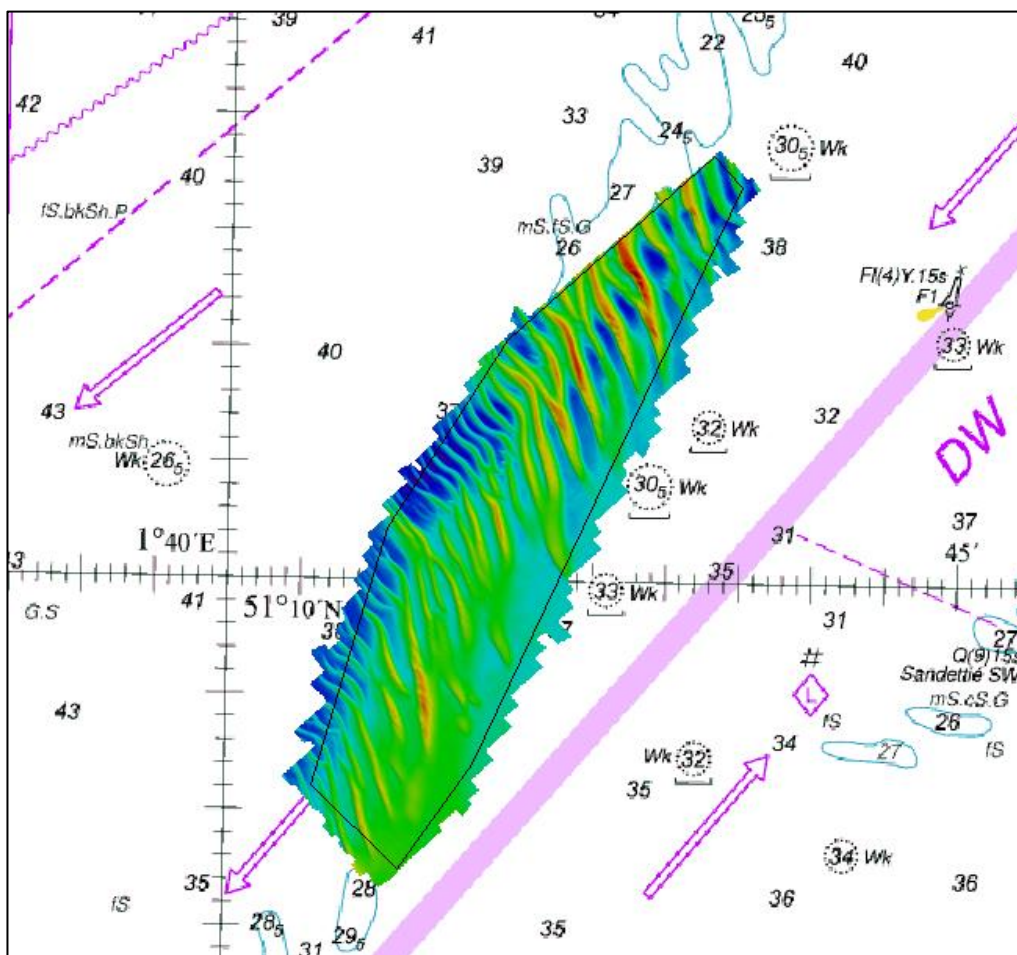




## DOVER STRAIT TAIL OF THE FALLS

SUMMARY ASSESSMENT ON THE ANALYSIS OF  
ROUTINE RESURVEY AREA DWR C1 FROM THE 2015 SURVEY



ENGLAND – DOVER STRAIT  
TAIL OF THE FALLS  
Summary Assessment DWR C1/2015

A summary assessment of the 2015 hydrographic survey of the area: to monitor recent seabed movement; to identify any implications for shipping; and to make recommendations for future surveys.

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## **TAIL OF THE FALLS DWR C1, 2015**

### **1 INTRODUCTION**

- 1.1 This Assessment is produced by the United Kingdom Hydrographic Office (UKHO) for the Maritime and Coastguard Agency (MCA).
- 1.2 Analysis of the Routine Resurvey Areas forms part of the Civil Hydrography Programme and the reports are made available to members of the Committee On Shipping Hydrography (COSH) through the UKHO website, before being 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 Department for Transport (including the MCA) and the MOD (including the UKHO).
- 1.3 Area DWR C1 is surveyed annually, while adjacent area C3 to the north is surveyed every 3 years and C2 to the south every 6 years. All three areas were surveyed in 2012 and fully reported on; this summary report examines the annual survey conducted in 2015 (HI1484) and compares this against the survey in 2014 (HI1460).

### **2 DESCRIPTION OF THE AREAS**

- 2.1 DWR C1 lies in the southwest bound lane of the Dover Strait Traffic Separation Scheme (TSS) and covers part of a Deep Draught Route (DDR), which comprises of a recommended track and a safety corridor extending 0.5 nautical miles either side of the track. Area DWR C1 consists of an area of 1.9 sq NM (6.6 sq km).
- 2.2 The area covers part of a sandwave field that extends south-westwards from Tail of the Falls. These sandwaves dominate the area and run in a broad swathe from the north of DWR C1 to the southern border, with the largest sandwaves up to 17 metres in height.

### **3 SURVEY DATA**

- 3.1 The survey HI1460 was conducted on 15<sup>th</sup> and 16<sup>th</sup> June 2014. The 2015 survey HI1484 was conducted on 21<sup>st</sup> August 2015. The Bathymetry data from both surveys was reduced to Chart Datum using GPS heighting and the UKHO Vertical Offshore Reference Frame (VORF). Both hydrographic surveys mentioned above have been validated by UKHO as being of IHO order 1a.

### **4 CHANGES SINCE THE 2014 SURVEY**

- 4.1 The variability plot in Annex B shows the changes in depth that have occurred since last surveyed and mainly reflects ongoing migration of sandwaves. Depth plots of the 2014 and 2015 surveys are shown in Annexes D and E respectively and allow a comparison of depth values.
- 4.2 The minimum depth in the 2015 survey within DWR C1 limits is 23.4 metres over a sandwave in the north of the area, 5.2 metres shoaler than in the same point in the 2014 survey. The selected depth plots in Annexes D and E indicates that there has been a general increase in sandwave crest heights of up to 2 metres.
- 4.3 Historical surveys have shown a south-westerly migration of sandwaves across most of the area, with north-easterly migration on the western side. This trend is supported by the variability plot in Annex B, cross section profiles in Annex C and contour plot in Annex F which illustrate that the sandwaves are not advancing in a consistent direction across the area.

- a) The sandwave crests along the western boundary are indicated to be moving north-east by up to 30 metres as demonstrated by profile A-B in Annex B and changes in the 30 and 35 metre contours in Annex F.
- b) The sandwave crests in the centre generally remain in place
- c) The sandwave crests sited to the north east and along the eastern side of the survey area are advancing to the south and south-west typically by 30 to 40 metres but movements of up to 90 metres are visible as demonstrated by profile C-D in Annex B and changes in the 30 and 35 metre contours in Annex F.

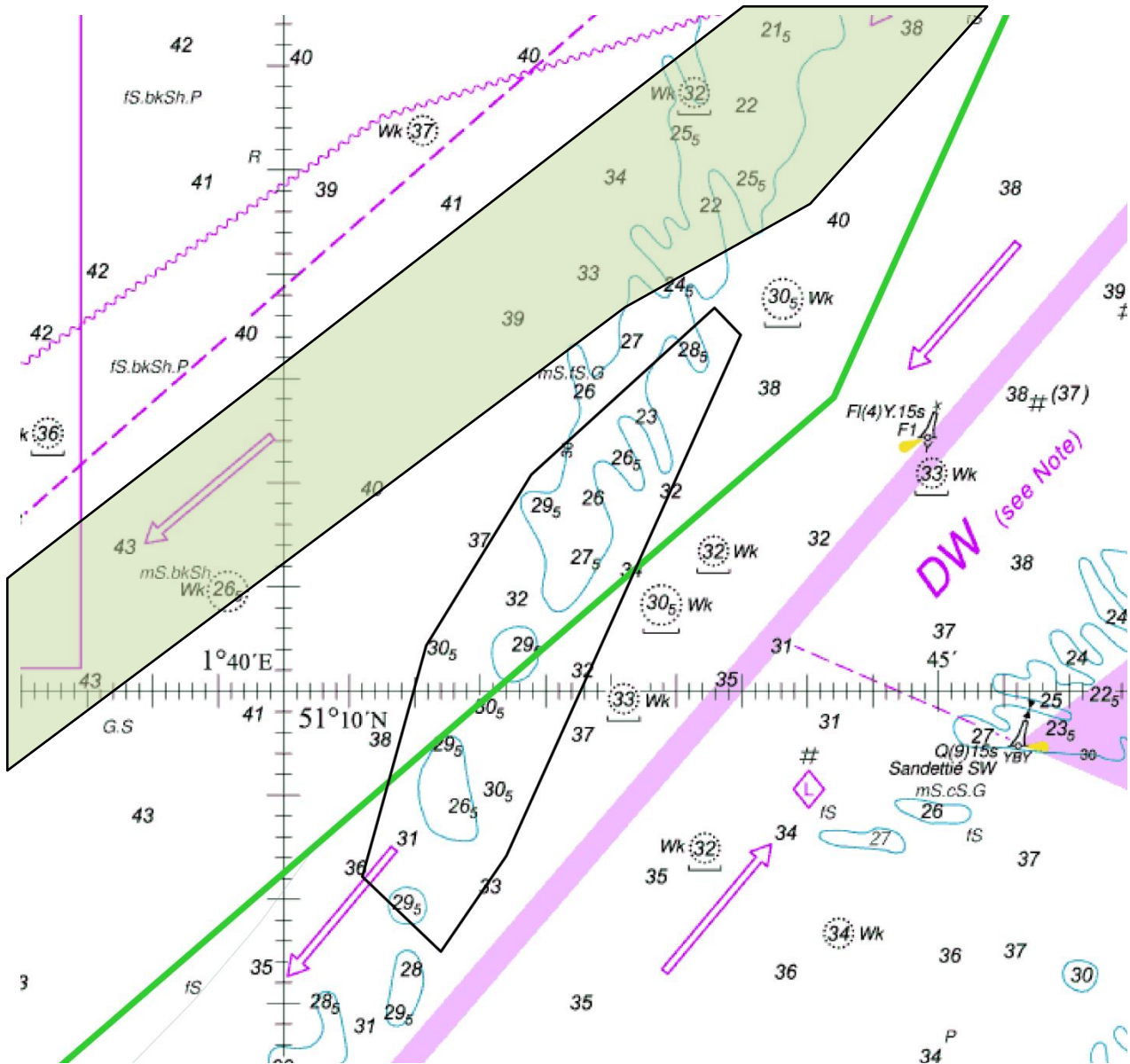
## **5 IMPLICATIONS FOR SHIPPING**

- 5.1 As described in the Dover Strait Pilot NP28 11<sup>th</sup> Edition. The British Authorities recommend an under-keel allowance for deep draught vessels using this part of the suggested deep-draught route and travelling at 12 knots of 5.3 metres when under the influence of southwest storm conditions and swell.
- 5.2 Sample shipping data for 2015 shows the maximum draught vessel to transit through the area during the periods examined was 15.5 metres. With the shipping data showing the typical draughts of vessel to transit near the area to be less than 10 metres. However the data does show a vessel of 31.6 metres draught transited outside of the survey area to the west before joining the South bound Deep Water Route, Indicative routes are shown in Annex A.
- 5.3 The minimum depth of 23.4 metres in the 2015 survey is 1.9 metres shoaler than the 2014 survey, 7.9 metres deeper than the largest vessel observed in the AIS data transiting through the area.

## **6 RECOMMENDATIONS**

- 6.1 Due to the continued rapid change in depths the resurvey interval of the area should remain unchanged.
- 6.2 The limits of the survey area should be altered to ensure that coverage is maintained over the 30 metre contour along the eastern boundary, assuming that the trend indicated in this report continues at 90 metres per year in a southerly direction. The proposed new limits are given in Annex H with a list of the new coordinates. This will increase the overall area by 0.27km<sup>2</sup> / 0.07 NM<sup>2</sup>.

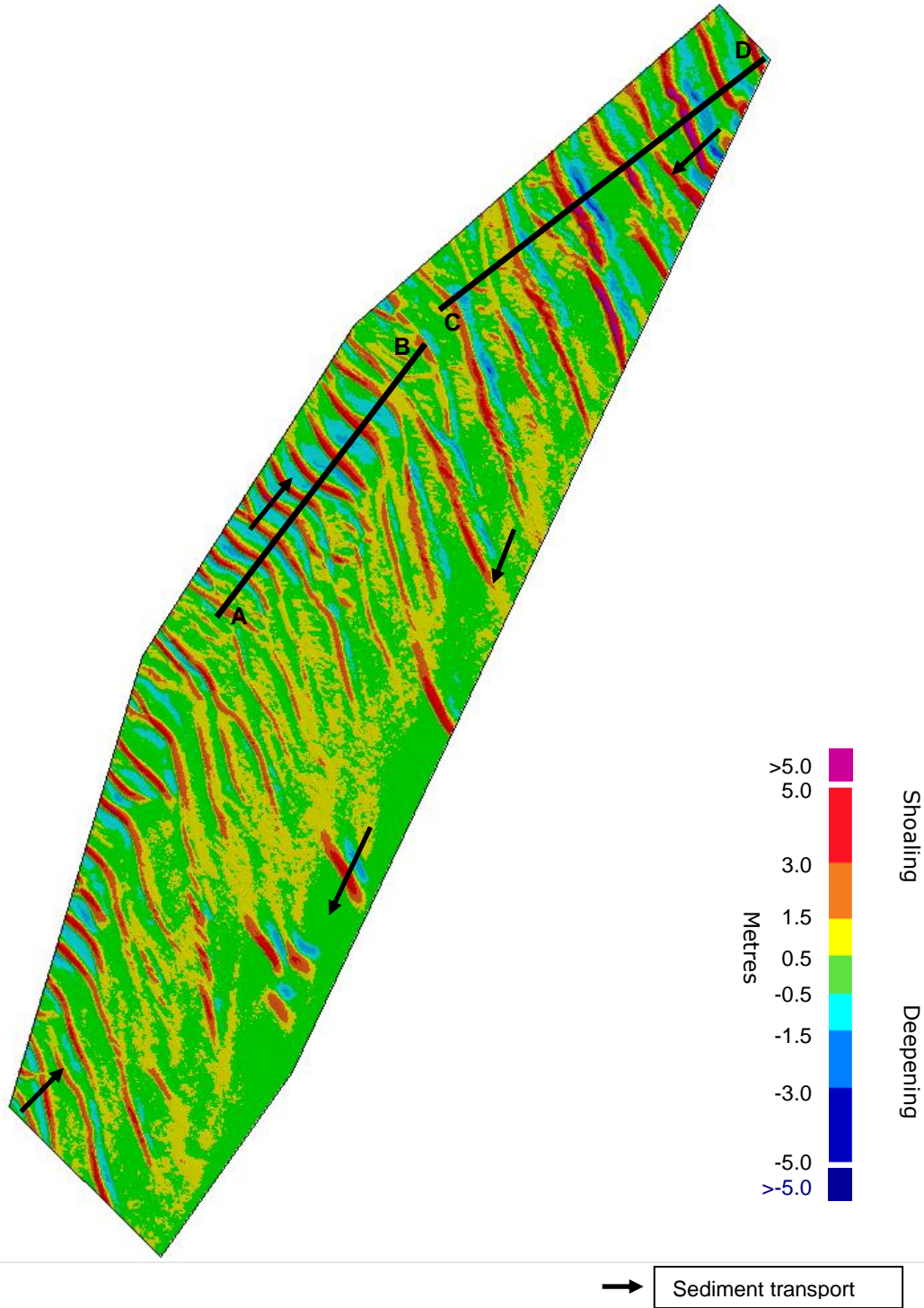
SHIPPING ROUTE



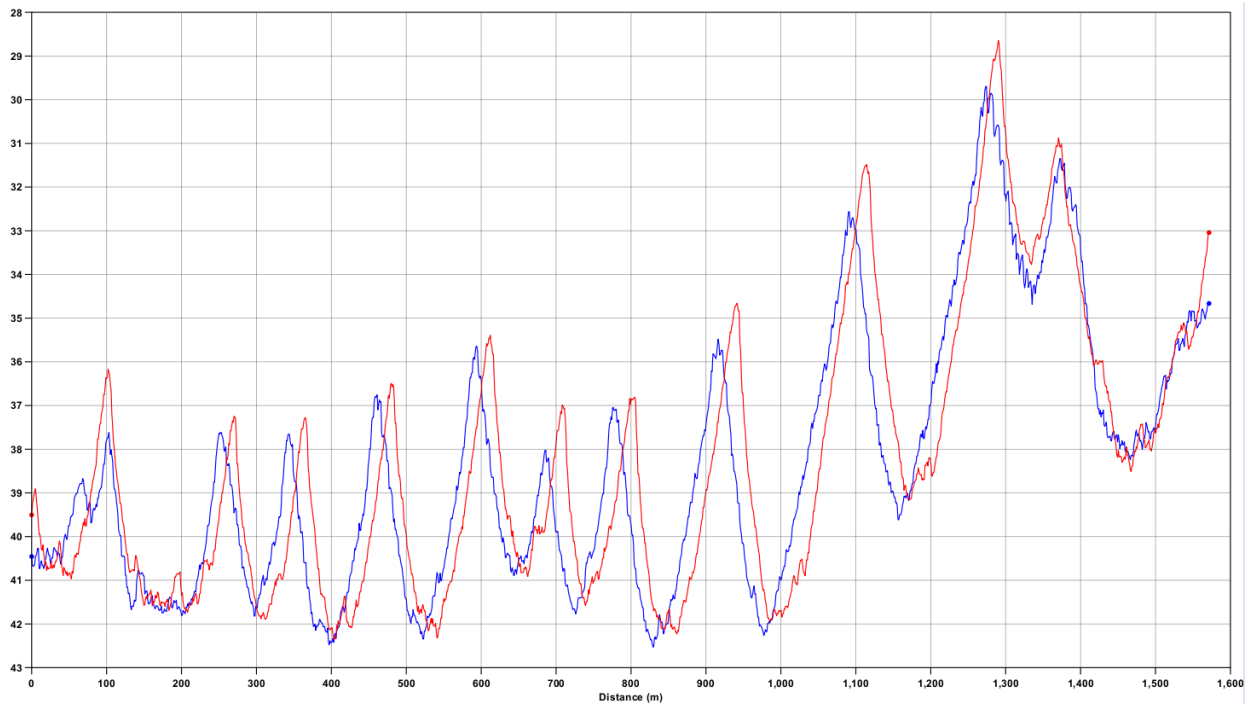
- Deep Water Track
- Limits of DWR-C3 survey Area
- Indicative shipping routes through area DWR\_C1

Note: Data from satellite AIS data for FY2015/2016 of vessels larger than 200GT. The data suggests a lower density of vessel traffic using the suggested Deep Water Track

VARIABILITY PLOT SHOWING  
BATHYMETRIC CHANGES BETWEEN THE 2014 AND 2015 SURVEYS  
(SEE ANNEX C FOR CROSS-SECTION PROFILES)



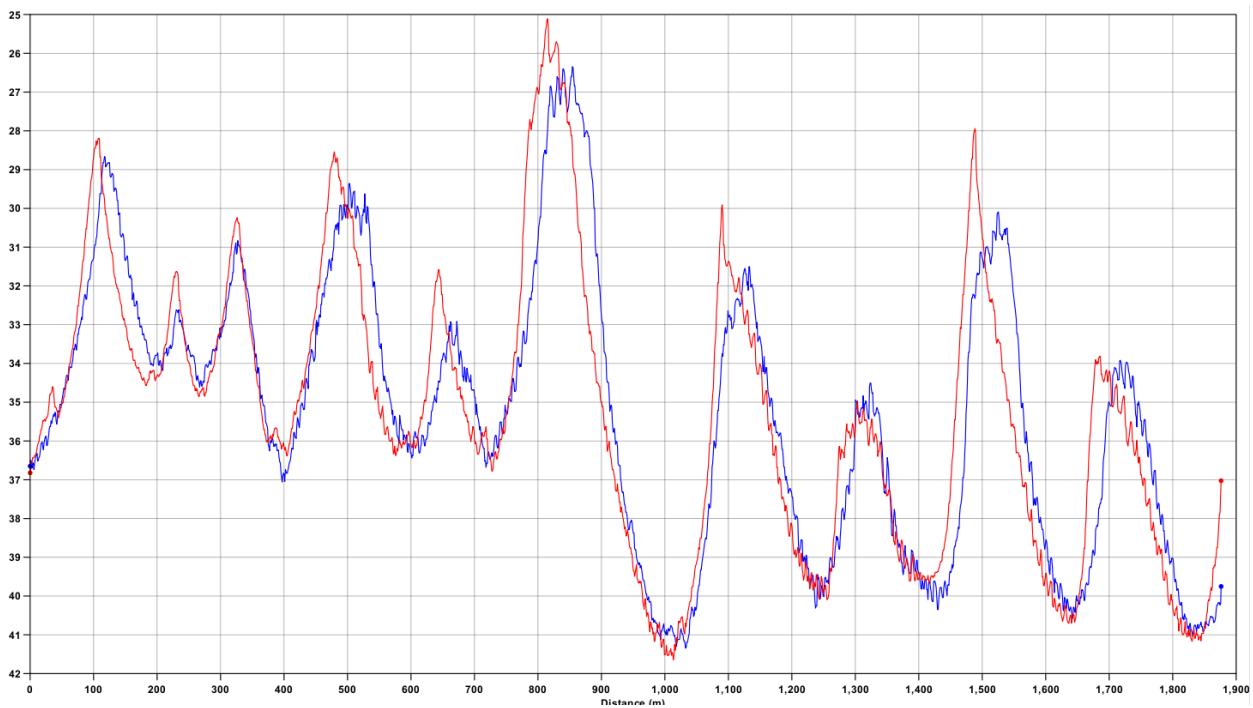
CROSS SECTION COMPARISONS FROM THE 2014 AND 2015 SURVEYS  
(SEE ANNEX B FOR LOCATIONS)



A

Cross-section of 2014 (blue) and 2015 (red) surveys

B



C

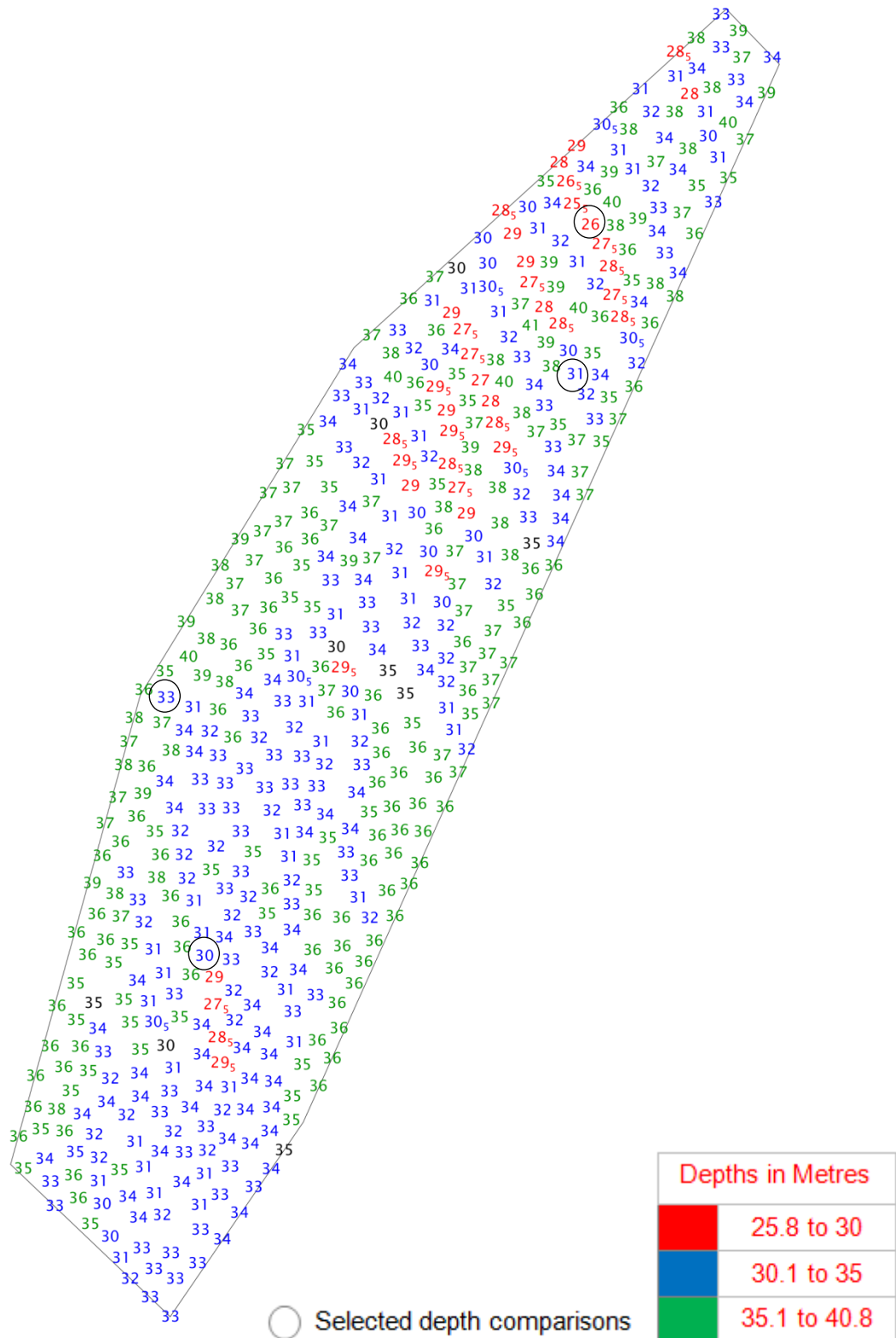
Cross-section of 2014 (blue) and 2015 (red) surveys

D

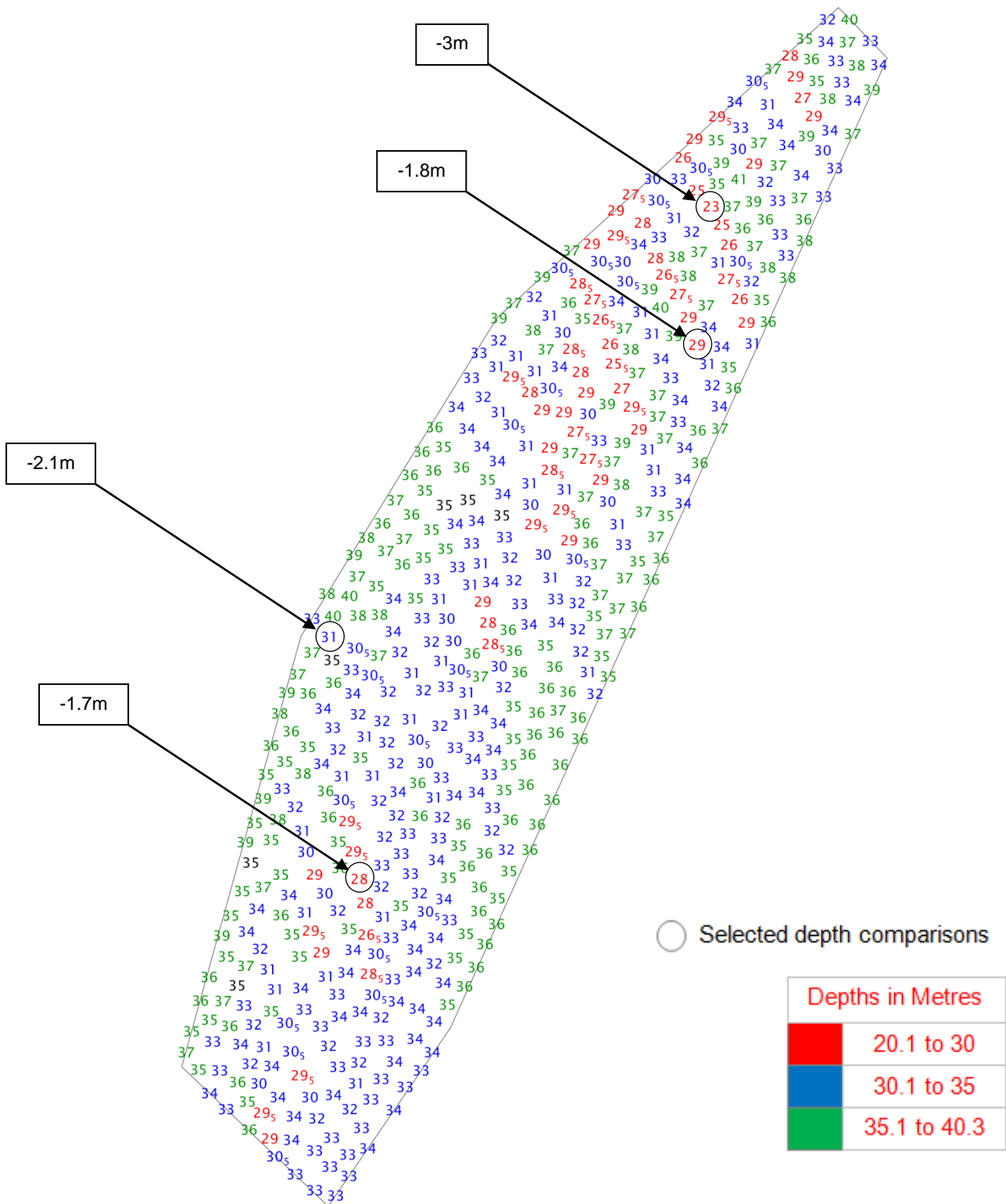
Year of Survey	
<span style="color: red;">—</span>	2015
<span style="color: blue;">—</span>	2014



COLOUR Banded DEPTH PLOT FROM THE 2014 SURVEY SHOWING SELECTED DEPTHS



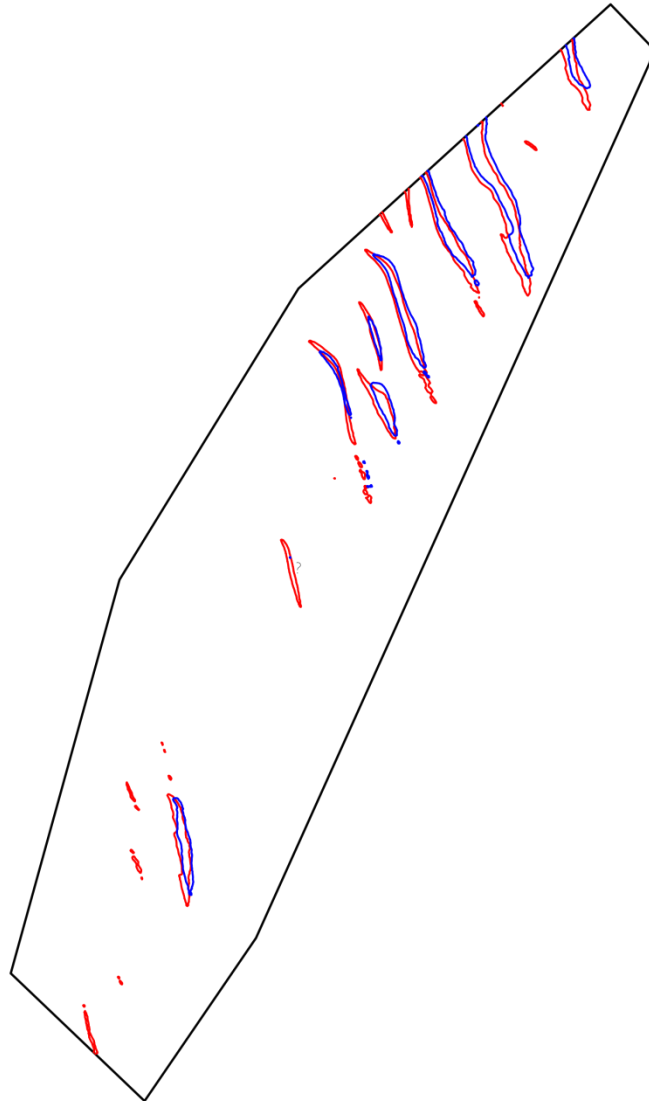
COLOUR BANDED DEPTH PLOT FROM THE 2015 SURVEY SHOWING SELECTED DEPTHS





Deepening + positive value / Shoaling - negative value


Note: depth changes indicated are for the same location as the sounding derived from the 2015 survey data. Hence values may not match the difference between the soundings shown in historical survey data and 2015 depth plots as shoal bias sounding selection will select different positions that best represent the shoal values in a data set

COMPOSITE DIAGRAM OF THE  
30 METRE CONTOUR FROM THE 2014 AND 2015 SURVEYS  
SCALE 1:40,000

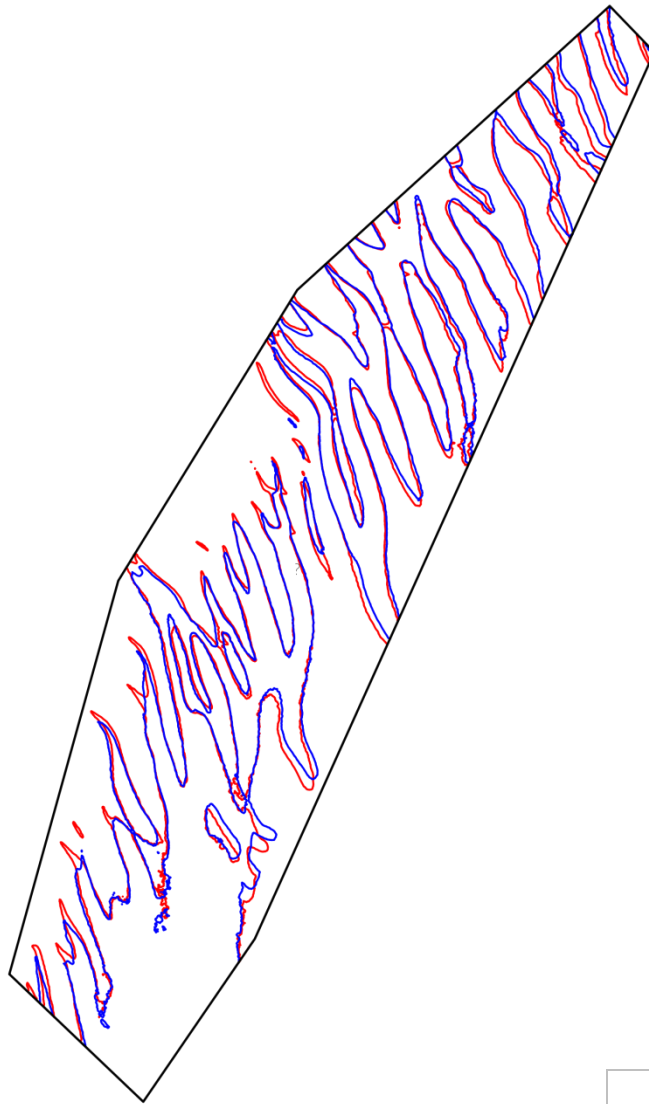




Year of Survey	
	2014
	2015

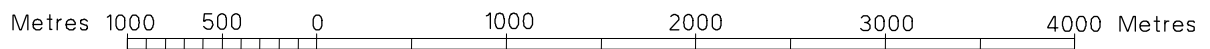
Metres 1000 500 0 1000 2000 3000 4000 Metres



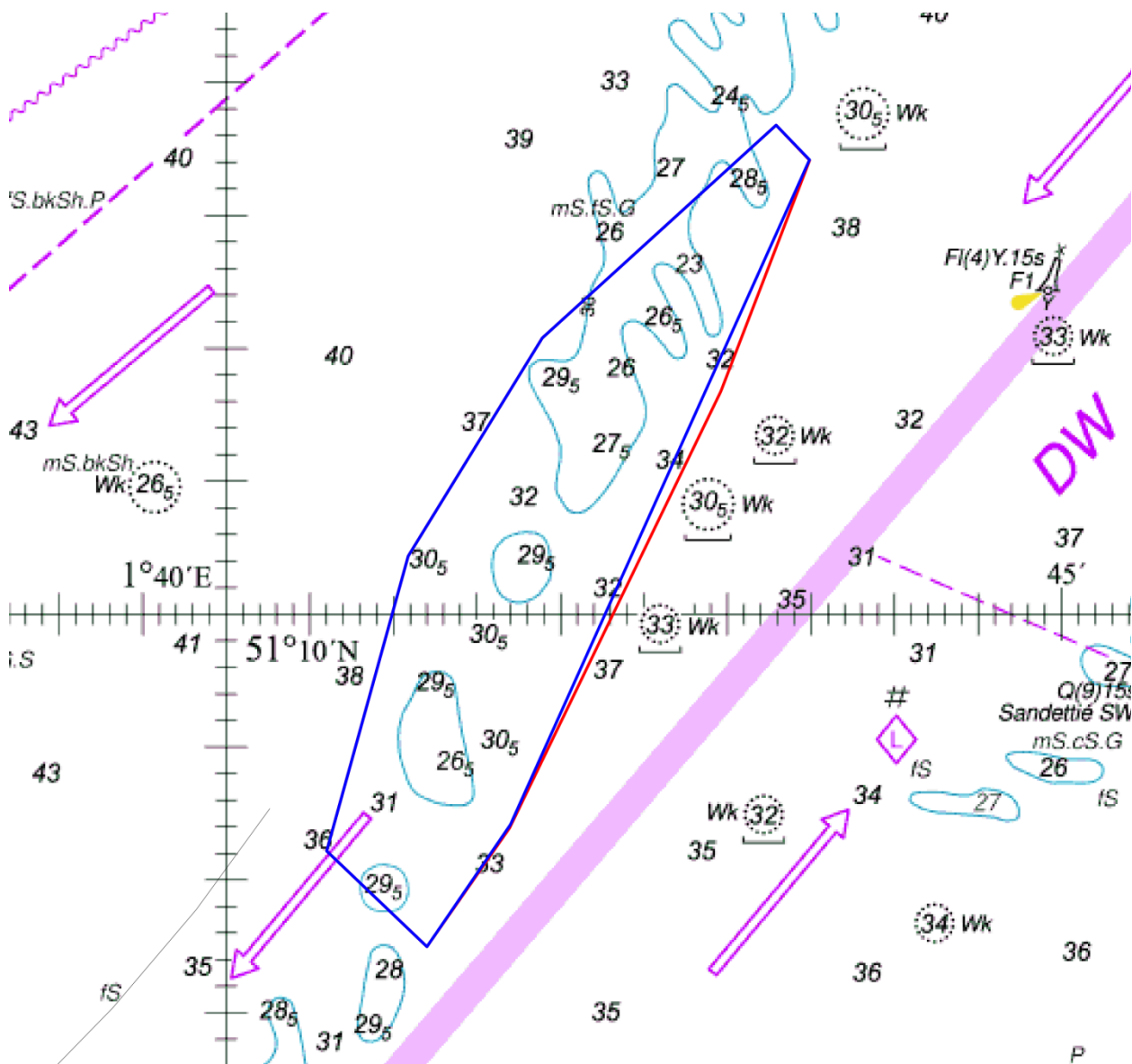
COMPOSITE DIAGRAM OF THE  
35 METRE CONTOUR FROM THE 2014 AND 2015 SURVEYS  
SCALE 1:40,000





Year of Survey	
	2014
	2015



## PROPOSED NEW LIMITS



The coordinates of the adjusted survey area limits for DWR C1 are shown below and describe a total area of 6.8km<sup>2</sup> / 2.0 NM<sup>2</sup>.

Limits of Survey Area	
	Revised
	Current

- 51°11.83 N 1°43.29 E
- 51°11.70 N 1°43.49 E
- 51°10.83 N 1°42.96 E
- 51°09.19 N 1°41.70 E
- 51°08.74 N 1°41.20 E
- 51°09.10 N 1°40.60 E
- 51°10.21 N 1°41.09 E
- 51°11.03 N 1°41.89 E