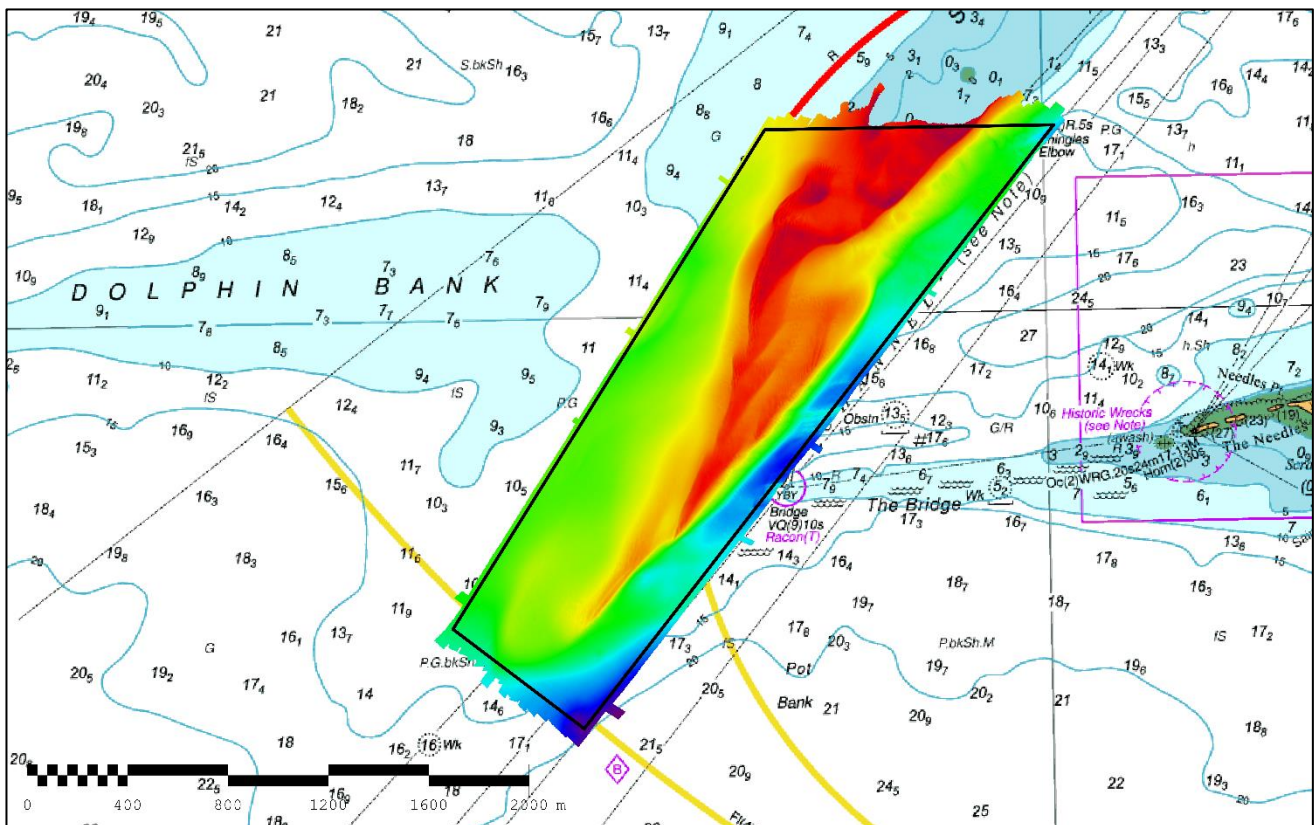




## NEEDLES CHANNEL (NC) 2018 ASSESSMENT

An assessment of the 2018 hydrographic survey of the area NC Needles Channel: 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 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

## **NEEDLES CHANNEL (NC), 2018**

### **1. SUMMARY**

#### **Changes Detected**

- 1.1 Migration and shoaling in a south-eastward's direction continue along the eastern edge of Shingles Bank.
- 1.2 There has been deepening in the central part of the survey area between 2012 and 2018.
- 1.3 There has been stability in more northern and western areas.

#### **Reasons for Continuing to Resurvey the Area**

- 1.4 Depths in this region remain hazardous and changeable particularly with the on-going migration of Shingles Bank into the main channel. Regular monitoring via resurveys is therefore required.

#### **Recommendations**

- 1.5 On-going migration of Shingles Bank means the survey area is still valid for inclusion on the routine resurvey programme.
- 1.6 As the bank edges are being surveyed by Trinity House on an annual basis at present there is no need to change the survey area or interval.

### **2. LOCATION**

- 2.1 Survey interval at time of resurvey: 6-years
- 2.2 Area Covered: 2.14 km<sup>2</sup>

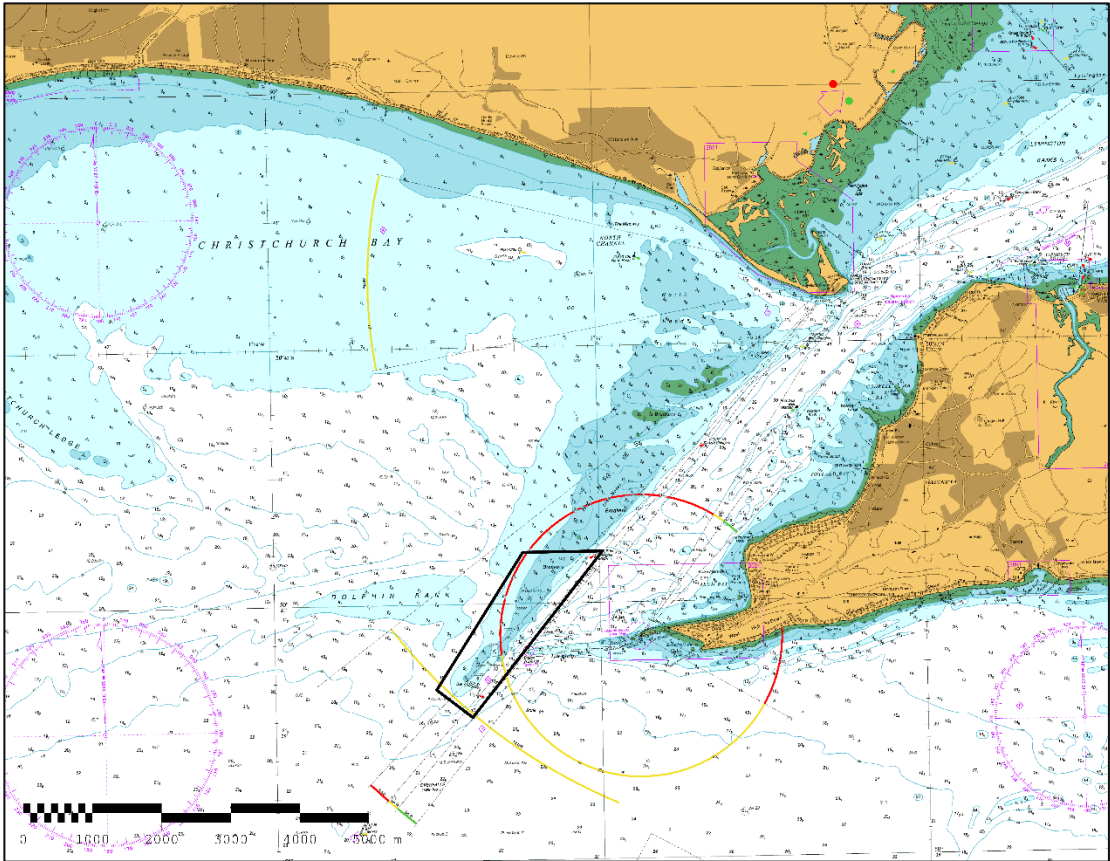


Figure 1 – Overview of the 2018 Needles Channel (NC) survey area overlaid on BA Chart 235-0

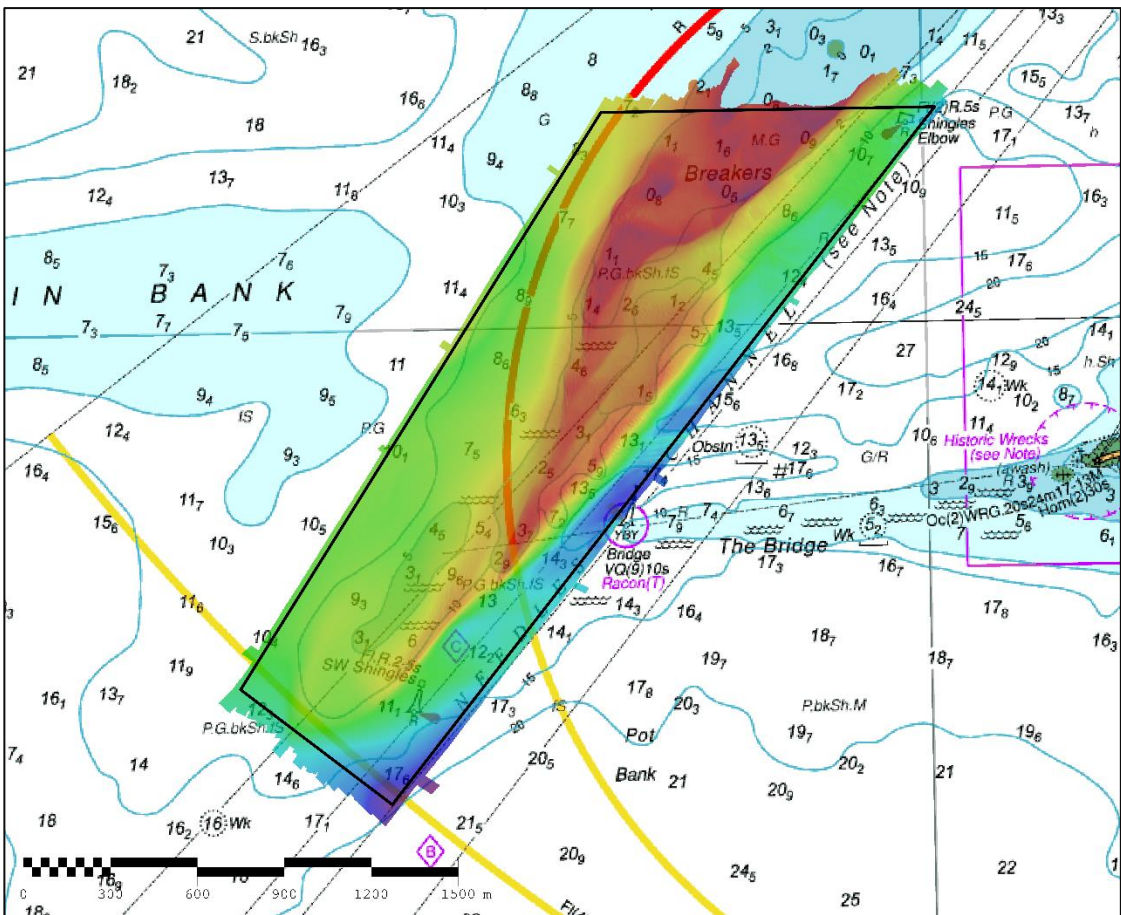


Figure 2 – 2018 NC survey data sun-illuminated view overlaid on BA Chart 235-0

### **3. REFERENCE SURVEY DETAIL**

- 3.1 The previous full survey was conducted as part of HI1366 between August 2011 and April 2012. More recent survey data collected by Trinity House in September 2018 has also been used as part of this routine resurvey report.
- 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. COMPARISON SURVEY DETAIL**

- 4.1 The latest full survey as part of the 2018 Routine Resurvey Programme was conducted in January 2019 as part of HI1631.
- 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 southern tip of Shingles Bank has migrated southwards by approximately 95m between 2012 and 2018.
- 5.2 The 10m contour in the southern part of the survey area has moved eastwards by approximately 105m between 2012 and 2018. However there has been little movement in the northern part of the survey area.
- 5.3 The difference plots in Figures 4 and 5 show continual shoaling along the eastern edge of Shingles Bank. This is evident in the 6-year comparison and in the 4-months between the 2018 Trinity House survey and HI1631.
- 5.4 There has been deepening between 2012 and 2018 in the central part of the survey area (Figure 4).
- 5.5 The depth plot in Figure 6 shows that there has been shoaling greater than 3-5m on the eastern edge of Shingles Bank between 2012 and 2018. With greater than 5m of deepening in central areas between 2012 and 2018.
- 5.6 There was shoaling nearing 3m between September 2018 and January 2019 when HI1631 was surveyed, indicating that the area may be more dynamic than demonstrated by the CHP survey interval alone.
- 5.7 The difference plots (Figures 4 and 5) and the depth plot (Figure 6) show that there is stability in the northern and western areas outside of the areas highlighted in 5.5-5.7.



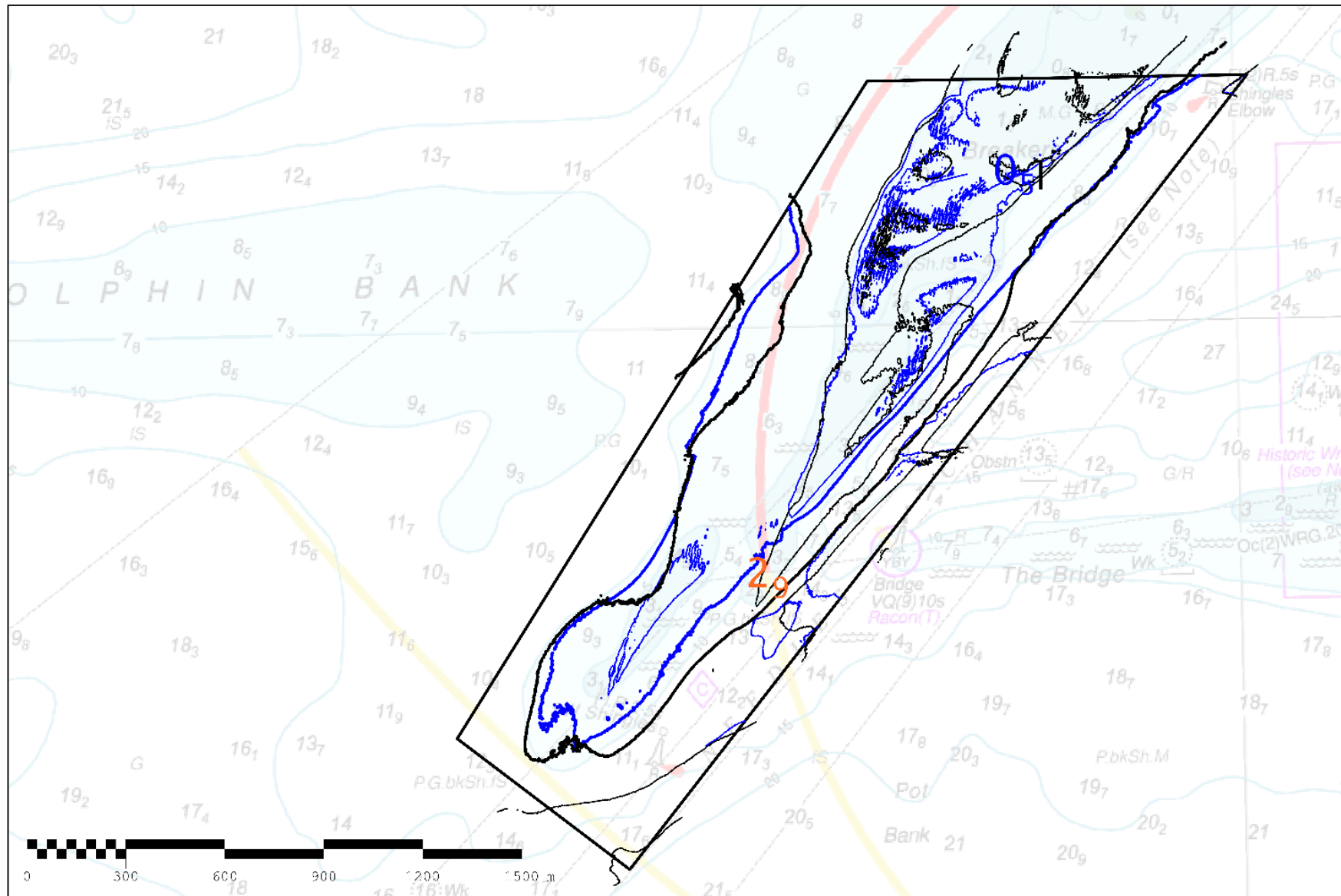


Figure 3 – 2, 5 and 10m Contours and Least Depths from the 2018 (shown in black) and 2012 (shown in blue) surveys. In addition, least depth from the September 2018 Trinity House survey (shown in orange) overlaid on BA Chart 2035-0

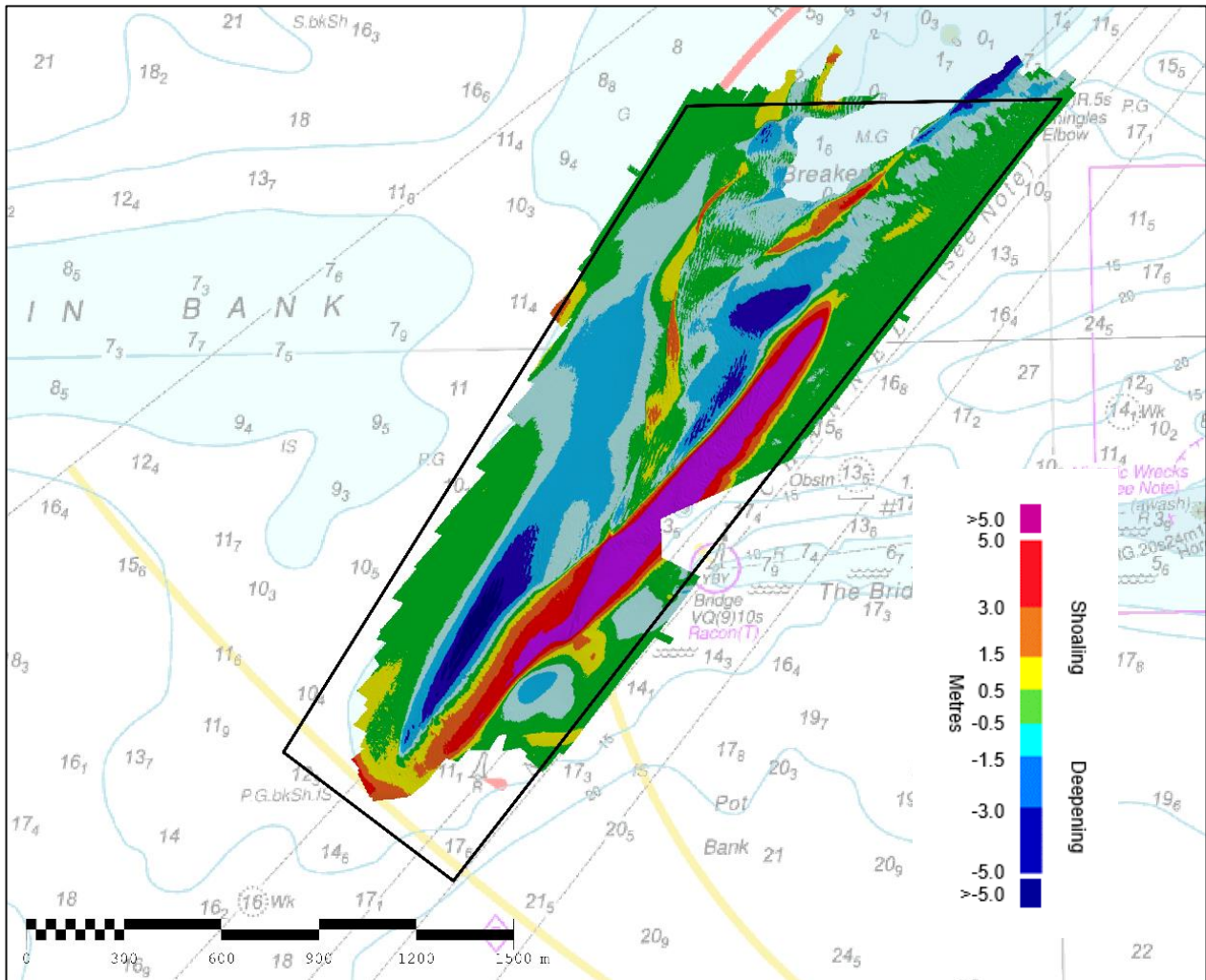


Figure 4 – Difference Plot 2012-2018 overlaid on BA Chart 2035-0

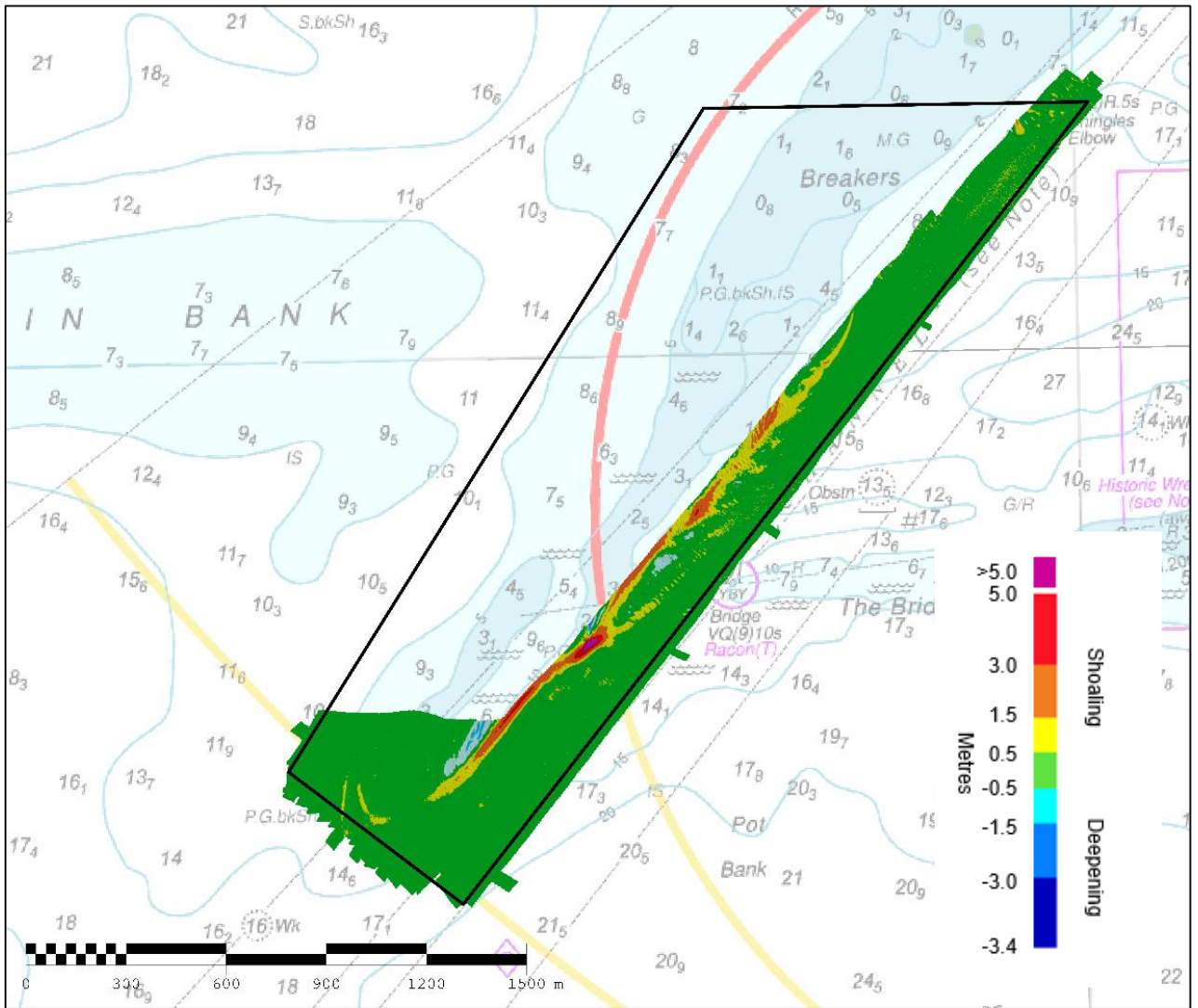


Figure 5 – Difference Plot Trinity House September 2018 – 2018 RRS January 2019 overlaid on BA Chart 2035-0



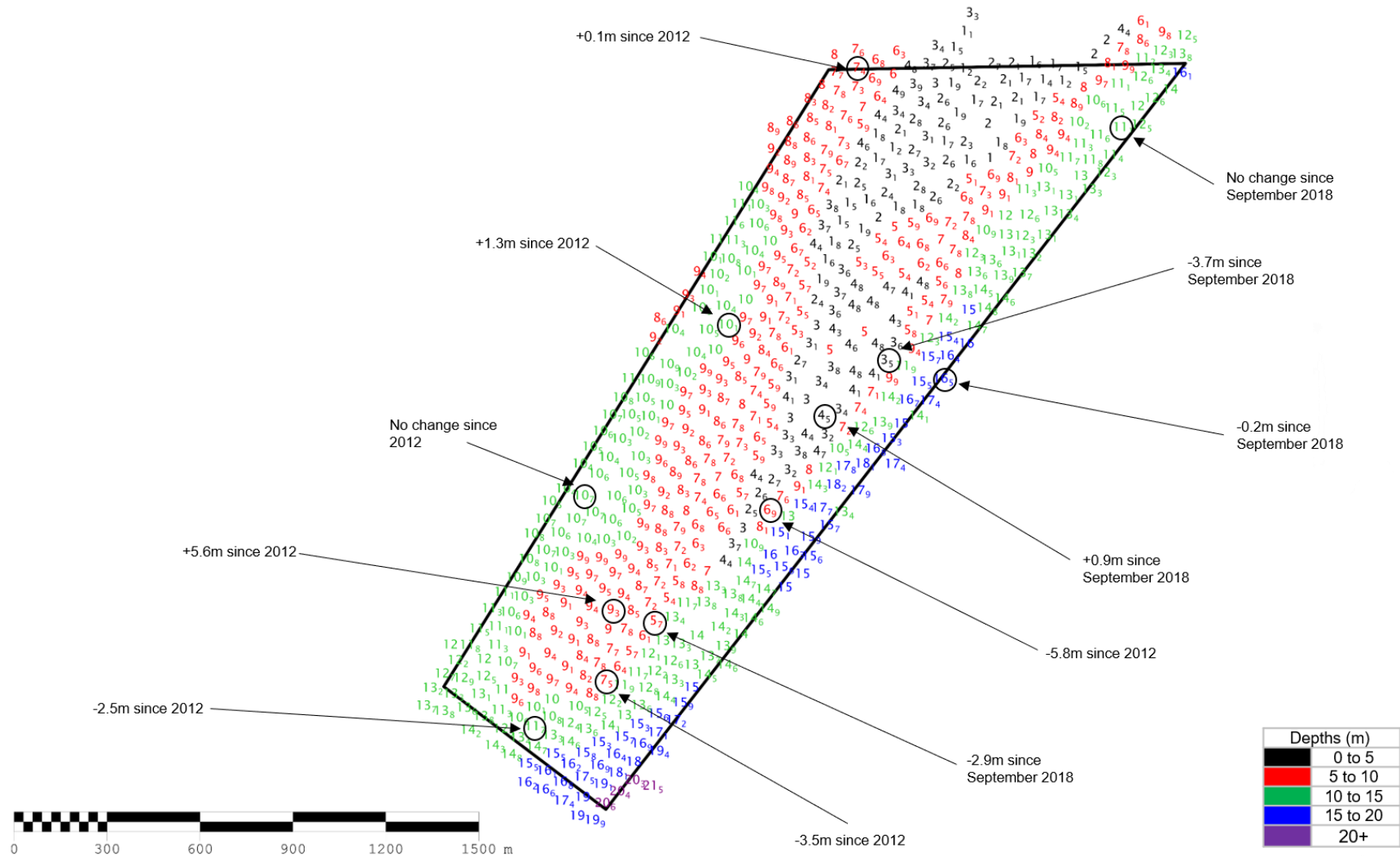


Figure 6: Colour banded depth plot from the 2018 survey (surveyed January 2019) with selected depth changes since the 2012 CHP and the 2018 Trinity House surveys. Positive values (+) represent deepening. Negative values (-) represent shoaling.

## 6. RECOMMENDATIONS FOR FUTURE SURVEYS

### Survey Interval

- 6.1 Given the movement detected in the survey area it would be reasonable to increase the survey frequency.
- 6.2 However, Trinity House have advised that they are surveying the area outlined in Figure 7 on an annual basis with multi-beam, and this data is supplied to the UKHO. Therefore, given the slow movement and relative stability in the remainder of the survey area the current 6-year interval is appropriate.

### Survey Area

- 6.3 Because of the on-going migration of Shingles Bank the current full area remains appropriate.
- 6.4 Figure 7 outlines the area surveyed by Trinity House on an annual basis. Given this and the findings of this report there is currently no requirement to amend the limits of the NC routine resurvey area.

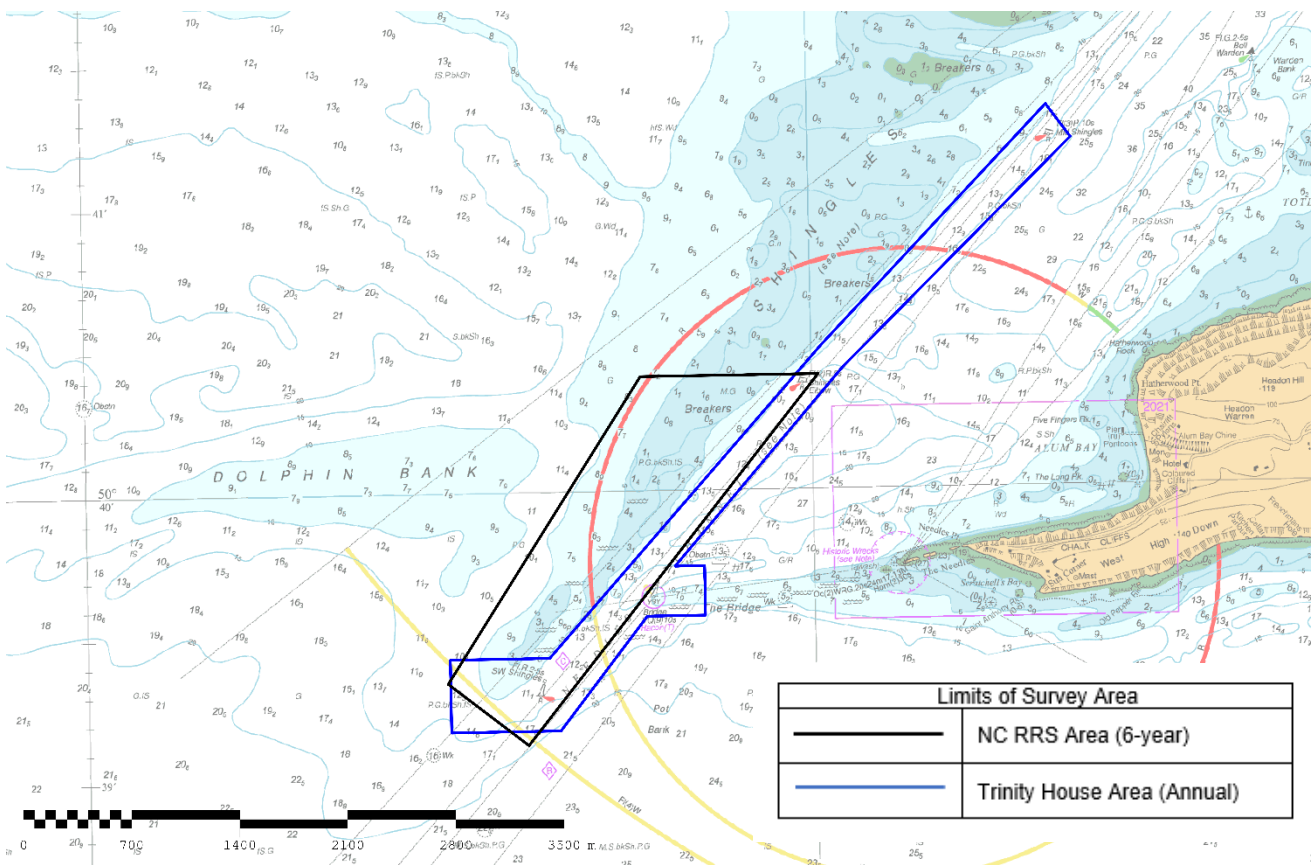


Figure 7: RRS Survey Area vs Trinity House Survey Area overlaid on BA Chart 2035-0