

NEEDLES CHANNEL

Summary Assessment NC/2012

A summary assessment of the 2012 hydrographic survey of the area: to monitor recent seabed movement; to identify any implications for shipping; and to make recommendations for future surveys.

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.

This material is protected by Crown Copyright. It may be downloaded from the UK Hydrographic Office's (UKHO) web site and printed in full for personal or non-commercial internal business use. Extracts may also be reproduced for personal or non-commercial internal business use on the condition that the UK Hydrographic Office is acknowledged as the publisher and the Crown is acknowledged as the copyright owner.

Applications for permission to reproduce the material for any other purpose (including any distribution of the material or extracts to third parties) can be made interactively on the UKHO's web site (www.ukho.gov.uk), by e-mail to intellectualproperty@ukho.gov.uk or in writing to Intellectual Property, UK Hydrographic Office, Admiralty Way, Taunton, Somerset, TA1 2DN.

NEEDLES CHANNEL, 2012

1 Introduction

- 1.1 Needles Channel is scheduled for surveying every 3 years under the Civil Hydrography routine re-survey programme. However, the area was last surveyed under the programme in 2005. Since then, annual surveys by Trinity House have been considered adequate for ensuring it is adequately marked and the eastern limits of Shingles delimited.
- 1.2 This summary report looks at a survey of Poole Bay conducted under the Civil Hydrography Programme between August 2011 and April 2012 and compares it against the 2005 survey.

2 Description of the Area

- 2.1 The area covers the south-western part of Shingles bank, including part of Needles Channel. It was incorporated into the routine re-survey programme in 1997 following representation from several quarters.
- 2.2 A small number of commercial and naval ships use Needles Channel as an approach to the Solent. An increase in use by cruise vessels is being considered and the area is heavily used by leisure craft.

3 Survey Data

- 3.1 The analysis report on the 2005 survey showed it to be notably shallower than the two previous surveys. After comparison against the latest survey, a block shift of 0.7 metres has been applied to the 2005 survey to reduce this offset before comparing the two surveys.
- 3.2 Both surveys were conducted using multibeam echosounders, but with the 2005 survey reduced to Chart Datum using traditional tidal observations and the 2011-12 survey reduced using the Vertical Offshore Reference Frame (VORF) and GPS heighting.

4 Changes in Bathymetry since the 2005 Survey

- 4.1 Changes are shown in the perspective views at [Annex A](#), the difference surface at [Annex B](#) and 10 metre contour comparisons at [Annex C](#).
- 4.2 Inside the 10 metre contour, the bank appears to be extremely dynamic and subject to reworking by currents and wave action; at the 10 metre contour and below the bank shows much less change. Compared to the 2005 survey, the bank now extends further to the southwest and is narrower at its southern end. The across-bank profile has also reversed its form, with a steep face on the western side in the 2005 survey and steep face on the eastern side in the 2012 survey.

5 Long-term Change in Bathymetry

- 5.1 To assess longer term variability of Shingles, the 10 metre contours from selected historical surveys have been compared and are shown in [Annex D](#).
- 5.2 The earliest digit data held is from a 1979 survey. The position of Shingles bank in this survey is much further west than in subsequent surveys examined, lying around 200

metres west of the next available survey, conducted in 1994. In subsequent surveys examined, the southern part of the bank has extended south-westwards, with the tip now lying 500 metres southwest of the of the 1994 survey. The last two surveys also show a westward shift in the southern limit of the bank.

6 Implications for Shipping

- 6.1 Despite the dynamic nature of the bank in shallow areas the eastern side, which forms the western limit of Needles Channel, has changed little at the 10 metre contour level. However, the 1979 survey indicates greater long-term change in the overall position of the southern part of the bank, with much wider access through Needles Channel available at that time.
- 6.2 The buoyage and leading light sector provide safe clearance of Shingles for vessels transiting Needles Channel.

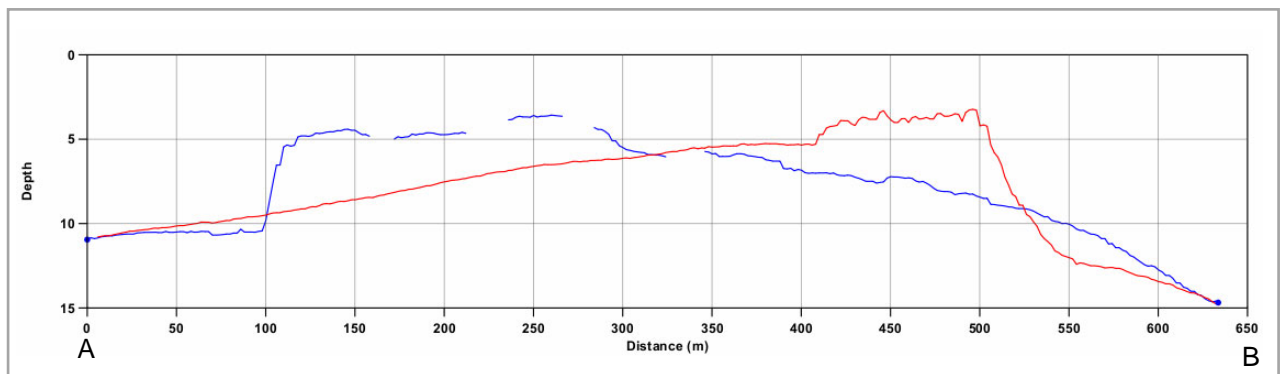
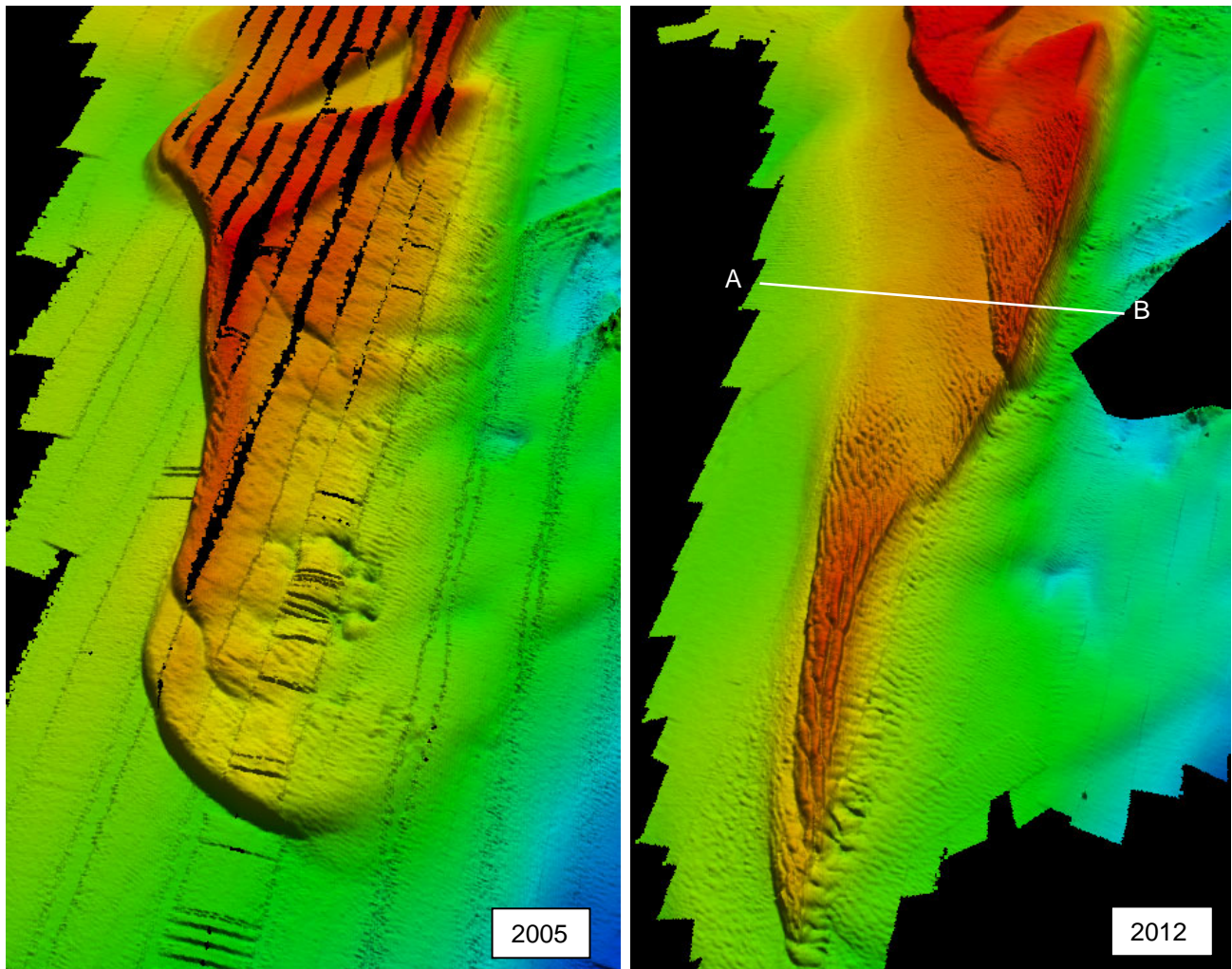
7 Recommendations

- 7.1 Although the buoyed route through Needles Channel is adequately surveyed by Trinity House on an annual basis, the full extent of the southern part of Shingles bank should continue to be re-surveyed under the Civil Hydrography routine re-survey programme.
- 7.2 The survey frequency should be extended from 3 to 6 years and the limits revised slightly as shown in [Annex E](#) and detailed below.

Proposed Limits:

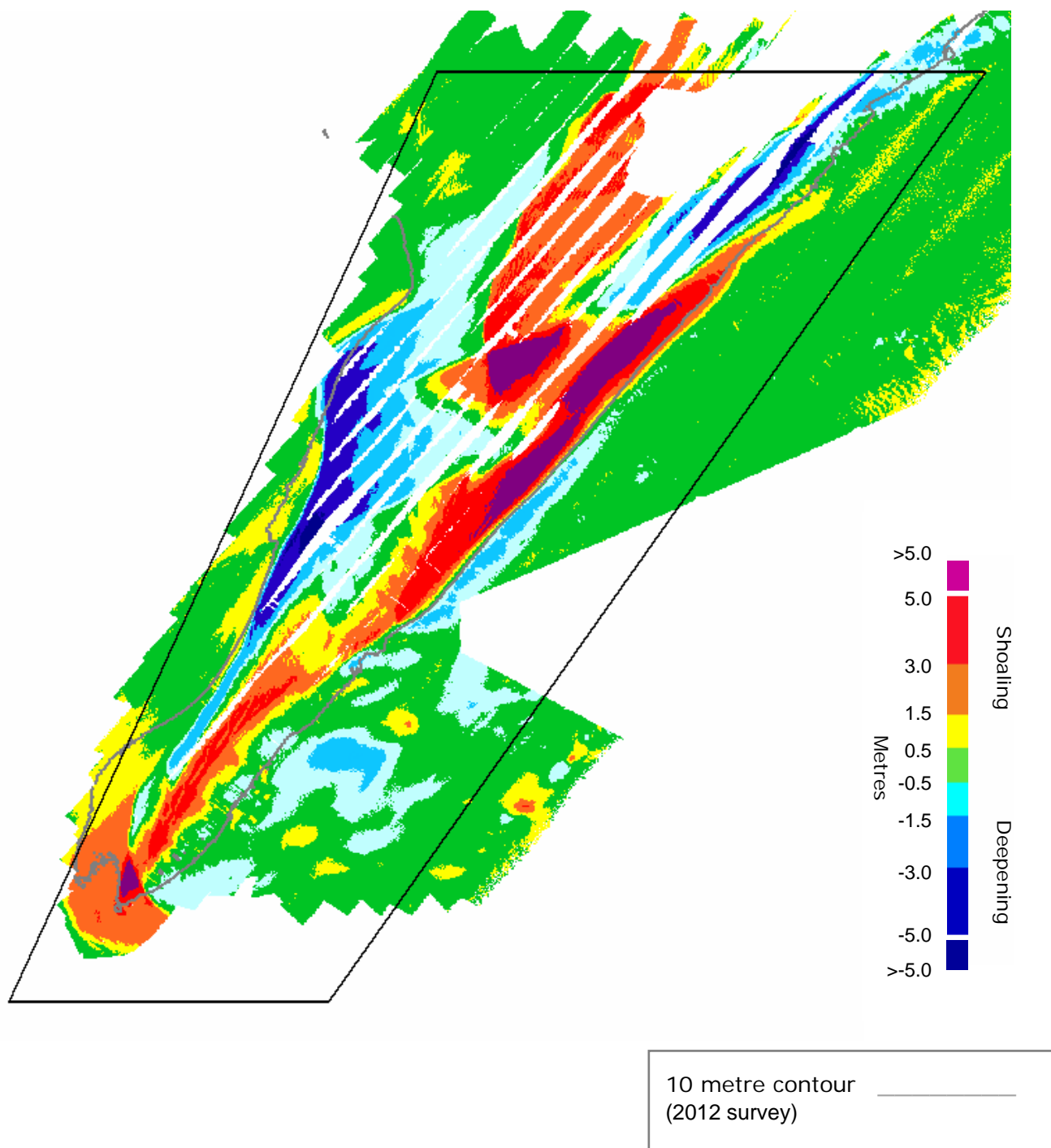
	Latitude	Longitude
1	50.67334N	001.61570W
2	50.67333N	001.59940W
3	50.65200N	001.62650W
4	50.65565N	001.63380W

SURFACES FROM THE 2005 AND 2012 SURVEYS VIEWED IN PERSPECTIVE AND CROSS SECTION

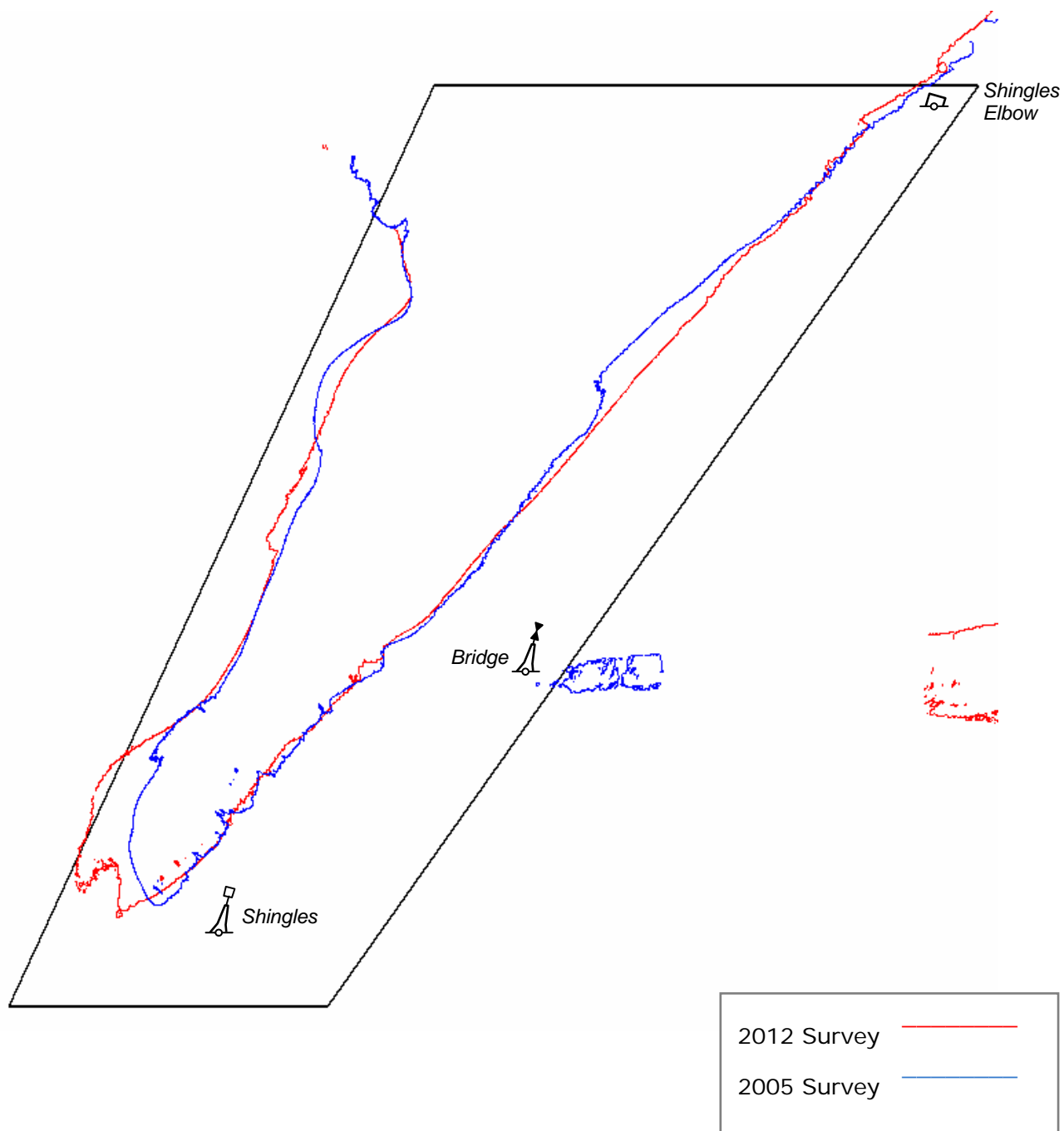


Blue = 2005 Red = 2012

SURFACE DIFFERENCE LAYER SHOWING BATHYMETRIC CHANGES
BETWEEN THE 2011 AND 2012 SURVEYS



COMPOSITE DIAGRAM OF THE 10 METRE CONTOUR
FROM THE 2005 AND 2012 SURVEYS



COMPOSITE DIAGRAM OF THE 10 METRE CONTOUR
FROM THE 1979, 1994, 2000, 2005 AND 2012 SURVEYS

