Annual Survey Report
Isles of Scilly
2016

AR 62
September 2016

PLYMOUTH COASTAL OBSERVATORY
Cover Photograph: St Martin’s, Isles of Scilly, September 2016
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| Document Title | Annual Survey Report 2016
|                | Isles of Scilly |
| Reference      | AR 62          |
| Status         | Final          |
| Date           | September 2016 |
| Project Name   | South West Regional Coastal Monitoring Programme |
| Author         | C K Corti      |
| Checked By     | J Kirby        |
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* Presented on the CD accompanying printed copies of this report distributed by the Plymouth Coastal Observatory.
Summary

Since last Autumn, the majority of profiles in the archipelago have shown no change greater than 5%. On St Mary’s, a trend for erosion has been observed to the north of Porth Mellon, in Porth Hellick and in Pelistry Bay; accretion has been observed at Bar Point. On Tresco, high level erosion has been experienced to the south of the island, with cross-sectional area changes of up to 13%, whilst at Borough Beach a mixture of erosion and accretion has occurred. On Bryher, the greatest sediment loss has taken place in Green Bay. A mixture of erosion and accretion has affected the south and west coasts of St Martin’s and the north-west coast of St Agnes.

The longer term trend displays much greater changes, with the largest sediment losses taking place on the south coast of Tresco. Accretion is observed on the eastern coast of the island, with up to a 12% increase in cross-sectional area experienced at Borough Beach. On St Mary’s, high level accretion is observed at Bar Point, whereas medium level erosion has affected profiles at Porthloo and Old Town Bay. Very little change has taken place in the remaining survey units on St Mary’s. A combination of accretion and erosion is observed in South Bay on Bryher. A predominant trend for accretion is observed on the west and east coasts of St Martin’s. Very little change has taken place on the north coast of St Agnes, with the greatest changes observed over the Bar.

Nine south-westerly storms were recorded by the St Mary’s Sound Wave Buoy between April 2015 and March 2016, with the 30th December 2015 storm being the largest measured since the deployment of the buoy.
South West Regional Coastal Monitoring Programme

Annual Survey Report 2016 – Isles of Scilly

Introduction

Analysis presented in this report provides an overview of beach changes and wave and tidal measurements since the commencement of the South West Regional Coastal Monitoring Programme. The first beach surveys (using LiDAR) took place during the autumn of 2007 and changes are reported until autumn 2016.

Data are presented at the following levels:

- **Process Cell**
  - Process cell summary of percentage and actual profile change from Autumn 2015 to Autumn 2016.
  - Process cell summary of percentage and actual profile change from Baseline 2007 to Autumn 2016.
- **Survey Unit**
  - Detailed beach profile change from Autumn 2015 to Autumn 2016.
  - Detailed beach profile change from Baseline 2007 to Autumn 2016.
  - Topographic difference model change from Repeat Baseline 2015 to Repeat Baseline 2016 (where available).
  - Topographic difference model change from Baseline 2007 to Repeat Baseline 2016 (where available).
  - Change in position of Mean High Water contour (where available).
  - Beach sediment distribution (where available).
  - Time series of beach profile graphs*.
  - Trend analysis of beach cross-sectional area*.

*Note that beach profile graphs and cross-sectional area charts are presented on the CD accompanying hard copies of this report distributed by the Plymouth Coastal Observatory.

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.

Lines are colour-coded based on actual change; percentage change is displayed in brackets following the profile name on each line. Please note that lines on the map have been extended for clarity and therefore may not represent the actual distance surveyed.

Difference models have been produced where there are at least two baseline surveys to compare. Where available, the most recent LiDAR data has been used to extract the level of Mean High Water (MHW) for each survey unit, and where possible, sediment distribution maps are produced from the latest topographic baseline survey information.
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 1m² 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 profile 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 eighth report of a series and that changes identified are indicative only of relatively short-term trends.
St Mary’s Sound Directional Waverider Buoy

Location

OS 90407 E 8003 N
WGS84
Latitude: 49° 53.518’ N
Longitude: 06° 18.732’ W

Instrument type

Datawell Directional Waverider Mk III

Water depth ~53m CD

Buoy in situ in St Mary’s Sound. Photo courtesy of Fugro EMU Limited

Location of buoy (Google mapping)

Summary

During this reporting period from April 2015 to March 2016, nine separate events exceeded the 4.0m storm threshold for the site, which is set conservatively low until more data are available to update it. The largest storm on 30 December 2015 reached 5.87m Hs close to High Water and was the largest recorded since the buoy was deployed in 2014. December also had by far the largest average wave height with the Hs only dropping below 1m for one hour the entire month.

Data Quality

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<thead>
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<th>Recovery rate (%)</th>
<th>Sample interval</th>
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<tr>
<td>84</td>
<td>30 minutes</td>
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Monthly Averages – 2015/16

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<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>
<th>Bimodal seas (%)</th>
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<td>7.8</td>
<td>4.7</td>
<td>199</td>
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<td>30</td>
<td>11</td>
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<td>May</td>
<td>1.13</td>
<td>8.1</td>
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<td>November</td>
<td>1.61</td>
<td>8.5</td>
<td>5.3</td>
<td>233</td>
<td>13.1</td>
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<td>December</td>
<td>2.66</td>
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<td>12.3</td>
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<td>-</td>
<td>0</td>
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<td>5.2</td>
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<td>16</td>
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Storm Analysis

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<tr>
<th>Date/Time</th>
<th>$H_s$ (m)</th>
<th>$T_p$ (s)</th>
<th>$T_z$ (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>
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<td>30-Dec-2015 06:00</td>
<td>5.87</td>
<td>10.0</td>
<td>7.7</td>
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<td>~4.0</td>
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<td>-</td>
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<td>4.44</td>
<td>8.3</td>
<td>6.9</td>
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<td>7.4</td>
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<td>-</td>
<td>HW +4</td>
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<td>7.4</td>
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<td>~4.6</td>
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<td>-</td>
<td>HW +3</td>
<td>~5.1</td>
<td>-</td>
<td>-</td>
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</table>

Distribution plots

The distribution of wave parameters are shown in the accompanying graphs of:

- Monthly time series of $H_s$ (red line is 4.0 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 $H_s$ of each storm event is shown
- Percentage of occurrence of $H_s$, $T_p$, $T_z$ and Direction from May 2015 to March 2016
- Wave rose (percentage of occurrence of Direction vs. $H_s$) for all measured data

General

The buoy was first deployed on 15 May 2014, at which time the magnetic declination at the site was 3.03° west, changing by 0.17° east per year.

Acknowledgements

Tidal data were supplied by the British Oceanographic Data Centre as part of the function of the National Tidal and Sea Level Facility, hosted by the Proudman Oceanographic Laboratory and funded by DEFRA and the Natural Environment Research Council. The shore station is kindly hosted by the leaseholder of the Coastguard Tower.

* Tidal information is obtained from the nearest recording tide gauge (the National Network gauge at St Mary's). The surge shown is the residual at the time of the highest $H_s$. The maximum tidal surge is the largest positive surge during the storm event.
Annual Survey Report

Isles of Scilly 2016

Hs at St Marys Sound Apr 2015 to Mar 2016

Day in month

<table>
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<th>Data</th>
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<tr>
<td>May</td>
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<td>Feb</td>
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<tr>
<td>Mar</td>
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### Topographic Survey Record

The table below gives the completion dates for beach surveys between Autumn 2007 and Autumn 2016.

<table>
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### Annual Survey Report

#### Isles of Scilly 2016

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</table>

**Key**

- **Green**: Completed on Time and Accepted
- **Red**: Overdue
- **Orange**: Surveyed but Not Submitted / Accepted
- **Yellow**: Survey Rejected
- **Gray**: Not Scheduled for Survey

For the most recent survey schedules for each survey unit please see [http://www.coastalmonitoring.org/southwest/survey_programme_schedule/](http://www.coastalmonitoring.org/southwest/survey_programme_schedule/)
Topographic Survey Report

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. In cases where none of these levels can be reached the master profile is placed at the most appropriate level for the survey unit in question.

A full time series of plotted beach profiles is shown superimposed on and relative to a Master Profile for each profile location. The Master Profile provides the basis for calculation of beach cross-sectional 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. In addition, highly managed sites, or those with a beach management plan, receive an annual baseline survey. 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, indicating the surface sediment type.

Where there are at least two baseline surveys for a survey unit, a topographic difference model is produced based on the spot height elevations. The raw spot height data is processed into a grid model and successive models are subtracted from one another to produce a difference model for the survey unit. The spot height data from each survey can be used to derive Mean High Water (MHW) and Mean Low Water (MLW) contours along each survey unit. In some cases, where there is no topographic baseline data collected, the information described above may be derived from LiDAR data.

Process Cell

The Beach Change Summary maps contain an at-a-glance condition of the whole of the Scilly’s archipelago with the lines representing the average accretion, no change or erosion for each survey unit where there is topographic data.
Survey Unit

Topographic changes within each survey unit are summarised on two maps:

- Beach change map (Autumn to Autumn).
- Beach change map (Baseline to Autumn).

Beach change maps show the location of each beach profile, superimposed on an aerial photograph (note that the line may be extended for clarity). Where possible, the annual change in cross-sectional area has been calculated from Autumn 2015 to Autumn 2016 and from Baseline 2007 to Autumn 2016. Please note that the 2007 baseline data was collected using LiDAR.

Survey Schedules

Beach surveys on the Isles of Scilly are conducted once a year in the Autumn usually between the end of August and the end of September depending on spring tidal windows. The dates of individual surveys are given in the topographic survey record and with the analysis for each survey unit. Profiles that were added to the Programme in 2016 following discussion with the local authority have been highlighted in yellow in the profile cross-sectional area tables for each survey unit.
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 CSA\(_1\) = most recent spring survey and 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 Volume Calculation

This is the volume change in m\(^3\) across each individual survey unit over time. The initial volumes are derived from the Digital Terrain Models (DTM) 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 Vol\(_1\) = most recent DTM model volume and Vol\(_2\) = earlier DTM model volume. Therefore a net change of –19,730m\(^3\) represents erosion since the earlier survey.
Actual Change in Cross-sectional Area (Autumn 2015 to Autumn 2016)

- **Survey Unit Boundary**
  - **Accretion**
    - > 30 m²
    - 15 - 30 m²
    - 5 - 15 m²
  - **Erosion**
    - Less than 5 m²
    - 5 - 15 m²
    - 15 - 30 m²
    - > 30 m²

### Beach Change Summary - Autumn 2015 to Autumn 2016

- **Survey Units**:
  - St Martin’s
  - Tresco
  - Bryher
  - St Mary’s
  - St Agnes

### Changes

- **St Martin’s**
  - Actual Change: 15 - 30 m²
- **Tresco**
  - Actual Change: Less than 5 m²
- **Bryher**
  - Actual Change: 5 - 15 m²
- **St Mary’s**
  - Actual Change: > 30 m²
- **St Agnes**
  - Actual Change: Less than 5 m²
South West Regional Coastal Monitoring Programme
Annual Survey Report 2016

Beach Change Summary - Baseline 2007 to Autumn 2016

CISCAG - Isles of Scilly

Actual Change in Cross-sectional Area (Baseline 2007 to Autumn 2016)

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

Survey sites: Bryher, Tresco, St Mary's, St Agnes, St Martin's

km
0 1.5 3

Beach Change Summary - Baseline 2007 to Autumn 2016
CISCAG - Isles of Scilly
Since last Autumn, profile 6e02076 has increased its cross-sectional area by 7% by gaining just over 14m² of material, mostly on the mid-upper beach. The remaining profiles have experienced no change overall. Sediment has however been lost against the sea defence along profile 6e02080 and redistributed on the lower beach.

Over the longer term, low level accretion has been observed along profile 6e02072, while profile 6e02076 has remained unchanged. Conversely, profile 6e02080 has gained sediment on the very upper beach, whilst erosion has affected the mid-lower portion of the profile, resulting in a 1% decrease in cross-sectional area.

<table>
<thead>
<tr>
<th>Profile</th>
<th>Autumn to Autumn</th>
<th>Baseline to Autumn</th>
<th>Master Profile</th>
</tr>
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<tbody>
<tr>
<td></td>
<td>2015-09 to 2016-09</td>
<td>2007-09 to 2016-09</td>
<td>Level (m)</td>
</tr>
<tr>
<td>CSA Diff (m²)</td>
<td>% Change</td>
<td>CSA Diff (m²)</td>
<td>% Change</td>
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<td>14.3</td>
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<td>-1.0</td>
</tr>
<tr>
<td>6e02080</td>
<td>-0.1</td>
<td>0</td>
<td>-2.3</td>
</tr>
</tbody>
</table>
Actual Change in Cross-sectional Area (Autumn 2015 to Autumn 2016)

Survey Unit Boundary

Accretion
No Change
Erosion

6e02072 (0%)
6e02078 (7%)
6e02030 (0%)

6eM1-3 Town Beach & 6eM1-4 Hugh Town, St Mary's - Beach Change
CISCAG - Isles of Scilly
Actual Change in Cross-sectional Area (Baseline 2007 to Autumn 2016)

- Survey Unit Boundary

Accretion: > 30 m
-5 - 15 m
-15 - 30 m
-30 - m

No Change

Erosion: > 30 m
-15 - 30 m
-30 - m

Aerial Photography from 2015

6eM1-3 Town Beach & 6eM1-4 Hugh Town, St Mary's - Beach Change

CISCAG - Isles of Scilly
### Survey Unit

<table>
<thead>
<tr>
<th>Survey Type</th>
<th>Dates Surveyed</th>
<th>Observations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Autumn-Autumn</td>
<td>05/08/2015 - 21/09/2016</td>
<td>Since Autumn 2015, profiles 6e02084A and 6e02088 have experienced erosion, with sediment losses mainly from the lower beach, resulting in a 4% decrease in cross-sectional area along the latter. The profile to the middle of the survey unit has remained unchanged.</td>
</tr>
<tr>
<td>Baseline-Autumn</td>
<td>26/09/2007 - 21/09/2016</td>
<td>Since the 2007 Baseline survey, profile 6e02086 has lost 4.7m² of material, with accretion on the upper beach and erosion towards the seaward extent of the profile. Low level erosion is also observed along profile 6e02088, whilst profile 6e02084A has shown no change.</td>
</tr>
</tbody>
</table>

### Profile Cross-Sectional Area

<table>
<thead>
<tr>
<th>Profile</th>
<th>Autumn to Autumn</th>
<th>Baseline to Autumn</th>
<th>Master Profile Level (m)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2015-08 to 2016-09</td>
<td>2007-09 to 2016-09</td>
<td></td>
</tr>
<tr>
<td></td>
<td>CSA Diff (m²)</td>
<td>% Change</td>
<td>CSA Diff (m²)</td>
</tr>
<tr>
<td>6e02084A</td>
<td>-3.2</td>
<td>-1</td>
<td>0.3</td>
</tr>
<tr>
<td>6e02086</td>
<td>0.2</td>
<td>0</td>
<td>-4.7</td>
</tr>
<tr>
<td>6e02088</td>
<td>-16.4</td>
<td>-4</td>
<td>-6.1</td>
</tr>
</tbody>
</table>

Profiles 6e02084A and 6e02088 were added to the Programme in 2016, following discussion with the local authority. The 2015 survey has hence been extracted from LiDAR data.
The 2015 survey was derived from LiDAR data.

Actual Change in Cross-sectional Area (Autumn 2015 to Autumn 2016)

- Survey Unit Boundary

- Accretion
- No Change
- Erosion

- > 30 m²
- 15 - 30 m²
- < 15 m²
- 5 - 15 m²
- < 5 m²
- 5 - 30 m²
- > 30 m²

6eM2 Porth Mellon, St Mary's - Beach Change
CISCAG - Isles of Scilly
Actual Change in Cross-sectional Area (Baseline 2007 to Autumn 2016)

Survey Unit Boundary

Accretion  No Change  Erosion

> 30 m²  15 - 30 m²  5 - 15 m²
< 5 m²  5 - 15 m²  > 30 m²

6e02086 (-1%)
6e02088 (-2%)
6e02084 (0%)

Porth Mellon, St Mary's - Beach Change

South West Regional Coastal Monitoring Programme
Annual Survey Report 2016

CISCAG - Isles of Scilly
### Survey Unit

<table>
<thead>
<tr>
<th>Survey Unit</th>
<th>6eM3</th>
</tr>
</thead>
</table>

### Local Name

<table>
<thead>
<tr>
<th>Thomas’ Porth, St Mary’s</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Survey Type</th>
<th>Dates Surveyed</th>
<th>Observations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Autumn-Autumn Beach Change</td>
<td>04/09/2015 - 21/09/2016</td>
<td>Very little change has taken place along the profile over the short term.</td>
</tr>
<tr>
<td>Baseline-Autumn Beach Change</td>
<td>26/09/2007 - 21/09/2016</td>
<td>Similar to the short term trend, the longer term analysis has seen no change, with only little redistribution of sediment along the length of the profile.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Comments</th>
</tr>
</thead>
</table>

### Profile Cross-Sectional Area

<table>
<thead>
<tr>
<th>Profile</th>
<th>Autumn to Autumn (2015-09 to 2016-09)</th>
<th>Baseline to Autumn (2007-09 to 2016-09)</th>
<th>Master Profile Level (m)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>CSA Diff (m²)</td>
<td>% Change</td>
<td>CSA Diff (m²)</td>
</tr>
<tr>
<td>6e02092</td>
<td>-1.3</td>
<td>0</td>
<td>0.1</td>
</tr>
</tbody>
</table>
Actual Change in Cross-sectional Area (Autumn 2015 to Autumn 2016)

Survey Unit Boundary

Accretion: > 30 m², 15 - 30 m², 5 - 15 m², < 5 m²
No Change: 5 - 15 m²
Erosion: > 30 m², 15 - 30 m², 5 - 15 m², < 5 m²

Aerial Photography from 2015

0 40 80 m

6e02092 (0%)
South West Regional Coastal Monitoring Programme

Annual Survey Report 2016

6eM3 Thomas' Porth, St Mary's - Beach Change

Actual Change in Cross-sectional Area (Baseline 2007 to Autumn 2016)

Survey Unit Boundary

Accretion
No Change
Erosion

6e02092 (033)

Aerial Photography from 2015

0 40 80 m

CISCAG - Isles of Scilly
### Survey Unit

<table>
<thead>
<tr>
<th>Survey Unit</th>
<th>6eM4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Local Name</td>
<td>Porth Loo, St Mary’s</td>
</tr>
</tbody>
</table>

### Profile Cross-Sectional Area

<table>
<thead>
<tr>
<th>Profile</th>
<th>Autumn to Autumn</th>
<th>Baseline to Autumn</th>
<th>Master Profile Level (m)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2015-09 to 2016-09</td>
<td>2007-09 to 2016-09</td>
<td></td>
</tr>
<tr>
<td></td>
<td>CSA Diff (m²)</td>
<td>% Change</td>
<td>CSA Diff (m²)</td>
</tr>
<tr>
<td>6e02098</td>
<td>3.1</td>
<td>1</td>
<td>0.7</td>
</tr>
<tr>
<td>6e02100</td>
<td>-2.7</td>
<td>-1</td>
<td>-13.6</td>
</tr>
<tr>
<td>6e02101</td>
<td>1.1</td>
<td>0</td>
<td>-21.9</td>
</tr>
</tbody>
</table>

Over the past year, very little change has been observed within the survey unit. Very low level accretion has taken place along profile 6e02098, with erosion of the upper beach and sediment deposition on the lower shore.

The longer term trend has seen no overall change along profile 6e02098, to the south of the survey unit; sediment has been redistributed along the profile, resulting in its steepening. Conversely, the more northerly profiles have lost material from the lower beach, resulting in steepening of the profiles and erosion by up to 7% along profile 6e02101.

Comments

- The longer term trend has seen no overall change along profile 6e02098, to the south of the survey unit; sediment has been redistributed along the profile, resulting in its steepening. Conversely, the more northerly profiles have lost material from the lower beach, resulting in steepening of the profiles and erosion by up to 7% along profile 6e02101.
Actual Change in Cross-sectional Area (Autumn 2015 to Autumn 2016)

Survey Unit Boundary

- 6M02101 (0%)
- 6M02100 (-1%)
- 6M02098 (1%)

Aerial Photography from 2015

Accretion
No Change
Erosion

6M4 Porth Loo, St Mary's - Beach Change
CISCAG - Isles of Scilly
Actual Change in Cross-sectional Area (Baseline 2007 to Autumn 2016)

Survey Unit Boundary

Accretion
No Change
Erosion

6e.M.4 Porth Loo, St Mary's - Beach Change

CISCAG - Isles of Scilly
Annual Survey Report
Isles of Scilly 2016

Survey Unit: 6eM5
Local Name: Bar Point, St Mary’s

<table>
<thead>
<tr>
<th>Survey Type</th>
<th>Dates Surveyed</th>
<th>Observations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Autumn-Autumn</td>
<td>Beach Change</td>
<td>Since the last Autumn, 18.7m² and 28m² of sediment have been gained along profiles 6e01855 and 6e01856 respectively, equating to a 5% and 7% increase in cross-sectional area. Along profile 6e01857, material was lost from the lower beach and deposited on the upper beach. No significant change has occurred along the remaining profiles.</td>
</tr>
<tr>
<td>Baseline-Autumn</td>
<td>Beach Change</td>
<td>The longer term trend is for erosion to the very west of the survey unit, with just under 15m² of material being lost from profile 6e01854, mainly from the upper beach. Whilst a small amount of sediment has been lost along profile 6e01858, the remaining profiles in the survey unit have experienced accretion, with profile 6e01856 gaining ~68m² of material. A 12% and 8% increase in cross-sectional area has occurred along profiles 6e01859A and 6e01855 respectively, despite the latter experiencing dune roll-back.</td>
</tr>
</tbody>
</table>

Comments

Profile Cross-Sectional Area

<table>
<thead>
<tr>
<th>Profile</th>
<th>Autumn to Autumn</th>
<th>Baseline to Autumn</th>
<th>Master Profile Level (m)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2015-09 to 2016-09</td>
<td>2007-09 to 2016-09</td>
<td></td>
</tr>
<tr>
<td></td>
<td>CSA Diff (m²)</td>
<td>% Change</td>
<td>CSA Diff (m²)</td>
</tr>
<tr>
<td>6e01854</td>
<td>-1.7</td>
<td>0</td>
<td>-14.7</td>
</tr>
<tr>
<td>6e01855</td>
<td>18.7</td>
<td>5</td>
<td>29.7</td>
</tr>
<tr>
<td>6e01856</td>
<td>28.0</td>
<td>7</td>
<td>68.2</td>
</tr>
<tr>
<td>6e01857</td>
<td>-1.3</td>
<td>0</td>
<td>21.9</td>
</tr>
<tr>
<td>6e01858</td>
<td>-0.5</td>
<td>0</td>
<td>-4.0</td>
</tr>
<tr>
<td>6e01859A</td>
<td>0.1</td>
<td>0</td>
<td>32.1</td>
</tr>
</tbody>
</table>
Actual Change in Cross-sectional Area (Autumn 2015 to Autumn 2016)

Accretion
0% - 5 m
5 - 15 m
15 - 30 m
> 30 m

Erosion
< 5 m
5 - 15 m
15 - 30 m
> 30 m

No Change

6eM5 Bar Point, St Mary's - Beach Change
CISCAG - Isles of Scilly
Actual Change in Cross-sectional Area (Baseline 2007 to Autumn 2016)

- M5 Bar Point, St Mary's - Beach Change

CISCAG - Isles of Scilly
### Profile Cross-Sectional Area

<table>
<thead>
<tr>
<th>Profile</th>
<th>Autumn to Autumn</th>
<th>Baseline to Autumn</th>
<th>Master Profile Level (m)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>CSA Diff (m²)</td>
<td>% Change</td>
<td>CSA Diff (m²)</td>
</tr>
<tr>
<td>6e01898A</td>
<td>-7.0</td>
<td>-7</td>
<td>-7.3</td>
</tr>
</tbody>
</table>

Over the short term, the profile has lost material from the lower section of the beach and has gained material on its middle section. This has resulted in a loss of 7m² of sediment since August 2015, equating to a 7% decrease in cross-sectional area.

Similar to the year on year analysis, the longer term trend is for erosion for the profile in Pelistry Bay. Material has been lost from the lower and upper sections of the beach, resulting in a 7% decrease in cross-sectional area.

Profile 6e01898A was added to the Programme in 2016, following discussion with the local authority. The 2015 survey has hence been extracted from LiDAR data. As the profile does not get to depth, the lower limit of the master profile has been placed accordingly.
The 2015 survey was derived from LiDAR data.

**Actual Change in Cross-sectional Area (Autumn 2015 to Autumn 2016)**

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

**6eM6 Pelistry Bay, St Mary's - Beach Change**

CISCAG - Isles of Scilly
Actual Change in Cross-sectional Area (Baseline 2007 to Autumn 2016)

- > 30 m²: Erosion
- 15 - 30 m²: Erosion
- 5 - 15 m²: Erosion
- < 5 m²: Erosion
- No Change

6eM6 Pelistry Bay, St Mary's - Beach Change
CISCAG - Isles of Scilly
Over the last year, profile 6e01930A has lost ~8m² of material, equating to a 3% decrease in cross-sectional area, with sediment being lost from the upper and lower beach. It must be noted that the results may be biased by the different survey methods used. Overall, very little change has affected the remaining profiles, with only a small amount of sediment being lost from the dune front and redeposited on the dune top along profile 6e01932.

Since 2007, profiles 6e01932 and 6e01933 have experienced low level accretion, with build-up of sediment taking place on the upper beach. Conversely, dune roll-back has occurred along profile 6e01930A, despite low level accretion taking place along the middle section of the profile.

Profile 6e01930A was added to the Programme in 2016, following discussion with the local authority. The 2015 survey has hence been extracted from LiDAR data. As the profile does not get to depth, the lower limit of the master profile has been placed accordingly.
Actual Change in Cross-sectional Area
(Autumn 2015 to Autumn 2016)

Survey Unit Boundary

Accretion | No Change | Erosion
---|---|---
> 30 m² | 15 - 30 m² | < 5 m²
5 - 15 m² | 5 - 15 m² | > 30 m²

6e01933 (0%)
6e01932 (1%)
6e01930A (-3%)
6e01932A (-3%)

6eM7 Porth Hellick, St Mary's - Beach Change
CISCAG - Isles of Scilly

Aerial Photography from 2015
<table>
<thead>
<tr>
<th>Survey Type</th>
<th>Dates Surveyed</th>
<th>Observations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Autumn-Autumn</td>
<td>04/09/2015 - 21/09/2016</td>
<td>Since the last Autumn, very little volume change has occurred along the profile, despite a loss of the berm from the upper beach.</td>
</tr>
<tr>
<td>Baseline-Autumn</td>
<td>26/09/2007 - 21/09/2016</td>
<td>Longer term, small losses of sediment from the upper and lower sections of the profile have resulted in a 1% decrease in cross-sectional area.</td>
</tr>
</tbody>
</table>

### Profile Cross-Sectional Area

<table>
<thead>
<tr>
<th>Profile</th>
<th>Autumn to Autumn</th>
<th>Baseline to Autumn</th>
<th>Master Profile Level (m)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2015-09 to 2016-09</td>
<td>2007-09 to 2016-09</td>
<td></td>
</tr>
<tr>
<td></td>
<td>CSA Diff (m²)</td>
<td>% Change</td>
<td>CSA Diff (m²)</td>
</tr>
<tr>
<td>6e01961</td>
<td>1.0</td>
<td>0</td>
<td>-2.1</td>
</tr>
</tbody>
</table>
Actual Change in Cross-sectional Area (Autumn 2015 to Autumn 2016)

- Survey Unit Boundary

- Accretion
- No Change
- Erosion

Aerial Photography from 2015

0 40 80 m

6eM9 Porth Minick, St Mary's - Beach Change

CISCAG - Isles of Scilly
Actual Change in Cross-sectional Area (Baseline 2007 to Autumn 2016)

- Survey Unit Boundary

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

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

Aerial Photography from 2015

6eM9 Porth Minick, St Mary's - Beach Change
CISCAG - Isles of Scilly
### Survey Unit

#### Local Name

<table>
<thead>
<tr>
<th>Survey Type</th>
<th>Dates Surveyed</th>
<th>Observations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Autumn-Autumn Beach</td>
<td>04/09/2015 -</td>
<td>Over the short term, a trend for stability is observed across the survey unit, with low level accretion taking place over the lower beach along profile 6e01968A.</td>
</tr>
<tr>
<td></td>
<td>21/09/2016</td>
<td></td>
</tr>
<tr>
<td>Baseline-Autumn Beach</td>
<td>26/09/2007 -</td>
<td>Similar to the year on year analysis, the longer term trend displays very small cross-sectional area changes for the profiles in Old Town Bay, with only minor sediment redistribution taking place along profile 6e01792.</td>
</tr>
<tr>
<td></td>
<td>21/09/2016</td>
<td></td>
</tr>
</tbody>
</table>

### Profile Cross-Sectional Area

<table>
<thead>
<tr>
<th>Profile</th>
<th>Autumn to Autumn 2015-09 to 2016-09</th>
<th>Baseline to Autumn 2007-09 to 2016-09</th>
<th>Master Profile Level (m)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>CSA Diff (m²) % Change</td>
<td>CSA Diff (m²) % Change</td>
<td></td>
</tr>
<tr>
<td>6e01968A</td>
<td>3.3 1</td>
<td>4.1 1</td>
<td>-2.21</td>
</tr>
<tr>
<td>6e01970</td>
<td>1.1 0</td>
<td>-0.2 0</td>
<td>-2.21</td>
</tr>
<tr>
<td>6e01972</td>
<td>1.6 1</td>
<td>3.0 1</td>
<td>-2.21</td>
</tr>
</tbody>
</table>
Actual Change in Cross-sectional Area (Autumn 2015 to Autumn 2016)

Survey Unit Boundary

Accretion  |  No Change  |  Erosion

> 30 m²  |  15 - 30 m²  |  5 - 15 m²  |  5 - 15 m²  |  15 - 30 m²  |  > 30 m²

6eM12 Old Town Bay, St Mary's - Beach Change
Actual Change in Cross-sectional Area (Baseline 2007 to Autumn 2016)

- Survey Unit Boundary

Accretion
- > 30 m
- 15 - 30 m
- 5 - 15 m

No Change
- 5 - 15 m
- 15 - 30 m
- > 30 m

Erosion
- < 5 m
- 5 - 15 m
- 15 - 30 m
- > 30 m

Aerial Photography from 2015

6eM12 Old Town Bay, St Mary's - Beach Change

CISCAG - Isles of Scilly
Survey Unit: 6eM15
Local Name: Porth Cressa, St Mary’s

<table>
<thead>
<tr>
<th>Survey Type</th>
<th>Dates Surveyed</th>
<th>Observations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Autumn-Autumn Beach</td>
<td>04/09/2015 - 21/09/2016</td>
<td>Over the short term, the trend for the majority of profiles in Porth Cressa is for stability. Low level accretion has however been experienced to the west of the survey unit, along profile 6e02027, which has gained sediment on the middle and lower sections of the beach.</td>
</tr>
<tr>
<td>Baseline-Autumn Beach</td>
<td>26/09/2007 - 21/09/2016</td>
<td>The longer term trend is for erosion to the east of the survey unit, along profile 6e02018A, which has lost just under 17 m² of material mainly from the lower beach, equating to a 5% decrease in cross-sectional area. While profile 6e02023 has remained stable, material has been deposited along profile 6e02027, resulting in a 2% increase in cross-sectional area since 2007.</td>
</tr>
</tbody>
</table>

### Profile Cross-Sectional Area

<table>
<thead>
<tr>
<th>Profile</th>
<th>Autumn to Autumn</th>
<th>Baseline to Autumn</th>
<th>Master Profile Level (m)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2015-09 to 2016-09</td>
<td>2007-09 to 2016-09</td>
<td></td>
</tr>
<tr>
<td></td>
<td>CSA Diff (m²)</td>
<td>% Change</td>
<td>CSA Diff (m²)</td>
</tr>
<tr>
<td>6e02018A</td>
<td>0.5</td>
<td>0</td>
<td>-16.7</td>
</tr>
<tr>
<td>6e02023</td>
<td>-2.2</td>
<td>-1</td>
<td>0.7</td>
</tr>
<tr>
<td>6e02027</td>
<td>3.5</td>
<td>1</td>
<td>6.1</td>
</tr>
</tbody>
</table>
Actual Change in Cross-sectional Area (Autumn 2015 to Autumn 2016)

- Survey Unit Boundary

<table>
<thead>
<tr>
<th>Actual Change in Cross-sectional Area</th>
<th>Accretion</th>
<th>No Change</th>
<th>Erosion</th>
</tr>
</thead>
<tbody>
<tr>
<td>30 - 60 m²</td>
<td>5 - 15 m²</td>
<td>5 - 15 m²</td>
<td>&gt; 30 m²</td>
</tr>
</tbody>
</table>

Aerial Photography from 2015

6eM15 Porth Cressa, St Mary's - Beach Change

CISCAG - Isles of Scilly
Actual Change in Cross-sectional Area (Baseline 2007 to Autumn 2016)

- Survey Unit Boundary

Aerial Photography from 2015

Accretion No Change Erosion

- > 30 m²
- 15 - 30 m²
- 5 - 15 m²
- < 5 m²
- 15 - 30 m²
- > 30 m²

6eM15 Porth Cressa, St Mary's - Beach Change

CISCAG - Isles of Scilly
Survey Unit: 6eT1 & 6eT7
Local Name: New Grimsby, Tresco

### Survey Type

<table>
<thead>
<tr>
<th>Survey Type</th>
<th>Dates Surveyed</th>
<th>Observations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Autumn-Autumn</td>
<td>05/08/2015 - 21/09/2016</td>
<td>The year on year analysis displays no change for the majority of profiles in New Grimsby, with only a minor sediment loss from the very upper beach along profile 6e01650. Conversely, profile 6e01650, by Plumb Hill, has lost ~12m² of material, mostly from its lower section, resulting in a 3% decrease in cross-sectional area.</td>
</tr>
<tr>
<td>Baseline-Autumn</td>
<td>26/09/2007 - 21/09/2016</td>
<td>The longer term trend is for accretion along profiles 6e01650 and 6e01656, which have gained 12m² and 6.8m² of material since the 2007 baseline. No change is observed along profile 6e01662.</td>
</tr>
</tbody>
</table>

### Comments

Profile 6e01650 was added to the Programme in 2016, following discussion with the local authority. The 2015 survey has hence been extracted from LiDAR data.

### Profile Cross-Sectional Area

<table>
<thead>
<tr>
<th>Profile</th>
<th>Autumn to Autumn</th>
<th>Baseline to Autumn</th>
<th>Master Profile Level (m)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>CSA Diff (m²)</td>
<td>% Change</td>
<td>CSA Diff (m²)</td>
</tr>
<tr>
<td>6e01650</td>
<td>-12.2</td>
<td>-3</td>
<td>12.0</td>
</tr>
<tr>
<td>6e01656</td>
<td>0.9</td>
<td>0</td>
<td>6.8</td>
</tr>
<tr>
<td>6e01662</td>
<td>0.4</td>
<td>0</td>
<td>1.5</td>
</tr>
</tbody>
</table>
Actual Change in Cross-sectional Area (Autumn 2015 to Autumn 2016)

Survey Unit Boundary

Accretion
No Change
Erosion
Actual Change in Cross-sectional Area (Baseline 2007 to Autumn 2016)

Survey Unit Boundary

Accretion
No Change
Erosion

6e0160 (3%)

6e01652 (1%)

6e01656 (3%)

6e01650 (3%)

Aerial Photography from 2015
## Survey Unit

<table>
<thead>
<tr>
<th>Survey Unit</th>
<th>6eT3-2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Local Name</td>
<td>Old Grimsby, Tresco</td>
</tr>
</tbody>
</table>

### Profile Cross-Sectional Area

<table>
<thead>
<tr>
<th>Profile</th>
<th>Autumn to Autumn</th>
<th>Baseline to Autumn</th>
<th>Master Profile Level (m)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2015-09 to 2016-09</td>
<td>2007-09 to 2016-09</td>
<td></td>
</tr>
<tr>
<td></td>
<td>CSA Diff (m²)</td>
<td>% Change</td>
<td>CSA Diff (m²)</td>
</tr>
<tr>
<td>6e01558</td>
<td>-0.6</td>
<td>0</td>
<td>10.6</td>
</tr>
<tr>
<td>6e01564</td>
<td>0.3</td>
<td>0</td>
<td>26.4</td>
</tr>
</tbody>
</table>

### Observations

- **Autumn-Autumn**
  - Beach Change: 04/09/2015 - 21/09/2016
  - A trend for stability is observed over the short term for both profiles in Old Grimsby.

- **Baseline-Autumn**
  - Longer term, a trend for accretion is displayed within the survey unit, with both profiles increasing their cross-sectional area by up to 7%. Along profile 6e01558, dune roll-back and erosion from the very lower beach are concurrent with sediment build-up along the middle section of the profile.

### Comments

- |
Actual Change in Cross-sectional Area (Autumn 2015 to Autumn 2016)

<table>
<thead>
<tr>
<th>Cross-sectional Area</th>
<th>Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>&gt; 30 m²</td>
<td>0</td>
</tr>
<tr>
<td>15 - 30 m²</td>
<td>0</td>
</tr>
<tr>
<td>5 - 15 m²</td>
<td>2</td>
</tr>
<tr>
<td>&lt; 5 m²</td>
<td>2</td>
</tr>
<tr>
<td>15 - 30 m²</td>
<td>2</td>
</tr>
<tr>
<td>&gt; 30 m²</td>
<td>2</td>
</tr>
</tbody>
</table>

Survey Unit Boundary

6e01558 (0%)

6e01564 (0%)

Aerial Photography from 2015

CISCAG - Isles of Scilly
Actual Change in Cross-sectional Area (Baseline 2007 to Autumn 2016)

- Survey Unit Boundary

6eT3-2 Old Grimsby, Tresco - Beach Change

CISCAG - Isles of Scilly
## Survey Unit

<table>
<thead>
<tr>
<th>Survey Unit</th>
<th>6eT4</th>
</tr>
</thead>
</table>

## Local Name

<table>
<thead>
<tr>
<th>Local Name</th>
<th>Borough Beach, Tresco</th>
</tr>
</thead>
</table>

### Survey Type

#### Autumn-Autumn

<table>
<thead>
<tr>
<th>Beach Change</th>
<th>Dates Surveyed</th>
<th>Observations</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>04/09/2015 - 21/09/2016</td>
<td>The year on year trend is for accretion for the majority of profiles at Borough Beach. The largest sediment gain is seen along profile 6e01581A, with ~88m² of material being deposited mainly over the berm, resulting in a 13% increase in the profile cross-sectional area. The only exception is profile 6e01575A, where ~48m² of material have been lost from the dune face and upper beach, causing a 9% decrease in cross-sectional area.</td>
</tr>
</tbody>
</table>

#### Baseline-Autumn

<table>
<thead>
<tr>
<th>Beach Change</th>
<th>Dates Surveyed</th>
<th>Observations</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>26/09/2007 - 21/09/2016</td>
<td>Similarly, the longer term analysis displays a trend for accretion for the profiles to the north of the survey unit, with up to ~69m² of material being deposited along profile 6e01571A, contributing to a 12% increase in cross-sectional area. Profile 6e01581A, to the southern end of the survey unit, has also experienced accretion, mainly over the berm, with 27.3m² of material being deposited along the profile line. Conversely, acute erosion is observed along profile 6e01575A, where dune roll-back and erosion of the upper beach have resulted in a 17% decrease in cross-sectional area.</td>
</tr>
</tbody>
</table>

#### Comments

- The year on year trend is for accretion for the majority of profiles at Borough Beach. The largest sediment gain is seen along profile 6e01581A, with ~88m² of material being deposited mainly over the berm, resulting in a 13% increase in the profile cross-sectional area. The only exception is profile 6e01575A, where ~48m² of material have been lost from the dune face and upper beach, causing a 9% decrease in cross-sectional area.

### Profile Cross-Sectional Area

<table>
<thead>
<tr>
<th>Profile</th>
<th>Autumn to Autumn</th>
<th>Baseline to Autumn</th>
<th>Master Profile Level (m)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2015-09 to 2016-09</td>
<td>2007-09 to 2016-09</td>
<td></td>
</tr>
<tr>
<td>CSA Diff (m²)</td>
<td>% Change</td>
<td>CSA Diff (m²)</td>
<td>% Change</td>
</tr>
<tr>
<td>-------------</td>
<td>-----------</td>
<td>-------------</td>
<td>---------</td>
</tr>
<tr>
<td>6e01569A</td>
<td>11.0</td>
<td>3</td>
<td>13.8</td>
</tr>
<tr>
<td>6e01571A</td>
<td>28.6</td>
<td>5</td>
<td>69.4</td>
</tr>
<tr>
<td>6e01573</td>
<td>5.3</td>
<td>1</td>
<td>40.5</td>
</tr>
<tr>
<td>6e01575A</td>
<td>-48.2</td>
<td>-9</td>
<td>-94.1</td>
</tr>
<tr>
<td>6e01581A</td>
<td>88.1</td>
<td>13</td>
<td>27.3</td>
</tr>
</tbody>
</table>
Actual Change in Cross-sectional Area (Autumn 2015 to Autumn 2016)

- **Survey Unit Boundary**

Aerial Photography from 2015

- **Accretion**
- **No Change**
- **Erosion**

**Survey Unit**

- 6e01571A (3%)
- 6e01571A (5%)
- 6e01573 (12%)
- 6e01575A (9%)
- 6e01575A (9%)

**Change**

- > 30 m
- 15 - 30 m
- 5 - 15 m
- < 5 m

**6eT4 Borough Beach, Tresco - Beach Change**

**CISCAG - Isles of Scilly**
Actual Change in Cross-sectional Area (Baseline 2007 to Autumn 2016)

Survey Unit Boundary

Accretion  No Change  Erosion

> 30 m²  15 - 30 m²  5 - 15 m²  5 - 15 m²  < 5 m²

6e156A (4%)  6e1571A (12%)  6e1573 (12%)  6e1573A (17%)  6e1581A (4%)

South West Regional Coastal Monitoring Programme

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6eT4 Borough Beach, Tresco - Beach Change

CISCAG - Isles of Scilly
## Annual Survey Report Isles of Scilly 2016

### Survey Unit & Local Name

<table>
<thead>
<tr>
<th>Survey Unit</th>
<th>6eT5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Local Name</td>
<td>Pentle Bay/South Beach, Tresco</td>
</tr>
</tbody>
</table>

### Profile Cross-Sectional Area

<table>
<thead>
<tr>
<th>Profile</th>
<th>Autumn to Autumn</th>
<th>Baseline to Autumn</th>
<th>Master Profile Level (m)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2015-08 to 2016-09</td>
<td>2007-09 to 2016-09</td>
<td></td>
</tr>
<tr>
<td></td>
<td>CSA Diff (m²)</td>
<td>% Change</td>
<td>CSA Diff (m²)</td>
</tr>
<tr>
<td>6e01588</td>
<td>-7.2</td>
<td>-2</td>
<td>-24.5</td>
</tr>
<tr>
<td>6e01593</td>
<td>-3.2</td>
<td>-1</td>
<td>3.4</td>
</tr>
<tr>
<td>6e01598</td>
<td>4.5</td>
<td>1</td>
<td>17.4</td>
</tr>
<tr>
<td>6e01607</td>
<td>0.5</td>
<td>0</td>
<td>-0.6</td>
</tr>
<tr>
<td>6e01609</td>
<td>-30.7</td>
<td>-10</td>
<td>-6.6</td>
</tr>
<tr>
<td>6e01611</td>
<td>-12.1</td>
<td>-3</td>
<td>-57.1</td>
</tr>
<tr>
<td>6e01616</td>
<td>4.7</td>
<td>2</td>
<td>15.0</td>
</tr>
<tr>
<td>6e01618</td>
<td>-1.9</td>
<td>-1</td>
<td>-20.2</td>
</tr>
</tbody>
</table>

The short term trend is for stability for the majority of the profiles in the survey unit. The only exception are profiles 6e01588, 6e01611 and 6e01609, which have experienced low level erosion from the upper beach. The latter, in particular, has lost just under 31m² of material, equating to a 10% decrease in cross-sectional area.

Longer term, a mixture of erosion, accretion and no change has occurred within the survey unit. In Pentle Bay, erosion of the upper beach has affected profiles 6e01588 and 6e01593, whilst sediment build-up on the upper section of profile 6e01598 has resulted in a 5% increase in the profile cross-sectional area. At South Beach, no change is observed along profile 6e01607, despite dune face retreat affecting the upper section of the profile. Medium to high level erosion has occurred along profiles 6e01609, 6e01611 and 6e01618, which appears to be mainly due to the retreat of the dune system at the back. Conversely, accretion is observed along profile 6e01616, where dune advance and deposition of material on the upper beach have resulted in a 5% increase in cross-sectional area.

Profile 6e0609 was added to the Programme in 2016, following discussion with the local authority. The 2015 survey has hence been extracted from LiDAR data.
Actual Change in Cross-sectional Area (Autumn 2015 to Autumn 2016)

Survey Unit Boundary

- 5 - 15 m
- 15 - 30 m
- > 30 m

Accretion
No Change
Erosion

Aerial Photography from 2015

0 150 300 m

South West Regional Coastal Monitoring Programme

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CISCAG - Isles of Scilly

6eT5 Pentle Bay/South Beach, Tresco - Beach Change (2 of 2)
Actual Change in Cross-sectional Area (Baseline 2007 to Autumn 2016)

Survey Unit Boundary

- Accretion
- No Change
- Erosion

Survey Data:
- > 30 m²
- 15 - 30 m²
- 5 - 15 m²
- < 5 m²
- 15 - 30 m²
- > 30 m²

6eT5 Pentle Bay/South Beach, Tresco - Beach Change (2 of 2)

CISCAG - Isles of Scilly
Survey Unit | 6eT6
Local Name | Appletree Bay, Tresco

<table>
<thead>
<tr>
<th>Survey Type</th>
<th>Dates Surveyed</th>
<th>Observations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Autumn-Autumn</td>
<td>Beach Change</td>
<td>04/09/2015 - 21/09/2016 Over the short term, no change is observed to the south of Appletree Bay. Conversely, profile 6e01636, to the north of the Bay, has experienced low level accretion, with 5.6m² of material being deposited on the upper beach.</td>
</tr>
<tr>
<td>Baseline-Autumn</td>
<td>Beach Change</td>
<td>26/09/2007 - 21/09/2016 Longer term, a trend for accretion is observed to the south of the survey unit, with a 10% increase in cross-sectional area along profile 6e01630. To the south, profile 6e01636 has lost just under 9m² of material from the upper beach, equating to a 5% decrease in cross-sectional area.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Profile</th>
<th>Autumn to Autumn</th>
<th>Baseline to Autumn</th>
<th>Master Profile Level (m)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>CSA Diff (m²)</td>
<td>% Change</td>
<td>CSA Diff (m²)</td>
</tr>
<tr>
<td></td>
<td>2015-09 to 2016-09</td>
<td>2007-09 to 2016-09</td>
<td></td>
</tr>
<tr>
<td>6e01630</td>
<td>0.4</td>
<td>0</td>
<td>29.4</td>
</tr>
<tr>
<td>6e01636</td>
<td>5.6</td>
<td>3</td>
<td>-8.9</td>
</tr>
</tbody>
</table>
Actual Change in Cross-sectional Area (Baseline 2007 to Autumn 2016)

Survey Unit Boundary

Accretion  No Change  Erosion

> 30 m²  15 - 30 m²  5 - 15 m²
< 5 m²  5 - 15 m²  15 - 30 m²
> 30 m²

6e01630 (4%)  6e01630 (10%)
### Survey Unit

<table>
<thead>
<tr>
<th>Survey Unit</th>
<th>6eN1</th>
</tr>
</thead>
</table>

### Local Name

<table>
<thead>
<tr>
<th>Local Name</th>
<th>Tean Sound, St Martin’s</th>
</tr>
</thead>
</table>

### Profile Cross-Sectional Area

<table>
<thead>
<tr>
<th>Profile</th>
<th>Autumn to Autumn</th>
<th>Baseline to Autumn</th>
<th>Master Profile Level (m)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2015-09 to 2016-09</td>
<td>2007-09 to 2016-09</td>
<td></td>
</tr>
<tr>
<td>6e01501A</td>
<td>-8.2</td>
<td>-1.6</td>
<td>-2.21</td>
</tr>
<tr>
<td>6e01504A</td>
<td>12.8</td>
<td>3.7</td>
<td>-2.21</td>
</tr>
</tbody>
</table>

The short term analysis displays a trend for erosion to the south of the survey unit, with 8.2 m² of material being lost mainly from the dune face along profile 6e01501A. Conversely, to the north of Bab’s Carn, profile 6e01504A has gained material on the upper beach, resulting in a 7% increase in cross-sectional area.

Since the 2007 baseline, very little volume change overall has occurred along profile 6e01501A, despite the loss of the berm feature. A trend for low level accretion is on the other hand observed along profile 6e01504A, where sediment deposition along the middle section of the beach is concurrent with dune face retreat.
Actual Change in Cross-sectional Area (Autumn 2015 to Autumn 2016)

Survey Unit Boundary

Accretion
No Change
Erosion

6e01504A (7%) 6e01501A (-2%)

Aerial Photography from 2015

0 60 120 m

CISCAG - Isles of Scilly
Actual Change in Cross-sectional Area
(Baseline 2007 to Autumn 2016)

Survey Unit Boundary

<table>
<thead>
<tr>
<th>Change in Cross-sectional Area</th>
<th>0 - 5 m²</th>
<th>5 - 15 m²</th>
<th>15 - 30 m²</th>
<th>&gt; 30 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>

6e01504A (2%)

CISCAG - Isles of Scilly

Aerial Photography from 2015

6eN1 Tean Sound, St Martin's - Beach Change

South West Regional Coastal Monitoring Programme

Annual Survey Report 2016
### Survey Unit

**Survey Unit**

6eN2

**Local Name**

St Martin’s Bay, St Martin’s

---

### Profile Cross-Sectional Area

<table>
<thead>
<tr>
<th>Profile</th>
<th>Autumn to Autumn</th>
<th>Baseline to Autumn</th>
<th>Master Profile Level (m)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>CSA Diff (m²)</td>
<td>% Change</td>
<td>CSA Diff (m²)</td>
</tr>
<tr>
<td>6e01343</td>
<td>0.0</td>
<td>0</td>
<td>22.0</td>
</tr>
<tr>
<td>6e01352</td>
<td>-4.2</td>
<td>-1</td>
<td>-0.9</td>
</tr>
</tbody>
</table>

---

**Survey Type**

- **Autumn-Autumn**
  - Beach Change
  - Observations: Over the short term, no change has occurred along the profiles in St Martin’s Bay.

- **Baseline-Autumn**
  - Beach Change
  - Observations: Despite dune face retreat taking place along profile 6e01343, the longer term trend is for accretion to the north of the bay, with 22m² of material being deposited on the middle beach, resulting in an 8% increase in cross-sectional area. Conversely, to the south of the survey unit, profile 6e01352 has gained material on the upper beach and lost sediment from its lower section. No overall change in cross-sectional area is observed along the profile.

---

**Comments**
Actual Change in Cross-sectional Area
(Baseline 2007 to Autumn 2016)

Accretion | No Change | Erosion
---|---|---
> 30 m$^2$ | 5 - 15 m$^2$ | > 30 m$^2$
15 - 30 m$^2$ | 5 - 15 m$^2$ | 15 - 30 m$^2$
< 5 m$^2$ | < 5 m$^2$ | < 5 m$^2$

6e01343 (8%)
6e01352 (6%)

6e N2 St Martin's Bay, St Martin's - Beach Change
CISCAG - Isles of Scilly
Survey Unit | 6eN3  
--- | ---  
Local Name | Higher Town Bay, St Martin's  

<table>
<thead>
<tr>
<th>Survey Type</th>
<th>Dates Surveyed</th>
<th>Observations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Autumn-Autumn</td>
<td>Beach Change</td>
<td>05/08/2015 - 21/09/2016</td>
</tr>
<tr>
<td>Baseline-Autumn</td>
<td>Beach Change</td>
<td>26/09/2007 - 21/09/2016</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Profile Cross-Sectional Area</th>
<th>Autumn to Autumn</th>
<th>Baseline to Autumn</th>
<th>Master Profile Level (m)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Profile</td>
<td></td>
<td>CSA Diff (m²)</td>
<td>% Change</td>
</tr>
<tr>
<td>6e01446</td>
<td></td>
<td>10.9</td>
<td>4</td>
</tr>
<tr>
<td>6e01452</td>
<td></td>
<td>-1.8</td>
<td>-1</td>
</tr>
<tr>
<td>6e01455</td>
<td></td>
<td>-7.4</td>
<td>-2</td>
</tr>
</tbody>
</table>

Comments: Profile 6e01455 was added to the Programme in 2016, following discussion with the local authority. The 2015 survey has hence been extracted from LiDAR data.
Actual Change in Cross-sectional Area
(Autumn 2015 to Autumn 2016)

6e01446 (4%)  6e01452 (-1%)  6e01455 (-2%)

Aerial Photography from 2015

Accretion  No Change  Erosion

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

6eN3 Higher Town Bay, St Martin's - Beach Change  CISCAG - Isles of Scilly
Actual Change in Cross-sectional Area
(Baseline 2007 to Autumn 2016)

- > 30 m:
- 15 - 30 m:
- 5 - 15 m:
- < 5 m:
- No Change:
- Erosion:
- Accretion:

6e01455 (3%)
Since last Autumn, profile 6e01479, to the east of the survey unit, has experienced accretion, with 15.4 m² of material being gained mainly on the upper section of the profile. Accretion is also observed to the very west of the survey unit, by Lower Town, with 9.6 m² of material being deposited along profile 6e01498. No change has been observed along the remaining profiles.

The longer term trend is for accretion for the majority of profiles at St Martin’s Flats, with up to ~16 m² of material being gained along profile 6e01494. The only exception is profile 6e01498, which has lost 12.6 m² of material since 2007, mainly from the dune face and the mid-lower beach.
Actual Change in Cross-sectional Area (Baseline 2007 to Autumn 2016)

Survey Unit Boundary

Accretion
No Change
Erosion

Aerial Photography from 2015

0 160 320 m

6eN4 St Martin's Flats, St Martin's - Beach Change
CISCAG - Isles of Scilly
Over the short term, both profiles at Great Porth have experienced little or no change. A small amount of material has been lost from the middle section of profile 6e01794 and deposited on the upper and lower beach.

Similarly, the longer term trend displays no change along profile 6e01789A. Conversely, to the north of the bay, material has been deposited along profile 6e01794, resulting in a 3% increase in its cross-sectional area.
Actual Change in Cross-sectional Area (Autumn 2015 to Autumn 2016)

Survey Unit Boundary

Accretion

No Change

Erosion

Ge01789A (0%)
Actual Change in Cross-sectional Area (Baseline 2007 to Autumn 2016)

Survey Unit Boundary

Erosion
No Change
Accretion

< 5 m
5 - 15 m
15 - 30 m
> 30 m

Baseline 2007 to Autumn 2016
Since the last Autumn, a small amount of sediment has been deposited on the upper beach along profile 6e01817A, whilst very little change has taken place along the remaining profiles.

Longer term, sediment has been lost from the upper beach along profiles 6e01817A and 6e01820 at Great Popplestones, resulting in a decrease in cross-sectional area by 1%. A trend for accretion is observed along profile 6e01823, with a net gain of 6.4 m$^2$ of material.

Profile 6e01823 was added to the Programme in 2016 following discussion with the local authority. The 2015 survey has hence been extracted from LiDAR data.
Actual Change in Cross-sectional Area (Autumn 2015 to Autumn 2016)

Survey Unit Boundary

Accretion: "> 30 m²"
Erosion: "< 5 m²"
No Change: "5 - 15 m²"
> 30 m²"
15 - 30 m²"
5 - 15 m²"
5 - 15 m²"
> 30 m²"

6eB1-4 & 6eB1-5 Great & Little Popplestones, Bryher - Beach Change
CISCAG - Isles of Scilly
South West Regional Coastal Monitoring Programme

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6eB1-4 & 6eB1-5 Great & Little Popplestones, Bryher - Beach Change

CISCAG - Isles of Scilly

Actual Change in Cross-sectional Area
(Baseline 2007 to Autumn 2016)

Survey Unit Boundary

- 5 - 15 m
- 15 - 30 m
> 30 m

Accretion
Erosion
No Change

Aerial Photography from 2015

0 60 120 m
Survey Unit 6eB3-1
Local Name The Town, Bryher

<table>
<thead>
<tr>
<th>Survey Type</th>
<th>Dates Surveyed</th>
<th>Observations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Autumn-Autumn</td>
<td>05/08/2015 - 21/09/2016</td>
<td>Over the short term, profile 6e01739, to the north of the survey unit, has lost just over 10m² of material, mostly from the upper and middle sections of the beach. Very little change has taken place along profile 6e01745A.</td>
</tr>
<tr>
<td>Baseline-Autumn</td>
<td>26/09/2007 - 21/09/2016</td>
<td>Longer term, ~26m² of sediment have been lost along profile 6e01739, particularly from the dune front and lower beach, resulting in a 5% decrease in cross-sectional area. To the south of the survey unit, profile 6e01745A has experienced no change in cross-sectional area, with sediment being redistributed from the lower beach onto the upper beach.</td>
</tr>
</tbody>
</table>

Profile Cross-Sectional Area

<table>
<thead>
<tr>
<th>Profile</th>
<th>Autumn to Autumn 2015-08 to 2016-09</th>
<th>Baseline to Autumn 2007-09 to 2016-09</th>
<th>Master Profile Level (m)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>CSA Diff (m²)</td>
<td>% Change</td>
<td>CSA Diff (m²)</td>
</tr>
<tr>
<td>6e01739</td>
<td>-10.4</td>
<td>-2</td>
<td>-26.2</td>
</tr>
<tr>
<td>6e01745A</td>
<td>3.1</td>
<td>1</td>
<td>-1.8</td>
</tr>
</tbody>
</table>
Actual Change in Cross-sectional Area (Autumn 2015 to Autumn 2016)

- No Change
- Erosion
- Accretion

Survey Unit Boundary

Aerial Photography from 2015
Actual Change in Cross-sectional Area
(Baseline 2007 to Autumn 2016)

Survey Unit Boundary

Accretion

No Change

Erosion

Plymouth Coastal Observatory

Aerial Photography from 2015

CISCAG - Isles of Scilly

6eB3-1 The Town, Bryher - Beach Change

South West Regional Coastal Monitoring Programme

Annual Survey Report 2016
Since August 2015, profile 6e01753 has lost just under 34m² of material, mostly from the middle and lower sections of the beach.

The longer term trend is for accretion in Green Bay, with 11m² of material being deposited along profile 6e01753, equating to a 2% increase in cross-sectional area.

Profile 6e01753 was added to the Programme in 2016 following discussion with the local authority. The 2015 survey has hence been extracted from LiDAR data. As the profile does not get to depth, the lower limit of the master profile has been placed accordingly.
Actual Change in Cross-sectional Area (Autumn 2015 to Autumn 2016)

Survey Unit Boundary

6eB3-2 Green Bay, Bryher - Beach Change

CISCAG - Isles of Scilly
Actual Change in Cross-sectional Area (Baseline 2007 to Autumn 2016)

Survey Unit Boundary

Accretion
No Change
Erosion

Aerial Photography from 2015

6eB3-2 Green Bay, Bryher - Beach Change
CISCAG - Isles of Scilly
### Survey Unit

<table>
<thead>
<tr>
<th>Survey Unit</th>
<th>6eB4</th>
</tr>
</thead>
</table>

### Local Name

Rushy Bay, Bryher

### Survey Type

<table>
<thead>
<tr>
<th>Survey Type</th>
<th>Dates Surveyed</th>
<th>Observations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Autumn-Autumn Beach</td>
<td>04/09/2015 - 21/09/2016</td>
<td>Since last Autumn, profile 6e01770A has gained ~10m² of material, whilst profile 6e01774 has experienced loss of sediment, mostly from the upper and middle section of the beach, resulting in a 5% decrease in cross-sectional area.</td>
</tr>
<tr>
<td>Baseline-Autumn Beach</td>
<td>26/09/2007 - 21/09/2016</td>
<td>Over the longer term, a net trend for accretion to the east of the bay and erosion to the west is present. Profile 6e01770A has gained just under 70m² of material, whilst dune face retreat has taken place along profile 6e01774, resulting in a 23% decrease in cross-sectional area.</td>
</tr>
</tbody>
</table>

### Comments

#### Profile Cross-Sectional Area

<table>
<thead>
<tr>
<th>Profile</th>
<th>Spring to Spring</th>
<th>Baseline to Spring</th>
<th>Master Profile Level (m)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2015-09 to 2016-09</td>
<td>2007-09 to 2016-09</td>
<td></td>
</tr>
<tr>
<td></td>
<td>CSA Diff (m²)</td>
<td>% Change</td>
<td>CSA Diff (m²)</td>
</tr>
<tr>
<td>6e01770A</td>
<td>10.4</td>
<td>3</td>
<td>66.9</td>
</tr>
<tr>
<td>6e01774</td>
<td>-12.8</td>
<td>-5</td>
<td>-71.1</td>
</tr>
</tbody>
</table>
Actual Change in Cross-sectional Area (Autumn 2015 to Autumn 2016)

Survey Unit Boundary

6eB4 Rushy Bay, Bryher - Beach Change

CISCAG - Isles of Scilly
Actual Change in Cross-sectional Area (Baseline 2007 to Autumn 2016)

Survey Unit Boundary

Accretion: > 30 m², 15 - 30 m², 5 - 15 m²
No Change: 5 - 15 m²
Erosion: < 5 m²

6eB4 Rushy Bay, Bryher - Beach Change
CISCAG - Isles of Scilly
## Survey Unit

**Survey Unit:** 6eA4-2

**Local Name:** The Bar, St Agnes

### Survey Type

<table>
<thead>
<tr>
<th>Survey Type</th>
<th>Dates Surveyed</th>
<th>Observations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Autumn-Autumn</td>
<td>Beach Change</td>
<td>Since Autumn 2015, sediment has been lost from the mid-lower beach on either side of the Bar, while accretion is observed on the very lower beach to the southern side of the profile. The crest has experienced migration towards the northern side. Overall, the profile has lost 2.2m² of material, equating to a 1% decrease in cross-sectional area.</td>
</tr>
<tr>
<td>Baseline-Autumn</td>
<td>Beach Change</td>
<td>Over the longer term, 14.4m² of material have been lost from the profile. Erosion has occurred on the lower beach on either side of the Bar, while sediment build-up has taken place on the upper beach, mostly to the southern side of the profile. This has resulted in the crest becoming flatter and wider since 2007.</td>
</tr>
</tbody>
</table>

### Profile Cross-Sectional Area

<table>
<thead>
<tr>
<th>Profile</th>
<th>Autumn to Autumn</th>
<th>Baseline to Autumn</th>
<th>Master Profile Level (m)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2015-09 to 2016-09</td>
<td>2007-09 to 2016-09</td>
<td></td>
</tr>
<tr>
<td>CSA Diff (m²)</td>
<td>% Change</td>
<td>CSA Diff (m²)</td>
<td>% Change</td>
</tr>
<tr>
<td>6e02217A</td>
<td>-2.2</td>
<td>-1</td>
<td>-14.4</td>
</tr>
</tbody>
</table>
Actual Change in Cross-sectional Area (Baseline 2007 to Autumn 2016)

Accretion

No Change

Erosion

< 5 m

5 - 15 m

15 - 30 m

> 30 m

Aerial Photography from 2015
Since last Autumn, very little change has been observed within the survey unit, with the exception of profile 6e02289 that has experienced accretion on the upper beach, resulting in a 2% increase in cross-sectional area. Low level accretion has also been observed along profile 6e02291.

Since 2007, the majority of profiles have experienced low level erosion, with sediment losses from the upper and lower beach and accretion on the middle beach along profiles 6e02289 and 6e02290. No change is observed along profile 6e02291.

### Profile Cross-Sectional Area

<table>
<thead>
<tr>
<th>Profile</th>
<th>Autumn to Autumn</th>
<th>Baseline to Autumn</th>
<th>Master Profile Level (m)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2015-09 to 2016-09</td>
<td>2007-09 to 2016-09</td>
<td></td>
</tr>
<tr>
<td>6e02289</td>
<td>6.0</td>
<td>-4.4</td>
<td>-2.21</td>
</tr>
<tr>
<td>6e02290</td>
<td>0.9</td>
<td>-2.1</td>
<td>-2.21</td>
</tr>
<tr>
<td>6e02291</td>
<td>4.3</td>
<td>0.6</td>
<td>-2.21</td>
</tr>
<tr>
<td>6e02292</td>
<td>-0.8</td>
<td>-2.8</td>
<td>-2.21</td>
</tr>
</tbody>
</table>
South West Regional Coastal Monitoring Programme

Annual Survey Report 2016

6eA8-1 Periglis, St Agnes - Beach Change

Aerial Photography from 2015

Actual Change in Cross-sectional Area (Baseline 2007 to Autumn 2016)

Survey Unit Boundary

Accretion
No Change
Erosion

6e02292 (-1%)
6e02291 (0%)
6e02290 (-1%)
6e02289 (-1%)

CISCAG - Isles of Scilly

PLYMOUTH COASTAL OBSERVATORY

0 40 80 m
### Survey Unit

<table>
<thead>
<tr>
<th>Survey Unit</th>
<th>6eA8-2</th>
</tr>
</thead>
</table>

### Local Name

<table>
<thead>
<tr>
<th>Local Name</th>
<th>Porth Coose, St Agnes</th>
</tr>
</thead>
</table>

### Survey Type

<table>
<thead>
<tr>
<th>Survey Type</th>
<th>Dates Surveyed</th>
<th>Observations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Autumn-Autumn</td>
<td>04/09/2015 - 21/09/2016</td>
<td>Over the short term, profile 6e02297 has lost 5.4m² of material, equating to a 2% decrease in cross-sectional area. Conversely, profile 6e02296 has accreted by 2%, with sediment deposition mainly on the mid-upper beach. To the south of the survey unit, profile 6e02295 has experienced minor sediment losses only.</td>
</tr>
<tr>
<td>Baseline-Autumn</td>
<td>26/09/2007 - 21/09/2016</td>
<td>The longer term trend shows very similar results to those of the year on year analysis. No change is observed along profile 6e02295, while profile 6e02296 has seen an increase in cross-sectional area by 2%. Very low level erosion is observed along profile 6e02297.</td>
</tr>
</tbody>
</table>

### Profile Cross-Sectional Area

<table>
<thead>
<tr>
<th>Profile</th>
<th>Autumn to Autumn</th>
<th>Baseline to Autumn</th>
<th>Master Profile Level (m)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2015-09 to 2016-09</td>
<td>2007-09 to 2016-09</td>
<td></td>
</tr>
<tr>
<td></td>
<td>CSA Diff (m²)</td>
<td>% Change</td>
<td>CSA Diff (m²)</td>
</tr>
<tr>
<td>6e02295</td>
<td>-0.8</td>
<td>0</td>
<td>0.1</td>
</tr>
<tr>
<td>6e02296</td>
<td>5.9</td>
<td>2</td>
<td>5.4</td>
</tr>
<tr>
<td>6e02297</td>
<td>-5.4</td>
<td>-2</td>
<td>-2.5</td>
</tr>
</tbody>
</table>
Actual Change in Cross-sectional Area (Autumn 2015 to Autumn 2016)

Survey Unit Boundary

Accretion

Erosion

No Change

> 30 m²

15 - 30 m²

5 - 15 m²

< 5 m²

Aerial Photography from 2015

6eA8-2 Porth Coose, St Agnes - Beach Change

CISCAG - Isles of Scilly

South West Regional Coastal Monitoring Programme

Annual Survey Report 2016
Actual Change in Cross-sectional Area (Baseline 2007 to Autumn 2016)

Survey Unit Boundary

Accretion  No Change  Erosion

> 30 m 2  15 - 30 m 2  < 5 m 2  5 - 15 m 2  15 - 30 m 2  > 30 m 2

6e02297 (1%)
6e02296 (2%)
6e02295 (0%)

6eA8-2 Porth Coose, St Agnes - Beach Change

CISCAG - Isles of Scilly
### Survey Unit

<table>
<thead>
<tr>
<th>Survey Type</th>
<th>Dates Surveyed</th>
<th>Observations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Autumn-Autumn</td>
<td>Beach Change</td>
<td>Since August 2015, profile 6e02203 has lost 4.3m$^2$ of material from the lower beach, equating to a 4% decrease in cross-sectional area. Little change has occurred along profile 6e02205.</td>
</tr>
<tr>
<td>Baseline-Autumn</td>
<td>Beach Change</td>
<td>The longer term trend is for stability to the west of the survey unit and for accretion to the east, with profile 6e02205 gaining just under 9m$^2$ of material, equating to a 7% increase in cross-sectional area.</td>
</tr>
<tr>
<td>Comments</td>
<td></td>
<td>Profiles 6e02203 and 6e02205 were added to the Programme in 2016, following discussion with the local authority. The 2015 survey has hence been extracted from LiDAR data. As the profiles do not get to depth, the lower limit of the master profile has been placed accordingly.</td>
</tr>
</tbody>
</table>

### Profile Cross-Sectional Area

<table>
<thead>
<tr>
<th>Profile</th>
<th>Autumn to Autumn</th>
<th>Baseline to Autumn</th>
<th>Master Profile Level (m)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2015-08 to 2016-09</td>
<td>2007-09 to 2016-09</td>
<td></td>
</tr>
<tr>
<td>CSA Diff (m$^2$)</td>
<td>% Change</td>
<td>CSA Diff (m$^2$)</td>
<td>% Change</td>
</tr>
<tr>
<td>----------</td>
<td>--------</td>
<td>----------------</td>
<td>--------</td>
</tr>
<tr>
<td>6e02203</td>
<td>-4.3</td>
<td>-1.4</td>
<td>-0.10</td>
</tr>
<tr>
<td>6e02205</td>
<td>2.3</td>
<td>8.8</td>
<td>-0.18</td>
</tr>
</tbody>
</table>
The 2015 survey was derived from LiDAR data.

**Actual Change in Cross-sectional Area**
(Autumn 2015 to Autumn 2016)

- **Accretion**
  - > 30 m²
  - 15 - 30 m²
  - 5 - 15 m²
- **No Change**
- **Erosion**
  - < 5 m²
  - 5 - 15 m²
  - 15 - 30 m²
  - > 30 m²

---

6eA8-4 Porth Killier, St Agnes - Beach Change

CISCAG - Isles of Scilly
Actual Change in Cross-sectional Area
(Baseline 2007 to Autumn 2016)

Accretion
No Change
Erosion

Aerial Photography from 2015

6e02206 (4%)
Cross Sectional Area above MP Trend for Location: 6e02080 and Reference Profile Set

Area Above MP Trend: Accreting at 3.253 m²/Year
Cross Sectional Area above MP Trend for Location: 6e02086 and Reference Profile Set

Area Above MP Trend: Eroding at -0.552 m²/Year
Cross Sectional Area above MP Trend for Location: 6e02098 and Reference Profile Set

Area Above MP Trend: Eroding at -0.252 m²/Year
Cross Sectional Area above MP Trend for Location: 6e02101 and Reference Profile Set

Area Above MP Trend: Eroding at -2.769 m²/Year
Survey Unit 6eM5
Cross-Sectional Area Charts

Cross Sectional Area above MP Trend for Location: 6e01854 and Reference Profile Set

Area Above MP Trend: Eroding at -1.453 m^2/Year

Survey Date
04/12/2007 03/12/2008 03/12/2009 03/12/2010 03/12/2011 03/12/2012 03/12/2013 03/12/2014 03/12/2015

Area (m^2)
0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150 160 170 180 190 200 210 220 230 240 250 260 270 280 290 300 310 320 330 340 350 360 370 380 390 400 410 420 430 440 450 460 470 480 490 500 510 520 530 540 550 560 570 580 590 600 610 620 630

SANDS
Cross-sectional Area above MP Trend for Location: 6e01856 and Reference Profile Set

Area Above MP Trend: Accreting at 3.248 m²/Year
Cross Sectional Area above MP Trend for Location: 6e01858 and Reference Profile Set

Area Above MP Trend: Accreting at 3.450 m²/Year
Cross Sectional Area above MP Trend for Location: 6e01859A and Reference Profile Set

Area Above MP Trend: Accreting at 4.411 m²/Year
Cross Sectional Area above MP Trend for Location: 6e01932 and Reference Profile Set

Area Above MP Trend: Accreting at 3.357 m²/Year
Cross-Sectional Area above MP Trend for Location: 6e01933 and Reference Profile Set

Area Above MP Trend: Accreting at 3.258 m²/Year
Cross Sectional Area above MP Trend for Location: 6e01968A and Reference Profile Set

Area Above MP Trend: Eroding at -0.532 m²/Year

Survey Date

04/12/2007 03/12/2008 03/12/2009 03/12/2010 03/12/2011 02/12/2012 02/12/2013 02/12/2014 02/12/2015

Area (m²)
Cross Sectional Area above MP Trend for Location: 6e01972 and Reference Profile Set

Area Above MP Trend: Accreting at 0.291 m²/Year
Cross Sectional Area above MP Trend for Location: 6e02027 and Reference Profile Set

Area Above MP Trend: Accreting at 1.108 m²/Year
Cross Sectional Area above MP Trend for Location: 6e01656 and Reference Profile Set

Area Above MP Trend: Accreting at 1.028 m²/Year
Cross Sectional Area above MP Trend for Location: 6e01650 and Reference Profile Set

Area Above MP Trend: Accreting at 1.982 m²/Year

Survey Date

04/12/2007  03/12/2008  03/12/2009  03/12/2010  03/12/2011  02/12/2012  02/12/2013  02/12/2014  02/12/2015

Area (m²)
Cross Sectional Area above MP Trend for Location: 6e01558 and Reference Profile Set

Area Above MP Trend: Accreting at 3.771 m²/Year
Cross Sectional Area above MP Trend for Location: 6e01569A and Reference Profile Set

Area Above MP Trend: Eroding at -1.291 m²/Year
Cross Sectional Area above MP Trend for Location: 6e01575A and Reference Profile Set

Area Above MP Trend: Eroding at -0.681 m²/Year
Cross Sectional Area above MP Trend for Location: 6e01607 and Reference Profile Set

Area Above MP Trend: Accreting at 0.034 m²/Year
Cross Sectional Area above MP Trend for Location: 6e01609 and Reference Profile Set

Area Above MP Trend: Accreting at 0.664 m²/Year
Cross Sectional Area above MP Trend for Location: 6e01611 and Reference Profile Set

Area Above MP Trend: Eroding at -5.642 m²/Yr
Cross Sectional Area above MP Trend for Location: 6e01616 and Reference Profile Set

Area Above MP Trend: Accreting at 3.075 m²/Year
Cross Sectional Area above MP Trend for Location: 6e01618 and Reference Profile Set

Area Above MP Trend: Eroding at -2.677 m²/Year
Cross Sectional Area above MP Trend for Location: 6e01588 and Reference Profile Set

Area Above MP Trend: Eroding at -2.961 m²/Year
Cross Sectional Area above MP Trend for Location: 6e01593 and Reference Profile Set

Area Above MP Trend: Accreting at 2.102 m²/Year
Cross Sectional Area above MP Trend for Location: 6e01630 and Reference Profile Set

Area Above MP Trend: Accreting at 3.435 m²/Year
Cross Sectional Area above MP Trend for Location: 6e01504A and Reference Profile Set

Area Above MP Trend: Accreting at 1.080 m²/Year
Cross Sectional Area above MP Trend for Location: 6e01455 and Reference Profile Set

Area Above MP Trend: Eroding at -0.304 m²/Year
Cross Sectional Area above MP Trend for Location: 6e01446 and Reference Profile Set

Area Above MP Trend: Accreting at 3.372 m²/Year

Survey Date

04/12/2007 03/12/2008 03/12/2009 03/12/2010 03/12/2011 02/12/2012 02/12/2013 02/12/2014 02/12/2015

Area (m²)

10 20 30 40 50 60 70 80 90 100 110 120 130 140 150 160 170 180 190 200 210 220 230 240 250 260 270 280 290 300 310
Cross Sectional Area above MP Trend for Location: 6e01479 and Reference Profile Set

Area Above MP Trend: Accreting at 2.567 m²/Year

Survey Date

04/12/2007 03/12/2008 03/12/2009 03/12/2010 03/12/2011 02/12/2012 02/12/2013 02/12/2014 02/12/2015

Area (m²)
Cross Sectional Area above MP Trend for Location: 6e01489 and Reference Profile Set

Area Above MP Trend: Accreting at 2.758 m²/Year
Cross Sectional Area above MP Trend for Location: 6e01498 and Reference Profile Set

Area Above MP Trend: Accreting at 3.010 m²/Year

Survey Date

04/12/2007 03/12/2008 03/12/2009 03/12/2010 03/12/2011 02/12/2012 02/12/2013 02/12/2014 02/12/2015

Area (m²)

0 50 100 150 200 250 300 350 400 450 500 550 600 650 700 750 800 850 900 950 1000
Cross Sectional Area above MP Trend for Location: 6e01770A and Reference Profile Set

Area Above MP Trend: Accreting at 3.557 m²/Year
Cross Sectional Area above MP Trend for Location: 6e01774 and Reference Profile Set

Area Above MP Trend: Eroding at -0.785 m²/Year
Cross Sectional Area above MP Trend for Location: 6e01817A and Reference Profile Set

Area Above MP Trend: Eroding at -0.401 m²/Year
Cross Sectional Area above MP Trend for Location: 6e01823 and Reference Profile Set

Area Above MP Trend: Accreting at 3.929 m²/Year
Cross Sectional Area above MP Trend for Location: 6e01739 and Reference Profile Set

Area Above MP Trend: Eroding at -5.693 m²/Year
Cross Sectional Area above MP Trend for Location: 6e01753 and Reference Profile Set

Area Above MP Trend: Accreting at 2.878 m²/Year
Cross Sectional Area above MP Trend for Location: 6e02217A and Reference Profile Set

Area Above MP Trend: Eroding at -0.280 m²/Year
Cross Sectional Area above MP Trend for Location: 6e02291 and Reference Profile Set

Area Above MP Trend: Erodng at -0.088 m2/Year
Cross Sectional Area above MP Trend for Location: 6e02296 and Reference Profile Set

Area Above MP Trend: Accreting at 0.494 m²/Year

Survey Date

04/12/2007  03/12/2008  03/12/2009  03/12/2010  02/12/2011  02/12/2012  02/12/2013  02/12/2014  02/12/2015

Area (m²)
Cross Sectional Area above MP Trend for Location: 6e02297 and Reference Profile Set

Area Above MP Trend: Eroding at -0.446 m²/Year