South West Strategic Regional Coastal Monitoring Programme

Annual Report 2013 – Land’s End to Hartland Point

1. Introduction

Analysis presented in this report provides an overview of beach changes and wave and tidal measurements since the commencement of the South West Strategic Regional Coastal Monitoring Programme. The first beach surveys took place during the spring of 2007 and changes are reported until the spring interim surveys of 2013. This provides a short time base over which beach changes have been monitored. Detailed interpretation and decision-making is not advisable on the basis of these short-term changes, since the changes may not be representative of longer-term trends.

Data are presented at several levels:

- Process cell summary of percentage and actual profile change from 2012 to 2013
- Process cell summary of percentage and actual profile change from 2007 to 2013
- Detailed beach profile change from 2012 to 2013
- Detailed beach profile change from 2007 to 2013
- Topographic difference model from 2012 to 2013 and 2007 to 2013
- Change in position of Mean High Water
- Beach sediment distribution
- Time series of beach profile graphs (on CD)
- Trend analysis of beach cross-sectional area (on CD)

The process cell summary maps provide an at-a-glance summary of the changes during the past year and over the longer term. It is recommended that the user should use the maps to identify areas of interest and then examine the individual profile plots and trends. Colour-coded lines highlight areas of maximum change and identify profiles which might need closer examination.

It must be noted that the colour coded lines are based on actual change as opposed to percentage change as is the case with similar reports published by the South East Regional Coastal Monitoring Programme. Percentage change is displayed in brackets following the profile name on each line.

Difference models have been produced where there are at least two baseline surveys to compare. In addition, the topographic baseline data has been used to extract the level of Mean High Water (MHW) from each survey unit.

It must be appreciated that the accuracies of each measurement system must be taken into account when drawing conclusions, particularly from the difference models. In the case of topographic difference models from RTK GPS surveys, the accuracy of each data point is ±0.03m and therefore differences of ±0.06m can generally be considered as "real", whilst smaller changes may be an artefact of the measuring system, and are considered to be "No Change". Difference plots show changes >±0.25m, which should be indicative of areas of genuinely measurable change. Smaller changes may also be present but these are filtered from the analysis.
to provide clarity. This report displays difference models only where detailed analysis suggests that the changes are real but, nevertheless, the user should approach the results as indicative, unless reinforced overtime or with other information.

Where LiDAR has provided the source data sets, the modelling is less precise. Each LiDAR cell value has a plan position representative of a 1m$^2$ grid. It is not reasonable to expect to observe changes with positional accuracy of better than 1-2m therefore. Profiles of steep slopes may suggest that the changes “bounce” back and forth. This is an artefact of the accuracy of the source data. LiDAR is particularly ineffective at identifying sharp edges or steep slopes e.g. cliffs, seawalls. Despite these limitations in accuracy the changes shown indicate an overview of beach change, but to a lower precision than the RTK data. The location of the regularly surveyed profiles superimposed on the difference plots indicates how representative these profiles might be of overall changes.

It must be emphasised that this is only the fifth report of a series and that changes identified are indicative only of short-term trends. As the Programme progresses, more detailed and meaningful reporting will be possible and this report should be treated accordingly.

2. **Hydrodynamic data**

a. **Waves**
   A Directional WaveRider buoy was deployed at Perranporth on the 1st December 2006. A step gauge became operational at Port Isaac on 15 July 2010.

   The full wave report is given at Annex A.

b. **Tides**
   A step gauge became operational at Port Isaac on 15 July 2010.

   The full tide report is given at Annex B.

3. **Survey data – topographic**

Over the past year, the majority of the survey units within the sub-cell have experienced losses in material, however this translates to very little or no change in percentage of cross-sectional area. The longer term analysis shows most profiles to be gaining material, equating to small increases in percentage change of cross-sectional area. Overall the sub-cell has experienced little significant change.

Dates of surveys are shown in Annex E and the detailed topographic survey report is given at Annex F.
4. **Survey data – bathymetric**

The first baseline bathymetric surveys for Land’s End to Hartland Point were conducted between 2007 and 2011. No further analysis will be carried out until after the next baseline bathymetric survey.

<table>
<thead>
<tr>
<th>Annex</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Annex A</td>
<td>Perranporth Interim Wave Report and Port Isaac Interim Wave Report</td>
</tr>
<tr>
<td>Annex B</td>
<td>Port Isaac Interim Tide Report</td>
</tr>
<tr>
<td>Annex C</td>
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<td>Annex D</td>
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</tr>
<tr>
<td>Annex E</td>
<td>High Level Report – field data collection (CISCAG)</td>
</tr>
<tr>
<td>Annex F</td>
<td>Topographic Survey Report for Land’s End to Hartland Point</td>
</tr>
<tr>
<td>Annex G</td>
<td>N/A</td>
</tr>
</tbody>
</table>

**Explanatory Notes**
Perranporth Directional Waverider Buoy

Location
OS: 174304E 55125N
WGS84: Latitude: 50° 21.160' N Longitude: 05° 10.445' W

Water Depth
~14 m CD

Instrument Type
Datawell Directional Waverider Mk III

Data Quality

<table>
<thead>
<tr>
<th>Recovery rate (%)</th>
<th>Sample interval</th>
</tr>
</thead>
<tbody>
<tr>
<td>98</td>
<td>30 minutes</td>
</tr>
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</table>

Monthly Statistics – 2012/13

<table>
<thead>
<tr>
<th>Month</th>
<th>Hs (m)</th>
<th>Tp (s)</th>
<th>Tz (s)</th>
<th>Dir. (°)</th>
<th>SST (°C)</th>
<th>No. of days</th>
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<tbody>
<tr>
<td>July</td>
<td>1.17</td>
<td>7.8</td>
<td>4.9</td>
<td>279</td>
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<td>August</td>
<td>1.22</td>
<td>9.0</td>
<td>5.4</td>
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<td>September</td>
<td>1.32</td>
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<td>30</td>
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<td>284</td>
<td>8.1</td>
<td>30</td>
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<td>27</td>
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<tr>
<td>June</td>
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<td>13.2</td>
<td>30</td>
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Storm Analysis

<table>
<thead>
<tr>
<th>Date/Time</th>
<th>Hs (m)</th>
<th>Tp (s)</th>
<th>Tz (s)</th>
<th>Dir. (°)</th>
<th>Water level elevation (OD)</th>
<th>Tidal stage (hours re. HW)</th>
<th>Tidal range (m)</th>
<th>Tidal surge* (m)</th>
<th>Max. surge* (m)</th>
</tr>
</thead>
<tbody>
<tr>
<td>26-Nov-2012 16:30</td>
<td>5.84</td>
<td>10.0</td>
<td>7.8</td>
<td>322</td>
<td>2.81</td>
<td>HW +1</td>
<td>0.9</td>
<td>-0.06</td>
<td>0.38</td>
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</table>

* Tidal information is obtained from the nearest recording tide gauge (the step gauge at Port Isaac). The surge shown is the residual at the time of the highest Hs. The maximum tidal surge is the largest surge during the storm event.
Distribution plots

The distribution of wave parameters are shown in the accompanying graphs of:
- Wave roses (Direction vs. Hs) from July 2012 to June 2013 (top) and for all measured data (bottom)
- Percentage of occurrence of Hs, Tp, Tz and Direction from July 2012 to June 2013
- Monthly time series of Hs (red line is 5.5 m storm threshold)
- Incidence of storms during the reporting period and for all previous years. Storm events are defined using the Peaks-over-Threshold method. The highest Hs of each storm event is shown

Summary

This reporting period was unusually quiet with only one storm exceeding the 5.5m storm threshold in November although several others came close throughout the winter months. Wave direction continued to predominate from the WSW.

General

The buoy was first deployed on 18 December 2006.

Acknowledgements

The shore station is kindly hosted by Perranporth Youth Hostel. TASK2000 tidal prediction software was kindly provided by the Permanent Service for Mean Sea Level, Proudman Oceanographic Laboratory.
Port Isaac Tide Gauge

Location
OS: 199490E 80998N
WGS84: Latitude: 50° 35' 39.083" N  Longitude: 04° 50' 03.881" W

Instrument Type
Etrometa step gauge

Benchmark

<table>
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<th>Benchmark</th>
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<td>TGBM = 7.715 above Ordnance Datum Newlyn</td>
<td>Top of galvanised horizontal frame</td>
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<tr>
<td>TGZ = -3.970m above Ordnance Datum Newlyn</td>
<td></td>
</tr>
<tr>
<td>TGZ = -0.170m above Chart Datum</td>
<td></td>
</tr>
<tr>
<td>TGZ = 11.685m below TGBM</td>
<td></td>
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</tbody>
</table>

Datum
All data are to Ordnance Datum Newlyn. The height of Chart Datum relative to Ordnance Datum at Port Isaac is -3.80m (Admiralty Tide Tables, Supplementary Table III).

Survey information
The site was first surveyed on 29 June 2010, using a ~25 hour occupation to account for tidal loading.

Site characteristics
The breakwater is on open coast, although sheltered from the southwest by a headland. Some wave reflection from the breakwater can occur. There are no nearby estuaries. Spring tidal range is approx. 6.6m.

Data Quality

<table>
<thead>
<tr>
<th>Recovery rate (%)</th>
<th>Sample interval</th>
</tr>
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<tbody>
<tr>
<td>99</td>
<td>10 minutes</td>
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Service history
The step gauge became operational on 26 July 2010 and was last serviced on October 2012. No recalibration of the instrument is required.

Measurements
Residuals and Elevations (OD and CD) for the whole year are shown in Figures 1 to 3 respectively.

Statistics

<table>
<thead>
<tr>
<th>Month</th>
<th>Extreme maxima</th>
<th>Extreme minima</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Elevation (OD)</td>
<td>Date/Time</td>
</tr>
<tr>
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<td>4.00</td>
<td>25-Jan-2012 06:30</td>
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<tr>
<td>February</td>
<td>3.94</td>
<td>10-Feb-2012 06:50</td>
</tr>
<tr>
<td>March</td>
<td>4.15</td>
<td>10-Mar-2012 06:30</td>
</tr>
<tr>
<td>April</td>
<td>4.43</td>
<td>09-Apr-2012 19:20</td>
</tr>
<tr>
<td>May</td>
<td>4.41</td>
<td>07-May-2012 18:10</td>
</tr>
<tr>
<td>June</td>
<td>4.21</td>
<td>05-Jun-2012 18:00</td>
</tr>
<tr>
<td>July</td>
<td>4.16</td>
<td>05-Jul-2012 18:30</td>
</tr>
<tr>
<td>August</td>
<td>4.24</td>
<td>03-Aug-2012 18:10</td>
</tr>
<tr>
<td>September</td>
<td>4.33</td>
<td>17-Sep-2012 18:00</td>
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<table>
<thead>
<tr>
<th>Month</th>
<th>Surge maxima</th>
<th>Surge minima</th>
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<tbody>
<tr>
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<td>Value (m)</td>
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<td>March</td>
<td>0.09</td>
<td>03-Mar-2012 08:00</td>
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<tr>
<td>April</td>
<td>0.58</td>
<td>25-Apr-2012 14:50</td>
</tr>
<tr>
<td>May</td>
<td>0.26</td>
<td>10-May-2012 00:50</td>
</tr>
<tr>
<td>June</td>
<td>0.50</td>
<td>08-Jun-2012 01:40</td>
</tr>
<tr>
<td>July</td>
<td>0.23</td>
<td>07-Jul-2012 16:10</td>
</tr>
<tr>
<td>August</td>
<td>0.51</td>
<td>15-Aug-2012 10:50</td>
</tr>
<tr>
<td>September</td>
<td>0.39</td>
<td>26-Sep-2012 11:40</td>
</tr>
<tr>
<td>October</td>
<td>0.77</td>
<td>17-Oct-2012 11:10</td>
</tr>
<tr>
<td>November</td>
<td>0.62</td>
<td>22-Nov-2012 14:10</td>
</tr>
<tr>
<td>December</td>
<td>0.70</td>
<td>29-Dec-2012 00:30</td>
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</table>
## Monthly Mean Levels

<table>
<thead>
<tr>
<th>Month</th>
<th>No. of days</th>
<th>Elevation (OD)</th>
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</thead>
<tbody>
<tr>
<td>January</td>
<td>30</td>
<td>0.224</td>
</tr>
<tr>
<td>February</td>
<td>29</td>
<td>0.065</td>
</tr>
<tr>
<td>March</td>
<td>29</td>
<td>0.116</td>
</tr>
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<td>April</td>
<td>30</td>
<td>0.340</td>
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<tr>
<td>May</td>
<td>30</td>
<td>0.271</td>
</tr>
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<td>June</td>
<td>29</td>
<td>0.363</td>
</tr>
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<td>July</td>
<td>30</td>
<td>0.316</td>
</tr>
<tr>
<td>August</td>
<td>31</td>
<td>0.399</td>
</tr>
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<td>September</td>
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<td>0.328</td>
</tr>
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<td>October</td>
<td>30</td>
<td>0.469</td>
</tr>
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<td>November</td>
<td>30</td>
<td>0.445</td>
</tr>
<tr>
<td>December</td>
<td>30</td>
<td>0.419</td>
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</table>

## Highest values in 2012

<table>
<thead>
<tr>
<th>Elev. (OD) (Surge)</th>
<th>Date/Time</th>
<th>Value (m)</th>
<th>Date/Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>4.76 (0.53)</td>
<td>17-Oct-2012 18:30</td>
<td>0.77</td>
<td>17-Oct-2012 11:10</td>
</tr>
<tr>
<td>4.76 (0.47)</td>
<td>17-Oct-2012 06:00</td>
<td>0.70</td>
<td>29-Dec-2012 00:30</td>
</tr>
<tr>
<td>4.53 (0.41)</td>
<td>14-Dec-2012 05:20</td>
<td>0.69</td>
<td>15-Dec-2012 01:50</td>
</tr>
<tr>
<td>4.51 (0.35)</td>
<td>18-Oct-2012 06:40</td>
<td>0.64</td>
<td>18-Oct-2012 02:10</td>
</tr>
<tr>
<td>4.47 (0.18)</td>
<td>16-Oct-2012 17:50</td>
<td>0.62</td>
<td>16-Dec-2012 01:00</td>
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<tr>
<td>4.44 (0.24)</td>
<td>15-Dec-2012 06:30</td>
<td>0.62</td>
<td>22-Nov-2012 14:10</td>
</tr>
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<td>4.43 (0.22)</td>
<td>09-Apr-2012 19:20</td>
<td>0.61</td>
<td>15-Dec-2012 12:20</td>
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<tr>
<td>4.41 (0.20)</td>
<td>16-Oct-2012 05:30</td>
<td>0.59</td>
<td>29-Dec-2012 15:00</td>
</tr>
<tr>
<td>4.41 (0.12)</td>
<td>07-May-2012 18:10</td>
<td>0.59</td>
<td>16-Dec-2012 19:10</td>
</tr>
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<td>4.38 (0.07)</td>
<td>09-Apr-2012 06:50</td>
<td>0.59</td>
<td>16-Dec-2012 13:00</td>
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## Annual Extremes

<table>
<thead>
<tr>
<th>Year</th>
<th>Annual extreme maxima</th>
<th>Annual surge maxima</th>
<th>Z₀ (OD)</th>
<th>Annual recovery rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>2010</td>
<td>4.66 (-)</td>
<td>-</td>
<td>-</td>
<td>44%</td>
</tr>
<tr>
<td>2011</td>
<td>4.59 (0.09)</td>
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### Tidal levels

<table>
<thead>
<tr>
<th>Observation period</th>
<th>August 2010 to December 2012</th>
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<tbody>
<tr>
<td><strong>Tide Level</strong></td>
<td><strong>Elevation (OD)</strong></td>
</tr>
<tr>
<td>HAT</td>
<td>4.73</td>
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<tr>
<td>MHWS</td>
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<td>MLWS</td>
<td>-3.03</td>
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<tr>
<td>LAT</td>
<td>-4.01</td>
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</table>

### General

The time series of 10 minute tidal elevations for one year is quality-checked in accordance with ESEAS guidelines, flagged and archived. The archived time series is continuous and monotonic, with missing data given as 9999. The missing data shown are days where the entire 24 hours of data are missing.

Monthly extreme maxima/minima are the maximum and minimum water levels from all measured data for that month. Monthly surge maxima/minima (residuals) are calculated in a similar manner from the time series of residuals. Residuals are derived as the measured tidal elevation minus the predicted tidal elevation.

The monthly Mean Level is calculated as the average of all readings for the given month. The annual $Z_0$ is the value of Mean Sea Level derived by the harmonic analysis of the year's data. These values should not be used for any purpose without consideration of the recovery rate.

### Acknowledgements

The step gauge is mounted on Port Isaac breakwater by kind permission of the Port Isaac Harbour Commissioners and the shore station is kindly hosted by Port Isaac Aquarium. Tidal predictions were produced using the TASK2000 software, kindly provided by the Permanent Service for Mean Sea Level (PSMSL), Proudman Oceanographic Laboratory. Tide levels were produced by Fugro EMU Limited.
Figure 1: Port Isaac residuals for 2012
Figure 2: Port Isaac tidal elevations for 2012 relative to Ordnance Datum
Figure 3: Port Isaac tidal elevations for 2012 relative to Chart Datum
### South West Regional Coastal Monitoring Programme

**Field Data Collection – CISCAG**

**Topographic Data**

<table>
<thead>
<tr>
<th>Sub Cell</th>
<th>Survey Unit</th>
<th>Repeat Baseline 2012</th>
<th>Autumn Interim 2012</th>
<th>Post Storm</th>
<th>Spring Interim 2013</th>
<th>Repeat Baseline 2013</th>
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<tbody>
<tr>
<td></td>
<td></td>
<td>Target</td>
<td>Completion</td>
<td>Target</td>
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</tr>
</tbody>
</table>

**Key**

- **Green**: Completed on time and accepted
- **Red**: Completed late
- **Orange**: Surveyed but not submitted / Accepted
- **Gray**: Will not be surveyed

* Repeat Baseline surveys were not carried out in this area during the first year of Phase II of the Programme.

Spring interim topographic surveys were substituted by baseline topographic surveys.

For the most recent survey schedules for each survey unit please see [http://www.channelcoast.org/southwest/survey_programme_schedule/](http://www.channelcoast.org/southwest/survey_programme_schedule/)
Annex F – Topographic Survey Report for Land’s End to Hartland Point

1. Introduction

Profile Data

Analysis has been conducted for those sites where a minimum of three surveys have been recorded. In general, changes are measured relative to the Mean Low Water Springs (MLWS) level.

A full time series of plotted beach profiles are shown superimposed and relative to a Master Profile for each profile location (on the accompanying CD). The Master Profile provides the basis for calculation of beach cross-section area changes. Where possible, identical depth boundaries have been used for all profiles within a survey unit. However, even where this has not been possible, direct comparisons can be made for the beach cross-sectional area at one profile over time, since the master profile is constant for each profile (Figure 1). In some instances, raising the lower depth of the Master Profile may reduce the overall cross-sectional area of the profile. This may cause small changes in the beach profile to have a large impact on the percentage change. This effect has been taken into account in the analysis of change to beach profiles. The trend in cross-sectional area (CSA) is presented as a graph for each profile (Figure 2).

Figure 1: Example Master Profile with CSA calculated from the surveyed GPS Profile
Baseline Data

As part of the monitoring Programme specification, each survey unit receives a full topographic baseline survey once every five years, with the exception of repeat baseline sites which receive an annual baseline. Baseline surveys include a full profile survey at 50m intervals and continuous spot height data collected at approximately 1m intervals across the whole beach to the level of MLWS. This continuous data also includes a feature code for each spot height data point recorded. Where possible the feature code data has been used to provide a sediment distribution map for each survey unit.
2. **Condition of process sub-cell**

The Beach Change Summary maps contain an at-a-glance condition of the whole of the Land’s End to Hartland Point area, with the lines representing the average accretion, no change or erosion for each survey unit.

3. **Condition of individual survey units**

Changes within each survey unit are summarised on five maps where data are available: Beach change map (Baseline 2012 to Spring 2013), beach change map (Baseline 2007 to Spring 2013), topographic difference model map (Baseline to Baseline), Mean High Water line and sediment distribution maps. Beach Change maps show the location of each beach profile, superimposed on an aerial photograph (note that the line has been extended for clarity). Where possible, the annual change in cross-sectional area has been calculated from the baseline 2012 to spring 2013 and from baseline 2007 to spring 2013.

**7a7A1-2: Sennen Cove**

**Baseline 2012 to Spring 2013**
Nearly all profiles have gained material over the last year, with only profile 7a00058 losing material.

**Baseline 2007 to Spring 2013**
The long term analysis shows all profiles gaining over 30m² in cross-sectional area, with some significant gains in percentage change along profiles 7a00053, 7a00066 and 7a00081.

**7a7A2-2: Porthmeor Beach**

**Baseline 2012 to Spring 2013**
The overriding trend over the last year has been erosion along all profiles, with the exception of profile 7a00685, which has gained a small amount of material.

**Baseline 2007 to Spring 2013**
Over the longer term, the two western profiles have shown erosion of material, both losing 14% of their cross-sectional area. Profiles 7a00685 and 7a00689 have both gained material since the original baseline.

**7a7A2-3: Porth Gwidden**

This survey unit was added to the Programme, at the beginning of phase two, therefore LiDAR data from 2008 has been used to compare profiles for long term analysis.

**Baseline 2012 to Spring 2013**
Profile 7a00700A has lost 10% of its cross-sectional area since last year, losing over 37m² of material.

**Baseline 2008 to Spring 2013**
All profiles across both beaches have gained material over the longer time period.
7a7A2-4: St Ives

Profiles 7a00706A, 7a00706B and 7a00708A were added to the survey unit at the beginning of phase two, and are not compared with the 2007 baseline data.

**Baseline 2012 to Spring 2013**
Profiles 7a00708A and 7a00714 have remained stable over the past year, whilst the remaining profiles show a varied combination of accretion and erosion.

**Baseline 2007 to Spring 2013**
Over the longer time period, all interim profiles have gained over 30m² in cross-sectional area.

7a7A2-5: Carbis Bay

**Baseline 2012 to Spring 2013**
Over the last year, all interim profiles have lost material, with the strongest erosion occurring in the east, along profile 7a00763.

**Baseline 2007 to Spring 2013**
The long term comparison shows profiles 7a00751 to 7a00755 gaining material. The two eastern profiles have both experienced erosion.

7a7A2-6: Hayle Estuary

**Baseline 2012 to Spring 2013**
To the west of the river, the majority of the beach has lost material, with only profile 7a00783 gaining a small amount. Profiles 7a00775, 7a00779, 7a00795 and 7a00799 have all lost over 30m² of material, with profile 7a00799 losing 17% of its cross-sectional area. To the east of the river, profiles 7a00805, 7a00807, 7a00809 and 7a008017 have gained material, whilst the eastern profiles 7a00813, 7a00820 and 7a00823 have lost material.

**Baseline 2007 to Spring 2013**
Since the original baseline, the western section of the survey unit shows a mixture of erosion and accretion. Profile 7a00799 has lost 41% of its cross-sectional area, a significant loss over the seven year period. East of the river, profiles 7a00805, 7a00807 and 7a00809 have all gained over 30m² in material. The final four profiles, 7a00813 to 7a00823 have all lost material, with a significant loss of 39% in cross-sectional area along profile 7a00817.

**Topographic Difference Model Changes: Baseline 2012 to Spring 2013**
Since last year’s baseline survey the beach has undergone some very significant changes. The western section of the beach has experienced a thin band of accretion below the sand dunes, with some larger patches of erosion spaced across the model extent. The eastern side of the river mouth is much more dynamic with a large patch of very strong erosion next to the dunes. Further large patches of accretion surround this patch of erosion, adjacent to the course of the river mouth.

*Net Sediment Balance above MLWS from 2012 to 2013: -85,586m³*

*Net Sediment Change from 2012 to 2013: -2.7%*
Topographic Difference Model Changes: Baseline 2012 to Spring 2013
The longer term model analysis follows a similar pattern, with a slightly more stable western section, and a more dynamic eastern section. A thin band of accretion tracks the western sand dune, with a longer band of erosion just below. Patches of accretion and erosion sit adjacent to the river course and along the low tide line, although the majority of the western section remains stable.

The eastern section shows some strong patches of accretion at the river’s narrowest point, running down parallel with the river course. A small but very strong area of erosion is present along the edge of the model extent, adjacent to the sand dunes. Some larger areas of erosion are spread throughout the eastern section.

Net Sediment Balance above MLWS from 2007 to 2013: +5,687m³

Net Sediment Change from 2007 to 2013: 0.2%

7a7A2-7 Hayle Estuary to Godrevy Point

Baseline 2012 to Spring 2013
The interim profiles over the last year have shown a mixture of accretion, erosion and stability. Profiles 7a00829, 7a00879 and 7a00909 have all lost over 30m² of material. Profile 7a00919 has gained some material, whilst the remaining profiles have experienced very little change.

Baseline 2007 to Spring 2013
All of the profiles have experienced net accretion, with nearly all showing gains of over 30m². Percentage gains are relatively similar across all profiles, with the exception of some high percentage gains along some of the shorter profiles.

7a7A3-2: Portreath

Baseline 2012 to Spring 2013
Over the last year both profiles have lost material, with profile 7a01109 losing over 30m².

Baseline 2007 to Spring 2013
Over the longer time period, the west of the beach has lost some material, showing low level erosion. To the east, there is some accretion along profile 7a01109.

7a7A3-4: Porthtowan

Baseline 2012 to Spring 2013
Both profiles have lost material over the last year, with profile 7a01215 losing over 30m² of its cross-sectional area.

Baseline 2007 to Spring 2013
The long term profile analysis shows the survey unit to be gaining material across both profiles.
7a7A3-8: Perranporth

**Baseline 2012 to Spring 2013**
Over the last year, all profiles have lost material, with profiles 7a01438, 7a01441 and 7a01448 losing over 30m$^3$.

**Baseline 2007 to Spring 2013**
Over the longer term period, all interim profiles have gained material since the original baseline survey.

7a7A3-9: Perranporth

**Baseline 2012 to Spring 2013**
Over the last year, the interim profiles show predominantly erosion along all profiles, with the exception of profile 7a01454 which has remained stable.

**Baseline 2007 to Spring 2013**
Since the original baseline survey nearly all profiles are shown to be accreting across the length of the survey unit. Profile 7a01477 is a major exception, which has lost 3% of its cross-sectional area and stands out significantly from the rest of the profiles. On closer analysis, the profile has lost material at the back of the beach in the dune system. The main section of the profile below the dune system has remained stable, however the blowout of the dune at the top of the profile has contributed to an overall loss. For further data and a more detailed view of this profile, please view the profile charts at the end of the report (found on the CD accompanying paper copies).

7a7A3-13: Crantock

**Baseline 2012 to Spring 2013**
Over the last year, all profiles have gained material, although percentage changes are very small.

**Baseline 2007 to Spring 2013**
Since the original baseline survey, profiles 7a01634 and 7a01643 have gained over 30m$^2$ in material, although percentage changes are small. Profile 7a01639 has lost some material, but its percentage change is less than 1%.

7a7A3-15: Fistral Beach

During the most recent surveys at Fistral beach, a dune protection project prevented the surveyors from measuring the tops of several of the beach profiles. Consequently, to provide a fair comparison with the original baseline, the master profiles have been drawn to include the extent of both. Where master profiles already exist for the interim profiles, a second reference master profile has been used for the spring to baseline comparison. Please refer to the individual profile charts at the end of the report (found on the CD accompanying paper copies).

**Baseline 2012 to Spring 2013**
Percentage changes over the last year have been small, although profile 7a01690 has gained some material, whilst profile 7a01694 has lost a small amount of material.
**Baseline 2007 to Spring 2013**
Long term analysis shows the interim profiles to be gaining material. Three of the four profiles have gained over 50 m$^2$ of material, whilst profile 7a01686 has gained 20 m$^2$.

**7a7A3-17: Newquay to Porth**

**Baseline 2012 to Spring 2013**
Over the previous year, all interim profiles have lost material with the exception of 7a01769 which has remained stable. There is strong erosion over 30 m$^2$ along seven of the profiles, with the majority being across the eastern section of the survey unit.

**Baseline 2007 to Spring 2013**
Over the longer period, the survey unit shows a pattern of erosion in the west, close to the harbour, and accretion in the east, with profiles 7a01764 to 7a01785 all gaining material. Profile 7a01756 has lost over 30 m$^2$ of material, equating to a loss of 7% in cross-sectional area.

**7a7A3-18: Watergate Bay**

**Baseline 2012 to Spring 2013**
Over the past year, all but four of the interim profiles have lost material, with most erosion occurring along the central section of the survey unit.

**Baseline 2007 to Spring 2013**
The long term comparison shows all profiles to be gaining material. Some large percentage gains can be observed, however in some cases this can be attributed to relatively short profile lengths. All but profile 7a01819 have gained over 30 m$^2$ in cross-sectional area since the original baseline survey in 2007.

**7a7A3-19: Trenance**

**Baseline 2012 to Spring 2013**
The year on year analysis shows profile 7a01913 losing over 30 m$^2$ in material, a loss of 4% in cross-sectional area. Profile 7a01916 has also lost material since last year. Profile 7a01920 has remained stable.

**Baseline 2007 to Spring 2013**
Over the longer time period, all interim profiles have gained material.

**7a7A3-21: Porthcothan**

**Baseline 2012 to Spring 2013**
Over the last year, profiles 7a02028 and 7a02031 have both lost material, with the latter losing over 30 m$^2$. Profile 7a02034 has remained stable.

**Baseline 2007 to Spring 2013**
Over the longer time period, all interim profiles have gained material. Profile 7a02034 has gained 39% in cross-sectional area, which can be attributed to its relatively short length.
7a7A3-23: Treyarnon & Constantine

Baseline 2012 to Spring 2013
Treyarnon beach, to the south, has seen profile 7a02071 lose material whilst profile 7a02073 has gained a similar amount. The profiles north, at Constantine beach, show profile 7a02088 gaining material whilst the other two have both experienced erosion.

Baseline 2007 to Spring 2013
Over the longer term period, all profiles within the survey unit have gained material. Some significant gains can be observed along profile 7a02073 and 7a02088.

7b7B1-2: Harlyn

Baseline 2012 to Spring 2013
Profile 7b00084 has lost 5% of its cross-sectional area over the last year. Profiles 7b00076 and 7b00080 have remained stable whilst profile 7b00072 has gained 4% in cross-sectional area.

Baseline 2007 to Spring 2013
Over the longer term, all profiles have gained material, although percentage changes have been small.

7b7B1-8: Polzeath

Baseline 2012 to Spring 2013
Over the last year, nearly all profiles have lost material, although percentage changes have been small. The exception is profile 7b00309, which has gained 33 m² in material, equating to a 9% increase in cross-sectional area.

Baseline 2007 to Spring 2013
Over the longer term, all profiles have gained material, with the exception of 7b00301 which has remained stable.

7b7B2-4: Port Isaac

Profile 7b00584A is a new addition to the Programme in phase two and hence does not have a long term comparison.

Baseline 2012 to Spring 2013
Profile 7b00566 has remained stable over the last year, whilst profile 7b00584A has lost 6% of its cross-sectional area.

Baseline 2007 to Spring 2013
Over the longer time period, profile 7b00566 has lost a small amount of material.

7b7B3-1 Black Rock

Baseline 2012 to Spring 2013
Profile 7b01342 has gained 5% of its cross-sectional area over the last year.
Baseline 2007 to Spring 2013
The interim profile has gained 3% of its cross-sectional area over the longer term.

7b7B3-2: Widemouth Bay

Baseline 2012 to Spring 2013
The interim profiles show predominantly erosion along most profiles, with the exception of profile 7b01352 which has gained material, and 7b01359 which has remained stable.

Baseline 2007 to Spring 2013
Since the original baseline, the northern interim profiles have accreted material, with profiles 7b01365 and 7b01368 gaining over 30m² in cross-sectional area. The southern profiles across the rocky platform have lost material.

7b7B3-4: Bude

The interim profiles have changed for phase two. Subsequently, the new profiles have been forced through the 2007 original baseline survey to provide data for long term comparison.

Baseline 2012 to Spring 2013
All profiles are shown to be losing material over the last year. Profile 7b01463A and 7b01473 have both lost over 100m² in material, although due to the long profile lengths, observed percentage changes are still relatively small.

Baseline 2007 to Spring 2013
All of the interim profiles have experienced little change over the longer term, with only small gains along profile 7b01473. Zero percentage change is observed along the remaining two profiles.
EXPLANATORY NOTES

Change in Cross-sectional Area (CSA)

The annual change in cross-sectional area is calculated as the difference in CSA between two surveys, expressed as a percentage change compared to the earlier CSA.

\[
\frac{\text{CSA}_1 - \text{CSA}_2}{\text{CSA}_2} \times 100 \quad \text{eqn}(1)
\]

Where \(\text{CSA}_1\) = most recent springtime survey and \(\text{CSA}_2\) = spring survey previous year. Therefore an annual change of –14% represents erosion during the last year of 14% of the area of last year’s survey.

Net Sediment Calculation

The value derived from this calculation represents the volume change in \(\text{m}^3\) across each individual survey unit over time. The initial volumes are derived from the Digital Terrain Models made for consecutive baseline topographic surveys. Both models are clipped to cover the same area, and a volume above the MLWS plane is calculated for each DTM. The net sediment change is calculated as

\[
\text{Vol}_1 - \text{Vol}_2 \quad \text{eqn}(2)
\]

Where \(\text{Vol}_1\) = most recent DTM model volume and \(\text{Vol}_2\) = earlier DTM model volume. Therefore a net change of –19730\(\text{m}^3\) represents erosion since the earlier survey.
### Actual Change in Cross-sectional Area (Baseline 2012 to Spring 2013)

<table>
<thead>
<tr>
<th>Category</th>
<th>Change in Area</th>
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**SU boundary**

**Annual Change in Cross-sectional Area (%)**

- **7a00081 (25%)**
- **7a00066 (8%)**
- **7a00063 (8%)**
- **7a00058 (22%)**
- **7a00062 (5%)**
- **7d01323 (3%)**

*Aerial Photography from 2013*
Actual Change in Cross-sectional Area (Baseline 2007 to Spring 2013)

- **Accretion**
  - > 30 m²
  - 15 - 30 m²
  - 5 - 15 m²

- **Erosion**
  - Less than 5 m²
  - 5 - 15 m²
  - 15 - 30 m²
  - > 30 m²

Annual Change in Cross-sectional Area (%)

- **No Change**

SU boundary

- 7a00081 (41%)
- 7d01323 (3%)
- 7a00086 (30%)
- 7a00082 (9%)
- 7a00086 (9%)
- 7a00085 (9%)
- 7a00085 (34%)

Aerial Photography from 2013
South West Strategic Regional Coastal Monitoring Programme
Annual Survey Report 2013

Actual Change in Cross-sectional Area (Baseline 2012 to Spring 2013)

- **Accretion**
  - > 30 m²
  - 15 - 30 m²
  - 5 - 15 m²
  - Less than 5 m²
- **No Change**
  - 5 - 15 m²
  - 15 - 30 m²
  - > 30 m²

Annual Change in Cross-sectional Area (%)

- 7d01323 (3 %)

Aerial Photography from 2013

7a7A2-2 - Porthmeor Beach - Beach Change

CISCAG - Cornwall
South West Strategic Regional Coastal Monitoring Programme

Annual Survey Report 2013

Actual Change in Cross-sectional Area (Baseline 2012 to Spring 2013)

- Accretion:
  - > 30 m²
  - 15 - 30 m²
  - 5 - 15 m²
- No Change:
  - Less than 5 m²
- Erosion:
  - 5 - 15 m²
  - 15 - 30 m²
  - > 30 m²

Annual Change in Cross-sectional Area (%)

SU boundary

Aerial Photography from 2013

0 60 120 m
Actual Change in Cross-sectional Area (Baseline 2008 to Spring 2013)

Accretion
- > 30 m²
- 15 - 30 m²
- 5 - 15 m²

No Change
- Less than 5 m²

Erosion
- 5 - 15 m²
- 15 - 30 m²
- > 30 m²

LiDAR data used for 2008.

Aerial Photography from 2013
South West Strategic Regional Coastal Monitoring Programme

Annual Survey Report 2013

Aerial Photography from 2013

Actual Change in Cross-sectional Area (Baseline 2012 to Spring 2013)

- **Accretion**
  - > 30 m²
  - 15 - 30 m²
  - 5 - 15 m²
  - Less than 5 m²
  - 5 - 15 m²
  - 15 - 30 m²
  - > 30 m²

- **No Change**

- **Erosion**

SU boundary

Annual Change in Cross-sectional Area (%)

7a00714 (1%)

7a00722 (-6%)

7a00724 (3%)

7a00726 (3%)

7a00704A (6%)

7a00706A (10%)
Actual Change in Cross-sectional Area (Baseline 2007 to Spring 2013)

Accretion
- > 30 m²
- 15 - 30 m²
- 5 - 15 m²
- Less than 5 m²

No Change
- 5 - 15 m²
- Less than 5 m²

Erosion
- 15 - 30 m²
- > 30 m²

SU boundary

Annual Change in Cross-sectional Area (%)

7a00714 (14%)
7a00722 (6%)
7a00724 (12%)
7a00726 (16%)
7d01323 (3%)
Aerial Photography from 2013

Annual Change in Cross-sectional Area (Baseline 2007 to Spring 2013)

- Accretion
  - > 30 m²
  - 15 - 30 m²
  - 5 - 15 m²
- No Change
  - Less than 5 m²
  - 5 - 15 m²
  - 15 - 30 m²
  - > 30 m²
- Erosion
  - Less than 5 m²
  - 5 - 15 m²
  - 15 - 30 m²
  - > 30 m²
Actual Change in Cross-sectional Area (Baseline 2012 to Spring 2013)

- **Accretion**
  - > 30 m²
  - 15 - 30 m²
  - 5 - 15 m²
  - Less than 5 m²

- **Erosion**
  - 5 - 15 m²
  - 15 - 30 m²
  - > 30 m²

**SU boundary**

7d01323 (3 %)

Annual Change in Cross-sectional Area (%)

7a7A2-6 - Hayle - Beach Change

Annual Survey Report 2013

CISCAG - Cornwall

Aerial Photography from 2013
Actual Change in Cross-sectional Area (Baseline 2007 to Spring 2013)

Accretion
- > 30 m²
- 15 - 30 m²
- 5 - 15 m²
- Less than 5 m²

No Change
- 5 - 15 m²
- > 30 m²

Erosion
- > 30 m²
- 15 - 30 m²
- 5 - 15 m²
- Less than 5 m²

SU boundary

Annual Change in Cross-sectional Area (%)

South West Strategic Regional Coastal Monitoring Programme

Annual Survey Report 2013

CISCAG - Cornwall
Change in Elevation (m) between March 2007 and June 2013

ACC RETION NO CHANGE EROSION

Model Extent
South West Strategic Regional Coastal Monitoring Programme

Annual Survey Report 2013

Contours

MHW Elevation: 2.35 OD
MLW Elevation: -1.80 OD

- MHW 2013 - 06
- MHW 2012 - 04
- MHW 2011 - 03
- MHW 2009 - 09
- MHW 2009 - 03
- MHW 2008 - 03
- MLW 2013 - 06

Aerial Photography from 2013

0 200 400 m

7a7A2-6 - Hayle - MHW and MLW Contours

CISCAG - Cornwall
South West Strategic Regional Coastal Monitoring Programme

Annual Survey Report 2013

 Actual Change in Cross-sectional Area (Baseline 2012 to Spring 2013)

<table>
<thead>
<tr>
<th>Accretion</th>
<th>&gt; 30 m²</th>
<th>15 - 30 m²</th>
<th>5 - 15 m²</th>
<th>Less than 5 m²</th>
</tr>
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<tr>
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<td></td>
</tr>
<tr>
<td>Erosion</td>
<td></td>
<td>5 - 15 m²</td>
<td></td>
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</tr>
<tr>
<td></td>
<td></td>
<td>15 - 30 m²</td>
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</tr>
<tr>
<td></td>
<td></td>
<td>&gt; 30 m²</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

SU boundary

Annual Change in Cross-sectional Area (%)

Aerial Photography from 2013

m

0 400 800
Actual Change in Cross-sectional Area (Baseline 2007 to Spring 2013)

- **Accretion**:
  - > 30 m²
  - 15 - 30 m²
  - 5 - 15 m²
  - Less than 5 m²

- **Erosion**:
  - 15 - 30 m²
  - > 30 m²

- **No Change**:
  - 5 - 15 m²

**SU boundary**

Aerial Photography from 2013

**Annual Change in Cross-sectional Area (%)**

- 7a00919 (13%)
- 7a00909 (5%)
- 7a00899 (16%)
- 7a00891 (15%)
- 7a00869 (4%)
- 7a00879 (2%)
- 7a00897 (2%)
- 7a00913 (2%)
- 7a00849 (6%)
- 7a00829 (2%)
- 7d01323 (3%)

Less than 5 m²

> 30 m²

5 - 15 m²

15 - 30 m²
Actual Change in Cross-sectional Area (Baseline 2012 to Spring 2013)

- **Accretion**
  - > 30 m²
  - 15 - 30 m²
  - 5 - 15 m²
- **No Change**
  - Less than 5 m²
- **Erosion**
  - 5 - 15 m²
  - 15 - 30 m²
  - > 30 m²

Annual Change in Cross-sectional Area (%):
Actual Change in Cross-sectional Area (Baseline 2012 to Spring 2013)

- **Accretion**
  - > 30 m²
  - 15 - 30 m²
  - 5 - 15 m²
  - Less than 5 m²

- **Erosion**
  - 5 - 15 m²
  - 15 - 30 m²
  - > 30 m²

No Change
- Less than 5 m²
- 5 - 15 m²
- 15 - 30 m²
- > 30 m²

### Annual Change in Cross-sectional Area (%)

- 7d01323 (3 %)
- 7a01213 (-3 %)
- 7a01215 (-2 %)

### Actual Change in Cross-sectional Area (Baseline 2012 to Spring 2013)

- SU boundary

Aerial Photography from 2013
South West Strategic Regional Coastal Monitoring Programme

Annual Survey Report 2013

Actual Change in Cross-sectional Area (Baseline 2007 to Spring 2013)

- **Accretion**
  - > 30 m²
  - 15 - 30 m²
  - 5 - 15 m²
- **No Change**
  - Less than 5 m²
  - 5 - 15 m²
  - 15 - 30 m²
  - > 30 m²
- **Erosion**

SU boundary

Annual Change in Cross-sectional Area (%)

Aerial Photography from 2013

± 05 0 1 0 0°

Annual Change in Cross-sectional Area (%)

7a01213 (15%)

7a01215 (10%)

7a01215 (4%)

7d01323 (3%)
Actual Change in Cross-sectional Area (Baseline 2012 to Spring 2013)

- Accretion:
  - > 30 m²
  - 15 - 30 m²
  - 5 - 15 m²
  - Less than 5 m²

- Erosion:
  - 5 - 15 m²
  - 15 - 30 m²
  - > 30 m²

SU boundary

Annual Change in Cross-sectional Area (%)

- 7d01323 (3 %)
- 7a01448 (-3 %)
- 7a01444 (-1 %)
- 7a01441 (-2 %)
- 7a01438 (-7 %)
- 7a01435 (-2 %)
**South West Strategic Regional Coastal Monitoring Programme**

**Annual Survey Report 2013**

### Actual Change in Cross-sectional Area (Baseline 2007 to Spring 2013)

- **Accretion**
  - > 30 m²
  - 15 - 30 m²
  - 5 - 15 m²
  - Less than 5 m²

- **Erosion**
  - 5 - 15 m²
  - 15 - 30 m²
  - > 30 m²

- **No Change**

---

**SU boundary**

7a01444 (11%)
7a01444 (5%)
7a01441 (8%)
7a01438 (5%)
7a01435 (46%)
Actual Change in Cross-sectional Area (Baseline 2012 to Spring 2013)

- **Accretion**
  - > 30 m²
  - 15 - 30 m²
  - 5 - 15 m²

- **No Change**
  - Less than 5 m²

- **Erosion**
  - 5 - 15 m²
  - 15 - 30 m²
  - > 30 m²

**SU boundary**

Annual Change in Cross-sectional Area (%)

- 7a01497 (-2%)
- 7a01487 (-2%)
- 7a01477 (-1%)
- 7a01464 (-6%)
- 7a01454 (0%)

Aerial Photography from 2013

0 300 600 m
**Actual Change in Cross-sectional Area (Baseline 2007 to Spring 2013)**

- **Accretion**:
  - > 30 m²
  - 15 - 30 m²
  - 5 - 15 m²

- **Erosion**:
  - Less than 5 m²
  - 5 - 15 m²
  - 15 - 30 m²
  - > 30 m²

**Aerial Photography from 2013**

- **SU boundary**
- **Annual Change in Cross-sectional Area (%)**

- 7a01497 (9%)
- 7a01487 (12%)
- 7a01477 (-3%)
- 7a01464 (5%)
- 7a01454 (23%)
Actual Change in Cross-sectional Area (Baseline 2012 to Spring 2013)

<table>
<thead>
<tr>
<th>Change</th>
<th>&gt; 30 m²</th>
<th>15 - 30 m²</th>
<th>5 - 15 m²</th>
<th>Less than 5 m²</th>
<th>5 - 15 m²</th>
<th>15 - 30 m²</th>
<th>&gt; 30 m²</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acretion</td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No Change</td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Erosion</td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

SU boundary

Annual Change in Cross-sectional Area (%)

- 7a01643 (1%)
- 7a01639 (0%)
- 7a01634 (1%)
- 7a01323 (3%)
**Actual Change in Cross-sectional Area (Baseline 2007 to Spring 2013)**

- **Acretion**
  - > 30 m²
  - 15 - 30 m²
  - 5 - 15 m²
  - Less than 5 m²

- **Erosion**
  - 5 - 15 m²
  - 15 - 30 m²
  - > 30 m²

**Annual Change in Cross-sectional Area (%)**

- 7d01323 (3%)
- 7a01643 (3%)
- 7a01639 (0%)
- 7a01634 (2%)

---

**South West Strategic Regional Coastal Monitoring Programme**

**Annual Survey Report 2013**

**Crantock - Beach Change**

**Aerial Photography from 2013**
South West Strategic Regional Coastal Monitoring Programme

Annual Survey Report 2013

CISCAG - Cornwall

Actual Change in Cross-sectional Area (Baseline 2012 to Spring 2013)

- Accretion
  - > 30 m²
  - 15 - 30 m²
  - 5 - 15 m²
- No Change
  - Less than 5 m²
- Erosion
  - 5 - 15 m²
  - 15 - 30 m²
  - > 30 m²

Aerial Photography from 2013

Annual Change in Cross-sectional Area (%)

- Accretion
  - > 30 m²
  - 15 - 30 m²
  - 5 - 15 m²
- No Change
  - Less than 5 m²
- Erosion
  - 5 - 15 m²
  - 15 - 30 m²
  - > 30 m²

SU boundary

7a01694 (-2%)
7a01693 (3%)
7a01692 (1%)
7a01690 (2%)
7a01696 (0%)

Fistral Beach - Beach Change
Actual Change in Cross-sectional Area (Baseline 2007 to Spring 2013)

- **Accretion**
  - > 30 m²
  - 15 - 30 m²
  - 5 - 15 m²
- **No Change**
  - Less than 5 m²
- **Erosion**
  - 5 - 15 m²
  - 15 - 30 m²
  - > 30 m²

- **SU boundary**
  - Annual Change in Cross-sectional Area (%)
    - 7d01323 (3%)

Aerial Photography from 2013
South West Strategic Regional Coastal Monitoring Programme

Annual Survey Report 2013

Actual Change in Cross-sectional Area (Baseline 2012 to Spring 2013)

- **Accretion**
  - > 30 m²
  - 15 - 30 m²
  - 5 - 15 m²
  - Less than 5 m²

- **No Change**
  - 5 - 15 m²
  - 15 - 30 m²

- **Erosion**
  - > 30 m²

SU boundary

Annual Change in Cross-sectional Area (%)

Erosion

No Change

Accretion

> 30 m²

15 - 30 m²

5 - 15 m²

Less than 5 m²

15 - 30 m²

> 30 m²

Annual Survey Report 2013

CISCAG - Cornwall

Aerial Photography from 2013

7a01746 (-2%)

7a01749 (-3%)

7a01753 (-12%)

7a01759 (-5%)

7a01764 (2%)

7a01768 (6%)

7a01773 (5%)

7a01776 (15%)

7a01779 (-7%)

7a01783 (18%)

7a01786 (6%)

7a01789 (-5%)

7a01793 (-18%)

7a01796 (-15%)

7a01799 (-3%)

7a01803 (-2%)
Actual Change in Cross-sectional Area (Baseline 2007 to Spring 2013)

- **Accretion**
  - > 30 m²
  - 15 - 30 m²
  - 5 - 15 m²
  - Less than 5 m²

- **No Change**
  - 5 - 15 m²
  - 15 - 30 m²

- **Erosion**
  - > 30 m²

Annual Change in Cross-sectional Area (%)

- **SU boundary**
- 7d01323 (3 %)
- 7a01785 (5 %)
- 7a01776 (2 %)
- 7a01773 (7 %)
- 7a01789 (10 %)
- 7a01768 (6 %)
- 7a01764 (2 %)
- 7a01765 (8 %)
- 7a01759 (2 %)
- 7a01753 (3 %)
- 7a01776 (12 %)
- 7a01773 (3 %)
- 7a01789 (10 %)
- 7a01768 (6 %)
- 7a01764 (2 %)
- 7a01765 (8 %)
- 7a01759 (2 %)
- 7a01753 (3 %)

**Notes:**
- Actual Change in Cross-sectional Area (Baseline 2007 to Spring 2013)
- Accretion: 3 %
- Erosion: 5 %
- No Change: 2 %
Actual Change in Cross-sectional Area (Baseline 2012 to Spring 2013)

- Accretion
  - > 30 m²
  - 15 - 30 m²
  - 5 - 15 m²
- No Change
  - Less than 5 m²
- Erosion
  - 5 - 15 m²
  - 15 - 30 m²
  - > 30 m²

SU boundary

Annual Change in Cross-sectional Area (%)
Actual Change in Cross-sectional Area (Baseline 2007 to Spring 2013)

- **Accretion**
  - > 30 m²
  - 15 - 30 m²
  - 5 - 15 m²
  - Less than 5 m²

- **Erosion**
  - 5 - 15 m²
  - 15 - 30 m²
  - > 30 m²

**SU boundary**

Aerial Photography from 2013
Actual Change in Cross-sectional Area (Baseline 2012 to Spring 2013)

<table>
<thead>
<tr>
<th>Type</th>
<th>5 - 15 m²</th>
<th>15 - 30 m²</th>
<th>&gt; 30 m²</th>
<th>Less than 5 m²</th>
</tr>
</thead>
<tbody>
<tr>
<td>Accretion</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Erosion</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No Change</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Annual Change in Cross-sectional Area (%)

- 7a01913 (4%)
- 7a01916 (2%)
- 7a01920 (0%)
- 7a01913 (-4%)
Actual Change in Cross-sectional Area (Baseline 2007 to Spring 2013)

- **Accretion**
  - > 30 m²
  - 15 - 30 m²
  - 5 - 15 m²
  - Less than 5 m²

- **Erosion**
  - 5 - 15 m²
  - 15 - 30 m²
  - > 30 m²

- **No Change**

Annual Change in Cross-sectional Area (%)

- **SU boundary**

- **7a01920 (19%)**
- **7d01323 (3%)**
- **7a01916 (11%)**
- **7a01913 (5%)**

Aerial Photography from 2013
Actual Change in Cross-sectional Area (Baseline 2007 to Spring 2013)

- **Accretion**
  - > 30 m²
  - 15 - 30 m²
  - 5 - 15 m²
  - Less than 5 m²
  - 5 - 15 m²
  - 15 - 30 m²
  - > 30 m²

- **Erosion**
  - No Change
  - Less than 5 m²
  - 5 - 15 m²
  - 15 - 30 m²
  - > 30 m²

Annual Change in Cross-sectional Area (%)

SU boundary

Aerial Photography from 2013

7a02034 (39%)
Actual Change in Cross-sectional Area (Baseline 2012 to Spring 2013)

- **Accretion**
  - > 30 m²
  - 15 - 30 m²
  - 5 - 15 m²

- **Erosion**
  - 5 - 15 m²
  - 15 - 30 m²
  - > 30 m²

- **No Change**
  - Less than 5 m²
Actual Change in Cross-sectional Area (Baseline 2012 to Spring 2013)

<table>
<thead>
<tr>
<th>Change Type</th>
<th>5 - 15 m²</th>
<th>15 - 30 m²</th>
<th>&gt; 30 m²</th>
</tr>
</thead>
<tbody>
<tr>
<td>Accretion</td>
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</tr>
<tr>
<td>Erosion</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No Change</td>
<td>Less than 5 m²</td>
<td>5 - 15 m²</td>
<td>15 - 30 m²</td>
</tr>
</tbody>
</table>

Annual Change in Cross-sectional Area (%):
- 7b00313 (-1%)
- 7b00309 (9%)
- 7b00305 (0%)
- 7b00303 (-2%)
- 7b00301 (0%)

Note: The chart and map illustrate the changes in cross-sectional area for different sections of the coastline.
**South West Strategic Regional Coastal Monitoring Programme**

**Annual Survey Report 2013**

### Actual Change in Cross-sectional Area (Baseline 2007 to Spring 2013)

- **Accretion**
  - > 30 m²
  - 15 - 30 m²
  - 5 - 15 m²
  - Less than 5 m²
- **Erosion**
  - 5 - 15 m²
  - 15 - 30 m²
  - > 30 m²
- **No Change**

**SU boundary**

- **Annual Change in Cross-sectional Area (%)**
  - 7d01323 (3 %)

**Aerial Photography from 2013**

- 7b00313 (2 %)
- 7b00309 (12 %)
- 7b00305 (3 %)
- 7b00303 (2 %)
- 7b00301 (0 %)

---

**7b7B1-8 - Polzeath - Beach Change**

**CISCAG - Cornwall**
Actual Change in Cross-sectional Area (Baseline 2012 to Spring 2013)

<table>
<thead>
<tr>
<th>Type</th>
<th>&gt; 30 m²</th>
<th>15 - 30 m²</th>
<th>5 - 15 m²</th>
<th>Less than 5 m²</th>
<th>5 - 15 m²</th>
<th>15 - 30 m²</th>
<th>&gt; 30 m²</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acreation</td>
<td></td>
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</tr>
<tr>
<td>Erosion</td>
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</tr>
<tr>
<td>No Change</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

SU boundary

Annual Change in Cross-sectional Area (%)

7d01323 (3 %)

Aerial Photography from 2013

Annual Survey Report 2013

CISCAG - Cornwall

7b7B2-4 - Port Isaac - Beach Change

CISCAG - Cornwall
### Actual Change in Cross-sectional Area (Baseline 2007 to Spring 2013)

<table>
<thead>
<tr>
<th>Change Type</th>
<th>&gt; 30 m²</th>
<th>15 - 30 m²</th>
<th>5 - 15 m²</th>
<th>Less than 5 m²</th>
<th>5 - 15 m²</th>
<th>15 - 30 m²</th>
<th>&gt; 30 m²</th>
</tr>
</thead>
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<tr>
<td><strong>Accretion</strong></td>
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<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td><strong>Erosion</strong></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td><strong>No Change</strong></td>
<td></td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>

#### Annual Change in Cross-sectional Area (%)

- 7d01323 (3 %)

---

*Aerial Photography from 2013*
**South West Strategic Regional Coastal Monitoring Programme**

**Annual Survey Report 2013**

**Actual Change in Cross-sectional Area (Baseline 2012 to Spring 2013)**

- **Accretion**
  - > 30 m²
  - 15 - 30 m²
  - 5 - 15 m²
- **No Change**
  - Less than 5 m²
  - 5 - 15 m²
- **Erosion**
  - 15 - 30 m²
  - > 30 m²

**SU boundary**

**Annual Change in Cross-sectional Area (%)**

- 7b01323 (3 %)

**Aerial Photography from 2013**

**7b7B3-1 - Black Rock - Beach Change**

**CISCAG - Cornwall**
South West Strategic Regional Coastal Monitoring Programme  
Annual Survey Report 2013

Aerial Photography from 2013

Actual Change in Cross-sectional Area (Baseline 2007 to Spring 2013)

- **Accretion**
  - > 30 m²
  - 15 - 30 m²
  - 5 - 15 m²
  - Less than 5 m²

- **No Change**
  - 5 - 15 m²
  - 15 - 30 m²

- **Erosion**
  - > 30 m²

SU boundary

7d01323 (3 %)

Annual Change in Cross-sectional Area (%)

- < 5 m
- 5 - 15 m
- 15 - 30 m
- > 30 m
Actual Change in Cross-sectional Area (Baseline 2012 to Spring 2013)

- **Accretion**
  - > 30 m²
  - 15 - 30 m²
  - 5 - 15 m²
- **No Change**
  - Less than 5 m²
- **Erosion**
  - 5 - 15 m²
  - 15 - 30 m²
  - > 30 m²

Annual Change in Cross-sectional Area (%)
Actual Change in Cross-sectional Area (Baseline 2007 to Spring 2013)

- **Accretion**
  - > 30 m²
  - 15 - 30 m²
  - 5 - 15 m²

- **No Change**
  - Less than 5 m²

- **Erosion**
  - 5 - 15 m²
  - 15 - 30 m²
  - > 30 m²

SU boundary

Aerial Photography from 2013

Annual Change in Cross-sectional Area (%)

- 7d01323 (3%)
South West Strategic Regional Coastal Monitoring Programme

Annual Survey Report 2013

Aerial Photography from 2013

Actual Change in Cross-sectional Area (Baseline 2012 to Spring 2013)

- Accretion
  - > 30 m²
  - 15 - 30 m²
  - 5 - 15 m²
- No Change
  - Less than 5 m²
  - 5 - 15 m²
- Erosion
  - 15 - 30 m²
  - > 30 m²

Annual Change in Cross-sectional Area (%)

SU boundary

7b01473 (-9%)
7b01463A (-5%)
7d01323 (3 %)
7b01461E (-2%)

7b7B3-4 - Bude - Beach Change
CISCAG - Cornwall
Cross Sectional Area above MP Trend for Location: 7a00053 and Reference Profile Set

Area Above MP Trend: Accreting at 19.893 m²/Year

Survey Date:
- 18/08/2007
- 16/02/2008
- 16/08/2008
- 14/02/2009
- 15/08/2009
- 13/02/2010
- 14/08/2010
- 12/02/2011
- 13/08/2011
- 11/02/2012
- 11/08/2012

Survey Unit 7a7A1-2

Cross-Sectional Area Charts
Cross Sectional Area above MP Trend for Location: 7a00058 and Reference Profile Set

Area Above MP Trend: Accreting at 12.828 m²/Year

Survey Unit 7a7A1-2
Cross-Sectional Area Charts
Survey Unit 7a7A1-2

Cross-Sectional Area above MP Trend for Location: 7a00062 and Reference Profile Set

Area Above MP Trend: Accreting at 24.913 m²/year

Cross-Sectional Area Charts
Cross Sectional Area above MP Trend for Location: 7a00066 and Reference Profile Set

Area Above MP Trend: Accreting at 17.950 m²/Year

Survey Date:
- 18/08/2007
- 16/02/2008
- 16/08/2008
- 14/02/2009
- 15/08/2009
- 13/02/2010
- 14/08/2010
- 12/02/2011
- 13/08/2011
- 11/02/2012
- 11/08/2012

Legend:
- Yellow: Recycling Event
- Green: Area Above MP
- Green: Area Trend
- Blue: Area Between MP & DP
Cross Sectional Area above MP Trend for Location: 7a00081 and Reference Profile Set

Area Above MP Trend: Accreting at 37.552 m²/Year

Survey Unit 7a7A1-2
Cross-Sectional Area Charts
Cross Sectional Area above MP Trend for Location: 7a00679 and Reference Profile Set

Survey Unit 7a7A2-2

Area Above MP Trend: Eroding at -13.396 m²/Year

Cross-Sectional Area Charts

Survey Date:
- 18/08/2007
- 16/02/2008
- 16/08/2008
- 14/02/2009
- 15/08/2009
- 13/02/2010
- 14/08/2010
- 12/02/2011
- 13/08/2011
- 11/02/2012
- 11/08/2012

Area Above MP: Green

Area Trend: Light Green

Recycling Event: Yellow

Area Between MP & DP: Blue
Cross Sectional Area above MP Trend for Location: 7a00685 and Reference Profile Set

Survey Unit 7a7A2-2

Area Above MP Trend: Accreting at 13.924 m²/Year

Cross-Sectional Area Charts
Survey Unit 7a7A2-2

Cross-Sectional Area Charts

Area Above MP Trend: Accreting at 10.212 m²/Year

Survey Date

- 18/08/2007
- 16/02/2008
- 16/08/2008
- 14/02/2009
- 15/08/2009
- 13/02/2010
- 14/08/2010
- 12/02/2011
- 13/08/2011
- 11/02/2012
- 11/08/2012

Beach Area (m²)
Survey Unit 7a7A2-3

Cross-Sectional Area above MP Trend for Location: 7a00700A and Reference Profile Set

Area Above MP Trend: Accreting at 6.288 m²/Year

Cross-Sectional Area Charts
Cross Sectional Area above MP Trend for Location: 7a00705 and Reference Profile Set

Area Above MP Trend: Accreting at 3.064 m2/Year

Survey Unit 7a7A2-3
Cross-Sectional Area Charts
Cross Sectional Area above MP Trend for Location: 7a00751 and Reference Profile Set

Area Above MP Trend: Accreting at 4.787 m²/year

Survey Unit 7a7A2-5
Cross-Sectional Area Charts
Cross Sectional Area above MP Trend for Location: 7a00755 and Reference Profile Set

Area Above MP Trend: Accreting at 9.746 m²/Year

Survey Unit 7a7A2-5
Cross-Sectional Area Charts
Cross Sectional Area above MP Trend for Location: 7a00759 and Reference Profile Set

Area Above MP Trend: Accreting at 6.852 m²/Year

Survey Unit 7a7A2-5
Cross-Sectional Area Charts
Cross Sectional Area above MP Trend for Location: 7a00763 and Reference Profile Set

Area Above MP Trend: Eroding at -0.255 m²/Year

Survey Unit 7a7A2-5
Cross-Sectional Area Charts
Cross Sectional Area above MP Trend for Location: 7a00775 and Reference Profile Set

Area Above MP Trend: Accreting at 2.337 m²/Year

Survey Unit 7a7A2-6
Cross-Sectional Area Charts
Survey Unit 7a7A2-6
Cross-Sectional Area Charts

Cross-sectional Area above MP Trend for Location: 7a00783 and Reference Profile Set

Area Above MP Trend: Accreting at 2.409 m²/Year
Cross Sectional Area above MP Trend for Location: 7a00787 and Reference Profile Set

Area Above MP Trend: Accreting at 1.183 m²/Year

Survey Unit 7a7A2-6
Cross-Sectional Area Charts
Survey Unit 7a7A2-6
Cross-Sectional Area Charts

Cross Sectional Area above MP Trend for Location: 7a00791 and Reference Profile Set
Area Above MP Trend: Accreting at 3.321 m²/Year

Beach Area (m²)

Survey Date

☑️ Yellow Recycling Event  ☑️ Green Area Above MP  ☑️ Green Area Trend  ☑️ Blue Area Between MP & DP

SAIDS
Cross Sectional Area above MP Trend for Location: 7a00805 and Reference Profile Set

Area Above MP Trend: Accreting at 14.260 m²/Year

Survey Unit 7a7A2-6
Cross-Sectional Area Charts
Cross Sectional Area above MP Trend for Location: 7a00807 and Reference Profile Set

Area Above MP Trend: Accreting at 7.691 m²/Year

Survey Unit 7a7A2-6
Cross-Sectional Area Charts
Cross Sectional Area above MP Trend for Location: 7a00809 and Reference Profile Set

Area Above MP Trend: Accreting at 22.596 m²/Year

Survey Unit 7a7A2-6
Cross-Sectional Area Charts
Cross Sectional Area above MP Trend for Location: 7a00813 and Reference Profile Set

Area Above MP Trend: Accreting at 6.190 m²/year

Survey Unit 7a7A2-6
Cross-Sectional Area Charts
Cross Sectional Area above MP Trend for Location: 7a00817 and Reference Profile Set

Area Above MP Trend: Eroding at -53.160 m²/Year

Survey Unit 7a7A2-6
Cross-Sectional Area Charts
Survey Unit 7a7A2-6

Cross-Sectional Area above MP Trend for Location: 7a00820 and Reference Profile Set

Area Above MP Trend: Eroding at -11.288 m²/Year

Cross-Sectional Area Charts
Cross Sectional Area above MP Trend for Location: 7a00829 and Reference Profile Set

Area Above MP Trend: Accreting at 10.200 m²/Year

Survey Unit 7a7A2-7
Cross-Sectional Area Charts
Cross Sectional Area above MP Trend for Location: 7a00879 and Reference Profile Set

Area Above MP Trend: Accreting at 10.711 m²/Year

Survey Unit 7a7A2-7
Cross-Sectional Area Charts
Cross Sectional Area above MP Trend for Location: 7a00899 and Reference Profile Set

Area Above MP Trend: Accreting at 26.155 m²/Year

Survey Unit 7a7A2-7
Cross-Sectional Area Charts
Survey Unit 7a7A2-7
Cross-Sectional Area Charts

Area Above MP Trend: Accreting at 9.686 m²/Year

Survey Date:

Beach Area (m²):
0  50  100  150  200  250  300  350  400  450  500  550  600  650  700  750  800  850  900  950  1000  1050  1100  1150  1200  1250  1300  1350

Legend:
- Yellow: Recycling Event
- Green: Area Above MP
- Green: Area Trend
- Blue: Area Between MP & DP
Cross Sectional Area above MP Trend for Location: 7a01106 and Reference Profile Set

Area Above MP Trend: Eroding at -0.504 m²/year

Survey Unit 7a7A3-2

Cross-Sectional Area Charts
Cross Sectional Area above MP Trend for Location: 7a01109 and Reference Profile Set

Area Above MP Trend: Accreting at 5.190 m²/Year

Survey Unit 7a7A3-2
Cross-Sectional Area Charts
Cross Sectional Area above MP Trend for Location: 7a01213 and Reference Profile Set

Area Above MP Trend: Accreting at 23.758 m²/Year
Area Above MP Trend: Accreting at 20.210 m²/Year

Survey Date


Survey Unit 7a7A3-8
Cross-Sectional Area Charts
Cross Sectional Area above MP Trend for Location: 7a01441 and Reference Profile Set

Area Above MP Trend: Accreting at 29.717 m²/Year

Survey Unit 7a7A3-8

Cross-Sectional Area Charts
Cross Sectional Area above MP Trend for Location: 7a01454 and Reference Profile Set

Area Above MP Trend: Accreting at 33.266 m²/Year

Survey Unit 7a7A3-9
Cross-Sectional Area Charts
Cross Sectional Area above MP Trend for Location: 7a01464 and Reference Profile Set

Area Above MP Trend: Accreting at 26.125 m²/Year

Survey Date

Survey Unit 7a7A3-9
Cross-Sectional Area Charts
Cross Sectional Area above MP Trend for Location: 7a01477 and Reference Profile Set

Area Above MP Trend: Eroding at -33.779 m²/Year

Survey Unit 7a7A3-9
Cross-Sectional Area Charts
Cross Sectional Area above MP Trend for Location: 7a01487 and Reference Profile Set

Area Above MP Trend: Accreting at 33.093 m²/Year

Survey Unit 7a7A3-9
Survey Unit 7a7A3-13
Cross-Sectional Area Charts

Cross Sectional Area above MP Trend for Location: 7a01643 and Reference Profile Set
Area Above MP Trend: Accreting at 20.646 m²/Year

Survey Date


Beach Area (m²)

0   200   400   600   800   1000   1200   1400   1600   1800   2000

- Yellow: Recycling Event
- Green: Area Above MP
- Green Line: Area Trend
- Blue: Area Between MP & DP
Cross Sectional Area above MP Trend for Location: 7a01682 and Reference Profile Set

Area Above MP Trend: Accreting at 11.914 m²/Year

Survey Date

Survey Unit 7a7A3-15
Cross-Sectional Area Charts

Beach Area (m²)


0 50 100 150 200 250 300 350 400 450 500 550 600 650 700 750 800 850 900 950 1000 1050 1100 1150 1200 1250 1300 1350 1400 1450 1500 1550 1600 1650 1700

- Recycling Event
- Area Above MP
- Area Trend
- Area Between MP & DP
Cross Sectional Area above MP Trend for Location: 7a01686 and Reference Profile Set

Area Above MP Trend: Accreting at 9.388 m²/Year

Survey Unit 7a7A3-15
Cross-Sectional Area Charts
Cross Sectional Area above MP Trend for Location: 7a01690 and Reference Profile Set 2

Area Above MP Trend: Accreting at 13.890 m²/Year
Survey Unit 7a7A3-15
Cross-Sectional Area Charts

Area Above MP Trend: Accreting at 9.104 m²/Year

Survey Date:

Area Above MP Trend
Recycling Event
Area Between MP & DP
Area Trend
Cross Sectional Area above MP Trend for Location: 7a01746 and Reference Profile Set

Area Above MP Trend: Eroding at -4.288 m^2/Year

Survey Unit 7a7A3-17
Cross-Sectional Area Charts
Cross Sectional Area above MP Trend for Location: 7a01749 and Reference Profile Set

Area Above MP Trend: Accreting at 1.024 m²/Year

Survey Unit 7a7A3-17
Cross-Sectional Area Charts
Cross Sectional Area above MP Trend for Location: 7a01753 and Reference Profile Set

Area Above MP Trend: Accreting at 0.940 m²/year
Cross Sectional Area above MP Trend for Location: 7a01756 and Reference Profile Set

Area Above MP Trend: Accreting at 2.634 m²/Year
Cross sectional area above MP trend for Location: 7a01764 and Reference Profile Set

Area Above MP Trend: Accreting at 5.313 m²/year

Survey Unit 7a7A3-17
Cross-sectional Area Charts
Survey Unit 7a7A3-17
Cross-Sectional Area Charts

Cross Sectional Area above MP Trend for Location: 7a01766 and Reference Profile Set
Area Above MP Trend: Accreting at 6.942 m²/Year

Survey Date

Beach Area (m²)
0 100 200 300 400 500 600 700 800 900 1,000 1,100 1,200 1,300 1,400 1,500 1,600 1,700 1,800 1,900 2,000 2,100 2,200 2,300 2,400 2,500 2,600 2,700 2,800 2,900 3,000 3,100

Recycling Event Area Above MP Area Trend Area Between MP & DP
Cross Sectional Area above MP Trend for Location: 7a01769 and Reference Profile Set

Area Above MP Trend: Accreting at 4.485 m²/Year

Survey Unit 7a7A3-17
Cross-Sectional Area Charts
Cross Sectional Area above MP Trend for Location: 7a01776 and Reference Profile Set

Area Above MP Trend: Accreting at 9.320 m²/Year

Survey Unit 7a7A3-17
Cross-Sectional Area Charts
Cross-Sectional Area above MP Trend for Location: 7a01779 and Reference Profile Set

Area Above MP Trend: Accreting at 17.069 m²/Year

Survey Unit 7a7A3-17
Cross-Sectional Area Charts
Survey Unit 7a7A3-18

Cross-Sectional Area above MP Trend for Location: 7a01807 and Reference Profile Set

Area Above MP Trend: Accreting at 9.544 m²/Year

Cross-Sectional Area Charts

Survey Date

Area above MP Chart

Beach Area (m²)


- Yellow: Recycling Event
- Green: Area Above MP
- Green: Area Trend
- Blue: Area Between MP & DP
Cross Sectional Area above MP Trend for Location: 7a01812 and Reference Profile Set

Area Above MP Trend: Accreting at 11.106 m²/Year

Survey Unit 7a7A3-18
Cross-Sectional Area Charts
Cross Sectional Area above MP Trend for Location: 7a01819 and Reference Profile Set

Area Above MP Trend: Accreting at 7.217 m²/Year

Survey Unit 7a7A3-18
Cross-Sectional Area Charts
Cross Sectional Area above MP Trend for Location: 7a01832 and Reference Profile Set

Area Above MP Trend: Accreting at 16.139 m^2/Year

Survey Unit 7a7A3-18
Cross-Sectional Area Charts

Survey Date

Beach Area (m^2)
0 50 100 150 200 250 300 350 400 450 500 550 600 650 700 750 800 850 900 950 1000 1050 1100 1150 1200 1250 1300 1350

- Yellow: Recycling Event
- Green: Area Above MP
- Green: Area Trend
- Blue: Area Between MP & DP
Cross Sectional Area above MP Trend for Location: 7a01837 and Reference Profile Set

Area Above MP Trend: Accreting at 15.233 m²/Year

Survey Unit 7a7A3-18
Cross-Sectional Area Charts
Cross Sectional Area above MP Trend for Location: 7a01842 and Reference Profile Set

Area Above MP Trend: Accreting at 17.125 m²/Year

Survey Unit 7a7A3-18

Cross-Sectional Area Charts

Survey Date:
- 18/08/2007
- 16/02/2008
- 16/08/2008
- 14/02/2009
- 15/08/2009
- 13/02/2010
- 14/08/2010
- 12/02/2011
- 13/08/2011
- 11/02/2012
- 11/08/2012
- 09/02/2013
Cross Sectional Area above MP Trend for Location: 7a01850 and Reference Profile Set

Area Above MP Trend: Accreting at 26.095 m²/Year

Survey Unit 7a7A3-18

Cross-Sectional Area Charts

Survey Date


Beach Area (m²)

0  50  100  150  200  250  300  350  400  450  500  550  600  650  700  750  800  850  900  950  1000  1050  1100  1150  1200  1250  1300  1350
Survey Unit 7a7A3-18

Cross-Sectional Area Charts

Cross Sectional Area above MP Trend for Location: 7a01854 and Reference Profile Set

Area Above MP Trend: Accretion at 21.348 m2/Year

Survey Date


Beach Area (m2)

0 50 100 150 200 250 300 350 400 450 500 550 600 650 700 750 800 850 900 950 1000 1050 1100 1150 1200 1250 1300 1350

Survey Unit 7a7A3-18

Cross-Sectional Area Charts
Cross Sectional Area above MP Trend for Location: 7a01858 and Reference Profile Set

Area Above MP Trend: Accreting at 23.699 m²/Year

Survey Unit 7a7A3-18
Cross-Sectional Area Charts
Survey Unit 7a7A3-18
Cross-Sectional Area Charts

Area Above MP Trend: Accreting at 28.486 m²/Year
Survey Unit 7a7A3-18

Cross-Sectional Area above MP Trend for Location: 7a01866 and Reference Profile Set

Area Above MP Trend: Accreting at 32.285 m²/Year

Cross-Sectional Area Charts

- Beach Area (m²)
- Survey Date
- Recycling Event
- Area Above MP
- Area Trend
- Area Between MP & DP
Cross Sectional Area above MP Trend for Location: 7a01870 and Reference Profile Set

Area Above MP Trend: Accreting at 23.390 m²/Year

Survey Unit 7a7A3-18
Cross-Sectional Area Charts

Survey Date


Beach Area (m²)

0  50  100  150  200  250  300  350  400  450  500  550  600  650  700  750  800  850  900  950  1000  1050  1100  1150  1200  1250  1300  1350

- Yellow: Recycling Event
- Green: Area Above MP
- Light Green: Area Trend
- Blue: Area Between MP & DP
Cross Sectional Area above MP Trend for Location: 7a01874 and Reference Profile Set

Area Above MP Trend: Accreting at 15.486 m²/Year

Survey Unit 7a7A3-18

Cross-Sectional Area Charts
Survey Unit 7a7A3-19

Cross-Sectional Area above MP Trend for Location: 7a01913 and Reference Profile Set

Area Above MP Trend: Accreting at 41.710 m²/Year

Cross-Sectional Area Charts
Cross Sectional Area above MP Trend for Location: 7a01916 and Reference Profile Set

Area Above MP Trend: Accreting at 40.219 m2/Year

Survey Unit 7a7A3-19
Cross-Sectional Area Charts
Cross Sectional Area above MP Trend for Location: 7a01920 and Reference Profile Set

Area Above MP Trend: Accreting at 24.899 m²/Year

Survey Unit 7a7A3-19
Cross-Sectional Area Charts
Cross Sectional Area above MP Trend for Location: 7a02071 and Reference Profile Set

Area Above MP Trend: Accreting at 48.483 m²/Year

Survey Unit 7a7A3-23
Cross-Sectional Area Charts

Survey Date

Beach Area (m²)
0 100 200 300 400 500 600 700 800 900 1000 1100 1200 1300 1400 1500 1600 1700 1800 1900 2000 2100 2200 2300 2400 2500 2600 2700 2800 2900 3000 3100 3200 3300 3400 3500

- Yellow: Recycling Event
- Green: Area Above MP
- Green: Area Trend
- Blue: Area Between MP & DP
Cross Sectional Area above MP Trend for Location: 7a02088 and Reference Profile Set

Area Above MP Trend: Accreting at 45.823 m²/Year

Survey Unit 7a7A3-23
Cross-Sectional Area Charts
Survey Unit 7b7B1-2
Cross-Sectional Area Charts

Cross Sectional Area above MP Trend for Location: 7b00072 and Reference Profile Set

Area Above MP Trend: Eroding at -0.894 m²/Year

Survey Date


Survey Date

BEACH AREA (M²)

0  50  100  150  200  250  300  350  400  450  500  550  600  650  700  750  800  850  900  950  1000  1050  1100  1150  1200  1250  1300  1350  1400

- Recycling Event
- Area Above MP
- Area Trend
- Area Between MP & DP

SAHDS
Cross Sectional Area above MP Trend for Location: 7b00076 and Reference Profile Set

Area Above MP Trend: Accreting at 2.599 m²/Year

Survey Unit 7b7B1-2
Cross-Sectional Area Charts

Survey Date

Beach Area (m²)
0 50 100 150 200 250 300 350 400 450 500 550 600 650 700 750 800 850 900 950 1,000 1,050 1,100 1,150 1,200 1,250 1,300 1,350 1,400
Survey Unit 7b7B1-8

Cross-Sectional Area above MP Trend for Location: 7b00301 and Reference Profile Set

Area Above MP Trend: Accreting at 7.911 m²/Year

Cross-Sectional Area Charts
Cross Sectional Area above MP Trend for Location: 7b00303 and Reference Profile Set

Area Above MP Trend: Accreting at 13.093 m²/Year

Survey Date


Beach Area (m²)

0  100  200  300  400  500  600  700  800  900  1000  1100  1200  1300  1400  1500  1600  1700  1800  1900  2000  2100  2200  2300  2400
Survey Unit 7b7B1-8

Cross-Sectional Area Charts

Area Above MP Trend: Accreting at 11.828 m²/Year
Cross Sectional Area above MP Trend for Location: 7b00309 and Reference Profile Set

Area Above MP Trend: Accreting at 5.202 m²/Year

Survey Date


Beach Area (m²)

0  100  200  300  400  500  600  700  800  900  1,000  1,100  1,200  1,300  1,400  1,500  1,600  1,700  1,800  1,900  2,000  2,100  2,200  2,300  2,400
Survey Unit 7b7B1-8
Cross-Sectional Area Charts

Cross Sectional Area above MP Trend for Location: 7b00313 and Reference Profile Set

Area Above MP Trend: Accrting at 4.749 m²/Year

Survey Date

Beach Area (m²)
0 100 200 300 400 500 600 700 800 900 1000 1100 1200 1300 1400 1500 1600 1700 1800 1900 2000 2100 2200 2300 2400

Legend:
- Yellow: Recycling Event
- Green: Area Above MP
- Green: Area Trend
- Blue: Area Between MP & DP
Cross-sectional Area above MP Trend for Location: 7b00566 and Reference Profile Set

Area Above MP Trend: Eroding at -1.001 m²/Year

Survey Unit 7b7B2-4
Cross-Sectional Area Charts
Cross Sectional Area above MP Trend for Location: 7b00584A and Reference Profile Set

Area Above MP Trend: Eroding at -246.266 m²/Year
Cross Sectional Area above MP Trend for Location: 7b01342 and Reference Profile Set

Area Above MP Trend: Accreting at 0.388 m²/Year
Cross Sectional Area above MP Trend for Location: 7b01352 and Reference Profile Set

Area Above MP Trend: Eroding at -9.057 m²/Year

Survey Unit 7b7B3-2
Cross-Sectional Area Charts
Survey Unit 7b7B3-2
Cross-Sectional Area Charts

Cross Sectional Area above MP Trend for Location: 7b01365 and Reference Profile Set
Area Above MP Trend: Accreting at 8.302 m²/Year

Survey Date

Beach Area (m²)
0 50 100 150 200 250 300 350 400 450 500 550 600 650 700 750 800 850 900 950 1000 1050 1100 1150 1200 1250 1300 1350
Cross-sectional Area above MP Trend for Location: 7b01368 and Reference Profile Set

Area Above MP Trend: Accreting at 14.271 m²/Year
Survey Unit 7b7B3-4
Cross-Sectional Area Charts

Cross Sectional Area above MP Trend for Location: 7b01461E and Reference Profile Set

Area Above MP Trend: Accreting at 1.204 m²/Year

Survey Date

Beach Area (m²)

0 100 200 300 400 500 600 700 800 900 1000 1100 1200 1300 1400 1500 1600 1700 1800 1900 2000


☑️ Recycling Event ☑️ Area Above MP ☑️ Area Trend ☑️ Area Between MP & DP
Cross Sectional Area above MP Trend for Location: 7b01463A and Reference Profile Set

Area Above MP Trend: Accreting at 9.003 m²/Year

Survey Unit 7b7B3-4
Cross-Sectional Area Charts