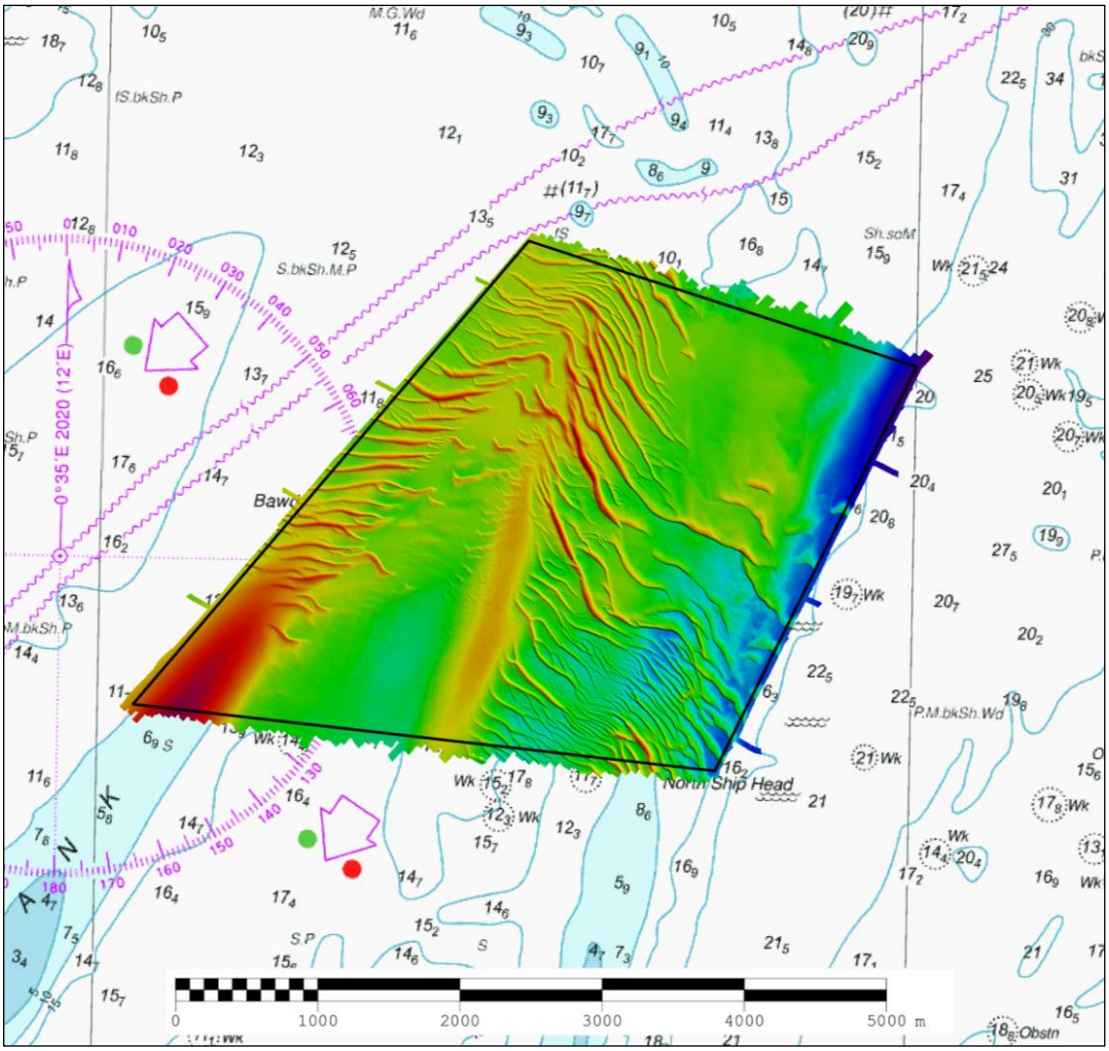
UK Hydrographic Office

Maritime & Coastguard Agency

THAMES ESTUARY
NORTH SHIPWASH (TE2A)
2020 ASSESSMENT

An assessment of the 2020 hydrographic survey of the area TE2A: 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

NORTH SHIPWASH, 2020

1. SUMMARY

Changes Detected

1.1 There has been a 0.2m deepening in the controlling depth at the exit of Shipway Channel.

1.2 Sandwaves show an opposing direction of movement and sediment transportation across the area. Those to the NE of Bawdsey Buoy and the centre of the survey area are migrating up to 50m northeast while those in the north and east of the survey area are migrating southwest up to 200m.

1.3 The shoalest points of the sandwaves to the north and south of N Shipwash Buoy have deepened, reversing the previously reported shoaling of the area.

Reasons for Continuing to Resurvey the Area

1.4 TE2A North Shipwash covers the controlling depths and variable sandwave to the north and east of N Shipwash buoy where larger vessels enter/exit Shipway Channel to access the Harwich Deep Water Channel.

1.5 There is a history of the sandwave area north of the buoy of shoaling and migrating into the shipping route therefore the area should continue to be resurveyed.

Recommendations

1.6 The current RRS limits adequately cover the exit of Shipway Channel and should remain the same.

1.7 As changes are minimal, the survey frequency should be extended to a 6-year interval to synchronise with the adjoining RRS area TE2B. The sediment and movement and depth changes within the area are consistent with past reports and has generally deepened since 2016.

2. LOCATION

2.1 Survey interval at time of resurvey: 4 years

2.2 Area Covered: 12.9 km^2

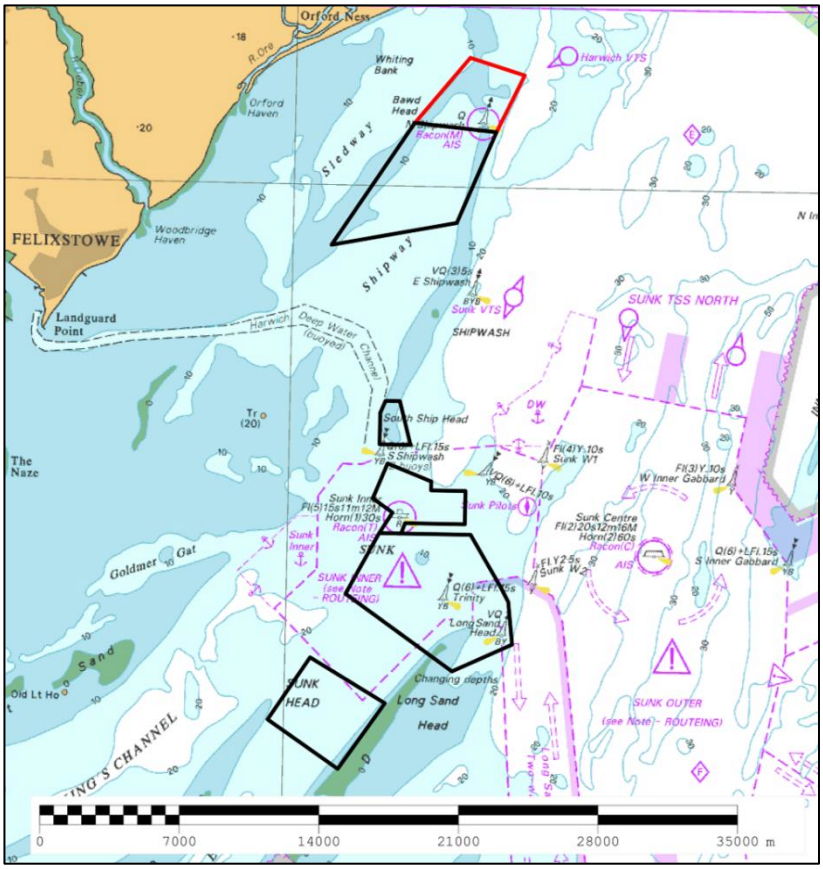

Figure 1: 2020 Thames Estuary Routine Resurvey areas overlaid on BA Chart 1406 with area TE2A in red

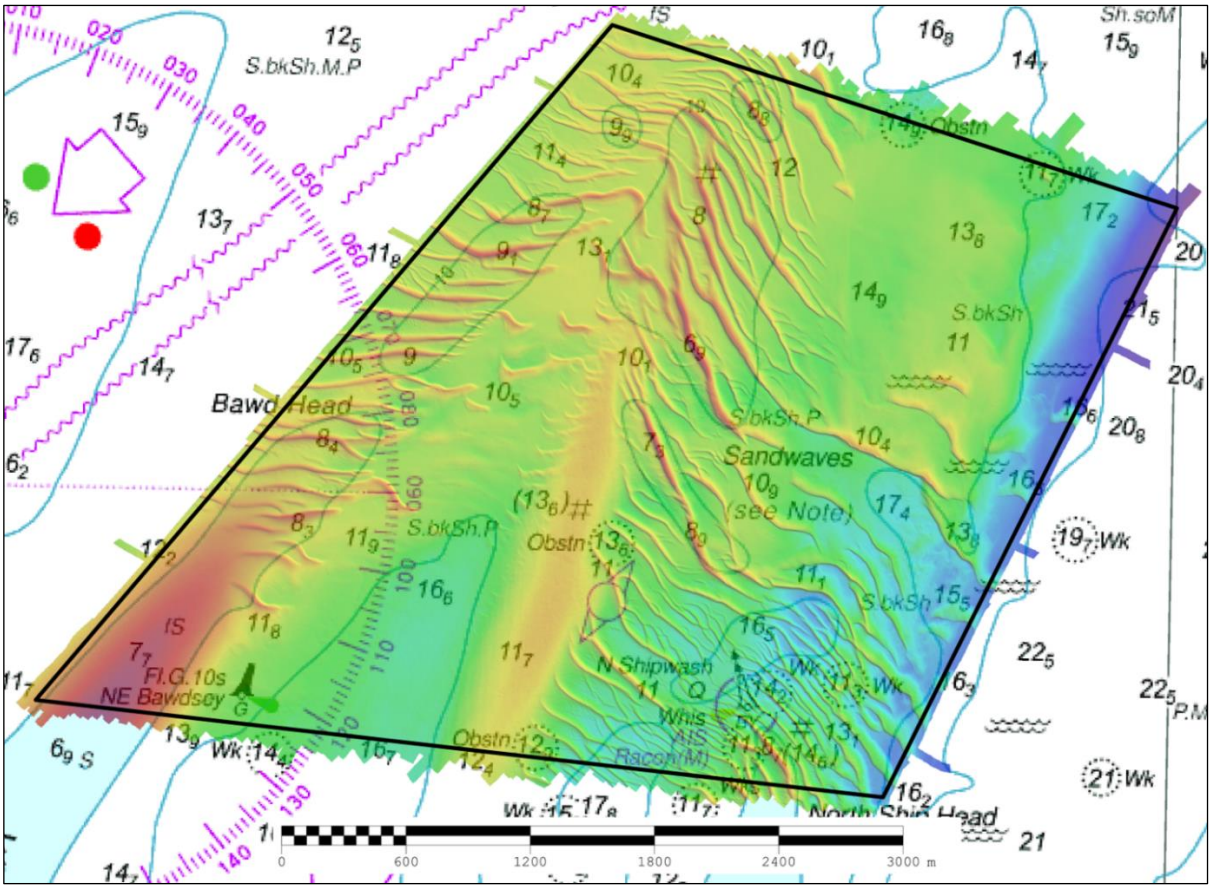

Figure 2: 2020 survey data overlaid on BA Chart 2052

3. REFERENCE SURVEY DETAIL

3.1 The previous full survey was conducted within the 2016 Routine Resurvey Programme in September 2016 as part of HI1522.

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 within the 2020 Routine Resurvey Programme was conducted between September and October 2020 as part of HI1689.

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 Between 2016 and 2020 there has been a deepening of the controlling depth by 0.2m to 11.2m at the exit of Shipway Channel where larger vessels bear east to pass north of N Shipwash buoy. See Figure 3.

5.2 Sandwaves with a maximum amplitude of 6m cover much of the survey area. The difference surface in Figure 4 shows the change in the depths and the movement of sandwaves within TE2A between 2016 and 2020. There is an opposing direction of movement of the sandwaves, those to the NE of Bawdsey Buoy and the centre of the survey area are migrating up to 50m northeast. While those in the north and east of the survey area are migrating southwest greater distances, up to 200m over the 4-year interval.

5.3 Figure 4 also shows the easterly movement, up to 100m, of the large bank running N-S in the centre of the survey. The bank has a maximum height of 5.5m and is 340m wide.

5.4 The depth plot in Figure 5 shows that there is a general deepening of the shoalest depths on the sandwaves to the north and south of N Shipwash Buoy. The 2012 report states that there has been a “historical shoaling by an average of 0.32m over a 4-year period of the sandwave 875m north of the N Shipwash buoy”. However, the trend of the shoalest depth of the same sandwave since 2012 has been more variable, with depths fluctuating between 8.9m (2012), 7.1m (2016) and 9.5m (2020).

5.5 The minimum depth of the sandwave at the northern tip of Shipwash bank has increased 0.6m, from 8.7m in 2016 to 9.3m in 2020, migrating 15m southwest. It is still adequately marked by N Shipwash Buoy.

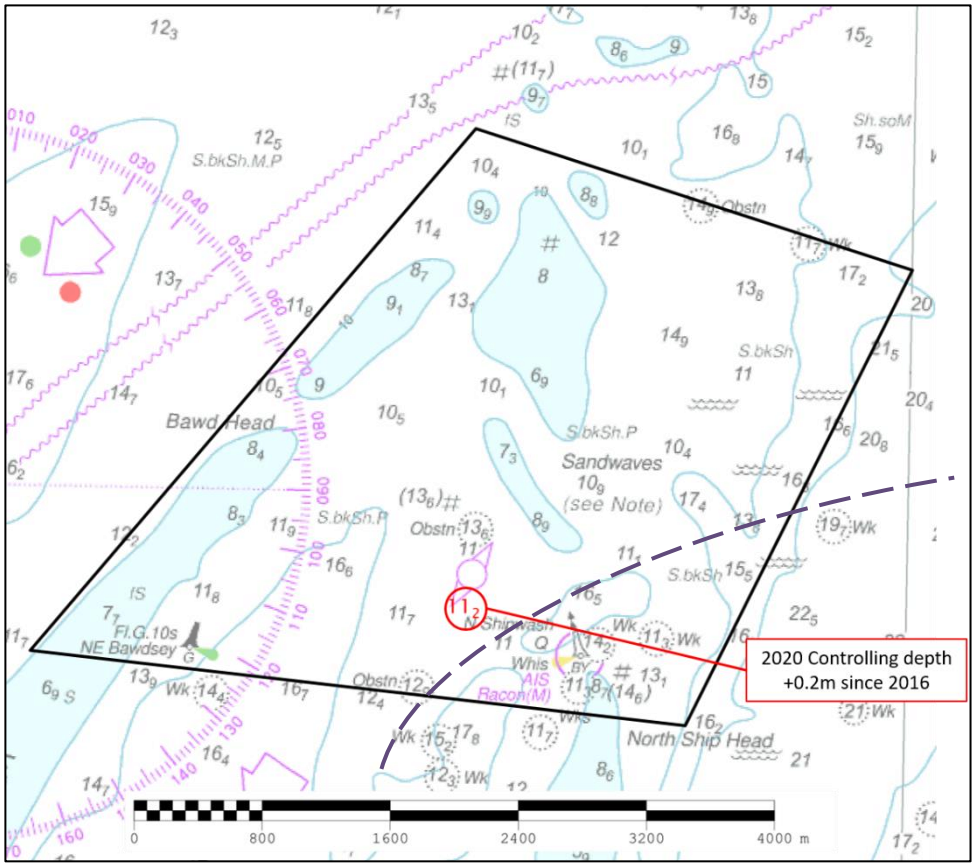

Figure 3: Controlling Depth sounding for deep draught vessels highlighted, overlaid on BA Chart 2052 (Dashed line indicating general route for large vessels from open source AIS data)

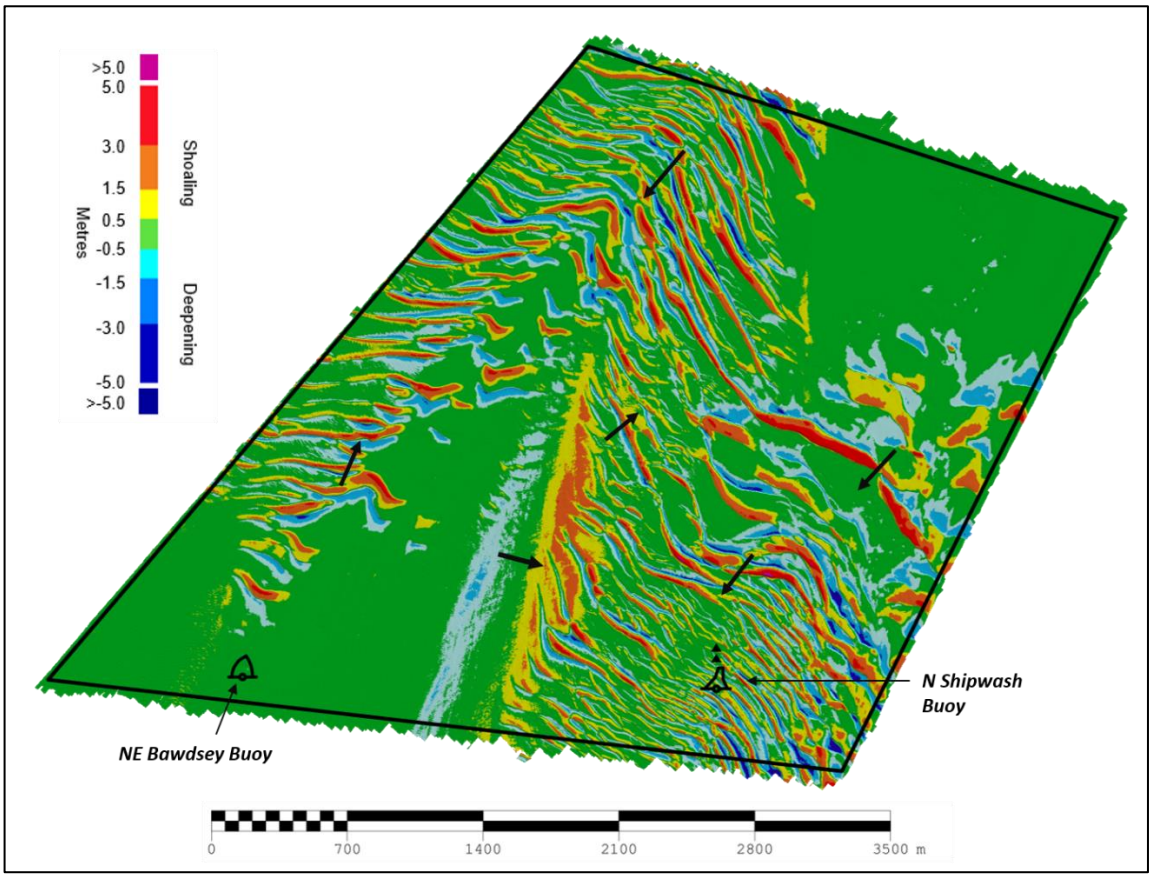

Figure 4: Difference surface showing bathymetric changes between the 2020 and 2016 (Black arrows represent sandwave migration)

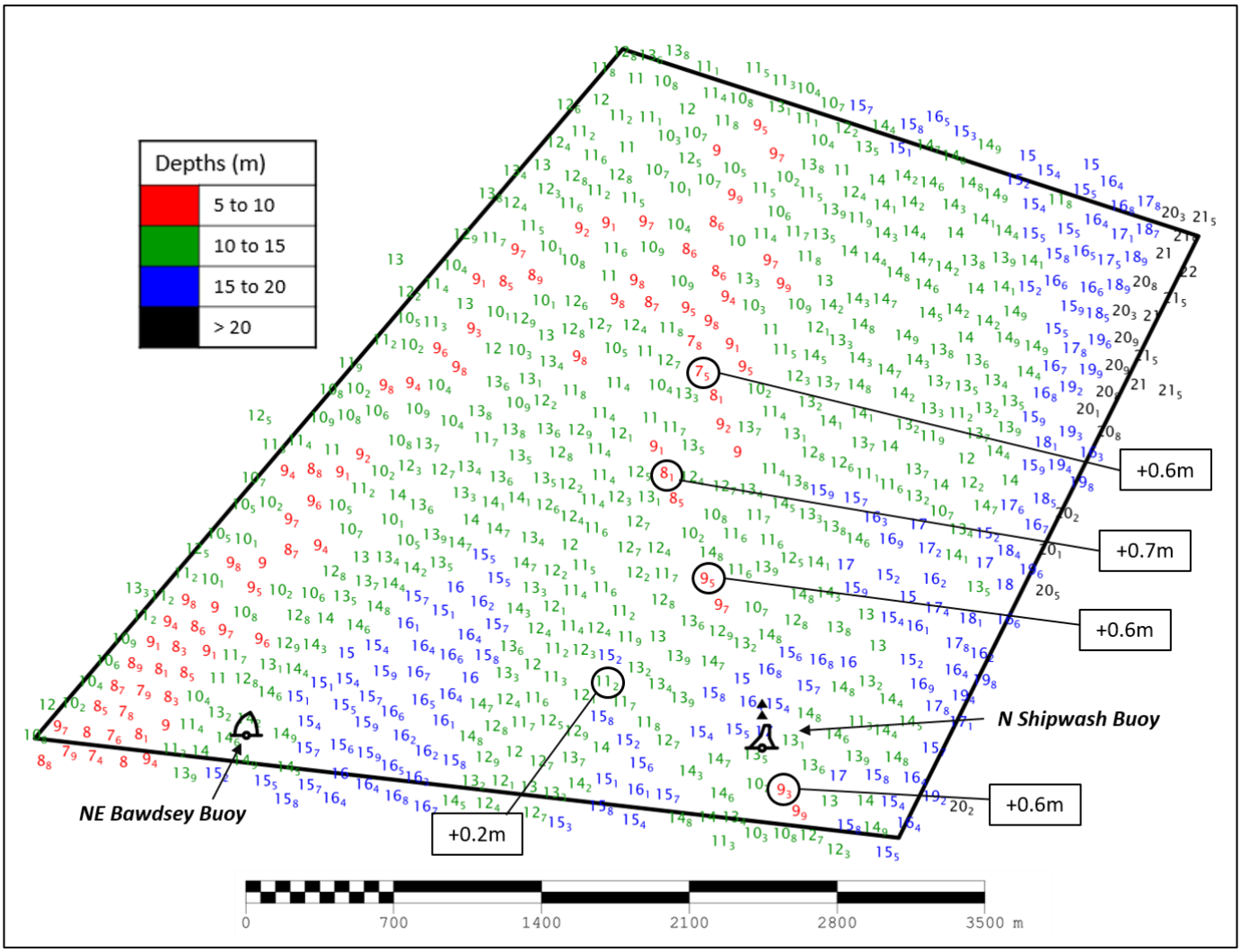

Figure 5: Colour banded depth plot from the 2020 survey with selected depth changes since the 2016 survey. Positive values (+) represent deepening. Negative values (-) represent shoaling.

6. RECOMMENDATIONS FOR FUTURE SURVEYS

Survey Interval

6.1 TE2A North Shipwash should remain on the routine resurvey programme due to its variable depths and sandwave movement at the exit of the main shipping route for vessels entering and exiting the Shipway channel to access the Harwich Deep Water Channel.

6.2 Due to the limited changes, the survey frequency can be changed to a 6-year interval to synchronise with the survey interval for TE2B to the south.

6.3 The sandwaves and banks within the limits are migrating in a predictable manner, consistent with previous reports. There has been a general deepening since the last survey in 2016.

Survey Area

6.4 The limits for TE2A should remain unchanged. The limits adequately capture the sandwave area and tip of the banks that may affect the passage of vessels through the area.