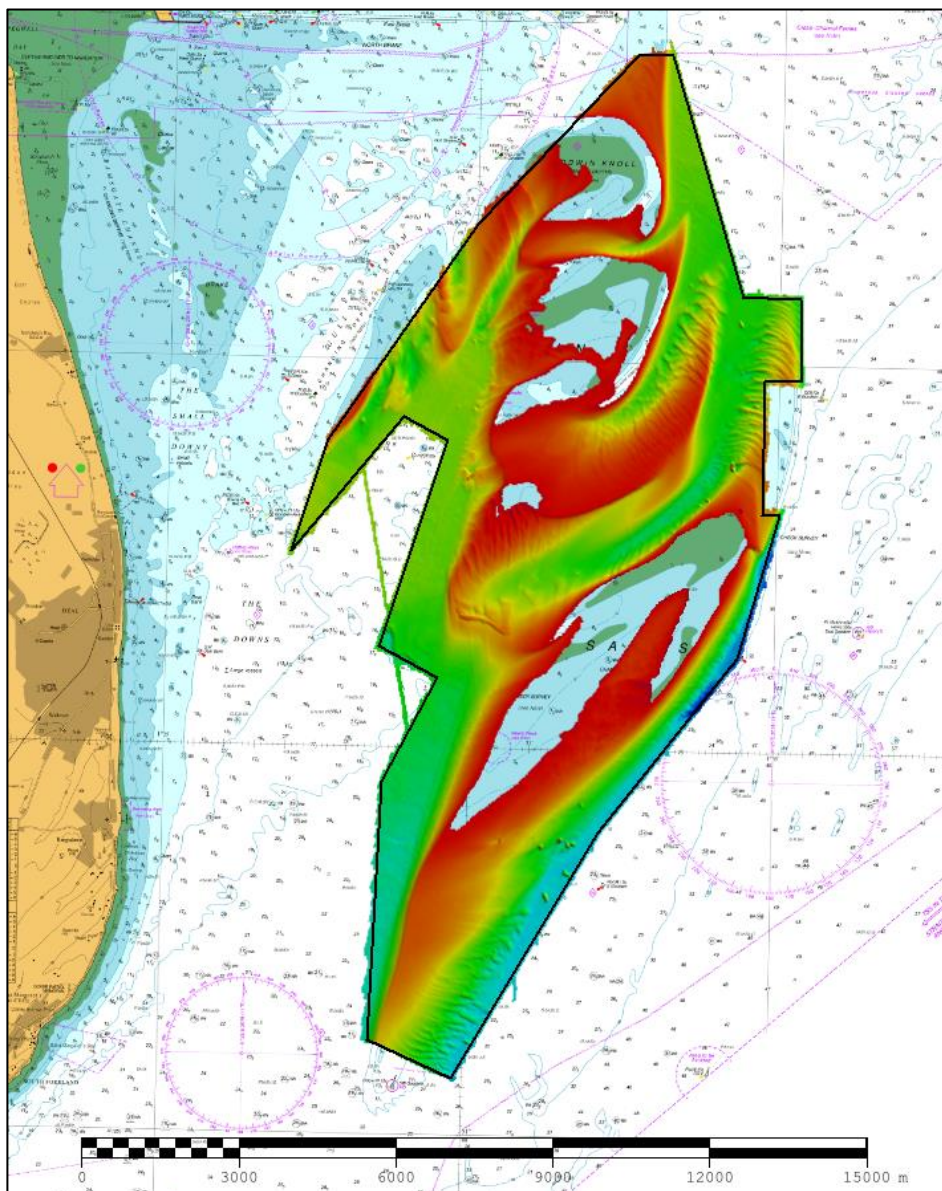




UK Hydrographic
Office

DOVER STRAIT GOODWIN SANDS (GS4) 2021 ASSESSMENT

An assessment of the 2021 hydrographic survey of the area GS4: 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	4
5. DESCRIPTION OF RECENT BATHYMETRIC CHANGE	4
6. RECOMMENDATIONS FOR FUTURE SURVEYS	9

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.

This material is protected by Crown Copyright. It may be downloaded from the UK Hydrographic Office's (UKHO) web site and printed in full for personal or non-commercial internal business use. Extracts may also be reproduced for personal or non-commercial internal business use on the condition that the UK Hydrographic Office is acknowledged as the publisher and the Crown is acknowledged as the copyright owner.

Applications for permission to reproduce the material for any other purpose (including any distribution of the material or extracts to third parties) can be made interactively on the UKHO's web site (www.ukho.gov.uk), by e-mail to intellectualproperty@ukho.gov.uk or in writing to Intellectual Property, UK Hydrographic Office, Admiralty Way, Taunton, Somerset, TA1 2DN.

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.

GOODWIN SANDS 2021

1. SUMMARY

Changes Detected

- 1.1 Southerly migration of sediment from the north of the survey area at Goodwin Knoll towards Kellet Gut in the central area of the survey since 2009. To the west of Kellet Gut the least depth in the channel is 4.8m (6.6m currently charted). Western movement of sediment in the vicinity of South Calliper and South Sand Head resulting in deeper depths to the southeast of the survey area.

Reasons for Continuing to Resurvey the Area

- 1.2 Depths in the area remain changeable and dangerous to vessels in places especially in the vicinity of Goodwin Knoll, Kellet Gut, South Calliper and South Sand Head.

Recommendations

- 1.3 Due to sediment migration south from Goodwin Knoll towards Kellet Gut it is recommended to continue the full survey every 12 years and the focused surveys every 3 and 6 years. There is significant sediment migration in the vicinity of South Sand Head, so it is recommended the survey limits be extended west, and south towards the South Cardinal mark to monitor the changes. The limit of the GS3 survey east of Kellet Gut could be amended west in the future to allow further coverage of the migration into Kellet Gut in the eastern end of the channel, although currently this is mostly covered by the GS4 focused survey.

2. LOCATION

- 2.1 Survey interval at time of resurvey: Full survey every 12 years, with focused surveys every 3 years (GS1) and every 6 years (GS2, GS3 and GS4 South Calliper).
- 2.2 Area Covered: 96.12 km²

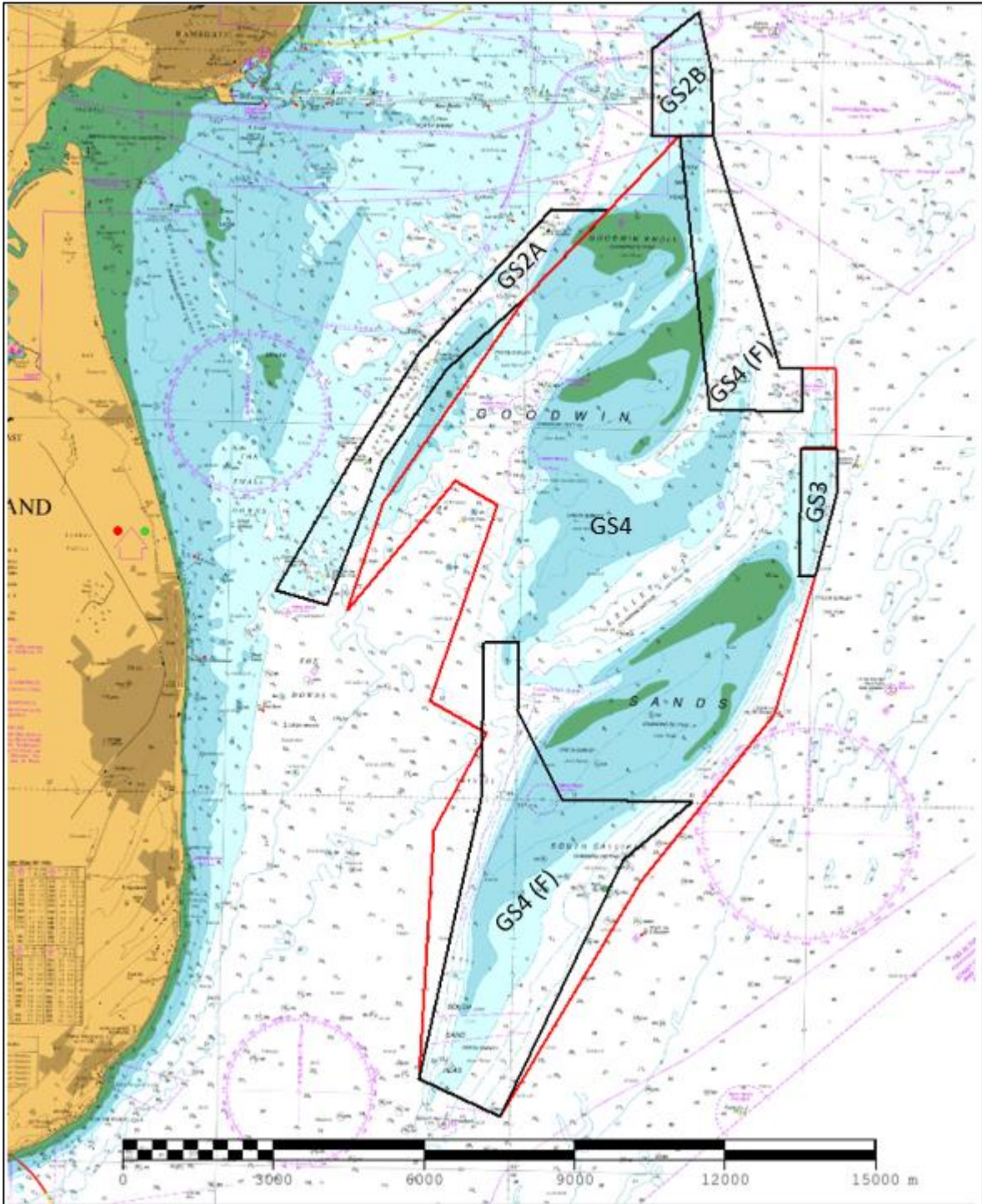


Figure 1: 2021 Dover Strait Routine Resurvey areas overlaid on BA Chart 1828 with area GS4 in red. (F) denotes focused areas of GS4.

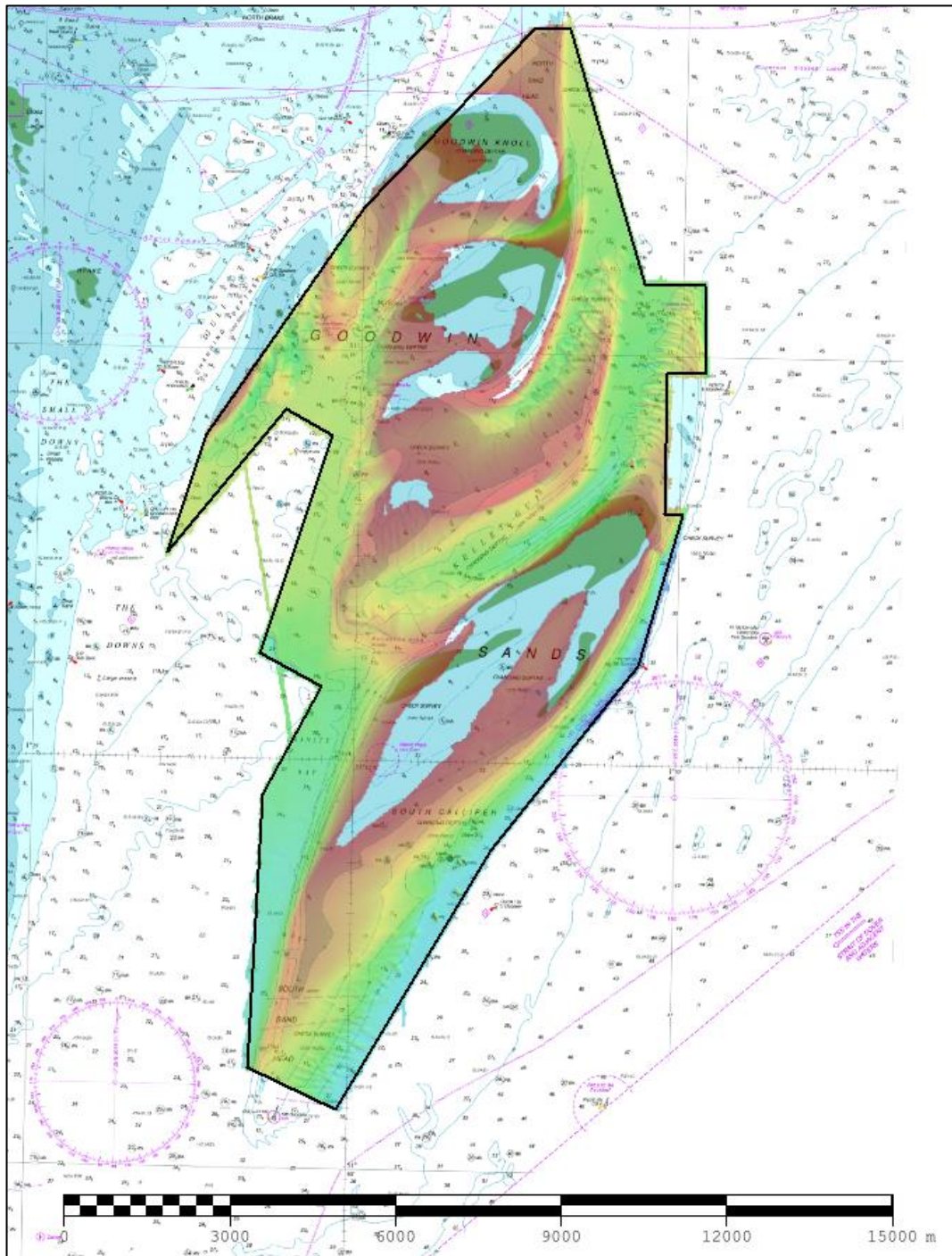


Figure 2: 2021 survey data overlaid on BA Chart 1828

3. REFERENCE SURVEY DETAIL

- 3.1 The previous full survey was conducted as part of the 2009 Routine Resurvey Programme between July and September 2009 as part of HI1294. HI1399 was a focused survey of South Calliper conducted in December 2012. HI1484 was a further focused survey of South Calliper and Goodwin Knoll conducted between August and September 2015. No focused survey within the survey limit was conducted in 2018.
- 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. NEW SURVEY DETAIL

- 4.1 The latest full survey from the 2021 Routine Resurvey Programme was conducted between August and October 2021.
- 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 There has been significant movement of the 2m contour to the south and southeast in the vicinity of Goodwin Knoll to the north and central area of the survey area since the 2009 survey (see figure 4). This extends as far south as Kellet Gut in the centre of the survey area which has resulted in a new controlling depth of 4.8m in the western end of the channel, which is a difference of 1.8m since the previous survey in 2015 (see Figure 3). The 10m contour has consequently moved in a similar direction with additional shoaling in the vicinity of the western side of Goodwin Knoll (see Figure 5).
- 5.2 To the south of the survey area, in the vicinity of South Calliper and South Sand Head, the 10m contour has progressively moved west since 2009 resulting in deeper depths to the southeast of the survey area (see Figure 5).
- 5.3 The difference surface in Figure 6 shows the south and south easterly shoaling south of Goodwin Knoll towards Kellet Gut and the westerly shoaling to the south of the survey area.
- 5.4 The depth plot in Figure 3 shows that the controlling depth for the Kellet Gut channel in the 2021 survey is 4.8m, located to the western end.
- 5.5 The 2m and 10m contour plots (Figures 4 and 5) clearly show the changes to the contours since 2009 and have been included to more clearly demonstrate the overall changes. The changes to the 5m, 15m and 20m are less significant and have been excluded for clarity.

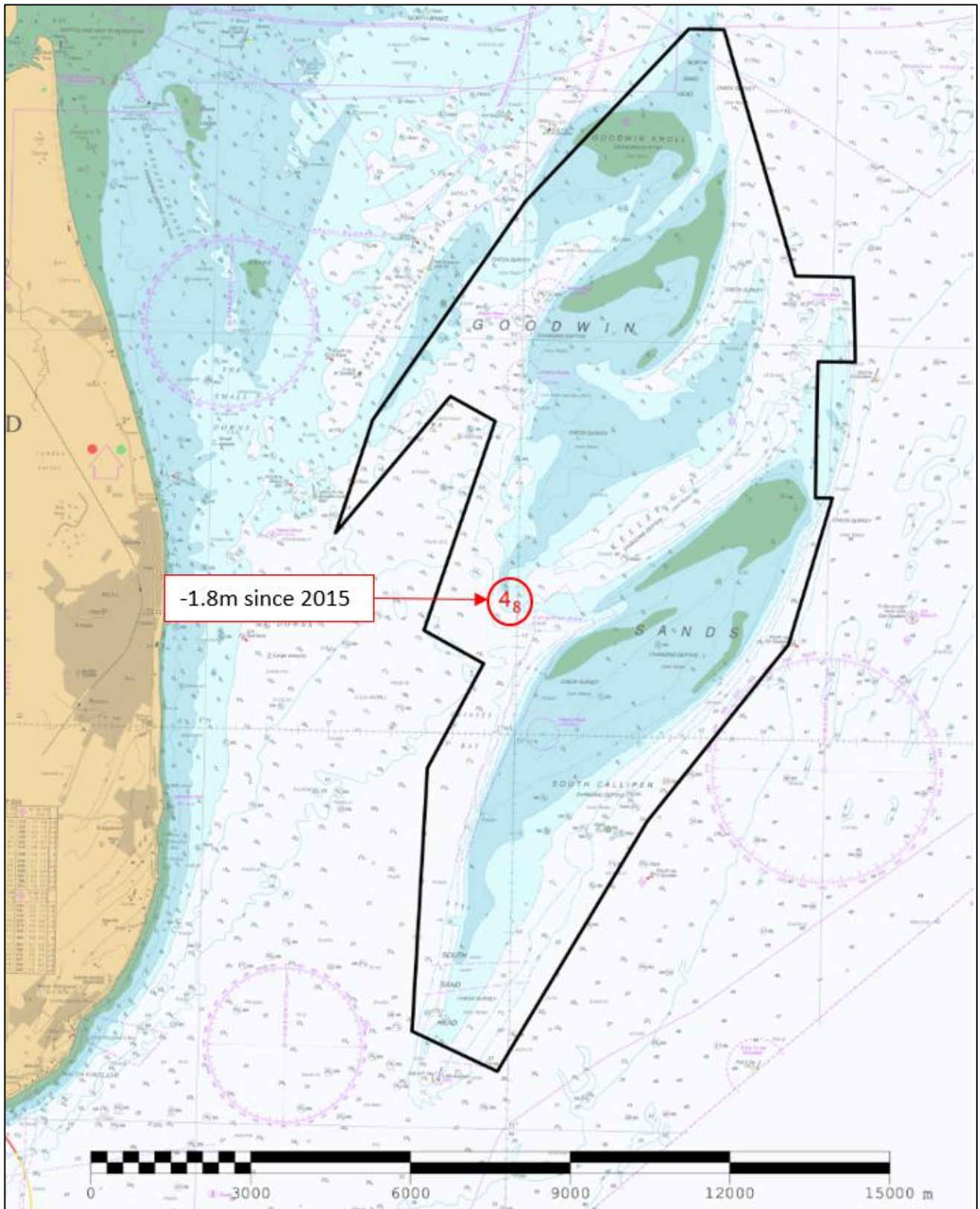


Figure 3: Controlling Depth sounding in Kellet Gut Channel highlighted, overlaid on BA Chart 1828

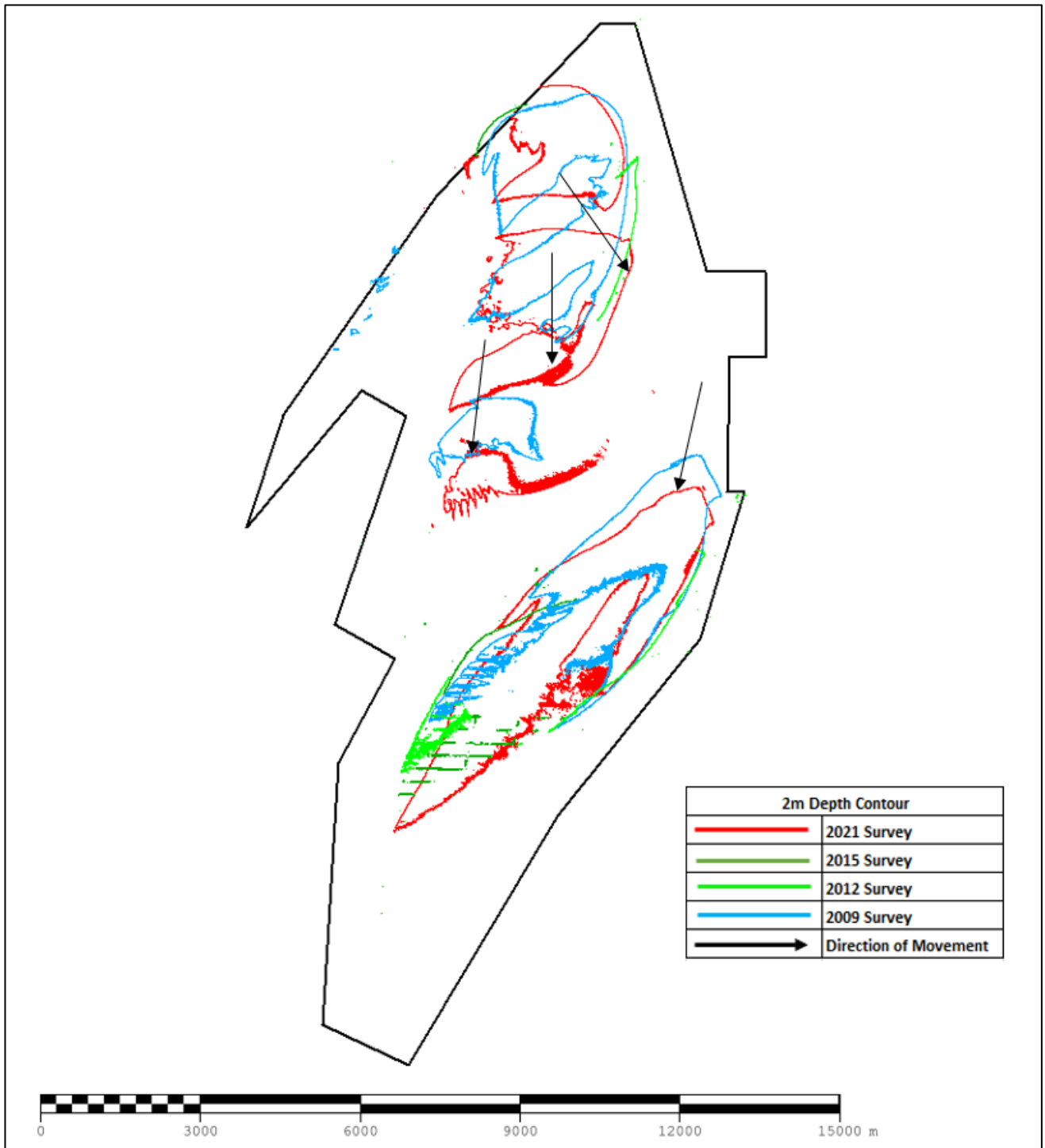


Figure 4: Graphic showing changes to 2m contour since 2009.

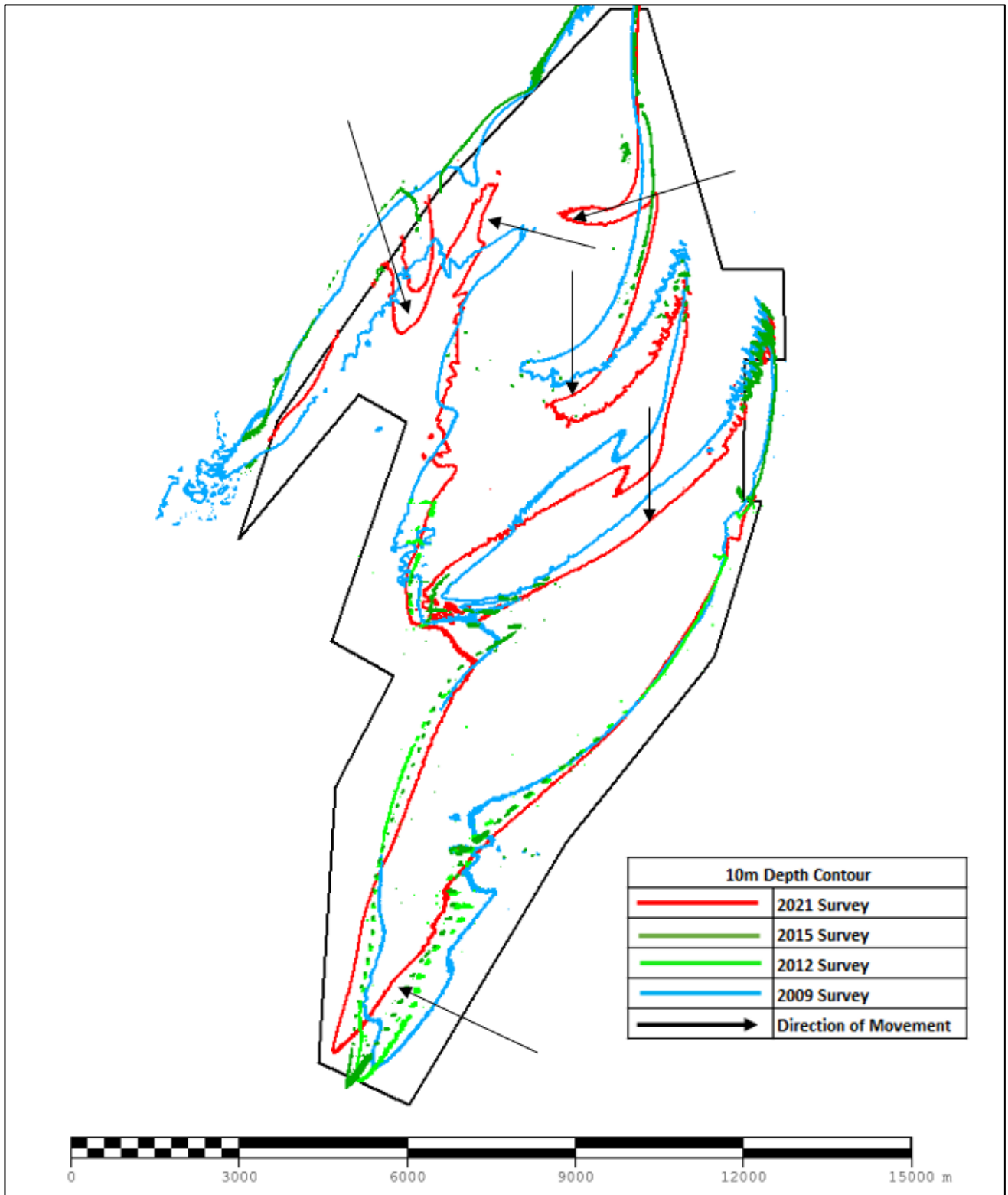


Figure 5: Graphic showing changes to 10m contour since 2009

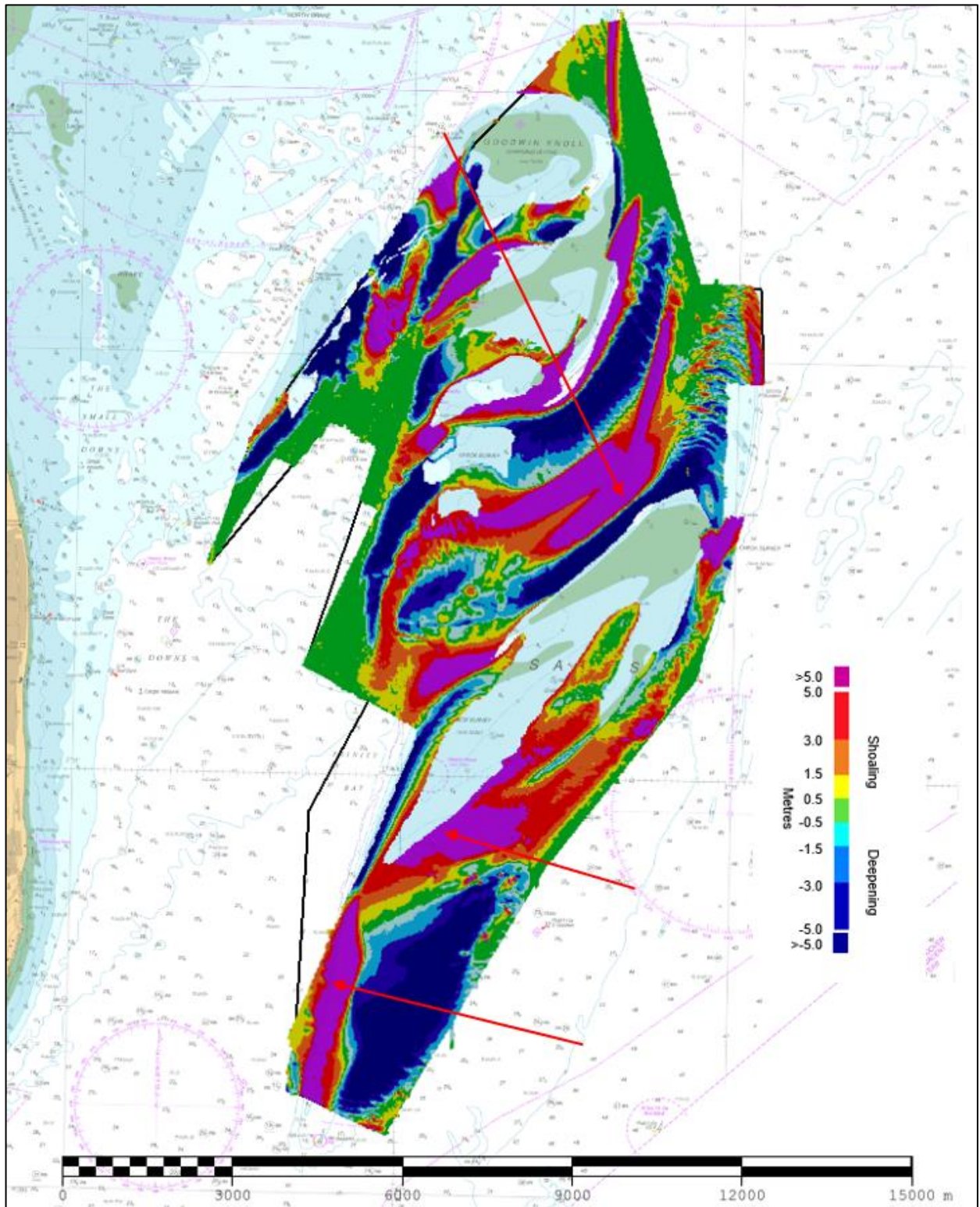


Figure 6: Difference surface showing bathymetric changes between the 2021 and 2009 surveys overlaid on BA Chart 1828 (Red arrows represent sandwave migration since 2009 survey)

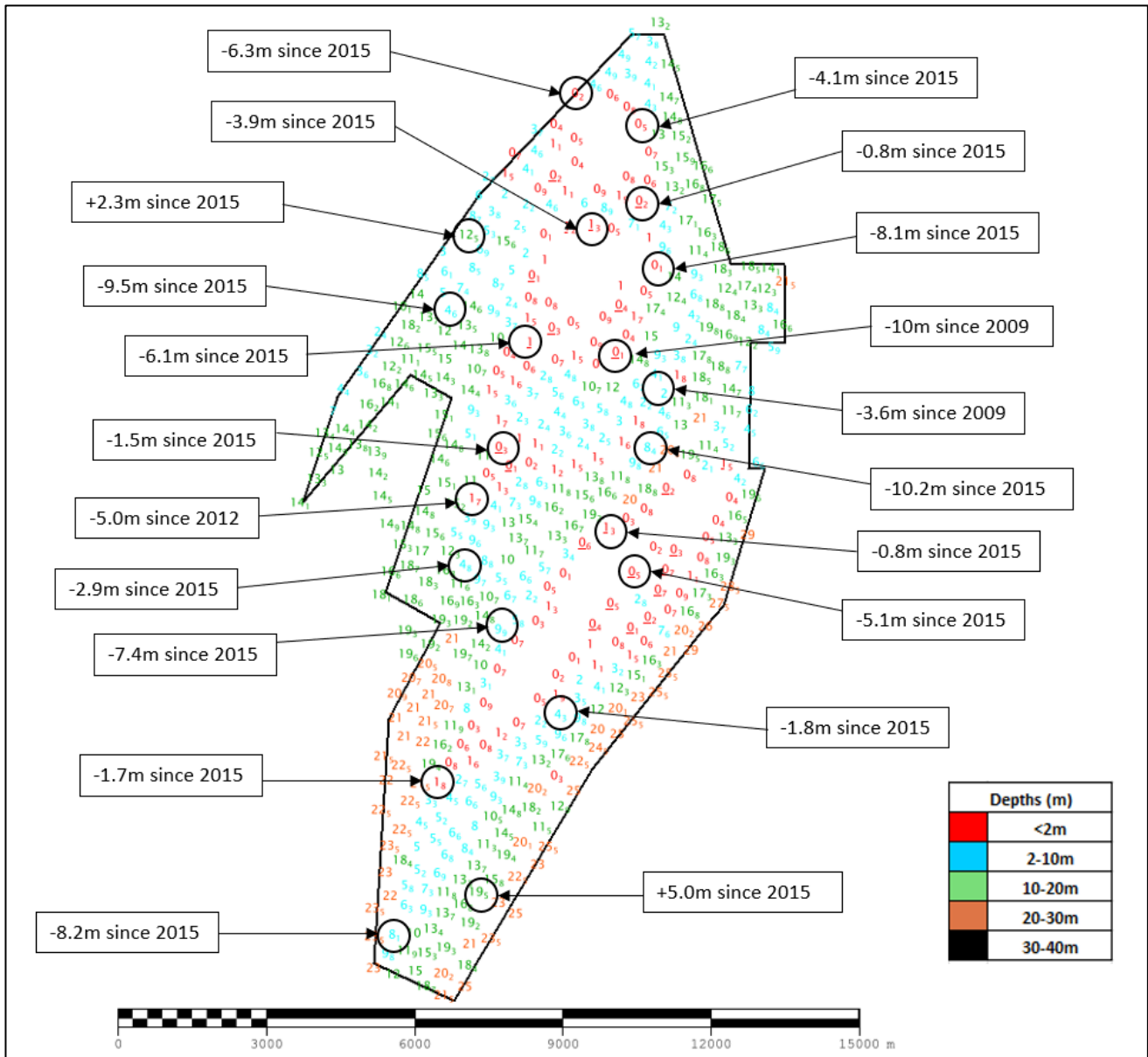


Figure 7: Colour banded depth plot from the 2021 survey with selected depth changes since the 2009, 2012 and 2015 surveys. Negative values (-) represent shoaling. Positive values (+) represent deepening.

6. RECOMMENDATIONS FOR FUTURE SURVEYS

Survey Interval

- 6.1 It is recommended that the interval for the full GS4 survey remains at 12 years. The area of depth changes to the west of Kellet Gut is covered by the GS4 South Calliper focused survey and this should remain at 6 years, although a more frequent interval would be appropriate if considerable traffic is shown to use this route. The eastern entrance to Kellet Gut has shoaled significantly since 2015 but this is within the area of the GS4 Focused survey every six years. Available AIS data shows that larger traffic goes around Goodwin Sands towards Dover and the English Channel, so it is recommended to retain the frequency and area of the focused survey to three years and six years respectively.

Survey Area

6.2 To accommodate the significant westerly migration of South Sand Head and shoaling around the SW Goodwin Buoy, the following changes are recommended to the limit of the GS4 and GS4 focused survey area limits in the vicinity of South Sand Head:

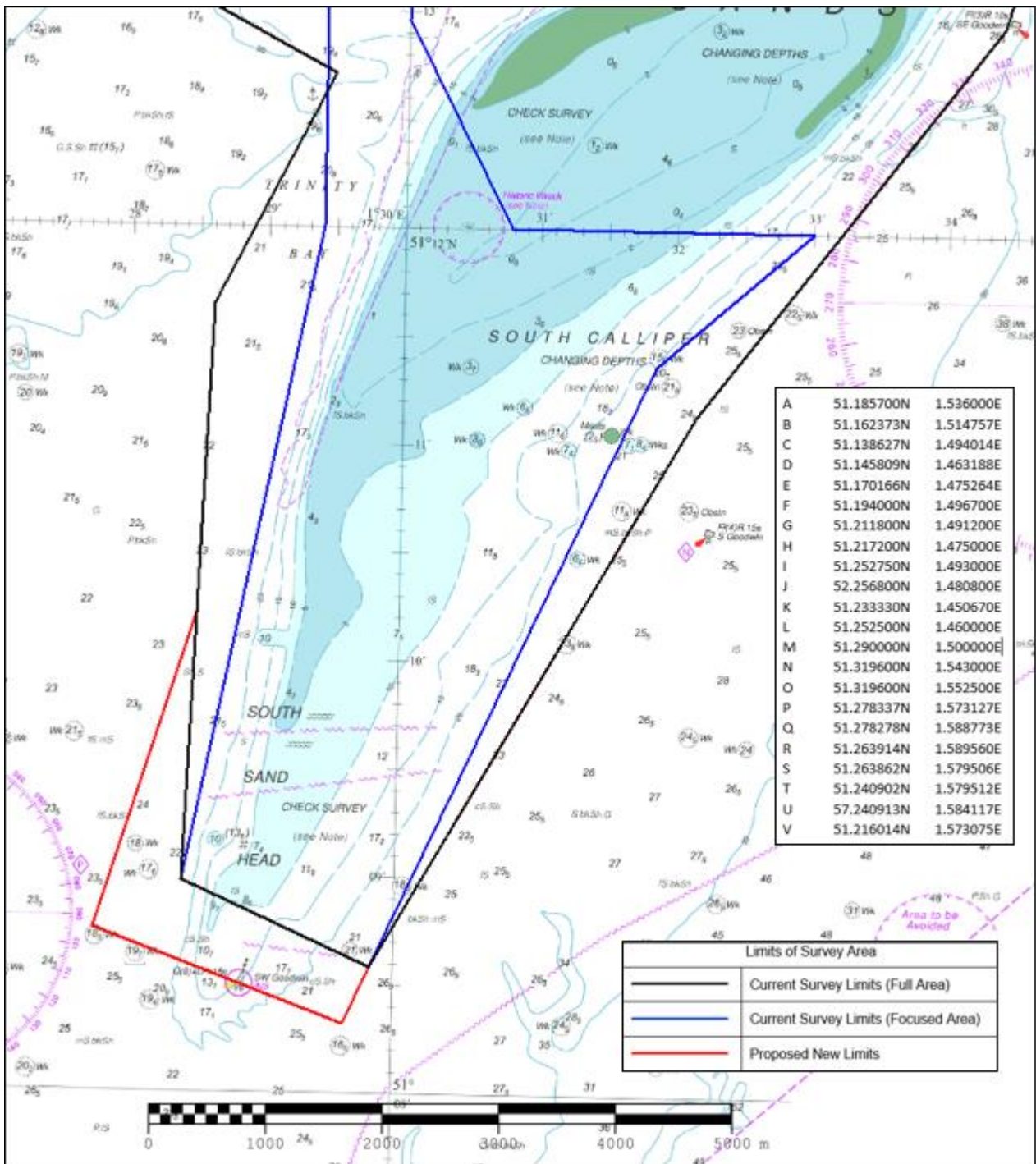


Figure 8: GS4 Full Area

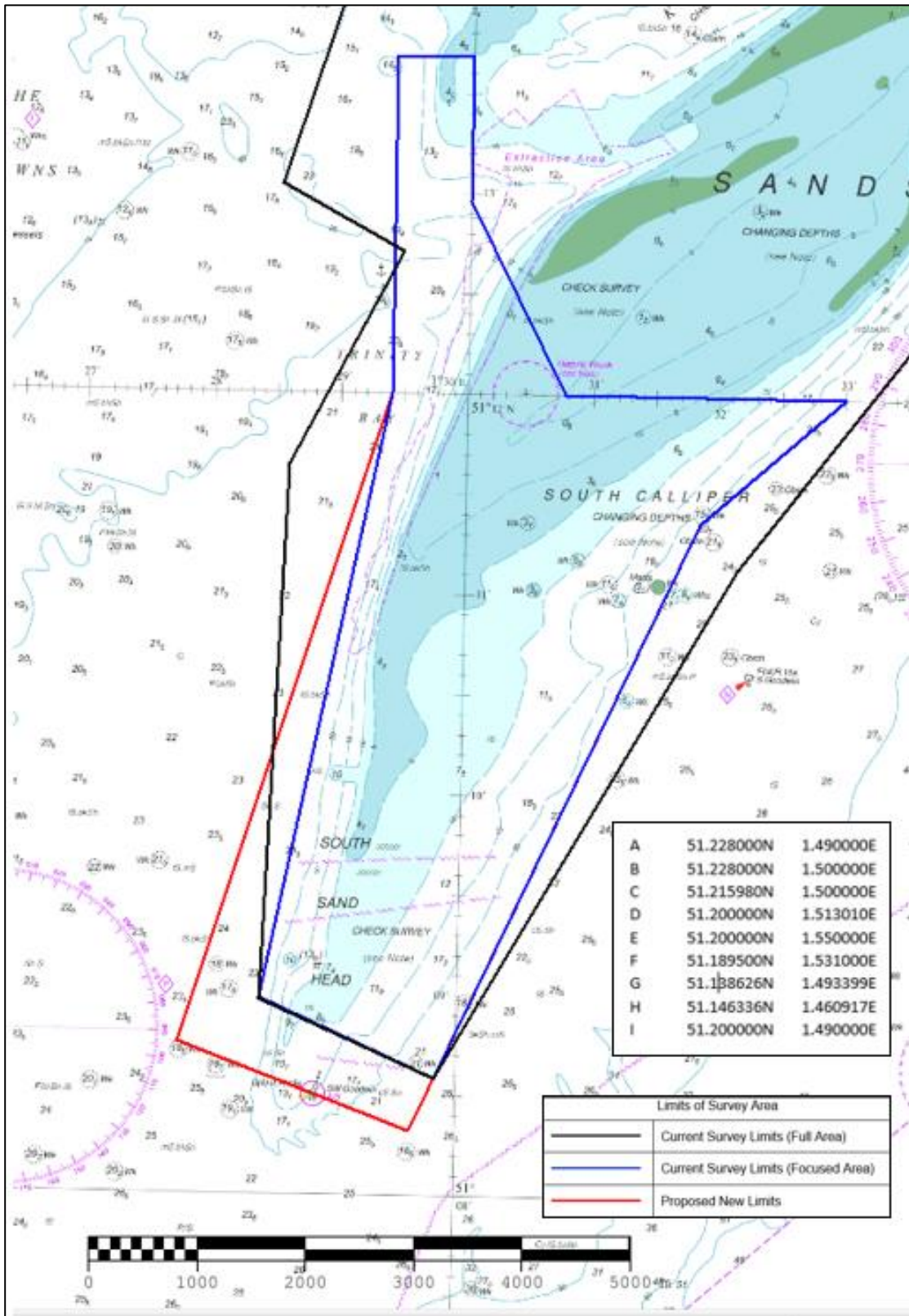


Figure 9: GS4 Focused Area