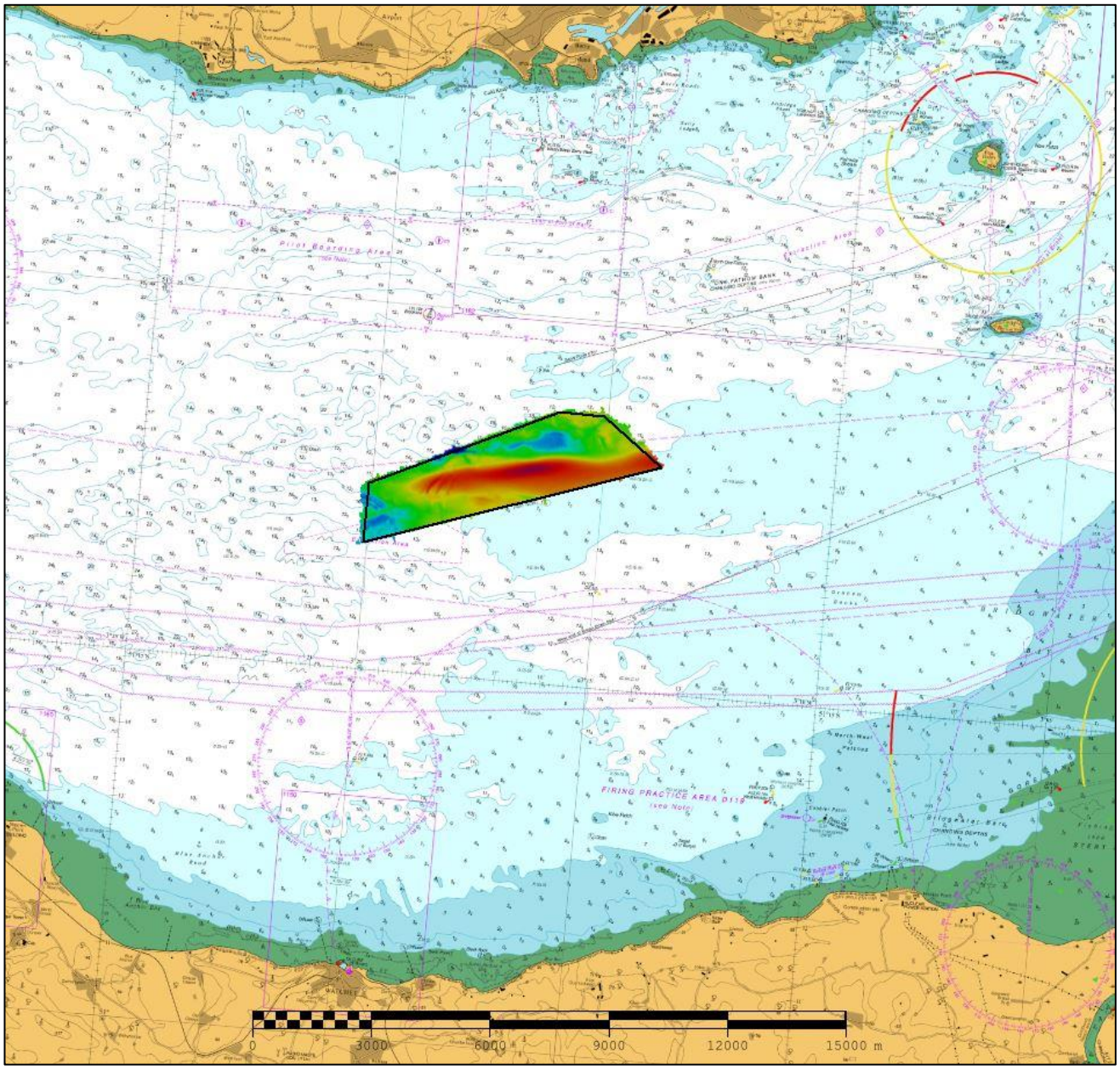
UK Hydrographic Office

BRISTOL CHANNEL
CULVER SAND (BC C)
2019 ASSESSMENT

An assessment of the 2019 hydrographic survey of the area Bristol Channel C Culver Sand: 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.

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.

BRISTOL CHANNEL C CULVER SAND - 2019

1. SUMMARY

Changes Detected

1.1 The controlling depth over Culver Sands is +1.6m deeper than currently charted and located 600m to the east of the charted position.

1.2 Culver Sands shows a general deepening over the centre with the 5m contour greatly reduced in area.

1.3 There is shoaling by up to 3.6m in the east of the area and the 10m contour in that location has consistently migrated northwards since 2011.

Reasons for Continuing to Resurvey the Area

1.1 The sandbank of Culver Sands remains dynamic and potentially hazardous to nearby shipping, and therefore requires continued monitoring through resurveys.

Recommendations

1.2 BC C Culver Sands should remain on the 6-year survey interval.

1.3 The survey limits for BC C Culver Sands are suitable at present.

2. LOCATION

2.1 Survey interval at time of resurvey: 6 years

2.2 Area Covered: 12.96 km^2

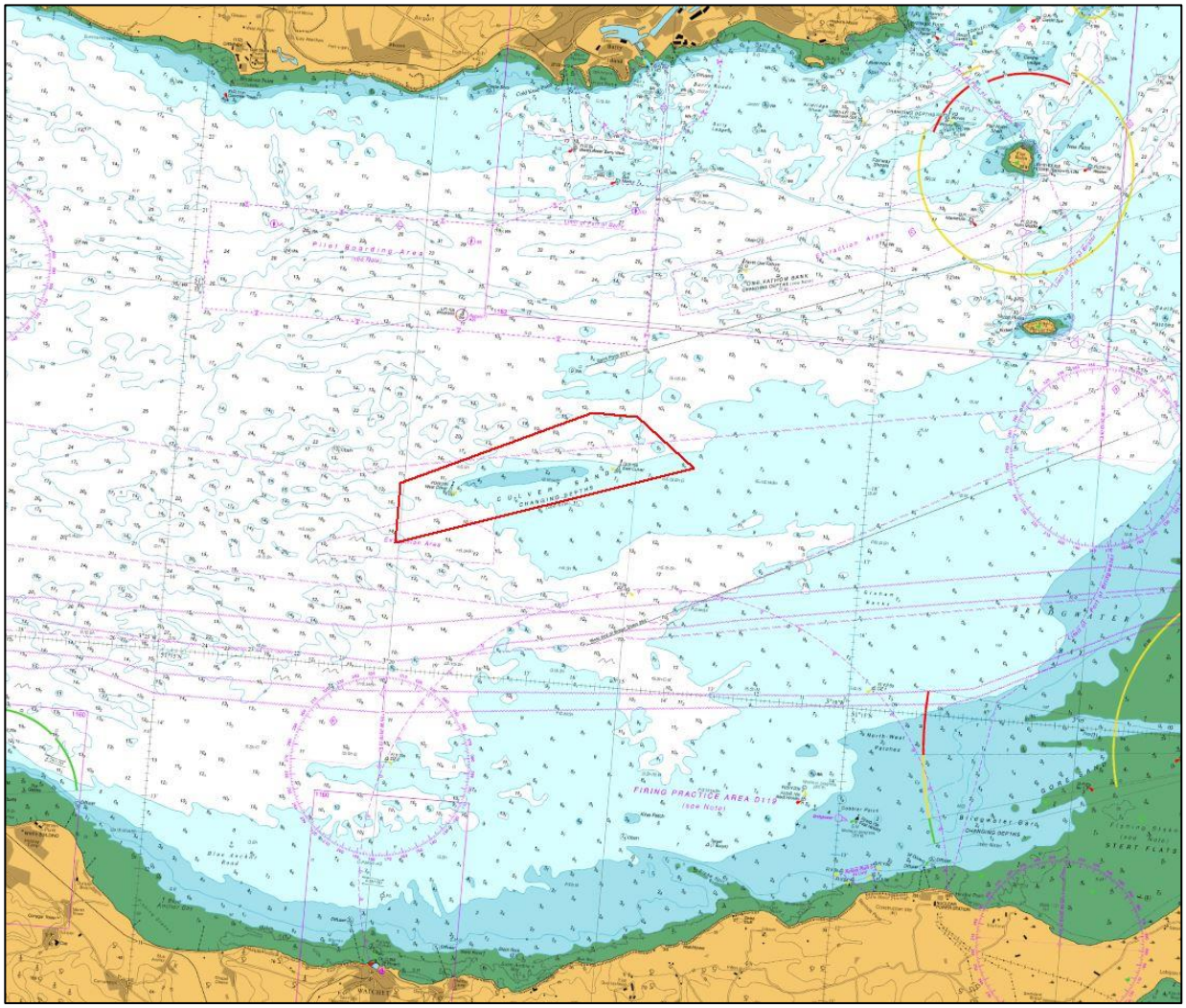

Figure 1: 2019 Bristol Channel Routine Resurvey BC C area in red overlaid on BA Chart 1152-0

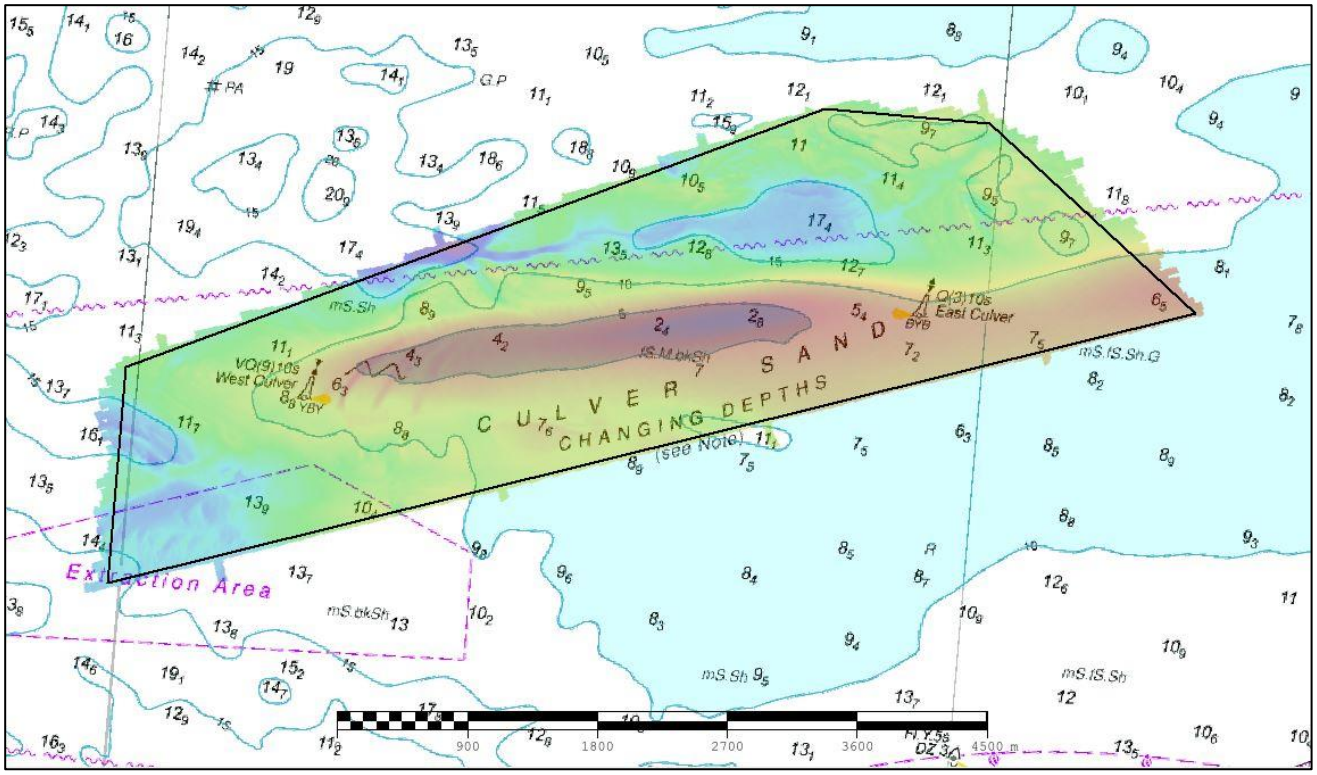

Figure 2: 2019 BC C survey data overlaid on BA Chart 1152-0

3. REFERENCE SURVEY DETAIL

3.1 The most recent survey is *HI1449 Hurlstone Point to Hinkley Point* in 2015, covering most of the southern side of the sandbank.

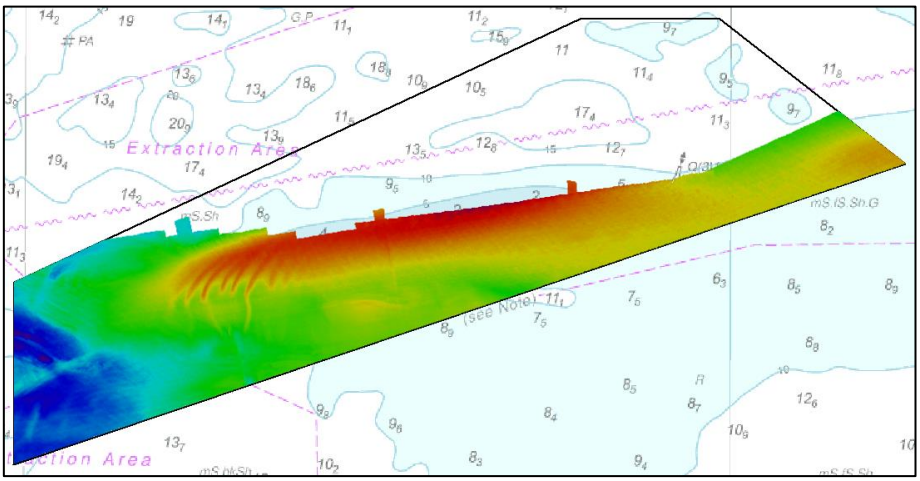

Figure 3: 2015 survey data

3.2 The second reference survey is *HI1326 Culver Sands to Flat Holm* in 2011, covering most of the northern side of the sandbank.

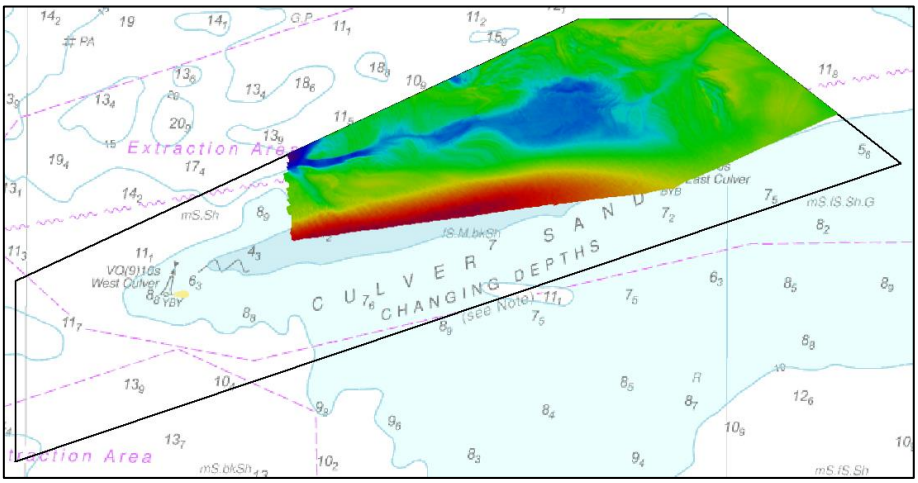

Figure 4: 2011 survey data

3.3 The Report of Survey for these surveys are 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 survey, conducted within the 2019 Routine Resurvey Programme, was conducted in July 2019 as part of HI1662.

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 The difference surfaces in Figures 5 and 6, and the depth plot in Figure 7, show a general deepening over the centre of Culver Sands and a shoaling by up to 3.6m since 2011 in the east of the survey around East Culver buoy.

5.2 Figure 8 clearly shows that in the east of the survey area the 10m contour has consistently migrated northwards between 2011, 2015 and 2019.

5.3 Figure 8 also shows that between 2011 and 2015 there was north westerly movement to the 5m contour on the southern edge of the sandbank. But between the 2015 and 2019 surveys, the 5m contour is now greatly reduced with a movement of 1.8km eastwards to the western boundary.

5.4 The controlling depth on Culver Sand (which is also the least depth) has changed from 2.7m in 2011 and 2.6m in 2015 to 4.0m in the 2019 survey. The controlling depth is now 1029m further east compared to 2011, and 600m further east than the current charted controlling depth of 2.4m.

5.5 Figure 6 shows the largest differences between the 2011 and 2019 surveys are +3.3m in the centre and -3.6m in the south-east. The largest differences between the 2015 and 2019 surveys are +4.0m to the west and -2.5m to the east, both outside the HI limits.

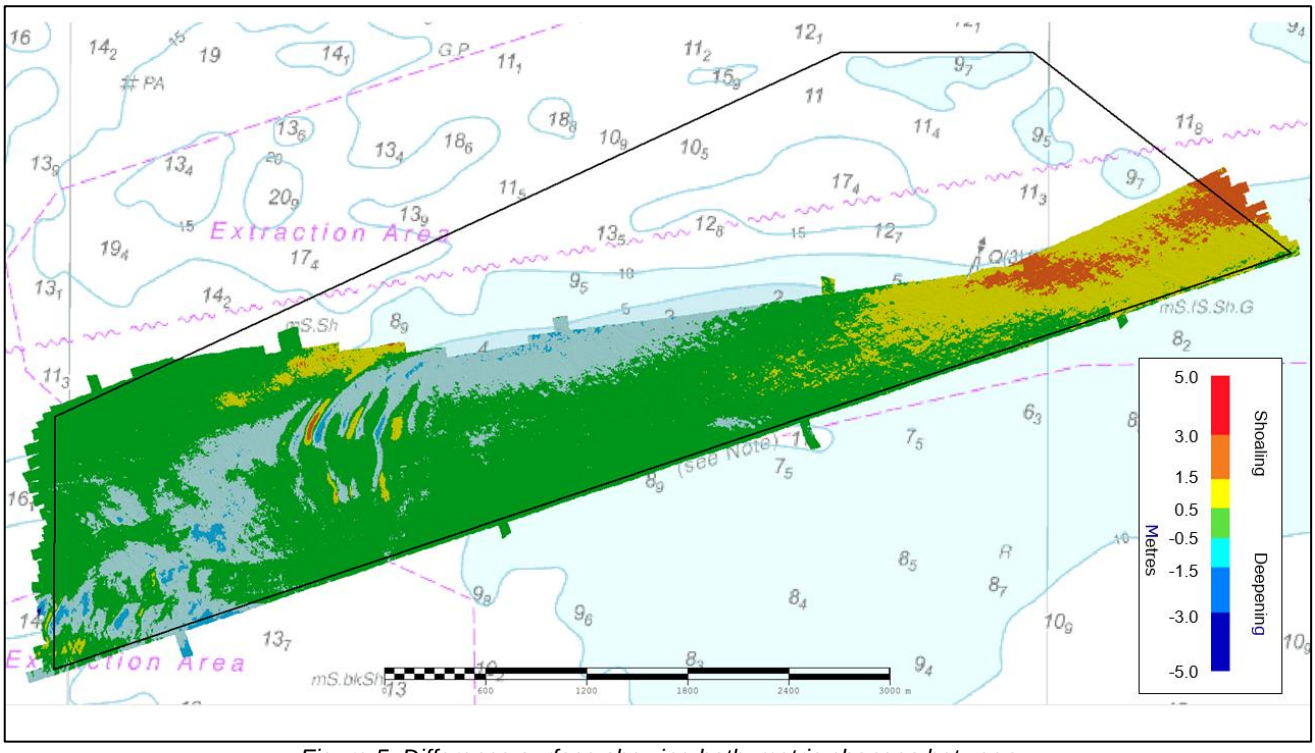

Figure 5: Difference surface showing bathymetric changes between the 2019 and 2015 surveys overlaid on BA Chart 1152-0

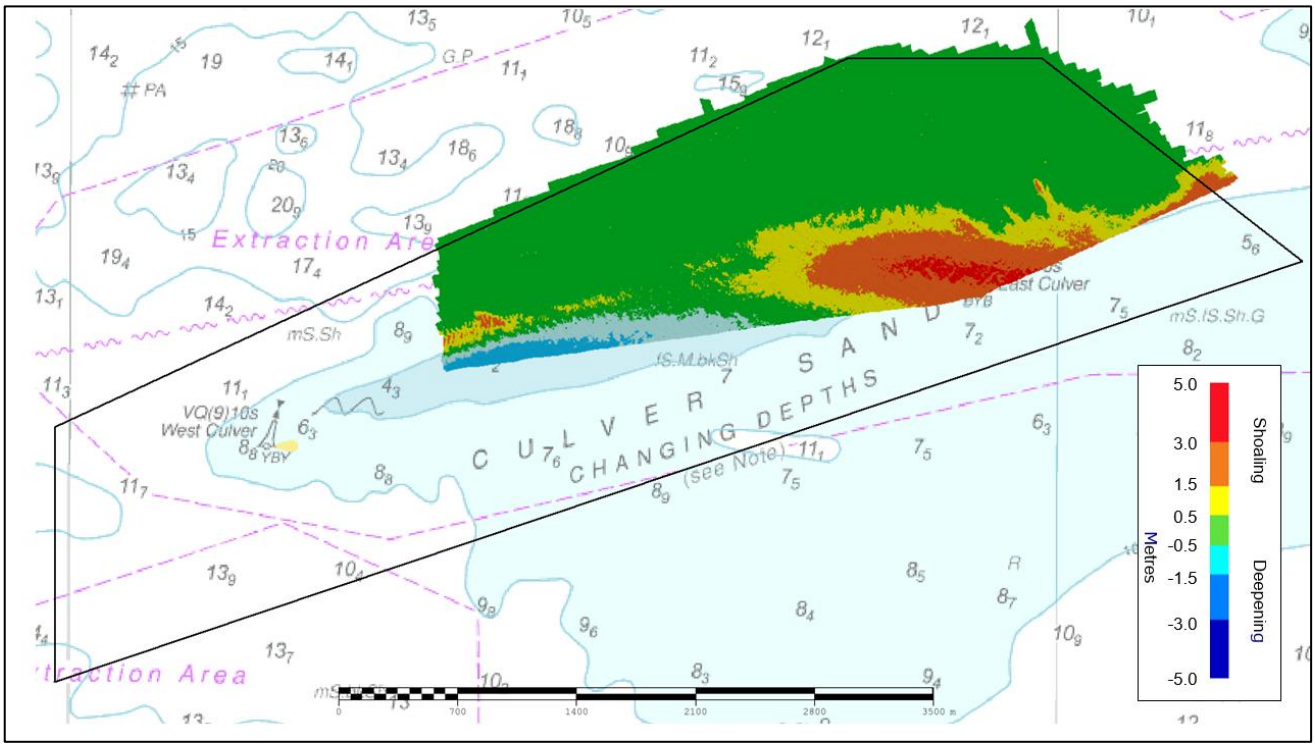

Figure 6: Difference surface showing bathymetric changes between the 2019 and 2015 surveys overlaid on BA Chart 1152

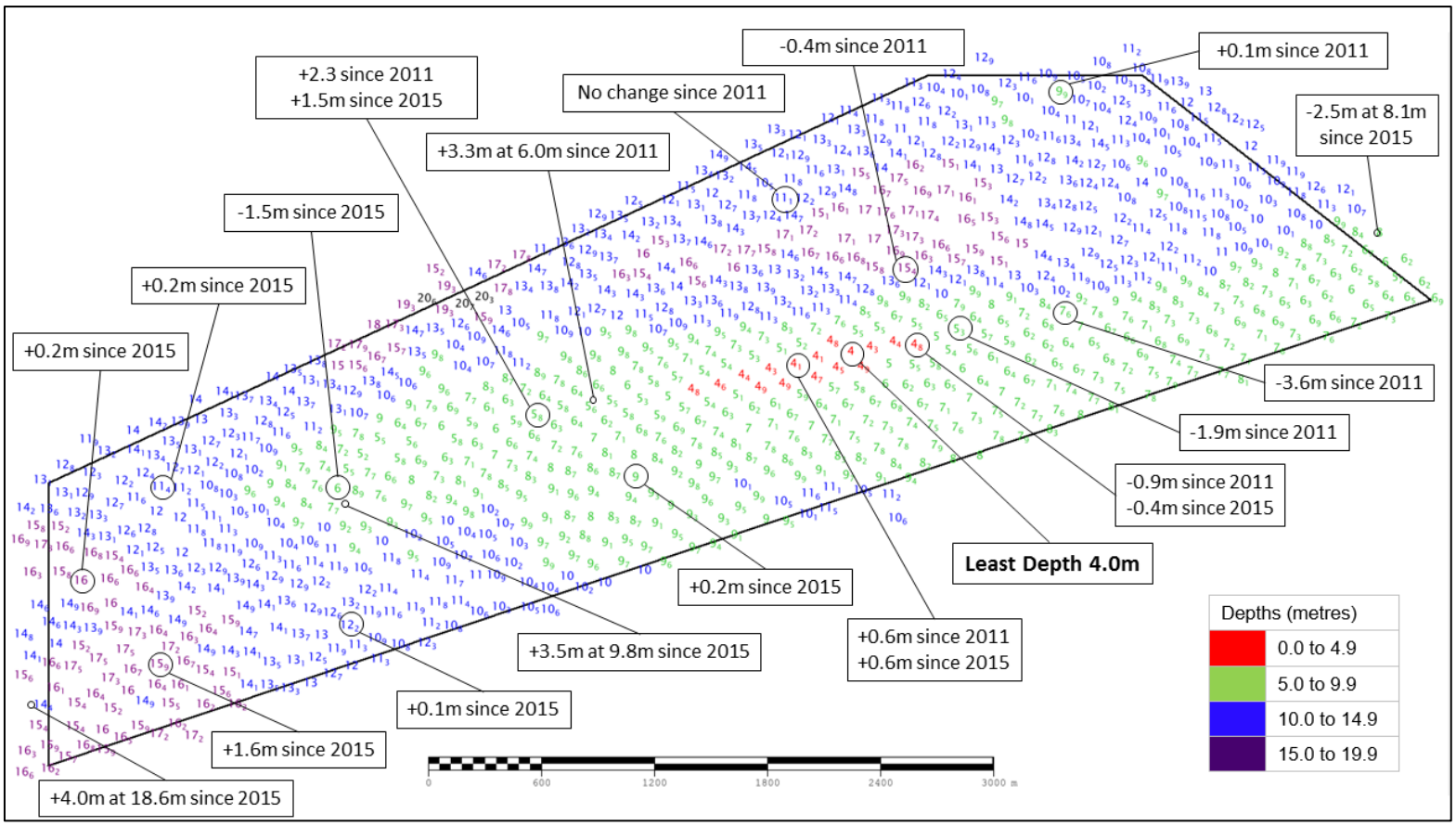

Figure 7: Colour banded depth plot from the 2019 survey with selected depth changes since the 2015 and 2011 surveys. Positive values (+) represent deepening. Negative values (-) represent shoaling.

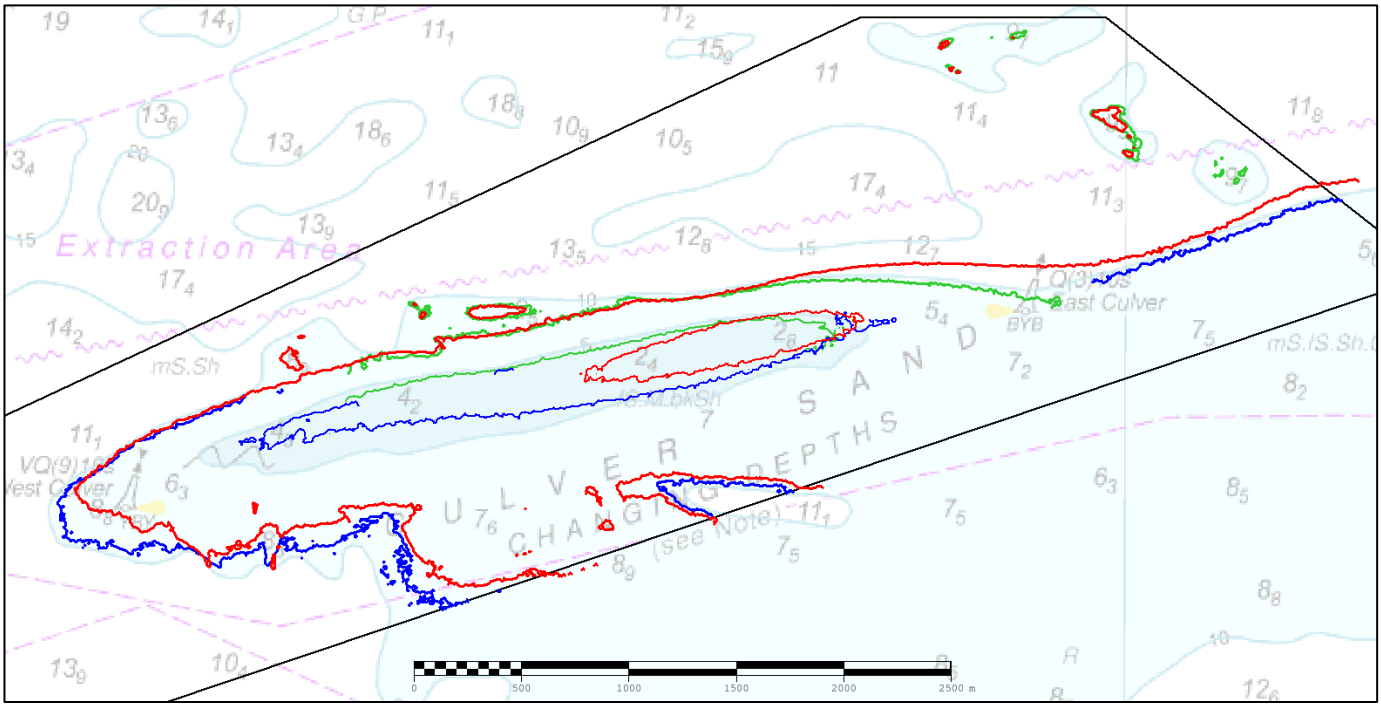

Figure 8: 5m and 10m contours from the 2019 survey (red), 2015 survey (blue) and 2011 (green) overlaid on chart 1152 and Culver Sands area limits (black)

6. RECOMMENDATIONS FOR FUTURE SURVEYS

Survey Interval

6.1 The sandbank of Culver Sands remains dynamic and potentially hazardous to nearby shipping, so BC C Culver Sands should remain on the 6-year interval.

Survey Area

6.2 The survey limits for BC C Culver Sands are suitable at present. The 10m contour in the east of the survey area is migrating northwards and there are still some depths under 10m to the north of the survey area as well, so this should be monitored and future area adjustments considered.