Cover Photograph: Plymouth Sound, December 2009
Taken by N. Sykes, Plymouth Coastal Observatory.
Southwest Strategic Regional Coastal Monitoring Programme

Annual Report 2011 – Sand Point to Aust

1. Introduction

Analysis presented in this report provides an overview of beach changes and wave and tidal measurements since the extension of the Southwest Strategic Regional Coastal Monitoring Programme. The first beach surveys took place during the spring of 2009 and changes are reported until spring 2011. 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 2010 to 2011
- Process cell summary of percentage and actual profile change from 2009 to 2011
- Detailed beach profile change from 2010 to 2011
- Detailed beach profile change from 2009 to 2011
- Change in position of Mean High Water
- Surface 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 most recent LiDAR data has been used to extract the level of Mean High Water (MHW) for each management unit and sediment distribution maps are produced from the latest 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 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 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.

Beach recycling maps have been produced from information provided by the Local Authority for all applicable sites.

It must be emphasised that this is only the second 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
There are no Regional Monitoring Programme wave buoys between Sand Point and Aust.

b. Tides and Met Stations
A WaveRadar Rex was installed on the Second Severn Crossing in April 2011

A tide report will be included in 2012 when sufficient data has been recorded.

3. Survey data – topographic

Over the past year the majority of the beaches surveyed have remained relatively stable showing a percentage change of less than 5% along most of their profiles.

A similar trend is seen since the baseline analysis. Most profiles have remained relatively constant, with the greatest changes taking place in management unit 7eMU15-2.

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 survey of North Devon and Somerset was undertaken in May and June 2009. No further analysis will be carried out until after the next baseline survey.

<table>
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<th>Annex</th>
<th>Description</th>
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<td>E</td>
<td>High Level Report – field data collection (SECG)</td>
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<tr>
<td>F</td>
<td>Topographic Survey Report for Sand Point to Aust</td>
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<tr>
<td>G</td>
<td>N/A</td>
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Explanatory Notes
## South West Regional Coastal Monitoring Programme

### Field Data Collection - SECG

#### Topographic Data

<table>
<thead>
<tr>
<th>Sub-cells</th>
<th>Mgt Unit</th>
<th>Baseline</th>
<th>Profile 1</th>
<th>Profile 2</th>
<th>Profile 3</th>
<th>Profile 4</th>
<th>Post-storm</th>
<th>Bathym</th>
<th>Key</th>
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<td>Target</td>
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<td>Completion</td>
<td>Target</td>
<td>Completion</td>
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</tr>
</tbody>
</table>

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

**Profile Codes**
- Profile 1: Bathy
- Profile 2: Profile 2 Bathy
- Profile 3: Profile 1 Profile 4 Mgt Unit Baseline
- Profile 4: Subcell
Annex F – Topographic Survey Report for Sand Point to Aust

1. Introduction

Profile Data

Analysis has been conducted for those sites where a minimum of four surveys have been recorded. In general, changes are measured relative to the Mean Low Water Springs (MLWS) level. In the case of surveys conducted in the Severn Estuary, none reach MLWS due to muddy conditions and therefore MLWS has been substituted by Mean Low Water Neaps (MLWN) or Mean Low Water (MLW) as appropriate. In cases where none of these levels can be reached the master profile is placed at the lowest level achieved by all profiles in the management unit.

Master profile levels for each management unit are given in Table 1.

Table 1: Master Profile levels for each management unit

<table>
<thead>
<tr>
<th>Management Unit</th>
<th>Survey Level (mOD)</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>7eMU17-5</td>
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<td></td>
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<tr>
<td>Clevedon</td>
<td>2.03</td>
<td>Lowest level reached by profiles 7e00477 to 7e00488</td>
</tr>
<tr>
<td></td>
<td>-1.40</td>
<td>Lowest level reached by remaining profiles</td>
</tr>
<tr>
<td>7eMU17-2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Portishead</td>
<td>4.10</td>
<td>Lowest level reached by all profiles</td>
</tr>
<tr>
<td>7eMU15-4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Portbury</td>
<td>4.23</td>
<td>Lowest level reached by profiles 7e00695 to 7e00740</td>
</tr>
<tr>
<td></td>
<td>3.02</td>
<td>Lowest level reached by remaining profiles</td>
</tr>
<tr>
<td>7eMU15-2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Avonmouth</td>
<td>3.80</td>
<td>Lowest level reached by profiles 7e00833 to 7e00849</td>
</tr>
<tr>
<td></td>
<td>5.04</td>
<td>Lowest level reached by remaining profiles</td>
</tr>
<tr>
<td>7eMU15-1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Severn Beach</td>
<td>5.18</td>
<td>Lowest level reached by all profiles</td>
</tr>
<tr>
<td>7eMU7-4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Aust</td>
<td>3.40</td>
<td>Lowest level reached by profile 7e01022</td>
</tr>
<tr>
<td></td>
<td>1.55</td>
<td>Lowest level reached by profile 7e01025</td>
</tr>
</tbody>
</table>

A full time series of plotted beach profiles are shown superimposed and relative to a Master Profile for each profile location (on the CD accompanying printed copies). 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 management 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

Figure 2: Example of Beach Profile Trend Analysis
1. Beach Cross-Sectional Area (CSA)
2. Replenishment Activities
3. Mathematically Derived Trend line
Baseline Data

As part of the monitoring programme specification, each management unit receives a full topographic baseline survey once every 5 years. In addition, BMP sites 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. Where possible the feature code data has been used to provide a sediment distribution map for each management unit.

2. Condition of process sub-cell

The Beach Change Summary maps contain an at-a-glance condition of the whole area between Sand Point and Aust, with the lines representing the average accretion, no change or erosion for each management unit where there is topographic data.

3. Condition of individual management units

Changes within each management unit are summarised on six maps: Beach change map (Spring to Spring), beach change map (Baseline to Spring), Mean High Water line maps, surface sediment distribution maps, bathymetric difference model maps or DTMs and ecological mapping 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 spring 2010 to spring 2011 and from baseline 2009 to spring 2011.

7eMU17-5: Wains Hill to Ladye Point

Spring 2010 to Spring 2011
The profiles here show the management unit to be stable, with none of the lines showing a change greater than 5% over the year, although the overall trend is for minor accretion.

Baseline 2009 to Spring 2011
Over the two year period the trend is again for accretion, in particular towards the north of the management unit. Profile 7e00488 shows the greatest change having gained between 5 and 15m$^2$ of material.

7eMU17-2: Woodhill Bay

Spring 2010 to Spring 2011
The management unit has remained stable over the past year, with none of the profiles showing a change of more than 1%.

Baseline 2009 to Spring 2011
There has been no notable change in the management unit since monitoring began.
7eMU15-4: Old Pier, Portishead to Portbury Pier

**Spring 2010 to Spring 2011**
There has been very little change in the cross sectional area of the profiles over the past year, although profiles 7e00695, 7e00740 and 7e00744 show some low level erosion.

**Baseline 2009 to Spring 2011**
Over the two year period the management unit has remained stable. As with the spring to spring analysis, profiles on the fringes of the management unit show erosion. Profiles in the centre of the management unit show low level accretion.

7eMU15-2: Mitchell’s Pill to Severnside Works

**Spring 2010 to Spring 2011**
Very little change has taken place along the profiles in the past year.

**Baseline 2009 to Spring 2011**
Since the baseline survey in 2009 two of the profiles, profile 7e000839 and 7e00845, have lost between 5 and 15m$^2$ of material, representing a change in cross sectional area of -1%. Conversely profile 7e00860 has gained material and shows accretion of 2%. The remaining profiles show no change.

7eMU15-1: Severnside Works to Sugarhole Sand

**Spring 2010 to Spring 2011**
All profiles have remained stable, although the trend over the past year has been for accretion.

**Baseline 2009 to Spring 2011**
Overall similar trends can be observed over the two year period, although with slightly increased erosion along profile 7e00902.

7eMU7-4: Old Passage to Aust Rock

**Spring 2010 to Spring 2011**
Both profiles in the management unit have remained stable over the past year; although profile 7e01022 shows erosion of -2% and profile 7e01025 shows accretion of 1%.

**Baseline 2009 to Spring 2011**
As with the spring to spring analysis both profiles have remained stable, however profile 7e01025 now shows a change of 0%.
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.

\[
\frac{CSA_1 - CSA_2}{CSA_2} \times 100 \quad \text{eqn}(1)
\]

Where \( CSA_1 \) = most recent springtime 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 Calculation

The value derived from this calculation represents the volume change in \( m^3 \) across each individual management 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, then and a volume above the MLWS plane is calculated for each DTM. The net sediment change is calculated as

\[
Vol_1 - Vol_2 \quad \text{eqn}(2)
\]

Where \( Vol_1 \) = most recent DTM model volume and \( Vol_2 \) = earlier DTM model volume. Therefore a net change of \(-19730 m^3\) represents erosion since the earlier survey.
Annual % Change in Cross-sectional Area (Spring 2010 to Spring 2011)

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

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

- **No Change**
  - Less than 5 m²

**7d01323 (3)**

Actual Annual Change in Cross-sectional Area (m²)

**% Change in Cross-Sectional Area**

- **7eMU17-1**
- **7eMU17-2**
- **7eMU17-4**
- **7eMU15-1**
- **7eMU15-2**
- **7eMU15-4**
- **7eMU15-5**
Annual % Change in Cross-sectional Area (Baseline 2009 to Spring 2011)

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

- **Erosion**
  - 7d01323 (3)
  - 7eMU15-2
  - 7eMU15-1
  - 7eMU7-4

- **No Change**
  - 7eMU7-4
  - 7eMU15-2
  - 7eMU17-2

- **Actual Annual Change in Cross-sectional Area (m²)**

% Change in Cross-Sectional Area

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SECG - Severn Estuary
Actual Change in Cross-sectional Area (Baseline 2009 to Spring 2011)

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

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

**Actual Annual Change in Cross-sectional Area (m²)**

- **No Change**

**Boundary**

- 7d01323 (3)

Actual Change in Cross-Sectional Area
Actual Change in Cross-sectional Area (Spring 2010 to Spring 2011)

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

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

**No Change**

- 7e00473 (13%)
- 7e00477 (13%)
- 7e00487 (1%)
- 7e00488 (52%)
- 7e00491 (0%)

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

- 7d01323 (3%)

Aerial Photography from 2009

Southwest Strategic Regional Coastal Monitoring Programme

Annual Report 2011

SECG - Severn Estuary
Actual Change in Cross-sectional Area (Baseline 2009 to Spring 2011)

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

**No Change**

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

Aerial Photography from 2009
Contours

MHW Elevation: 4.70D
MLW Elevation: -4.00D

- MHW 2009 - 02
- MHW 2007 - 09
- MLW 2009 - 02
Survey Completed 8th July 2009

Sediment Type
- Gravel
- Gravel & Sand
- Sand
- Boulder
- Dune
- Dune Vegetated
- Grass
- Gravel & Mud
- Mud
- Mud & Sand
- Rock
- Saltmarsh
- Sea Defence
- Shell
- Water Body
- Mixture
- Obstruction
Actual Change in Cross-sectional Area (Spring 2010 to Spring 2011)

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

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

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

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

- 7d01323 (3 %)
- 7e00668 (1 %)
- 7e00666 (0 %)
- 7e00659 (0 %)
- 7e00654 (1 %)
**Southwest Strategic Regional Coastal Monitoring Programme**

**Annual Report 2011**

---

**Actual Change in Cross-sectional Area (Baseline 2009 to Spring 2011)**

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

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

- **No Change**

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**Aerial Photography from 2009**

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**7eMU17-2: Woodhill Bay - Beach Change**

**7d01323**

(3 %)

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

---

**SECG - Severn Estuary**
Aerial Photography from 2009
Survey Completed 6th July 2009

Sediment Type

- Gravel
- Gravel & Sand
- Sand
- Boulder
- Dune
- Dune Vegetated
- Grass
- Gravel & Mud
- Mud
- Mud & Sand
- Rock
- Saltmarsh
- Sea Defence
- Shell
- Water Body
- Mixture
- Obstruction
Aerial Photography from 2009
Survey Completed 2nd June 2009

Not to Be Used for Navigational Purposes
Actual Change in Cross-sectional Area (Spring 2010 to Spring 2011)

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

Annual Change in Cross-sectional Area (%)
7eMU15-4: Old Pier, Portishead to Portbury Pier - MHW and MLW Contours

SECG - Severn Estuary

Contours

MHW Elevation: 5.00OD
MLW Elevation: -4.10OD

- MHW 2009 - 02
- MHW 2007 - 04
- MLW 2009 - 02

Aerial Photography from 2009

0 100 200 m
Aerial Photography from 2009
Survey Completed 5th June 2009

Elevation
Metres OD

-1 - 0
-2 - -1
-3 - -2
-4 - -3
-5 - -4
-6 - -5
-8 - -6
-10 - -8
-12 - -10
-20 - -12
-40 - -20

Not to Be Used for Navigational Purposes
### Annual Change in Cross-sectional Area (Baseline 2009 to Spring 2011)

<table>
<thead>
<tr>
<th>Change Type</th>
<th>0%</th>
<th>-1%</th>
<th>-2%</th>
<th>-3%</th>
<th>-4%</th>
<th>-5%</th>
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<td>&gt; 30 m²</td>
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<td>15 - 30 m²</td>
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<tr>
<td>5 - 15 m²</td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Less than 5 m²</td>
<td></td>
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<tr>
<td>5 - 15 m²</td>
<td></td>
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<td></td>
<td></td>
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</tr>
<tr>
<td>15 - 30 m²</td>
<td></td>
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<td></td>
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<tr>
<td>&gt; 30 m²</td>
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</tbody>
</table>

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

**Aerial Photography from 2009**

- **MU Boundary**

**Annual Change in Cross-sectional Area (%)**
- 7e00870 (0%)
- 7e00860 (2%)
- 7e00854 (0%)
- 7e00849 (0%)
- 7e00845 (-1%)
- 7e00839 (-1%)
- 7e00833 (0%)
**Contours**

- MHW Elevation: 5.00OD
- MLW Elevation: -4.10OD

**Unit View**

- Complete Management Unit View

**MHW 2007 - 04**

**MLW 2009 - 06**

**Aerial Photography from 2009**
Aerial Photography from 2009
Survey Completed 24th July 2009

Sediment Type
- Gravel
- Gravel & Sand
- Sand
- Boulder
- Dune
- Dune Vegetated
- Grass
- Gravel & Mud
- Mud
- Mud & Sand
- Rock
- Saltmarsh
- Sea Defence
- Shell
- Water Body
- Mixture
- Obstruction
Ecological Mapping
See Separate Map for Legend
**Southwest Strategic Regional Coastal Monitoring Programme**

**Annual Report 2011**

**7eMU15-1: Severnside Works to Sugarhole Sand - Beach Change**

**SECG - Severn Estuary**

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**Actual Change in Cross-sectional Area (Spring 2010 to Spring 2011)**

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

**MU boundary**

- 7d01323 (3 %)

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

Aerial Photography from 2009

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**Southwest Strategic Regional Coastal Monitoring Programme**

**Annual Report 2011**

**7eMU15-1: Severnside Works to Sugarhole Sand - Beach Change**

**SECG - Severn Estuary**

---

**Actual Change in Cross-sectional Area (Spring 2010 to Spring 2011)**

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

**MU boundary**

- 7d01323 (3 %)

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

Aerial Photography from 2009
Southwest Strategic Regional Coastal Monitoring Programme

Annual Report 2011

Actual Change in Cross-sectional Area (Baseline 2009 to Spring 2011)

- 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 2009

MU boundary

7d01323 (3 %)

Annual Change in Cross-sectional Area (%)
7eMU15-1: Severnside Works to Sugarhole Sand - MHW and MLW Contours

Contours

MHW Elevation: 5.00OD
MLW Elevation: -4.10OD

Complete Management Unit View

Aerial Photography from 2009

MHW 2007 - 04
MLW 2007 - 04
Ecological Mapping
See Separate Map for Legend
Actual Change in Cross-sectional Area (Spring 2010 to Spring 2011)

- **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 (%)**

- **7e01025** (1%)
- **7e01022** (-2%)

**MU boundary**

- **7d01323** (3%)
Aerial Photography from 2009

Contours

MHW Elevation: 5.20OD
MLW Elevation: -4.10OD

- MHW 2009 - 02
- MHW 2007 - 04
- MLW 2009 - 02
Sediment Type

- Gravel
- Gravel & Sand
- Sand
- Boulder
- Dune
- Dune Vegetated
- Grass
- Gravel & Mud
- Mud
- Mud & Sand
- Rock
- Saltmarsh
- Sea Defence
- Shell
- Water Body
- Mixture
- Obstruction

Aerial Photography from 2009
Survey Completed 9th July 2009
### Ecological Mapping Legend

#### South West Strategic Regional Coastal Monitoring Programme

**HEDGEROW LINEAR FEATURES**
- GN31 Rank neutral grassland
- GN13 Lowland water meadows
- GN1 Lowland meadows
- GC1Z Other lowland calcareous grassland
- GC12 Semi-natural dry grasslands and scrubland facies on calcareous substrates
- GC11 4 Oligotrophic calcareous grassland
- GC11 Semi-natural dry grasslands and scrubland facies on calcareous substrates
- GI0 GM4 Improved grassland [unmanaged]
- GI0 WM51 Currently managed woodland and parkland
- GI0 WM5 Woodland and parkland
- LF11 Hedgerows
- CR32 CL1 Wetly beds
- FT16 Traditional cobnut orchard [non-priority grassland]
- FT11 Traditional pear orchard [non-priority grassland]
- GC1 CL3 Traditional orchard [calcareous grassland]
- CR4 CL1 Freshly ploughed
- CR2 CL1 Cereal crops
- GI0 GL1 2 Urban parks and playing fields
- UR0 UA33 Alcations
- WB3 UA32 Broadleaved woodland [gardens]
- WB3 LT3 Railway verge [scrub woodland]
- GNZ LT3 Railway verge [neutral grassland]
- LF2 72 LTZ Road verge [built]
- LF2 71 UL24 “C” class and other roads
- GN3, LT5, UA3 Z; GN3, LT2 Coarse neutral grassland
- GNZ, WG4; GNZ, GMZ Other neutral grassland
- WB36, WG0 Lowland mixed deciduous woodland
- GI0, CL 3, CL 1 Improved Grassland
- LF1, LM3, LH2, LT2; LF12, LT2 Line of trees
- AS0, AO14 Standing open water and channels
- UR0, UA1; UR0, <Null> Built-up areas and gardens
- LF2 7, UL3 Transport corridors
- LR4, I Intertidal underboulder communities
- LR43, <Null> Intertidal underboulder communities on artificial boulder formations with no algal cover
- LR44, <Null> Intertidal underboulder communities on artificial boulder formations with algal cover
- LS3, <Null> Coastal saltmarsh
- CR7, CL2 Freshly harvested/stubble
- FEN, MARSH AND SWAMP
- HEATHLAND AND BRACKEN
- GM0 Maritime grassland
- GN4Z Grazing marsh pasture, other subcommunities
- GN41 Grazing marsh pasture, Lotus/Carex divisa sub-community
- GN5 Inundation grassland
- GN4 Other coastal zones
- WB36Z Other lowland mixed deciduous woodland
- WB34 Wet woodland
- WB3311 Atlantic acidophilous beech forest
- WB32 Upland mixed ashwoods
- WB3 Broadleaved woodland
- WB21 WM0 Scrub woodland on dunes
- SS3Z Unvegetated shingle above the high water mark
- SS311 Z Other perennial shingle vegetation
- SS3112 Shingle heathland communities
- SS31 Other riparian communities
- SS3341 Rasted Aster low marsh
- SS322 Other Spartina grasslands
- SS313 Pioneer Aster saltmarsh
- SS31 Pioneer saltmarsh
- SS3 Coastal saltmarsh
- LSZ Other littoral sediments
- LS5 Sheltered muddy gravel
- LS411 Littoral mud and sand
- LS34Z Other Mediterranean saltmeadows
- LS3341 Rasted Aster low marsh
- LS322 Other Spartina grasslands
- LS313 Pioneer Aster saltmarsh
- LS31 Pioneer saltmarsh
- LS3 Coastal saltmarsh
- LS Coastal saltmarsh
- LSZ Other littoral sediments
- LS5 Sheltered muddy gravel
- LS411 Littoral mud and sand
- LS34Z Other Mediterranean saltmeadows
- LS3 Coastal saltmarsh
- LSZ Other littoral sediments
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- LS411 Littoral mud and sand
- LS34Z Other Mediterranean saltmeadows
- LS3 Coastal saltmarsh
- LSZ Other littoral sediments
- LS5 Sheltered muddy gravel
Cross Sectional Area above MF Trend for Location: 7e00477 and Reference Profile Set

Area Above MP Trend: Accreting at 0.684 m²/Year
Cross Sectional Area above MF Trend for Location: 7e00478 and Reference Profile Set

Area Above MP Trend: Accreting at 0.562 m²/Year
Cross Sectional Area above MF Trend for Location: 7e00467 and Reference Profile Set

Area Above MP Trend: Accreting at 0.356 m²/Year
Cross Sectional Area above MF Trend for Location: 7e00466 and Reference Profile Set

Area Above MP Trend: Accreting at 2.389 m²/Year
Cross Sectional Area above MF Trend for Location: 7e00491 and Reference Profile Set

Area Above MF Trend: Eroding at -0.89 m²/Year
Cross Sectional Area above MF Trend for Location: 7e00854 and Reference Profile Set

Area Above MP Trend: Accreting at 1.824 m²/Year
Cross-sectional Area above MF Trend for Location: 7e00659 and Reference Profile Set

Area Above MP Trend: Accreting at 0.619 m²/Year
Cross Sectional Area above MF Trend for Location: 7e00666 and Reference Profile Set

Area Above MP Trend: Accreting at 0.078 m²/Year
Cross Sectional Area above MF Trend for Location: 7e00668 and Reference Profile Set

Area Above MP Trend: Eroding at -0.080 m²/Year
Cross Sectional Area above MF Trend for Location: 7e00697 and Reference Profile Set

Area Above MP Trend: Eroding at -0.555 m²/Year

Survey Date:
- 24/09/2009
- 23/11/2009
- 22/01/2010
- 23/03/2010
- 21/05/2010
- 21/07/2010
- 19/09/2010
- 18/11/2010
- 17/01/2011

Graph shows the trend of area above MF with survey dates and corresponding area values.
Cross sectional area above MP trend for Location: 7e00709 and Reference Profile Set

Area above MP trend: accreting at 0.852 m²/year.
Cross Sectional Area above MF Trend for Location: 7e00720 and Reference Profile Set

Area Above MP Trend: Accreting at 0.359 m²/Year
Cross Sectional Area above MF Trend for Location: 7e00740 and Reference Profile Set

Area Above MF Trend: Eroding at -0.698 m²/Year
Cross Sectional Area above MF Trend for Location: 7e00742 and Reference Profile Set

Area Above MP Trend: Accreting at 0.313 m²/Year
Cross Sectional Area above MF Trend for Location: 7e00744 and Reference Profile Set

Area Above MP Trend: Eroding at -0.694 m²/Year
Cross Sectional Area above MF Trend for Location: 7e00833 and Reference Profile Set

Area Above MP Trend: Eroding at -1.643 m²/Year

Survey Date

Cross Sectional Area above MF Trend for Location: 7e00845 and Reference Profile Set

Area Above MF Trend: Eroding at -3.243 m²/Year
Cross Sectional Area above MF Trend for Location: 7e00849 and Reference Profile Set

Area Above MF Trend: Eroding at -1.031 m²/Year
Cross Sectional Area above MF Trend for Location: 7e00854 and Reference Profile Set

Area Above MP Trend: Accreting at 0.106 m²/Year
Cross Sectional Area above MF Trend for Location: 7e00860 and Reference Profile Set

Area Above MP Trend: Accreting at 3.502 m²/Year
Cross Sectional Area above MF Trend for Location: 7e00900 and Reference Profile Set

Area Above MP Trend: Accreting at 2.046 m²/Year

Survey Date:
- 26/07/2009
- 24/09/2009
- 23/11/2009
- 22/01/2010
- 23/03/2010
- 22/05/2010
- 21/07/2010
- 19/09/2010
- 18/11/2010
- 17/01/2011

Legend:
- Yellow: Recycling Event
- Green: Area Above MP
- Green: Area Trend
- Blue: Area Between MP & DP
Cross Sectional Area above MF Trend for Location: 7e00902 and Reference Profile Set

Area Above MF Trend: Eroding at -1.197 m²/Year
Cross Sectional Area above MF Trend for Location: 7e01022 and Reference Profile Set

Area Above MP Trend: Eroding at -0.662 m²/Year
Profile Charts for Management Unit 7eMU15-4

Beach Profiles: 7e00740

Chainage (m) vs. Elevation (m) graph showing multiple years of data.
Profile Charts for Management Unit 7eMU7-4