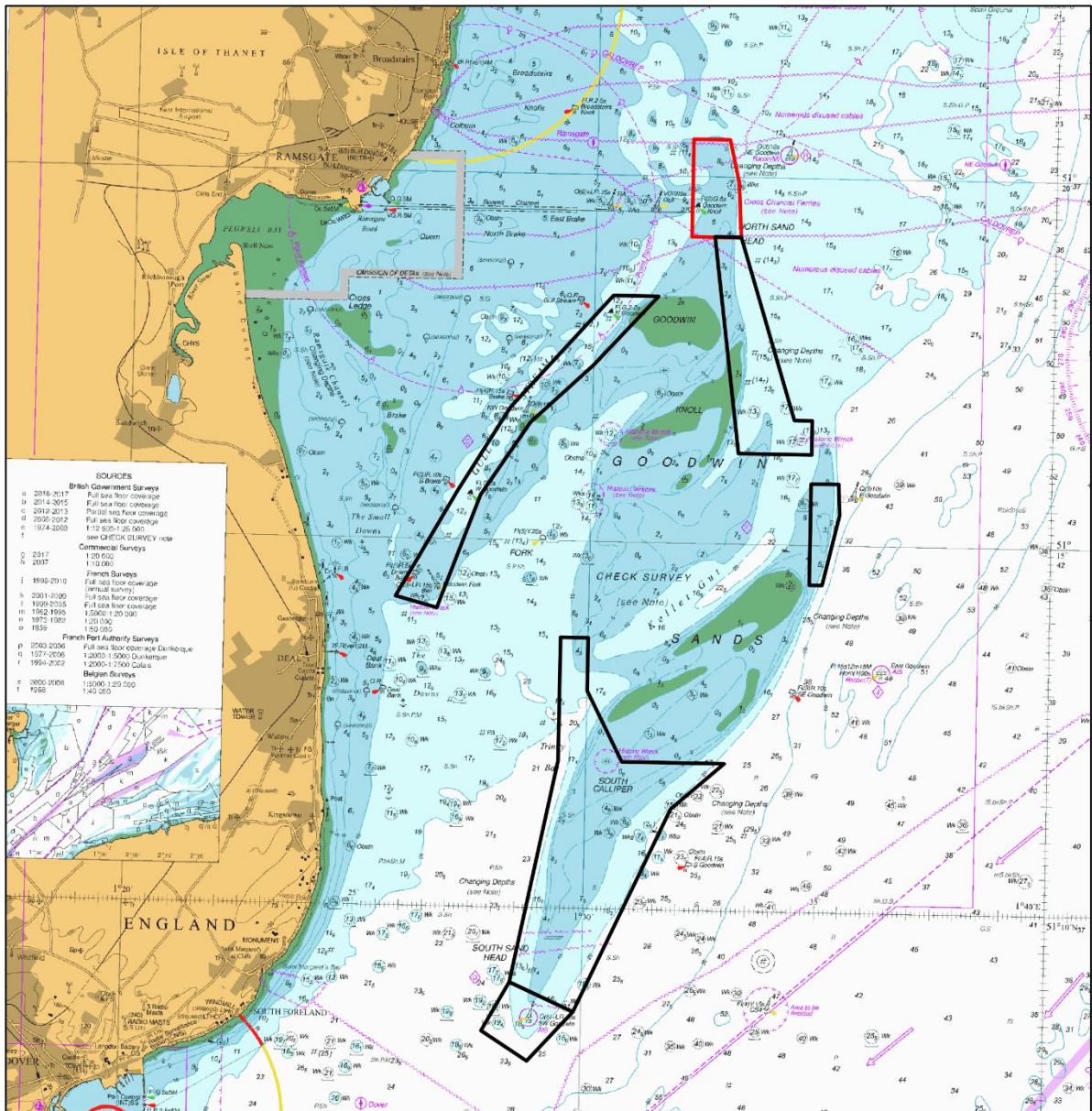


Figure 1: 2018 Goodwin Sands Routine Resurvey areas overlaid on BA Chart 0323 with area GS2b in red

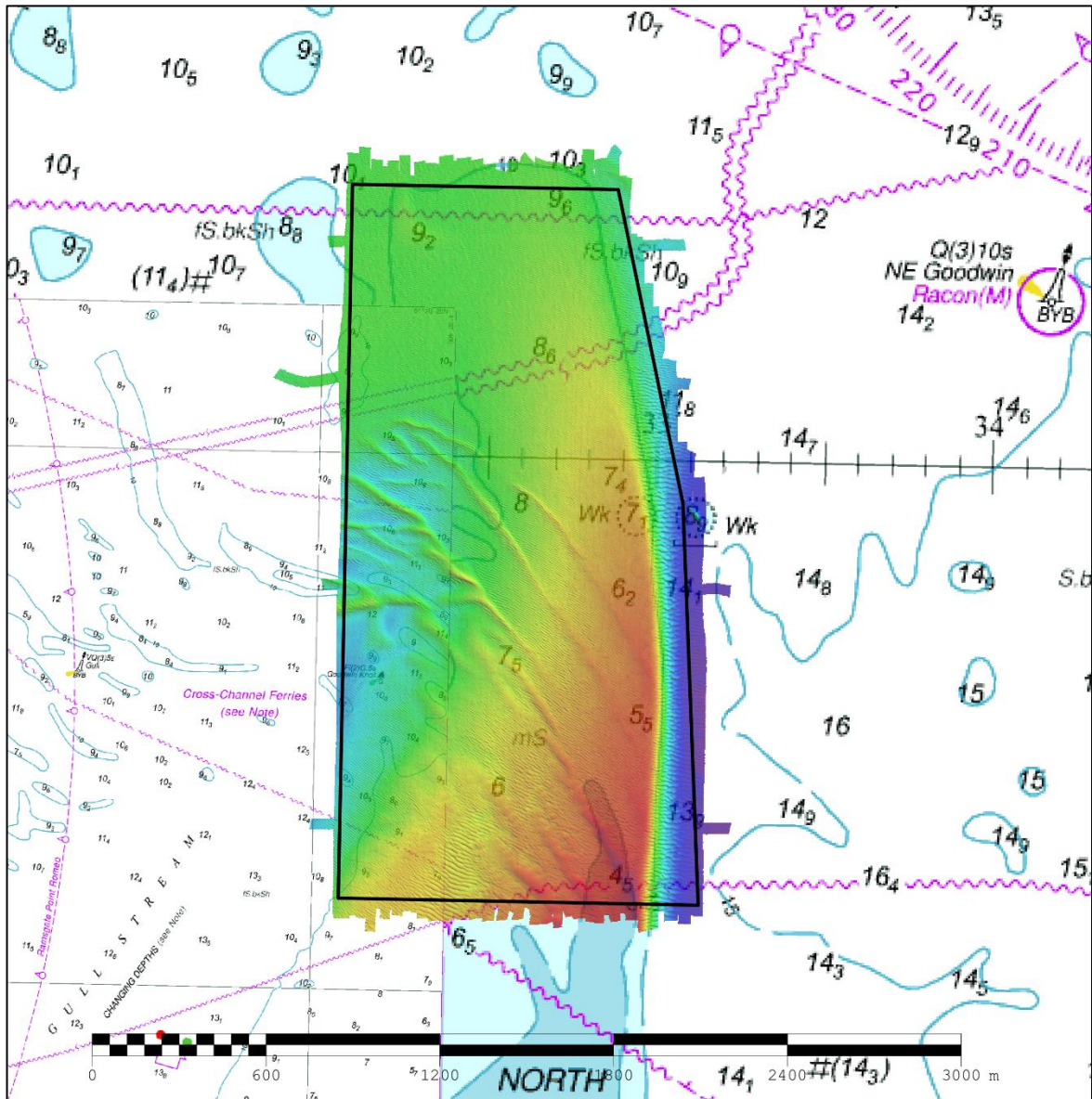


Figure 2: 2019 survey data overlaid on BA Charts 1827 and 1828

3. REFERENCE SURVEY DETAIL

- 3.1 HI 1618 was surveyed in January 2019.
- 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 INSPIRE portal and MEDIN Bathymetry Data Archive Centre.

4. COMPARISON SURVEY DETAIL

- 4.1 HI 1484 was surveyed in August 2015.
- 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 INSPIRE portal and MEDIN Bathymetry Data Archive Centre.

5. DESCRIPTION OF RECENT BATHYMETRIC CHANGE

- 5.1 The difference surface in Figure 3 shows that depths have remained similar in the north of the survey area since 2015, yet sandwaves and ridges in the middle and eastern edge of the survey area have shoaled and widened.
- 5.2 The contour plot in Figure 5 shows that between 2015 and 2019 the 10m contour at the eastern edge of the survey area has migrated eastwards, with an eastward migration of around 25m every three years.
- 5.3 Figure 5 also shows that the 10m contour in the western part of the survey area is similar to as it was in 2015, yet the sand ridges in the middle have shoaled. The depth plot in Figure 4 shows that the shoalest depth over the sand ridges in the middle of the survey area has shoaled from 9.9m to 7.9m.
- 5.4 The depth plot in Figure 4 shows that the least depth in the 2019 survey is 4.3m, located in the south-eastern corner of the survey area, which is at the northern end of North Sand Head. This least depth was 4.5m in 2015 and 4.8m in 2012, which shows there has been continued shoaling.

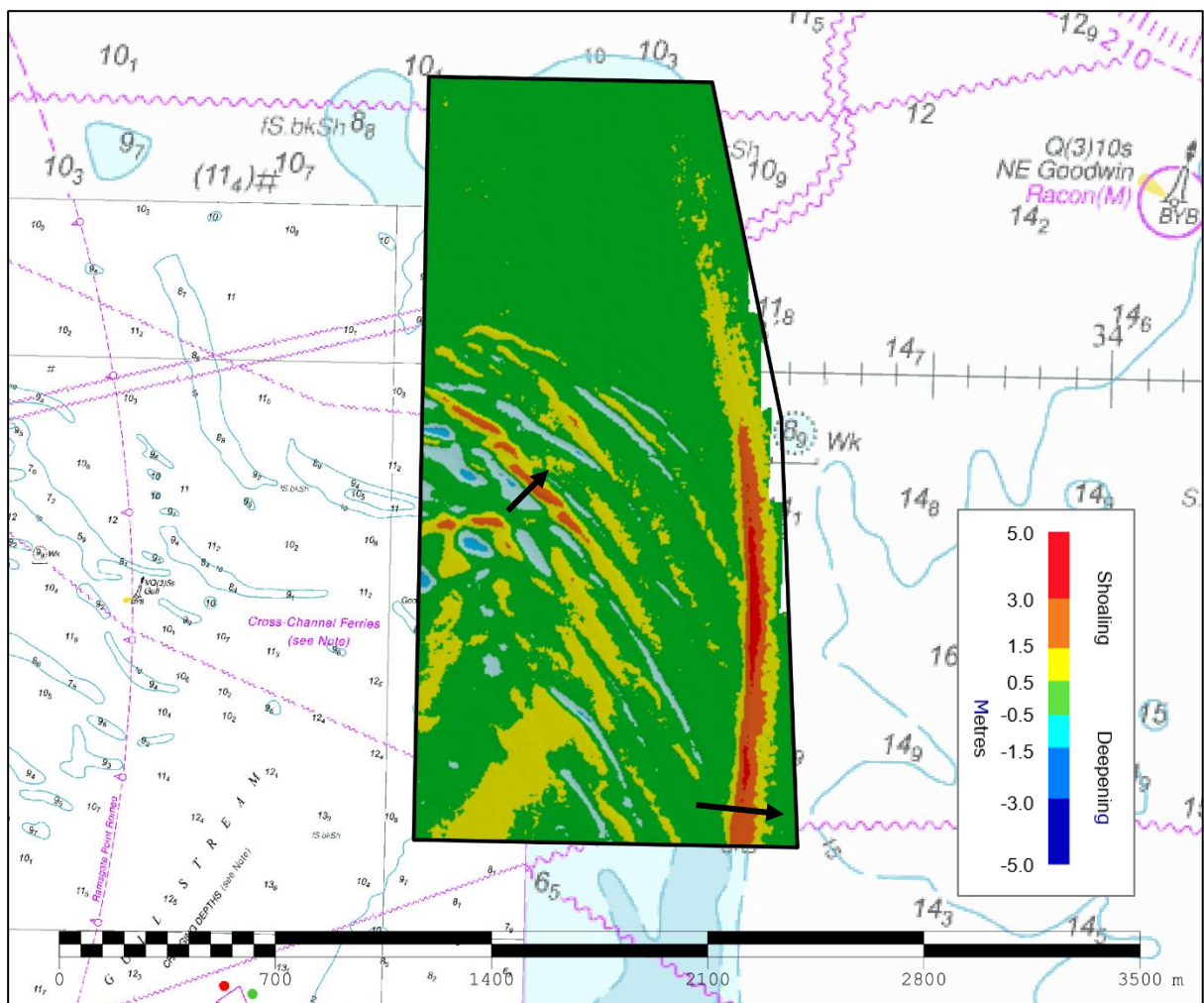


Figure 3: Difference surface showing bathymetric changes between the 2015 and 2019 surveys overlaid on BA Charts 1827 and 1828 (Black arrows represent sandwave migration since 2015 survey)

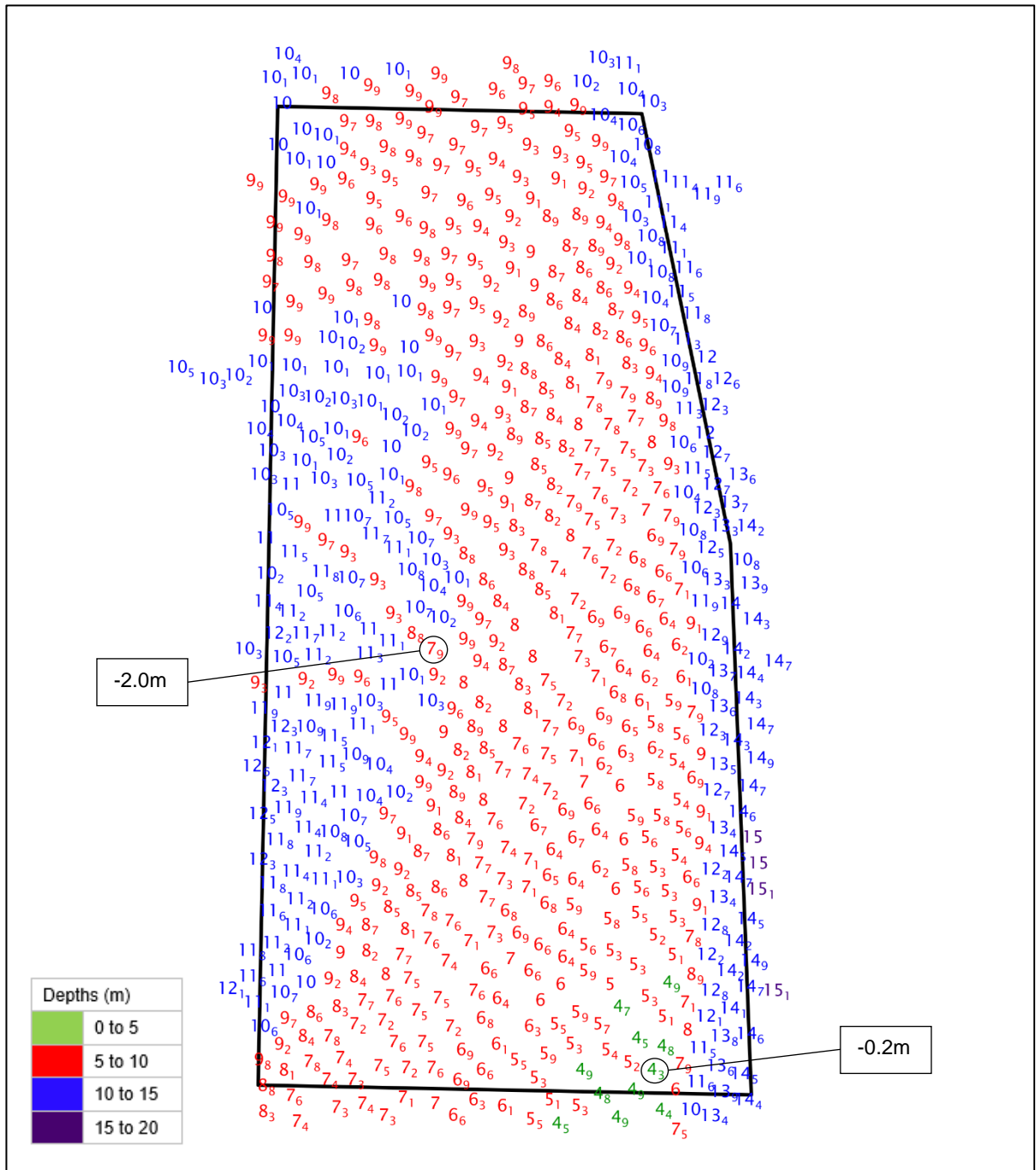


Figure 4: Colour banded depth plot from the 2019 survey with selected depth changes since the 2015 survey. Positive values (+) represent deepening. Negative values (-) represent shoaling

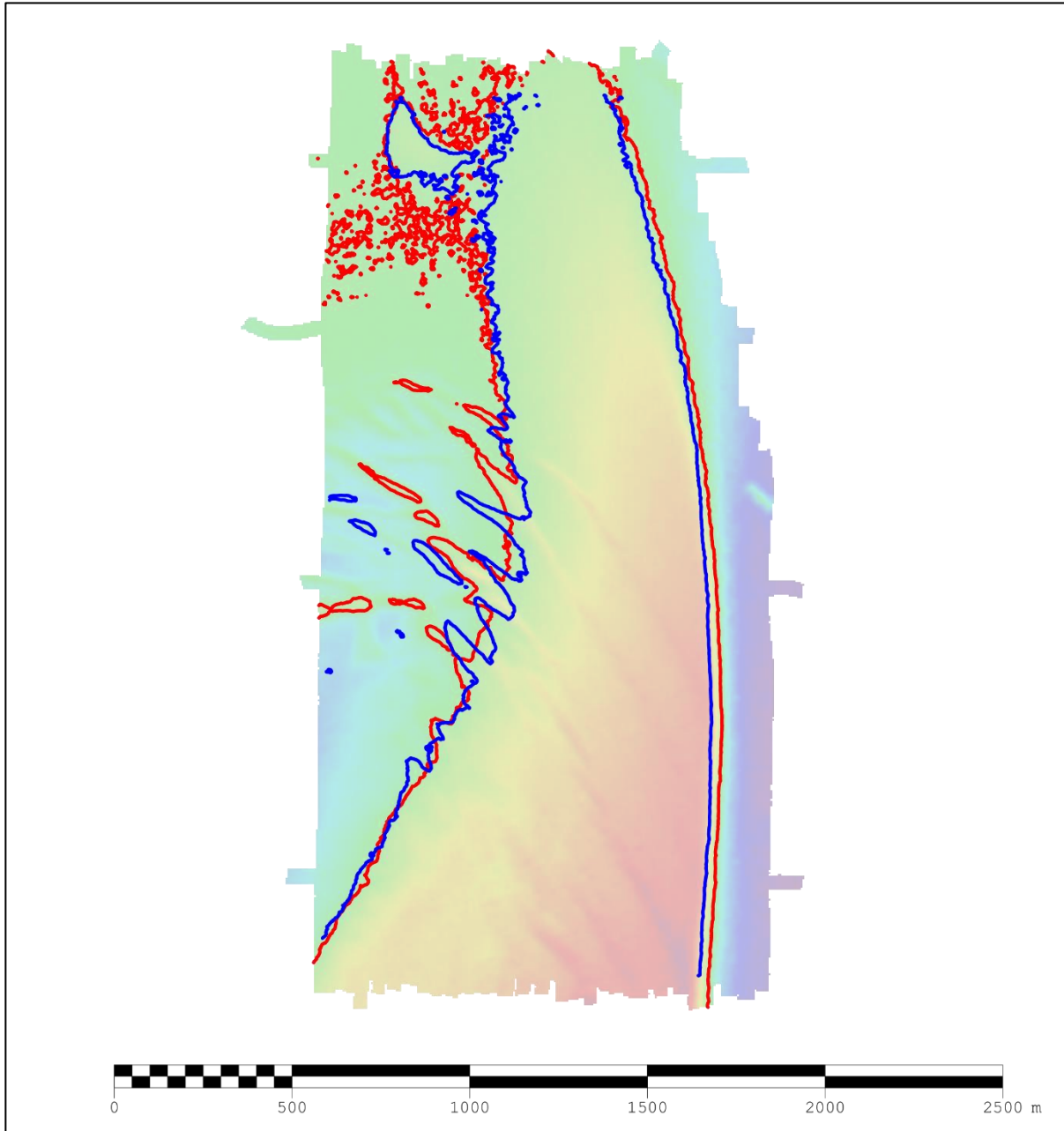


Figure 5: 10m contour comparison overlaid on 2019 bathymetric data
(Red line is 2019 contour; Blue line is 2015 contour)

6. RECOMMENDATIONS FOR FUTURE SURVEYS

Survey Interval

6.1 The continued migration of sediment and shoaling of controlling depths within area GS2b presents a hazard to vessels transiting close to North Sand Head, in and out of Ramsgate Harbour and Gull Stream. This area therefore continues to require ongoing monitoring and the focused 3-year interval should remain.

Survey Area

6.2 The north west corner of the survey area should be removed as the difference plot shows this region is stable.

6.3 The wreck close to the eastern edge of North Sand Head bank was investigated in 2018 as part of the Shallow Water Hydrographic Programme so the area does not require extending to the east to include this wreck.

The proposed limit changes are as follows:

| Latitude | Longitude |
|-----------|------------|
| 51.34167N | 001.54784E |
| 51.33196N | 001.55135E |
| 51.31950N | 001.55250E |
| 51.31950N | 001.53467E |
| 51.33499N | 001.53467E |

Figure 7: Proposed new survey area coordinates of area GS2b (Total area 2.45 km²)

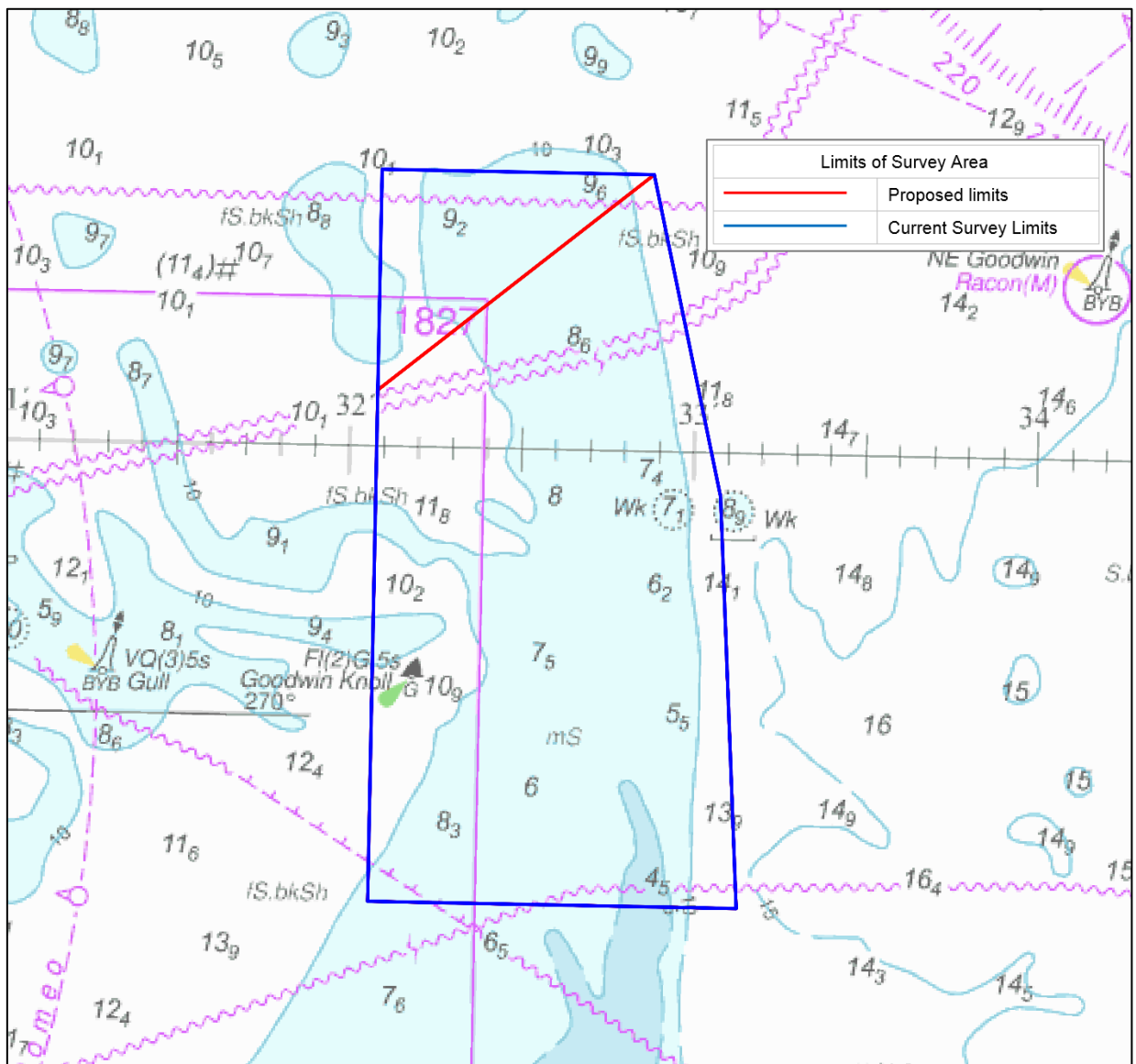


Figure 8: Proposed changes to survey limits of area GS2b

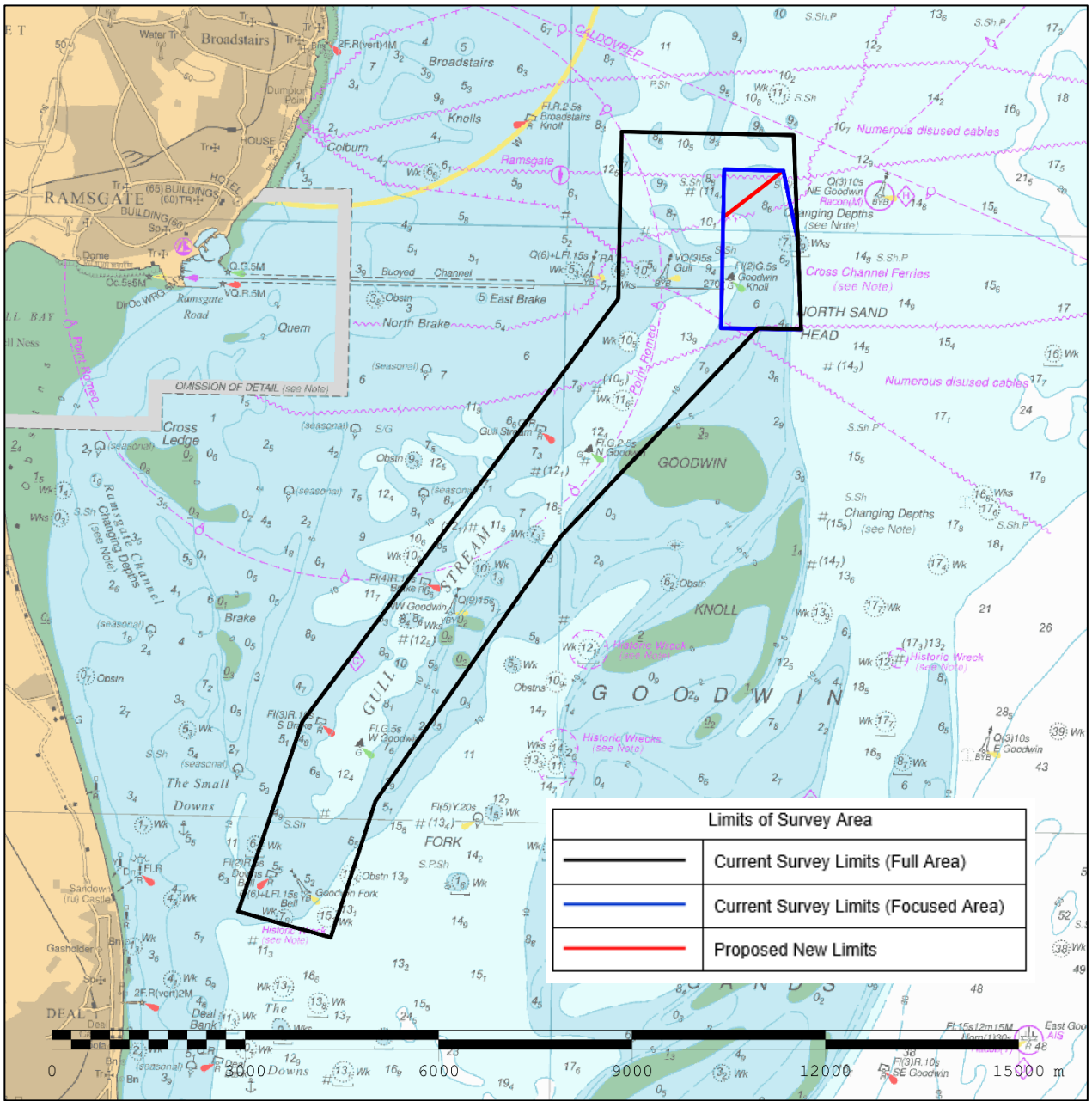


Figure 9: Proposed changes to survey limits of area GS2b