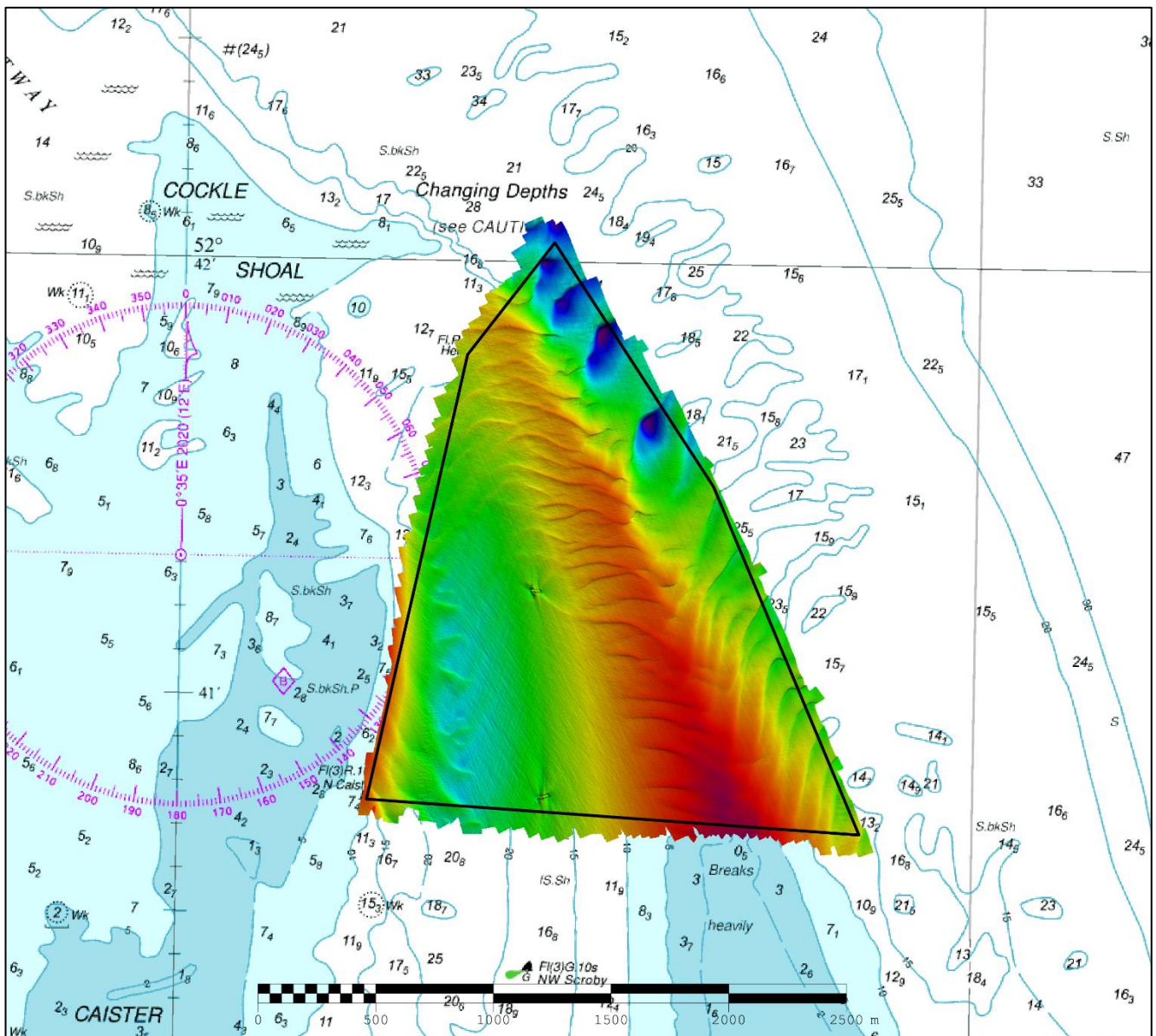




EAST ANGLIA COCKLE SHOAL FULL (EA3) 2020 ASSESSMENT

An assessment of the 2020 hydrographic survey of the area EA3 Cockle Shoal Full: 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).

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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.

COCKLE SHOAL FULL (EA3) - 2020

1. SUMMARY

Changes Detected

- 1.1 Caister Shoal continues to migrate eastwards, which is consistent with historical trends.
- 1.2 Significant changes in the north-eastern edge of the survey since 2017, due to migrating sandwaves in a south-easterly direction.
- 1.3 Least depth within the survey area over North Scroby Bank is now 3.1m, compared with 1.5m in 2017. The controlling depth in the north has moved 78m east-southeast since 2019 (9.5m) and is now 9.7m.
- 1.4 Depths in the channel entrance between Hemsby and North Scroby Buoys, and the western side of North Scroby Bank remain more stable, consistent with historical trends in the area.

Reasons for Continuing to Resurvey the Area

- 1.5 North Scroby Bank and the Northern end of Caister Shoal are very mobile, both of which can encroach into the deeper navigable waters so can potentially be hazardous to vessels that draught more than 8m, therefore continued monitoring through the 3-year resurveys with 1-year focused surveys of the shoal banks should continue.

Recommendations

- 1.6 Given the location of the area and the significant changes in sections of the survey area, EA3 should remain on the 3-year interval, with the annual focused surveys continued as well.
- 1.7 Major sandwave features and the least and controlling depth is monitored within the 3-year full survey so the survey area is therefore sufficient.

2. LOCATION

- 2.1 Survey interval at time of resurvey: 3 years (The full EA3 area is surveyed every 3 years with two annual focused areas covering EA3a and EA3b).
- 2.2 Area Covered: 3.43 km²

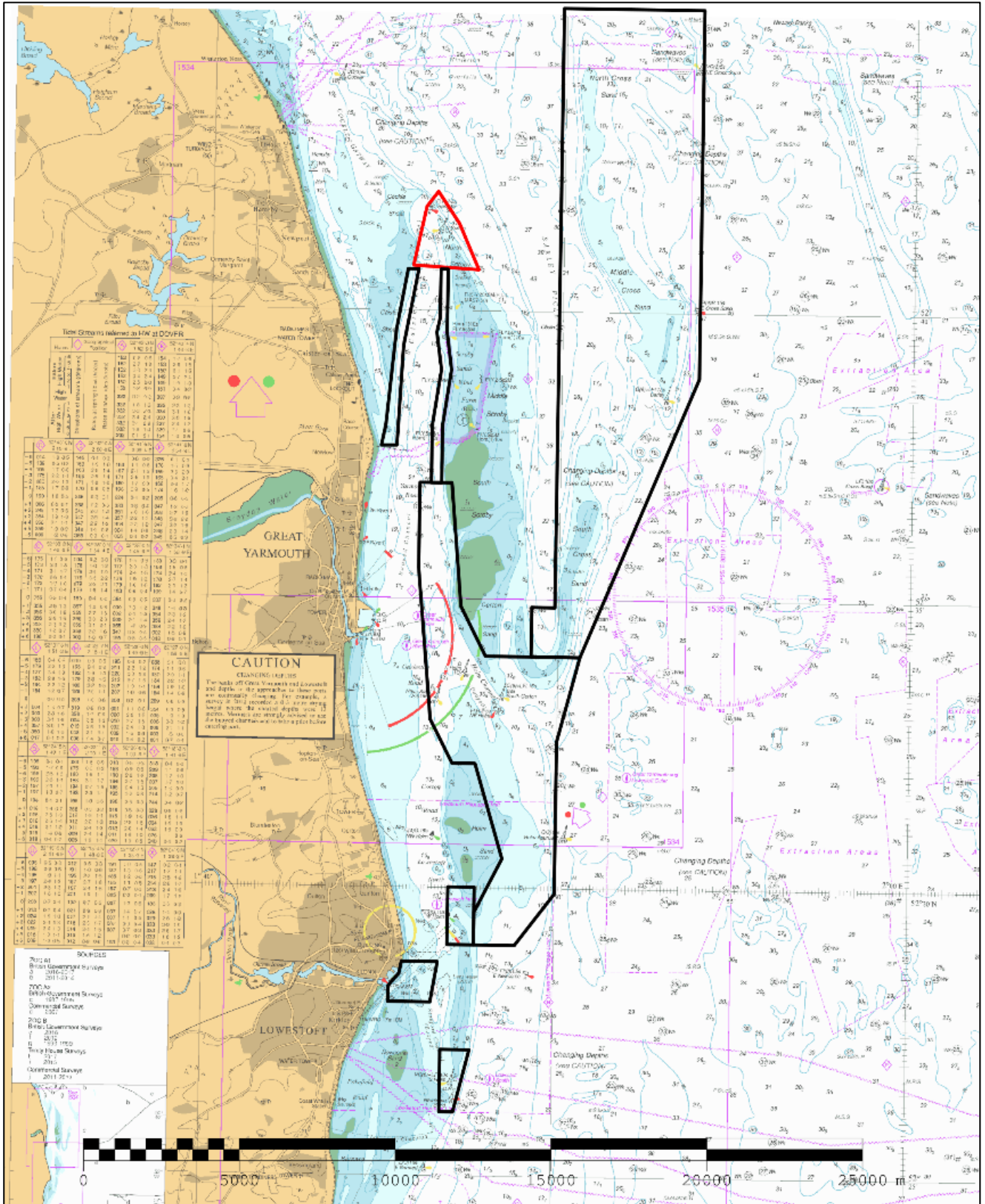


Figure 1: 2020 East Anglia Routine Resurvey areas overlaid on BA Chart 1534_0 with area EA3 in red

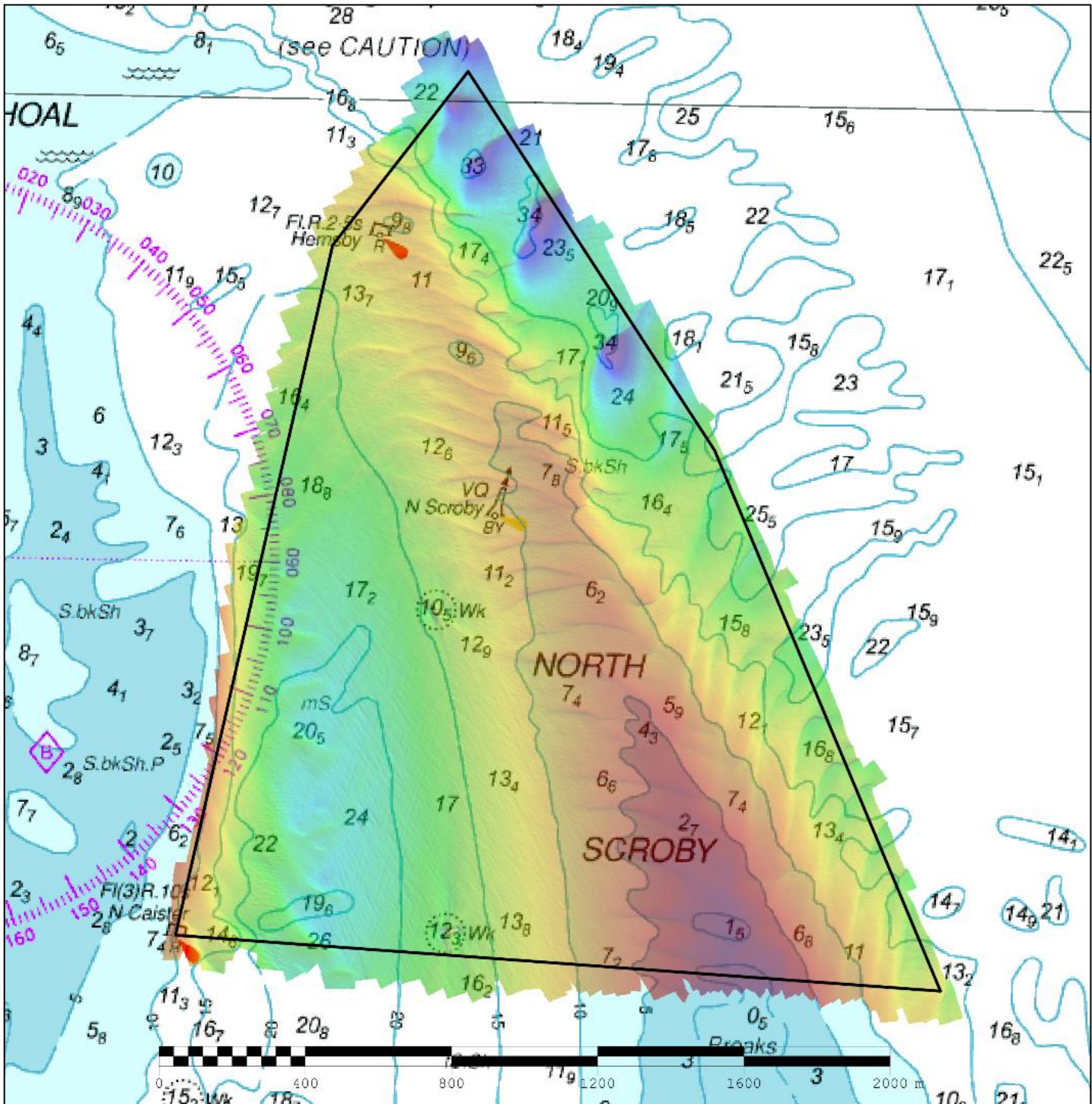


Figure 2: 2020 survey data overlaid on BA Chart 1534_0

3. REFERENCE SURVEY DETAIL

- 3.1 The previous focused surveys conducted within the Routine Resurvey Programme were conducted in September and October 2019 as part of HI1636 (October) and HI1637 (September-October). The previous focused surveys before that were conducted in October 2018 as part of HI1608 and HI1609. The previous full survey was conducted in July and November 2017 as part of HI1545.
- 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 2020 Routine Resurvey Programme was conducted in June 2020 as part of HI1684.
- 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 Significant depths from the 2020 survey can be seen in Figure 3, with the least depth within the HI limits of 3.1m on North Scroby Bank (1.5m in 2017). In the channel, controlling depths are a wreck in the south of 13.2m, a wreck in the centre of 12.7m and a shoal spot of 9.7m depth in the north (9.5m in 2019, 8.8m in 2017). This controlling depth has moved approximately 78m east-southeast since 2019.
- 5.2 The difference surfaces in Figures 4, 5 and 6 all show significant shoaling along the western edge of Caister Road due to the eastern migration of Caister Shoal and also the deepening of the western side of the channel. There is also significant shoaling in the north east due to the migration of sandwaves and scour in a south-easterly direction. The migration can be seen more clearly in the contour plot of Figure 7.
- 5.3 The largest differences within the survey area since 2017, shown in Figure 6, show a difference of -13.4m in the south-west by Caister Shoal, -13.1m in the north-east and +8.2m in the north-east. These changes are associated with migrating sandwaves.
- 5.4 Figure 8 is a colour banded depth plot, with changes since the 2020 full, 2019 focused and 2017 full surveys. Several larger sandwaves and scour areas show significant depths changes as the bedforms have changed position.

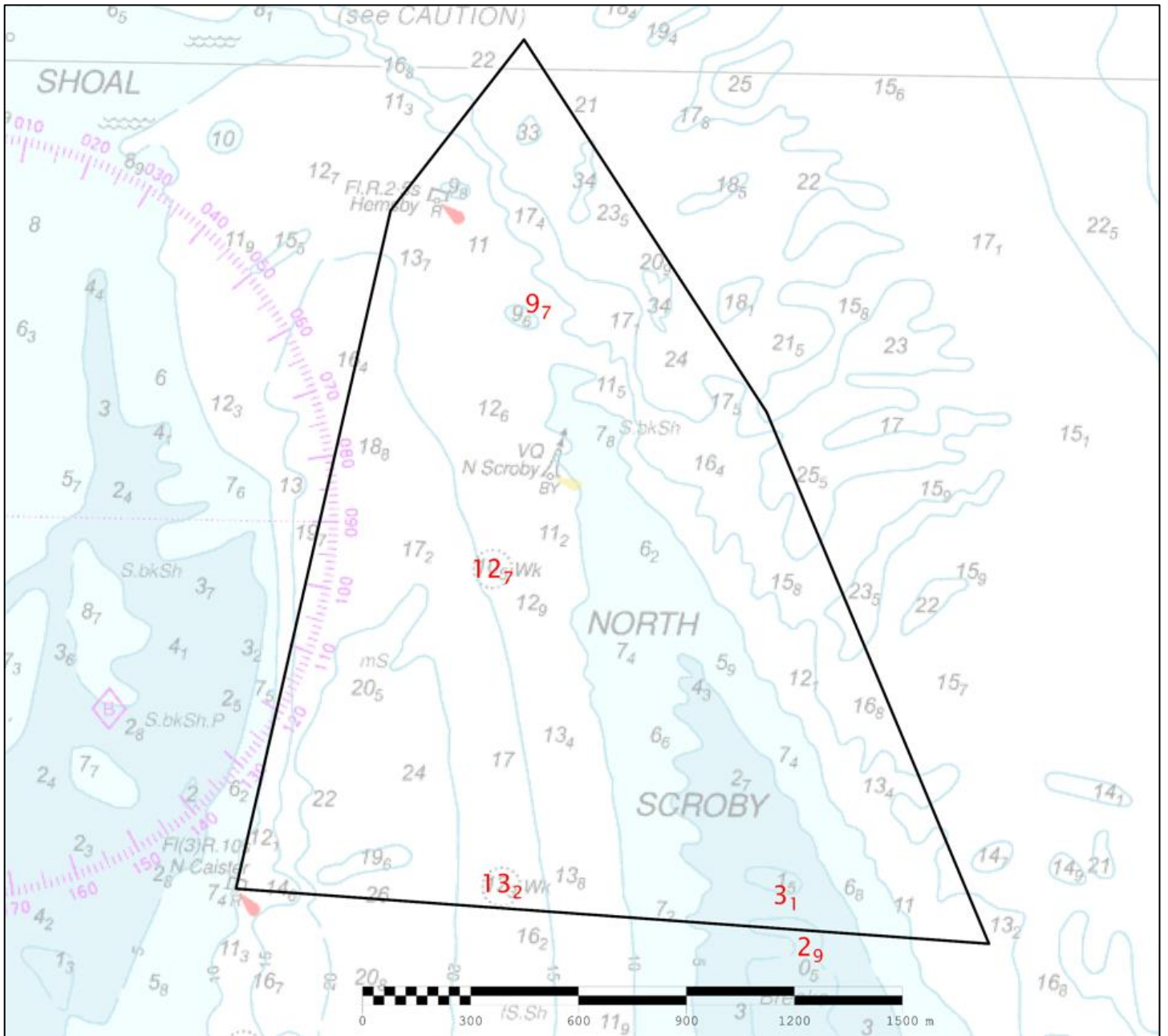


Figure 3: Significant depth soundings highlighted, overlaid on BA Chart 1534_0

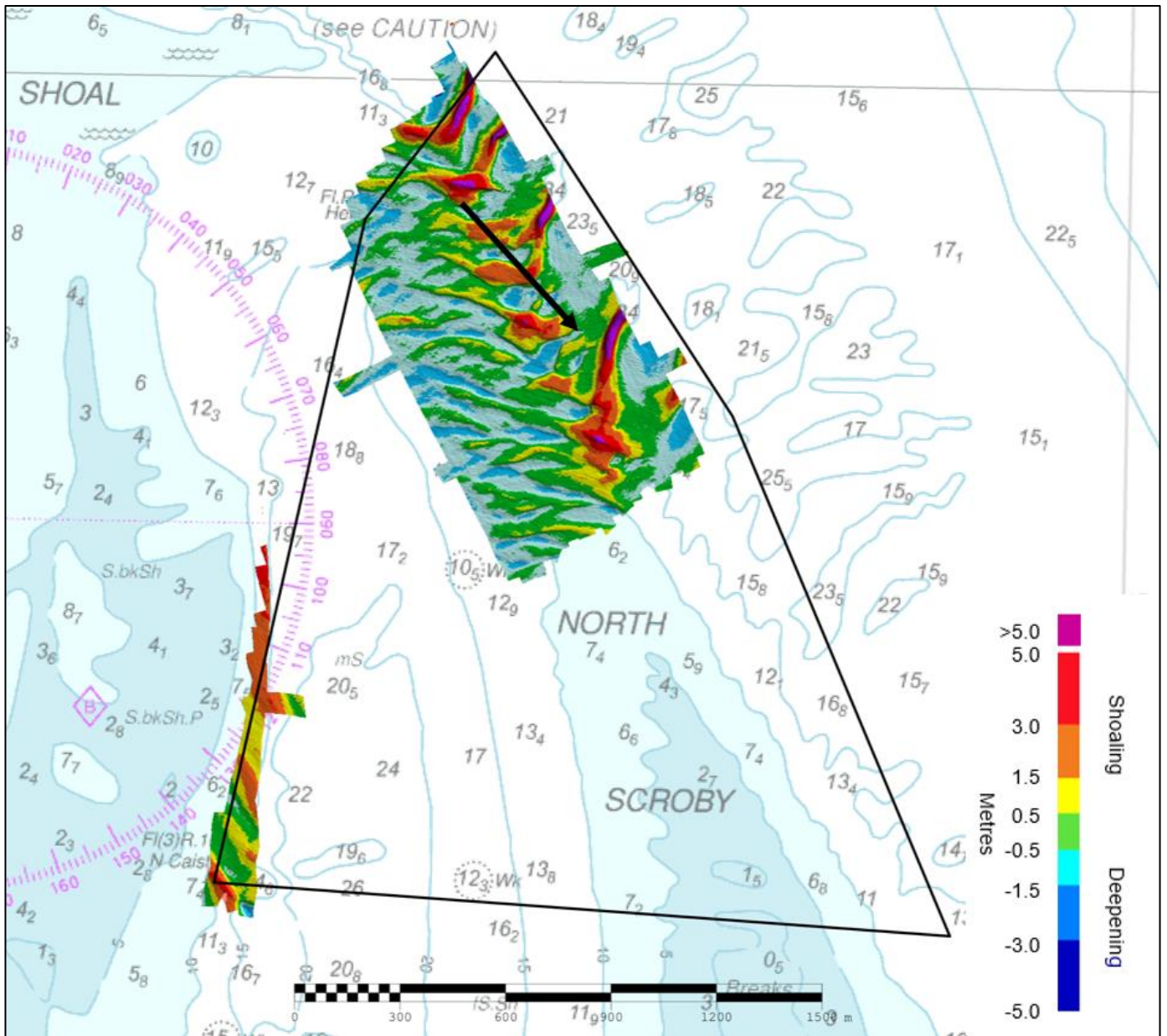


Figure 4: Difference surface showing bathymetric changes between the 2020 full and 2019 focused surveys overlaid on BA Chart 1534_0 (Black arrows represent sandwave migration since 2019 survey)

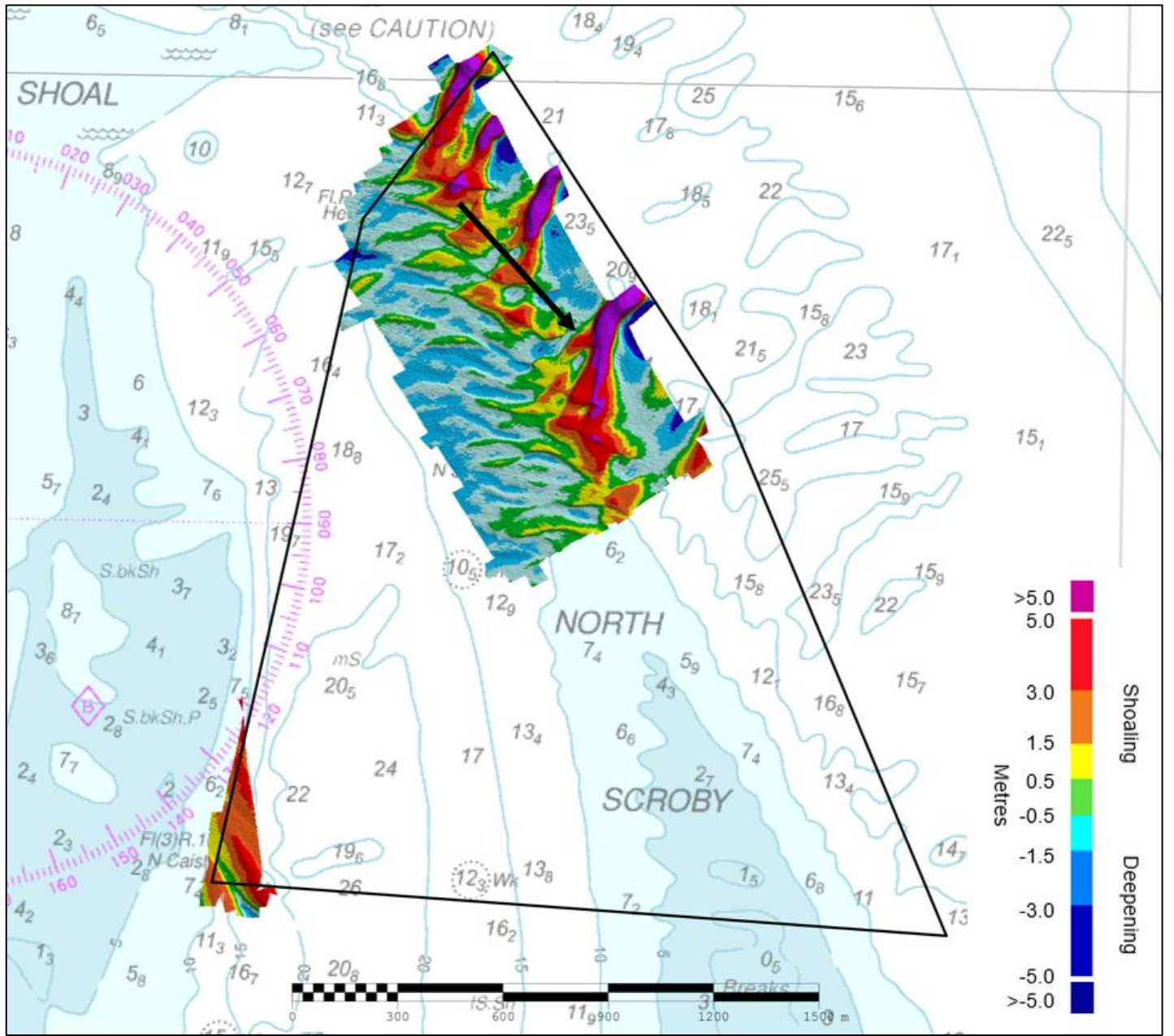


Figure 5: Difference surface showing bathymetric changes between the 2020 full and 2018 focused surveys overlaid on BA Chart 1534_0 (Black arrows represent sandwave migration since 2018 survey)

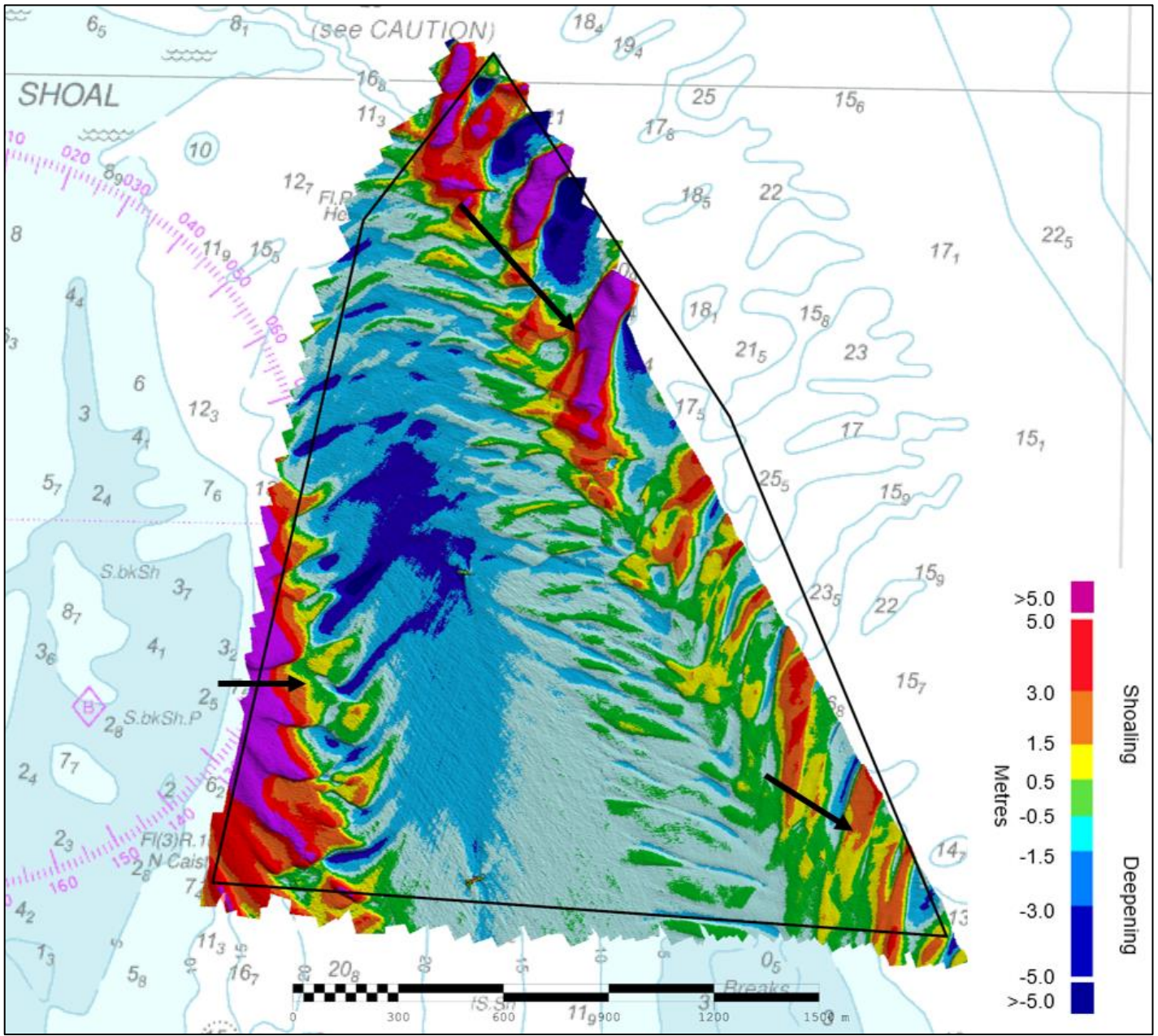


Figure 6: Difference surface showing bathymetric changes between the 2020 full and 2017 full survey overlaid on BA Chart 1534_0 (Black arrows represent sandwave migration since 2017 survey)

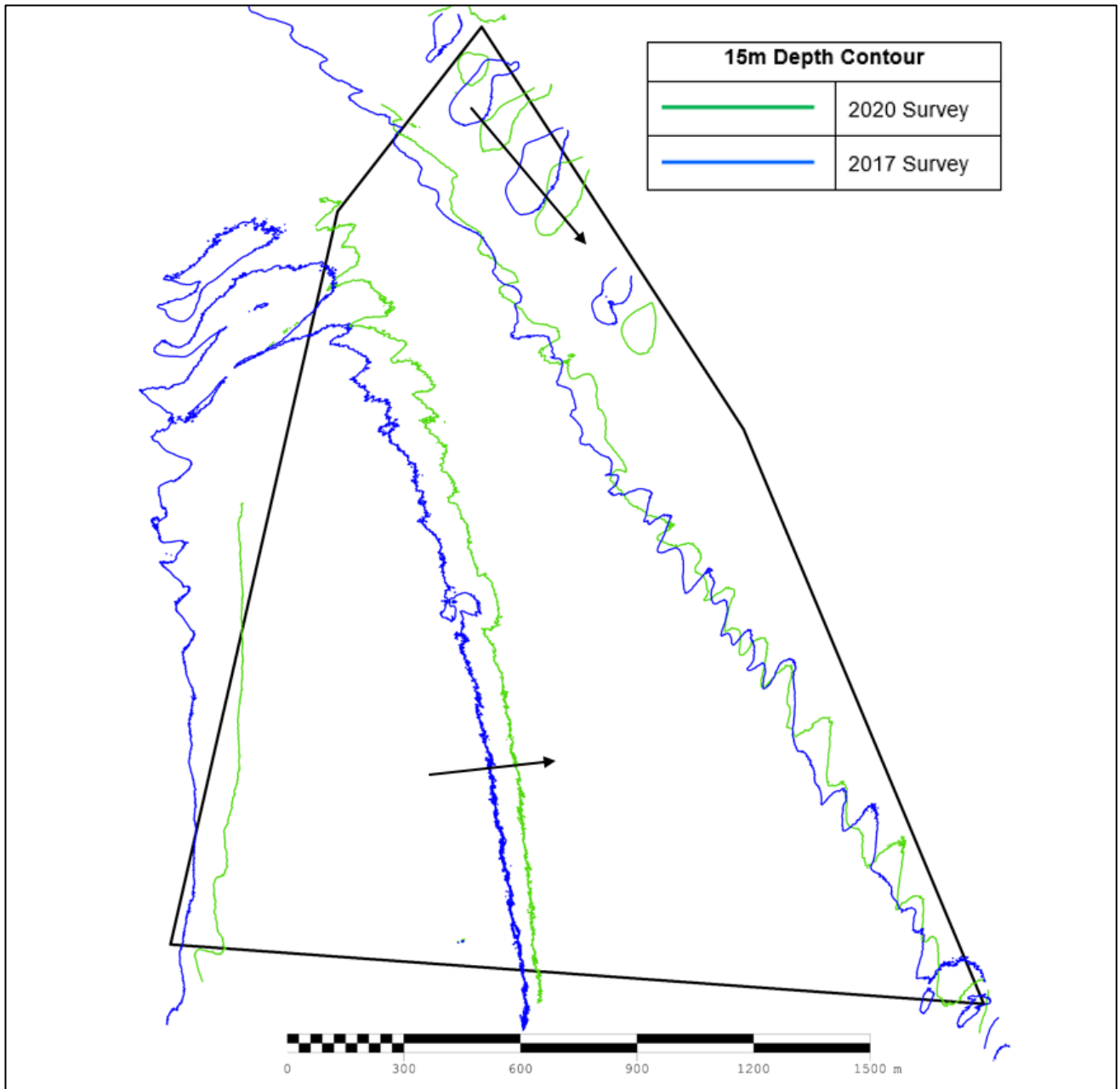


Figure 7: Contour plot showing changes in the 15m contour for the survey area between 2020 (green and 2017 (blue). Black arrow represents the sandwave migration.

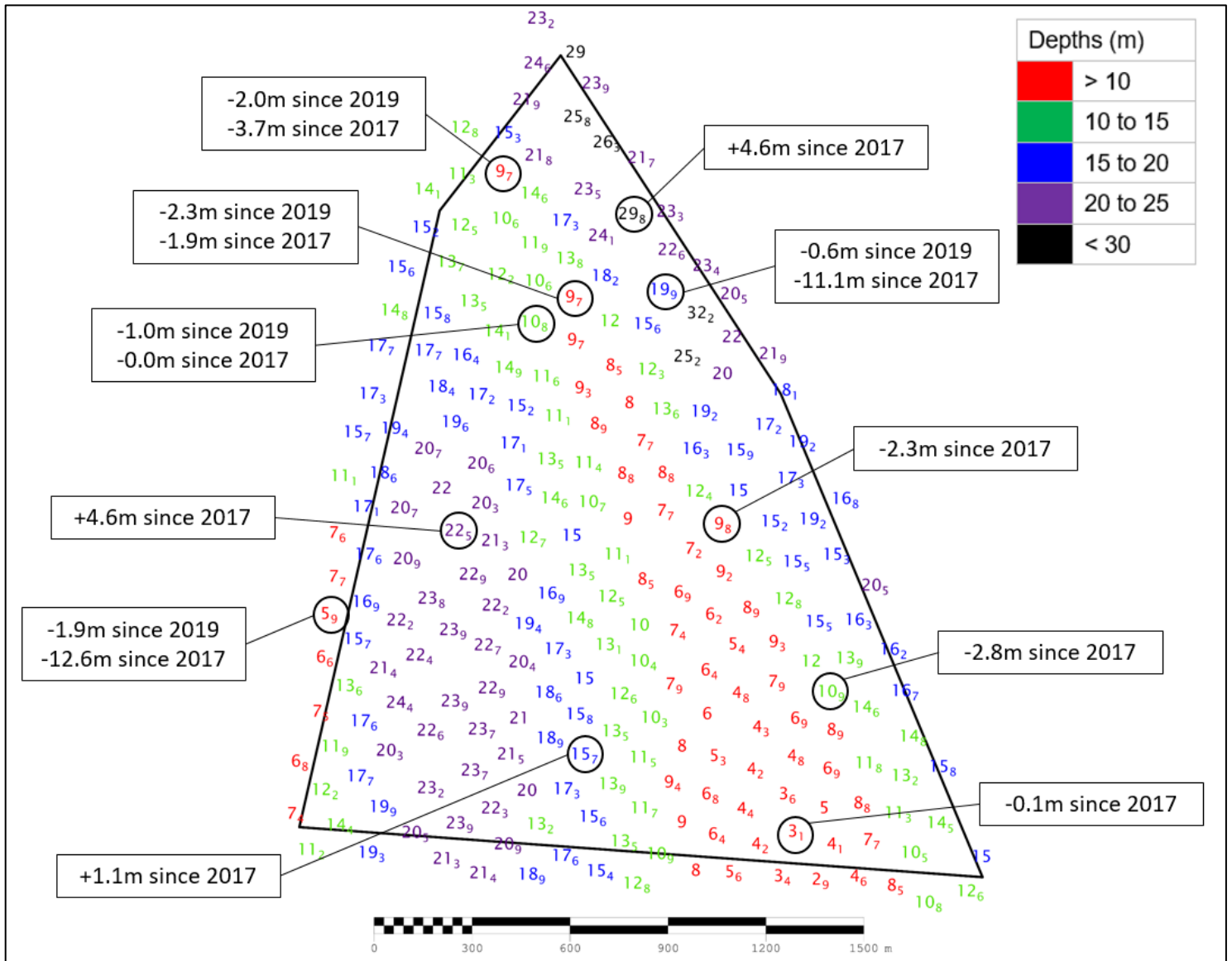


Figure 8: Colour banded depth plot from the 2020 survey with selected depth changes since the 2019 focused and 2017 full surveys. Positive values (+) represent deepening. Negative values (-) represent shoaling.

6. RECOMMENDATIONS FOR FUTURE SURVEYS

Survey Interval

6.1 Due to the mobile nature of North Scroby and Caister Shoal the 3-year frequency should be maintained, with 1-year focused surveys continued over these two banks.

Survey Area

6.2 After the 2019 focused survey, the area of EA3b was adjusted to extend further east to follow the migration of the sandwaves. The full area of EA3 already encompasses this area so no further extension is required