

Southeast Regional Coastal Monitoring Programme

ANNUAL SURVEY REPORT 2017

AR 139

December 2017

Southampton
Water to Hurst Spit

*Cover photograph: North Point
A. Colenutt (with thanks to S. McVey)*

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Southeast Regional Coastal Monitoring Programme

Annual Survey Report 2017 – West Solent

1. Introduction

Analysis presented in this report provides an overview of beach changes since the commencement of the Southeast Regional Coastal Monitoring Programme in 2002. The first beach surveys took place during 2006 (*i.e.* the Baseline year) and changes are reported until autumn 2017.

The results are given for individual Survey Units spanning autumn 2016 to autumn 2017. The Survey Unit report is updated following each survey and distributed to coastal engineers. In this way, a rapid assessment is made of changes from survey to survey, in addition to a comparison of longer term changes. On completion of the autumn surveys, the individual reports from all Survey Units are collated into this Cell-wide annual survey report, to provide a useful long-term record of short-term changes.

Data are presented at several levels:

- Comparison with previous survey
- Tables with 2017 CSA change and m² as %
- Graphs of change in cross-sectional area through time
- Survey Unit maps summarising beach profile change from 2016 to 2017
- Survey Unit maps summarising beach profile change from Baseline year to 2017
- Topographic difference models

The Survey Unit maps indicate the location of the profiles, superimposed on the 2016 aerial photography (note that the profile lines may have been extended, for clarity).

2. Profile analysis

Where possible, longer-term records from earlier programmes are also presented in the profile analysis, although historical data was often collected using significantly different survey techniques, or specifications. Cross-sectional area is measured relative to a Reference Level which, typically, is the elevation of Mean Low Water Springs (Figure 1).

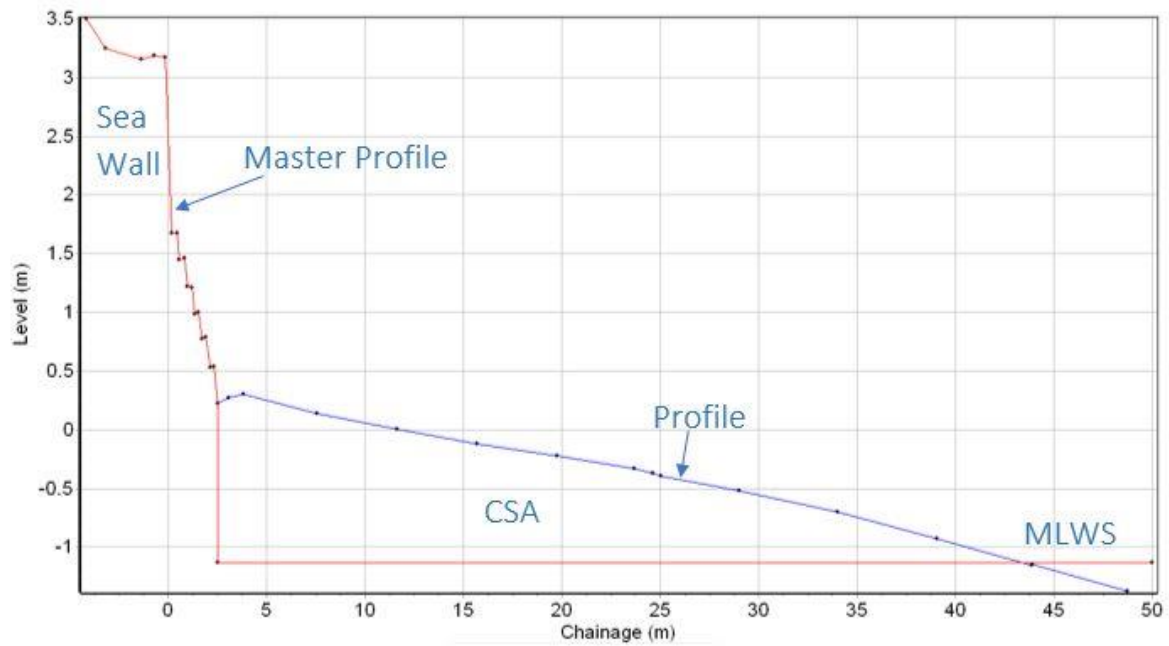


Figure 1: Profile cross-sectional area

The trend in cross-sectional area above MLWS is presented as a graph for each profile (Figure 2).

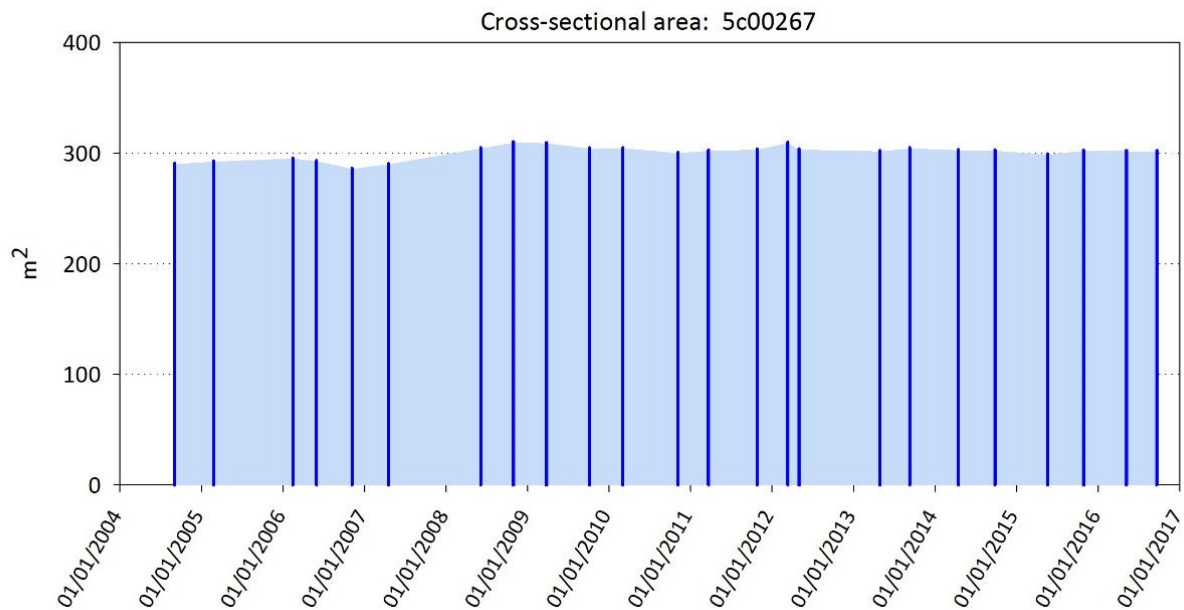



Figure 2: Example of cross-sectional area above Mean Low Water Springs, through time

3. Hydrodynamic data

Wave reports for all coastal monitoring programme wave buoys within the Cell are usually included in these reports, but there are no wave buoys in this sediment subcell.

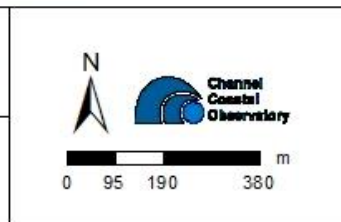
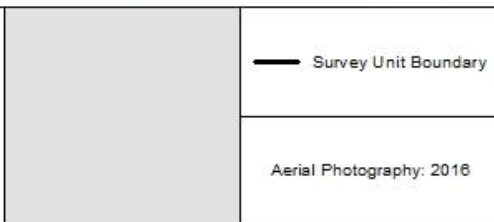
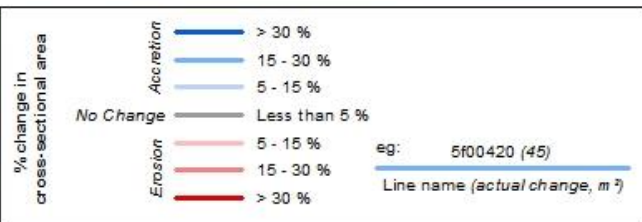
Survey Unit	5cSU10	 Channel Coastal Observatory
Location	Calshot Spit	

Survey dates	Survey type		Comments
06/05/2016 15/03/2017	Spring to Spring	Profile change	Over the past year the unit shows little change along the front of the spit. Varying levels of erosion can be observed on the hook of the spit.
31/05/2006 15/03/2017	Baseline to Spring		Over the longer time period the unit is characterised by low levels of accretion with the exception of 5c00240 which shows slightly higher levels of accretion.

Profile cross-sectional area change: annual and longer-term changes					
Profile	Spring to Spring		Baseline to Spring		Elevation of Reference Surface (mOD)
	May 2016 to March 2017		May 2006 to March 2017		
	(m ²)	%	(m ²)	%	
5c00238a	-	-	-	-	0.1
5c00238b	-	-	-	-	0.3
5c00238c	-	-	-	-	0.6
5c00238d	-	-	-	-	0.5
5c00239	-23	-22%	-	-	MLWS -1.94
5c00239a	0.6	0.7%	-	-	
5c00239b	1.5	1.3%	-	-	
5c00239c	3.9	1.1%	-	-	
5c00240	-8.2	-6.8%	19	20%	MLWS -1.94
5c00240a	-22	-16%	-	-	
5c00240b	1.1	0.7%	-	-	
5c00246	1.8	1.8%	-3.9	-3.7%	
5c00250	-0.6	-0.1%	32	7.6%	
5c00252	-13	-2.6%	-	-	
5c00255	21	4.9%	22	5.2%	
5c00259	15	4.4%	40	12%	
5c00263	7.9	2.2%	38	12%	
5c00267	8.8	2.9%	18	6.0%	
5c00270	6.8	3.2%	15	7.0%	

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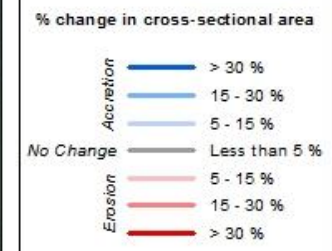


% change in cross-sectional area May 2016 to March 2017

Calshot Spit: 5cSU10

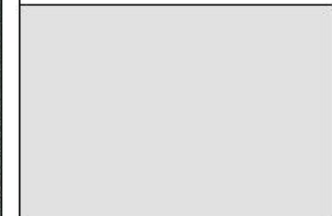
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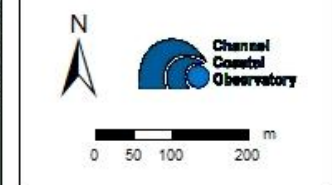


eg: 5f00420 (45)
Line name (actual change, m²)

— Survey Unit Boundary

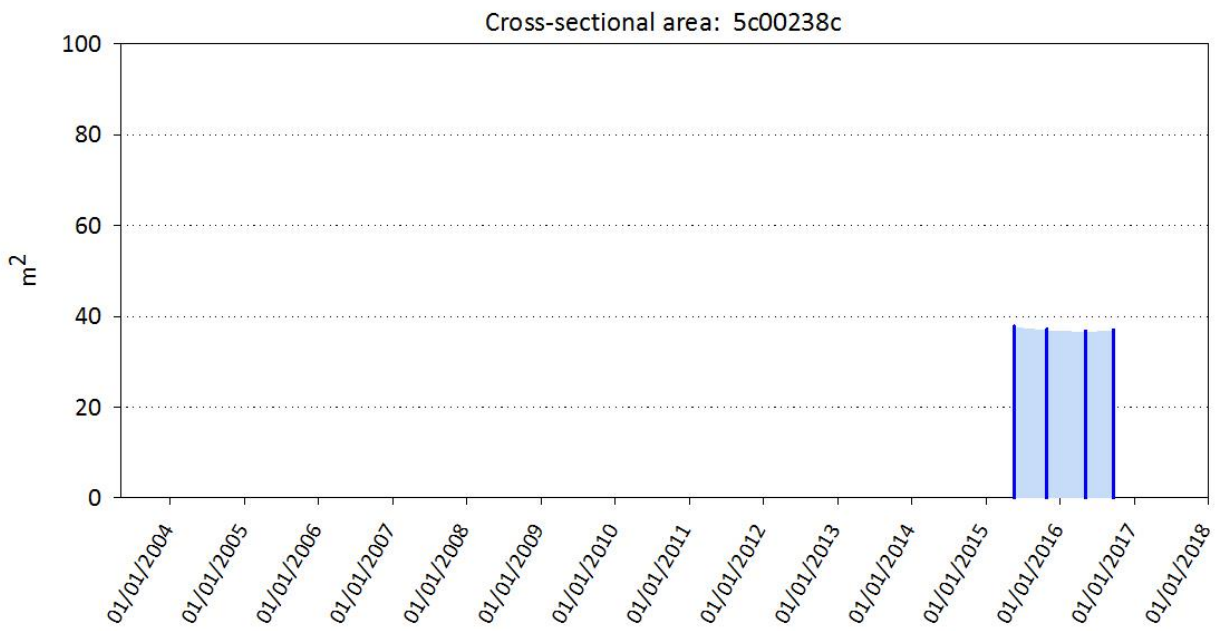
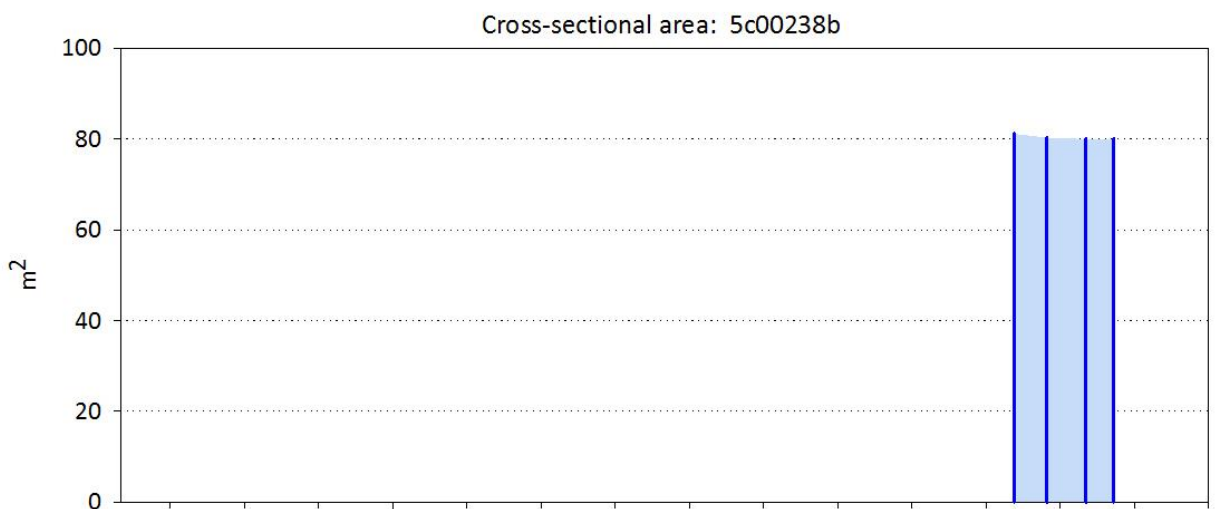
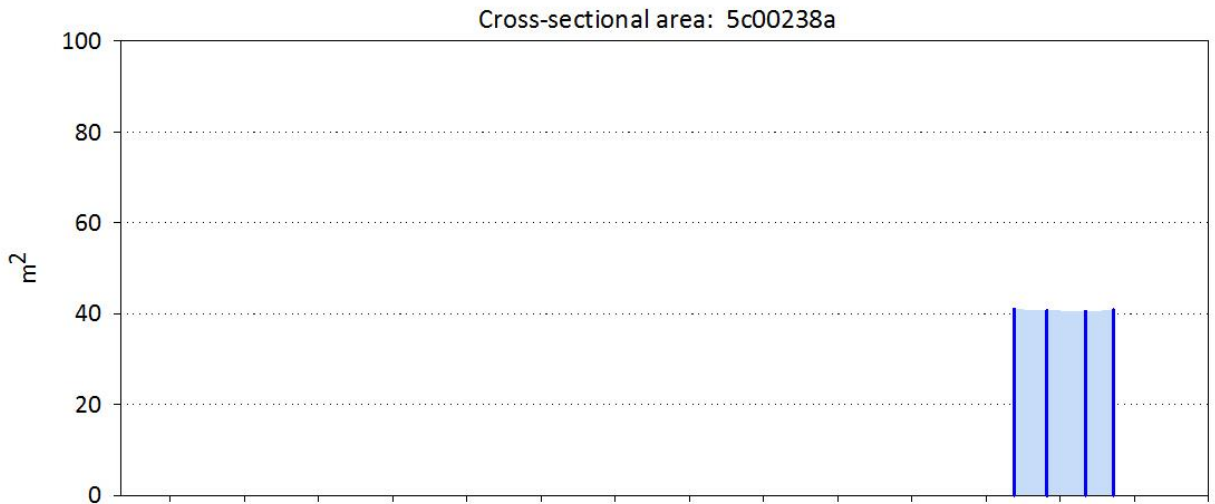


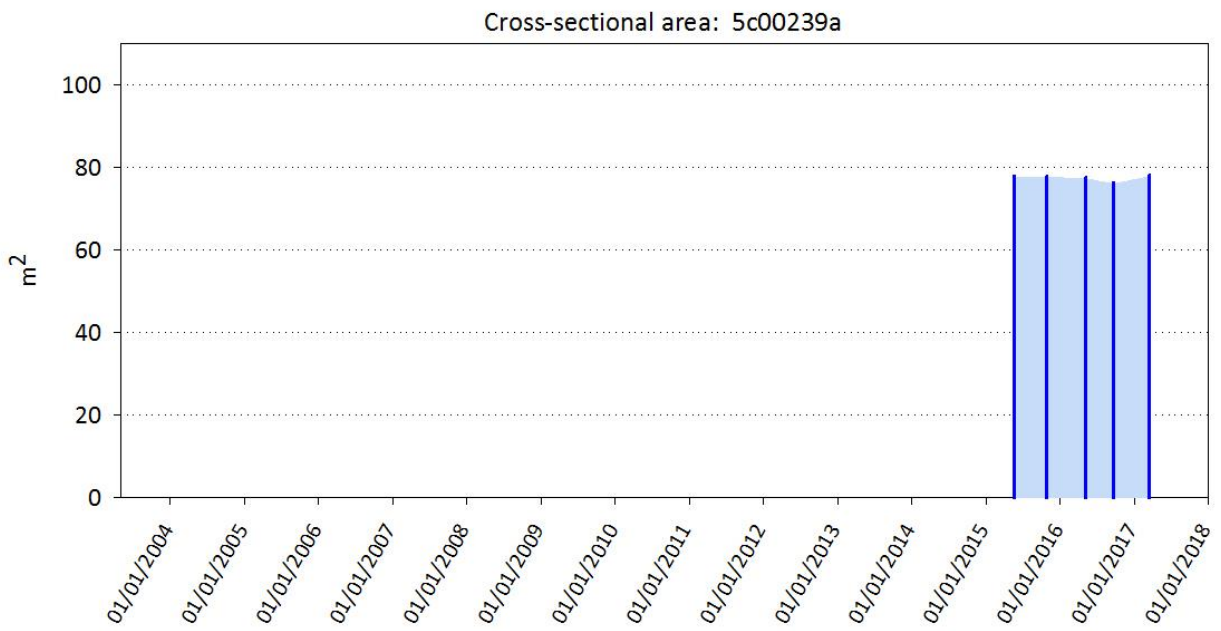
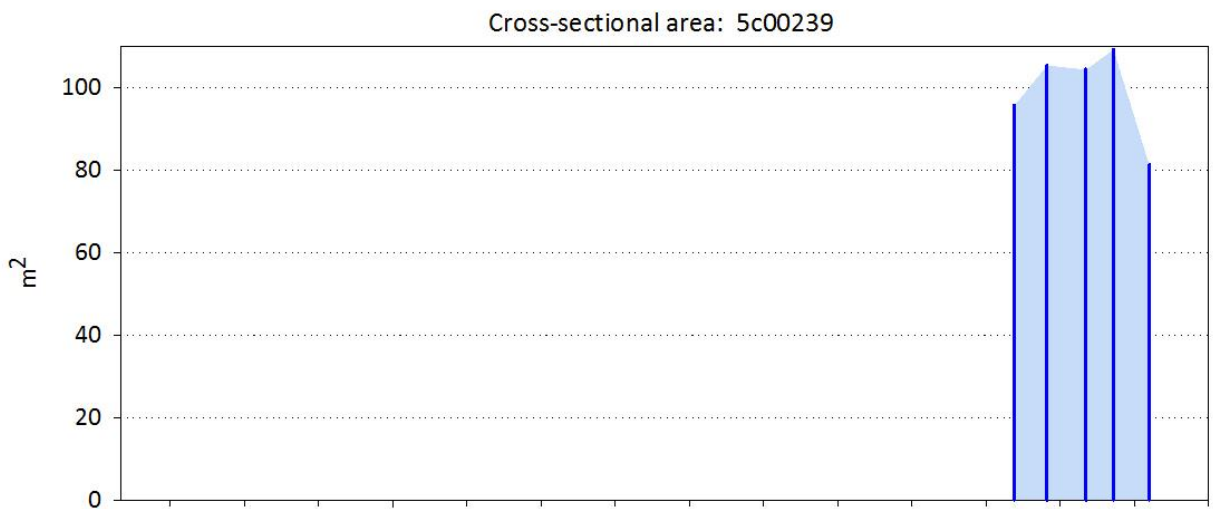
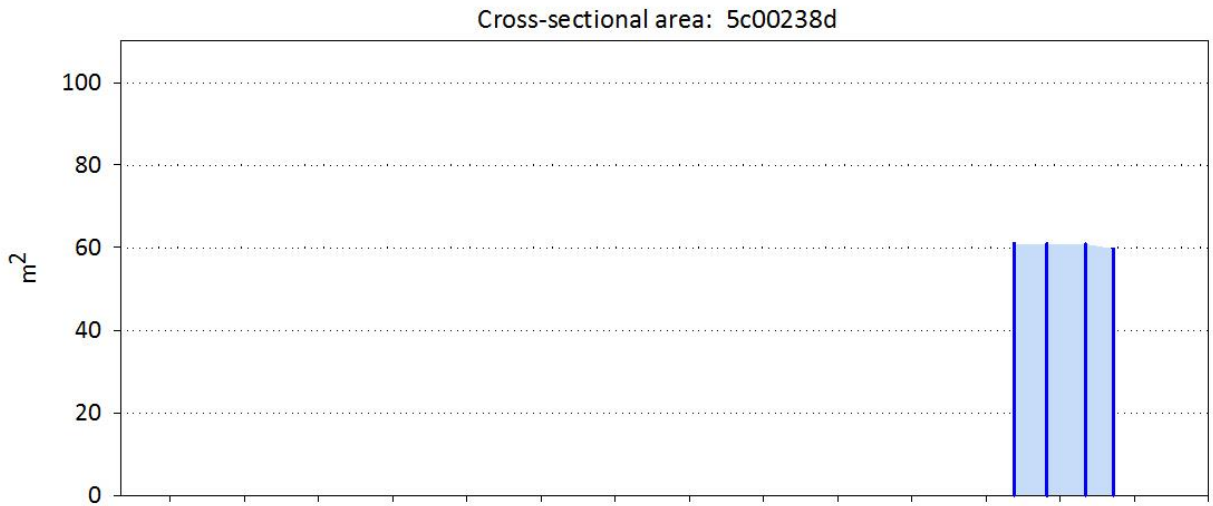
Aerial Photography: 2016

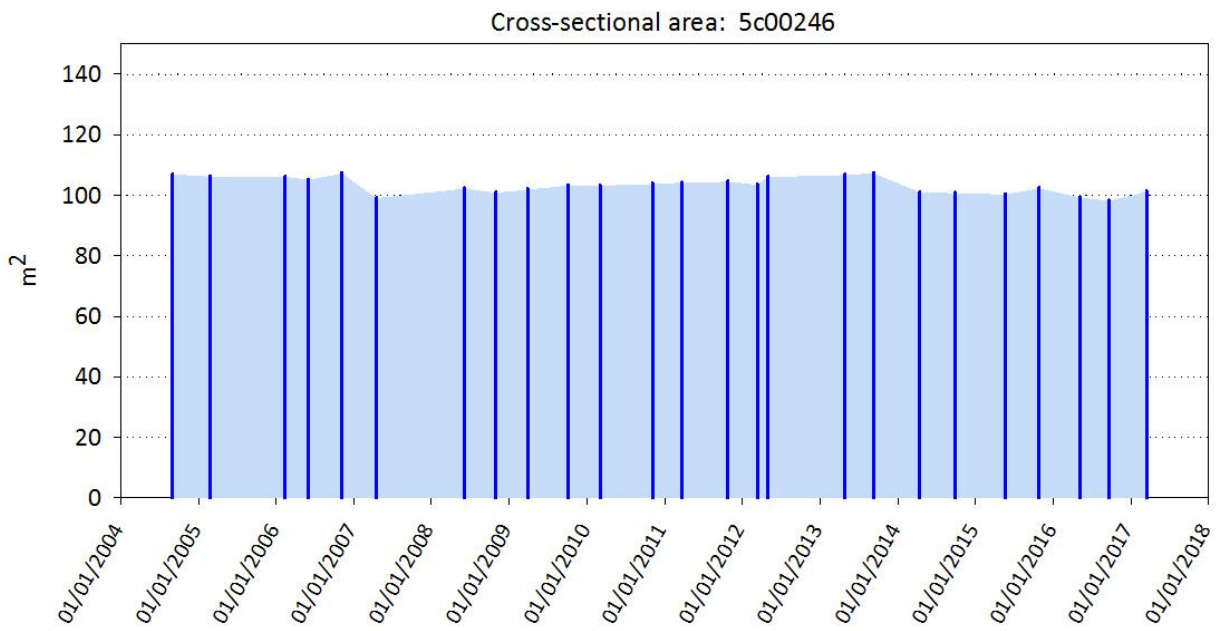
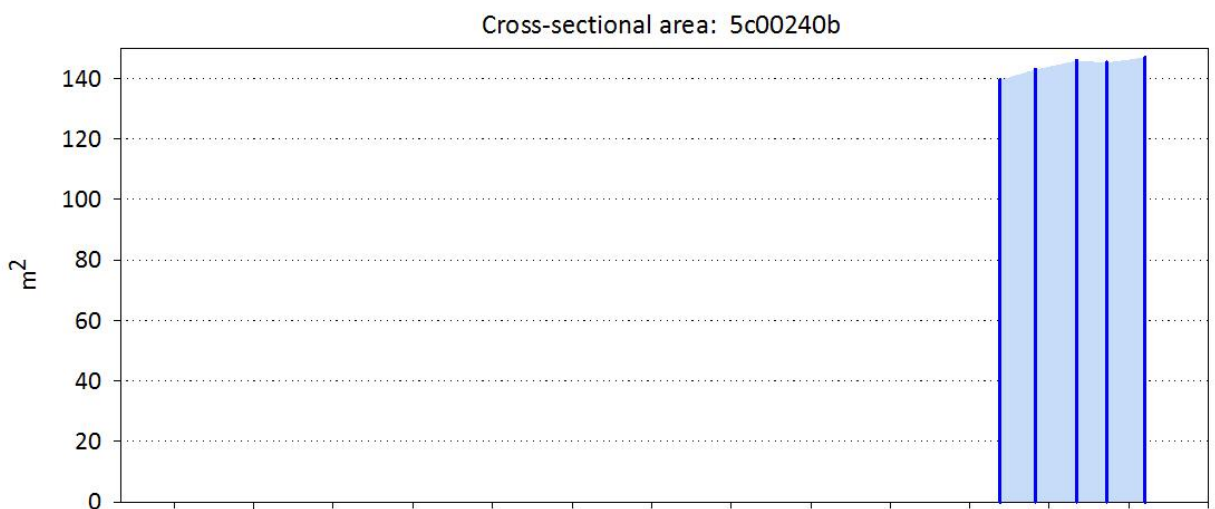
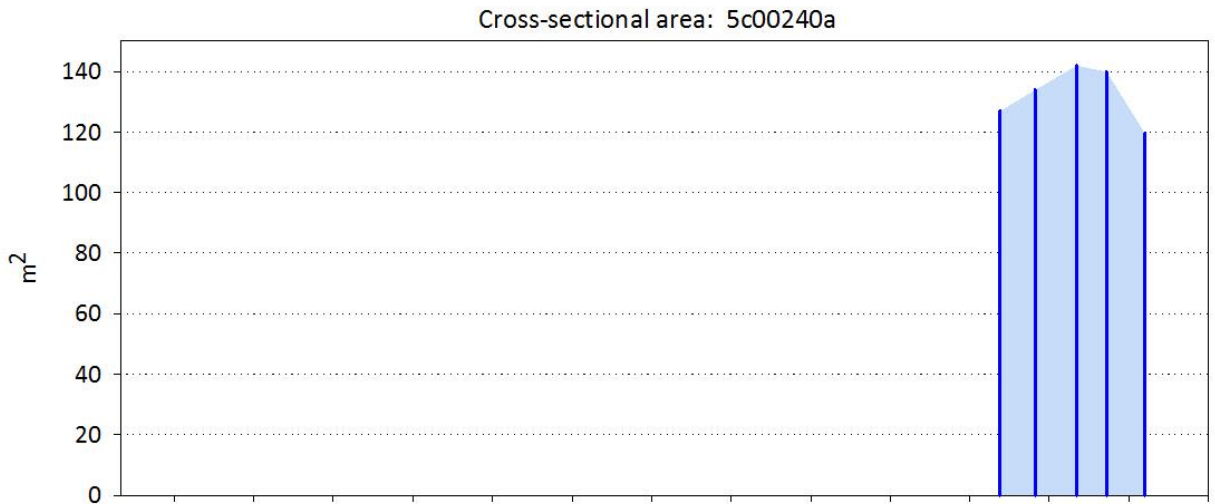


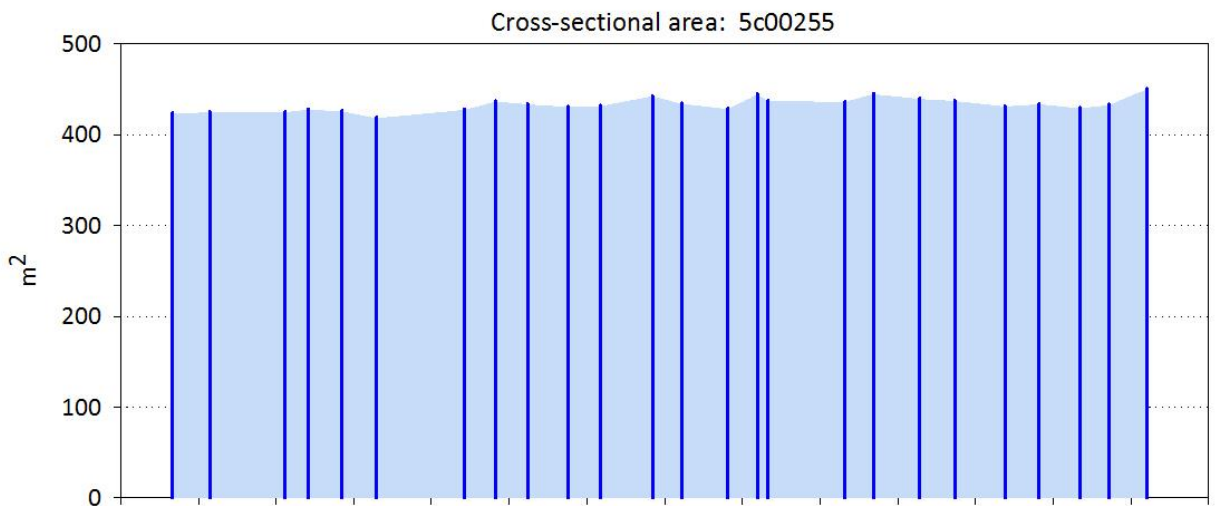
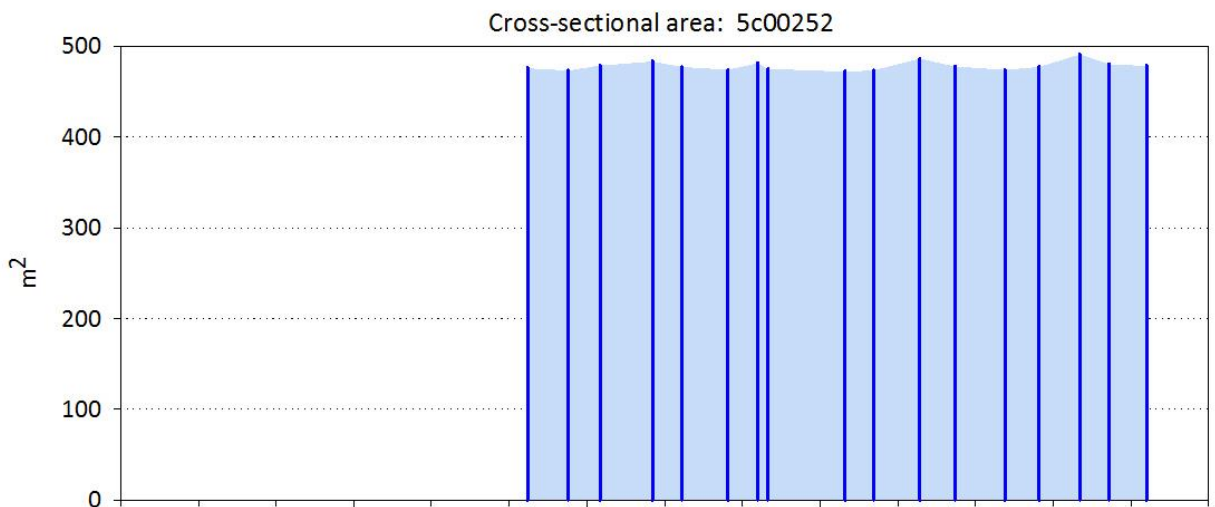
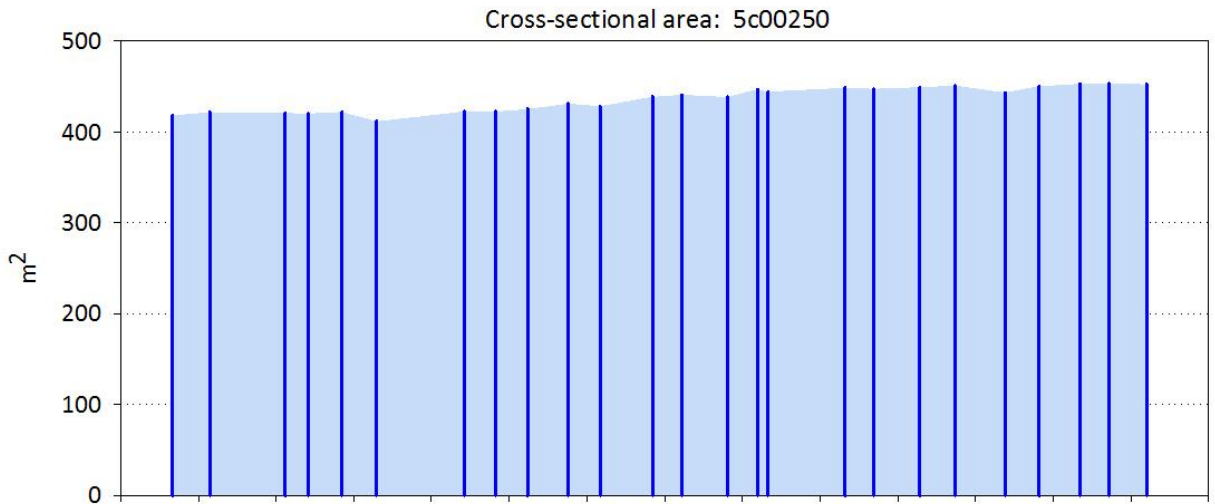
% change in cross-sectional area May 2006 to March 2017

Calshot Spit: 5cSU10

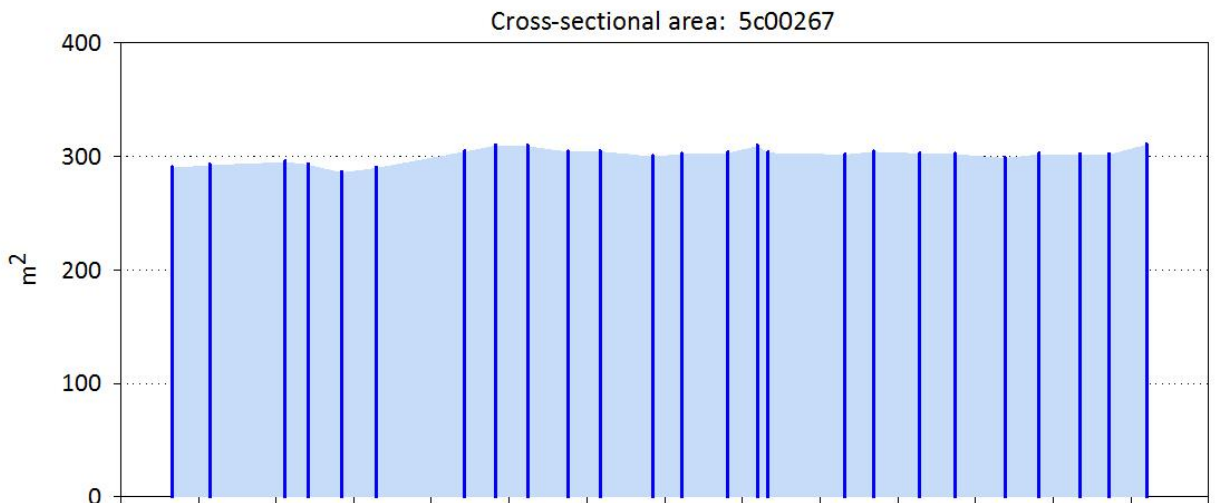
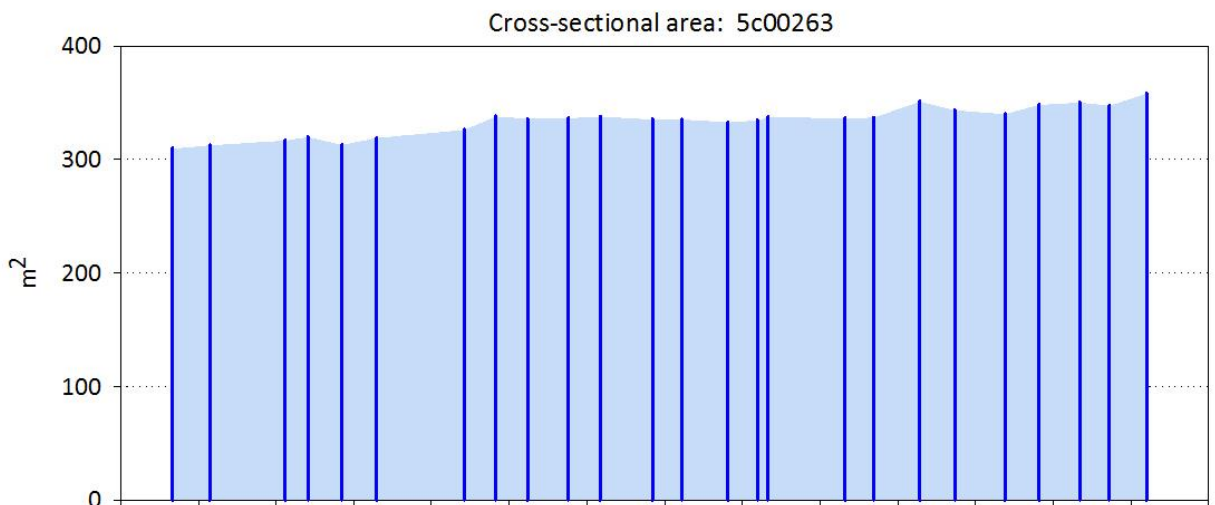
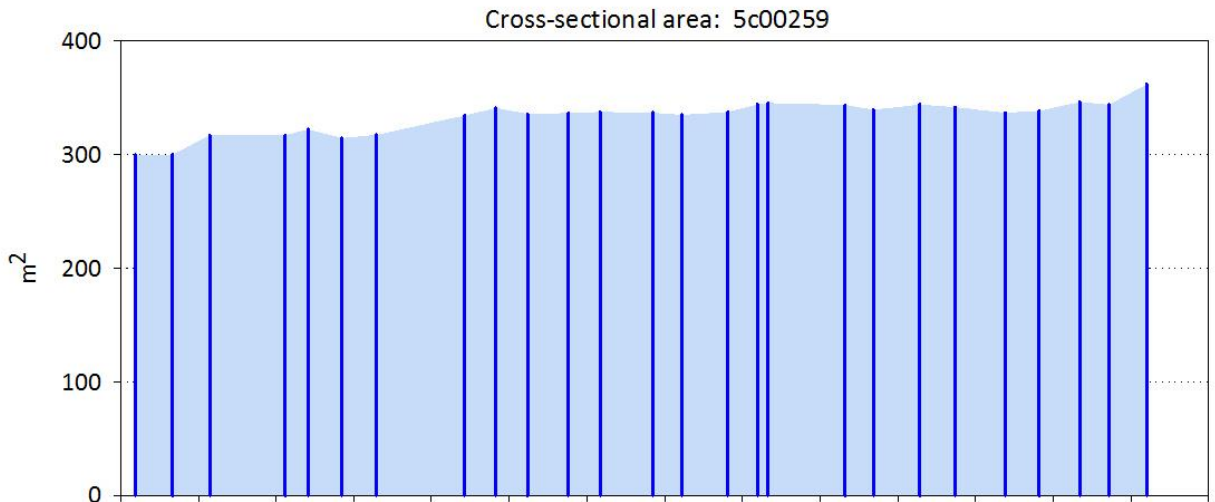




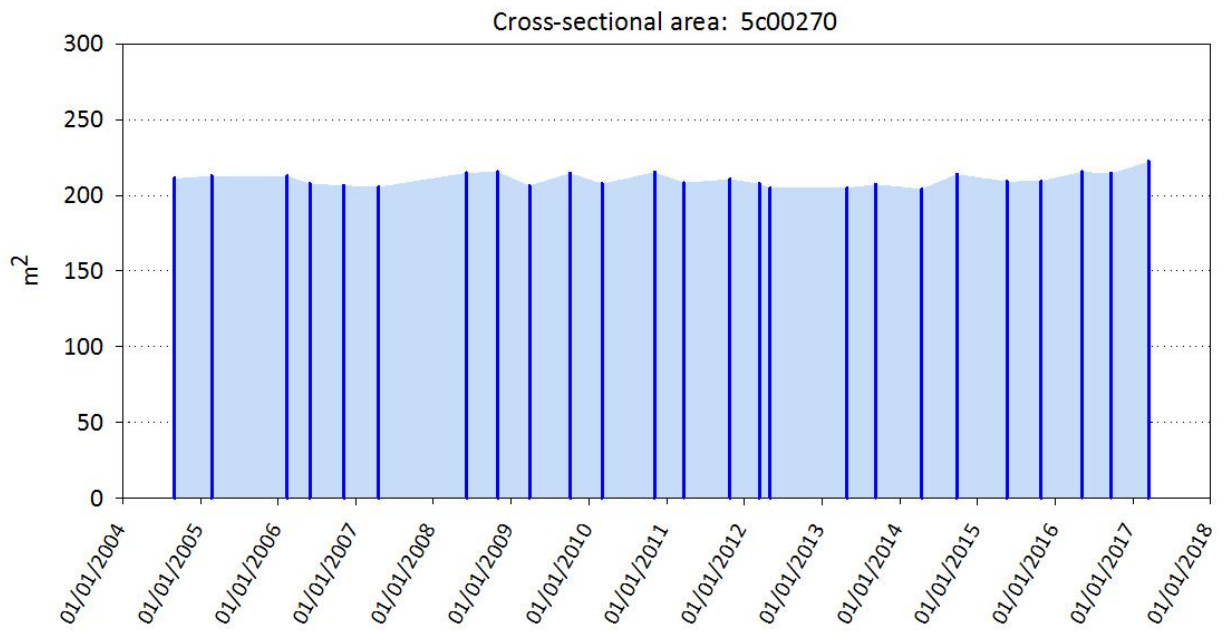





01/01/2004 01/01/2005 01/01/2006 01/01/2007 01/01/2008 01/01/2009 01/01/2010 01/01/2011 01/01/2012 01/01/2013 01/01/2014 01/01/2015 01/01/2016 01/01/2017 01/01/2018



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Survey Unit	5cSU19	
Location	Hurst Castle to North Point	

Survey dates	Survey type		Comments
31/10/2016 12/04/2017	Autumn to Spring	Profile change	The profiles show a mixture of accretion and erosion across the unit with the exception of 5c00576 which shows higher levels of accretion.
10/03/2016 12/04/2017	Spring to Spring		The largest change is apparent at the tip of North Point with profiles 5c00574 and 5c00578 showing medium levels of erosion and profiles 5c00576 and 5c00580 showing medium levels of accretion. The rest of the profiles show little change.
17/03/2006 12/04/2017	Baseline to Spring		Along the hook of the spit there has been some minor erosion to the north and minor accretion to the south. Profile 5c00594 shows a high level of erosion.
12/04/2017 22/09/2017	Spring to Autumn		From Spring to Autumn the trend for the unit is one of erosion. The highest levels are observed at profile 5c00591. The exceptions to this are 5c00578 and 5c00594.
20/07/2016 12/04/2017	Summer to Summer	Topographic difference model	Over the past year there has been low levels of erosion along the lower foreshore. There are small patches of accretion observed higher up the beach and at the hook nearest the castle.
05/10/2004 12/04/2017	Baseline to Summer		Since 2003 the top of the hook of North Point shows erosion. The rest of the hook shows patches of erosion and accretion along its length.

Profile cross-sectional area change: seasonal changes					
Profile	Autumn to Spring		Spring to Autumn		Elevation of Reference Surface (OD)
	Oct 2016 to April 2017		April 2017 to Sept 2017		
	(m ²)	%	(m ²)	%	
5c00574	-1.7	-3.3%	0.6	1.2%	-1.13
5c00576	7.4	6.1%	-2.1	-1.6%	
5c00578	-0.7	-1.4%	2.7	5.1%	
5c00580	3.4	2.9%	-0.7	-0.6%	
5c00582	-0.1	-0.1%	-0.7	-1%	

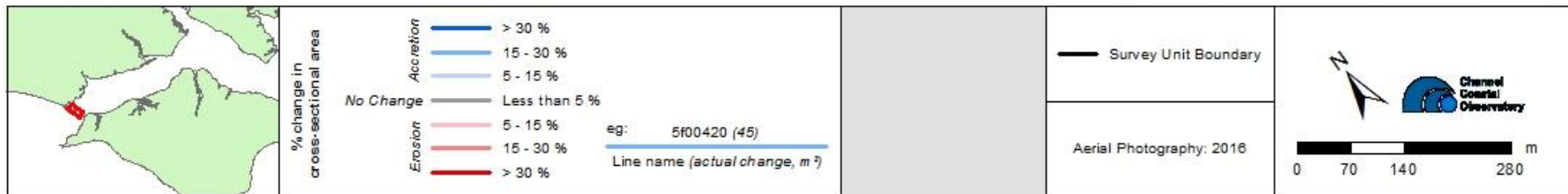
5c00584	0.1	0.2%	0.5	0.6%	
5c00587	-1.3	-1.6%	-1.9	-2.4%	
5c00590	4.3	3.0%	-5.7	-3.8%	
5c00591	9.9	2.3%	-31	-6.9%	
5c00592	-1.5	-2.2%	-1.0	-1.6%	
5c00594	-0.5	-0.7%	3.9	5.8%	
5f00001	-	-	-	-	
5f00002	-	-	-	-	
5f00003	-	-	-	-	

Profile cross-sectional area change: annual and longer-term changes					
Profile	Spring to Spring		Baseline to Spring		Elevation of Reference Surface (OD)
	March 2016 to April 2017		March 2006 to April 2017		
	(m ²)	%	(m ²)	%	
5c00574	-11	-18%	-3.1	-5.9%	MLWS -1.13
5c00576	16	14%	-16	-11%	
5c00578	-11	-17%	2.1	4.2%	
5c00580	6.3	5.5%	-12	-8.8%	
5c00582	-1.2	-1.9%	-8.9	-12%	
5c00584	0	0%	-2.1	-2.9%	
5c00587	-2.8	-3.3%	2.2	2.8%	
5c00590	9.7	6.8%	11	7.6%	
5c00591	-3.5	-0.8%	-	-	
5c00592	-2.0	-2.9%	-	-	
5c00594	-2.5	-3.7%	-60	-47%	
5f00001	-	-	-	-	
5f00002	-	-	-	-	

5f00003	-	-	-	-	
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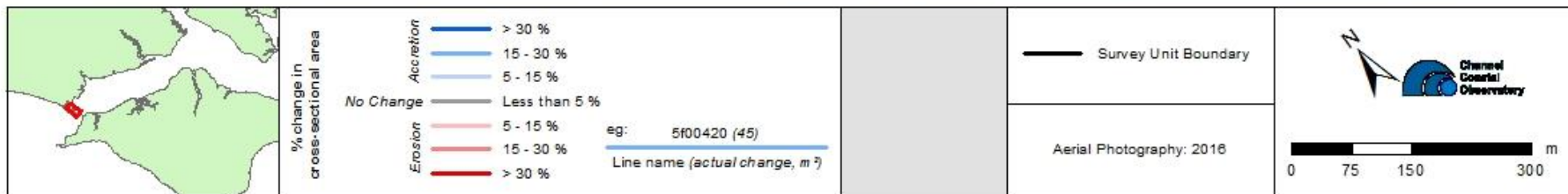


% change in cross-sectional area March 2016 to April 2017

Hurst Castle to North Point: 5cSU19

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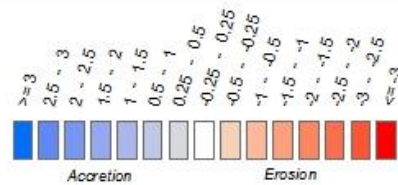


% change in cross-sectional area March 2006 to April 2017

Hurst Castle to North Point: 5cSU19



Change in Elevation (m)



Model Extent
Survey Unit Boundary

Aerial Photography: 2016

